Telecom Regulatory Authority of India

Recommendations

on

Improving Telecom Services in the North-Eastern States: An Investment Plan

26th September, 2013

Mahanagar Doorsanchar Bhawan

Jawahar Lal Nehru Marg,

New Delhi – 110002

CONTENTS

CHAPTER-I

INTRODUCTION

1.1. The North Eastern Region (NER) of India comprises the States of Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim and Tripura. They form part of the East Himalayan region. These eight States cover an area of 2,62,189 sq. km, about 8% of the country's total geographical area. The region has a long international boundary. About 96% of the boundary of this region has China and Bhutan in the north, Myanmar in the east, Nepal in the west and Bangladesh in the south and west. Many of the States in the region like Arunachal Pradesh, Meghalaya, Mizoram and Nagaland, have large tribal populations. The region is characterized by an extremely tough terrain with poor infrastructure like rail, roads, electricity and telecom.

1.2. Connectivity is the most important key to development of a region; be it road, rail, waterway, air, power or telecom. Connectivity ensures that an otherwise distant region is part and parcel of the mainland. It helps in overall economic development and social integration of the region. Robust telecom and broadband connectivity and provision of quality telecom services is an avowed national priority. Hence, delivering such quality services and connectivity to the NER is an integral component of realising the national objective.

1.3. There is a direct correlation between increase in tele-density and growth of GDP. 'North Eastern Region Vision 2020' lays special emphasis on development of telecom facilities in the NER for improving the economic well-being of the region. Attempts have been made in the past to increase telecom connectivity and tele-density in the region. However, the results so far have not been very encouraging. Sensing the urgent need to have a

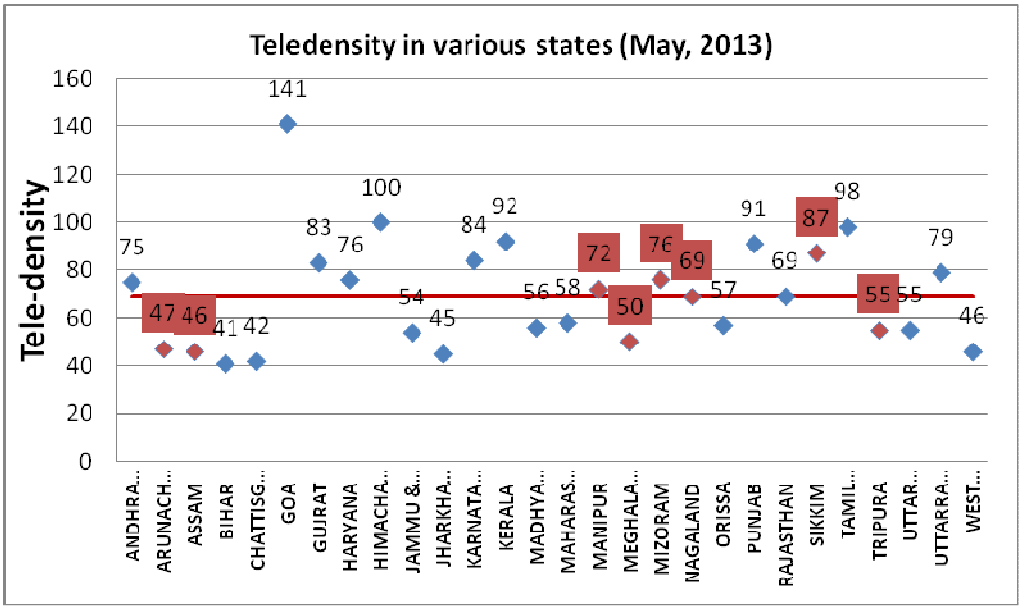
comprehensive telecom plan for the NER, the Department of Telecommunications (DoT) requested TRAI to carry out a gap analysis, estimate the investment required, and formulate a comprehensive telecom plan for the NER.

1.4. In the present licensing regime, the NER States fall in three telecom Licensed Service Areas (LSAs). The Assam LSA covers only the State of Assam. The North East LSA covers six states viz. Meghalaya, Tripura, Mizoram, Arunachal Pradesh, Nagaland and Manipur. Sikkim is in the West Bengal LSA. However, Bharat Sanchar Nigam Limited (BSNL) for its operational purposes has further divided North East LSA into North East-1 (Meghalaya, Tripura, and Mizoram) and North East-2 (Arunachal Pradesh, Nagaland and Manipur) Telecom Circles.

1.5. A comparison of tele-density figures for wireless subscribers for the month of May 2013 of various Indian States show that telecom penetration in half the States in NER is below the national average.

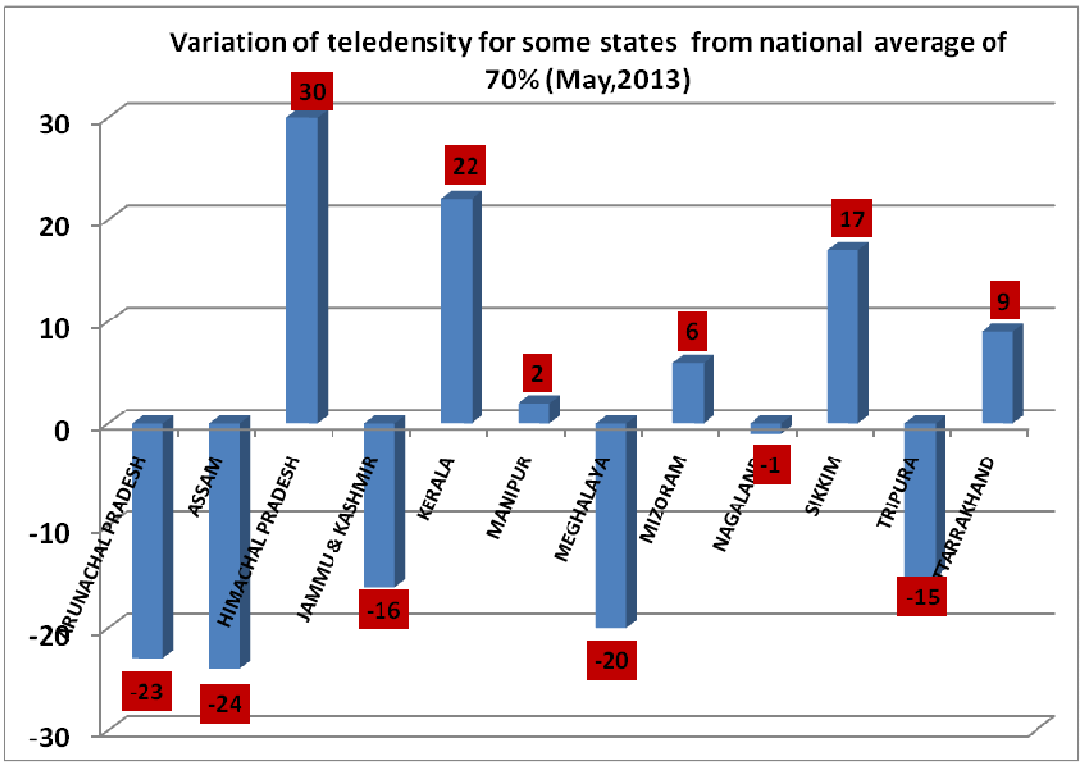
Figure 1.1

Comparison of wireless tele-density between NER and rest of India



1.6. The tele-density figures depicted in figure 1.1 are for wireless services and have been calculated based on the 2011 Census. Since the projected population figures based on 2011 census have not yet been released, the population figures for 2013 have been extrapolated. The variation of wireless tele-density in some States from the national average wireless tele-density of 70% for May 2013 is shown below :

Figure 1.2



1.7. Similarly if data on uncovered villages in various States is analyzed and compared with the data for the NER (refer table below), the gaps in telecom coverage in the NER become apparent.

Table 1.1

State	Total Villages as per 2001 census	Villages uncovered as per USOF/TSPs	% Villages uncovered
Andhra Pradesh	28123	3786	13.5
Jharkhand	32615	5308	16.3
Bihar	45098	271	0.6
Gujarat	18539	1938	10.5
Haryana	6955	32	0.5
Himachal Pradesh	20118	1997	9.9
J&K	6652	636	9.6
Karnataka	29406	1197	4.1
Maharashtra	43711	5351	12.2
Madhya Pradesh	55393	1771	3.2
Chhattisgarh	20308	5460	26.9
Orissa	51349	6734	13.1
Punjab	12673	100	0.8
Rajasthan	41353	3153	7.6
Tamil Nadu	16317	191	1.2
UP	107452	5013	4.7
Uttarakhand	16826	1429	8.5
West Bengal	40782	899	2.2
Arunachal Pradesh*	5590	3126	55.9
Assam*	26550	3536	13.3
Manipur*	2612	634	24.3
Meghalaya*	6851	2612	38.1
Mizoram*	830	268	32.3
Nagaland*	1435	143	10.0
Sikkim*	452	27	6.0
Tripura*	901	2	0.2
* Note - Population and coverage data for North East Region states is as per 2011 census and as collected by TRAI from various TSPs operating in these States respectively; For others, the data is as per 2001 census and USOF website respectively			

The reasons for this gap need to be analyzed. Investments in the telecom infrastructure in NER have to be planned and put in place to bridge the gap.

Reference from the DoT

1.8. 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 **(Annexure-I).** The DoT requested TRAI to provide its recommendations under section 11(1)(a)(iv) of the TRAI Act 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.

TRAI's Approach to formulate a Comprehensive Telecom Plan for NER

1.9. The Authority has formulated its recommendations on a comprehensive telecom plan for revamping and augmenting telecom services in the NER. The recommendations are grounded in three main constituents-

a) The Gap analysis;
b) The State-wise suggested telecom plans;
c) The estimation of investment required for implementation of the suggested overall plan.

1.10. The literal meaning of a 'gap' is a 'conspicuous difference' or an 'imbalance'. In the context of the NER, the gap in telecom infrastructure essentially falls under four categories. These are the gaps between :

a) The desired bandwidth and existing transmission bandwidth at the State Capital and District Head Quarters;
b) The Minimum required infrastructure and existing infrastructure to support basic 2G mobile coverage;
c) The desired infrastructure to have 'state-of-the-art' connectivity for data and the existing infrastructure; and
d) The desired connectivity and existing connectivity across National Highways passing through the States.

The gap analysis for telecom infrastructure and services in the NER has been done in terms of the above four categories and, accordingly, the investment required has been worked out.

Consultation with stakeholders

1.11. To assess the present status of the telecom infrastructure and the gaps, the Authority has held detailed consultation with various stakeholders. Meetings were held with Universal Service Obligation Fund Administrator (USOFA), the Centre for Development of Telematics (C-DoT), National Informatics Center (NIC), Bharat Broadband Network Limited (BBNL), Railtel Corporation of India (Railtel) and Power Grid Corporation of India Limited (PGCIL) and with TSPs operating in the NER **(Annexure-II)**. Data on the existing telecom infrastructure and telecom coverage in the NER States was collected from all TSPs operating in these States. The latest census data based on the 2011 Census has been obtained from the Census of India. The demographic data for the NER (refer **Annexure-III**) shows there are more than 45,000 villages in all eight NER States. Accordingly, data from TSPs on the present status of telecom coverage for over 45,000 villages was collected. The data obtained from various sources has been compiled; subsequently, reconciliation has been done to correct aberrations and incongruencies. The gaps in infrastructure and coverage have been identified based on an analysis of this cleaned data.

1.12. The State Governments are vitally important stakeholders in this exercise. Telecom infrastructure is crucial to overall administration, coordination across State Departments/Agencies, and for the success of most development projects and schemes. The Authority sent four teams of senior officers to meet Chief Ministers and top-level State Government officers of some of the NER States with the mandate to understand their perspective and concerns about the telecom infrastructure in these States. The State Governments were also requested to spell out their

priorities so that these could be suitably reflected in the proposed investment plan. The State Governments were also apprised of the challenges that the TSPs have been facing in rolling out their network in the NER.

1.13. TSPs who are providing services in the NER have raised several problems that they are facing in rolling out services in these States. The broad challenges that are common to the region brought out by the TSPs are detailed below.

Broad Challenges in rolling out telecom network in NER states

a) **Terrain Difficulties –** Most NER States have hilly terrain. As a result, wireless coverage in Base Trans-Receiver Station (BTS) shadow zones[1] is a major concern. In most NER States 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 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 Governments 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:

[1] Shadow zones are those areas in which, despite being under coverage, signals from the BTS do not reach the subscriber.

i. BTS Towers

TSPs face huge difficulties in locating new BTS sites. In some States, 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 States is both precarious and inadequate. Even in State capitals, electricity supply is restricted to 14 hours a day. To further exacerbate matters, most local communities do not permit running of Diesel Generators (DGs) between 6 pm to 6 am. In addition, in some States, very high captive charges are levied for running DGs. The experience of some TSPs in using solar power for running a BTS in the NER States has not been very encouraging as sufficient sunlight is not available due to climatic conditions.

iv. Optical Fibre Cables(OFC) related

Due to hilly and difficult terrain it is very difficult to lay OFC in the NER. As a result, the number of OFC Points of Presence (POP) in the NER States is very limited. Though USOF is working for increasing the number of POPs between District headquarters (DHQs) and Block headquarters (BHQs), as detailed later, except in Assam LSA, in all other States the pace of work is very slow. In the absence of reliable backhaul connectivity between the State Capitals 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 NER, 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. Further, the VSAT bandwidth connectivity charges are very high; this renders unviable any business case for the TSPs.

d) **Insurgency Issues** – Due to insurgency, some States face repeated calls for economic blockades. This results in inaccessibility of telecom installations and non-availability of diesel. In some States, movement of personnel is restricted during night hours. This delays operations and maintenance essential for telecom services.

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 NER States that were installed after getting USO fund support. The USOF support for these BTSs was for a

period of 5 years and this will end 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.

1.14. On account of the above mentioned challenges, the development of telecom services in the NER 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 45,214 villages, 9190 inhabited villages do not have even basic voice coverage. The roll-out of 3G coverage is also not very encouraging in most States. 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 capitals. Thus, the gap in telecom infrastructure and service rollout in the NER States vis-à-vis that available in other parts of country is wide and glaring.

Ongoing projects in the NER States and issues related thereto

1.15. 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. The details of the projects and related issues are described in the following paragraphs.

1.16. **USO Funded Projects**: USOF is funding the creation of general infrastructure in rural and remote areas for development of telecom facilities in the NER. As part of this venture, USOF is addressing the gap in OFC connectivity between Block Head Quarters & District Head Quarters. For this, an agreement was signed with BSNL on 12th February,2010 (based on open tender) for augmentation, creation and management of intra-District SDHQ-DHQ OFC network for transport of rural/remote area traffic on bandwidth sharing basis in the Assam LSA. This OFC Scheme has been undertaken on a Build, Operate & Own

basis (BOO). Accordingly, BSNL has to build, operate, own and manage all the equipment/infrastructure for the provisioned intra-district augmented/created OFC transport network. All locations are to be connected on physical OFC Ring Route(s) with the DHQ node, ensuring cable route diversity. At least 70% of the subsidized bandwidth capacity created under the scheme will be shared with TSPs in the Assam LSA at a rate not more that 26.22% of the current ceiling tariffs prescribed by TRAI.

The Points of Presence (PoPs) of OFC under this project are planned at 949 locations. The details are provided below:

Table 1.2

USOF Project for connecting District headquarters to Block headquarters

Summary of Total Districts/DHQ/SDHQ/ Additional Locations/En-route Locations/Repeaters								
Point of presence (types)	**Assam**	**Meghalaya**	**Mizoram**	**Tripura**	**Arunachal Pradesh**	**Manipur**	**Nagaland**	**Total**
Total DHQ	27	7	8	4	16	9	11	**82**
Total SDHQ	269	37	22	39	140	40	86	**633**
Addl. Loc.	24	8	7	1	2	0	1	**43**
En-route Loc.	34	19	10	7	9	1	0	**80**
Repeater	0	0	15	4	26	8	20	**73**
Total Nodes	**354**	**71**	**62**	**55**	**226**	**62**	**119**	**949**

1.17. The work of laying the OFC in Assam by BSNL is at an advanced stage of completion. According to BSNL, 329 PoPs of the planned 354 PoPs have been connected. Of the remaining 25 PoPs, 6 PoPs are in technically non-feasible areas; in the balance 19 PoPs (10 in Dima Hasao district and 9 in Karbi Anglong district) the work is being delayed because of difficult terrain and law and order problems.

1.18. A similar agreement has been signed with Railtel in January 2012 for augmentation, creation and management of intra-district SDHQ to DHQ

OFC network for Arunachal Pradesh, Manipur, Meghalaya, Mizoram, Nagaland and Tripura. The details of the existing OFC and additional OFC to be laid in the six NER States are given in the table below:

Table1.3

Details of OFC proposed in Six NER States by Railtel

States	No. of PoPs to be connected	Additional OFC to be laid in KM	Existing BSNL OFC to be used	Total OFC network to be created (KM)	Subsidy by USOF (Rs Cr)
NE-I[2]	188	3000	2301	5301	89
NE-II[3]	407	9141	1082	10223	298

1.19. In terms of the agreement with Railtel, the work of laying the additional OFC was to be completed within two years from the date of agreement i.e. 5th January, 2012. However, according to Railtel (July, 2013), the work of laying the OFC has started only in Tripura; in the remaining States, Railtel has yet to start work. It is learnt that (for execution of the work) in Manipur, Nagaland and Arunachal Pradesh, the tender is yet to be finalized by Railtel. Railtel has to lay OFC for providing 595 additional PoPs in the 6 States. However, as detailed above, it has started work only in Tripura where the PoPs are only 55 i.e. less than 10% of the project work. The Authority is seriously concerned that, at this pace of execution of work, it may take years before even the DHQ are connected to Block/SDHQs.

While doing the gap analysis, for estimating the investment requirement to provide basic 2G mobile coverage in villages having a population of over 250, the Authority has assumed that backhaul connectivity from the Gram Panchayat to District HQ (as planned in the ongoing two projects) will be

[2] NE I includes Meghalaya, Mizoram and Tripura
[3] NE II includes Arunachal Pradesh, Manipur and Nagaland

available. However, looking at the present pace of work, the Authority is of the opinion that it may not be possible to provide mobile coverage to the uncovered villages in these States until and unless USOF takes immediate steps and ensures that the work of laying of OFC is completed as per schedule by Railtel.

1.20. The prime objective of USO funding is to achieve penetration of telecom services in remote and non-remunerative areas. **Accordingly, the Authority recommends that USOF should ensure compliance to stringent timelines and in-built penalty clauses in USO funded projects. In NOFN project, USOF/BBNL should build-in severe penalty clauses for delays in its agreements with the agencies implementing the project. At the same time, USOF/BBNL should also incentivise executing agencies in case the work is completed before the stipulated timeframe. The USOF/BBNL needs to urgently re-assess the capabilities of Railtel to carry out the project and review its decision regarding the executing agency, if necessary.**

1.21. **National Optical Fibre Network (NOFN) Project:** To connect the BHQs to the Gram Panchayats(GPs) through OFC, the Government has conceived another project called the National Optical Fibre Network (NOFN) and work has been entrusted to Bharat Broadband Network Ltd (BBNL), a Public Sector Undertaking (PSU), which has been formed as a Special Purpose Vehicle (SPV). For project execution, BBNL has further awarded the work to two PSUs viz. BSNL and Railtel. BBNL has entrusted the work in Assam and Sikkim to BSNL and in the NE LSA to Railtel. The details of the GPs to be covered in the NER under this project as provided by BBNL are as below:-

Table 1.4

NOFN Project - Gram Panchayats planned to be connected

State	Executing Agency to whom work has been awarded by BBNL	Number of Gram Panchayats to be covered as per BBNL data
Assam	BSNL	2205
Meghalaya	Railtel	1463
Mizoram	Railtel	776
Tripura	Railtel	1038
Arunachal Pradesh	Railtel	1756
Manipur	Railtel	3011
Nagaland	Railtel	1123
Sikkim	BSNL	163
	Total	**11535**

1.22. According to available information, survey work is going on in some States. It will take a few years before these projects get completed and transmission media comes up in the NER States. It may be noted that these projects are of national importance and huge funds have been committed for the NOFN project. The execution of the NOFN project needs serious attention at the highest levels of Government. Its implementation in mission mode is a necessity that needs to be seriously explored.

1.23. For the NOFN project, National Informatics Centre (NIC) and CDoT are mapping the existing assets of the three PSUs and plotting the GP locations on a Geographic Information System (GIS) map so that the distance between existing OFC PoPs and the GPs can be calculated. The accuracy of the planning based on GIS depends on how precisely the entire information of BSNL, Railtel and PGCIL about existing OFC PoP locations, existing cable coordinates, joint location, healthy fiber, new fiber route already planned, overall terrain etc. are plotted on GIS maps. Only then, can the optimized length of new cable routes and ideal location for fiber termination be planned through GIS. Initially, the Authority also

explored the option of using GIS data of NIC for estimating the number of BTSs required for a comprehensive telecom plan for the NER States. Meetings were held with NIC and C-DoT teams and officers from the Authority also visited the offices of NIC and C-DoT. However, for the following reasons, planning on NIC/C-DoT's GIS data was not practically feasible as :

a) The GIS database of NIC/C-DoT is based on Survey of India maps which are about 3 decades old. Numerous demographic changes have taken place since then.

b) Habitation data plotted on the GIS maps is based on the 2001 Census. However, as per the latest Census, there have been addition of 22 districts, 160 towns (statutory and census) and 2746 villages in the NER. Since the telecom plan and the investment are being proposed for the future, the Authority decided that it would not be prudent to use habitation data plotted on the GIS maps based on 2001 Census data.

c) It was also noticed that not all the villages as per the 2001 census data have been plotted on the GIS maps.

d) There is no information about the location (latitude and longitude) of Gram Panchayats on the GIS maps.

e) The habitation boundaries and areas covered for District Headquarters, Sub District /Block Headquarters and villages are not present on the GIS maps for most States in the NER.

f) Information about existing roads has not been mapped fully in the GIS data available with NIC/C-DoT.

1.24. In the circumstances, planning based on GIS maps had to be dropped. The gap analysis and investment required for formulating the comprehensive telecom plan for NER States has been carried out based on the

information provided by the TSPs, based on sample survey and practical considerations.

Structure of the Recommendations:

1.25. Chapter –II of this Report covers the methodology adopted by the Authority for analyzing the gaps in the NER and estimating the investment required for infrastructure development in the region. Based on the estimates, the gap analysis and investment required for State-wise planning has been done in Chapter-III to Chapter –X for Assam, the NE-I and NE-II States. Chapter–XI is devoted to policy initiatives and action that would facilitate the quick roll-out of services in the NER. Chapter – XII summarises all the recommendations that have been made.

CHAPTER-II

METHODOLOGY ADOPTED FOR PLANNING AND INVESTMENT

2.1 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.

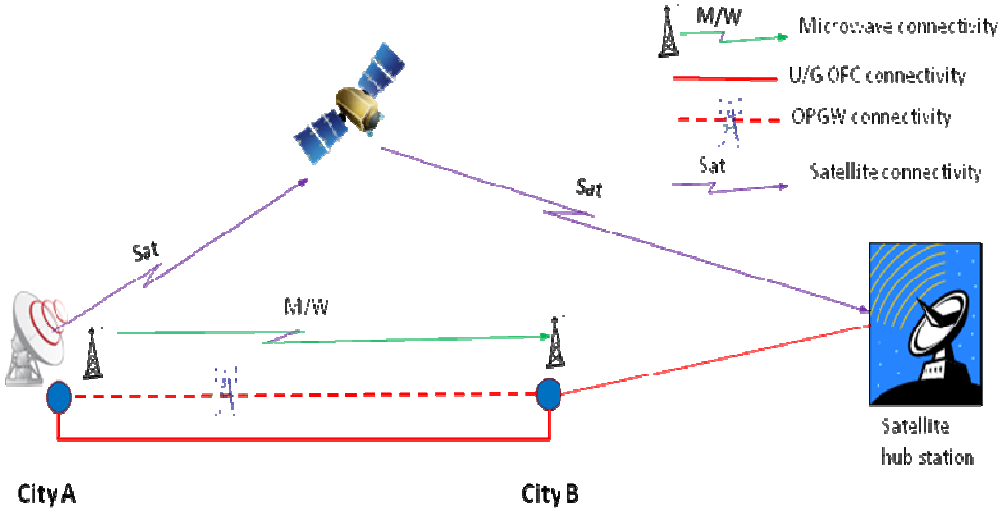
I. Transmission Media Plan

2.2 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.

2.3 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[4]), Microwave or Satellite as shown in the Figure below :

Figure 2.1 – 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 technnology 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

[4] Optical Ground Wire (OPGW) are ground wire cables that are installed on power transmission lines and have optical fibre running within the ground wire

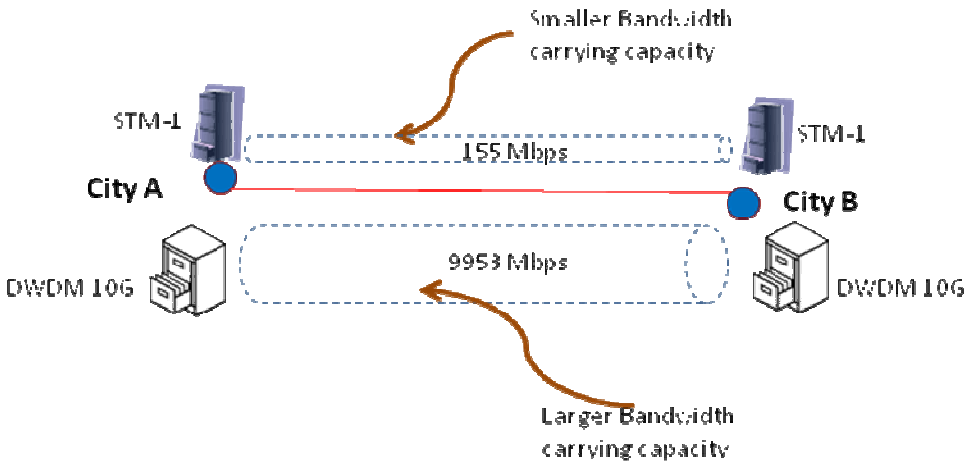
eliminates clearance and ROW issues since it occupies the static wire position on a transmission line.

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 pipe as shown in the Figure below :

Figure 2.2

Illustration of bandwidth carrying capacity between two cities



(Note – Synchronous Transmission Module-1 (STM-1) and Dense Wavelength Division Multiplexing (DWDM) 10G are transmission media equipments that are connected at the end terminals of OFC link and caters to 155 Mbps and 10 Gpbs bandwidth respectively)

The carrying capacity of the transmission equipment that is generally deployed for connecting the transmission media is tabulated below :

Table 2.1

Bandwidth carrying capacity of some of the transmission equipments

Name of System	**E1**	**STM-1**	**STM-4**	**STM-16**	**DWDM 2.5G**	**DWDM 10G**
(Bandwidth carrying capacity) Bitrates in Mbps	2.048	155.02	622.08	2488.32	2488.32	9953.28

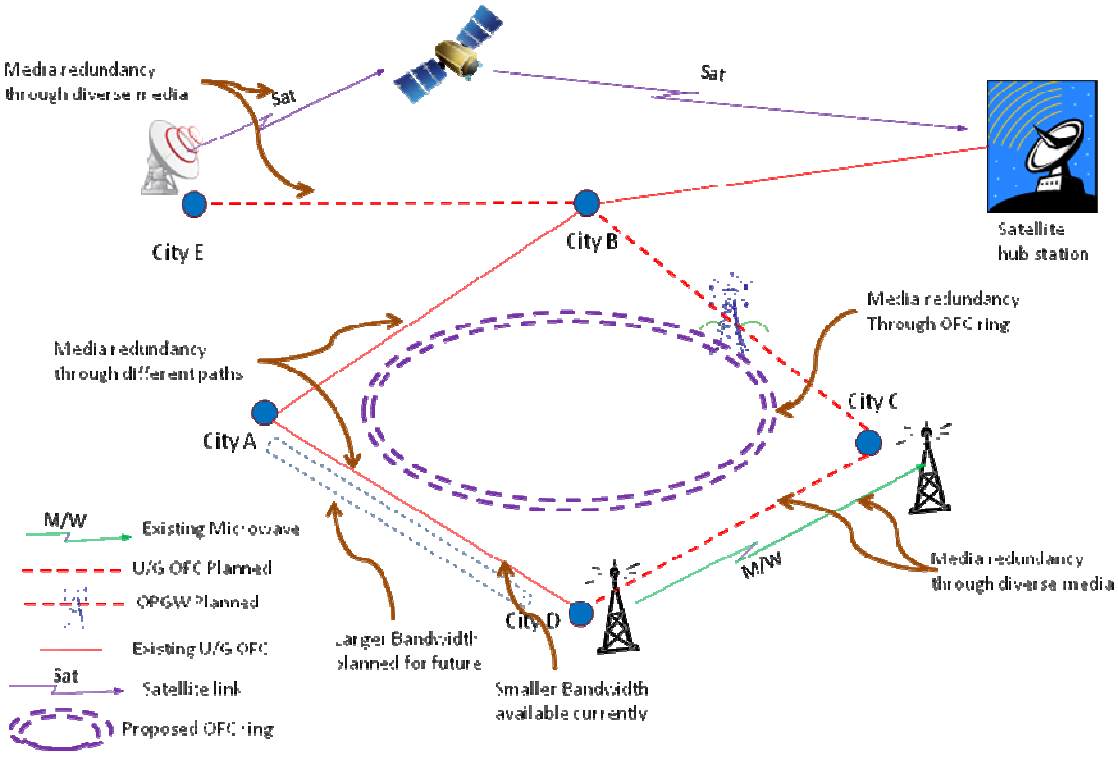
While assessing the gap and estimating the investment required, future bandwidth requirement at the State capitals and DHQs have been calculated as discussed in subsequent paragraphs.

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.

The overall approach to address the three different components for transmission media planning is illustrated in the Figure below.

Figure – 2.3

Overall approach followed for transmission media planning



Assessment of transmission media connectivity requirement in NER

2.4 While assessing the connectivity of various cities/villages in the NER States, the Authority has taken into consideration projects that are already under progress in these States. As discussed earlier, 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). The two projects under which optical fibre connectivity is being provided/proposed between various habitations in the NER States are:

a) USOF funded project to provide connectivity between District Headquarters and Sub-District Headquarters/Blocks.

b) National Optical Fibre Network (NOFN) project, being executed by BBNL, for providing OFC connectivity between SDHQ/BHQ and Gram Panchayats(GPs).

2.5 While analyzing the gap and investment required for the comprehensive telecom plan for the NER, it has been assumed that OFC connectivity between DHQs to SDHQs and further down to GPs will be made available under the above mentioned projects. Investment for these projects has already been earmarked by the Government and therefore connectivity under these projects has been taken as datum. Accordingly, as far as transmission media connectivity is concerned, this exercise has focused on planning for the connectivity and network between DHQs and the State Capitals and beyond (out of the State connectivity).

2.6 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. The details of the OFC of BSNL for the NER States is given in **Annexure-IV**. The new routes and the optical fibre rings proposed for State capital and DHQ connectivity are over and above the existing transmission media network of BSNL.

Assessment of Bandwidth Required at State Capitals and DHQ

2.7 As on the end of May 2013, there are 15.13 million wireline broadband subscribers in the country. Penetration of broadband is less than 1.2% of our population. The majority of broadband subscribers (around 12.7

million) are using Digital Subscriber Line(DSL) technology. However, with the availability of 3G and BWA services and access to affordable smart phones and wide-ranging applications, the demand for wireless broadband and data is likely to increase rapidly in future. Implementation of the Digital Addressable Cable TV Systems in a phase-wise manner will also contribute significantly to the growth of broadband. As mentioned earlier, USOF and BBNL have already awarded work to Railtel and BSNL for connecting DHQs to the BHQs and further to GPs in NE and Assam respectively. However, the connectivity between the State capitals and DHQs itself is either inadequate or unreliable. Therefore, as a first step, it is necessary to provision for sufficient backhaul connectivity and bandwidth at State capitals and DHQs for providing quality telecom services in the North-East and for the success of these projects.

Present Bandwidth availability

2.8 Data was sought from the service providers regarding availability of connectivity and bandwidth at State capitals and DHQs. The compiled status of bandwidth (BW) availability at State capitals is tabulated below:

Table 2.2

Status of bandwidth (BW) availability at State Capitals

State	Current availability of the Bandwidth at State Capitals (in Gbps)[5]	Connectivity Type	Operators providing Bandwidth[6]
Arunachal Pradesh	38.2	OFC ring, Digital MW, OPGW	Airtel, BSNL, Vodafone, PGCIL, Tata

[5] Considering 2.5Gbps per DHQ in all States, except in Arunachal Pradesh where is it taken as 1.25Gbps per DHQ.

[6] Only that bandwidth has been considered that has been connected from the State capital towards either Guwahati or out of NER region. Oil India Limited(OIL) also has its optical fibre laid along the gas pipe line route. However, this is limited mainly to Assam. None of the TSPs, except BSNL, have indicated taking bandwidth from OIL. However, BSNL has taken bandwidth from OIL and it serves as a redundant route for them for carrying traffic from Guwahti to rest of India.

Assam	122.9	OFC ring, Digital MW, OPGW	BSNL, PGCIL and Airtel, Tata
Manipur	38.5	OFC ring, Digital MW, OPGW	PGCIL, Vodafone, BSNL, Airtel, Aircel
Meghalaya	58.2	OFC ring, Digital MW, OPGW	BSNL, PGCIL, Airtel, Aircel, Idea, Tata
Mizoram*	33.1	OFC ring, Digital MW, OPGW	BSNL, PGCIL, Airtel
Nagaland	25.6	OFC ring, Digital MW, OPGW	BSNL, PGCIL, Vodafone
Sikkim	32.8	OFC ring, Digital MW, OPGW	BSNL, PGCIL, MTS, Tata
Tripura*	35.6	OFC ring, Digital MW, OPGW	BSNL, PGCIL, Airtel, Vodafone,
Total	**384.9**		

*Ring is completed using OPGW bandwidth

2.9 Details about availability of BW at DHQs are provided in the chapters of the respective States.

Calculation of future bandwidth requirement

2.10 The National Telecom Policy -2012 (NTP-2012) envisions **Broadband on Demand** and envisages leveraging telecom infrastructure to enable all citizens and businesses, in rural and urban areas, to use the Internet and access the web thereby ensuring equitable and inclusive development. One of the objectives of the NTP -2012 is to *"Provide affordable and reliable broadband-on-demand by the year 2015 and to achieve 175 million broadband connections by the year 2017 and 600 million by the year 2020 at minimum 2 Mbps download speed and making available higher speeds of at least 100 Mbps on demand.*" In order to cater to the broadband targets contained in NTP-2012, backhaul BW requirement has been estimated using two different approaches as detailed below:

(A) Future requirement calculated as per planning by USOF

2.11 The USOF is supervising execution of a scheme for augmentation, creation and management of intra-district SDHQ-DHQ OFC network for transport of rural/remote area traffic on bandwidth sharing basis in the North Eastern States. Under the project, all locations are to be connected on physical OFC Ring Route(s) with the DHQ node ensuring the cable route diversity and ring capacity of at least 2.5 Gbps, expandable to 10 Gbps. This initiative of the USOF along with the National Optical Fibre Network (NOFN) project will provide BW on OFC between DHQs and SDHQs and further between BHQs and Gram Panchayats. The bandwidth issue has been addressed by assessing the requirement of BW at the State capital and each DHQ.

2.12 The following important aspects have been borne in mind while assessing the BW requirement:

a) To cater to the increased traffic, BW at the State capital for connectivity to other neighbouring States will also need to be enhanced.

b) To cater to the extra BW being created through intra-district SDHQ-DHQ OFC network of capacity 2.5 Gbps at each DHQ, there is a need to provide higher BW at State capitals which should at least be equal to the aggregate of bandwidth required at DHQs.

c) While calculating the BW requirement at each State capital it is necessary to factor in demographic aspects. The population of some districts, particularly in Arunachal Pradesh, is small. Hence, BW requirement at each DHQ as well as in the capital will be less in Arunachal Pradesh. For Arunachal Pradesh, the BW requirement at each DHQ has been assumed as 1.25Gbps.

d) Most of the traffic from all States is getting aggregated at Guwahati. Therefore, the requirement of bandwidth at Guwahati has been taken as the sum total of its own requirement and the requirement of all other States in NER (excluding Sikkim).

2.13 It is assumed that the current availability of BW at State capitals and DHQs is just sufficient to cater to the present requirement of voice and data traffic. As broadband penetration in the NER States is abysmally low, BW requirement estimation is in addition to what already exists. Considering the above factors, the amount of additional BW that needs to be provisioned at the capital of the respective States (as per the USOF projection of 2.5 Gbps requirement at each DHQ) is tabulated below:

Table 2.3

Bandwidth Requirement at State Capitals as per USOF

State	No. of Districts	Population	Current availability of the Bandwidth at State Capitals (in Gbps)	Additional Bandwidth Required as per USOF[7] (in Gbps)
Arunachal Pradesh	16	1383727	38.2	20
Assam	27	31205576	122.9	205
Manipur	9	2570390	38.5	22.5
Meghalaya	11	2966889	58.2	27.5
Mizoram	8	1097206	33.1	20
Nagaland	11	1978502	25.6	27.5
Sikkim	4	610577	32.8	10
Tripura	8	3673917	35.6	20
Total	**94**	**45486784**	**384.9**	**352.5**

[7] Considering 2.5Gbps per DHQ in all states, except in Arunachal Pradesh where is it taken as 1.25Gbps per DHQ.

(B) Future bandwidth requirement calculated as per TRAI's Recommendations dated 8th December 2010:

2.14 The issue of estimating the bandwidth of backhaul requirement was earlier dealt by TRAI in its recommendations on "National Broadband Plan" dated 8th December, 2010. TRAI had recommended fixing a broadband target of 75 million broadband connections by 2012 and 160 million broadband connections by 2014 in the National Broadband Policy. TRAI projected that broadband penetration would be 12% and 32% in villages, 39% and 80% in towns, and 64% and 130% in cities, by 2012 and 2014 respectively. It was also recommended that in order to effectively support broadband requirement for bandwidth hungry applications, on an average a minimum of 2 Mbps bandwidth per household will be required by 2012 and 4 Mbps per household by 2014.

2.15 As on today, broadband penetration in the country is lagging far behind the targets. Telecom penetration in most of the NER is below the national average. Therefore, for estimating the requirement of BW in NER, the Authority has considered projections based on the Phase-I plan of its earlier recommendation viz. availability of 2 Mbps bandwidth per household with projected penetration of 12%, 39% and 64% in villages, towns and cities respectively with a contention ratio[8] of 1:10.

2.16 For the NER, the household distribution as per Census 2011 is as below:

Table 2.4

Urban and Rural Household distribution in NE Region as per Census 2011

State	Urban Population		Rural Population	Urban Households		Rural Households
	Population of Cities*	Population of Towns		Households in Cities	Households in Towns	
Arunachal Pradesh	0	317369	1066358	0	70367	200210
Assam	1523212	2875330	26807034	324124	661470	5420877
Manipur	193459	640695	1736236	42820	129519	338109

[8] Contension ratio here means availability of bandwidth of 2Mbs in one out of 10 houses at a time.

Meghalaya	143229	452221	2371439	31025	86461	430573
Mizoram	293416	278355	525435	60635	56406	105812
Nagaland	122834	448132	1407536	27165	91346	277491
Sikkim	100286	53292	456999	23773	11945	93288
Tripura	400004	561449	2712464	100650	138324	616582
Total	**2776440**	**5626843**	**37083501**	**610192**	**1245838**	**7482942**

*Cities having population of 1 lakh or more.

2.17 Based on the foregoing, estimated backhaul requirement, as per TRAI's recommendations, has been worked out in the table below:

Table 2.5

Bandwidth Requirement at State Capitals as per TRAI's earlier Recommendations

State	Current availability (in Gbps)	Additional Bandwidth required as per TRAI's earlier Recommendations[9] (in Gbps)
Arunachal Pradesh	38.2	9
Assam[10]	122.9	337
Manipur	38.5	22
Meghalaya	58.2	20
Mizoram	33.1	14
Nagaland	25.6	16
Sikkim	32.8	6
Tripura	35.6	37
Total	**384.9**	**461**

2.18 Since the calculation of BW as per TRAI's earlier recommendations is based on the latest Census data and on actual household numbers, it is likely to be more logical and accurate. **Therefore, while planning additional BW at State capitals and DHQs, the Authority has decided**

[9] Considering 64%, 39% and 12% broadband penetration in Cities, Towns and villages respectively. Bandwidth requirement of @2Mbps per Household and contention ratio 1:10 is considered.

[10] the requirement of bandwidth at Guwahati has been taken as sum total of its own requirement and the requirement of all other States (excluding Sikkim)

to base the estimates as per method 'B' i.e. on the basis of TRAI's earlier recommendations.

Redundancy of connectivity of State Capitals:

2.19 In the NER States (except Sikkim), most of the DHQs are connected to State capitals and the State capitals, in turn, are connected to Guwahati as the majority of the traffic from the NER States goes to the rest of India via Guwahati. In view of this it is imperative to ensure that the connectivity of the State capitals as well as Guwahati has redundancy.

2.20 BSNL has already built its core network in the NER through which it has connected all State capitals on underground OFC. Most State capitals are connected in a ring formation; however, a few State capitals still have linear connectivity and, in case of failure of the OFC route, the State is cut off from the rest of the country. Now, PGCIL has OPGW cable connectivity with all the State capitals including Gangtok. The OPGW cables of PGCIL run on their high- voltage power transmission lines and along a different route than the existing underground OFC of BSNL. If dark fibre from the OPGW network of PGCIL is made available to BSNL, the latter would be able to provide connectivity to all State capitals through an alternate path. This will ensure that all State capitals are connected on redundant media in the NER and are not isolated or cut-off from the rest of the country in case of the failure of the main route.

2.21 So far PGCIL has not been leasing its dark fibre to any of the TSPs (including BSNL). To ensure that infrastructure capacities already created by PSUs are utilized in the larger national interest (as these capacities have been built using public resources), the Authority has made recommendations which are discussed later in Chapter-XI.

Estimated investment for connecting State Capitals

2.22 It is learnt that BSNL has commissioned its DWDM network in some of the cities including all State capitals. It is presumed that the future BW requirement, as projected in the above table (table 2.5), can be catered to using this DWDM network. However, the terminal equipments would require upgradation to cater to higher BW. The equipment and estimated investment required to enhance capacity and provide redundancy for connecting all State Capitals is tabulated below:

Table 2.6

Estimated investment required for providing capacity enhancement and redundancy for connecting State Capitals using existing infrastructure of BSNL & PGCIL

Route	Approximate Distance (One way) (KMs)	Equipment required
Guwahati - Itanagar	330	22 OADM, 4 OTM
Shillong - Agartala	480	48 OADM, 4 OTM
Shillong - Aizawl	390	30 OADM, 4 OTM
Guwahati - Shillong	100	8 OADM, 4 OTM
Guwahati - Kohima	350	30 OADM, 4 OTM
Kohima - Imphal	150	16 OADM, 4 OTM
	Total	154 OADM, 20 OTM
		Rs 29.8 Crores

2.23 Apart from the above, to ensure redundancy of connectivity of State capitals, the following OFC routes have also been planned:

a) **Siliguri to Namchi (46 Km)** – Presently, OFC connectivity of Sikkim is from Siliguri. To provide an alternate connectivity to the State this new route has been proposed.

b) **Bongaigaon- Guwahati – Nagaon route (350 kms)** – BSNL has brought out that its important OFC route which connects Guwahati to the rest of India has been damaged beyond repair due to road widening work. Since this is an important route that carries the bulk of the traffic of the NER States, it is

necessary to fund the investment required for replacement of the cable from Bongaigaon to Nagaon.

The expenditure involved in providing the above two connectivities on underground OFC will be about Rs. 14 Crore (For Bongaigaon-Guwahati – Nagaon) and Rs 1.84 Crore (For Siliguri to Namchi) respectively. This expenditure has been calculated assuming Rs. 4 lakhs per KM and has been added to the OFC cost of Assam and Sikkim respectively.

Bandwidth Estimation at District Headquarters:

2.24 Additional BW requirement at each DHQ in the NER States has been estimated in a manner similar to that for State capitals. It is assumed that existing bandwidth will cater to the current voice and data traffic. The future requirement of bandwidth is over and above existing capacities. Details are provided in the chapters of the respective States.

Estimating the investments for provisioning of Bandwidth

2.25 To meet the requirement of planned bandwidth, the current transmission systems installed in NER State capitals have to be upgraded. Depending on the distance between two stations, transmission system terminal upgradation shall also be required at the existing regenerators' locations. Although the distance between regenerators shall vary on each route, to estimate the numbers of regenerators, the average distance between two repeaters has been assumed as 40 Km. In places where systems are connected using Intermediate Data Rate equipmen(IDR) on 8 Mbps satellite connectivity, these have been proposed to be upgaraded to 34 Mbps so as to carry higher data bandwidth. Taking these into account, the following costs per terminal have been assumed to estimate the quantum of expenditure involved:

Table 2.7

Cost Figures of terminals for estimation of bandwidth

Sl. No.	Type of Terminal	Cost per Terminal (Rs. In Lakh)
1.	Optical Add-drop Multiplex (OADM) 10 G	10
2.	Optical terminal Multiplexer (OTM) 10 G	60
3.	Digital cross Connect (DXC)	100
4.	8 Mb IDR to be upgraded to 34 Mb	100
5.	2 Mb IDR to be upgraded to 8 Mb	50

2.26 Based on the above costs, the investment required for enhancing the bandwidth, providing alternate media connectivity and laying of additional OFC for each State in the NER has been worked out. The investment required for providing capacity enhancement and redundancy for connecting State Capitals is Rs 29.8 Crores. The investment on laying OFC/OPGW cables has been estimated Rs 200.3 Crore and that for transmission equipment Rs 113.9 Crore. **The Overall investment for the entire NER for implementating the proposed transmission media plan will be Rs. 314.2 crore.** The details of the same are provided in the Chapters of the respective States.

II. 2G Mobile (Voice) coverage

2.27 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. Hence, 2G and 3G coverage data from all TSPs was collected and the population figures have been taken as per Census-2011. Where no population figures have been given-against a village name, it has been assumed that these are

uninhabited villages. The table below provides the extent of 2G mobile coverage (voice) in different States of the NER:

Table 2.8

Status of 2G coverage in NE States

State	Total No. of Districts	No. of District HQs covered by 2G Coverage	Total No. of Towns	Total No. of towns covered by 2G Coverage	Total No. of Sub-districts	Total No. of Sub-districts having 2G Coverage	Total No. of Villages#	No. Of inhabited Villages	No. of villages covered by 2G Coverage	Uncovered habitated Villages
Arunachal Pradesh	16	16	27	26	188	118	5590	5260	2374	2886
Assam	27	27	214	213	153	153	26550	25496	22611	2885
Manipur	9	9	51	51	38	37	2612	2547	1937	610
Meghalay	11	11	22	22	39	39	6851	6471	4082	2389
Mizoram	8	8	23	23	26	26	830	704	446	258
Nagaland	11	11	26	26	114	110	1435	1407	1270	137
Sikkim	4	4	9	9	9	9	452	426	403	23
Tripura	8	8	42	42	40	40	901	889	887	2
Total	**94**	**94**	**414**	**412**	**607**	**532**	**45221**	**43200**	**34010**	**9190**

** In Manipur, population data for 3 Sub-districts namely "Mao Maram", "Paomata" & "Purul" of Senapati district is not given in the Census of India- 2011. For these areas the population based figures have been extrapolated based on the actual available figures for the remaining district

Includes Census towns also

2.28 It is clear that all DHQs in the NER States have 2G mobile coverage. Most towns and sub-districts, except those in Arunachal Pradesh, also have 2G mobile coverage. However, leaving aside Tripura and Sikkim, in all other States there are many villages which still do not have any mobile coverage.

Plan for extending '2G' mobile coverage

2.29 To provide uncovered villages with 2G mobile service, there are two possible approaches: a) Cover all the uncovered villages in one go; b) Cover all the uncovered villages in a phased manner. The Authority is of the view that all habitations should be provided mobile coverage in a phased

manner. In the phased approach, three possibilities have been considered for the first phase :

i. Coverage of villages having population more than 100;

ii. Coverage of villages having population more than 250;

iii. Coverage of villages having population more than 500.

Population coverage in the three alternative scenarios is tabulated below:

Table 2.9

Status of population coverage in the three scenarios

State	Total Population	Total No. of Villages#	No. Of inhabited Villages	No. of villages covered by 2G Coverage	Uncovered habitated Villages	% of population having coverage	% of total population that will be covered		
							If villages with population >500 are covered	If villages with population >250 are covered	If villages with population >100 are covered
Arunachal Pradesh	1383727	5590	5260	2374	2886	67.6	76.54	84.22	94.20
Assam	31205576	26550	25496	22611	2885	96.44	98.60	99.33	99.83
Manipur	2570390	2612	2547	1937	610	91.91	96.46	98.36	99.87
Meghalaya	2966889	6851	6471	4082	2389	80.1	85.74	93.21	98.87
Mizoram	1097206	830	704	446	258	85.11	96.48	99.34	99.95
Nagaland	1978502	1435	1407	1270	137	95.75	98.96	99.67	99.97
Sikkim	610577	452	426	403	23	96.74	99.49	99.96	99.99
Tripura	3673917	901	889	887	2	99.91	100.00	100.00	100.00
	45486784	**45221**	**43200**	**34010**	**9190**				

Note - In Manipur, population data for 3 Sub-districts namely "Mao Maram", "Paomata" & "Purul" of Senapati district is not given in the Census of India- 2011. For these areas the population based figures have been extrapolated based on the actual available figures for the remaining district

Includes Census towns also

2.30 If villages with a population of more than 250 are targeted for providing 2G mobile coverage, almost the entire population in most of the States (except Arunachal Pradesh and Meghalaya) will get 2G mobile coverage. Accordingly, **the Authority recommends that, in the first phase, 2G mobile coverage should be extended to all remaining BHQs, towns and such villages which have a population of more than 250 in the NE Region**. The State-wise list of all such villages, is placed at **Annexure-V**. **It is further recommended that after execution of the first phase, the**

actual number of uncovered villages should be assessed and the remaining uncovered villages should be taken up subsequently. It is likely that many villages having population less than 250 may get incidental coverage after completion of the first phase.

Estimation of Number of 2G BTSs for the uncovered villages

2.31 In case of Block/SDHQs which are yet to be covered by 2G mobile services, the best way for estimating the number of BTSs required would have been by way of planning the number of 2G BTSs required for coverage, based on the area of the uncovered habitation on a GIS map. But as discussed earlier, since the available data with C-DoT and NIC is incomplete and outdated, the number of 2G BTS required has been approximately estimated based on the population of the SDHQs. The coverage radius per BTS has been assumed as 2.0Km in urban areas and 2.5 Km in rural areas. Average population density has been taken as 600 persons/sq.km. and 250 persons/sq.km. for urban and rural areas respectively. With these assumptions, the population that can be served by one BTS on 2G technology works out to be about 7000 and 5000 in urban and rural areas respectively. For estimating the number of BTSs required, it has been assumed that one 2G BTS will be required in each of the uncovered villages having population more than 250.

Cost of installing 2G BTS

2.32 All the TSPs operating in the NER were asked to conduct a sample survey of a cluster of uncovered villages in two blocks of a State and submit estimates of expenditure required to extend mobile coverage in such uncovered villages. A TSP was assigned 2-3 States for this purpose. A sample report submitted by one of the TSP is attached as **Annexure-VI**. Based on the estimates submitted by the TSPs and our own analysis, the

investment requirement for 2G coverage has been computed on the costing tabulated below.

Table 2.10

Cost figures taken for calculation of investment requirement

Sl. No.	Area	Cost Taken (in Rs Lakh)
1.	Ground Based Tower(GBT)	12.5
2.	Roof Top Tower(RTT)	7.5
3.	Battery/Power Plant/Diesel Generator sets/ Air conditioning/ Shelter/Power connections/Earthing/Installations/Misc	15
3.	BTS (2+2+2)	5.6
4.	BTS (4+4+4)	9
5.	Microwave Terminals Cost (per system) including antenna	3
6.	OFC equipment and laying cost (per km) including reinstatement charges etc.	4
7.	Satellite equipment Cost (VSAT)	3
8.	Satellite(VSAT) bandwidth Cost per annum for 1Mbps connectivity	10

2.33 In urban area, some installations shall be on Ground Based Towers (GBT), whereas some installations shall be Roof Top Towers (RTT). It has been assumed that 70% of the total BTS installations in urban areas shall be on RTTs; for the remaining 30% BTS installations, erection of GBT shall be required. In the rural areas, all the BTSs installations are proposed on GBTs, as most of the rural areas in the NER States do not have houses with concrete roofs.

Backhaul connectivity for the proposed BTS

2.34 For the proposed BTS, backhaul connectivity through OFC and Microwave transmission media has been generally considered. However, in a few cases, satellite based connectivity may also be required. In order to determine the requirement of the types of transmission systems to cater to

the backhaul requirement, statistical information given by the TSPs of the backhaul transmission systems for existing BTSs was analyzed. The details of the number and percentage of existing BTSs that are served by different types of media are given in the tables below:

Table 2.11

Backhaul Details of Existing BTSs (in Numbers)

LSA	Only OFC	OFC+M/W	Microwave	VSAT	Total
Arunachal Pradesh	150	4	367	60	581
Assam	1282	161	10467	5	11915
Manipur	141	18	1402	26	1587
Meghalaya	165	17	1528	16	1726
Mizoram	51	6	621	17	695
Nagaland	249	10	1081	4	1344
Tripura	226	17	1559	2	1804
Sikkim	6	24	458	0	488
Grand Total	**2270**	**257**	**17483**	**130**	**20140**

Table 2.12

Backhaul Details of Existing BTSs (in %)

LSA	Only OFC	OFC+M/W	Microwave	VSAT
Arunachal Pradesh	25.82	0.69	63.17	10.33
Assam	10.76	1.35	87.85	0.04
Manipur	8.88	1.13	88.34	1.64
Meghalaya	9.56	0.98	88.53	0.93
Mizoram	7.34	0.86	89.35	2.45
Nagaland	18.53	0.74	80.43	0.30
Tripura	12.53	0.94	86.42	0.11
Sikkim	1.23	4.92	93.85	0.00
Grand Total	**11.27**	**1.28**	**86.81**	**0.65**

2.35 It can be seen that nearly 87% BTSs are dependent on microwave links for backhaul connectivity, 12.5% BTSs have OFC connectivity, whereas 0.65% BTSs are working on VSAT. In view of the ongoing projects of USOF/BBNL, the availability of OFC in the all the States is likely to increase significantly. Moreover, with the increase in data usage, more

number of BTSs will be required to have OFC as backhaul. Therefore, a higher percentage of BTSs have been proposed on OFC backhaul connectivity.

2.36 For Arunachal Pradesh, where more than 50% villages are yet to be connected, backhaul on VSAT has been proposed in 25% of the cases. This is for two reasons: firstly, the terrain in most parts of the State is so difficult that laying of OFC may not be possible and secondly, connectivity on Microwave will require several repeaters and towers which will be uneconomical in terms of CAPEX involved and difficult from an operational perspective. On the contrary, BTS connectivity using VSAT can be quickly rolled out as VSAT backhaul is not dependent on nearby Point of Presence (PoP) of the transmission media. Therefore, the following bifurcations of backhaul connectivity for the new 2G BTSs has been considered at present for estimating the investment required.

Table 2.13

Backhaul Details of proposed BTSs (In %)

LSA	OFC	Microwave	VSAT
Arunachal Pradesh	10.0	65.0	25.0
Assam	20.0	80.0	0.0
Manipur	15.0	83.4	1.6
Meghalaya	15.0	84.1	0.9
Mizoram	15.0	82.6	2.4
Nagaland	30.0	69.7	0.3
Tripura	20.0	80	0.0
Sikkim	20.0	80	0.0

Based on feasibility the backhaul connectivity on VSAT can be increased. As mentioned above, this can help in faster roll-out of BTSs. As far as costs are concerned, the capital cost of connecting a BTS on VSAT is lower than that of Microwave. However, in case of VSAT operational expenditure is higher than Microwave. As far as initial investment requirement is concerned, changing the mix of backhaul on any of the three media viz.

OFC, satellite or Microwave, will not alter the overall investment requirement significantly. Accordingly, in some of the difficult and far flung areas a higher percentage of BTSs can be planned on VSAT depending on feasibility.

Estimated Cost of BTSs in various configurations

2.37 Keeping in view, the different configuration of BTS and media for backhaul connectivity and also based on the component-wise cost discussed earlier, the following table provides the estimated costs of BTSs deployment in different settings:

Table 2.14

Estimated Cost of BTSs in various configurations

Sl. No.	Area	Cost (in Rs Lakh)
1.	BTS(2+2+2) in rural area with GBT and microwave backhaul (single hop)	36.1
2.	BTS(2+2+2) in rural area with GBT and OFC backhaul of 2.5 Km	43.1
3.	BTS(2+2+2) in rural area with GBT and backhaul on VSAT#	46.1
3.	BTS(4+4+4) in urban area with GBT and microwave backhaul (single hop)	39.5
4.	BTS(4+4+4) in urban area with GBT and OFC backhaul of 2.5 Km	46.5
5.	BTS(4+4+4) in urban area with RTT and microwave backhaul (single hop)	34.5
6.	BTS(4+4+4) in urban area with RTT and OFC backhaul of 2.5 Km	41.5
7.	Microwave Repeater	34.3
8.	Highway BTS (2+2) configuration with GBT and microwave backhaul (single hop)	35.5

Note – For VSAT connected BTS, the satellite Bandwidth requirement is taken as 1 Mbps (512 kpbs uplink and 512 kbps downlink). Many of the sites of BSNL in Arunachal are running on similar configuration. The sites planned for uncovered villages are likely to have very less traffic and can work satisfactorily on this combination.

2.38 It is pertinent to note that since most of the proposed BTS sites are likely to be in remote areas, it will be difficult to get power connectivity to these sites. During interaction with the TSPs it was informed that almost 40% of the sites of private TSPs do not have a power connection and such BTSs are running 24x7 on diesel generators. Keeping in view that the proposed BTSs are planned for remote and still uncovered areas, it has been assumed that all the proposed BTS sites will be running only on diesel generators.

2.39 The possibility of using greener solutions, like solar power, for the proposed BTS sites was considered. Some of the State Governments and TSPs have suggested use of solar power panels at BTS sites. However, some TSPs have also pointed out that such a solution will not be effective in all locations in the NER, especially in places where it rains almost for six months in a year. The Authority is of the view that the deployment of solar power solutions at BTS sites can be considered by the DoT depending on their feasibility after obtaining a survey report. However, the cost of such solutions has not been built into the estimating BTS installation costs. The cost of providing a solar power solution at a BTS site is approximately about Rs 10 Lakh for a 5 KW power supply. The Authority has proposed installation of 3481 new 2G BTSs (3316 for extending 2G services and 165 for National Highway coverage). Ministry of New and Renewable Energy (MNRE) has, till recently, been providing 90% subsidy to Government entities to deploy solar power systems. This issue is separately dealt with in Chapter-XI. If such a subsidy is provided, then the cost of deploying solar powered solutions in BTS sites will, in any case, not be significant in comparision to overall investment.

2.40 Based on the above costs, the investment required for providing 2G mobile connectivity for each State in the NER has been worked out. **The Overall investment for the entire NER for installing 3316 number of 2G BTSs (other than those along National Highways) with associated backhaul**

connectivity will be Rs. 1724.68 crore. The details are provided in the Chapters of the respective States.

III. 3G Mobile coverage

Present Status

2.41 3G coverage in the NER States is very limited. In some States, even some DHQs do not have 3G coverage. The table below gives the extent of 3G mobile coverage in different States of the NER.

Table 2.15

3G mobile coverage in different states of the North Eastern Region

State	Total No. of Districts	No. of Districts HQs covered by 3G Coverage	Total No. of Sub-Districts	No. of Sub-Districts covered by 3G Coverage	Total No. of Towns	Total No. of towns covered by 3G Coverage	No. Of inhabited Villages	No. of villages covered by 3G Coverage
Arunachal Pradesh	16	4	188	11	27	10	5260	103
Assam	27	27	153	99	214	88	25496	1162
Manipur	9	9	38	25	51	32	2547	290
Meghalaya	11	4	39	4	22	13	6471	46
Mizoram	8	6	26	4	23	8	704	17
Nagaland	11	6	114	9	26	11	1407	83
Sikkim	4	4	9	4	9	7	426	80
Tripura	8	8	40	5	42	9	889	32
Total	**94**	**68**	**607**	**161**	**414**	**178**	**43200**	**1813**

2.42 The population that is currently under 3G service coverage in various NER states is summarized in the table below :

Table 2.16

3G mobile coverage in various States of the North Eastern Region

State	Total Population	Urban Population	Total Population on 3G coverage (Urban + rural)	% of Total Population having 3G coverage	% of Urban Population having 3G coverage
Arunachal Pradesh	1383727	317369	266675	19	68
Assam	31205576	4398542	5224373	17	81
Manipur	2570390	834154	1050538	41	77
Meghalaya	2966889	595450	542727	18	84
Mizoram	1097206	571771	460801	42	78
Nagaland	1978502	570966	503843	25	64
Sikkim	610577	153578	231257	38	95
Tripura	3673917	961453	709579	19	60
Total	**45486784**	**8403283**	**8989793**	**20**	**77**

* Population data for 3 Sub-districts namely "Mao Maram", "Paomata" & "Purul" of Senapati district in Manipur is not mentioned in the Census of India- 2011.

Plan for extending 3G coverage

2.43 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.

2.44 While suggesting 3G coverage of remaining urban areas, the Authority took into consideredation the existing roll-out obligations reposed in the 3G spectrum holders. In terms of the amendment issued by DoT to the

access lisences (dated 01.09.2010), the license conditions of 3G spectrum winners have been modified to include the following roll-out obligations:

"....Category A, B and C service areas

The licensee to whom the spectrum is assigned shall ensure that at least 50% of the District Headquarters ("DHQ") in the service area will be covered using the 3G Spectrum, out of which at least 15% of the DHQs should be rural Short Distance Charging Areas ("SDCA"), within five years of the Effective Date. SDCA is defined as per the definition used by the Census of India. Rural SDCA is defined as an area where 50% of the population lives in the rural area. Further:

(i) the operator shall be permitted to cover any other town in a District in lieu of the DHQ;

(ii)coverage of a DHQ/ town would mean that at least 90% of the area bounded by the municipal/ local body limits should get the required street level coverage;

(iii)the DHQ shall be taken as on the Effective Date;

(iv)the choice of DHQs/ towns to be covered and further expansion beyond 50% of DHQs/ towns shall lie with the operator....."

The Authority had earlier sought the status of roll-out of services using 3G and BWA spectrum from various service providers. Some TSPs have raised the issue that the term 'rural SDCA' has not been defined by the DoT. Accordingly, TRAI vide its letter dated 2nd July, 2012 and 20th Dec, 2012 had requested the DoT to clarify the same and provide a list of rural SDCAs to the TSPs. So far, TRAI is in receipt of such a list for only eight service areas, namely, Assam, Tamil Nadu, Madhya Pradesh, Gujarat, Himachal Pradesh, Bihar, J&K and Orissa. In the absence of the list of rural SDCAs, the Authority has no means to verify whether TSPs holding 3G spectrum have met the roll-out obligations or not. Moreover, the TSPs are required to register with Telecom Enforcement and Resources

Monitoring (TERM) cells of the DoT for verification of roll-out obligations. The TERM cells need to verify whether the required conditions of coverage of 90% of the area bounded by the municipal/ local body limits for a DHQ/ town have been met or not. In view of the aforesaid, the Authority is of the opinion that the DoT should immediately come out with the list of rural SDCAs and may take the pending roll-out obligations into account while deciding on the investment for extending 3G coverage in remaining urban areas.

2.45 For estimating the number of 3G BTSs (i.e. Node Bs) required for extending data coverage in remaining urban areas, the approach adopted is similar to that for the 2G BTS estimation. Considering the coverage radius per Node-B (3G BTS) as 1.25Km in urban areas, the population that can be served by one Node-B works out to be about 3000 in urban areas.

Cost of installing 3G Node-B

2.46 In the most likely scenario, the 3G Node-Bs shall be installed on existing tower sites housing 2G BTSs. In such cases, expenditure on sites, towers and other related infrastructure will not be required. However, there may be a need to augment the capacity of infrastructure elements such as battery, power plant, media capacity etc. Therefore, for installation of Node-Bs, an expenditure of Rs. 15 lakh has been considered for each site. This includes the proportionate cost of Radio Network Controller (RNC) assuming that one RNC will cater to about 100 Node-Bs.

2.47 Of the 3G Node-Bs planned to be installed, it has been assumed that 10% of such 3G Node-Bs will be installed by erecting new towers/sites. Therefore, in such new sites, planning of passive infrastructure like tower, battery, diesel engine etc will be required. These new sites have been planned on Ground Based Towers with Microwave backhaul connectivity

for access. For each such site apart from the cost of one Node-B (Rs 15 lakh) an additional cost of Rs 30.5 lakhs has also been assumed.

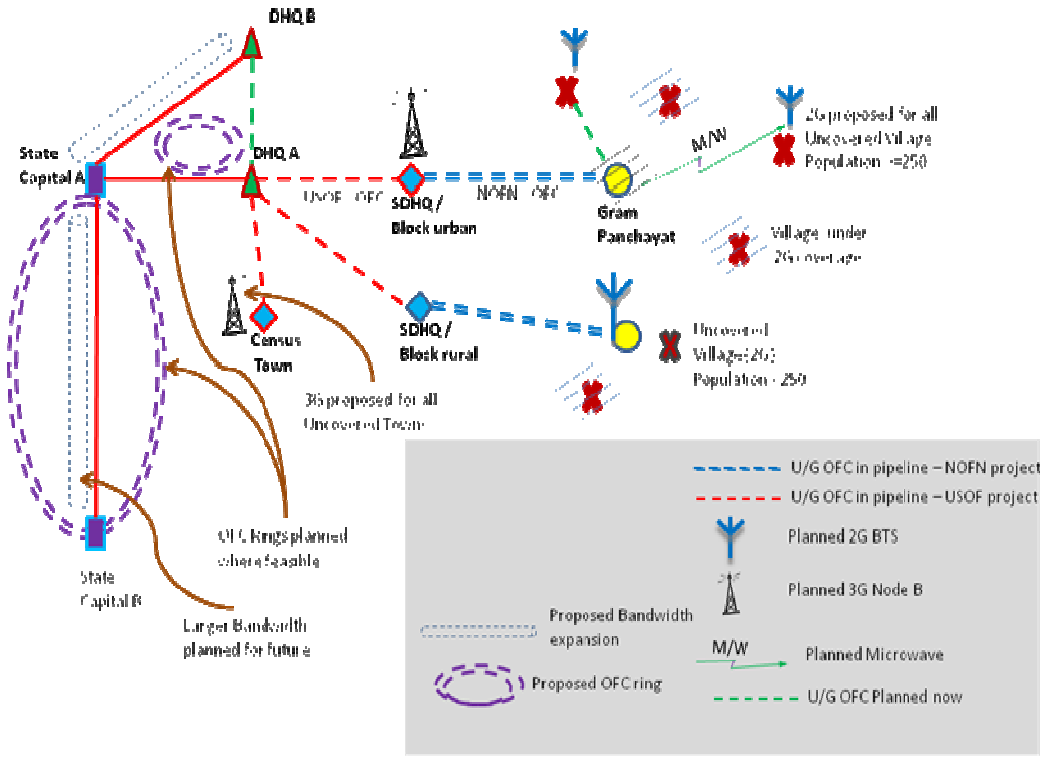
2.48 Based on the above methodology, the investment required for providing 3G mobile connectivity for the urban areas of each State in the NER has been worked out. **The Overall investment for the NER for installing 816 number of 3G Node-Bs will be Rs. 147.5 crore.** The details are provided in the Chapters of the respective States.

Overall approach followed for investment planning for transmission media, 2G and 3G coverage

2.49 As brought out in the preceding paras, the overall approach followed for investment planning for transmission media, 2G coverage and 3G coverage can be illustrated as in the figure below:

Figure 2.4

Overall approach followed for investment planning



IV. National Highways

2.50 As already discussed, for economic development of a region, 'connectivity-on-the-move' is an important requirement. The NER, because of its strategic location requires communication and connectivity throughout the main artery that runs through the region, namely, the National Highways. Hence, it is vital to ensure that mobile connectivity is available at least on all National Highways in the NER. Accordingly, existing 2G mobile coverage along the National Highways that pass through the NER States has been studied.

2.51 The National Highways that pass through various NER States have a length of 9908 KMs[11]. Sikkim has only 62 KMs of National Highway and most of it has mobile coverage. For the remaining seven States, the coverage data along National Highways has been collected. It is found that almost 1631 KMs of the National Highways passing through the NER States are yet to have 2G mobile coverage. The State-wise details are as follows:

Table 2.17

National Highway coverage details for NER States (except Sikkim)

State	LENGTH (Km)	Covered Length (Km)	Uncovered Length (Km)	% uncovered length
Arunachal Pradesh	2302	1084	1218	52.91
Assam	3954	3860	94	2.38
Manipur	959	786	173	18.04
Meghalaya	810	810	0	0.00
Mizoram	927	919	8	0.86
Nagaland	494	393	101	20.45
Tripura	400	363	37	9.25
Total	**9846**	**8215**	**1631**	**16.56**

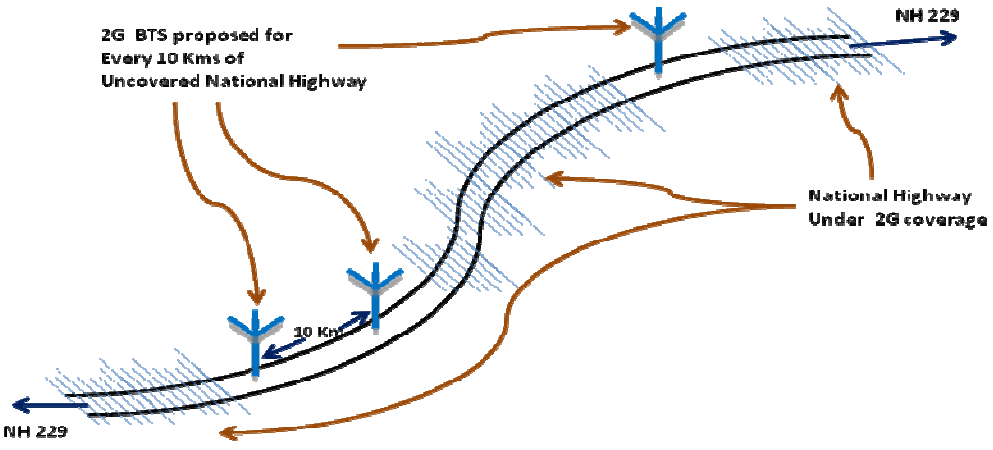
[11] As per www.morth.nic.in data as accessed in May 2013.

Approach for covering remaining portions of the National Highways

2.52 About 8215 KM of National Highways are covered by one or the other TSP. To estimate the portion along the National Highways which are not covered by any of the TSPs, a group consisting of technical experts from all TSPs that operate in the NER States was formed. The group collected the coverage maps of National Highways for all the operators and identified the coverage foot print considering the radiation pattern of each BTS and manually captured the covered National Highway parts based on the merged data. The expert group then manually calculated each uncovered part of a National Highway and segregated these route-wise, Highway-Number wise and State-wise and reported the gaps in the National Highways where no operator has coverage. In the uncovered patches, GBT based 2G BTSs have been planned. One 2G BTS has been planned for every 10 Kms of highway, assuming a coverage of 5 Kms on either side of the highway BTS, as illustrated in the figure below :

Figure 2.5

National Highway coverage plan



2.53 Using the above approach, segments of the National Highways which currently do not have coverage of any operator, will get 2G coverage. However, a subscriber of one TSP will still not get coverage in those patches where his TSP does not have 2G coverage until and unless his TSP has a roaming arrangement with other TSPs who have their network in such patches. Therefore, this approach is effective only when all TSPs mandatorily enter into inter and intra circle roaming arrangements with each other for all the BTSs that cover the National Highways. This aspect is dealt with in **Chapter – XI**.

2.54 The number of BTSs required to bring the uncovered National Highway patches under 2G coverage may actually vary depending on the topography of the region. However, until and unless an actual survey is carried out, it will not be possible to calculate the precise number of BTSs required. Therefore, for macro-level planning reasonable assumptions have been made to estimate the investment requirement.

2.55 For connecting the National Highway BTSs, microwave backhaul has been assumed with single hop. Based on the above approach, the number of BTSs required and the estimated investment for ensuring coverage across the entire stretch of National Highways is:

Table 2.18

Investment requirement for covering remaining portions of Highway

State	Uncovered Length (Km)	No of GBT based 2G BTS required	Investment required @ 35.5 lakh per highway BTS (Rs Cr)
Arunachal Pradesh	1218	122	**43.31**
Assam	94	10	**3.55**
Manipur	173	18	**6.385**
Meghalaya	0	0	**0**
Mizoram	8	1	**0.355**
Nagaland	101	10	**3.55**
Tripura	**37**	4	**1.42**
Total	**1631**	**165**	**58.575**

As can be seen from the above table, of the 1631 KMs of uncovered highways, three-fourths are in Arunachal Pradesh. The details of highway-wise uncovered patches for National Highways passing through Arunachal Pradesh are provided separately in **Annexure –VII.**

State-wise detailed plans and investment required

2.56 Based on the above assumptions and methodologies, an investment plan has been worked out to bridge the State-wise gap for transmission bandwidth, 2G & 3G Coverage. The overall investment is summarized in the table below :

Table 2.19

Investment required to cover the Gap in North East Region States

Service Area	State	2G Connectivity Plan			3G Connectivity Plan			NH connectivity Plan			Transmission equpt investment (Rs Cr)	OFC cost (Rs Cr)	Total Investment Required (Rs Cr)
		No. of Villages >250 population	No. of BTS required	Investment Required (Rs Cr)	No. of Urban towns	No. of Node B required	Investment Required (Rs Cr)	Uncovered NH portion (KM)	No. of BTS required	Investment Required (Rs Cr)			
Assam	**Assam**	1224	1224	522.49	126	391	70.5	94	10	3.6	26.9	34.2	**657.7**
North East (NE-1 & 2)	**Meghalaya**	852	852	463.46	9	35	6.5	0	0	0.0	10.2	11.8	**492.0**
	Mizoram	213	213	114.79	15	49	8.9	8	1	0.4	8.6	48.1	**180.8**
	Tripura	2	2	1.1	33	142	25.6	37	4	1.4	6.2	1.8	**36.1**
	Arunachal Pradesh	456	611	400	17	51	9.2	1218	122	43.3	14.8	73.9	**541.2**
	Manipur	285	291	158	19	70	12.6	173	18	6.4	6.7	9.4	**193.1**
	Nagaland	93	106	55.7	15	75	13.7	101	10	3.6	7.5	14.7	**95.2**
West Bengal	**Sikkim**	17	17	9.135	2	3	0.5	0	0	0.0	3.2	6.4	**19.2**
	Investment required for providing capacity enhancement and redundancy for connecting State Capitals using existing infrastructure of BSNL & PGCIL										**29.8**		**29.8**
	Total	**3142**	**3316**	**1724.68**	**236**	**816**	**147.5**	**1631**	**165**	**58.7**	**113.9**	**200.3**	**2245**

2.57 The installation of infrastructure in the NER States poses special challenges because of the difficult and inaccessible terrain. Installing BTSs and laying OFC in such difficult terrain will add to the costs computed above. Therefore, 20% of the above calculated investment requirement has

been added to take into account higher costs in the NER such as those of transportation, installation, travelling etc.

2.58 The investment requirement has been worked out at a macro level. The Authority suggests that a detailed survey be carried out for each of the different components to arrive at the exact investment required. An additional 10% of costs have been added for miscellaneous expenditure like costs on detailed field surveys, accessory costs, supervision and monitoring costs etc.

2.59 Accordingly, based on the gap analysis of the NER, **the Authority recommends that the overall investment requirement for the suggested comprehensive plan for covering the telecom infrastructure gaps in the North East Region states would be approximately Rs 2918 Crores (Rs 2245 Crore + 30% of Rs 2245 Crore)**

2.60 The State-wise details of the above investment plan are provided in Chapters-III to X.

Operating Costs

2.61 In addition to the CAPEX requirement estimated above, the Authority would like to highlight that the Government may need to plan for annual operating expenses for the additional infrastructure that is proposed to be created. For instance, merely installing a BTS in an area will not serve the purpose; if the business case does not exist, the TSP may find it difficult to even recover operating costs. The transmission equipment/routes and the 3G BTSs have been mostly planned at existing sites and, hence, the OPEX requirement for these would be marginal. But in cases where new 2G/3G BTS/Node-B sites and satellite connectivity are proposed, the Authority is of the opinion that the operating costs for such sites need to be supported by the Government for ensuring sustainability. An annual subsidy per BTS needs to be worked out by the Government for meeting the operational

costs of the new 2G BTS sites proposed in a similar manner as is being currently paid to Universal Service Providers (USPs) under the USOF scheme for provision of mobile services in specified rural and remote areas. In the areas, where Infrastructure Providers(IPs)/USPs have already installed their towers and operating the services under USOF projects, the USOF needs to examine the need for further provisioning of subsidy beyond the contracted five years period as this is going to end very shortly.

CHAPTER III
COMPREHENSIVE TELECOM PLAN FOR ASSAM

3.1 The geographical area of Assam is 78353 Sq Km (2.4% of the area of country). It is surrounded by the other six NE States viz. Arunachal Pradesh, Nagaland, Manipur, Mizoram, Tripura and Meghalaya. It also shares a boundary with Bhutan and Bangladesh in the North and East.

3.2 There are 27 districts and 153 Sub-Districts/Blocks, 214 towns and 26395 villages in the State. Its population, as per census 2011, is 31205576 with 14.08% urban population. The population density of Assam is 397 persons per sq km. Among all 27 districts, Kamrup Metropolitan district has highest density of population i.e. 2010 persons per sq km. The lowest density of 44 persons per sq km is observed in Dima Hasao district.

Table 3.1

District wise Population and Geographical Area of Assam

District	District Headquarter	Population			Total Area (Sq. km)	Density (per Sq Km)
		Rural	Urban	Total		
Kokrajhar	Kokrajhar	832201	54941	887142	3168	280
Dhubri	Dhubri	1745557	203701	1949258	1664	1171
Goalpara	Goalpara	870121	138062	1008183	1823	553
Barpeta	Barpeta	1546269	147353	1693622	2679	632
Marigaon	Marigaon	884125	73298	957423	1549	618
Nagaon	Nagaon	2454234	369534	2823768	3971	711
Sonitpur	Tezpur	1750265	173845	1924110	5271	365
Lakhimpur	North	950804	91333	1042137	2280	457
Dhemaji	Dhemaji	637848	48285	686133	3221	213
Tinsukia	Tinsukia	1063186	264743	1327929	3826	347
Dibrugarh	Dibrugarh	1082605	243730	1326335	3374	393
Sivasagar	Sivasagar	1040954	110096	1151050	2670	431
Jorhat	Jorhat	871722	220534	1092256	2851	383
Golaghat	Golaghat	969152	97736	1066888	3532	302
Karbi Anglong	Diphu	843347	112966	956313	10282	93

Dima Hasao	Haflong	151613	62489	214102	4865	44
Cachar	Silchar	1421153	315464	1736617	3783	459
Karimganj	Karimganj	1118986	109700	1228686	1825	673
Hailakandi	Hailakandi	611156	48140	659296	1326	497
Bongaigaon	Bongaigaon	628994	109810	738804	1738	425
Chirang	Kajalgaon	446825	35337	482162	1976	244
Kamrup	Guwahati	1375148	142394	1517542	3480	436
Kamrup	Guwahati	216927	1037011	1253938	624	2010
Nalbari	Nalbari	688909	82730	771639	1011	763
Baksa	Mushalpur	937833	12242	950075	2000	475
Darrang	Mangaldai	873006	55494	928500	1891	491
Udalgiri	Udalgiri	794094	37574	831668	1673	497
ASSAM		**26807034**	**4398542**	**31205576**	**78353**	**397**

TELECOM STATUS IN ASSAM

3.3 As on May 2013, there are 1,45,48,912 number of wireless subscribers in Assam. Wireless tele-density of the State is 45.36. The subscriber base of each of the 6 TSPs providing mobile services in Assam is given in the table below:

Table 3.2

Service Providers wise Subscriber Base in Assam (May 2013)

Sl. No.	Name of Service Provider	No. of Subscribers	Market Share (in %)
1.	Airtel	4045570	27.8
2.	Aircel	3520120	24.2
3.	BSNL	1163871	8.0
4.	Vodafone	2451800	16.9
5.	Reliance	2944179	20.2
6.	Idea	423372	2.9
	Total	**14548912**	

I. Transmission Media Plan

Connectivity of State Capital & DHQs:

3.4 Of the 27 DHQs, 20 are connected by OFC ring, whereas 6 DHQs viz. North Lakhimpur, Dhemaji, Silchar, Karimganj, Hailakandi and Udalguri are on linear OFC. All these DHQs are connected by digital microwave also. Haflong DHQ is connected only by microwave link.

Table 3.3

Connectivity Status of DHQs

Sl. No.	District	DHQ	Connectivity			Operators having OFC connectivity
			OFC	Microwave	Satellite	
1	Kokrajhar	Kokrajhar	Ring	Yes	No	Airtel , BSNL, Vodafone
2	Dhubri	Dhubri	Ring	Yes	No	Airtel, BSNL, Vodafone
3	Goalpara	Goalpara	Ring	Yes	No	Airtel, BSNL, Vodafone
4	Barpeta	Barpeta	Ring	Yes	No	Airtel , BSNL, Vodafone
5	Morigaon	Marigaon	Ring	Yes	No	BSNL
6	Nagaon	Nagaon	Ring	Yes	No	Airtel , PGCIL, BSNL,
7	Sonitpur	Tezpur	Ring	Yes	No	Airtel , PGCIL, BSNL,
8	Lakhimpur	North	Linear	Yes	No	Airtel, BSNL, Vodafone
9	Dhemaji	Dhemaji	Linear	Yes	No	Airtel, BSNL, Vodafone
10	Tinsukia	Tinsukia	Ring	Yes	No	Airtel , Railtel, BSNL,
11	Dibrugarh	Dibrugarh	Ring	Yes	No	Airtel , Railtel, BSNL,
12	Sivasagar	Sivasagar	Ring	Yes	No	Airtel , Railtel, BSNL,
13	Jorhat	Jorhat	Ring	Yes	No	Airtel , Railtel, BSNL,
14	Golaghat	Golaghat	Ring	Yes	No	Airtel, BSNL, Vodafone
15	Karbi	Diphu	Ring	Yes	No	Airtel, BSNL
16	Dima Hasao	Haflong	No	Yes	No	
17	Cachar	Silchar	Linear	Yes	No	Airtel, BSNL, Vodafone
18	Karimganj	Karimganj	Linear	Yes	No	Airtel, BSNL, Vodafone
19	Hailakandi	Hailakandi	Linear	Yes	No	BSNL
20	Bongaigaon	Bongaigaon	Ring	Yes	No	Airtel , Aircel, Vodafone,
21	Chirang	Kajalgaon	Ring	Yes	No	Airtel , Vodafone, PGCIL
22	Kamrup	Guwahati	Ring	Yes	No	Airtel, Vodafone, BSNL,
23	Kamrup	Guwahati	Ring	Yes	No	Airtel, Vodafone, BSNL,
24	Nalbari	Nalbari	Ring	Yes	No	Airtel, Vodafone, BSNL
25	Baksa	Mushalpur	Ring	Yes	No	BSNL
26	Darrang	Mangaldai	Ring	Yes	No	Airtel, Vodafone
27	Udalguri	Udalgiri	Linear	Yes	No	Vodafone

Bandwidth Availability at the State Capital and DHQs:

3.5 The State capital Guwahati is connected to Kolkata, Siliguri, Coochbehar, Alipurduar by Digital Wavelength Division Multiplexing (DWDM) and Synchronous Digital Hierarchy (SDH) transmission systems. It is also connected to Patna, New Delhi, and Cuttack by microwave. The total available bandwidth for connectivity outside the NER is 122.9 Gbps.

Table 3.4

Available bandwidth at Guwahati

S.No.	Connected to	Media	Transmission System	Bandwidth (Gbps)	Service Provider
1	Kolkata	OFC	DWDM	19.9	Airtel
2	Kolkata	OFC	SDH	1.86	BSNL
3	Patna	Microwave	SDH	0.62	BSNL
4	Cuttack	Microwave	SDH	0.31	BSNL
5	New Delhi	Microwave	SDH	0.31	BSNL
6	Coochbihar	OFC	SDH	9.95	Tata
7	Alipurduar	OFC	SDH	9.95	Tata
8	Siliguri	OFC	DWDM	80	PGCIL
				122.9	**Total**

3.6 The following table gives the total bandwidth available at different DHQs.

Table 3.5

District wise Bandwidth availability

Sl. No.	District	DHQ	Bandwidth on OFC (Gbps)	Bandwidth on Digital Microwave (Gbps)	Bandwidth on Satellite (Gbps)	Total Bandwidth (Gbps)
1	Kokrajhar	Kokrajhar	14.94	0.44	Nil	15.38
2	Dhubri	Dhubri	5.61	0.44	Nil	6.05
3	Goalpara	Goalpara	17.43	0.44	Nil	17.87
4	Barpeta	Barpeta	17.43	0.44	Nil	17.87
5	Morigaon	Marigaon	2.49	0.59	Nil	3.08
6	Nagaon	Nagaon	29.88	0.59	Nil	30.47
7	Sonitpur	Tezpur	17.44	0.44	Nil	17.88
8	Lakhimpur	North	14.93	0.44	Nil	15.37
9	Dhemaji	Dhemaji	12.45	1.06	Nil	13.51
10	Tinsukia	Tinsukia	22.41	0.44	Nil	22.85

11	Dibrugarh	Dibrugarh	24.90	0.44	Nil	25.34
12	Sivasagar	Sivasagar	17.43	0.44	Nil	17.87
13	Jorhat	Jorhat	29.88	1.06	Nil	30.94
14	Golaghat	Golaghat	14.94	1.06	Nil	16
15	Karbi Anglong	Diphu	14.93	0.44	Nil	15.37
16	Dima Hasao	Haflong	Nil	0.31	Nil	0.31
17	Cachar	Silchar	17.42	1.71	Nil	19.13
18	Karimganj	Karimganj	14.94	0.31	Nil	15.25
19	Hailakandi	Hailakandi	2.49	1.08	Nil	3.57
20	Bongaigaon	Bongaigaon	32.37	1.06	Nil	33.43
21	Chirang	Kajalgaon	12.45	0.15	Nil	12.6
22	Kamrup	Guwahati	39.87	0.31	Nil	40.18
23	Kamrup	Guwahati	39.82	0.28	Nil	40.1
24	Nalbari	Nalbari	14.94	0.44	Nil	15.38
25	Baksa	Mushalpur		0.3	Nil	0.3
26	Darrang	Mangaldai	24.	0.44	Nil	25.33
27	Udalguri	Udalgiri	2.5	0.31	Nil	2.81

Requirement of additional transmission media:

3.7 In order to have media diversity for those DHQs which are presently not connected on OFC ring with the State Capital, there is a need to connect such DHQs by laying additional OFC. Accordingly, the proposed media plan along with the investment required (@Rs4.0 Lakh per Km) is given in the table below:

Table 3.6

Proposed Media Plan for connecting DHQs[12]

Sl No	District	DHQ	Present OFC Connectivity	Proposed Connectivity to	Route length (km)	Cost (in Crore Rs.)*	Remarks
1	Udalguri	Udalguri	Linear	Mushalpur	120	4.8	
2	Dima Hasao	Haflong	No	Diphu (via Lumding)	166	6.64	
3	Cachar	Silchar	Linear	Haflong	105	4.2	Provides ring connectivity to Silchar
4	Karimganj	Karimganj	Linear	Hailakandi	45	1.8	

[12] Exact route length can be found out only after carrying out the feasibility study of route.

5	Dhemaji	Dhemaji	Linear	Dibrugarh#	70	2.8	From Dhemaji-Sibsagar 41 Km existing fiber
6.	Lakhimpur	North Lakhimpur	Linear	Dibrugarh via Dhemaji	NA	0	After completion of OFC Route from Dhemaji to Dibrugarh, it will come on ring
7.	Hailakandi	Hailakandi	Linear	Karmiganj	NA	0	Already shown in Sl. No. 4 above
	Total				**506**	**20.24**	

*****Cost per Km of OFC (U/G) is taken as Rs 4 Lakhs.

The work is linked to completion of the construction of bridge that is ongoing on Dhemaji-Dibrugarh highway

Bandwidth Requirement

3.8 The estimated requirement of additional bandwidth at DHQs towards State capital is as per table below.

Table 3.7

Estimated bandwidth required at DHQs

Sl. No.	**District**	**DHQ**	**Present Bandwidth (Gbps)**	**Approximate Bandwidth required (Gbps)**
1	Kokrajhar	Kokrajhar	15.38	4.8
2	Dhubri	Dhubri	6.05	11.7
3	Goalpara	Goalpara	17.87	5.9
4	Barpeta	Barpeta	17.87	9.4
5	Morigaon	Marigaon	3.08	5.1
6	Nagaon	Nagaon	30.47	18.3
7	Sonitpur	Tezpur	17.88	11.0
8	Lakhimpur	North	15.37	5.7
9	Dhemaji	Dhemaji	13.51	3.5
10	Tinsukia	Tinsukia	22.85	10.4
11	Dibrugarh	Dibrugarh	25.34	10.8
12	Sivasagar	Sivasagar	17.87	7.0
13	Jorhat	Jorhat	30.94	7.7

14	Golaghat	Golaghat	16	6.3
15	Karbi Anglong	Diphu	15.37	5.2
16	Dima Hasao	Haflong	0.31	1.5
17	Cachar	Silchar	19.13	14.4
18	Karimganj	Karimganj	15.25	6.9
19	Hailakandi	Hailakandi	3.57	3.9
20	Bongaigaon	Bongaigaon	33.43	4.6
21	Chirang	Kajalgaon	12.6	2.6
22	Kamrup	Guwahati	40.18	8.7
23	Kamrup	Guwahati	40.1	31.7
24	Nalbari	Nalbari	15.38	4.4
25	Baksa	Mushalpur	0.3	4.7
26	Darrang	Mangaldai	25.33	5.0
27	Udalguri	Udalgiri	2.81	4.4
	Total		**474.24**	**215.6**

Requirement of DWDM Equipment:

3.9 For augumenting the bandwidth, 6 OFC rings (refer table below) along with transmission equipment have been planned. One linear system between Bongaigaon and Dhubri has also been planned. Transmission Systems planned are based on 40λ, 2.5G, DWDM. One Optical Add Drop Multiplex(OADM) has been planned for about 40Km distance, and 2 Optical Terminal Multiplexers (OTM) have been considered for each ring. The details are as per table given below:

Table 3.8

Proposed OFC Ring and Telecom Equipment Required

Sl No.	**Ring / Linear**	**Route**	**Number of equipment Required**
1	Ring 1 & Ring 2[13]	Tezpur---North Lakhimpur-----Dhemaji----- Dibrugarh---Tinsukia------Dibrugarh-------- Sivsagar-----Jorhat-------Golaghat-------Tezpur	OADMs –48 OTMs – 8#
2	Ring 3	Guwahati-----Marigaon-----Nagaon----Tezpur--- Mangaldai-----Udalguri----Mushalpur---- Nalbari------Guwahati	OADMs –14 OTMs – 2

[13] As total 'λ' required in the ring are 25, therefore numbers of rings are proposed on this route are two.

3	Ring 4	Guwahati----Nalbari----Barpeta----- Bongaigaon--Goalpara-----Guwahati	OADMs – 9 OTMs – 2
4	Ring 5	Guwahati----Nagaon----Lumding----Haflong---- Silchar-----Hailakandi------Karimganj---- Badarpur—Khlierhiat—Jowai------Shillong---- Nongpoh---Guwahati	OADMs – 20 OTMs – 4
5	Ring 6	Bongaigaon----Kajalgon—Kokrajhar— Gasserigaon—Tamrahat---Goripur(Dhubri)— Bilaripara--Bongaigaon	OADMs – 10 OTMs - 2

- As the ring length is more, the requirement of OTMs will be more for signal regeneration

3.10 Based on above planning the requirement of equipment will be as below:

- Number of OTMs required= 18
- Number of OADMs = 101
- Number of DXC = 6

Total Investment[14] Required= **Rs. 26.9 Crore**.

II. 2G Mobile connectivity plan

3.11 All the DHQs and towns in Assam have 2G mobile coverage. As far as coverage of villages is concerned, of a total 25496 villages, 22611 villages are covered by 2G mobile. There are 2885 villages which do not have mobile coverage to date. District wise information of village coverage is given in the table below:

Table 3.9

Status of Village coverage

SSA	Total No. of Villages#	Total No. of inhabitated villages	No. of Villages having mobile coverage	% of Villages having mobile coverage	Uncovered Villages
Kokrajhar	1070	1055	940	89.10	115
Dhubri	1095	1056	1007	95.36	49
Goalpara	838	788	744	94.42	44
Barpeta	838	826	801	96.97	25
Marigaon	637	603	575	95.36	28

[14] Cost per OTM=Rs. 0.6 crore, OADM= Rs. 0.1 crore and DXC= Rs. 1 crore.

Nagaon	1423	1370	1351	98.61	19
Sonitpur	1884	1801	1726	95.84	75
Lakhimpur	1184	1146	1058	92.32	88
Dhemaji	1321	1266	1113	87.91	153
Tinsukia	1181	1144	1051	91.87	93
Dibrugarh	1356	1324	1305	98.56	19
Sivasagar	876	863	859	99.54	4
Jorhat	867	770	730	94.81	40
Golaghat	1127	1034	936	90.52	98
Karbi	2922	2713	1544	56.91	1169
Dima Hasao	695	676	240	35.50	436
Cachar	1059	1015	953	93.89	62
Karimganj	941	920	892	96.96	28
Hailakandi	332	331	308	93.05	23
Bongaigaon	566	538	518	96.28	20
Chirang	509	502	451	89.84	51
Kamrup	1082	1051	945	89.91	106
Kamrup	227	214	205	95.79	9
Nalbari	465	464	431	92.89	33
Baksa	692	681	657	96.48	24
Darrang	562	553	520	94.03	33
Udalgiri	801	792	751	94.82	41
Total	**26550**	**25496**	**22611**	**90.65**	**2885**

#Includes Census Towns also

Phase Wise Plan to increase 2G mobile coverage

3.12 In Assam, the population profile of the uncovered villages is given in the table below.

Table 3.10

Population-wise segmentation of uncovered villages

Sl. No.	Population	No. of 'uncovered' villages
1.	0-100	721
2.	100-250	940
3.	250-500	637
4.	More than 500	587
	Total	**2885**

3.13 As recommended in Chapter-II, in Phase-I, all the villages with a population more than 250 are to be covered. Of the total 2885 uncovered

villages, 1224 villages will be covered in Assam and the percentage of population having 2G mobile coverage shall increase from the present level of 90% to 95%. The District-wise plan to cover uncovered villages is given in the table below:

Table 3.11

District Wise Plan to cover remaining uncovered villages

Name of District	Number of Uncovered Villages	No. of villages that will be covered in phase-I	Remaining villages	Covered Villages at present (in %)	Covered Villages after Phase-I (in %)
Kokrajhar	115	71	44	89.10	95.83
Dhubri	49	32	17	95.36	98.39
Goalpara	44	12	32	94.42	95.94
Barpeta	25	11	14	96.97	98.31
Marigaon	28	14	14	95.36	97.68
Nagaon	19	8	11	98.61	99.20
Sonitpur	75	43	32	95.84	98.22
Lakhimpur	88	61	27	92.32	97.64
Dhemaji	153	88	65	87.91	94.87
Tinsukia	93	52	41	91.87	96.42
Dibrugarh	19	9	10	98.56	99.24
Sivasagar	4	4	0	99.54	100.00
Jorhat	40	25	15	94.81	98.05
Golaghat	98	62	36	90.52	96.52
Karbi	1169	339	830	56.91	69.41
Dima Hasao	436	124	312	35.50	53.85
Cachar	62	28	34	93.89	96.65
Karimganj	28	18	10	96.96	98.91
Hailakandi	23	17	6	93.05	98.19
Bongaigaon	20	7	13	96.28	97.58
Chirang	51	42	9	89.84	98.21
Kamrup	106	47	59	89.91	94.39
Kamrup	9	7	2	95.79	99.07
Nalbari	33	27	6	92.89	98.71
Baksa	24	18	6	96.48	99.12
Darrang	33	21	12	94.03	97.83
Udalgiri	41	37	4	94.82	99.49
Total	**2885**	**1224**	**1661**	**90.65**	**95.10**

3.14 As can be seen there are 1605 uncovered villages in just two districts, namely, Karbi Anglong and Dima Hasao. This accounts for 55% of the total uncovered villages in Assam. Even the USOF funded project that aims to connect DHQs to Block HQs has also suffered in these two districts. As per the information provided by BSNL, out of the 25 OFC PoPs which are yet to be installed, 19 PoP locations are in these two districts and the balance 6 are in non-feasible areas. The reasons ascribed for such a large number of uncovered areas/villages in these two districts are law and order problems, poor power availablity, and difficult accessibility conditions.

Infrastructure and Investment Required

3.15 As outlined in Chapter – II, one BTS will be required for each village. These BTSs will be connected to BSCs on Micowave (80%) and OFC media (20%). The number of microwave links has been estimated to be about 80% of the number of BTSs and number of microwave repeaters will be about 10% of number of microwave links. 20% of the number of BTSs will be on OFC link with an average route length of 2.5 KM. Based on these assumptions, the total infrastructure requirement and investment for 1224 additional BTSs with connectivity through microwave and OFC links is given in table 3.12.

Table 3.12

Infrastructure required for 2G mobile Coverage

Districts	No. of BTSs required	No. of Microwave links	No. of Microwave Repeaters	No. of OFC links	OFC Route Length
Kokrajhar	71	57	6	14	35
Dhubri	32	26	3	6	15
Goalpara	12	10	1	2	5
Barpeta	11	9	1	2	5
Marigaon	14	11	1	3	7.5
Nagaon	8	6	1	2	5

Sonitpur	43	34	3	9	22.5
Lakhimpur	61	49	5	12	30
Dhemaji	88	70	7	18	45
Tinsukia	52	42	4	10	25
Dibrugarh	9	7	1	2	5
Sivasagar	4	3	0	1	2.5
Jorhat	25	20	2	5	12.5
Golaghat	62	50	5	12	30
Karbi	339	271	27	68	170
Dima Hasao	124	99	10	25	62.5
Cachar	28	22	2	6	15
Karimganj	18	14	1	4	10
Hailakandi	17	14	1	3	7.5
Bongaigaon	7	6	1	1	2.5
Chirang	42	34	3	8	20
Kamrup	47	38	4	9	22.5
Kamrup	7	6	1	1	2.5
Nalbari	27	22	2	5	12.5
Baksa	18	14	1	4	10
Darrang	21	17	2	4	10
Udalgiri	37	30	3	7	17.5
Assam	**1224**	**981**	**98**	**243**	**607.5**

3.16 About 40% of the BTSs have been proposed for Karbi Anglong and Dima Hasao district. Installation of new BTSs, as proposed, would be a challenge in these districts and in similar areas. **A different approach would be required for development of telecom infrastructure by Govt/USOF for these districts (and in similarly placed areas) by installing BTSs as is being done for left-wing extremist (LWE) areas of Bastar (Chhatisgarh).**

3.17 The total estimated investment required for 2G coverage will be Rs 522.49 Cr as per the table given below:

Table 3.13

Estimated Investment required for 2G mobile Coverage

	No. of BTSs required	No. of BTS with Microwave links	No. of Microwave Repeaters	No. of BTS on OFC links	No. of BTS on Satellite links	No. of BSC required	Total Expenditure (Rs. Cr)
Infrastructure required	1224	981	98	243	0	12	
Unit Costs (Cr.)		0.361	0.343	0.431	0.461	2.5	
Total Costs (Cr)		**354.14**	**33.61**	**104.73**	**0.00**	**30.00**	**522.49**

III. 3G Mobile connectivity plan

3.18 In Assam, 4 TSPs viz. Aircel, Airtel (Bharti Hexacom) BSNL and Reliance Telecom Ltd. (RTL), have 3G spectrum. The roll-out of 3G services in Assam is largely limited to DHQs; statutory/ census towns are more or less uncovered. It is recommended that all statutory towns as well as census towns should have 3G coverage which will cover the entire urban population of Assam. To extend 3G coverage, the investment required to provide additional Node-Bs and the list of towns that are planned to be covered with 3G coverage are given in the table below (Considering population of 3000 will be covered with one Node-B)

Table 3.14

Names of Towns to be provided 3G Coverage

Sl. No.	District	Sub - District	Town Name	Town Code	Total Population	No. of Node-Bs
1	Baksa	Barnagar (Pt)	Takhlibilar Pathar (CT)	304182	6611	3
2	Baksa	Goreswar	No.2 Goreswar (CT)	304411	5631	2
3	Barpeta	Barnagar (Pt)	Khaira Bari (CT)	282692	10210	4
4	Barpeta	Chenga	Bohari (CT)	283005	8264	3
5	Bongaigaon	Boitamari	Chalantapara Pt IV (CT)	301473	5744	2
6	Bongaigaon	Sidli (Pt)	B.R.P.L. Township (CT)	301806	6001	3
7	Cachar	Katigora	Niz Katigorah Pt III (CT)	299130	5687	2

8	Cachar	Katigora	Katirail T.E. (CT)	299131	6182	3
9	Cachar	Silchar	Tupkhana Pt I (CT)	299378	4640	2
10	Cachar	Silchar	Tarapur Pt VI (CT)	299379	8753	3
11	Cachar	Silchar	Dudhpatil Pt VI (CT)	299380	5083	2
12	Cachar	Silchar	Dudhpatil Pt V (CT)	299381	4121	2
13	Cachar	Silchar	Ambicapur Pt VIII (CT)	299382	11691	4
14	Cachar	Silchar	Ambicapur Pt VI (CT)	299383	7971	3
15	Cachar	Silchar	Uttar Krishnapur Pt III	299384	5187	2
16	Cachar	Silchar	Irongmara (CT)	299385	7685	3
17	Cachar	Silchar	Uttar Krishnapur Pt. I	299389	6960	3
18	Cachar	Silchar	Tarapur VII (CT)	299390	6977	3
19	Chirang	Sidli (Pt)	Chatibor Gaon (CT)	302042	8231	3
20	Darrang	Mangaldoi (Pt)	Gerimari Chapori (CT)	305104	11004	4
21	Dhemaji	Jonai	Jonai Bazar (CT)	289621	4459	2
22	Dhemaji	Jonai	Lakhi Nepali (CT)	289622	5348	2
23	Dhubri	Golokganj (Pt)	Golokganj (CT)	280885	8244	3
24	Dhubri	Dhubri (Pt)	Jhagra Pt.III (CT)	281039	8838	3
25	Dhubri	Bilasipara (Pt)	Anand Nagar (CT)	281338	2050	1
26	Dhubri	Mankachar	Mankachar (CT)	281759	26162	9
27	Dibrugarh	Dibrugarh West	Niz- Mankata (CT)	291253	5924	2
28	Goalpara	Lakhipur	Nidanpur Pt-II (CT)	282027	7954	3
29	Goalpara	Balijana	Gobindapur (CT)	282248	11863	4
30	Goalpara	Balijana	Bhalukdubi (CT)	282249	9636	4
31	Goalpara	Matia	Kharijapikon (CT)	282403	5550	2
32	Goalpara	Matia	Salpara Molandubi Pt.-I	282404	11709	4
33	Goalpara	Matia	Asudubi (CT)	282405	7356	3
34	Goalpara	Dudhnai	Damara Patpara (CT)	282470	4922	2
35	Goalpara	Dudhnai	Thekashu Pt-I (CT)	282471	4384	2
36	Goalpara	Dudhnai	Thekashu Pt.-II (CT)	282472	5625	2
37	Golaghat	Bokakhat	Mohmaiki (CT)	294282	5639	2
38	Jorhat	Jorhat West	Naubaisa Goan (CT)	293676	5015	2
39	Jorhat	Jorhat West	Dhekorgorha (CT)	293677	4708	2
40	Jorhat	Jorhat West	Charingia Gaon (CT)	293678	5094	2
41	Jorhat	Jorhat West	Nowsolia Gaon (CT)	293679	4312	2
42	Jorhat	Jorhat East	Kamalabaria N.C. (CT)	293754	10071	4
43	Kamrup	Rangia (Pt.)	Udiana (CT)	302426	4644	2
44	Kamrup	Hajo	Bamun Sualkuchi (CT)	302705	7628	3
45	Kamrup	Hajo	Niz-Hajo (CT)	302706	15188	6
46	Kamrup	Hajo	Majarkuri (CT)	302707	4727	2
47	Kamrup	Palasbari	Kochpara (CT)	303357	7540	3
48	Kamrup	Palasbari	Nahira (CT)	303358	11790	4
49	Kamrup	Palasbari	Upar Hali (CT)	303359	7095	3
50	Kamrup	Palasbari	Dahali (CT)	303360	8397	3
51	Kamrup	Palasbari	Sarpara (CT)	303361	6529	3
52	Kamrup	Palasbari	Parlli Part (CT)	303362	5788	2

53	Kamrup	Palasbari	Sanpara (CT)	303363	4534	2
54	Kamrup	North	Changsari (CT)	303396	5354	2
55	Kamrup	North	Jalah (CT)	303397	6468	3
56	Kamrup	Azara	Majir Gaon (CT)	303421	4774	2
57	Kamrup	Azara	Kahi Kuchi (CT)	303422	9917	4
58	Kamrup	Sonapur	Digaru Gaon (Digarubar	303578	3207	2
59	Kamrup	Sonapur	Barua Bari Gaon (CT)	303579	5444	2
60	Kamrup	Sonapur	Sonapur Gaon (CT)	303580	5771	2
61	Kamrup	Chandrapur	Chandrapur Baghicha	303624	5106	2
62	Karbi	Diphu	Laharijan Natun Bosti	296732	2508	1
63	Karimganj	Karimganj	Batarashi (CT)	300147	7001	3
64	Karimganj	Karimganj	Kanisail Pt I (CT)	300148	7358	3
65	Karimganj	Badarpur	Badarpur Rly. Town (CT)	300230	8882	3
66	Karimganj	Badarpur	Mosli Pt I (CT)	300231	5087	2
67	Karimganj	Badarpur	Chapra (CT)	300232	11220	4
68	Kokrajhar	Gossiagaon (Pt)	Padmabil (CT)	279898	6874	3
69	Morigaon	Mayong	Tegheria (CT)	283614	5567	2
70	Morigaon	Bhuragaon	Bhuragaon (Rev.) Town	283737	9845	4
71	Morigaon	Laharighat	Mairabari Town (CT)	283840	7177	3
72	Nagaon	Samaguri	Rupahi Town (CT)	284490	8052	3
73	Nagaon	Nagaon	Dimaruguri (CT)	284816	10235	4
74	Nagaon	Nagaon	Chota Haibor (CT)	284817	6315	3
75	Nagaon	Nagaon	Morongial (CT)	284818	10318	4
76	Nagaon	Hojai	Pub - Dhaniram Pather	285193	6280	3
77	Nagaon	Hojai	Borpukhuri (CT)	285194	8318	3
78	Nagaon	Hojai	Golaghatia Basti (CT)	285195	9809	4
79	Nagaon	Doboka	Jamunamukh (CT)	285309	7377	3
80	Nalbari	Pachim Nalbari	Rupiabathan (CT)	303707	4981	2
81	Nalbari	Pachim Nalbari	Belsor (CT)	303708	8523	3
82	Nalbari	Pachim Nalbari	Kakaya (CT)	303709	5550	2
83	Nalbari	Pachim Nalbari	Pipalibari (CT)	303710	4534	2
84	Nalbari	Pachim Nalbari	Bangaon (CT)	303711	5873	2
85	Nalbari	Barbhag	Marowa (CT)	303895	4004	2
86	Nalbari	Nalbari	Bali Koria (CT)	303978	6359	3
87	Nalbari	Nalbari	Digheli (CT)	303979	5285	2
88	Nalbari	Nalbari	Niz-Bahjani (CT)	303980	5183	2
89	Sivasagar	Mahmora	Sepon (CT)	293297	4234	2
90	Sonitpur	Tezpur	Barika Chuburi (CT)	286342	7911	3
91	Tinsukia	Sadiya	Chapakhowa Town (CT)	290058	10305	4
92	Tinsukia	Tinsukia	Forest Vill. Lakhipathar	290740	6129	3
93	Tinsukia	Tinsukia	Kachujan Gaon (CT)	290742	3246	2
94	Tinsukia	Margherita	Borgolai Grant No.II (CT)	291063	5241	2
95	Tinsukia	Margherita	Lido Town (CT)	291064	11717	4
96	Tinsukia	Margherita	Lido Tikok (CT)	291065	5091	2
97	Udalguri	Kalaigaon (Pt)	Kalaigaon Town Part (CT)	305512	5112	2

98	Kokrajhar	Gossaigaon (Pt)	Gossaigaon (TC)	801546	9068	4
99	Dhubri	Bagribari (Pt)	Sapatgram (TC)	801550	12163	5
100	Goalpara	Lakhipur	Lakhipur (TC)	801553	15633	6
101	Barpeta	Barnagar (Pt)	Sarbhog (TC)	801556	8112	3
102	Barpeta	Sarthebari	Sarthebari (TC)	801559	6913	3
103	Nagaon	Doboka	Doboka (TC)	801567	13118	5
104	Sonitpur	Chariduar	Rangapara (TC)	801571	18393	7
105	Sonitpur	Helem	Gohpur (TC) (Part)	801574	8038	3
106	Sonitpur	Gohpur	Gohpur (TC) (Part)	801574	4185	2
107	Lakhimpur	Narayanpur	Narayanpur (TC)	801575	6001	3
108	Lakhimpur	Bihpuria	Bihpuria (TC)	801576	12016	5
109	Lakhimpur	Dhakuakhana	Dhakuakhana (TC)	801578	13502	5
110	Tinsukia	Doom Dooma	Doom Dooma (TC)	801581	21572	8
111	Jorhat	Titabor	Titabor Town (TC)	801597	17920	6
112	Golaghat	Bokakhat	Bokakhat (TC)	801599	10143	4
113	Golaghat	Dergaon	Dergaon (MB)	801600	20059	7
114	Golaghat	Sarupathar	Sarupathar (TC)	801602	9931	4
115	Golaghat	Sarupathar	Barpathar (TC)	801603	7657	3
116	Karbi	Donka	Donkamokam (TC)	801605	9116	4
117	Karbi	Phuloni	Dokmoka (TC)	801609	5478	2
118	Dima Hasao	Umrangso	Umrangso (TC)	801610	10376	4
119	Dima Hasao	Mahur	Mahur (TC)	801612	2121	1
120	Dima Hasao	Maibong	Maibong (TC)	801613	6236	3
121	Hailakandi	Lala	Lala (TC)	801619	11771	4
122	Bongaigaon	Srijangram	Abhayapuri (TC)	801621	15847	6
123	Chirang	Kokrajhar (Pt)	Basugaon (TC)	801622	13849	5
124	Kamrup	Palasbari	Palasbari (MB)	801625	4925	2
125	Nalbari	Tihu (Pt)	Tihu (TC)	801628	4599	2
126	Udalguri	Harisinga	Tangla (TC)	801632	17183	6
	Total				**1000823**	**391**

Abbreviations used: M.B.- Municipal; T.C.- Town Committee/Town Area Committee; C.T.- Census Town; O.G.- Out Growth

Investment Required : Calculation for investment is given below:

Table 3.15

Estimated Investment for 3G mobile Coverage

Item	No. of Node- Bs required	No. of additional tower Required
Infrastructure required	391	39
Unit Costs (Rs Cr)	0.15	0.305
Total Costs (Cr)	58.65	11.895
Total Investment (Rs Cr)	**70.5Cr**	

IV. 2G Mobile connectivity Plan for National Highway

3.19 The status of coverage of National Highways that run through Assam is detailed in the table below –

Table 3.16
Status of National Highway[15] Coverage in Assam

Sl. No.	Highway No	Highway Name	Route	Length (Km)	Covered Length (Km)	Uncovered Length (Km)
1	31	Junction with National Highway No 2 near Barhi Bhaktiarpur Mokameh Purnea Dalkola Siliguri Sivok Cooch Behar North Salmara Nalbari Charali Amingaon Junction with National Highway No 37	From W.B. Border-Gouripur-North Salmara-Bijni-Charaliamingaon Junction with NH No.37	322	322	0
2	31	Junction with National Highway No 2 near Barhi Bhaktiarpur Mokameh Purnea Dalkola Siliguri Sivok Cooch Behar North Salmara Nalbari Charali Amingaon Junction with National Highway No 37	North Salmara-Junction with National Highway No.37 near Jogighopa	19	19	0
3	31	Junction with National Highway No 2 near Barhi Bhaktiarpur Mokameh Purnea Dalkola Siliguri Sivok Cooch Behar North Salmara	Baihata-Charali-Tezpur-Bander Dewa-North Lakhimpur-Pasighat-Tezu-Sitapani Junction with National	540	540	0

[15] The details of National Highways passing through each of the NER States have been taken from www.morth.nic.in as accessed in May 2013.

		Nalbari Charali Amingaon Junction with National Highway No 37	Highway No.37 near Saikhoaghat			
4	54	Dabaka-Lumding-Silchar-Aizawl-Tuipang	Dabaka-Lumding-Langting-Haplong-Silchar-Dwarband upto Mizoram Border	335	255	80
5	62	Damra-Baghmara-Dalu	Dudhnai-Damara- upto Meghalaya Border	5	5	0
6	62	Damra-Baghmara-Dalu	North Salmaria-Abhayapuri-Junction with NH No37 near Jogighopa	19	19	0
7	52B	Kulajan Dibrugarh Kanuba Khonsa Changlang Namchik Mahadevpur	Kulajan-Dibrugarh	31	31	0
8	152	Patacharkuchi-Bhutan border	Patacharkuchi-Hajua-Bhutan Border	40	40	0
9	153	Ledo - Lekhapani - Indo / Myanmar - Border	Ledo-Lekhapani-Arunachal Pradesh Border	20	20	0
10	31C	Near Galgalia Baghdogra Chalsa Nagarkata Goyerkata Dalgaon Hasimara Rajabhat Khawa Kochgoan Sidili Junction with National Highway No 31 near Bijni	From W.B. Border-Kochugaon-Sidli Ju. With NH-31 near Bijni	93	93	0

11	61	Kohima-Wokha-Mukokchung-Jhanji	Jhanzi-Amguri-Nagaland border	20	20	0
12	151	Karimganj - Bangladesh Border	Karimganj-Bangladesh Border	14	14	0
13	151	Karimganj - Bangladesh Border	Baihata-Charali-Mangaldai-Dhekiajuli-Tezpur-Gohpur-Bander Dewa-North Lakhimpur-Dhemaji-Kulajan-Arunachal Border- Junction	540	540	0
14	37	Junction with National Highway No 31B near Goalpara Guwahati Jorabat Kamargaon Makum Saikhoaghat Roing	Junction with NH No.31B near Goalpara-Paikan-Guwahati-Dispur-Nowgong-Numaligarh-Jorhat-Jhanzi-Dibrugarh-Tinsukia-Makum-Saikhoghat	680	680	0
15	37A	Kuarital -junction with National Highway No 52 near Tezpur	Kuwari Tal – Junction with NH.No.52 near Tezpur	23	23	0
16	39	Numaligarh-Imphal-Palel-Indo-Burma Border	Numaligarh-Imphal-Palel-Indo Burma Border	115	115	0
17	53	Junction with National Highway No 44 near Badarpur Jirighat Silchar Imphal	Junction with NH-44 near Badarpur-Silchar-Lakhipur- upto Manipur Border	100	100	0

18	36	Nowgong-Dimapur(Manipur Road)	Nagaon-Dabaka-Amlakhi-Nagaland Border	167	163	4
19	31B	North Salmara-Junction with National Highway No.37 near Jogighopa	North Salmaria-Abhayapuri-Junction with NH No37 near Jogighopa	19	19	0
20	51	Paikan- Tura-dalu	Paikan-upto Meghalaya Border	22	22	0
21	52	Baihata-Charali-Tezpur-Bander Dewa-North Lakhimpur-Pasighat-Tezu-Sitapani Junction with National Highway No.37 near Saikhoaghat	Baihata-Charali-Mangaldai-Dhekiajuli-Tezpur-Gohpur-Bander Dewa-North Lakhimpur-Dhemaji-Kulajan-Arunachal Border	540	530	10
22	44	Nongstoin and connecting Shillong Passi Badarpur Agartala Sabroom	From Meghalaya Border-Badarpur-Karimgant-Patharkandi-upto Tripura Border	111	111	0
23	52A	Bander Dewa-Itanagar-Gohpur	Gohpur - A.P. Border-Bender Dewa	15	15	0
24	154	Dhaleshwar - Bhairabi - Kanpui	Dhaleshwar (Badarpur)-Bhairabhi - Mizoram Border	110	110	0
25	38	Mukum-Leado-Lekhapani	Makum-Ledo-Likhapani	54	54	0
TOTAL HIGHWAY LENGTH (Km) OF STATE				**3954**	**3860**	**94**

The calculation of the investment required for covering the uncovered portion of these highways is given in Chapter II.

CHAPTER – IV

COMPREHENSIVE TELECOM PLAN FOR MEGHALAYA

4.1 Meghalaya was formed by carving out three districts from the State of Assam: the United Khasi Hills, Jaintia Hills and the Garo Hills on 21st January 1972. It is located between latitude 25° 05' N & 26° 41' N and longitude 89° 46' & 94° 36' E. As per Census 2011, there are 7 districts and 39 Sub-Districts/Blocks, 22 towns and 6839 villages in the State. However, four new districts have been formed after the 2011 Census. Therefore, now there are 11 districts in Meghalaya. The population[16] of Meghalaya is 29,66,889 with 20.08% urban population. The population density of Meghalaya is 132 persons per sq km. The East Khasi Hills district has the highest population density 300 per sq km. The West Khasi Hills district has the lowest density 73 persons per sq km.

Table 4.1

District wise Population and Geographical Area of Meghalaya

District	District Headquarter	Population			Total Area (Sq. km)	Density (per Sq Km)
		Rural	Urban	Total		
Jaintia Hills	Jowai	366694	28430	395124	3819	103
East Khasi Hills	Shillong	459441	366481	825922	2748	300
Ri-Bhoi	Nongpoh	233587	25253	258840	2448	105
West Khasi Hills	Nongstoin	340356	43105	383461	5247	73
East Garo Hills	Williamnagar	273725	44192	317917	2603	122
West Garo Hills	Tura	568433	74858	643291	3677	174
South Garo Hills	Baghmara	129203	13131	142334	1887	75
MEGHALAYA		**2371439**	**595450**	**2966889**	**22429**	**132**

[16] As per Census of India 2011.

Telecom Status in Meghalaya

4.2 As on May 2013, there are 15,46,650 wireless subscribers in Meghalaya. Wireless tele-density of the State is about 50. The subscriber base of the 6 TSPs providing mobile services in Meghalaya is given in the table below:

Table 4.2

Service Providers wise Subscriber Base in Meghalaya (May 2013)

Sl. No.	Name of Service Provider	No. of Subscribers	Market Share (in %)
1.	Airtel	324755	21
2.	Aircel	572247	37
3.	BSNL	162715	11
4.	Vodafone	237985	15
5.	Reliance	204471	13
6.	Idea	44477	3
	Total	**1546650**	

I. Transmission media Plan

Connectivity of State Capital and DHQs:

4.3 The State capital, Shillong, is connected to Guwahati by OFC of Airtel and BSNL and the OPGW system of PGCIL. One digital microwave link is also working between Shillong and Guwahati. All DHQs of Meghalaya are connected to Shillong on OFC.

Table 4.3
Connectivity Status of DHQs

Sl. No.	District	DHQ	Connectivity			Operators having OFC connectivity
			OFC	DMW	Satellite	
1	East Garo Hills	Williamnagar	Linear	Yes	No	BSNL
2	East Khasi Hills	Shillong	Ring	Yes	No	Airtel, BSNL, Aircel, Vodafone
3	East Jaintia hills	Khliehriat	Linear	Yes	No	Airtel, BSNL,
4	West Jaintia	Jowai	Linear	Yes	No	Airtel, BSNL, Vodafone
5	Ri Bhoi	Nongpoh	Ring	Yes	No	Airtel, Vodafone, BSNL

6	South Garo Hills	Baghmara	Linear	Yes	Yes	BSNL
7	South West Garo	Ampali	Linear	Yes	No	BSNL
8	North Garo Hills	Resubelpara	Linear	Yes	No	BSNL
9	West Garo Hills	Tura	Linear	Yes	No	BSNL
10	South West Khasi Hills	Mawkyrwat	Linear	Yes	No	BSNL
11	West Khasi Hills	Nongstoin	Linear	Yes	No	BSNL, Airtel

Bandwidth Availability at the State Capital and DHQs:

4.4 Shillong is connected to Guwahati through different transmission systems viz OFC, Digital Microwave and OPGW and the total available bandwidth is 58.2 Gbps. The status of available bandwidth at Shillong is given in the table below:

Table 4.4

Available bandwidth at Shillong

Sl. No.	Connected to	Media	Transmission System	Bandwidth (Gbps)	TSP
1.	Guwahati	OFC	STM64	10	Airtel
2.	Guwahati	OFC	DWDM	10	BSNL
3.	Guwahati	Digital Microwave	(3+1) STM-1 over 6 GHz DMW	0.622	BSNL
4.	Guwahati	OFC (OPGW)	DWDM, SDH	30[17]	PGCIL
6.	Guwahati	OFC	2 STM-16	5	Aircel
7.	Guwahati	OFC (SDH)	STM-16	2.5	Tata
8.	Guwahati	Microwave	63 E1	0.126	Idea
Total bandwidth				**58.2**	

4.5 The status of total bandwidth available at various DHQs is given in the following table.

[17] Out of total 110Gbps bandwidth in the link between Shillong-Guwahati, approximately 80 Gbps is to cater to the total 80 Gbps links from Agartala & Aizawl (thorugh Badarpur) and Kohima & Dimapur (through Misa)

Table 4.5

District wise Bandwidth availability

Sl. No.	District	DHQ	Bandwidth on OFC (Gbps)	Bandwidth on Digital Microwave (Gbps)	Bandwidth on Satellite (Gbps)	Total Bandwidth (Gbps)
1	East Garo Hills	Williamnagar	2.49	0.76		3.25
2	East Khasi Hills	Shillong	42.36	0.9		43.26
3	East Jaintia Hills	Khliehriat	12.44	0.2		12.64
4	West Jaintia Hills	Jowai	14.94	0.6		15.54
5	Ri Bhoi	Nongpoh	14.94	0.76		15.7
6	South Garo Hills	Baghmara	0.16	0.22	0.002	0.38
7	South West Garo	Ampali	0.16	0.15		0.31
8	North Garo Hills	Resubelpara	0.16	0.34		0.5
9	West Garo Hills	Tura	2.49	1.06		3.55
10	South West Khasi	Mawkyrwat	2.49	0.31		2.8
11	West Khasi Hills	Nongstoin	12.44	0.6		13.04

Additional OFC and Bandwidth Requirement:

4.6 For having transmission media diversity, all DHQs should have OFC-connectivity through OFC ring/diversified routes. Depending on feasibility, the decision to lay underground OFC or to use OPGW can be taken. To determine the estimated investment, connectivity to the nearest DHQ having OFC-ring connectivity has been considered. There are four districts namely South West Garo Hills, South Garo Hills, West Garo Hills and West Khasi Hills, which need to be connected on OFC ring. Accordingly, the estimated investment is given in the tables below.

Table 4.6

Proposed Media Plan for connecting DHQs[18]

District	DHQ	Present OFC Connectivity	Proposed Connectivity to	Route length (km)	OFC cost (Rs Cr)	Remarks
South West Garo Hills	Ampati	Linear	Baghmara	52	2.08	Mahendraganj to Barengapara (SH12, NH12),

[18] Exact route length can be determined only after carrying out the feasibility study of route.

South Garo Hills	Baghmara	Linear	Williamnagar#	40	1.6	Nangalbibra-Rewak (Rest Existing)NH62
West Garo Hills	Tura	Linear	Williamnagar	74	2.96	NH127B
West Khasi Hills	Nongstoin	Linear	Nongpoh	60	2.4	SH3,(OFC existing up to Patharkmah)
			Dubdhara (Assam)	70	2.8	To provide an additional path for ring
Total				**296**	**11.84**	

Note: Cost per Km of OFC (U/G) is taken as Rs. 4 lakh.
#- Replacement of existing cable

Table 4.7

Estimation of investment required for bandwidth upgradation

Sl. No.	**District**	**DHQ**	**Existing bandwidth (Gbps)**	**Additional Bandwidth Required (Gbps)**
1	East Garo Hills	Williamnagar	3.25	1.7
2	East Khasi Hills	Shillong	43.26	9.0
3	East Jaintia Hills*	Khliehriat	12.64	0.9
4	West Jaintia Hills*	Jowai	15.54	0.9
5	Ri Bhoi	Nongpoh	15.7	1.3
6	South Garo Hills*	Baghmara	0.38	0.3
7	South West Garo*	Ampali	0.31	1.7
8	North Garo Hills*	Resubelpara	0.5	0.4
9	West Garo Hills*	Tura	3.55	1.8
10	South West Khasi*lls	Mawkyrwat	2.8	10.9
11	West Khasi Hills*	Nongstoin	13.04	0.9

*Note- As per 2011 census, population data has been provided for only seven districts as the four new districts were formed afterwards. Accordingly the bandwidth requirement for the district has been calculated as per 2011 census data and the same has been apportioned to the new district in equal proportions**.**

Requirement of DWDM Equipment:

4.7 Two OFC rings will be required to connect DHQs with the State capital for having media diversity. The transmission system planned is based on 40λ, 2.5G, DWDM. The deails of the route of rings along with requirement of number of OADMs and OTMs are given in the table below:

Table 4.8

Proposed OFC Ring and Telecom Equipment Required

Sl No.	Linear/ Ring	Route	Number of equipment Required
1	Ring 1	Shillong…….Mawkrywat…….Nongstoin……. Patharkmah…..Nongpoh…..Shillong	OADMs –8 OTMs –2
2	Ring 2	Williamnagar……Baghmara……Ampati……. Tura…..Resubelpara…..Williamnagar	OADMs –10 OTMs – 2
3	Ring 3	Shillong…..Jowai…..Dawki—Pynursla--Shillong	OADMs – 6 OTMs - 2
4	Ring 4	Williamnagar…..Nongstoin---Dhubdhara—Krishnai--Williamnagar	OADMs – 10 OTMs - 2

4.8 Based on above planning the requirement of equipment will be as below:

- Number of OTMs required: 8
- Number of OADMs= 34
- Number of DXC=2
- Total Investment[19] Required= **Rs. 10.2 Crore.**

II. 2G Mobile connectivity plan

4.9 All the DHQs, other towns and BHQs in Meghalaya have 2G mobile coverage. As far as mobile coverage of villages is concerned, of a total 6471 villages, 4082 villages are covered by 2G mobile. There are 2389 villages which do not have mobile coverage till date. District-wise information of village coverage is given in the table below:

Table 4.9

Status of District wise Village coverage

Districts#	Total No. of Villages*@	Total No. of inhabitated villages	No. of Villages having mobile coverage	% of Villages having mobile coverage	Uncovered Villages
East Garo Hills	1110	1058	543	51	515
East Khasi Hills	986	934	820	88	114
Jaintia Hills	537	498	392	79	106

[19] Cost per OTM=Rs. 0.6 crore, OADM= Rs. 0.1 crore and DXC= Rs. 1 crore.

Ribhoi	636	580	437	75	143
South Garo Hills	804	731	237	32	494
West Garo Hills	1663	1577	1128	72	449
West Khasi Hills	1115	1093	525	48	568
Meghalaya	**6851**	**6471**	**4082**	**63**	**2389**

*Includes un-inhabitated villages
#In the census-2011, data in respect of only 7 district is available
@ Includes census towns also

Phase Wise Plan to increase 2G mobile coverage

4.10 In Meghalaya, the population profile of uncovered villages is given in the table below:

Table 4.10

Population-wise segmentation of uncovered villages

SL No.	Population	Not Covered by any operator
1	0-100	544
2	100-250	993
3	250-500	632
4	Above 500	220
	Total	**2389**

4.11 As recommended in Chapter-II, in Phase-I, all villages with a population more than 250 are recommended to be covered. It will result in increase of coverage of 852 villages out of total 2389 uncovered villages. After the completion of Phase-I, the percentage of population with mobile coverage will increase from 80.1% to 93.2%.

Table 4.11

District Wise Plan to cover remaining uncovered villages

Sl. No.	Name of District	Number of Uncovered Villages	No. of villages that will be covered in phase-I	Remaining villages (having <250 populations)	Covered Villages at present (in %)	Covered Villages after Phase-I (in %)
1	East Garo Hills	515	198	317	51	70
2	East Khasi Hills	114	47	67	88	93

3	Jaintia Hills	106	48	58	79	88
4	Ribhoi	143	66	77	75	87
5	South Garo Hills	494	84	410	32	44
6	West Garo Hills	449	227	222	72	86
7	West Khasi Hills	568	182	386	48	65
	Meghalaya	**2389**	**852**	**1537**	**63**	**76**

Investment Required

4.12 To cover the villages under Phase-I, a number of BTSs, microwave, satellite & OFC links have been planned and the total investment has been calculated. These BTSs will be connected to BSCs on Microwave (84.1%), OFC media (15%) and satellite (0.9%). As detailed in Chapter-II, the number of microwave links has been estimated to be about 84.1% of the number of BTSs and number of microwave repeaters will be about 50% of the number of microwave links. 15% of the number of BTSs will be on OFC links with an average route length of 2.5 KM.

Table 4.12

Infrastructure required for 2G mobile Coverage

Districts	**No. of BTSs required**	**No. of Microwave links**	**No. of Microwave Repeaters**	**No. of OFC links**	**OFC Route Length**	**No. of Satellite links**
East Garo Hills	198	167	84	30	75	1
East Khasi Hills	47	40	20	7	17.5	0
Jaintia Hills	48	40	20	7	17.5	1
Ribhoi	66	56	28	10	25	0
South Garo Hills	84	71	36	13	32.5	0
West Garo Hills	227	191	96	34	85	2
West Khasi Hills	182	153	77	27	67.5	2
Meghalaya	**852**	**718**	**361**	**128**	**320**	**6**

Table 4.13

Investment required for 2G mobile Coverage

	No. of BTSs required	No. of BTS with Microwave links	No. of Microwave Repeaters	No. of BTS on OFC links	No. of BTS on Satellite links	No. of BSC required	Total Expenditure (Rs. Crore)
Infrastructure required	852	718	361	128	6	9	
Unit Costs (Cr.)		0.361	0.343	0.431	0.461	2.5	
Total Costs (Cr.)		259.198	123.823	55.168	2.766	22.5	**463.46**

III. 3G mobile connectivity plan

4.13 In Meghalaya, 4 TSPs viz. Aircel, Airtel (Bharti Hexacom) BSNL and Reliance Telecom Ltd. (RTL) have 3G spectrum. The roll-out of 3G services is limited largely to DHQs only. It is recommended that all statutory towns and census towns should have 3G coverage in the first phase. To extend the 3G coverage the requirement of Node Bs, the investment required and list of towns that are planned to be covered with 3G coverage are given below (Considering that on an average one Node-B will be required to cover every 3000 population):

Table 4.14

Name of Towns selected for 3G Coverage

District	Sub - District	Town Name	Town Code	Total Population	No. of Node-Bs
East Garo hills	Resubelpara	Resubelpara (MB)	801537	19595	7
South Garo Hills	Baghmara	Baghmara (MB)	801539	13131	5
West Khasi Hills	Mairang	Mairang (TC)	801541	14363	5
East Khasi Hills	Mylliem	Mawpat (CT)	278356	6184	3
East Khasi Hills	Mylliem	Nongkseh (CT)	278360	4846	2
East Khasi Hills	Mylliem	Umlyngka (CT)	278361	7381	3
East Khasi Hills	Mylliem	Lawsohtun (CT)	278362	8214	3
East Khasi Hills	Shella Bholaganj	Cherrapunjee (CT)	278901	11722	4
Ribhoi	Umsning	Umroi (CT)	278071	8198	3
Total				**93634**	**35**

M.B.- Municipal; T.C.- Town Committee/Town Area Committee; C.T.- Census Town;

Total No. of Node-Bs: 35

Expenditure on Node-Bs (@ Rs. 15 lakh per Node B) = Rs. 5.25 Crore

No. of Additional Towers= 4

Expenditure on Towers (@Rs. 30.5 lakh per Tower) = Rs. 1.22 Crore

Total investment required = **Rs. 6.47 Crore**

IV. 2G Mobile connectivity Plan for National Highway

4.14 Highways in Meghalya are having presence from atleast one TSP, therefore investment planning is not done. The status of coverage of National Highways that run through Meghalaya is detailed in the table below –

Table 4.15

Status of National Highway[20] Coverage in Meghalaya

Sl. No.	Highway No	Highway Name	Route	Length (Km)	Covered Length (Km)	Uncovered Length (Km)
1	40	Jorabat Shillong Indo Bangladesh Border near Dawki Jowai	Meghalaya/Assam-Barni Hat-Nongpoh-Umsning-Barapani-Shillong-Meghalaya-Indo/Bangladesh border.	216	216	0
2	62	Damra-Baghmara-Dalu	Damra-Dambu-Baghmara-Burengapara.	190	190	0
3	44	Nongstoin and connecting Shillong Passi Badarpur	Nongstoin-Shillong-Meghalaya/Assam Border	277	277	0

[20] The details of National Highways passing through each of the NER States have been taken from www.morth.nic.in as accessed in May 2013.

		Agartala Sabroom				
4	51	Paikan-Tura-dalu	Meghalaya/Assam-Bajengdoda-Tura-Kherapara-Burengapara	127	127	0
TOTAL HIGHWAY LENGTH (Km) OF STATE				**810**	**810**	**0**

CHAPTER-V

COMPREHENSIVE TELECOM PLAN FOR MIZORAM

5.1 Mizoram became the 23rd State of the India in February 1987. It was one of the districts of Assam till 1972, when it became a Union Territory. With Bangladesh on the west and Myanmar on the east and south, Mizoram has an important strategic position because of its long international boundary of 722 KMs. Mizoram has the most variegated hilly terrain in the eastern part of India. It is located between altitude 21° 58' & 24° 35' N and longitude 92° 15' & 93° 29' E.

5.2 There are 8 districts and 26 Sub-Districts/Blocks, 23 towns and 830 villages in the state. As per Census 2011, its populations is 10,97,206 with 52.11% urban population. The population density of Mizoram is 52 persons per sq. km. Amongst all 8 districts, Aizawl has the highest density of 113 persons/sq. km. The lowest population density is in Mamit district with 28 persons per sq. km.

Table 5.1

District wise Population and Geographical Area of Mizoram

District	Population			Area (in Sq. Km.)	Density (per Sq. Km)
	Rural	Urban	Total		
Aizawl	85555	314754	400309	3576	113
Champhai	77216	48529	125745	3185	39
Kolasib	37077	46878	83955	1382	60
Lawngtlai	97064	20830	117894	2557	46
Lunglei	92676	68752	161428	4536	34
Mamit	71465	14899	86364	3025	28
Saiha	31464	25110	56574	1399	40
Serchhip	32918	32019	64937	1421	46
Mizoram	**525435**	**571771**	**1097206**	**21081**	**52**

Telecom Status in Mizoram

5.3 As on May 2013, there are 862159 Wireless Subscribers in Mizoram. Wireless tele-density of the state is 76.21%. The Subscriber base of each of the 6 TSPs providing mobile services in Mizoram is given in the table below:

Table 5.2

Service Providers wise Subscriber Base in Mizoram

Sl. No.	Name of Service Provider	No. of Subscribers	Market Share (in %)
1.	Airtel	370887	43
2.	Aircel	197179	23
3.	BSNL	113876	13
4.	Vodafone	84856	10
5.	Reliance	74350	9
6.	Idea	21011	2
	Total	**862159**	

I. Transmission media Plan

Connectivity of State Capital & DHQs:

5.4 OFC has been laid by BSNL and Airtel to provide connectivity to the State capital Aizawl. However, the OFC routes of both the service providers are the same. Aizawl is also connected on microwave link with Shillong. In April 2013, PGCIL has extended its OPGW connectivity up to Aizawl. Another TSP, Vodafone, has laid the fibre from Silchar up to Bualpui. It is targeting to reach up to Aizawl which is approx 40 Km from Bualpui.

5.5 No private TSPs has laid OFC beyond Aizawl. Apart from Aizawl, BSNL has established connectivity on OFC to three DHQs, namely, Serchhip, Kolasib and Champhai. The other 4 DHQs viz. Lunglei (the second largest city of Mizoram), Mamit, Saiha and Lawgtalai still have no OFC connectivity, and as such, are dependent upon the digital microwave links. Similarly, 20 out of total 26 BHQs are not connected through OFC. The State Government

has pointed out that the main constraint in connectivity is the non-availability of OFC in most parts of the State.

5.6 In Mizoram all DHQs are connected on Digital Microwave (DMW). The connectivity status of DHQs is given in the table below :-

Table 5.3

Connectivity Status of DHQs

Sl. No.	DHQ	Connectivity			Operators having OFC connectivity
		OFC	DMW	Satellite	
1	Aizawl	Linear	Yes	No	BSNL, Airtel, PGCIL
2	Champhai	Linear*	Yes	No	BSNL
3	Kolasib	Linear	Yes	No	BSNL, Airtel, Vodafone
4	Lawngtlai	No	Yes	No	
5	Lunglei	No	Yes	No	
6	Mamit	No	Yes	No	
7	Saiha	No	Yes	No	
8	Serchhip	Linear	Yes	No	BSNL

*OFC to Champhai is not being utilized as it is damaged

Bandwidth Availability at the State Capital and DHQs:

5.7 Aizawl is connected to Silchar and Shillong through different transmission systems. As discussed above, Aizawl is connected to other States through OFC, Digital Microwave and OPGW and total bandwidth available is 33.1 Gbps. The Status of available bandwidth at Aizawl is given in the table below:

Table 5.4

Available bandwidth at Aizawl

Sl. No.	Connected to	Media	Transmission System	Bandwidth (Gbps)	TSP
1.	Shillong	OFC	SDH	10	Airtel
2.	Silchar	OFC	DWDM	2.5	BSNL
3.	Silchar	Digital Microwave (DMW)	(3+1) STM-1 over 6 GHz DMW	0.622	BSNL
4.	Shillong[21]	OFC (OPGW)	DWDM	20	PGCIL
Total bandwidth				**33.1**	

5.8 Total bandwidth available at different DHQs is given in the table below :

Table 5.5

District wise availability of Bandwidth

Sl. No.	DHQ	Bandwidth on OFC (Gbps)	Bandwidth on Digital Microwave (Gbps)	Bandwidth on Satellite (Gbps)	Total available Bandwidth (Gbps)
1	Aizawl	32.5	0.622	0	33.1
2	Champhai		0.38	0	0.38
3	Kolasib	14.94	0.61	0	15.55
4	Lawngtlai		0.50	0	0.5
5	Lunglei		0.91	0	0.91
6	Mamit		0.40	0	0.4
7	Saiha		0.62	0	0.62
8	Serchhip	0.15	0.90	0	1.05

Requirement of additional transmission media:

5.9 For having transmission media diversity all DHQs should have OFC connectivity through OFC ring/diversified routes. During visit by TRAI officials to Aizawl, the State Government requested that all 132 KV power lines in the State should be converted to Optical Ground Wire (OPGW) cable system under Department of Telecom funding. Averring that OPGW

[21] PGCIL has connectivity from Aizawl to Kumarghat which further goes upto Shillong

will be more reliable compared to underground OFC, the State Government requested that Government of India may issue guidelines so that extra fibres can be shared at reasonable rates with the TSPs.

5.10 Keeping the above facts into consideration, the OFC plan to connect all DHQs on OFC ring and the estimated investment for its execution is given in the tables below.

Table 5.6

Proposed Media Plan for connecting DHQs

Sl. No.	DHQ	Connectivity on Fibre	Proposed Connectivity	Proposed Diversified Route
1	Aizawl	Yes	Existing	Existing
2	Champhai	Yes	OPGW#/ADSS	Existing, but replacement of major part is required.
3	Kolasib	Yes	OPGW/ADSS	Existing.
4	Lawngtlai	No	OPGW/ADSS	OFC (U/G)
5	Lunglei	No	OPGW/ADSS	OFC (U/G)
6	Mamit	No	OPGW/ADSS	OFC (U/G)
7	Saiha	No	OPGW/ADSS	OFC (U/G)
8	Serchhip	Yes	OPGW/ADSS	Existing

wherever feasible, ADSS based system, if deployed, should be on electric poles

Table 5.7

Investment Required[22]

Sl. No.	DHQ	Proposed Route	Route Length of OFC (U/G)	Route Length OPGW /ADSS(KM)	Cost of OFC (U/G) (Rs Cr)	Cost of OPGW/ ADSS (Rs Cr)	Total Cost (Rs Cr)
1	Aizawl	NIL	NIL	NIL	NIL	NIL	NIL
2	Champhai	Aizawl-Champhai	100#	192	4	7.68	11.68
3	Kolasib	Aizawl-Kolasib	NIL	79	NIL	3.16	3.16
4	Lawngtlai	Lunglei-Lawngtlai	85	85	3.4	3.4	6.8
5	Lunglei	Serchhip-Lunglei	123	123	4.92	4.92	9.84

[22] Exact route length can be found out only after carrying out the feasibility study of route.
The cable between Aizwal and Champhai is damaged beyond repair, accordingly 100 KMs length of OFC has been taken to replace the same.

6	Mamit	Aizawl-Mamit	92	92	3.68	3.68	7.36
7	Saiha	Lawngtlai-Saiha	60	60	2.4	2.4	4.8
8	Serchhip	Aizawl-Serchhip		112	0	4.48	4.48
	Total		**460**	**743**	**18.4**	**29.72**	**48.12**

5.11 The average cost per Km of OFC (U/G) is taken around as Rs. 4 lakh. The cost for OPGW cable connectivity is Rs 2.5 lakh per KM and that for ADSS is Rs 5 Lakh per KM. It has been assumed that on some routes OPGW may not be feasible and, in such routes, ADSS cable can be pulled on electric poles. The actual requirement of OPGW or ADSS cable can be assessed only after a detailed field survey. However, for investment requirements a mix of both the type of cables is assumed and average cost of Rs 4 lakh per KM is taken.

Additional Bandwidth Requirement

5.12 Bandwidth requirement based on TRAI's recommendation on 2010 is given in table 5.8. For providing media diversity two OFC rings (Underground and OPGW based) have been planned to connect all district head quarters with Aizawl. Transmission System planned is based on 40λ, 2.5G, DWDM. Accordingly DWDM equipment has been suggested in table 5.9.

Table 5.8

Estimation of investment required for bandwidth upgradation

Sl. No.	DHQ	Bandwidth Available (Gbps)	Additional Bandwidth Required (Gbps)
1	Aizawl	33.1	8.2
2	Champhai	0.38	1.0
3	Kolasib	15.55	0.8
4	Lawngtlai	0.5	0.7
5	Lunglei	0.91	1.4
6	Mamit	0.4	0.6
7	Saiha	0.62	0.5
8	Serchhip	1.05	0.6
	Total	**52.5**	**13.8**

Requirement of DWDM Equipment:

Table 5.9

Proposed OFC Ring and Telecom Equipment Required

SL No.	Linear / Ring	Route	Equipment Required
1	Ring*	Aizawl-----Serchhip----Lunglei----Saiha------Lawngtlai	OTMs – 2 OADMs - 10
2	Ring*	Mamit----Aizawl-----Champhai	OTMs – 2 OADMs- 6
3	Ring*	Aizwal—Kolasib--Aizwal	OTMs – 2 OADMs- 4

*Assumed that rings will be completed using OPGW systems.

5.13 Based on above planning the requirement of equipment will be as below:

- Number of OTMs required: 6
- Number of OADMs : 20
- Number of DXC : 03
- Total Cost[23] : **Rs. 8.6 crore**.

II. 2G Mobile connectivity Plan

Existing 2G Mobile Coverage

5.14 All DHQs, other towns and BHQs in Mizoram have mobile coverage. As far as coverage of villages is concerned, out of a total 704 inhabited villages, 446 villages are covered by 2G mobile. There are 258 villages which do not have mobile coverage till date. District wise information of village coverage is given in the table below:

Table 5.10

Status of Village coverage

SSA	Total No. of Villages*	Total No. of inhabited villages	No. of Villages having mobile coverage	% of Villages having mobile coverage	Uncovered Villages
Aizawl	104	94	94	100	0
Champhai	90	83	66	80	17
Kolasib	49	34	32	94	2

[23] Cost per OTM=Rs. 0.6 crore, OADM= Rs. 0.1 crore and DXC= Rs. 1 crore.

Lawngtlai	168	159	40	25	119
Lunglei	195	161	104	65	57
Mamit	123	86	57	66	29
Saiha	61	52	23	44	29
Serchhip	40	35	30	86	5
Total	**830**	**704**	**446**	**63**	**258**

*Includes un-inhabited villages

5.15 As can be seen from above, Lawngtalai district has mobile coverage in only about 25% of the villages and 119 of its inhabited villages do not have mobile coverage. It is an economically backward district having the 2nd largest number of villages and is located in the southern most part of Mizoram having international boundaries with Bangladesh in the west and Myanmar in the east. The villages are very remote and sparsely populated. Many villages do not have proper road connectivity. Because of these reasons, of the 258 uncovered villages in Mizoram, 46% are in Lawngtalai district.

Plan to increase 2G mobile coverage

5.16 In Mizoram, the population-wise segmentation of uncovered villages is as below:

Table 5.11

Population-wise segmentation of uncovered villages

Sl. No.	Population	No. of 'uncovered' villages
1.	0-100	9
2.	100-250	36
3.	250-500	83
4.	More than 500	130
	Total	**258**

5.17 As recommended earlier, in Phase-I all villages with a population more than 250 are to be covered. As a result, 213 villages out of a total 258 uncovered villages will be covered and the percentage of population having

2G mobile coverage will increase from 63% to 94%. The District-wise plan to cover uncovered villages is given in the table below:

Table 5.12

District Wise Plan to cover remaining uncovered villages

Sl. No.	Name of District	Number of Uncovered Villages	No. of villages that will be covered in phase-I	Covered Villages at present (in %)	Covered Villages after Phase-I (in %)
1	Aizawl	0	0	100	100
2	Champhai	17	14	80	96
3	Kolasib	2	2	94	100
4	Lawngtlai	119	97	25	86
5	Lunglei	57	44	65	92
6	Mamit	29	27	66	98
7	Saiha	29	24	44	90
8	Serchhip	5	5	86	100
	Total	**258**	**213**	**63**	**94**

Investment Required

5.18 As mentioned in Chapter – II, one BTS will be required for each village. These BTSs will be connected to BSCs on Micowave (83%), OFC(15%) and Satellite media(2%). Average route length of OFC is taken as 2.5 KM. Based on these assumptions, the total infrastructure requirement and investment thereof for 213 number of BTSs with its connectivity through microwave, OFC and Satellite links is given in the tables below:

Table 5.13

Estimated Infrastructure and investment for 2G coverage

Districts	No. of BTSs required	No. of Microwave links	No. of Microwave Repeaters	No. of OFC links	OFC Route Length	No. of Satellite links
Aizawl	0	0	0	0	0	0
Champhai	14	12	6	2	5	0
Kolasib	2	2	1	0	0	0
Lawngtlai	97	80	40	15	37.5	2
Lunglei	44	36	18	7	17.5	1
Mamit	27	22	11	4	10	1

Saiha	24	20	10	4	10	0
Serchhip	5	4	2	1	2.5	0
Mizoram	**213**	**176**	**88**	**33**	**82.5**	**4**

5.19 The total investment required for installing 213 BTSs with backhaul connectivity through microwave, OFC and satellite links is as given below :

Table 5.14

Estimated Investment required for 2G Coverage

	No. of BTSs required	**No. of BTS with Microwave links**	**No. of Microwave Repeaters**	**No. of BTS on OFC links**	**No. of BTS on Satellite links**	**No. of BSC required**	**Total Expenditure (Rs. Crore)**
Infrastructure required	213	176	88	33	4	2	
Unit Costs (Cr.)		0.361	0.343	0.431	0.461	2.5	
Total Costs (Cr.)		63.54	30.18	14.22	1.84	5.00	**114.79**

III. 3G Mobile connectivity Plan

Existing 3G mobile Coverage

5.20 In Mizoram, 4 TSPs viz. Aircel, Airtel (Bharti Hexacom), BSNL and Reliance Telecom Ltd. (RTL) have 3G spectrum. The roll-out of 3G services in the Mizoram is limited largely to DHQs only and statutory/census towns are uncovered. With the present 3G coverage, about 78% of the urban population is covered. It is recommended that all the statutory towns as well as census towns should have 3G coverage which will cover the entire urban population. There are total 23 towns of which 15 are yet to get 3G coverage. To extend the 3G coverage the requirement of Node-Bs, the investment required and the list of towns that are planned to be covered

with 3G coverage are given below (considering population of 3000 will be covered with one Node-B).

Table 5.15

Infrastructure required for 3G Coverage

Sl. No.	District	Sub - District	Town Name	Town Code	Total Population	No. of Node-Bs
1	Mamit	Zawlnuam	Zawlnuam (NT)	801497	3733	2
2	Kolasib	'N' Thingdawl	N. Kawnpui (NT)	801500	7732	3
3	Kolasib	Bilkhawthlir	Vairengte (NT)	801501	10554	4
4	Kolasib	Bilkhawthlir	Bairabi (NT)	801502	4320	2
5	Aizawl	Darlawn	Darlawn (NT)	801504	3769	2
6	Aizawl	Thingsulthliah (Part)	Saitual (NT)	801507	11619	4
7	Champhai	Khawzawl	Khawzawl (NT)	801508	11022	4
8	Champhai	Khawzawl	Khawhai (NT)	801509	2496	1
9	Champhai	East Lungdar (Part)	Biate (NT)	801511	2277	1
10	Serchhip	Serchhip	Thenzawl (NT)	801513	7259	3
11	Serchhip	East Lungdar (Part)	North Vanlaiphai (NT)	801514	3602	2
12	Lunglei	Lungsen	Tlabung (NT)	801515	4554	2
13	Lunglei	Hnahthial	Hnahthial (NT)	801517	7187	3
14	Lawngtlai	Lawngtlai	Lawngtlai (NT)	801518	20830	7
15	Saiha	Saiha	Saiha (NT)	801519	25110	9
	Grand Total				**126064**	**49**

Abbreviations used: N.T.- Notified Town;

Investment Required

- Total No. of Node-Bs: 49
- Expenditure on Node-Bs (@ Rs. 15 lakh per Node B) = Rs. 7.35 Crore
- No. of Additional Towers= 5
- Expenditure on Towers (@Rs. 30.5 lakh per Tower) = Rs. 1.52 Crore
- Total Investment = **Rs. 8.87 Crore**

IV. 2G Mobile connectivity Plan for National Highway

Present National Highway coverage status

5.19 The status of coverage of National Highways that run through Mizoram is detailed in the table below –

Table 5.16

National Highway coverage status

Sl. No.	Highway No	Highway Name	Route	Length (Km)	Covered Length (Km)	Uncovered Length (Km)
1	44A	Aizawl-Manu	Mizoram/Tripura Border-Tukkalh-Mamiti-Sairang-Aizawl	165	165	0
2	54B	Venus saddle-saiha	Saiha-	27	27	0
3	154	Dhaleshwar - Bhairabi - Kanpui	Meghalaya/Assam Border-Connecting on NH 54 near Bualpui	70	70	0
4	150	Aizawl-Churachandpur-lmphal-Ukhrul-Jessami-Kohima	Mizoram/Manipur Border-Thingsa-Ratn-Darlawn-Phaileng-Seling	141	133	8
5	54	Dabaka-Lumding-Silchar-Aizawl-Tuipang	Mizoram/Assam Border-Chhimlung-Bilkhawthr-Kolasis-Bualpui- Mualvum-Alzawl-Zobawk-Pangzawl-Leite-Zobawk-Sairep-Saiha-Kaladan-Tuipang	515	515	0
6	54A	Theriat-Lungiei	Lunglei- and connecting on NH-54 near Zowawk	9	9	0
TOTAL HIGHWAY LENGTH (Km) OF STATE				**927**	**919**	**8**

CHAPTER-VI

COMPREHENSIVE TELECOM PLAN FOR TRIPURA

6.1. Tripura became a part of India on 15th October 1949. It shares international border of 856 km (84% of its total border) with Bangladesh. It also has a 53 km long border with Assam and a 109 km long border with Mizoram. The state is connected with the rest of India by only one road (NH-44) that runs through the hills to the border of Karimganj District in Assam. It is located between latitude 22°56' & 24°32' N and longitude 91°09' & 92°20' E.

6.2. At present, there are 8 districts in Tripura, this includes 4 newly formed districts, which were notified after the Census 2011. As per Census 2011, there are only 4 districts[24], 16 statutory towns, 40 Sub-districts and 901 villages in the state. The Population of Tripura is 36,73,917 with 26.17% urban population and a population density of 353 per sq. km. Agartala is the capital and the largest town of Tripura. North Tripura district has the highest density of 488 persons per sq. km. The lowest density of 150 persons per sq. km is in Dhalai district.

Table 6.1

District wise Population and Geographical Area of Tripura

District*	District Headquarter	Population			Area (in Sq. Km)	Density (per Sq. Km)
		Rural	Urban	Total		
Dhalai	Ambassa	337731	40499	378230	2523	150
North Tripura	Kailashahar	573662	120285	693947	1422	488
South Tripura	Udaipur	752970	123031	876001	2624	334
West Tripura	Agartala	1048101	677638	1725739	3917	441
Total		**2712464**	**961453**	**3673917**	**10486**	**353**

***as per Census-2011 data**

[24] Four new districts are Khowai, Unakoti, Sipahjhala and Gomati. However, Census data is not available for new administrative divisions.

Telecom Status in Tripura

6.3. As on May 2013, there are 20,82,530 wireless subscribers in Tripura. Wireless tele-density of the State is 55.31. The subscriber base of the 6 TSPs mobile services in Tripura is given in the table below:

Table 6.2

Service Providers wise Subscriber Base in Tripura (May 2013)

Sl. No.	Name of Service Provider	No. of Subscribers	Market Share (in %)
1.	Airtel	831384	40
2.	Aircel	409942	20
3.	BSNL	270101	13
4.	Vodafone	323560	16
5.	Reliance	179526	9
6.	Idea	68017	3
	Total	**2082530**	

I. Transmission media Plan

Connectivity of State Capital & DHQs:

6.4. Four TSPs, viz. BSNL, Airtel, Vodafone and PGCIL, have established OFC links to connect Agartala. Agartala is also connected on BSNL's 6 GHz digital microwave link with Silchar. BSNL has established connectivity through OFC with all other DHQs. All DHQs except Belonia are on an OFC ring.

Table 6.3

Connectivity Status of DHQs

Sl. No.	District	DHQ	Connectivity			Operators having OFC connectivity
			OFC	DMW	Satellite	
1.	West Tripura	Agartala	Ring*	Yes	No	BSNL, Aircel, Vodafone, Airtel
2.	Dhalai	Ambassa	Ring	Yes	No	BSNL, Vodafone
3.	Unakoti	Kailasahar	Ring	Yes	No	BSNL, Vodafone
4.	Gomati	R.K. Pur (Udaipur)	Ring	Yes	No	BSNL, Airtel, Vodafone

5.	Sipahijala	Bishramganj	Ring	Yes	No	BSNL , Vodafone
6.	South Tripura	Belonia	Linear	Yes	No	BSNL, Vodafone
7.	Khowai	Khowai	Ring	Yes	No	BSNL, Vodafone
8.	North Tripura	Dharmanagar	Ring	Yes	No	BSNL, Vodafone

***** BSNL is using bandwidth hired from PGCIL to complete the ring.

Bandwidth Availability at the State Capital and DHQs:

6.5. Agartala is connected to Silchar and Shillong through different transmission systems namely OFC, Digital Microwave and OPGW; and total bandwidth available is 35.6 Gbps. The status of available bandwidth at Agartala is given in the table below:

Table 6.4

Available bandwidth at Agartala

Sl. No.	Connected to	Media	Transmission System	Bandwidth (Gbps)	TSP
1.	Shillong	OFC	STM64	10	Airtel
2.	Shillong	OFC	DWDM	2.5	BSNL
3.	Silchar	Digital Microwave	(3+1) STM-1	0.465	BSNL
4.	Shillong	Digital Microwave	STM-1	0.155	Vodafone
5.	Shillong	OFC	DWDM	2.5	Vodafone
6.	Shillong	OFC (OPGW)	DWDM	20 Gbps[25]	PGCIL
Total bandwidth				**35.6**	

6.6. Total bandwidth available at different DHQs is given in the table below.

Table 6.5

District wise Bandwidth availability

Sl. No.	DHQ	Bandwidth on OFC in Gbps	Bandwidth on Digital Microwave in Gbps	Bandwidth on Satellite	Total Bandwidth in Gbps
1	Dhalai	4.99	0.5	0	5.49
2	North Tripura	4.99	0.72	0	5.71

[25] From Agartala to Badarpur, 40.25 Gbps bandwidth is available. But, the 40.25Gbps bandwidth in Badarpur-Shillong link is being shared by Agartala, Aizawl and Silchar. Therefore for Agartala 20 Gbps bandwidth has been considered for its connectivity with Shillong.

3	South Tripura	4.99	0.5	0	5.48
4	West Tripura	19.93	0.9	0	20.83
5	Sepahijala	4.99	0.59	0	5.58
6	Khowai	2.49	0.46	0	2.95
7	Unokoti	4.99	0.46	0	5.45
8	Gomoti	14.94	0.44	0	15.38

Additional OFC and Bandwidth Requirement:

6.7. All DHQs should have OFC connectivity through ring/ diversified routes. There is only one DHQ, Belonia, which needs to be connected with OFC ring. To bring this DHQ on OFC ring, the approximate route length and the investment required is as shown in the table below[26]:

Table 6.6

Proposed Media Plan for connecting DHQs

	DHQ	Proposed Connectivity to	Route length (km)	OFC cost (Rs Cr)
South Tripura	Belonia	Bishramganj(Sipahijala)	45	1.8

6.8. The estimated bandwidth required at each DHQ is given in the table below.

Table 6.7

Estimation of investment required for bandwidth upgradation

Sl. No.	Districts	DHQs	Total Bandwidth in Gbps	Bandwidth Required (Gbps)
1	West Tripura	Agartala	20.83	12.2
2	Dhalai	Ambassa	5.49	2.4
3	Unokoti	Kailasahar	5.45	1.9
4	Gomoti	R.K. Pur (Udaipur)	15.38	3.16
5	Sepahijala	Bishramganj	5.58	6.44
6	South Tripura	Belonia	5.48	3.14
7	Khowai	Khowai	2.95	4.35
8	North Tripura	Dharmanagar	5.71	2.9
	Total		**66.87**	**36.49**

[26] Exact route length can be found out only after carrying out the feasibility study of route,

Requirement of DWDM Equipment:

6.9. There will be 2 OFC rings required to connect all DHQs as per the table given below. Transmission system planned is based on 40λ, 2.5G, DWDM. The equipment and investment required for these rings are given in the table below:

Table 6.8

Proposed OFC Ring and Telecom Equipment Required

Sl No.	Ring	Route	Number of Equipment Required
1	Ring 1	Udaipur------Belonia-----Sonamura-------- Agartala-----Khowai-------Udaipur	OADMs – 8 OTMs - 2
2	Ring 2	Udaipur----Ambassa----Dharamnagar------ Kailashahar-----Khowai-----Udaipur	OADMs – 10 OTMs - 2

6.10. Accordingly, total equipments and investment required will be:

- Number of OTMs required= 4
- Number of OADMs = 18
- Number of DXC =2
- Total Cost[27] = **Rs. 6.2 Crore.**

II. 2G Mobile connectivity Plan

Existing 2G Mobile Coverage

6.11. All DHQs, other towns and BHQs in Tripura have mobile coverage. As far as coverage of villages are concerned, as per the TSP's data of a total 901 census villages, 899 villages are covered on 2G mobile; only 2 villages are yet to be covered. Based on these figures, 99.9% population of Tripura has 2G mobile coverage. District-wise information of village coverage is given in the table below:

[27] Cost per OTM=Rs. 0.6 crore, OADM= Rs. 0.1 crore and DXC= Rs. 1 crore.

Table 6.9

Sl. No.	DHQ	Total No. of Villages*#	No. of inhabited Villages	No. of Villages having mobile coverage	% of Villages having mobile coverage	Uncovered Villages
1	Dhalai	154	150	150	100%	0
2	North Tripura	170	170	170	100%	0
3	South Tripura	275	273	272	99%	1
4	West Tripura	302	296	295	99%	1
	Total	**901**	**889**	**887**	**99%**	**2**

*No. of in-habited villages as per Censes 2011
#Includes Census Towns also

6.12. Estimated cost of 2 BTSs required to cover remaining villages is around **Rs. 1.1 Crore** assuming that microwave links shall be used for backhaul and one of the sites would require two hops of microwave link for connecting to nearest available point of presense.

III. 3G Mobile connectivity Plan

Existing 3G mobile Coverage

6.13. In Tripura, 4TSPs viz. Aircel, Airtel (Bharti Hexacom) BSNL and Reliance Telecom Ltd. (RTL) have 3G spectrum. The roll-out of 3G services in the Tripura is largely limited to DHQs and relatively bigger towns. 3G coverage is in all 8 DHQs, but only 5 out of 40 SDHQ and 9 out of 42 towns have been provided with 3G mobile signals. Therefore, at present only 19% of the total population and 60% urban population are has 3G coverage. To extend 3G coverage in urban areas with population more than 5000, the requirement of Node-Bs, investment required and list of towns that are planned to be covered with 3G coverage considering that on an average one NodeB will be required to cover every 3000 population, are given below:

Table 6.10

Infrastructure required for 3G Coverage in Tripura

Sl. No.	District	Town Name	Town Code	Total Population	No. of Node-Bs
1	West Tripura	Teliamura (NP)	801521	21032	8
2	West Tripura	Bishalgarh (NP)	801524	21085	8
3	West Tripura	Sonamura (NP)	801525	11285	4
4	South Tripura	Amarpur (NP)	801527	10838	4
5	South Tripura	Santir Bazar (NP)	801528	11921	4
6	South Tripura	Sabroom (NP)	801530	7142	3
7	Dhalai	Kamalpur (NP)	801531	10872	4
8	North Tripura	Kumarghat (NP)	801535	13054	5
9	Dhalai	Kalachhari (CT)	272465	4827	2
10	Dhalai	Manu (CT)	272488	8515	3
11	North Tripura	Dewanpasa (CT)	272655	8761	3
12	North Tripura	Panisagar (CT)	272656	14758	5
13	North Tripura	Fatikroy (CT)	272707	5371	2
14	North Tripura	Kanchanpur (CT)	272731	15341	6
15	South Tripura	Dhwajnagar (CT)	272233	9052	4
16	South Tripura	Gakulpur (CT)	272234	8361	3
17	South Tripura	Fulkumari (Part) (CT)	272235	11160	4
18	South Tripura	Matarbari (CT)	272236	6530	3
19	South Tripura	Lebachhara (CT)	272360	5273	2
20	West Tripura	Taranagar (CT)	271863	15481	6
21	West Tripura	Narsingarh (CT)	271864	7404	3
22	West Tripura	Singarbil (CT)	271865	12917	5
23	West Tripura	Radhakishorenagar (CT)	272013	13866	5
24	West Tripura	Briddhanagar (CT)	272014	7041	3
25	West Tripura	Uttar Champamura (CT)	272015	11359	4
26	West Tripura	Bankimnagar (CT)	272016	11949	4
27	West Tripura	Charipara (CT)	272023	19598	7
28	West Tripura	Anandanagar (CT)	272024	13814	5
29	West Tripura	Dukli (CT)	272025	16941	6
30	West Tripura	Madhupur (CT)	272026	14105	5
31	West Tripura	Madhuban (CT)	272027	16579	6
32	West Tripura	Gakulnagar (CT)	272081	11369	4
33	West Tripura	Chandigarh (CT)	272126	5607	2
	Total				**142**

Abbreviations used: N.P. – Nagar Panchayat C.T.- Census Town;

Investment required for 3G mobile coverage

- Total No. of Node-Bs: 142
- Expenditure on Node-Bs (@ Rs. 15 lakh per Node B) = Rs. 21.3 Crore
- No. of Additional Towers= 14 (10% of number of Node-B)
- Expenditure on Towers (@Rs. 30.5 lakh per Tower) = Rs. 4.27 Crore
- Total Investment = **Rs. 25.57 Crore**

IV. 2G Mobile connectivity Plan for National Highway

Existing National Highway coverage

6.14. The status of coverage of National Highways that run through Tripura is detailed in table below –

Table 6.11

Status of coverage of National Highways in Tripura

Sl. No.	Highway No	Highway Name	Route	Length (Km)	Covered Length (Km)	Uncovered Length (Km)
1	44	Nongstoin and connecting Shillong Passi Badarpur Agartala Sabroom	Tripura/Assam Border-Ambasa-Chandrasadhubari-Barjala-Udaipur-Sabrum.	335	324	11
2	44A	Aizawl-Manu	Tripura/Mizoram Border-Sakhan-Manu.	65	39	26
TOTAL HIGHWAY LENGTH (Km) OF STATE				**400**	**363**	**37**

The calculations of investment required for covering the uncovered portion of these highways has already been given in Chapter II.

CHAPTER-VII

COMPREHENSIVE TELECOM PLAN FOR THE STATE OF ARUNACHAL PRADESH

7.1 Demographic details - Arunachal Pradesh was granted statehood on 20th February 1987. It is situated in the North-Eastern part of India between latitude 26° 30' N and 29° 30 ' N and longitude 91° 30' E and 97° 30' E. It has 81396 Sq. KMs area and has a long international border with Bhutan to the west (160 km), China to the north and north-east (1,080 km) and Myanmar to the east (440 km). It stretches from snow-capped mountains in the north to the plains of Brahmaputra valley in the south. Arunachal is the largest State area-wise in the north-east region, even larger than Assam which is the most populous. Itanagar is the capital of Arunachal Pradesh and located at an altitude of 530 meters above mean sea level.

7.2 The State consists of sixteen administrative Districts. As per Census 2011, there are 188 Sub Districts in Arunachal Pradesh and 5590 villages. The total population of the State is 1383727 and population density of 17. The highest population density is of Papum Pare district with 51 persons per sq.Km and lowest population density is of Dibang Valley district with 01 person per sq Km. The district-wise population along with the urban-rural break up has been detailed in the table below –

Table 7.1
District wise Population and Geographical Area of Arunachal Pradesh

Sl. No.	District	Population			Total Area (in Sq. Km.)	Density (per Sq. Km)
		Rural	Urban	Total		
1.	Tawang	38775	11202	49977	2173	23
2.	West Kameng	68015	15932	83947	7160	12
3.	East Kameng	60340	18350	78690	4149	19

4.	Papum Pare	79610	96963	176573	3466	51
5.	Upper Subansiri	70043	13405	83448	7053	12
6.	West Siang	87306	24968	112274	8325	13
7.	East Siang	71579	27635	99214	3610	27
8.	Upper Siang	28780	6540	35320	6596	5
9.	Changlang	128998	19228	148226	4671	32
10.	Tirap	91165	20810	111975	2362	47
11.	Lower Subansiri	70224	12806	83030	3516	24
12.	Kurung Kumey	89731	2345	92076	6199	15
13.	Dibang Valley	5620	2384	8004	9193	1
14.	Lower Dibang Valley	42691	11389	54080	3907	14
15.	Lohit	113296	32430	145726	5219	28
16.	Anjaw	20185	982	21167	6213	3
	Total	**1066358**	**317369**	**1383727**	**81396**	**17**

Telecom Status in Arunachal Pradesh

7.3 There are 6 TSPs providing wireless mobile services in Arunachal Pradesh. Viz. Bharat Sanchar Nigam Limited (BSNL), Airtel, Aircel, Idea, Reliance and Vodafone. BSNL is the only operator that is providing wired line services.

7.4 As on May 2013, there were total 672540 wireless connections working in Arunachal Pradesh. This translates into a wireless tele-density of 46.72 over a projected population for 2013. The subscriber details of 6 TSPs are given in the table below:-

Table 7.2

Service Providers wise wireless Subscribers in Arunachal Pradesh

Sl. No.	Name of Service Provider	No. of Subscribers	Market Share (in %)
1.	Airtel	99578	14.8
2.	Aircel	83108	12.4
3.	BSNL	343467	51.1
4.	Vodafone	59180	8.8
5.	Reliance	83816	12.5
6.	Idea	3391	0.5
	Total	**672540**	

I. Transmission Media Plan

Connectivity of State Capital & DHQs:

7.5 The telecom connectivity in Arunachal Pradesh has suffered mainly because of difficult terrain. Some DHQs of Arunachal Pradesh are yet to be connected on OFC. BSNL is the main TSP who has laid OFC in Arunachal Pradesh. Most of the other TSPs have OFC connectivity only up to Itanagar. Five DHQs viz Anini, Hawai, Seppa, Kolriang and Yingkiong are connected only through satellite media. The table below gives details of the connectivity of various DHQs in Arunachal Pradesh.

Table 7.3

Connectivity Status in Arunachal Pradesh

Sl.No.	District	Connectivity on Fibre Linear/Ring			Operators having OFC connectivity
		OFC	DMW	Satellite	
1.	Anjwa	No	No	Yes	
2.	Changlang	No	Yes	Yes	
3.	Dibang	No	No	Yes	

4.	East Kameng	No	No	Yes	
5.	East Siang	No	Yes	No	
6.	Kurung Kumey	No	No	Yes	
7.	Lohit	No	Yes	No	
8.	Lower Dibang	Yes	Yes	No	BSNL
9.	Lower Subansiri	Yes	Yes	Yes	Airtel, Vodafone, BSNL
10.	Papum Para	Ring	Yes	No	Vodafone, Airtel, BSNL
11.	Tawang	Yes	Yes	Yes	BSNL
12.	Tirap	Yes	Yes	No	BSNL
13.	Upper Siang	No	No	Yes	
14.	Upper Subansiri	Yes	No	No	BSNL
15.	West Kameng	No	Yes	No	
16.	West Siang	Yes	No	Yes	BSNL

Bandwidth Availability at the State Capital and DHQs:

7.6 Itanagar is connected to Shillong, Balipara & Gohpur through different transmission systems. Total bandwidth available at Itanagar is approximately 38.2 Gbps. Position of available bandwidth at Itanagar and its connectivity outside the State is given in the table below:

Table 7.4

Available bandwidth at Itanagar

Sl. No.	Connected to	Media	Transmission System	Bandwidth (Gbps)	TSP
1.	Shillong	OFC	STM-64	10	Airtel
2.	Gohpur	OFC	STM-16	2.5	Tata
3.	Balipara	OFC (OPGW)	DWDM	20	PGCIL

4.	Shillong	MW & OFC	STM1,STM16	2.6	Vodafone
5.	Guphur	MW & OFC	2.5 G DWDM, (3+1) STM-1,	3.1	BSNL
Total bandwidth				**38.2 Gbps**	

7.7 The following table gives the total bandwidth available at different DHQs.

Table 7.5

District wise Bandwidth availability

Sl.No.	District	Bandwidth on OFC (Gbps)	Bandwidth on Digital Microwave (Gbps)	Bandwidth on Satellite (Gbps)	Total Bandwidth (Gbps)
1.	Anjwa			0.002	0.002
2.	Changlang		0.032	0.008	0.33
3.	Dibang			0.008	0.008
4.	East Kameng			0.01	0.01
5.	East Siang		0.38		0.38
6.	Kurung Kumey			0.002	
7.	Lohit		0.53		0.53
8.	Lower Dibang	0.31	0.31		0.62
9.	Lower Subansiri	14.94	0.032	0.002	14.98
10.	Papum Para	12.61	0.44		13.05
11.	Tawang	0.16	0.15	0.028	0.34
12.	Tirap	0.16	0.37		0.53
13.	Upper Siang			0.008	0.008
14.	Upper Subansiri	2.49			2.49
15.	West Kameng		0.62		0.62
16.	West Siang	2.49		0.008	2.50

Requirement of additional transmission media:

7.8 In Arunachal Pradesh, of the 16 District headquarters, none, except Itanagar, are on optical fiber ring. For media diversity all DHQs should have OFC connectivity through ring/diversified routes. Currently, seven DHQs have linear OFC connectivity i.e. no protection is available in case of failure of transmission. Therefore for improving network connectivity in Arunachal Pradesh State, all 16 district headquarters should have transmission media diversity in case of a failure/breakdown. Accordingly **two ring connectivity are proposed for the State.**

a. **Ring 'A" i.e. Itanagar – Ziro – Deparjio – Along – Passighat – Roing-Tezu – Namsai – Tinsukia – Dibrugarh – Jorhat – Tezpur – Itanagar.**

b. **Ring 'B" i.e. Khonsa – Tinsukia – Digboi – Changlang – Khonsa.**

7.9 Keeping above facts into consideration, OFC plan to connect each of DHQs through diversified OFC routes estimated investment requirement is given in the tables below.

Table 7.6

Proposed Media Plan for connecting DHQs

Sl. No.	DHQ	Connectivity on Fibre	Proposed Connectivity	Proposed Diversified Route
1.	Hawai	No	Hawai- Tezu UG-OFC / OPGW/ADSS	Enhanced Satellite BW from 2 to 8 Mbs
2.	Changlang	No	Changlang -Digboi UG OFC/ OPGW/ADSS	Khosna – Tinsukia – Digboi – Changlang – Khosna
3.	Anini	No	Anini- Roing UG-OFC/ OPGW/ADSS	Enhanced Satellite BW from 8 to 34 Mbs
4.	Seppa	No	Itanagar –Seppa UG-OFC/ OPGW/ADSS	Enhanced Satellite BW from 10 to 34 Mbbs
5.	Pasighat	No	Pasighat - Along UG-OFC/ OPGW/ADSS	To be covered by ring "A" proposed
6.	Koloriang	No	Koloriang-Palin UG-OFC/ OPGW/ADSS	Enhanced Satellite BW from 2 to 8 Mbs
7.	Tezu	No	Tezu - Namsai UG-OFC/ OPGW/ADSS	To be covered by ring "A" proposed
8.	Roing	Yes	Roing- Passighat UG-OFC/ OPGW/ADSS	To be covered by ring "A" proposed

9.	Ziro	Yes	Existing.	To be covered by ring "A" proposed
10.	Itanagar	Yes	Existing.	Existing
11.	Tawang	Yes	Tawang - Bomdila UG-OFC/ OPGW/ADSS	Enhanced Satellite BW from 14 to 34 Mbs
12.	Khonsa	Yes	(a)Khonsa –Changlang UG OFC and (b) Khonsa-Deomali UG-OFC/ OPGW/ADSS	To be covered by ring "B" proposed
13.	Yingkiong	No	Yingkiong-Pasighat UG-OFC/ OPGW/ADSS	Enhanced Satellite BW from 8 to 34 Mbs
14.	Daporijo	Yes	Existing.	To be covered by ring "A" proposed
15.	Bomdila	No	Bomdila-Tezpur UG-OFC/ OPGW/ADSS	Existing Microwave
16.	Along	Yes	Existing.	To be covered by ring "A" proposed

7.10 As Arunachal Pradesh has difficult terrain, laying of OFC may not be a feasible option. Therefore option for laying arial OFC either on OPGW or ADSS based technology has to be explored. Though per KM cost for OPGW cable is Rs 2.5 lakh, ADSS cable is Rs 5 Lakh and underground OFC is Rs 4 Lakh, however, for investment requirement an average cost of Rs 4 lakh per KM is taken. The actual requirement of Underground OFC or OPGW or ADSS cable can be assessed only after a detailed field survey.

Table 7.7

Investment required for connecting DHQs on diverse media

Sl. No.	**DHQ**	**Proposed Route**	**Route Length of OFC (U/G)/OPGW /ADSS**	**Satellite up gradation (in Mbps)**	**Cost of OFC @Rs 4 lakh/km (in Rs Crore)**	**Cost of Satellite (in Rs Crore)**	**Total Cost (in Rs Crore)**
1	Hawai	Hawai to Tezu	161	2 to 8	6.44	0.5	6.94
2	Changlang	Changlang to Digboi	63	NIL	2.52	NIL	2.52
3	Anini	Anini to Roing	204	8 to 34	8.16	1	9.16
4	Seppa	Seppa to Itanagar	225	10 to 34	9	1	10
5	Pasighat	Pasighat to Along	95	NIL	3.7	NIL	3.7
6	Koloriang	Koloriang to Palin	34	2 to 8	1.36	0.5	1.86

7	Tezu	Tezu to Namsai	161	NIL	6.44	NIL	6.44
8	Roing	Roin to Anini	204	NIL	8.16	NIL	8.16
9	Ziro	NIL	NIL	NIL	NIL	NIL	NIL
10	Itanagar	NIL	NIL	NIL	NIL	NIL	NIL
11	Tawang	Tawang to Bomdila	148	14 to 34	5.92	1	6.92
12	Khonsa	Khonsa to Changlang & Deomali	116+45	NIL	6.44		6.44
13	Yingkiong	Yingkiong to Pasighat	120	8 to 34	4.8	1	5.8
14	Daporijo	NIL	NIL	NIL	NIL	NIL	NIL
15	Bomdila	Bomdila to Tezpur	148	NIL	5.92	NIL	5.92
16	Along	NIL	NIL	NIL	NIL	NIL	NIL
	Total				**68.86**	**5**	**73.86**

Note: Cost per Km of OFC in any of the three methods has been taken as Rs. 4 lakh.

Additional Bandwidth Requirement

7.11 As mentioned above, two rings that have been proposed for Arunachal Pradesh are – **a) Itanagar – Ziro – Deparjio – Along – Passighat – Roing-Tezu – Namsai – Tinsukia – Dibrugarh – Jorhat – Tezpur – Itanagar. and b) Khosna – Tinsukia – Digboi – Changlang – Khosna**. It may be noted that the rings can also be planned in a different manner. The equipment requirement may accordingly vary. However, to a large extent, the proposed investment requirement should suffice. Since the proposed rings will be required to cater to additional bandwidth, the equipment at all the nodes in the ring would be required to be upgraded. The additional bandwidth requirement as per the methodology suggested in Chapter-II has been worked out at each DHQs and is given in the table below. The investment required to implement the ring to cater to additional bandwidth requirement is also given at the end of the table.

Table 7.8

Estimation of bandwidth and investment required for augmentation

Sl. No.	DHQ (District)	Bandwidth Available (Gbps)	Additional Bandwidth Required (Gbps)
1	Hawai (Anjaw)	0.002	0.1
2	Changlang (Changlang)	0.33	0.9
3	Anini (Debang Valley)	0.008	0.1
4	Seppa (East Kameng)	0.01	0.5
5	Pasighat (East Siang)	0.38	0.7
6	Koloriang (Kurung Kumey)	0.002	0.4
7	Tezu (Lohit)	0.53	1.0
8	Roing (Lower Dibang Valley)	0.62	0.4
9	Ziro (Lower Subansiri)	14.98	0.5
10	Itanagar (Papum Pare)	13.05	1.7
11	Tawang (Tawang)	0.34	0.3
12	Khonsa (Tirap)	0.53	0.7
13	Yingkiong (Upper Siang)	0.008	0.2
14	Daporijo(Upper Subansiri)	2.49	0.5
15	Bomdila(West Kameng)	0.62	0.6
16	Along(West Siang)	2.50	0.7
	Equipment required	**Approximate Cost (Rs. in Cr.)**	
	OTM - 8	**4.8**	
	OADM - 70	**7.0**	
	DXC-3	**3.0**	
	Total Investment – 14.8 Cr		

Note - Transmission System planned: 40λ, 2.5G, DWDM.

II. 2G Mobile Connectivity Plan

Existing 2G Mobile Coverage

7.12 As far as mobile coverage of villages is concerned, of a total 5590 villages in Arunachal Pradesh, 2374 villages are covered on 2G mobile. There are 2886 villages which do not have mobile coverage till date. District-wise information of villages under mobile coverage is given in the table below:

Table 7.9

Status of Village coverage

District	Total No. of Villages*#	Total No. of un-inhabited villages	No. of Villages having mobile coverage	% of Villages having mobile coverage	Uncovered Villages
Tawang	235	17	130	59.63	88
West Kameng	284	23	153	58.62	108
East Kameng	382	26	67	18.82	289
Papum Pare	485	30	211	46.37	244
Upper Subansiri	553	10	346	63.72	197
West Siang	461	17	132	29.73	312
East Siang	151	1	93	62.00	57
Upper Siang	112	14	45	45.92	53
Changlang	362	15	270	77.81	77
Tirap	190	1	83	43.92	106
Lower Subansiri	578	42	234	43.66	302
Kurung Kumey	736	36	210	30.00	490
Dibang Valley	142	8	29	21.64	105
Lower Dibang Valley	314	50	57	21.59	207
Lohit	300	14	228	79.72	58
Anjaw	305	26	86	30.82	193
	5590	**330**	**2374**	**45.13**	**2886**

*Includes un-inhabited villages
Includes Census Towns also

Plan to increase 2G mobile coverage

7.13 Population profile of the uncovered villages of Arunachal Pradesh is given in the table below.

Table 7.10

Population-wise segmentation of uncovered villages

Population	No. of 'uncovered' villages
0-100	1537
100-250	893
250-500	315
Above 500	141
Total	**2886**

7.14 As recommended earlier, all villages with a population more than 250 are to be covered. As a result 456 villages out of a total 2886 uncovered villages will be covered and the percentage of villages having mobile coverage will increase from 45.13% to 53.8%. The district-wise paln to cover the uncovered villages is given in the table below:

Table 7.11
District Wise Plan to cover remaining uncovered villages

Sl. No.	Name of District	Number of Uncovered Villages	No. of villages that will be covered in phase-I	Covered Villages at present (in %)	Covered Villages after Phase-I (in %)
1	Tawang	88	10	59.63	64.22
2	West Kameng	108	27	58.62	68.97
3	East Kameng	289	53	18.82	33.71
4	Papum Pare	244	18	46.37	50.33
5	Upper Subansiri	197	13	63.72	66.11
6	West Siang	312	71	29.73	45.72
7	East Siang	57	28	62.00	80.67
8	Upper Siang	53	22	45.92	68.37
9	Changlang	77	21	77.81	83.86
10	Tirap	106	71	43.92	81.48
11	Lower Subansiri	302	13	43.66	46.08
12	Kurung Kumey	490	55	30.00	37.86
13	Dibang Valley	105	0	21.64	21.64
14	Lower Dibang	207	30	21.59	32.95
15	Lohit	58	17	79.72	85.66
16	Anjaw	193	7	30.82	33.33
	Total	**2886**	**456**	**45.13**	**53.80**

7.15 Apart from the uncovered villages, as per the TSP's data, there are seventy Sub District Headquarters (SDHQs) which do not have 2G mobile coverage. Arunachal Pradesh has low population density. Majority of its districts have population density less than 15 persons/ sq. km. There are very few places where population concentration is observed. Even among the 70 uncovered SDHQs, 51 have population less than 5000. Therefore,

looking at these circumstances to cover these 70 SDHQs, it is assumed that population of around 2000 can only be served by one BTS. A distance of 5KM has been taken from nearby Gram Panchayat for OFC connectivity. Taking these into consideration, number of 2G BTSs that are planned in these SDHQs is given in the table below –

Table 7.12

Plan to cover remaining uncovered SDHQs

District	Sub – District Head Quarter	SDHQ Code	Total Population	No of 2G BTS Planned
Anjwa	Chaglagam	01739	1070	1
Anjwa	Goiliang	01738	1681	1
Anjwa	Kibithoo	01741	1455	1
Anjwa	Manchal	01737	3371	2
Anjwa	Metengliang	01740	1608	1
Anjwa	Walong	01742	1201	1
Changlang	Khimiyong	01669	3012	2
Changlang	Lyngok-Longtai	01675	757	1
Changlang	Namtok	01672	3875	2
Dibang Valley	Mipi	01717	592	1
Dibang Valley	Anileh	01720	563	1
Dibang Valley	Kronli (Arzoo circle)	01721	1031	1
East Kameng	Dissing Passo	01580	1561	1
East Kameng	Pakke-Kessang	01581	3609	2
East Kameng	Pizirang (Veo)	01582	6230	3
East Kameng	Richukorang	01583	3636	2
East Kameng	Lada	01585	3189	2
East Kameng	Pipu-Dipu	01587	3852	2
East Kameng	Gyawe Purang	01588	2469	2

East Kameng	Khenewa	01589	4230	2
East Kameng	Sewa	01591	4256	2
East Siang	Kebang	01646	1629	1
East Siang	Rebo-Perging	01647	2363	1
East Siang	Koyu	01648	2005	1
East Siang	Namsing	01657	7459	4
Kurung Kumey	Yangte	01704	6910	4
Kurung Kumey	Sangram	01705	10832	5
Kurung Kumey	Nyapin	01706	6651	4
Kurung Kumey	Chambang	01709	5347	3
Kurung Kumey	Ganget	01710	5369	3
Kurung Kumey	Sarli	01712	3120	2
Kurung Kumey	Parsi-Parlo	01713	9152	5
Kurung Kumey	Damin	01714	5755	3
Kurung Kumey	Longding Koling (Pipsorang)	01715	6788	3
Kurung Kumey	Tali	01716	8993	4
Lower Dibang Valley	Desali	01723	864	1
Lower Dibang Valley	Tenali Paglam	01726	5319	3
Lower Dibang Valley	Koronu	01727	5614	3
Lower Subansuri	Kamporijo	01700	6951	4
Papum Para	Taraso	01595	2507	1
Papum Para	Parang	01602	1655	1
Papum Para	Leporiang	01603	4139	2
Papum Para	Mengio	01604	6055	3
Papum Para	Kakoi	01606	1627	1
Tawang	Dudunghar	01558	2833	1

Tawang	Lhou	01562	4029	2
Tawang	Bongkhar	01564	1256	1
Tawang	Thingbu	01565	1592	1
Tirap	Dadam	01687	5074	3
Tirap	Lawnu	01689	4946	3
Tirap	Pumao	01691	4934	3
Tirap	Pangchao	01692	11808	6
Tirap	Wakka	01693	11216	6
Tirap	Laju	01694	9113	5
Upper Siang	Megging	01659	857	1
Upper Siang	Singa	01662	988	1
Upper Siang	Mopom Adipasi	01667	1360	1
Upper Siang	Katan	01668	2944	1
Upper Subansiri	Payeng	01612	2246	1
Upper Subansiri	Giba	01613	5013	3
Upper Subansiri	Gussar	01618	4017	2
West Kameng	Thembang	01567	1334	1
West Kameng	Singchung	01573	14534	8
West Kameng	Kamengbari	01577	316	1
West Siang	Monigong	01623	4472	2
West Siang	Pidi	01624	1036	1
West Siang	Payum	01625	2354	1
West Siang	Tato	01626	2711	1
West Siang	Kaying	01627	5094	3
West Siang	Sibe	01639	1345	1
			Total	**155**

Investment Required

7.16 To cover 456 villages and 70 SDHQs total 611 BTSs have been proposed. One BTS has been proposed per uncovered village and 155 BTSs have been proposed for 70 uncovered SDHQs. 65% of proposed BTSs have been planned on microwave backhaul links. Given the hilly terrain in Arunachal Pradesh, for connecting each microwave BTS links, two hops have been planned. 10% of the new BTSs have been planned with OFC links with an average route length of 5KM. For the State of Arunachal Pradesh, where more than 50% villages are yet to be connected, backhaul connectivity for 25% of the proposed BTSs is proposed on VSAT. Decision on use of a particular backhaul will depend on detailed field survey. Wherever possible, larger villages and SDHQs in far flung areas having difficult terrain can be connected on VSAT. The total investment requirement for 611 number of BTSs with their connectivity through microwave, OFC and satellite links is provided in the table below :

Table 7.13
Estimated Infrastructure and investment for 2G coverage

	No. of BTSs required	No. of BTS with Microwave links	No. of Microwave Repeaters	No. of BTS on OFC links	No. of BTS on Satellite links	No. of BSC required	Total Expenditure (Rs. Crore)
Infrastructure required	611	397	397	61	153	7	
Unit Costs (Cr.)		0.361	0.343	0.531	0.461	2.5	
Total Costs (Cr.)		143.31	136.171	32.39	70.533	17.50	**400**

III. 3G Mobile connectivity Plan

3G mobile Coverage

7.17 In Arunachal Pradesh, 4 TSPs viz. Aircel, Airtel (Bharti Hexacom), BSNL and Reliance Telecom Ltd. (RTL) have 3G spectrum. The roll-out of 3G

services in the Arunachal Pradesh is very poor. Even many DHQs have not been covered with 3G services. With present 3G coverage only about 67.5% of the urban population is covered. As recommended earlier all the urban areas should have 3G coverage. Based on the consideration explained for 2G coverage planning, average one NodeB will be required to cover every 2000 population. The requirement of Node Bs and the investment thereof (@ 15 lakh per Node- B) is given in the table below:

Table 7.14

Estimated investment required for 3G Coverage

District	Sub- District	Town Name	Town Code	Total Population	3G Node Bs Planned	Estimated expenditure (Rs Cr)
West Kameng	Dirang	Dirang (NT)	801425	3750	2	0.3
West Kameng	Rupa (21)	Rupa (CT)	261802	3812	2	0.3
East Kameng	Seppa	Seppa (NT)	801427	18350	9	1.35
Papum Para	Sagalee	Sagalee (NT)	801430	1315	1	0.15
Upper Subansiri	Daporijo	Daporijo (NT)	801431	13405	7	1.05
West Siang	Basar	Basar (NT)	801433	4284	2	0.3
East Siang	Boleng	Boleng (NT)	801434	2979	1	0.15
Upper Siang	Yingkiong	Yingkiong (NT)	801436	6540	3	0.45
Changlang	Changlang	Changlang (NT)	801437	6236	3	0.45
Changlang	Jairampur	Jairampur (NT)	801438	7151	4	0.60
Changlang	Miao	Miao (NT)	801439	5841	3	0.45
Tirap	Namsang	Deomali (NT)	801440	6648	3	0.45

Tirap	Longding	Longding	801442	4234	2	0.3
Lower Subansiri	Ziro (Sadar)	Ziro (NT)	801443	12806	6	1.50
Kurung Kumey	Koloriang	Koloriang (NT)	801444	2345	1	0.15
Dibang Valley	Anini	Anini (NT)	801445	2384	1	0.15
Anjaw	Hawai	Hawai (NT)	801449	982	1	0.15
				Sub Total	**51**	**7.65**
10% proposed NodeBs are assumed on new sites where additional GBT will be required @30.5 lakh					**5**	**1.53**
Total Investment						**9.18**

Abbreviations used: C.T.- Census Town; N.T. – Notified Town

IV. 2G Mobile connectivity Plan for National Highway

Existing National Highway coverage status

7.18 The status of coverage of National Highways that run through Arunachal Pradesh is detailed in table below –

Table 7.15

Status of National Highway[28] coverage in Arunachal Pradesh

Sl. No.	Highway No	Highway Name	Route	Length (Km)	Covered Length (Km)	Uncovered Length (Km)
1	52A	Bander Dewa-Itanagar-Gohpur	From Assam border-Itanagar-upto Assam border	42	42	0
2	153	Ledo - Lekhapani - Indo / Myanmar -Border	From Assam border-Myanmar border (Still Well road)	40	10	30

[28] The details of National Highways passing through each of the NER States have been taken from www.morth.nic.in as accessed in May 2013.

3	52	Baihata-Charali-Tezpur-Bander Dewa-North Lakhimpur-Pasighat-Tezu-Sitapani Junction with National Highway No.37 near Saikhoaghat	Baihata-Charali-Tezpur-Bander Dewa-North Lakhimpur-Pasighat-Tezu-Sitapani Junction with National Highway No.37 near Saikhoaghat	310	265	45
4	37	Junction with National Highway No 31B near Goalpara Guwahati Jorabat Kamargaon Makum Saikhoaghat Roing	The NH No. 37 is extended from its dead near Saikhowaghat in Assam to join NH 52 near Roing in Arunachal Pradesh	60	60	0
5	37	Junction with National Highway No 31B near Goalpara Guwahati Jorabat Kamargaon Makum Saikhoaghat Roing	Baihata-Charali-Tezpur-Bander Dewa-North Lakhimpur-Pasighat-Tezu-Sitapani Junction with National Highway No.37 near Saikhoaghat	310	310	0

6	229	The highways starting from Tawang passing through Bomdila,Nechipu, Seppa, Sagalee, Ziro, Daporijo, Aalong and terminating at Pasighat in the State of Arunachal Pradesh	The highways starting from Tawang passing through Bomdila, Nechipu, Seppa, Sagalee, Ziro, Daporijo, Aalong and terminating at Pasighat in the State of Arunachal Pradesh	1090	43	1047
7	52B	Kulajan Dibrugarh Kanuba Khonsa Changlang Namchik Mahadevpur	The highways starting from Mahadevpur passing through Namchik, Changlang, Khonsa and Kanubari in the State of Arunachal Pradesh and terminating near Dibrugarh in the State of Assam, joining with approaches to Bogibeel bridge	450	354	96
TOTAL HIGHWAY LENGTH (Km) OF STATE				**2302**	**1084**	**1218**

The calculations of investment required for covering the uncovered portion of these highways has already been given in Chapter II.

CHAPTER-VIII

COMPREHENSIVE TELECOM PLAN FOR MANIPUR

8.1 Manipur became a full-fledged State of India on the 21st January, 1972. Eighty percentage of the state comprise of deep forest and is inaccessible for most parts of the year, except by foot. It is located between latitude 23° 83' & 25° 68' N and longitude 93° 03' & 94° 78' E.

8.2 There are 9 districts and 38 Sub-Districts/Blocks and 2612 villages in the state. Its population, as per Census 2011, is 25,70,390 with 32.45% urban population. The population density of Manipur is 115 persons/sq. km. Amongst all 9 districts, Imphal West has the highest density of 998 persons/sq. km. The lowest population density is in Tamenglong district - 32 persons/sq. km. The district-wise population along with the urban-rural break up has been given in the table below :

Table 8.1

District Wise Population and Geographical Area of Manipur

District	Population			Area (in Sq. Km.)	Density (per Sq. Km)
	Rural	Urban	Total		
Bishnupur	149894	87505	237399	496	479
Chandel	127335	16847	144182	3277	44
Churchandpur	255786	18357	274143	4569	60
Imphal East	272906	183207	456113	709	643
Imphal West	195113	322879	517992	519	998
Senapati	186268	7476	193744	3284	59
Tamenglong	121288	19363	140651	4395	32
Thoubal	270835	151333	422168	514	821
Ukhrul	156811	27187	183998	4600	40
Total	**1736236**	**834154**	**2570390**	**22363**	**115**

Telecom Status in Manipur

8.3 There are 6 TSPs who are providing wireless mobile services in Manipur. They are - Bharat Sanchar Nigam Limited (BSNL), Airtel, Aircel, Idea, Reliance and Vodafone. BSNL is the only operator that is providing wired line services.

8.4 As on May 2013, there are 20,49,004 wireless connections working in Manipur. Wireless tele-density of Manipur, calculated on a projected population for 2013, is 72.3. The wireless subscriber base of 6 TSPs providing mobile services in Manipur is given in the table below:

Table 8.2

Service Providers wise wireless Subscriber Base in Manipur

Sl. No.	Name of Service Provider	No. of Subscribers	Market Share (in %)
1.	Airtel	601008	29.3
2.	Aircel	703523	34.3
3.	BSNL (GSM)	170755	8.3
4.	Idea	75884	3.7
5.	Vodafone	216360	10.6
6.	Reliance	281474	13.7
	Total	**2049004**	

I. Transmission media plan

Connectivity of State Capital & DHQs:

8.5 OFC has been laid by BSNL and Airtel to provide connectivity to the State capital Imphal. PGCIL has its OPGW connectivity between Imphal and Kohima. All the DHQs are connected on linear OFC; except Tamenglong. Bulk of telecom traffic of Manipur is carried via Imphal-Kohima OFC along NH 2 which is frequently cut due to road works. For this reason, some TSPs plan to provide the transmission media redundancy through PGCIL

which has cables along the power lines. The table below provides the status of DHQ connectivity in Manipur.

Table 8.3

Connectivity Status of DHQs

Sl. No.	DHQ	Connectivity			Operators having OFC connectivity
		OFC	DMW	Satellite	
1	Bishnupur	Yes	Yes	No	Vodafone, BSNL, Airtel
2	Chandel	Yes	Yes	No	BSNL
3	Churachandpur	Yes	Yes	No	Vodafone, Airtel, BSNL
4	Imphal East	Ring	Yes	No	Vodafone, Aircel, BSNL
5	Imphal West	Yes	Yes	No	BSNL, Vodafone
6	Senapati	Yes	Yes	No	Vodafone, BSNL
7	Tamenglong	No	Yes	No	
8	Thoubal	Yes	Yes	No	Airtel, BSNL
9	Ukhrul	Yes	Yes	No	BSNL

Bandwidth Availability at the State Capital and DHQs:

8.6 Imphal is connected to Shillong, Dimapur, Kohima and Guwahati through different transmission systems viz. OFC, Digital Microwave and OPGW. The status of available bandwidth at Imphal is given in the table below:

Table 8.4

Available bandwidth at Imphal

Sl. No.	Connected to	Media	Transmission System	Bandwidth	TSP
1.	Shillong	Lease BW	5 X DS3	0.45 Gbps	Airtel
2.	Dimapur	Lease Line	NA	0.04 Gbps	Aircel
3.	Kohima	OFC (OPGW)	DWDM	32.5 Gbps	PGCIL

4.	Shillong	OFC & Lease line	STM1,STM16	2.5 Gbps+ 155 Mbps	Vodafone
5.	Guwahati via Senapati, Dimapur, Jorhat)	MW& OFC	2.5 G DWDM, (3+1) STM-1, STM-1 from PGCIL	2.5 G DWDM, (3+1) STM-1, STM-1 from PGCIL	BSNL
Total bandwidth				**~38.5 Gbps**	

8.7 The following table gives the total bandwidth available at different DHQs.

Table 8.5

District wise Bandwidth availability

Sl.No.	DHQ	Bandwidth on OFC (Gbps)	Bandwidth on Digital Microwave (Gbps)	Bandwidth on Satellite	Total Bandwidth (Gbps)
1.	Bishnupur	14.94	0.59	0	15.54
2.	Chandel	0.62	0.19	0	0.81
3.	Churachandpur	14.94	0.47	0	15.41
4.	Imphal East	7.49	1.24	0	8.73
5.	Imphal West	4.99	1.21	0	6.20
6.	Senapati	4.99	0.47	0	5.46
7.	Tamenglong	0	0.19	0	0.19
8.	Thoubal	10.58	0.59	0	11.17
9.	Ukhrul	2.49	0.35	0	2.84

Requirement of additional transmission media:

8.8 All District headquarters, except Tamenglong, are connected on OFC by BSNL. Only one District headquarters i.e. Imphal East, is on optical fiber ring. Connectivity for remaining districts is linear i.e. no protection is available in case of failure of transmission media. To provide transmission

media diversity, all DHQs in Manipur should be on OFC connectivity through ring/diversified routes. Hence while planning the investment for improving network connectivity in Manipur State, it has been planned that all district headquarters should have transmission media diversity in case of a failure/breakdown. Two OFC Rings have been proposed for Manipur:-

a) **Imphal West – Bishnupur – Churchandpur – Kakching – Thoubal – Imphal**
b) **Imphal East – Ukhrul – Phek – Kohima – Senapati – Tamenglong - Imphal**

Chandel DHQ is connected through single road to Kakching. Therefore to provide media diversity, microwave link has been planned between Chandel and Kakching.

8.9 Keeping the above in consideration, the OFC plan to connect all DHQs through diversified OFC routes and the estimated investment required is given in the tables below.

Table 8.6

Proposed Media Plan for connecting DHQs

Sl. No.	DHQ	Connectivity on Fibre	Proposed Connectivity	Proposed Diversified Route
1	Bishnupur	Yes		Will be covered by Imphal West – Bishnupur – Churchandpur – Kakching – Thoubal – Imphal
2	Chandel	Yes	Chandel to Thubal - 70 km Microwave	
3	Churachandpur	Yes	Churchandpur-M. Bongmol-Sugnu-Makhao Mullum-Kakching	Will be covered by proposed connectivity at S.No. 1 above
4	Imphal East	Yes	Existing	Existing
5	Imphal West	Yes		Will be covered by proposed connectivity at S.No. 1 above

6	Senapati	Yes		Will be covered by Imphal East – Ukhrul – Phek – Kohima – Senapati – Tamenglong - Imphal
7	Tamenglong	No	Tamenglong to Imphal via Noney - 146 km OFC (U/G)	
8	Thoubal	Yes		Will be covered by proposed connectivity at S.No. 1 above
9	Ukhrul	Yes		Will be covered by proposed connectivity at S.No. 6 above

Table 8.7

Investment required

Sl. No.	**DHQ**	**Proposed Route**	**Route Length of OFC (U/G) (KM)**	**Route Length Microwave (KM)**	**Cost of OFC (U/G) (in Rs Crore)**	**Cost of Microwave (in Rs Crore)**	**Total Cost (in Rs Crore)**
1	Bishnupur	NIL	NIL	NIL	NIL	NIL	NIL
2	Chandel	Chandel to Kakching	0	70		1.37	1.37
3	Churachandpur	NIL	55	NIL	2.2	NIL	2.2
4	Imphal East	NIL	NIL	NIL	NIL	NIL	NIL
5	Imphal West	NIL	NIL	NIL	NIL	NIL	NIL
6	Senapati	NIL	NIL	NIL	NIL	NIL	NIL
7	Tamenglong	Tamenglong to Imphal via Noney	146		5.84		5.84
8	Thoubal	NIL	NIL	NIL	NIL	NIL	NIL
9	Ukhrul	NIL	NIL	NIL	NIL	NIL	NIL
	Total		**201**	**70**	**8.04**	**1.37**	**9.41**

Note: Cost per Km of OFC (U/G) has been taken as Rs. 4 lakh.

Additional Bandwidth Requirement

8.10 As mentioned above, two rings that have been proposed for Manipur are – **a) Imphal West – Bishnupur – Churchandpur – Kakching – Thoubal – West Imphal. b) Imphal East – Ukhrul – Phek – Kohima – Senapati – Tamenglong – East Imphal**. It may be noted that the rings can also be planned in a different manner. The equipment requirement may accordingly vary. However, to a large extent, the proposed investment requirement should suffice. Since the proposed rings will cater to increased bandwidth required in future, the equipment at all the nodes in the ring are to be upgraded. The additional bandwidth requirement as per the methodology suggested in Chapter-II has been worked out at each DHQs and is given in the table below. The investment required is also given at the end of the table.

Table 8.8

Estimation of investment required for bandwidth upgradation

Sl. No.	DHQ	Bandwidth Available (Gbps)	Additional Bandwidth Required (Gbps)
1	Bishnupur	15.54	1.8
2	Chandel	0.81	0.8
3	Churachandpur	15.41	1.3
4	Imphal East	8.73	3.7
5	Imphal West	6.20	8.2
6	Senapati	5.46	0.9
7	Tamenglong	0.19	0.7
8	Thoubal	11.17	3.3
9	Ukhrul	2.84	1.1
	Equipment required	**Approximate Cost (Rs. in Cr.)**	
	OTM - 4	2.4	
	OADM - 23	2.3	
	DXC-2	2.0	
	Total Investment – 6.7 Cr		

Note - Transmission System planned: 40λ, 2.5G, DWDM.

II. 2G Mobile connectivity plan

8.11 As far as mobile coverage of villages is concerned, of a total 2612 villages, 1937 villages are covered by 2G mobile services. There are 610 inhabited villages which do not have mobile coverage. District wise information of villages under mobile coverage is given in the table below:

Table 8.9
Status of Village coverage

District	Total No. of Villages*#	Total No. of un-inhabited inhabited villages	No. of Villages having mobile coverage	% of Villages having mobile coverage	Uncovered Villages
Bishnupur	49	1	48	100.00	0
Chandel	437	7	368	85.58	62
Churachandpur	603	4	410	68.45	189
Imphal East	209	4	201	98.05	4
Imphal West	134	17	115	98.29	2
Senapati	687	15	524	77.98	148
Tamenglong	176	1	99	56.57	76
Thoubal	103	16	86	98.85	1
Ukhrul	214	0	86	40.19	128
	2612	**65**	**1937**	76.05	**610**

*Includes un- inhabited inhabited villages
#Includes Census Towns also

Note – In Census 2011 data, the population information in respect of 3 SDHQs of Senapati District has not been published. For these SDHQs the data has been extrapolated in the same proportion as for the remaining district

Phase Wise Plan to increase 2G mobile coverage

8.12 Population-wise segmentation of uncovered villages in Manipur is given in table below.

Table 8.10
Population-wise segmentation of uncovered villages

Population	No. of 'uncovered' villages
0-100	58
100-250	267
250-500	155
Above 500	130
Total	**610**

8.13 As recommended earlier, in Phase-I all villages with a population of more than 250 are to be covered. As a result, 285 villages out of a total 610 uncovered villages will be covered and the percentage of villages having mobile coverage shall increase from 76.05% to 87.24%.

Table 8.11
District Wise Plan to cover remaining uncovered villages

Sl. No.	Name of District	Number of Uncovered Villages	No. of villages that will be covered in phase-I	Covered Villages at present (in %)	Covered Villages after Phase-I (in %)
1	Bishnupur	0	0	100.00	100.00
2	Chandel	62	18	85.58	89.77
3	Churachandpur	189	72	68.45	80.47
4	Imphal East	4	3	98.05	99.51
5	Imphal West	2	0	98.29	98.29
6	Senapati	148	57	77.98	86.46
7	Tamenglong	76	53	56.57	86.86
8	Thoubal	1	1	98.85	100.00
9	Ukhrul	128	81	40.19	78.04
	Total	**610**	**285**	**76.05**	**87.24**

Note – In Census 2011 data, the population information in respect of 3 SDHQs of Senapati District has not been published. For these SDHQs the data has been extrapolated in the same proportion as for the remaining district

8.14 Apart from the villages, there is also one Sub District Headquarter (SDHQ) which does not have 2G coverage. The detail of this SDHQ and number of 2G BTS planned thereof is given in table below –

Table 8.12

Plan to cover remaining uncovered SDHQ

District	Sub - District	SDHQ Code	Total Population	No of 2G BTS Planned
Tamenglong	Tamenglong North Sub District HQ	01865	28056	6

Investment Required

8.15 As mentioned in chapter – II, one BTS will be required for each uncovered village. To cover the 285 villages and one SDHQ, 291 BTSs are being proposed. 83.4% of the BTSs have been planned with microwave backhaul links. For Manipur, given the hilly terrain, on an average 1.5 hops have been planned for each microwave BTS link i.e. one out of every two BTSs that will be connected on microwave backhaul, would require two hops for connecting it to nearest available media. 15% of the new BTSs have been planned with OFC links with average route length of 2.5 KM. Similarly, 1.6% of BTS have been planned on satellite links. The total investment requirement for 291 number of BTSs with their backhaul connectivity through microwave, OFC and satellite links is provided in the table below :

Table 8.13
Estimated Infrastructure and investment for 2G coverage

	No. of BTSs required	No. of BTS with Microwave links	No. of Microwave Repeaters	No. of BTS on OFC links	No. of BTS on Satellite links	No. of BSC required	Total Expenditure (Rs. Crore)
Infrastructure required	291	243	121	44	5	3	
Unit Costs (Cr.)		0.361	0.343	0.431	0.461	2.5	
Total Costs (Cr.)		**87.72**	**41.50**	**18.96**	**2.31**	**7.50**	**158.00**

III. 3G mobile connectivity plan

8.16 In Manipur, 4 TSPs viz. Aircel, Airtel (Bharti Hexacom), BSNL and Reliance Telecom Ltd. (RTL) have 3G spectrum. The roll-out of 3G services in the Manipur is poor. Even the DHQs have not been fully covered on 3G services. With the present 3G coverage about 83.3% of the urban population is covered. It is recommended that all statutory towns as well as census towns should have 3G coverage. This will cover the entire urban

population. There are total 51 towns of which 19 are yet to get 3G coverage. Considering that on an average one NodeB will be required to cover every 3000 population, the requirement of Node Bs, the list of towns to be covered on 3G and the investment required (@ 15 lakh per Node- B) is given below:

Table 8.14

Estimated investment required for 3G Coverage

District	Sub- District	Town Name	Town Code	Total Population	3G Node Bs Planned	Estimated expenditure
Churchandpur	Churchandpur	Rengkai (CT)	269801	8293	3	0.45
Churchandpur	Churchandpur	Hill Town (CT)	269802	2293	1	0.15
Imphal East	Prompat	Heingang (CT)	270316	6115	3	0.45
Bishnupur	Nambol	Oinam (NP)	801470	7161	3	0.45
Bishnupur	Bishnupur	Ningthoukhong (MCl)	801472	13078	5	0.75
Bishnupur	Moirang	Kwakta (NP)	801474	8579	3	0.45
Bishnupur	Moirang	Kumbi (NP)	801475	9546	4	0.460
Thoubal	Thoubal	Heirok (NP)	801477	2974	1	0.15
Thoubal	Thoubal	Wangjing (NP)	801478	8055	3	0.45
Thoubal	Thoubal	Sikhong Sekmai (NP)	801480	7390	3	0.45
Thoubal	Thoubal	Yairipok (NP)	801481	9569	4	0.60
Thoubal	Kakching	Sugnu (NP)	801482	5132	2	0.3
Thoubal	Kakching	Kakching Khunou (NP)	801483	11379	4	0.6
Imphal West	Lamseng	Sekmai Bazar(NP)	801486	5065	2	0.3
Imphal West	Wangoi	Samurou (NP)	801488	16582	6	0.90
Imphal West	Wangoi	Mayang Imphal (MCl)	801489	24239	9	1.35
Imphal West	Wangoi	Thongkhong Laxmi Bazar (NP)	801490	14878	5	0.75
Imphal East	Keirou Bitra	Andro (NP)	801495	8744	3	0.45
Chandel	Tengnoupal	Moreh (ST)	801496	16847	6	0.90
				Sub Total	**70**	**10.5**
10% proposed NodeBs are assumed on new sites where additional GBT will be required @30.5 lakh					**7**	**2.135**
Grand Total					**45**	**12.635 Crore**

Abbreviations used: M.C.I. – Municipal Council; T.C.- Town Committee/Town Area Committee; C.T.- Census Town; O.G.- Out Growth; NP – Nagar Panchayat;

IV. 2G Mobile connectivity Plan for National Highway

National Highway coverage status

8.17 The status of coverage of National Highways that run through Manipur is detailed in the table below –

Table 8.15

Status of National Highway[29] coverage in Manipur

Sl. No.	Highway No	Highway Name	Route	Length (Km)	Covered Length (Km)	Uncovered Length (Km)
1	39	Numaligarh-Imphal-Palel-Indo-BurmaBorder	Manipur/Nagaland Border-Maosongsang-Maram-Karong-Kangpokpi-Imphal-Thoubal-Wangling-Palel-Sibong-Indo/Myanmar Border.	211	211	0
2	53	Junction with National Highway No 44 near Badarpur Jirighat Silchar Imphal	Manipur/Assam Border-Oinamlong-Nungba-Imphal	220	189	31
3	150	Aizawl-Churachandpur-lmphal-Ukhrul-Jessami-Kohima	Manipur/Mizoram border-Parbung-Thanlon-Phaiphengmum-Churachandpur-Moirang-Bishnupur-Imphal-Humpum-Ukhrul-Kuiri-Manipur/Nagaland Border	523	386	137

[29] The details of National Highways passing through each of the NER States have been taken from www.morth.nic.in as accessed in May 2013.

4	155	Junction of NH 61 near Mokokchung and connecting Tuensang Sampurre Meluri and passing through the state of Manipur and terminating at its junction with NH150 nearJessami in the State Nagaland	Passam to Manipur/Nagaland border	5	0	5
TOTAL HIGHWAY LENGTH (Km) OF STATE				**959**	**786**	**173**

The calculations of investment required for covering the uncovered portion of these highways has already been given in Chapter II.

CHAPTER-IX

COMPREHENSIVE TELECOM PLAN FOR NAGALAND

9.1 Nagaland is a hill state bounded by Myanmar in the East; Assam in the West; Arunachal Pradesh and a part of Assam in the North; and, Manipur in the south. Nagaland lies between latitude 25° 6'N and 27° 4'N and longitude 93° 20'E and 95° 15'E.

9.2 As per the Census 2011, there are 11 Districts, 114 Sub Districts and 1435 villages in Nagaland. The district-wise population along with the urban-rural break up has been detailed in the table below.

Table 9.1
District wise Population and Geographical Area of Nagaland

District	Population			Area (in Sq. Km.)	Density
	Rural	Urban	Total		(per Sq Km)
Dimapur	180942	197869	378811	926	409
Kohima	146900	121088	267988	1464	183
Mon	215816	34444	250260	1788	140
Tuensang	159822	36774	196596	2520	78
Mokokchung	138897	55725	194622	1608	121
Wokha	131339	35004	166343	1631	102
Phek	138843	24575	163418	2018	81
Zunheboto	113160	27597	140757	1257	112
Peren	81429	13790	95219	1642	58
Kiphire	57517	16487	74004	1139	65
Longleng	42871	7613	50484	561	90
Total	**1407536**	**570966**	**1978502**	**16579**	**119**

Telecom Status in Nagaland

9.3 There are 6 TSPs who are providing wireless mobile services in Nagaland. They are - Bharat Sanchar Nigam Limited (BSNL), Airtel, Aircel, Idea,

Reliance and Vodafone. BSNL is the only operator that is providing wired line services.

9.4 As on May 2013, there are total 1367365 wireless connections working in Nagaland. The wireless tele-density of the state is 69.10 based on projected population for 2013. The subscriber base of each of 6 TSPs providing mobile services in Nagaland is given in the table below:

Table 9.2

Service Providers wise wireless Subscriber Base in Nagaland

Sl. No.	Name of Service Provider	No. of Subscribers	Market Share (in %)
1.	Airtel	550070	40.23
2.	Aircel	319663	23.38
3.	BSNL GSM+CDMA	209344	15.31
4.	Vodafone	118395	8.66
5.	Reliance	74294	5.43
6.	Idea	95599	6.99
	Total	**1367365**	

I. Transmission media plan

Connectivity of State Capital & DHQs:

9.5 Optical Fibre Cable (OFC) in Nagaland has been laid mostly by BSNL. BSNL has connected all the DHQs with OFC. Most of the private TSPs do not have OFC connectivity beyond Kohima. Dimapur and Kohima are the two major cities which the private TSPs have connected on OFC. However the OFC connectivity to Kohima is linear for most of the TSPs and hence the reliability of connectivity is an issue. In Nagaland all DHQs are connected on Digital Microwave(DMW). The connectivity status of various DHQs in Nagaland is given in the table below :

Table 9.3

Connectivity Status of DHQs

Sl. No.	DHQ	Connectivity			Operators having OFC connectivity
		OFC	DMW	Satellite	
1	Dimapur	Ring	Yes	No	BSNL, Airtel, Vodafone
2	Kiphire	Yes	No	No	BSNL
3	Kohima	Ring	Yes	No	BSNL, Vodafone, PGCIL, Idea
4	Longleng	Yes	Yes	No	BSNL
5	Mokochung	Ring	Yes	No	BSNL, Vodafone, Idea
6	Mon	Yes	Yes	No	BSNL
7	Peren	Yes	No	No	BSNL
8	Phek	Ring	No	No	BSNL
9	Tuensang	Yes	Yes	No	BSNL
10	Wokha	Ring	Yes	No	BSNL, Vodafone, Idea
11	Zunheboto	Yes	Yes	No	BSNL, Idea

Bandwidth Availability at the State Capital and DHQs:

9.6 Kohima is connected to Dimapur through different transmission systems. Dimapur in turn is connected to other States through OFC, Digital Microwave and OPGW. The status of available bandwidth at Kohima is given in the table below:

Table 9.4

Available bandwidth at Kohima

Sl. No.	Connected to	Media	Transmission System	Bandwidth	TSP
1.	Shillong	OFC	STM16	2.5 Gbps	Vodafone
2.	Guwahati via Nuiland, Dimapur, Jorhat	OFC	2.5 G DWDM, (3+1) STM-1	2.5Gbps + 620 Mbps	BSNL
3.	Misa	OFC (OPGW)	DWDM + SDH	20 Gbps	PGCIL
Total bandwidth				**25.6 Gbps**	

9.7 The following table gives the total bandwidth available at different DHQs.

Table 9.5

District wise Bandwidth availability

Sl.No.	DHQ	Bandwidth on OFC (Gbps)	Bandwidth on Digital Microwave (Gbps)	Bandwidth on Satellite	Total Bandwidth (Gbps)
1.	Dimapur	17.44	1.05	0	18.49
2.	Kiphire	0.62	0.15	0	0.77
3.	Kohima	7.48	1.17	0	8.65
4.	Longleng	2.48	0.15	0	2.64
5.	Mokochung	4.98	0.66	0	5.64
6.	Mon	2.48	0.45	0	2.94
7.	Peren	2.48	0.30	0	2.79
8.	Phek	2.48	0.34	0	2.83
9.	Tuensang	2.48	0.41	0	2.89
10.	Wokha	4.98	0.54	0	5.53
11.	Zunheboto	2.48	1.16	0	3.64

Requirement of additional transmission media:

9.8 In Nagaland, out of the 11 District headquarters, five are connected on optical fiber ring i.e. they have redundancy/protection available in case of breakdown of transmission media. Kohima, Wokha, Mokokchung District Headquarters are connected on optical fiber ring by BSNL as well as Vodafone. Dimapur which is largest town is connected on OFC ring by Airtel, BSNL and Vodafone.

9.9 For having transmission media diversity, all the DHQs should have OFC connectivity through ring/diversified routes. Six District headquarters i.e. Peren, Zunheboto, Kiphire, Mon, Tuensang and Longleng are connected on OFC by BSNL but the connectivity is linear i.e. no protection is available in case of failure of transmission media. Therefore for improving network connectivity in Nagaland State, it has been planned that these 6 district headquarters should have transmission media diversity in case of a failure/breakdown. Accordingly, two transmission media rings have been planned in Nagaland as follows **:**

a) Dimapur-Kohima-Wokha-Mokokchung-longleng-Mon-Sonari-Dimapur and
b) Mokokchung-Zunhebeto-phek-Kiphire-Tuensang-Mokokchung.

9.10 Keeping the above in consideration, the OFC plan to all DHQs through diversified OFC routes and the estimated investment required for its execution is given in the tables below:

Table 9.6

Proposed Media Plan for connecting DHQs

Sl. No.	DHQ	Connectivity on Fibre	Proposed Connectivity	Proposed Diversified Route
1	Dimapur	Yes	Existing	Existing
2	Kiphire	Yes	Kipphire to Tuensang -125 km	OFC (U/G)
3	Kohima	Yes	Existing.	Existing
4	Longleng	Yes	Longleng to Mon -87 km	OFC (U/G)
5	Mokochung	Yes	Existing	Existing
6	Mon	Yes	Mon to Sonari (Assam) -54 km	OFC (U/G)
7	Peren	Yes	Peren to Dimapur	Microwave
8	Phek	Yes	Existing	Existing
9	Tuensang	Yes	Will be covered by Kipphire to Tuensang proposed above	
10	Wokha	Yes	Existing	Existing
11	Zunheboto	Yes	Zunheboto to Mokokchung - 63 km	OFC (U/G)

Table 9.7

Investment required for connecting DHQs on diverse media

Sl. No.	DHQ	Proposed Route	Route Length of OFC (U/G)	Route Length Microwave (KM)	Cost of OFC (U/G) (in Rs crore)	Cost of Microwave (in Rs crore)	Total Cost (in Rs crore)
1	Dimapur	NIL	NIL	NIL	NIL	NIL	NIL
2	Kiphire	Kipphire to Tuensang -	125 km	0	5.0	0	5.0
3	Kohima	NIL	NIL	NIL	NIL	NIL	NIL
4	Longleng	Longleng to Mon	87 km	0	3.48	0	3.48
5	Mokochung	NIL	NIL	NIL	NIL	NIL	NIL
6	Mon	Mon to Sonari (Assam)	54 km	0	2.16	0	2.16
7	Peren	Peren to Dimapur	0	43	0	0.75	0.75
8	Phek	NIL	NIL	NIL	NIL	NIL	NIL
9	Tuensang	Will be	0	0	0	0	0

		covered by Kipphire to Tuensang proposed above					
10	Wokha	NIL	NIL	NIL	NIL	NIL	NIL
11	Zunheboto	Zunheboto to Mokokchung	63 km		2.52	0	2.52
	Total		**329**	**43**	**13.16**	**0.75**	**14.66**

Note: Cost per Km of OFC (U/G) has been taken as Rs. 4 lakh.

Additional Bandwidth Requirement

9.11 As mentioned above, two rings that have been proposed for Nagaland are – **a)Dimapur-Kohima-Wokha-Mokokchung-longleng-Mon-Sonari-Dimapur and b) Mokokchung-Zunhebeto-phek-Kiphire-Tuensang-Mokokchung**. Since the proposed rings will cater to more bandwidth in future, the equipment at all the nodes in the rings has to be upgraded. The additional bandwidth requirement as per the methodology outlined in Chapter-II has been worked out at each DHQs and is given in the table below. The investment required to implement the ring is also given at the end of the table.

Table 9.8

Estimation of bandwidth and investment required for augmentation

Sl. No.	DHQ	Bandwidth Available (Gbps)	Additional Bandwidth Required (Gbps)
1	Dimapur	18.49	1.1
2	Kiphire	0.77	0.5
3	Kohima	8.65	2.4
4	Longleng	2.64	0.4
5	Mokochung	5.64	1.5
6	Mon	2.94	1.3
7	Peren	2.79	0.6
8	Phek	2.83	1.1
9	Tuensang	2.89	1.2
10	Wokha	5.53	1.0
11	Zunheboto	3.64	0.9

	Equipment required	Approximate Cost (Rs. in Cr.)
	OTM - 4	2.4
	OADM - 31	3.1
	DXC-2	2.0
	Total Investment – 7.5 Cr	

Note - Transmission System planned: 40λ, 2.5G, DWDM.

II. 2G Mobile connectivity plan

9.12 As far as mobile coverage of villages is concerned, of a total 1435 villages, 1270 villages are covered by 2G mobile services. There are 137 inhabitated villages which do not have mobile coverage till date. District wise information of villages under mobile coverage is given in the table below:

Table 9.9

Status of Village coverage

District	Total No. of Villages*#	Total No. of un-inhabited inhabited villages	No. of Villages having mobile coverage	% of Villages having mobile coverage	Uncovered Villages
Dimapur	226	3	222	100	1
Kiphire	96	6	80	89	10
Kohima	106	0	102	96	4
Longleng	49	0	49	100	0
Mokochung	109	1	104	96	4
Mon	131	0	122	93	9
Peren	112	9	77	75	26
Phek	117	0	100	85	17
Tuensang	144	6	120	87	18
Wokha	153	2	111	74	40
Zunheboto	192	1	183	96	8
	1435	**28**	**1270**	**90**	**137**

*Includes un- inhabited villages
#Includes Census Towns also

Plan to increase 2G mobile coverage

9.13 Population-wise segmentation of uncovered villages in Nagaland is given in the table below.

Table 9.10
Population-wise segmentation of uncovered villages

Population	No. of 'uncovered' villages
0-100	8
100-250	36
250-500	38
Above 500	55
Total	**137**

9.14 As recommended earlier, in Phase-I all villages with a population of more than 250 are recommended to be covered. As a result, 93 villages out of a total 137 uncovered villages will be covered and the percentage of villages under mobile coverage will increase from 90% to 97%.

Table 9.11
District Wise Plan to cover remaining uncovered villages

Sl. No.	Name of District	Number of Uncovered Villages	No. of villages that will be covered in phase-I	Covered Villages at present (in %)	Covered Villages after Phase-I (in %)
1	Dimapur	1	0	99.55	99.55
2	Kiphire	10	6	89	95.56
3	Kohima	4	4	96	100.00
4	Longleng	0	0	100	100.00
5	Mokochung	4	3	96	99.07
6	Mon	9	8	93	99.24
7	Peren	26	18	75	92.23
8	Phek	17	11	85	94.87
9	Tuensang	18	18	87	100.00
10	Wokha	40	21	74	87.42
11	Zunheboto	8	4	96	97.91
	Total	**137**	**93**	**90**	**96.87**

9.15 Apart from the villages, there are four Sub District Headquarters (SDHQs) which do not have any 2G coverage. The details of these SDHQs and the number of 2G BTSs planned for these SDHQs are given in the table below :

Table 9.12

Plan to cover remaining uncovered SDHQs

District	Sub - District	SDHQ Code	Total Population	No of 2G BTS Planned
Peren	Kebai Khelma Sub District HQ	01854	3012	1
Phek	Phokhungri Sub District HQ	01805	3611	2
Tuensang	Thonoknyu Sub District HQ	01829	18600	7
Wokha	Lotsu Sub District HQ	01786	6338	3
	Total			**13**

Investment Required

9.16 As mentioned in chapter – II, one BTS has been planned for each uncovered village. To cover 93 villages and 4 SDHQs, total 106 BTSs have been proposed. 69.7% of the BTSs have been planned with microwave backhaul links. For Nagaland, given the hilly terrain, on an average 1.5 hops have been planned for each microwave BTS link i.e. one out of every two BTSs that will be connected on microwave backhaul, would require two hops for connecting it to nearest available media. 30% of the new BTSs have been planned with OFC links with average route length of 2.5 KM. Similarly, 0.3% of BTS have been planned on satellite links[30]. The total investment requirement for 106 number of BTSs with their connectivity through microwave, OFC and satellite links is provided in table below :

[30] Minimum one BTS has been taken on satellite link

Table 9.13

Estimated Infrastructure and investment for 2G coverage

	No. of BTSs required	No. of BTS with Microwave links	No. of Microwave Repeaters	No. of BTS on OFC links	No. of BTS on Satellite links	No. of BSC required	Total Expenditure (Rs. Cr)
Infrastructure required	106	74	37	32	0	1	
Unit Costs (Cr.)		0.361	0.343	0.431	0.461	2.5	
Total Costs (Cr.)		26.71	12.69	13.79	0.00	2.50	**55.70**

III. 3G Mobile connectivity plan

9.17 In Nagaland, 4 TSPs viz. Aircel, Airtel (Bharti Hexacom), BSNL and Reliance Telecom Ltd. (RTL) have 3G spectrum. The roll-out of 3G services in the Nagaland is very poor. Even the DHQs have not been fully covered on 3G services. With the present 3G coverage, about 64% of the urban population is covered. It is recommended that all statutory towns as well as census towns should have 3G coverage. This will cover the entire urban population. There are total 26 towns of which 15 are yet to get 3G coverage. Considering that on an average one NodeB will be required to cover every 3000 population, the requirement of Node-Bs, the list of towns that are planned to be covered with 3G services and the investment required (@ 15 lakh per Node- B) is given below:

Table 9.14

Estimated investment required for 3G Coverage

District	Sub- District	Town Name	Town Code	Total Population	3G Node-Bs Planned	Estimated expenditure (Rs Cr)
Mon	Naginimora	Naginimora (TC)	801450	8116	3	0.45
Mon	Mon Sadar	Mon (TC)	801451	26328	9	1.35
Mokokchung	Tuli	Tuli (TC)	801452	7864	3	0.45
Mokokchung	Tuli (12)	Tsudikong (13th Mile Tuli Paper Mill) (CT)	267135	4416	2	0.3

Mokokchung	Changtongya	Changtongya (TC)	801453	7532	3	0.45
Zunheboto	Zunheboto Sadar	Zunheboto (TC)	801455	22633	8	1.20
Zunheboto	Satakha (20)	Satakha Hq. (CT)	267382	4964	2	0.3
Wokha	Wokha Sadar	Wokha (TC)	801456	35004	12	1.80
Phek	Phek Sadar	Phek (TC)	801460	14204	5	0.75
Phek	Pfutsero	Pfutsero (TC)	801461	10371	4	0.60
Tuensang	Tuensang Sadar	Tuensang (TC)	801462	36774	13	1.95
Longleng	Longleng	Longleng (TC)	801463	7613	3	0.45
Kohima	Tseminyu	Tseminyu (TC)	801465	6315	3	0.45
Peren	Jalukie	Jalukie (TC)	801467	8706	3	0.45
Peren	Peren	Peren (TC)	801468	5084	2	0.3
				Sub Total	**75**	**11.25**
10% proposed NodeBs are assumed on new sites where additional GBT will be required @30.5 Lacs					**8**	**2.44**
Grand Total						**13.69**

Abbreviations used: T.C.- Town Committee/Town Area Committee; C.T.- Census Town;

IV. 2G mobile connectivity plan for National Highway

Status of National Highway coverage

9.18 The status of coverage of National Highways that run through Nagaland is detailed in the table below :

Table 9.15

Status of National Highway[31] coverage in Nagaland

Sl. No.	Highway No	Highway Name	Route	Length (Km)	Covered Length (Km)	Uncovered Length (Km)
1	61	Kohima-Wokha-Mukokchung-Jhanji	Kohima-Narhema Tseminya-Wokhal-Mokokchung-Chantongia-MerangKong-Nagaland/Assam Border	220	220	0

[31] The details of National Highways passing through each of the NER States have been taken from www.morth.nic.in as accessed in May 2013.

2	155	Junction of NH 61 near Mokokchung and connecting Tuensang Sampurre Meluri and passing through the state of Manipur and terminating at its junction with NH150 nearJessami in the State Nagaland	Mokokchung-Tuensang-Sampurre-Akhegwo-Meluri upto Manipur Border	125	60	65
3	36	Nowgong-Dimapur(Manipur Road)	Nagaland/Assam Border-Dimapur	3	3	0
4	39	Numaligarh-Imphal-Palel-Indo-BurmaBorder	Dimapur-Cichuguard-Kohima-Viswema	110	110	0
5	150	Aizawl-Churachandpur-lmphal-Ukhrul-Jessami-Kohima	Kohima-Chizami-Nagaland/Manipur Border	36	0	36
TOTAL HIGHWAY LENGTH (Km) OF STATE				**494**	**393**	**101**

The calculations of investment required for covering the uncovered portion of these highways has already been given in Chapter II.

CHAPTER-X

COMPREHENSIVE TELECOM PLAN FOR SIKKIM

10.1. The erstwhile Himalayan Kingdom, Sikkim became the twenty second State of India in April 1975 by the Thirty eighth Amendment Act of the Indian Constitution. Sikkim is a land-locked state and is bounded by foreign nations on three sides; on one side it shares its boundary with West Bengal. Sikkim is surrounded on three sides by precipitous mountain walls.

10.2. There are 4 districts and 9 Sub-Districts/Blocks, 9 towns and 452 villages in Sikkim. Its population, as per Census 2011, is 6,10,577 with 25.15% urban population. The population density of Sikkim is 86 persons/sq. km. Amongst all 4 districts, East district has the highest density of 295 persons/sq. km. The lowest population density is in North district - 10 persons/sq. km. The district-wise population along with the urban-rural break up has been given in the table below:

Table 10.1

District wise Population and Geographical Area of Arunachal Pradesh

Sl. No.	District	Population			Total Area (in Sq. Km.)	Density (per Sq. Km)
		Rural	Urban	Total		
1.	East Sikkim	161096	122487	283583	955	297
2.	South Sikkim	125651	21199	146850	749	196
3.	West Sikkim	131187	5248	136435	1166	117
4.	North Sikkim	39065	4644	43709	4371	10
	Total	**456999**	**153578**	**610577**	**7096**	**86**

Telecom Status in Sikkim

10.3. There are 8 TSPs who are providing wireless mobile services in Sikkim. They are - Bharat Sanchar Nigam Limited (BSNL), Airtel, Aircel, Idea, Reliance, MTS, Tata and Vodafone. BSNL is the only operator that is providing wired line services.

10.4. As on May 2013, there are total 5,40,916 wireless subscribers in Sikkim. Wireless tele-density of the state is 85.9 (based on projected population for 2013). The subscriber base of each of the 8 TSPs providing mobile services in Sikkim is given in the table below:

Table 10.2

Service Providers wise wireless Subscriber Base in Sikkim

Sl. No.	Name of Service Provider	No. of Subscribers	Market Share (in %)
1.	Airtel	102071	18.9
2.	Aircel	59191	10.9
3.	BSNL	86210	15.9
4.	Vodafone	241991	44.7
5.	Reliance	40365	7.5
6.	Idea	4079	0.8
7.	Tata	7069	1.3
8.	MTS	0	0.0
	Total	**540976**	

I. Transmission media plan

Connectivity of State Capital & DHQs:

10.5. OFC has been laid by BSNL and Vodafone to provide connectivity to the State capital Gangtok. PGCIL also has its OPGW connectivity up to Gangtok. All the DHQs including the state capital are connected on linear

OFC. The connectivity status of various DHQs of Sikkim is given in the table below:

Table 10.3

Connectivity Status of DHQs

Sl. No.	DHQ	Connectivity			Operators having OFC connectivity
		OFC	DMW	Satellite	
1	North District	Yes	Yes	No	BSNL
2	West District	Yes	Yes	No	BSNL
3	South District	Yes	Yes	No	BSNL, Vodafone,
4	East District	Yes	Yes	No	BSNL, Vodafone, PGCIL

Bandwidth Availability at the State Capital and DHQs:

10.6. Gangtok is connected to Siliguri through different transmission systems. While Tata and MTS have provided connectivity to Gangtok by Digital Microwave, PGCIL has connected it through OPGW. The total bandwidth available is 32.8 Gbps. The details of transmission media connectivity and available bandwidth at Gangtok is given in the table below:

Table 10.4

Available bandwidth at Gangtok

Sl. No.	Connected to	Media	Transmission System	Bandwidth	TSP
1.	Siliguri	Microwave	STM-1 MW	155 Mbps	MTS
2.	Siliguri	OFC	2.5 G DWDM,	2.5 Gbps	BSNL
3.	Siliguri	OFC (OPGW)	DWDM + SDH	30 Gbps	PGCIL
4.	Siliguri	Microwave	STM-1 MW	155 Mbps	TATA
Total bandwidth				**32.8 Gbps**	

10.7. The following table gives the total bandwidth available at different DHQs.

Table 10.5

District wise Bandwidth availability

Sl. No.	District	Bandwidth on OFC` (Gbps)	Bandwidth on Digital Microwave (Gbps)	Bandwidth on Satellite	Total Bandwidth (Gbps)
1	North District	2.49	1.14	Nil	3.63
2	West District	0.16	1.31	Nil	1.46
3	South District	3.11	1.05	Nil	4.16
4	East District	4.98	0.54	Nil	5.52

Requirement of additional transmission media:

10.8. All the DHQs should have OFC connectivity through ring/ diversified routes. The 4 District headquarters of Sikkim are connected on optical fiber. However, the DHQs are not connected on OFC ring. If OFC connectivity can be extended from Mangan to Gyalshing, all 4 DHQs can be connected on OFC ring thus providing redundancy/protection in case of breakdown of transmission media.

10.9. Keeping the above in consideration, one OFC ring connecting **Gangatok-Mangan-Gyalshing-Namchi-Gangtok** is being proposed for Sikkim. The recommended OFC plan to connect all DHQs on OFC ring and the estimated investment required for its execution is given in the tables below.

Table 10.6

Proposed Media Plan for connecting DHQs

Sl. No.	DHQ	Connectivity on Fibre	Proposed Connectivity	Proposed Diversified Route
1	North District	Yes	Mangan to Gyalshing	Gangatok-Mangan-Gyalshing-Namchi-Gangtok
2	West District	Yes	Existing	--do--
3	South District	Yes	Existing.	--do--
4	East District	Yes	Existing	--do--

Table 10.7

Investment required for connecting DHQs on diverse media

Sl. No.	DHQ	Proposed Route	Route Length of OFC (U/G)	Route Length Microwave (KM)	Cost of OFC (U/G) (in Rs Crore)	Cost of Microwave (in Rs Crore)	Total Cost (in Rs Crore)
1	North District	Mangan to Gyalshing	115 Km	NIL	4.60	NIL	4.60
2	West District	NIL	NIL	NIL	NIL	NIL	NIL
3	South District	NIL	NIL	NIL	NIL	NIL	NIL
4	East District	NIL	NIL	NIL	NIL	NIL	NIL
	Total		**115**	**0**	**4.60**	**0**	**4.60**

Note: Cost per Km of OFC (U/G) has been taken as Rs. 4 lakh.

Additional Bandwidth Requirement

10.10. As mentioned above, one ring that has been proposed for Sikkim is **Gangatok-Mangan-Gyalshing-Namchi-Gangtok.** Since the proposed rings will cater to increased bandwidth requirement in future, the equipment at all the nodes in the ring are to be upgraded. The additional

bandwidth requirement as per the methodology outlined in Chapter-II has been worked out at each DHQs and is given in the table below. The investment required is also given at the end of the table.

Table 10.8

Estimation of bandwidth and investment required for augmentation

Sl. No.	DHQ	Bandwidth Available (Gbps)	Additional Bandwidth Required
1	North District	3.63	0.3
2	West District	1.46	0.7
3	South District	4.16	0.9
4	East District	5.52	4.1
	Equipment required	**Approximate Cost (Rs. in Cr.)**	
	OTM - 2	1.2	
	OADM - 10	1.0	
	DXC-1	1.0	
	Total Investment – 3.2		

Note - Transmission System planned: 40λ, 2.5G, DWDM.

II. 2G Mobile connectivity plan

10.11. As far as mobile coverage of villages is concerned, of a total 426 inhabited villages, 403 villages are covered by 2G mobile coverage. There are only 23 villages which do not have 2G mobile coverage till date. District wise information of villages under mobile coverage is given in the table below:

Table 10.9

Status of Village Coverage

District	Total No. of Villages*#	Total No. of uninhabited villages	No. of Villages having mobile coverage	% of Villages having mobile coverage	Uncovered Villages*
East District	124	9	106	92%	9
North District	55	3	42	81%	10
South District	148	8	140	100%	0
West District	125	6	115	97%	4
Total	**452**	**26**	**403**	**94.6%**	**23**

*Includes un-inhabited villages
#Includes Census Towns also

Phase Wise Plan to increase 2G mobile coverage

10.12. Population-wise segmentation of uncovered villages in Sikkim is given in the table below.

Table 10.10
Population-wise segmentation of uncovered villages

Population	No. of 'uncovered' villages
0-100	5
100-250	1
250-500	8
Above 500	9
Total	**23**

10.13. As recommended earlier, in Phase-I all villages with a population more than 250 are recommended to be covered. As a result, 17 villages out of a total of 23 uncovered villages will be covered. After the completion of phase-I, percentage of villages having mobile coverage shall increase from 94.6% to 98.59%. District-wise plan to cover uncovered villages is given in the table below :

Table 10.11

District Wise Plan to cover remaining uncovered villages

Sl. No.	Name of District	Number of Uncovered Villages	No. of villages that will be covered in phase-I	Covered Villages at present (in %)	Covered Villages after Phase-I (in %)
1	East District	9	8	92	99.13
2	North District	10	5	81	90.38
3	South District	0	0	100	100.00
4	West District	4	4	97	100.00
	Total	**23**	**17**	**94.6**	**98.59**

Investment Required

10.14. As mentioned in chapter – II, one BTS per uncovered village has been planned. Accordingly 17 new BTSs are being proposed. 80% of the BTSs have been planned with microwave backhaul links. For Sikkim, given the hilly terrain, on an average 1.5 hops have been planned for each microwave BTS link i.e. one out of every two BTSs that will be connected on microwave backhaul, would require two hops for connecting it to nearest available media. 20% of the new BTSs have been planned with OFC links with average route length of 2.5 KM. The total Investment requirement for 17 number of BTSs with their connectivity through microwave, OFC and satellite links is given in the table below :

Table 10.12

Estimated Infrastructure and Investment for 2G coverage

	No. of BTSs required	**No. of BTS with Microwave links**	**No. of Microwave Repeaters**	**No. of BTS on OFC links**	**No. of BTS on Satellite links**	**No. of BSC required#**	**Total Expenditure (Rs. Crore)**
Infrastructure required	17	14	7	3	0	0	
Unit Costs (Cr.)		0.361	0.343	0.431	0	2.5	
Total Costs (Cr.)		4.91	2.33	1.47	0	0.425	**9.135**

- One BSC should be able to cater to 100 BTS of 2x2x2 configuration. Accordingly per such BTS the cost of BSC has been apportioned @2.5 Lakh

III. 3G Mobile connectivity plan

10.15. In Sikkim, 4 TSPs viz. Aircel, Airtel (Bharti Hexacom), BSNL and Reliance Telecom Ltd. (RTL) have 3G spectrum. 3G services have been rolled out in all DHQs. With the present 3G coverage about 95% of the urban

population is covered. It is recommended that all statutory towns as well as census towns should have 3G coverage. This will cover the entire urban population. There are total 9 towns of which 2 are yet to get 3G coverage. The rquirement of Node-Bs, the list of towns to be covered on 3G services and the investment required (@ 15 lakh per Node- B) is given below:

Table 10.13

Estimated investment required for 3G Coverage

District	Sub- District	Town Name	Town Code	Total Population	3G Node-Bs Planned	Estimated expenditure (Rs Cr)
West District	Soreng	Nayabazar Notif	801418	1235	1	0.15
East District	Rongli (20)	Rhenak (CT)	261376	5883	2	0.3
				Sub Total	**3**	
Grand Total					**3**	**0.45**

Abbreviations used: C.T.- Census Town;

IV. 2G mobile connectivity plan for National Highway

10.16. As has been mentioned in Chapter-II, the State of Sikkim has only 62 KMs of national highway[32] and most of it has already been covered with mobile coverage.

[32] The details of National Highways passing through each of the NER States have been taken from www.morth.nic.in as accessed in May 2013.

CHAPTER- XI

SUPPORTING POLICY INITIATIVES AND ACTION

11.1 During the consultation process the service providers in the NER brought out many issues/challenges being faced by them. These are discussed in Chapter-I and the major ones are :

a) Charges payable to the Government in the form of transponder charges for satellite connectivity;
b) Bandwidth charges for leasing bandwidth from other service providers like Power Grid Corporation;
c) Charges payable to the State Governments for Right-of-Way (ROW) for laying of OFC and erection of towers;
d) Availability of commercial power supply; and,
e) Availability of diesel supply for running DG sets during bandhs/ strikes.

The concerns of the TSPs pertaining to the State Governments like Right-of-Way, erection of towers, diesel supply etc were taken up with some of the State Governments during the visit of TRAI officers to these States.

11.2 The NER States are of special importance for the country. Development in many NER States lags behind that of other States of the country. Part of this can be explained by the inadequate development of infrastructure in the region. The NER is obviously important from a strategic perspective. But, for development purposes it is vitally important to link the NER with the rest of the country for the creation of a large integrated market. Infrastructure development, especially connectivity, is crucially important as the economic spillover effects are huge.

11.3 Because of the difficult terrain of the region coupled with operational difficulties and low population density in the majority of the areas, TSPs do not find it economically viable to expand their networks in the rural and

far-flung areas of the NER. The Authority is of the view that the NER States need special attention and TSPs providing services in the NER need to be incentivised for providing seamless telecom connectivity in the region. Issues being faced by the TSPs also need to be squarely addressed. Some issues can be tackled through appropriate policy initiatives. Yet others will require the active cooperation and assistance of the State Governments. Taken together, this will help in improving the delivery of telecom services in the NER. The concerned issues and the Authority's recommendations thereon are discussed in the following paragraphs.

A. Incentivizing TSPs to roll-out services in the NER States – License fee

11.4 About 10,000 villages are yet to be provided mobile coverage in the NER. While analyzing village coverage data submitted by various TSPs, it was noticed that there is wide variation in the number of villages covered by different TSPs. While one TSP has covered almost 30% of the villages, another has covered barely 5% of the villages. However, both TSPs are required to pay the same percentage of AGR as license fee i.e. 8%. The Authority is of the view that there is a case for incentivizing the TSPs that cover a greater number of villages through a discount in the license fee.

11.5 In its recommendations of May, 2010 on 'Spectrum Management and Licensing framework', the Authority had recommended that those TSPs who roll-out services in rural areas should be given an incentive by way of a reduction in the license fee.

11.6 The Authority is of the opinion that a similar approach needs to be followed for incentivizing TSPs who increase their rural penetration in the North East and Assam LSAs. The loss in Government revenues due to a discount in the license fee will be compensated from the overall increase in the Adjusted Gross Revenue (AGR) of the operator because of the improved roll-out. **Accordingly, the Authority recommends that in case a**

service provider covers at least 80% of the habitations having population above 250 (as per 2011 Census) in the Assam and North East LSAs, a discount of 2% of AGR in the license fee should be given to such a service provider.

B. Bandwidth leasing and charges

11.7 An easy way to ensure stable connectivity in the NER is to have an Optical Ground Wire (OPGW) cable system. Power Grid Corporation of India Limited (PGCIL) has already connected all the State capitals in the region. However, most TSPs find it uneconomical to lease bandwidth connectivity from PGCIL, as its bandwidth charges are exorbitantly high. The Authority has prescribed tariff ceiling limts for leasing bandwidth. However, the prevailing market rates for leasing bandwidth are well below the tariff ceiling prescribed by TRAI. TSPs in their submission to the Authority have stated that PGCIL offers an 80 to 85% discount on the TRAI prescribed ceiling rates in other parts of the country; however, in the NER, rates are kept close to the ceiling rates. Further, PGCIL does not provide dark fibre for leasing. As a result, even though sufficient fibre may be available at the State capitals but it remains unutilized. In effect, available national infrastructure/resources are being idled: and, clearly, this is to nobody's benefit – PGCIL, TSPs or the States. The Authority is of the opinion that since the telecom infrastructure assets of the PSUs have been built using public money and the capacities already created by such PSUs using public money should not lie idle; they must be utilised fully and efficiently in the larger interest of the people. Therefore, PGCIL should immediately reduce its bandwidth leasing charges to make them comparable to those charged in other parts of the country. Further, PGCIL should also lease available dark fibre to other TSPs in the NER.

11.8 During the consultation process, the private TSPs also pointed out that BSNL is offering bandwidth on lease to the private TSPs and is also

sharing its passive infrastructure with them. However, BSNL takes an inordinate amount of time to respond to the demand raised by the private TSPs. In some cases such demands have been pending for almost a year. This is neither in the commercial interest of BSNL nor in the interest of the telecom sector in the North-East as resources are not being fully utilised. **The Authority therefore, recommends that PGCIL and BSNL should lease their dark fibre in the NER to other TSPs who are interested in taking fibre on lease. These PSUs ought to re-engineer their internal processes so as to quickly respond to the demands raised by other service providers and should be able to provide the requested bandwidth/ fibre on lease within two months of the raising of demand. PGCIL should immediately reduce its bandwidth leasing charges in the NER to make them comparable to those charged in other parts of the country.**

C. VSAT Connectivity and Charges

11.9 In the NER, there are many areas which are extremely difficult to connect either by OFC or through microwave. Such areas need to be connected through satellite connectivity. During the consultation, the TSPs stated that bandwidth charges using satellite connectivity are very high. On enquiring from one of the major VSAT providers, it has been reported that the transponder charges levied by ISRO/Department of Space(DoS) are very high resulting in high VSAT based bandwidth charges.

11.10 The demand for satellite bandwidth for various purposes in the country far exceeds the current capacity of Indian satellites. To cater to the demand, Antrix Corporation Ltd., a wholly-owned company of Government of India which is under the administrative control of the Department of Space, is hiring transponders from foreign satellites. Since Antrix Corporation Limited is paying commercial charges for hiring bandwidth, it would be difficult for them to reduce these charges. Hence, **the Authority**

recommends that bandwidth charges for providing satellite connectivity to TSPs in the NER should be subsidized through USO funds. The amount of subsidy should be restricted to 75% of the total bandwidth cost; the remaining 25% of the bandwidth cost should be borne by the TSPs. The subsidy should be limited to 1 Mbps bandwidth for connecting remote BTSs to the BSC. In case of District Headquarters which have to rely on satellite connectivity for media redundancy purposes, the subsidy amount for the bandwidth should be restricted to the bandwidth proposed for such District Headquarters in these recommendations.

D. Procedural delays in frequency allocation and spectrum related clearances

11.11 During the consultation process, the TSPs stated that there is inordinate delay in obtaining allocation of spot frequencies for Microwave backhaul and clearance for setting up VSAT connectivity from the WPC. Some of these cases are pending for almost two years. Even the Standing Advisory Committee on Frequency Allocations (SACFA) clearances which do not fall under the auto clearance category but require formal clearance have been pending for over six months. **The Authority recommends that issues for allocation of spot frequencies for Microwave backhaul and clearance for setting up VSAT connectivity and BTS may be addressed on a priority basis by the WPC for the NER States and reasonable time frames (not exceeding two months) should be fixed for allocation of frequencies and providing spectrum-related clearances.**

E. Installation of Microwave repeaters outside Licensed Service Area

11.12 Six North East States share their boundaries with Assam. In many cases, even for travelling from one place to another within a State, a person has to pass through Assam. During the consultation process, some of the TSPs

have stated that, for the purpose of connectivity within the North East LSA, they are not allowed to install microwave repeaters in Assam LSA as it is treated as inter-service area connectivity. The Authority agrees with the concern voiced by the TSPs and **recommends that, for the purpose of establishing connectivity within their respective service areas, the TSPs of North East LSA may be allowed to install microwave repeaters in Assam LSA and vice-versa. This will, however, be subject to non-interference from the other point-to-point links.**

F. Roaming along National Highways

11.13 In the entire NER, the total length of National Highways (NHs) is 9908 KMs. Most of the NHs have connectivity by one TSP or the other. However, no one single TSP has seamless/uninterrupted connectivity along the full length of the NHs. Many such NHs are strategically important. However, because of the lack of sufficient traffic, installation of their own BTSs along the NHs by all TSPs is not a viable business proposition. Moreover, it will also result in duplication of infrastructure. The Authority is of the opinion that as intra-circle roaming is already permitted between TSPs having license and spectrum and, it is technically possible to program BTS-wise roaming, the TSPs in North-East and Assam LSAs should enter into intra-circle roaming agreements amongst themselves so that a subscriber moving along the NHs gets uninterrupted/seamless connectivity. If they fail to do so, it may so be mandated by the Government. **Accordingly, the Authority recommends that the TSPs having spectrum in the NER region should enter into Inter and Intra-Circle roaming agreements amongst themselves within a period of 6 months for all the BTSs along the National Highways that pass through NER states. In case they fail to do so, they should be so mandated by the DoT.**

G. Building infrastructure utility ducts along highways

11.14 OFC between major cities is generally laid along the National and State Highways. Currently, a lot of road widening work is going on in the NER States. Because of this, OFC laid along the highways gets cut frequently, resulting in network outages. The work along the East-West Corridor has further aggravated this problem. It has been stated by the TSPs that, in some patches, OFC has been damaged beyond repair. To avoid frequent damages to OFC, **the Authority recommends that the Government should mandate all agencies viz. National Highways Authority of India(NHAI), Border Road Organisation(BRO), State Public Works Departments(PWD) etc involved in construction of National and State Highways to provide for infrastructure utility ducts along the Highways which can be used by companies providing utility services like telecom, power etc. for laying cables.**

H. Subsidy for installing Solar Power units for telecom tower sites

11.15 During the consultation process, it was pointed out that the TSPs find it very difficult and time-consuming to get power connections from the State Electricity Boards. Some State Governments have also admitted that the power situation in their States is not very promising and they do not see the situation changing in the near future. They have suggested use of solar power panels at BTS sites. BSNL has stated that it intends to deploy solar power systems in some places but is not getting 90% subsidy from the Ministry of New and Renewable Energy (MNRE), Government of India, because the subsidy is admissible to Government organizations only. BSNL being a PSU gets only 30% subsidy for use of solar power system. The State Government of Nagaland has informed that it has already taken up the issue of BSNL with the MNRE and has also requested the Authority's intervention in the matter. However, it is learnt that the MNRE has discontinued the said scheme.

11.16 The use of solar power solutions in NER has its own limitations because of the terrain and weather conditions. But wherever such solutions can work, they can solve the problem of non-availability of commercial power supply. Limited power availability will continue to dog the NER States. The costs of installing power transmission lines up to the BTS sites are prohibitive. And, these costs are simply passed on to the TSPs by the State Governments; the State Governments do not want to incur the costs in extending transmission lines. TSPs, in turn, prefer to run the sites on diesel generators (DGs) rather than bear the costs of building transmission lines. TSPs are also not installing solar power solutions themselves as the capital investment required is so high that there is no business viability for such BTS sites. Therefore, it is essential that the Government conceives a subsidy scheme to end this impasse. Without a concerted effort to provide some incentive, the stand-off will continue and telecom service delivery to remote parts of the NER will continue to suffer. The Authority therefore **recommends that DoT should take up the issue of providing subsidy for installation of solar power units at telecom towers (BTS and repeater) with the Ministry of New and Renewable Energy (MNRE).**

I. Facilitating smooth movement of telecom equipment and personnel in NER region

11.17 During the consultation process, the TSPs have brought out that transportation of equipment and movement of personnel is delayed because of permit requirements, processing of which is stringent due to official formalities. As far as the movement of personnel is concerned, **I**nner **L**ine **P**ermits (ILP) are required for Indian citizens to enter Arunachal Pradesh, Nagaland and Mizoram. Such permits are normally given for 15 days; however, it may be given up to 6 months time period.

11.18 The more serious problem pertains to movement of material. Road permits for movement of telecom equipment are required for virtually every movement resulting in high lead time to initiate dispatches. This, coupled

with higher transit time in the NER States, results in poor operation and maintenance of telecom infrastructure. The problem is exacerbated in those cases where inter-State movements are needed e.g. for carrying equipment from one district to another within a State, it has to be transported through highways that pass through other States. This is clearly a major hurdle in maintaining the desired quality of service.

11.19 In Tripura, apart from inward movement problems, even outward movement of telecom materials is difficult. If any telecom equipment develops faults, for taking it out for repairs, the TSP has to furnish all its details viz the date of arrival in Tripura, copy of NOC obtained at the time of arrival etc. Keeping records of individual item for a long time is simply not practically feasible.

11.20 In view of the forgoing, **the Authority recommends that the DoT should immediately take up this issue with Ministry of Home Affairs and DoNER to either obtain exemption for the movement of equipment and pre-identified personnel related to telecom services from the compliances of NOCs and road permits OR for establishing a streamlined system whereby a single common permit/NOC is required for the entire North East region. An option to be explored is that MHA initiate a centralised clearing system where clearances can be obtained from the concerned State Governments and given to the TSPs.**

J. Issues pertaining to State Governments

11.21 The prime objective of the exercise undertaken by TRAI is not only to ensure penetration of telecom services in hitherto uncovered areas of the NER States and increase tele-density, but also to ensure availability of sufficient bandwidth and good quality of services. There is a direct co-relation between higher tele-density and GDP growth. The direct beneficiary of increased tele-density and better connectivity will be the

people of the NE States and the State Governments. Therefore, it is necessary for State Governments to facilitate the higher penetration of telecom services in the region. Issues raised by the TSPs that pertain to the State Governments need to be addressed on priority so that the TSPs can roll-out their services faster in the region.

a. **Right-of-Way (ROW) permissions** - One of the main stumbling blocks in speedy roll-out of the network relates to grant of Right-of-Way (ROW) permissions. The Authority recommends that the State Governments in NER should be requested to ensure that the ROW permission for laying of OFC and installing BTSs should be given in a time-bound manner and at nominal rates. Moreover, in villages, the Government should endeavour to provide land for erection of Ground Based Towers.

b. **Delay in provision of permissions/NOCs** – The TSPs are experiencing long delays in obtaining clearances/NOC from various Departments of the State Governments. The Authority is of the opinion that State Governments should set up a single-window clearance system for all telecom related clearances/NOCs like pollution/noise control certificate, environment clearance, site acquisitions, commercial power supply etc. The DoT, in its advisory guidelines effective from 1st August 2013, has also requested State Governments to provide Single-Window Clearance in a time bound manner to TSP/ infrastructure provider by the local body/State Government.

c. **Availability of commercial power/diesel** – The TSPs do not get commercial power connections at a number of BTS sites. They are also required to incur expenditure for installation of the transformer and for extending the power connectivity, rendering the entire BTS

installation commercially unviable. For almost 40% of the their BTS sites, the private TSPs are compelled to run the site only on a DG. It may be recalled that the Government of India through Gazette notification no. 81, dated 28.03.2012 has given infrastructure status to telecom towers. Accordingly, all benefits, as applicable to infrastructure sector, should be extended to telecom installations & equipments including electricity connection to BTS sites on priority. Wherever State Electricity Boards find it difficult to make available the commercial power supply and the towers/BTS's are running on diesel generator(DG), it should be ensured that they get sufficient diesel supply particularly during bandhs/strikes, as it is during such times that connectivity is of paramount importance. In some States, the State Governments levy taxes/charges for use of DGs by the TSPs despite the fact that TPSs are generating power from DGs only for their captive usage. Decisions on such levies need to be urgently reviewed.

In some States, local people have imposed restrictions on running of DG sets during night hours. This leads to disruption of telecom services during night hours. The State Governments may wish to take suitable corrective measures so that the people of their States get uninterrupted telecom connectivity round-the-clock.

d. **Allowing pulling of OFC on power transmission lines -** In the NER laying of underground OFC is very difficult at places where the terrain is hilly. In such cases, the State Governments can facilitate optical fibre cable (OFC) laying in their States by allowing pulling of OFC on Transmission towers/poles of State Electricity Boards.

e. Coordination between TSPs and State Government – Presently, only BSNL has an office in each of the North East States. Other TSPs operate primarily from Guwahati for managing the telecom services

in NE and Assam LSAs. Presence of responsible officers, at least at the State capital, will ensure that there is no communication gap between the TSPs and State Governments. The Authority has already asked all the TSPs operating in the region to open their offices at all the State capitals in three months time, in the interest of better coordination. The State Governments need to nominate a senior officer who can attend to any issues concerning telecom services in the States.

11.22 **In view of the above, the Authority recommends that the State Governments of the NER may:**

a. **Address the issues raised by the TSPs on priority so that they are encouraged to roll-out services faster in the region;**
b. **Provide land for erection of Ground Based Towers(GBT) and Govt buildings for erection of Roof Top Towers (RTT);**
c. **Ensure availability of commercial power for BTSs on priority;**
d. **Facilitate availability of sufficient diesel supply to the TSPs particularly during bandhs/strikes;**
e. **Ensure that wherever BTSs are running on DG sets they are able to run round-the-clock so that the people get uninterrupted telecom connectivity;**
f. **Set up a single-window clearance system for all telecom related clearances/NOCs like pollution/noise control certificate, environment clearance, site acquisitions, commercial power supply etc;**
g. **Rescind the levy of taxes/charges on the use of DGs by TSPs;**
h. **Facilitate optical fibre cable (OFC) laying in their States by allowing pulling of OFC on Transmission towers/poles of State Electricity Boards; and,**
i. **Nominate a senior officer to coordinate with the TSPs for handling of any issue concerning telecom services in the States.**

Conclusion

11.23 While making these recommendations, the Authority has consciously tried to propose cost-effective and closed-loop solutions, the implementation of which are not dependent on other projects or action taken by other agencies. Three of the four components of the investment plan are, in a sense, standalone projects viz. they are self-contained and not dependent on the actions of another party.

11.24 In this exercise, the Authority has examined the gap in the NER with respect to telecom services in four categories viz. enhancing bandwidth availability and building redundancy in transmission media; making available voice service (2G) to hitherto uncovered villages; providing data services (3G) in all urban areas; and, covering the uncovered National Highways.

11.25 Except for 2G voice coverage in villages, all other recommended solutions are standalone in nature i.e. they do not depend on the completion of any other project. As brought out in Chapter-II, 2G coverage in uncovered villages will depend on the ongoing projects of USOF and BBNL.

11.26 The proposed transmission media plan is in addition to already available infrastructure of BSNL in the NER. Use of alternate transmission media like VSAT, OPGW, ADSS (All-dielectric self-supporting) cable will be crucial for sustainable connectivity in the NER. The success of the proposed schemes will also depend on release of capacity that has already been created from public money by PGCIL and BSNL. The success of the investment plan to provide universal, ubiquitous and state-of-the-art facilities in the NER hinges on cooperation from other agencies including State Governments, WPC, Highway Authorities, PSUs etc. The Authority anticipates that all these agencies will work in a coherent manner to ensure enduring success of the investments being proposed.

Chapter XII:- Summary of recommendations

12.1 The Authority recommends that USOF should ensure compliance to stringent timelines and in-built penalty clauses in USO funded projects. In NOFN project, USOF/BBNL should build-in severe penalty clauses for delays in its agreements with the agencies implementing the project. At the same time, USOF/BBNL should also incentivise executing agencies in case the work is completed before the stipulated timeframe. The USOF/BBNL needs to urgently re-assess the capabilities of Railtel to carry out the project and review its decision regarding the executing agency, if necessary.

(Para 1.20)

12.2 The Authority recommends that, in the first phase, 2G mobile coverage should be extended to all remaining BHQs, towns and such villages which have a population of more than 250 in the NE Region. The State-wise list of all such villages, is placed at Annexure-V. It is further recommended that after execution of the first phase, the actual number of uncovered villages should be assessed and the remaining uncovered villages should be taken up subsequently.

(Para 2.30)

12.3 The Authority recommends that the overall investment requirement for the suggested comprehensive plan for covering the telecom infrastructure gaps in the North East Region states would be approximately Rs 2918 Crores.

(Para 2.59)

12.4 The Authority recommends that in case a service provider covers at least 80% of the habitations having population above 250 (as per 2011 Census) in the Assam and North East LSAs, a discount of 2% of AGR in the license fee should be given to such a service provider.

(Para 11.6)

12.5 The Authority recommends that PGCIL and BSNL should lease their dark fibre in the NER to other TSPs who are interested in taking fibre on lease. These PSUs ought to re-engineer their internal processes so as to quickly respond to the demands raised by other service providers and should be able to provide the requested bandwidth/ fibre on lease within two months of the raising of demand. PGCIL should immediately reduce its bandwidth leasing charges in the NER to make them comparable to those charged in other parts of the country.

(Para 11.8)

12.6 The Authority recommends that bandwidth charges for providing satellite connectivity to TSPs in the NER should be subsidized through USO funds. The amount of subsidy should be restricted to 75% of the total bandwidth cost; the remaining 25% of the bandwidth cost should be borne by the TSPs. The subsidy should be limited to 1 Mbps bandwidth for connecting remote BTSs to the BSC. In case of District Headquarters which have to rely on satellite connectivity for media redundancy purposes, the subsidy amount for the bandwidth should be restricted to the bandwidth proposed for such District Headquarters in these recommendations.

(Para 11.10)

12.7 The Authority recommends that issues for allocation of spot frequencies for Microwave backhaul and clearance for setting up VSAT connectivity and BTS may be addressed on a priority basis by the WPC for the NER States and reasonable time frames (not exceeding two months) should be fixed for allocation of frequencies and providing spectrum-related clearances.

(Para 11.11)

12.8 For the purpose of establishing connectivity within their respective service areas, the TSPs of North East LSA may be allowed to install microwave repeaters in Assam LSA and vice-versa. This will, however, be subject to non-interference from the other point-to-point links.

(Para 11.12)

12.9 The Authority recommends that the TSPs having spectrum in the NER region should enter into Inter and Intra-Circle roaming agreements amongst themselves within a period of 6 months for all the BTSs along the National Highways that pass through NER states. In case they fail to do so, they should be so mandated by the DoT.

(Para 11.13)

12.10 The Authority recommends that the Government should mandate all agencies viz. National Highways Authority of India(NHAI), Border Road Organisation(BRO), State Public Works Departments(PWD) etc involved in construction of National and State Highways to provide for infrastructure utility ducts along the Highways which can be used by companies providing utility services like telecom, power etc. for laying cables.

(Para 11.14)

12.11 DoT should take up the issue of providing subsidy for installation of solar power units at telecom towers (BTS and repeater) with the Ministry of New and Renewable Energy (MNRE).

(Para 11.16)

12.12 The Authority recommends that the DoT should immediately take up this issue with Ministry of Home Affairs and DoNER to either obtain exemption for the movement of equipment and pre-identified personnel related to telecom services from the compliances of NOCs and road permits OR for establishing a streamlined system whereby a single common permit/NOC is required for the entire North East

region. An option to be explored is that MHA initiate a centralised clearing system where clearances can be obtained from the concerned State Governments and given to the TSPs.

(Para 11.20)

12.13 The Authority recommends that the State Governments of the NER may:

a. **Address the issues raised by the TSPs on priority so that they are encouraged to roll-out services faster in the region;**
b. **Provide land for erection of Ground Based Towers(GBT) and Govt buildings for erection of Roof Top Towers (RTT);**
c. **Ensure availability of commercial power for BTSs on priority;**
d. **Facilitate availability of sufficient diesel supply to the TSPs particularly during bandhs/strikes;**
e. **Ensure that wherever BTSs are running on DG sets they are able to run round-the-clock so that the people get uninterrupted telecom connectivity;**
f. **Set up a single-window clearance system for all telecom related clearances/NOCs like pollution/noise control certificate, environment clearance, site acquisitions, commercial power supply etc;**
g. **Rescind the levy of taxes/charges on the use of DGs by TSPs;**
h. **Facilitate optical fibre cable (OFC) laying in their States by allowing pulling of OFC on Transmission towers/poles of State Electricity Boards; and,**
i. **Nominate a senior officer to coordinate with the TSPs for handling of any issue concerning telecom services in the States.**

(Para 11.22)

Annexure-I

सत्यमेव जयते

हिन्दी का मान : राष्ट्र का सम्मान

IndiaBroadband 2007 Linking India

भारत सरकार
संचार और सूचना प्रौद्योगिकी मंत्रालय
दूरसंचार विभाग
संचार भवन, 20, अशोक रोड
नई दिल्ली-110 001
Government of India
Ministry of Communications & IT
Department of Telecommunications
Sanchar Bhawan, 20 Ashok Road
New Delhi-110 001
WEBSITE : www.dotindia.com
www.investindiatelecom.com

No. 59-01/2013-SU.IV

22nd April, 2013

To,

Secretary
(Shri Rajeev Agrawal),
Telecom Regulatory Authority of India (TRAI)
Mahanagar DoorsancharBhavan,
J. L. Nehru Marg (Old Minto Road)
New Delhi

Fax No.: 011-23222816

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.**

Sir,

The tele-density in North Eastern States is low as compared to the other parts of the country. The Quality of Services (QoS) offered by various Telecom Service Providers (TSPs) in the North Eastern States is also not up to the mark.

2. North East Region comprises of three Licensed Service Areas (LSAs). Assam LSA covers the full Assam state. North East LSA covers six states viz. Meghalaya, Tripura, Mizoram, Arunachal Pradesh, Nagaland and Manipur. However, in Bharat Sanchar Nigam Limited (BSNL), North East LSA is further divided into North East-I (Meghalaya, Tripura, Mizoram) and North East-2 (Arunachal Pradesh, Nagaland and Manipur) Telecom Circles. Sikkim State is part of West Bengal LSA.

3. In the last one year, Department of Telecommunications (DoT) has received various representations from different circles e.g., Chief Ministers and Governors of North Eastern States, National Advisory Council (NAC), M/o Development of North Eastern Region (DoNER), North Eastern Council (NEC) (Shri P.P. Shrivastava) etc., for revamping and augmentation of telecom services in the North Eastern States. These representations were examined in DoT and based on a decision taken during the meeting in the Cabinet Secretariat, it has been initially decided to formulate a comprehensive telecom plan for revamping and augmentation of telecom services in North Eastern Region.

Contd..p-2/-

4. Accordingly, a comprehensive telecom plan was prepared by BSNL (copy of plan attached at Annexure-I). As decided in the Cabinet Secretariat, the comprehensive telecom plan was sent to M/o DoNER for further taking up this issue with Planning Commission for exploring the funding options of the plan.

5. The comprehensive telecom plan prepared by BSNL was discussed in a meeting chaired by Member (NE), Planning Commission on 19.11.2012. In addition to the officers from DoT and CMD, BSNL, Officers of M/o DoNER and M/o Finance were also present during the meeting. One of the decisions taken during the aforesaid meeting in Planning Commission is as follows:

"A detailed analysis incorporating the role of private player is required for identifying the gap and investment requirement in the telecom plan".

6. In the meanwhile, recommendations of National Advisory Council (NAC) on telecom sector in North-East region have also been received in which NAC has advised a similar course of action as decided in the meeting held in the Planning Commission BSNL (copy of recommendations placed at Annexure-II).

7. This issue is further examined in DoT and it is observed that Telecom Regulatory Authority of India (TRAI) may collect information from all Service Providers in the North Eastern Region including private operators and prepare a gap analysis with an investment plan for providing quality telecommunication services to the North East Region.

8. In view of above, TRAI is requested to make recommendations under section 11(1)(a)(iv) of the TRAI Act on a comprehensive Telecom Plan for the North East Region after making a gap analysis and investment required for implementing the comprehensive telecom plan. TRAI may endeavour to submit its recommendations in three months to enable DoT to plan ahead.

9. This issues with the approval of Secretary (T).

Yoursfaithfully, ,

Umashankar

(V. Umashankar)
Joint Secretary to the Govt. of India
Telephone No: 23717411

Annexure-II

Table -2 : Wireless Service provider in North East, Assam & Sikkim(as part of West Bengal License)

	North East				Assam				Sikkim			
	Type of Spectrum				Type of Spectrum				Type of Spectrum			
Service Provider	**2G**	**3G**	**CDMA**	**BWA**	**2G**	**3G**	**CDMA**	**BWA**	**2G**	**3G**	**CDMA**	**BWA**
Reliance	Yes	Yes			Yes	Yes			Yes	Yes	Yes	
BSNL	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Bharti	Yes	Yes			Yes	Yes			Yes	Yes		
Vodafone	Yes				Yes				Yes	Yes		
Aircel	Yes	Yes		Yes	Yes	Yes		Yes	Yes	Yes		Yes
Idea	Yes				Yes				Yes			
Tata									Yes		Yes	
MTS											Yes	
Infotel				Yes				Yes				Yes

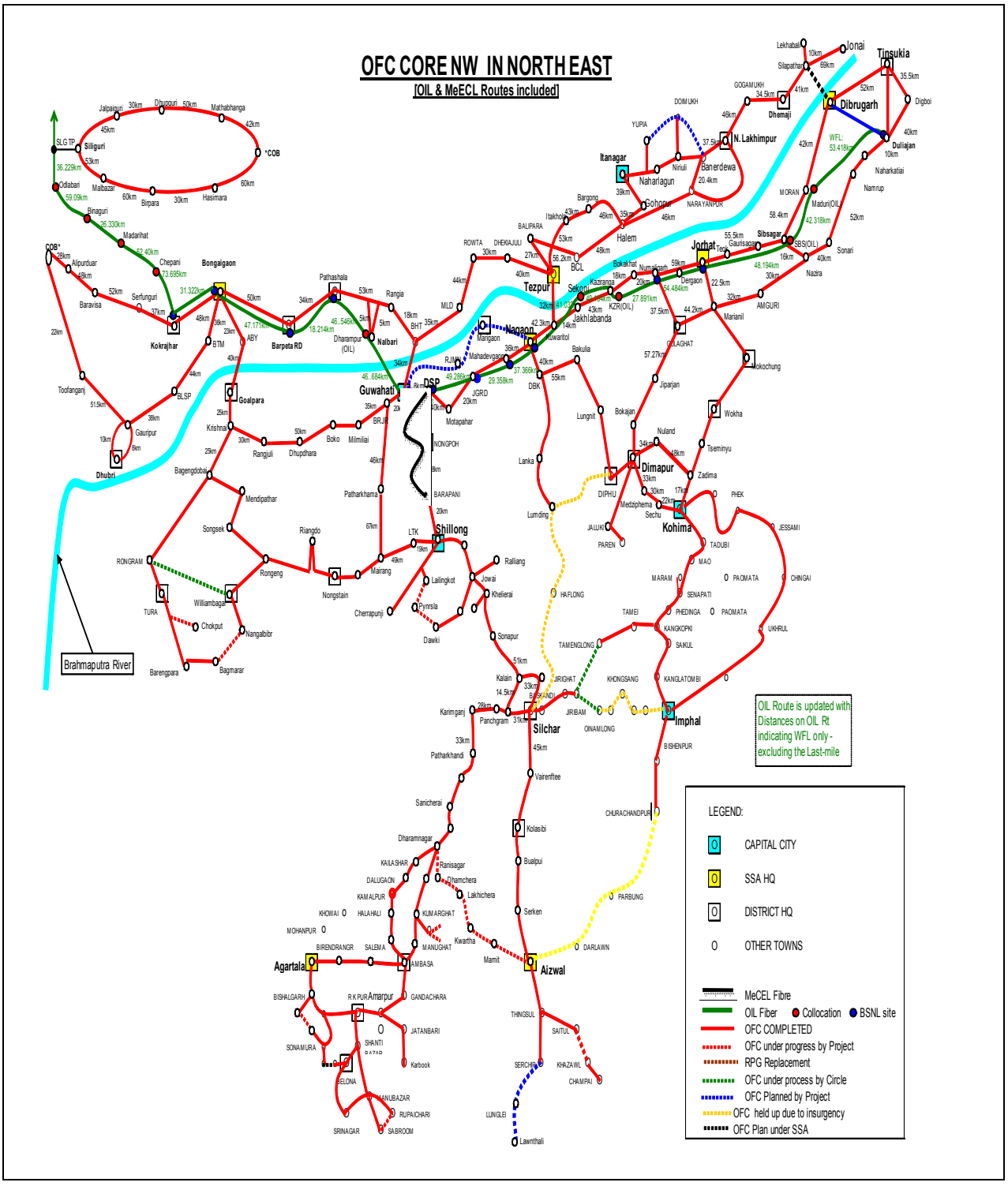
Annexure-III

Table-1 : Demographic summary of North East Region

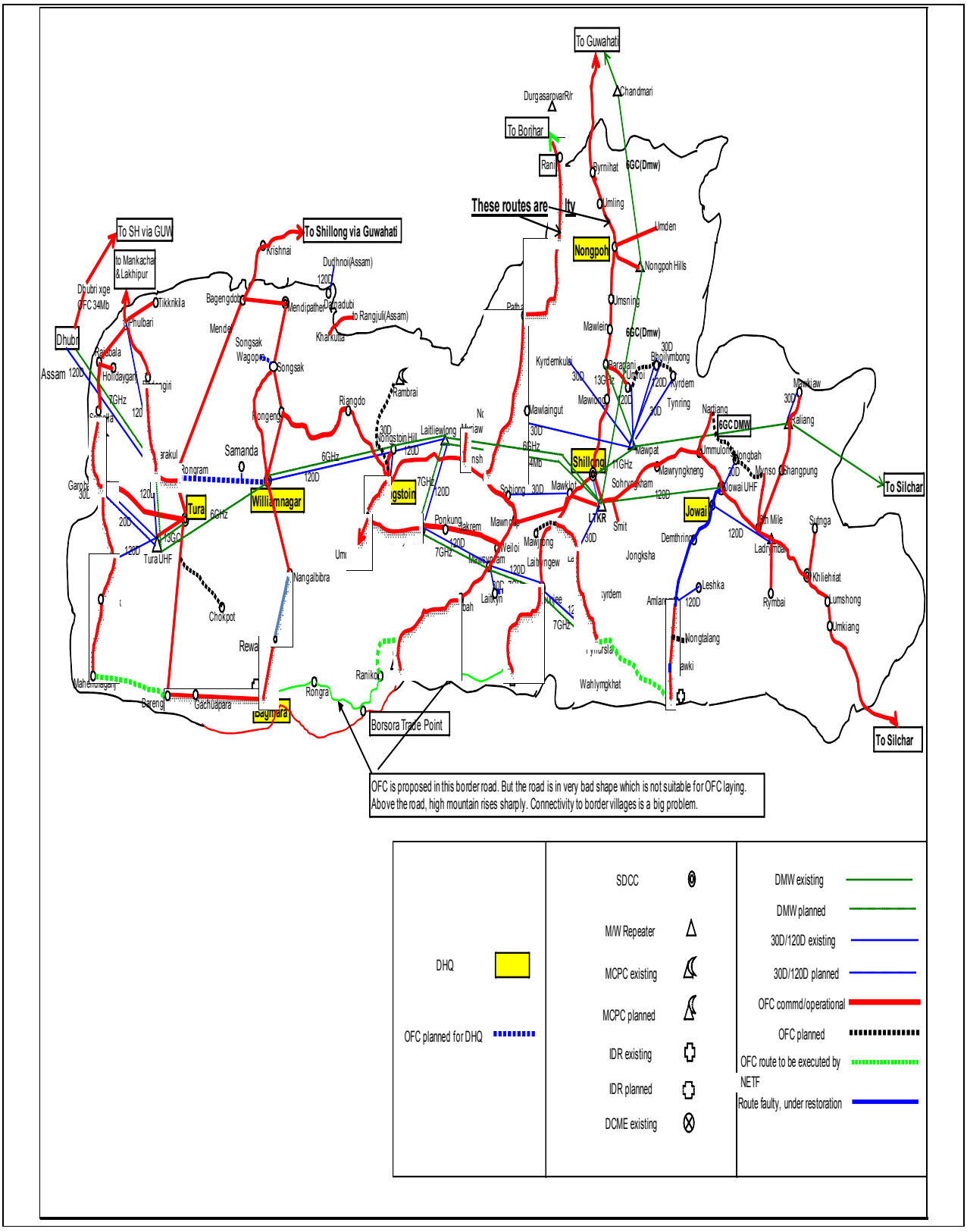
Name of State	Total No. of Districts	Sub District Headquarters as per 2011 census	Gram Panchayats (As per Ministry of Panchayati Raj (MoPR) data)	Villages (as per 2011 census data)	Geographical Area (in Sq. Km)	Population (As per 2011 Census)
Arunachal Pradesh	16	188	1734	5590	83743	1382611
Assam	27	184	2206	26550	78438	31169272
Manipur	9	38	160	2612	22327	2721756
Meghalaya	7	39	1463	6851	22429	2964007
Mizoram	8	29	776	830	21087	1091014
Nagaland	11	114	1123	1435	16579	1980602
Sikkim	4	9	176	452	7096	607688
Tripura	4	40	511	901	10486	3671032
Total	**86**	**641**	**8149**	**45221**	**262185**	**45587982**

Annexure-IV

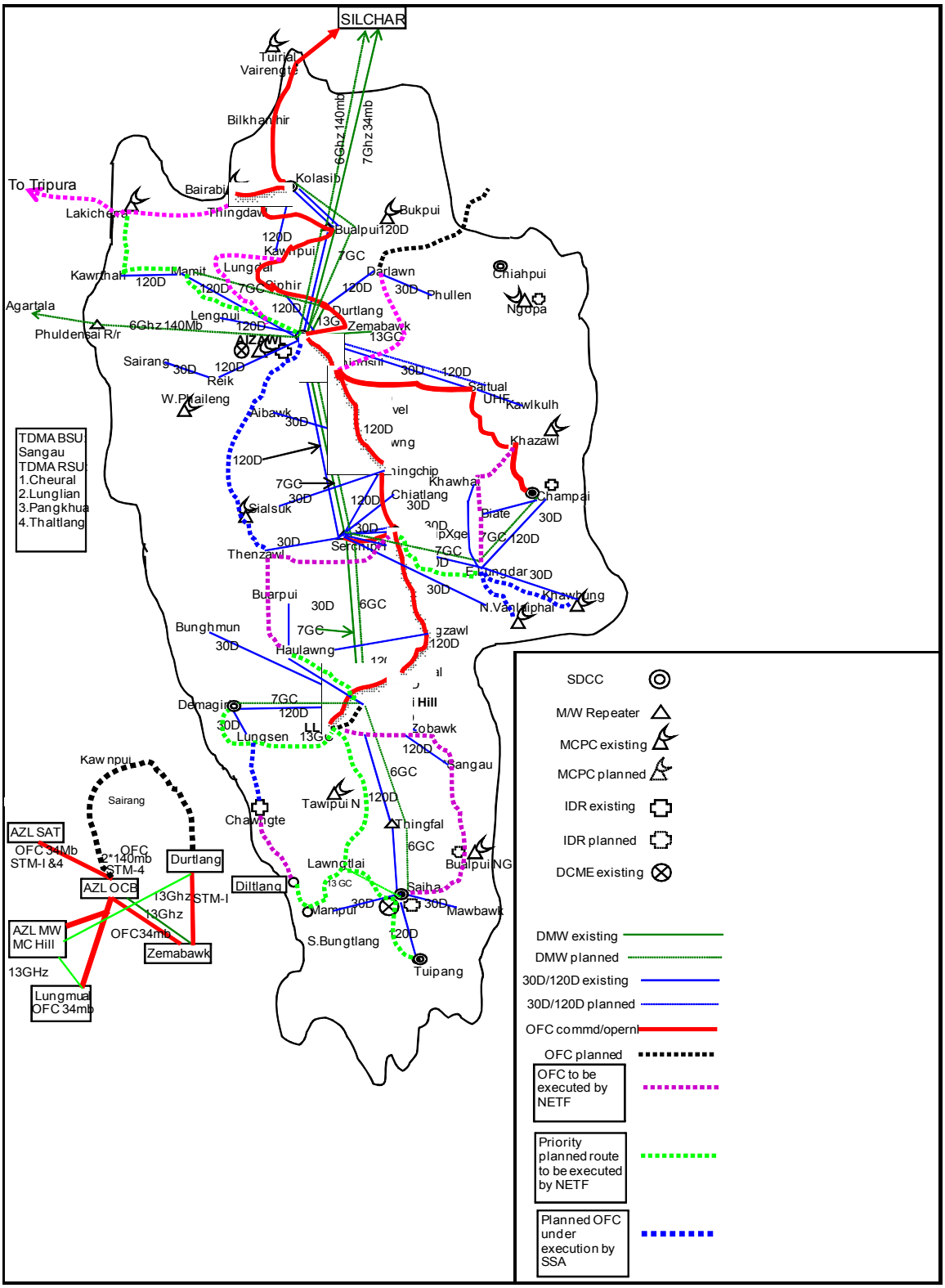
OFC Network of BSNL



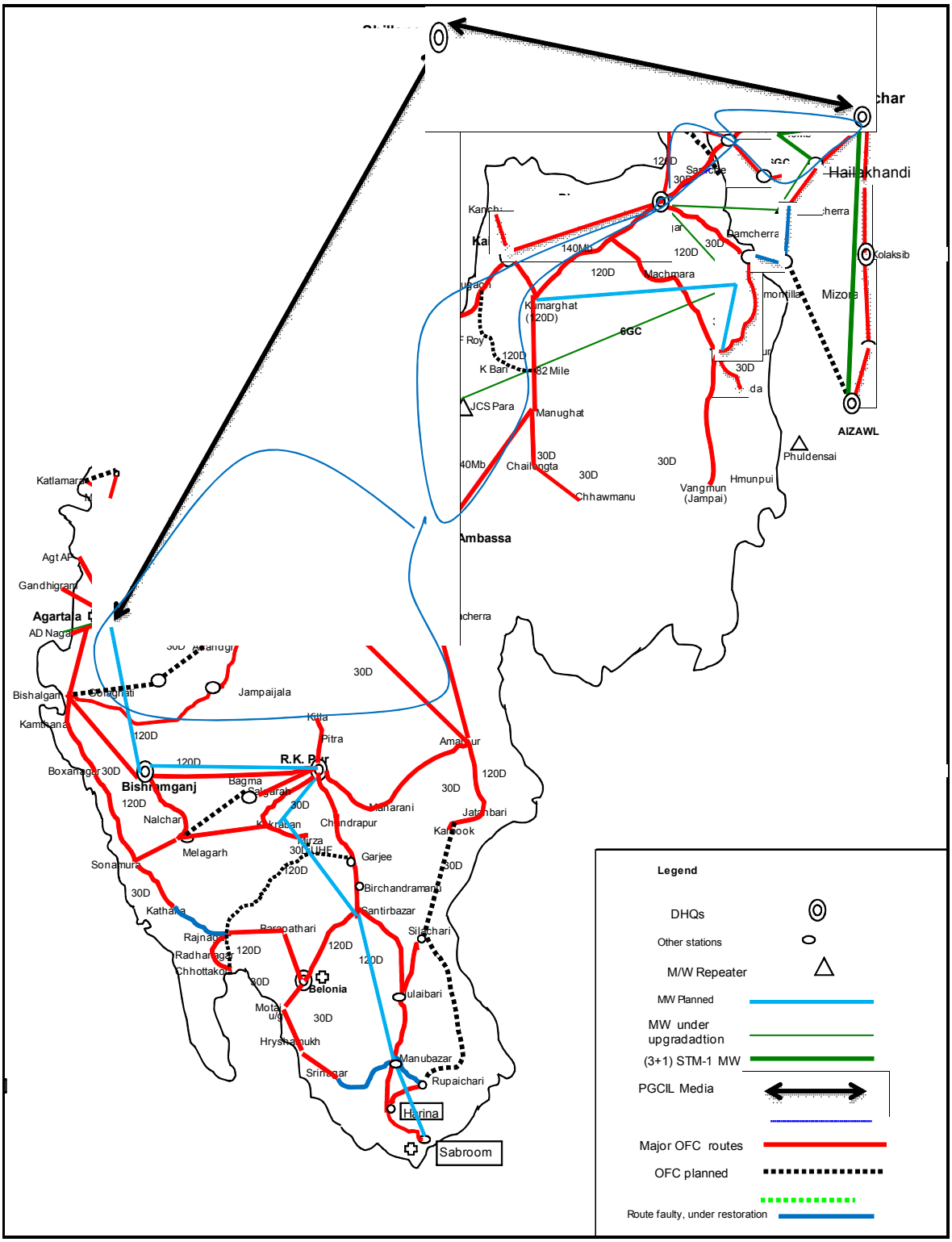
BSNL's OFC Network in Meghalaya



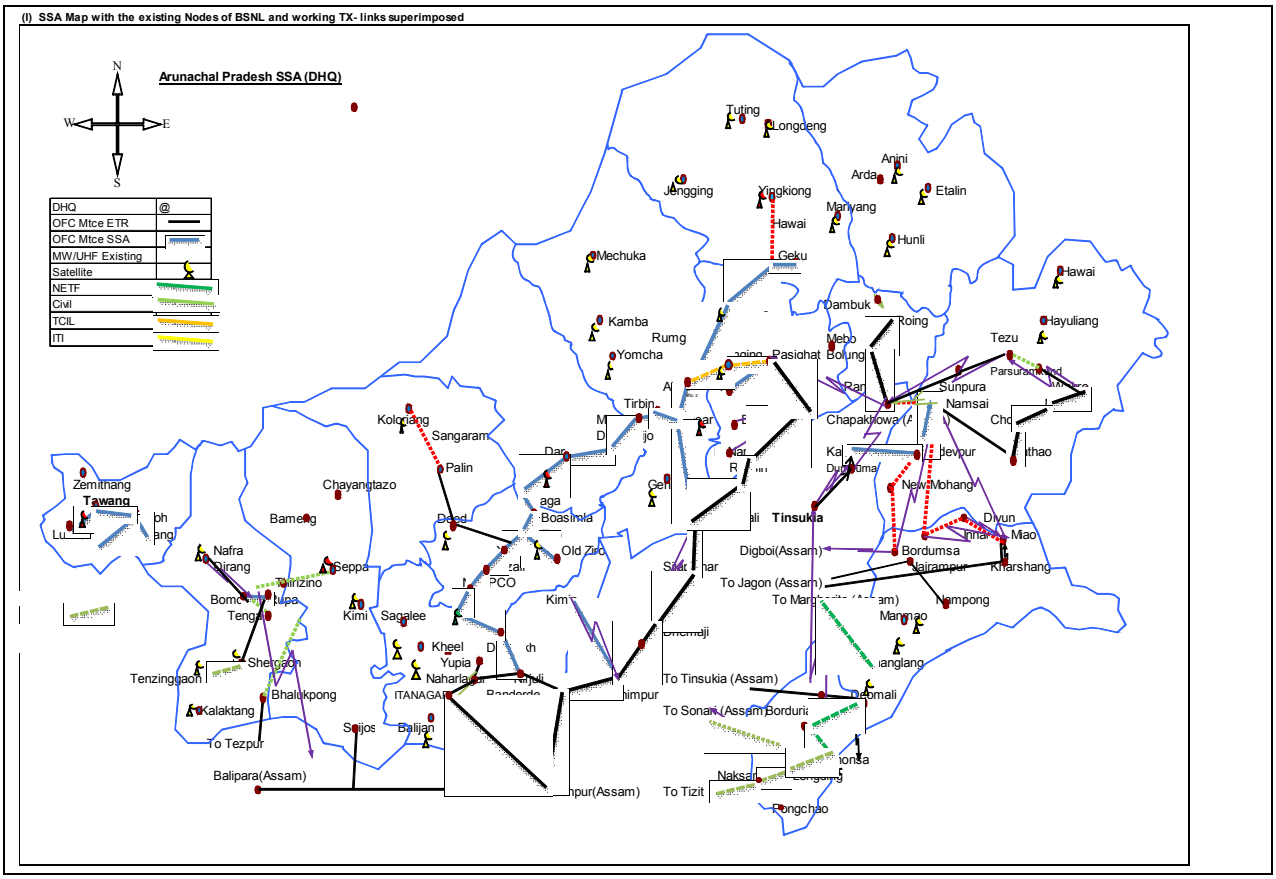
BSNL's OFC Network in Mizoram



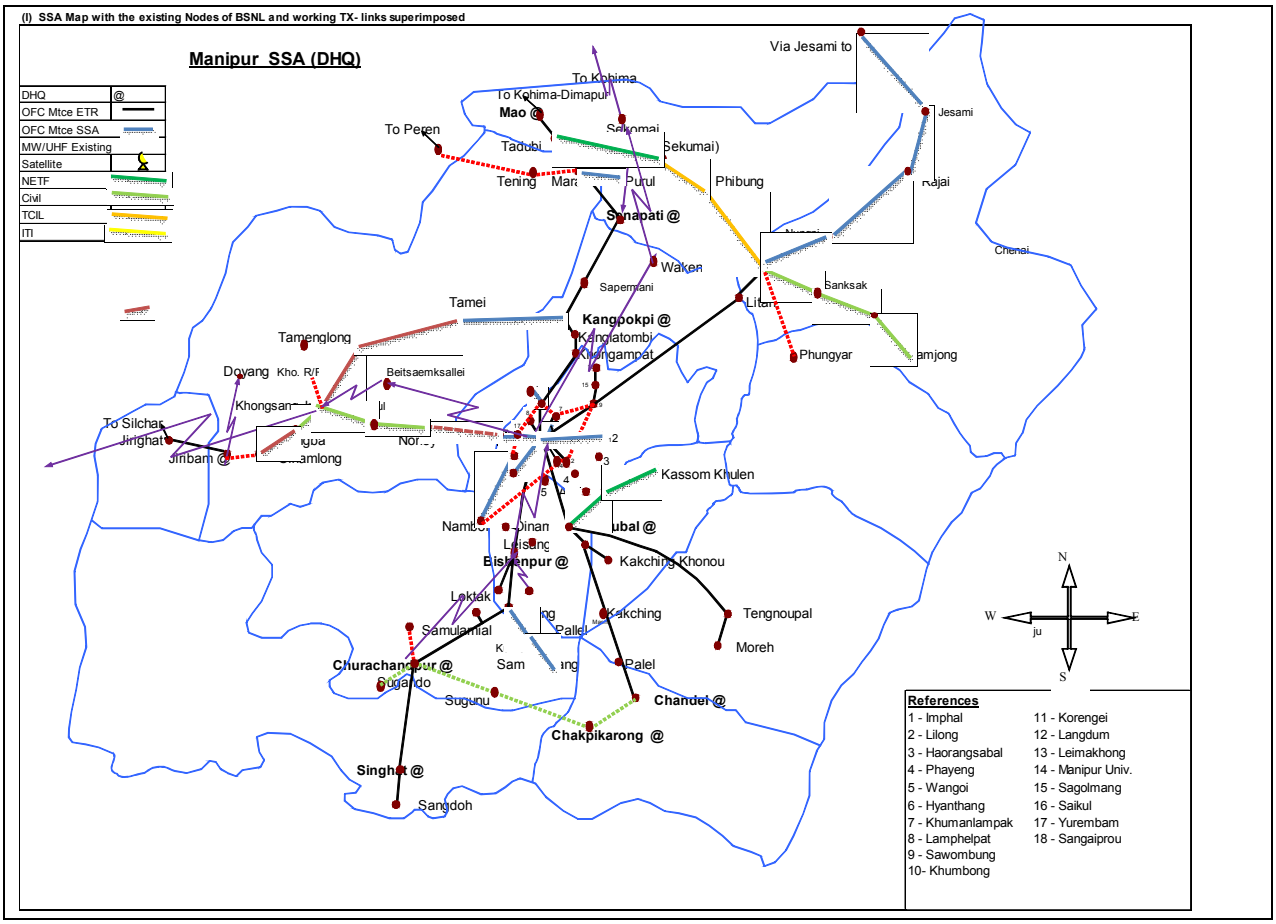
BSNL's OFC network in Tripura



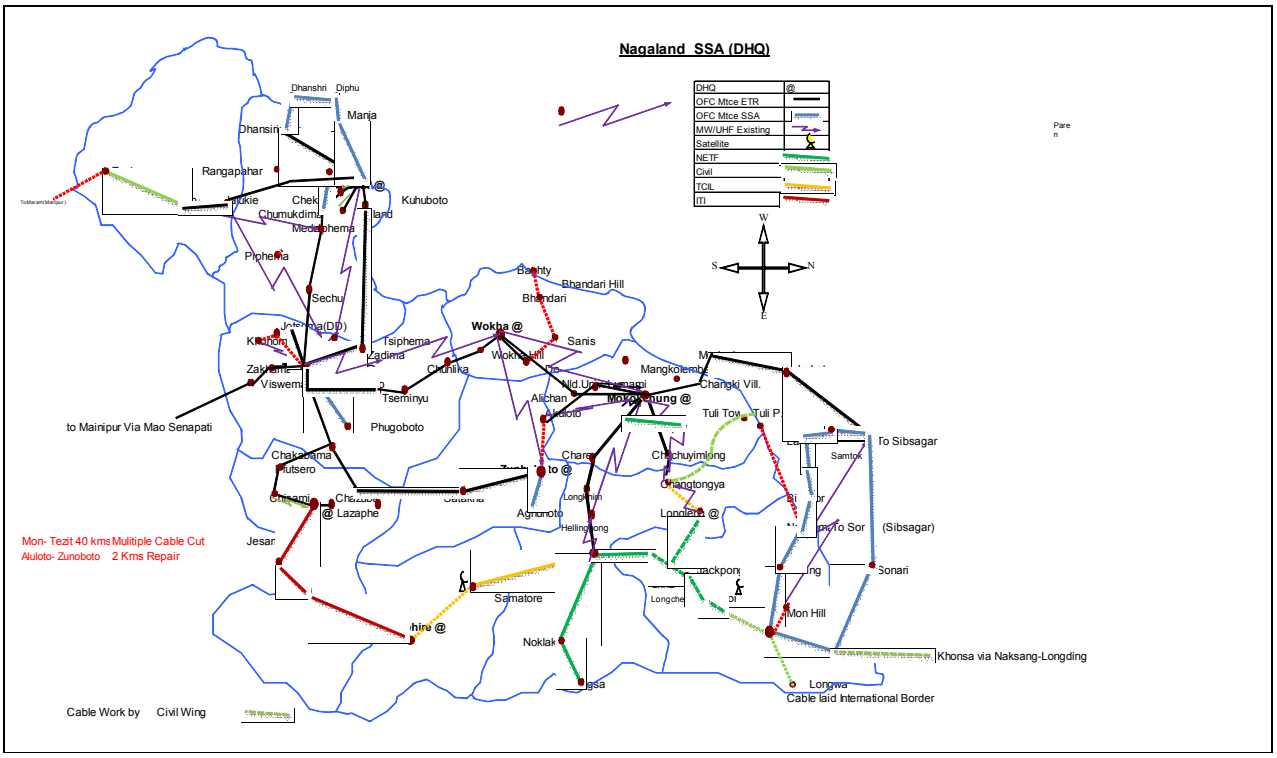
BSNL's OFC network in Arunachal Pradesh



BSNL's OFC network in Manipur



BSNL's OFC network in Nagaland



Annexure – V

Uncovered villages in Assam with Population above 250 (as per 2011 census)

District	Sub-District	Village Name	Village Code		District	Sub-District	Village Name	Village Code
Baksa	Barnagar (Pt) (93)	Niz-Dakua	304107		Karbi Anglong	Donka (568)	Kholaphiang	295680
Baksa	Barnagar (Pt) (93)	Nonke Khagrabari	304112		Karbi Anglong	Donka (568)	Tapat	295681
Baksa	Sarupeta (Pt) (54)	Bhuyapara	304185		Karbi Anglong	Donka (568)	Madan-Men-Ih	295683
Baksa	Jalah (79)	Koklabari No 2	304277		Karbi Anglong	Donka (568)	Rongpangbong	295684
Baksa	Jalah (79)	Kundargaon	304297		Karbi Anglong	Donka (568)	Nongtirong	295685
Baksa	Jalah (79)	Jargaon NC	304307		Karbi Anglong	Donka (568)	Wanpung	295686
Baksa	Jalah (79)	Bhutiapara NC	304309		Karbi Anglong	Donka (568)	Rongkhelan	295687
Baksa	Jalah (79)	Karamkata NC	304313		Karbi Anglong	Donka (568)	Umkhirmi	295690
Baksa	Goreswar (94)	Niz Kachula	304352		Karbi Anglong	Donka (568)	Skap	295693
Baksa	Baksa (86)	Dhanshripur	304472		Karbi Anglong	Donka (568)	Lum Mutem	295694
Baksa	Baksa (86)	Dihira R F	304551		Karbi Anglong	Donka (568)	Mokoilum	295695
Baksa	Baganpara (Pt) (44)	Subankhata NC	304560		Karbi Anglong	Donka (568)	Kyarbon	295696
Baksa	Baganpara (Pt) (44)	Muthiabari	304561		Karbi Anglong	Donka (568)	Mulaber	295698
Baksa	Tamulpur (183)	Barbhera	304630		Karbi Anglong	Donka (568)	Saliat	295699
Baksa	Tamulpur (183)	Upar Charia	304646		Karbi Anglong	Donka (568)	Mujen	295700
Baksa	Tamulpur (183)	Charan Jungle	304647		Karbi Anglong	Donka (568)	Mothade	295704
Baksa	Tamulpur (183)	Padmapara	304663		Karbi Anglong	Donka (568)	Mowlian	295705
Baksa	Tamulpur (183)	Fehuajhar	304761		Karbi Anglong	Donka (568)	Umplong	295706
Barpeta	Kalgachia (100)	Moyanbari Pam	282771		Karbi Anglong	Donka (568)	Woterang Langso	295708
Barpeta	Bhagbor (143)	Ali Gaon Pam	282818		Karbi Anglong	Donka (568)	Langsomepi	295709
Barpeta	Bhagbor (143)	Ali Gaon Pathar	282819		Karbi Anglong	Donka (568)	Rongtar-Me	295712
Barpeta	Bhagbor (143)	Ramapara Pathar	282839		Karbi Anglong	Donka (568)	Rongche-Jeng	295713
Barpeta	Bhagbor (143)	Mowkhowa Char N.C.	282858		Karbi Anglong	Donka (568)	Durbin Tilla	295714
Barpeta	Bhagbor (143)	Tekla Chuti	282859		Karbi Anglong	Donka (568)	Chongkhili	295716
Barpeta	Bhagbor (143)	Ramapara Pam	282886		Karbi Anglong	Donka (568)	Chirimthepi	295717
Barpeta	Bhagbor (143)	Islam Pur	282887		Karbi Anglong	Donka (568)	Taseng	295720
Barpeta	Chenga (72)	Damdama	282949		Karbi Anglong	Donka (568)	Mokindur	295722
Barpeta	Chenga (72)	Dakhin Godhani N.C.	282950		Karbi Anglong	Donka (568)	Charchim D C R F	295724
Barpeta	Chenga (72)	Uttar Godhani N.C.	282952		Karbi Anglong	Donka (568)	Amreng	295726
Bongaigaon	Bongaigaon (Pt) (85)	Khakarpur Pt.VIII	301316		Karbi Anglong	Donka (568)	Thatskai	295729
Bongaigaon	Boitamari (148)	Kayem Majer Alga Pt II	301375		Karbi Anglong	Donka (568)	Upilangso	295737
Bongaigaon	Boitamari (148)	Satsabighan Char Pt III	301378		Karbi Anglong	Donka (568)	Umjulaher	295741
Bongaigaon	Boitamari (148)	Iswarjhari Pt I	301387		Karbi Anglong	Donka (568)	Morap	295742
Bongaigaon	Boitamari (148)	Korea Pt I	301460		Karbi Anglong	Donka (568)	Lamarang	295744
Bongaigaon	Srijangram (211)	Malegarh Pt IV	301669		Karbi Anglong	Donka (568)	Denglier	295745
Bongaigaon	Srijangram (211)	Tinkania Pt II	301682		Karbi Anglong	Donka (568)	Amlong	295747
Cachar	Katigora (223)	Ailatal (Ilatal)	299079		Karbi Anglong	Donka (568)	Engti Habai	295759
Cachar	Silchar (262)	Damcherra East Tomas Punjee	299133		Karbi Anglong	Donka (568)	Umru	295761
Cachar	Silchar (262)	Sabajpur Bagicha	299135		Karbi Anglong	Donka (568)	Longre	295763
Cachar	Silchar (262)	Katlichara Grant (Bagicha)	299138		Karbi Anglong	Donka (568)	Sumer Pathar(Langparpan)	295767

District	Sub-District	Village Name	Village Code
Cachar	Silchar (262)	Balichara Grant Pt I	299153
Cachar	Silchar (262)	Abongchara Grant Pt II	299154
Cachar	Silchar (262)	Chengduar Pt. - III	299367
Cachar	Udarbond (99)	Gunti Bari Grant	299417
Cachar	Udarbond (99)	Aina Chara T.E.	299419
Cachar	Sonai (221)	Anandakhal	299610
Cachar	Sonai (221)	Dhalakhal F.V.	299667
Cachar	Sonai (221)	Metnathal F.V.	299683
Cachar	Sonai (221)	Chekavcham F.V.	299684
Cachar	Lakhipur (254)	Naithang Punji	299802
Cachar	Lakhipur (254)	Dipuchera	299837
Cachar	Lakhipur (254)	Molong Punji	299838
Cachar	Lakhipur (254)	U.S. Chur Punji Pt III	299899
Cachar	Lakhipur (254)	U.S. Lakhichera Pt VI	299900
Cachar	Lakhipur (254)	Alni Grant	299911
Cachar	Lakhipur (254)	Naraindhar T.E.	299942
Cachar	Lakhipur (254)	Naraindhar P.T.V.	299943
Cachar	Lakhipur (254)	Digliriang Punji	299945
Cachar	Lakhipur (254)	Mahalthal	299946
Cachar	Lakhipur (254)	Lakhichera F.V. Pt I	299951
Cachar	Lakhipur (254)	Lakhinagar F.V.	299952
Cachar	Lakhipur (254)	Lakhinagar Ext. F.V.	299953
Cachar	Lakhipur (254)	Kapakhal F.V.	299958
Cachar	Lakhipur (254)	Tupidahar F.V.	299962
Chirang	Bengtol (87)	Patabari-I	301832
Chirang	Bengtol (87)	Patabari-II	301833
Chirang	Bengtol (87)	Pub-Maopar	301838
Chirang	Bengtol (87)	Beshorbari	301861
Chirang	Bengtol (87)	Paschim Joypur	301862
Chirang	Bengtol (87)	Nangalbhanga	301863
Chirang	Sidli (Pt) (136)	Simalaguri F.V	302011
Chirang	Sidli (Pt) (136)	Santipur FV	302015
Chirang	Sidli (Pt) (136)	Deosri FV	302021
Chirang	Sidli (Pt) (136)	Hatisar F.V	302022
Chirang	Sidli (Pt) (136)	Malivita F.V	302023
Chirang	Sidli (Pt) (136)	Patabari F.V.	302025
Chirang	Sidli (Pt) (136)	Dhalpani Forest Block	302026
Chirang	Sidli (Pt) (136)	Dakhingaon F V	302028
Chirang	Sidli (Pt) (136)	Santipur F/Block	302037
Chirang	Sidli (Pt) (136)	Deosri F/Block	302038
Chirang	Sidli (Pt) (136)	Hatijar F/Block	302039
Chirang	Sidli (Pt) (136)	Malivita F/Block(Including Relief Camp)	302040
Chirang	Sidli (Pt) (136)	Patabari F/Block	302041
Chirang	Bijni (Pt) (259)	Sishubari	302049
Chirang	Bijni (Pt) (259)	Gendabil	302051
Karbi Anglong	Donka (568)	Langsomepi	295768
Karbi Anglong	Donka (568)	Long-E-Lubui	295771
Karbi Anglong	Donka (568)	Kungripi	295774
Karbi Anglong	Donka (568)	Patimukha	295778
Karbi Anglong	Donka (568)	Thengmu	295779
Karbi Anglong	Donka (568)	Langhonjar(Phangcho)	295782
Karbi Anglong	Donka (568)	Umat	295783
Karbi Anglong	Donka (568)	Mausaladyang	295784
Karbi Anglong	Donka (568)	Umlapher	295787
Karbi Anglong	Donka (568)	Jalalon	295790
Karbi Anglong	Donka (568)	Sabuda	295792
Karbi Anglong	Donka (568)	Khili Umwang	295793
Karbi Anglong	Donka (568)	Umwang	295796
Karbi Anglong	Donka (568)	Umteliah	295797
Karbi Anglong	Donka (568)	Umsarang	295798
Karbi Anglong	Donka (568)	Pampura	295799
Karbi Anglong	Donka (568)	Umnem	295800
Karbi Anglong	Donka (568)	Rupai	295801
Karbi Anglong	Donka (568)	Rumphum	295802
Karbi Anglong	Donka (568)	Lang-Er-Dang	295803
Karbi Anglong	Donka (568)	Umdap	295804
Karbi Anglong	Donka (568)	Rongmandiu	295807
Karbi Anglong	Donka (568)	Murap	295809
Karbi Anglong	Donka (568)	Rongmandu(Engti Gaon)	295813
Karbi Anglong	Donka (568)	Singdoloi	295815
Karbi Anglong	Donka (568)	Birmaine	295817
Karbi Anglong	Donka (568)	Patikyndok	295818
Karbi Anglong	Donka (568)	Rongnihang	295820
Karbi Anglong	Donka (568)	Rongchek	295822
Karbi Anglong	Donka (568)	Langmet-2	295824
Karbi Anglong	Donka (568)	Masereng	295839
Karbi Anglong	Donka (568)	Parbat Gaon(Rongkhlan)	295842
Karbi Anglong	Diphu (873)	Jusep Basti	295880
Karbi Anglong	Diphu (873)	Dhanshri Linapar	295889
Karbi Anglong	Diphu (873)	Bhta Gaon	295890
Karbi Anglong	Diphu (873)	Dajiphang	295891
Karbi Anglong	Diphu (873)	Rongbang Timung	295918
Karbi Anglong	Diphu (873)	Nadipur Desuali Basti	295943
Karbi Anglong	Diphu (873)	Ramsing Hanse	295971
Karbi Anglong	Diphu (873)	Daadikho	295977
Karbi Anglong	Diphu (873)	Ram Nath Kathar	296058
Karbi Anglong	Diphu (873)	Longbi Hanse	296090
Karbi Anglong	Diphu (873)	Sairol	296106
Karbi Anglong	Diphu (873)	Moiso Killing	296139
Karbi Anglong	Diphu (873)	Bonglong Teron	296152

District	Sub-District	Village Name	Village Code
Chirang	Bijni (Pt) (259)	Koila Moila	302052
Chirang	Bijni (Pt) (259)	Parbatjhora	302055
Chirang	Bijni (Pt) (259)	Dakhin Gendabil	302056
Chirang	Bijni (Pt) (259)	Balaguri	302057
Chirang	Bijni (Pt) (259)	Sikapara Pt.1	302084
Chirang	Bijni (Pt) (259)	Nangalbhanga	302089
Chirang	Bijni (Pt) (259)	Sikapara Pt. 11	302104
Chirang	Bijni (Pt) (259)	Tangabari No.1	302105
Chirang	Bijni (Pt) (259)	Tangabari No. 2	302106
Chirang	Bijni (Pt) (259)	Malipara No. 1	302107
Chirang	Bijni (Pt) (259)	Dangsiapara-1	302116
Chirang	Bijni (Pt) (259)	Chamugaon	302138
Chirang	Bijni (Pt) (259)	Doilong No.1 (Doilangjhar-1)	302195
Chirang	Bijni (Pt) (259)	Doilong No.2 (Doilangjhar-2)	302196
Chirang	Bijni (Pt) (259)	Doilong No.3 (Doilangjhar-3)	302197
Chirang	Bijni (Pt) (259)	Barpathar No.1	302206
Chirang	Bijni (Pt) (259)	No.1 Chourang	302211
Chirang	Bijni (Pt) (259)	No.2 Chourang	302212
Chirang	Bijni (Pt) (259)	Kawadi Sonaikhowa No1	302280
Chirang	Bijni (Pt) (259)	Koilamoila FV	302306
Chirang	Bijni (Pt) (259)	Kanamakra FV (Rangijhora FV)	302307
Darrang	Mangaldoi (Pt) (139)	No.2 Ghotarah Chapori	305038
Darrang	Mangaldoi (Pt) (139)	No.1 Chaulkhowa	305069
Darrang	Mangaldoi (Pt) (139)	No.2 Chaulkhowa	305070
Darrang	Mangaldoi (Pt) (139)	No.1 Dhariakhaiti	305071
Darrang	Mangaldoi (Pt) (139)	No.2 Dhariakhaiti	305072
Darrang	Mangaldoi (Pt) (139)	N.C. Gasbari	305073
Darrang	Mangaldoi (Pt) (139)	N.C. Hiloikhunda	305074
Darrang	Mangaldoi (Pt) (139)	N.C. No.4 Nanglichar	305075
Darrang	Mangaldoi (Pt) (139)	N.C. No.5 Nanglichar	305076
Darrang	Mangaldoi (Pt) (139)	N.C. Piajorchar	305077
Darrang	Mangaldoi (Pt) (139)	N.C. Kayamari	305079
Darrang	Mangaldoi (Pt) (139)	N.C. No.1 Nanglichar	305080
Darrang	Mangaldoi (Pt) (139)	N.C. No.3 Nanglichar	305081
Karbi Anglong	Diphu (873)	Longgari Bagan (Laharijan)	296179
Karbi Anglong	Diphu (873)	Mon Basti 1,2	296180
Karbi Anglong	Diphu (873)	Chota Lengri	296185
Karbi Anglong	Diphu (873)	Bengnabil 1,2	296189
Karbi Anglong	Diphu (873)	Dhon Timung (Den Timung)	296191
Karbi Anglong	Diphu (873)	Longnit Bazar	296194
Karbi Anglong	Diphu (873)	Longnit Thapa	296201
Karbi Anglong	Diphu (873)	Sarthe Borrung	296204
Karbi Anglong	Diphu (873)	Khan Bosti	296219
Karbi Anglong	Diphu (873)	C. C. I. Quary	296220
Karbi Anglong	Diphu (873)	Langsangti	296228
Karbi Anglong	Diphu (873)	Jwelson Terang	296255
Karbi Anglong	Diphu (873)	Dubajan	296258
Karbi Anglong	Diphu (873)	Tengahola (Bokajan)	296263
Karbi Anglong	Diphu (873)	Dayal Bosti	296264
Karbi Anglong	Diphu (873)	Etabheta	296265
Karbi Anglong	Diphu (873)	Moukhuti Gaon	296268
Karbi Anglong	Diphu (873)	Bhokot Bill	296269
Karbi Anglong	Diphu (873)	Janget Terang Gaon	296270
Karbi Anglong	Diphu (873)	Domail	296271
Karbi Anglong	Diphu (873)	Garom Pani	296272
Karbi Anglong	Diphu (873)	Gurung Mati	296273
Karbi Anglong	Diphu (873)	Alubari	296276
Karbi Anglong	Diphu (873)	Nawkata Gaon	296278
Karbi Anglong	Diphu (873)	Ghanshyam Gaon	296279
Karbi Anglong	Diphu (873)	Daporitola	296280
Karbi Anglong	Diphu (873)	Lahorijan Nirmal Bagan	296282
Karbi Anglong	Diphu (873)	Sorumanthi Bey	296283
Karbi Anglong	Diphu (873)	Nothong Bosti	296284
Karbi Anglong	Diphu (873)	Jor Tokbi	296285
Karbi Anglong	Diphu (873)	Khotkhoti Bazar	296286
Karbi Anglong	Diphu (873)	Kachari Bosti	296287
Karbi Anglong	Diphu (873)	Langrijan T.E.	296288
Karbi Anglong	Diphu (873)	Lengri Bosti	296289

District	Sub-District	Village Name	Village Code
Darrang	Mangaldoi (Pt) (139)	Kharpori Chapori	305083
Darrang	Mangaldoi (Pt) (139)	N.C. Chatihara	305086
Darrang	Mangaldoi (Pt) (139)	Algachar N.C.	305087
Darrang	Mangaldoi (Pt) (139)	No.2 Nanglichar N.C.	305088
Darrang	Mangaldoi (Pt) (139)	Hatipori	305102
Darrang	Dalgaon (Pt) (214)	Gadhowa Chapori (No.2 Gadhowa Chapori)	305182
Darrang	Dalgaon (Pt) (214)	No.1 Magurmari	305188
Darrang	Dalgaon (Pt) (214)	Bagaribari NC	305320
Dhemaji	Dhemaji (281)	Jamuguri Lakhipathar	288566
Dhemaji	Dhemaji (281)	Laipulia Missing	288585
Dhemaji	Dhemaji (281)	Pachim Sobahi	288740
Dhemaji	Dhemaji (281)	Pub Sobahi	288741
Dhemaji	Dhemaji (281)	Kowaphalamiri(Kowaphalahabino2	288818
Dhemaji	Sissibargaon (395)	No.1 Borgoyadeori	288943
Dhemaji	Sissibargaon (395)	Merchapori	289006
Dhemaji	Sissibargaon (395)	Sesu Dighal Gaon	289008
Dhemaji	Sissibargaon (395)	No.1 Amlakhi	289015
Dhemaji	Sissibargaon (395)	No.2 Amlakhi	289016
Dhemaji	Sissibargaon (395)	Bhekeli Tangani	289017
Dhemaji	Sissibargaon (395)	Mer Debera	289018
Dhemaji	Sissibargaon (395)	Pipal Guri	289019
Dhemaji	Sissibargaon (395)	Kaliyani Gaon	289020
Dhemaji	Sissibargaon (395)	Punai Gaon	289021
Dhemaji	Sissibargaon (395)	Namki Gaon	289022
Dhemaji	Sissibargaon (395)	Dighali Debera	289024
Dhemaji	Sissibargaon (395)	Batua Nepali	289026
Dhemaji	Sissibargaon (395)	Bor Bauli	289035
Dhemaji	Sissibargaon (395)	Batua Miri	289036
Dhemaji	Sissibargaon (395)	Bhangidia Pathar	289040
Dhemaji	Sissibargaon (395)	No.2 Bhangidia Gaon	289041
Dhemaji	Sissibargaon (395)	Bhangidia Gaon	289042
Dhemaji	Sissibargaon (395)	Upa Bhangidia	289043
Dhemaji	Sissibargaon (395)	Bor Chapori	289049
Dhemaji	Sissibargaon (395)	Akajan Jon Gaon	289092
Karbi Anglong	Diphu (873)	Ao Sector	296290
Karbi Anglong	Diphu (873)	Tokbi Bosti	296291
Karbi Anglong	Diphu (873)	Rengma Bosti	296298
Karbi Anglong	Diphu (873)	Monipuri Bosti	296299
Karbi Anglong	Diphu (873)	Tilu Bagh Vill	296300
Karbi Anglong	Diphu (873)	Bokajan Bagan	296304
Karbi Anglong	Diphu (873)	New Assam Gaon	296306
Karbi Anglong	Diphu (873)	Lokhijan Gaon	296309
Karbi Anglong	Diphu (873)	Longki Adivashi	296316
Karbi Anglong	Diphu (873)	Bidya Dhar (Ram) Terang	296324
Karbi Anglong	Diphu (873)	Vothung Rongpi Vill	296330
Karbi Anglong	Diphu (873)	Mumchom Teron Gaon	296334
Karbi Anglong	Diphu (873)	Same Lagun	296364
Karbi Anglong	Diphu (873)	Kailel Kepjan Vill	296385
Karbi Anglong	Diphu (873)	Lailui Vill	296392
Karbi Anglong	Diphu (873)	Manja Bazar (Borjan Area)	296416
Karbi Anglong	Diphu (873)	Hamlai Gaon	296420
Karbi Anglong	Diphu (873)	Longkoi Bey Gaon	296421
Karbi Anglong	Diphu (873)	Harchi Ali	296431
Karbi Anglong	Diphu (873)	Langklangvong Model Vill Part-A	296434
Karbi Anglong	Diphu (873)	Langklangvong Model Vill Part-B	296435
Karbi Anglong	Diphu (873)	12 Mile Nepali Basti	296443
Karbi Anglong	Diphu (873)	Longki Engleng	296445
Karbi Anglong	Diphu (873)	14 Mile Nepali Bosti	296451
Karbi Anglong	Diphu (873)	Rongkanthir (Dengja Gaon)	296468
Karbi Anglong	Diphu (873)	Ram Lnghi Gaon	296469
Karbi Anglong	Diphu (873)	Sedeng Terang	296471
Karbi Anglong	Diphu (873)	Hidim Teron Model Villege	296480
Karbi Anglong	Diphu (873)	Rajen Teron	296487
Karbi Anglong	Diphu (873)	Dikoi Terang	296489
Karbi Anglong	Diphu (873)	Sarmen Hanse (Rongali)	296499
Karbi Anglong	Diphu (873)	Chephong Barim	296513
Karbi Anglong	Diphu (873)	Taralangso (W) (Longki Ronghang)	296519
Karbi Anglong	Diphu (873)	Plimplamlangso	296523

District	Sub-District	Village Name	Village Code
Dhemaji	Sissibargaon (395)	No.2 Kashinath Chapori Missing	289183
Dhemaji	Sissibargaon (395)	Bukabil Balipur	289193
Dhemaji	Sissibargaon (395)	No.2 Bukabeel	289203
Dhemaji	Sissibargaon (395)	Muktiyar Lakshisuti	289204
Dhemaji	Sissibargaon (395)	Bali Jan	289219
Dhemaji	Sissibargaon (395)	Dimow Chariali	289231
Dhemaji	Jonai (384)	Anu Dolung	289252
Dhemaji	Jonai (384)	Samkong Paguri	289289
Dhemaji	Jonai (384)	Lamajan Bihia	289303
Dhemaji	Jonai (384)	Lamajan Majgaon	289304
Dhemaji	Jonai (384)	No.2 Narayanpur	289308
Dhemaji	Jonai (384)	Round	289327
Dhemaji	Jonai (384)	No.2 Nawkata	289328
Dhemaji	Jonai (384)	Missamara Annapur	289329
Dhemaji	Jonai (384)	Kumolia	289330
Dhemaji	Jonai (384)	No.1 Badalpur	289334
Dhemaji	Jonai (384)	No.2 Uluwani	289336
Dhemaji	Jonai (384)	No.2 Mahanpur	289341
Dhemaji	Jonai (384)	No.1 Mahanpur	289342
Dhemaji	Jonai (384)	No.2 Bogori Chapori	289350
Dhemaji	Jonai (384)	No.2 Mulan	289351
Dhemaji	Jonai (384)	Bikrompur	289373
Dhemaji	Jonai (384)	No.2 Karna Pur	289375
Dhemaji	Jonai (384)	Mechaki Chapori	289376
Dhemaji	Jonai (384)	No.1 Karna Pur	289377
Dhemaji	Jonai (384)	Borong Pipolguri	289378
Dhemaji	Jonai (384)	No.1 Milonpur	289414
Dhemaji	Jonai (384)	Mechaki Palung	289419
Dhemaji	Jonai (384)	Naharbijuli	289430
Dhemaji	Jonai (384)	Lamajan Domoruguri	289435
Dhemaji	Jonai (384)	Mudai	289440
Dhemaji	Jonai (384)	No.1 Sirampuria	289447
Dhemaji	Jonai (384)	No.2 Sirampuria	289450
Dhemaji	Jonai (384)	Ulan Chardibari	289458
Dhemaji	Jonai (384)	Kathalguri Bihiya	289528

District	Sub-District	Village Name	Village Code
Karbi Anglong	Diphu (873)	Rameswar Enghi	296524
Karbi Anglong	Diphu (873)	Langsoliet Natun Bazar	296560
Karbi Anglong	Diphu (873)	Borlangpher Bazar	296563
Karbi Anglong	Diphu (873)	Model Vill	296565
Karbi Anglong	Diphu (873)	Lobongfa Nala	296568
Karbi Anglong	Diphu (873)	Bura Phangcho Gaon	296575
Karbi Anglong	Diphu (873)	Hemari Terang	296581
Karbi Anglong	Diphu (873)	Theso Ajur Sonasing Terang	296582
Karbi Anglong	Diphu (873)	Sukumon Pator	296598
Karbi Anglong	Diphu (873)	Sorsori Nepali Bosti	296612
Karbi Anglong	Diphu (873)	Panbari Part	296613
Karbi Anglong	Diphu (873)	Jidungpur Area (Hapjan)	296618
Karbi Anglong	Diphu (873)	Signal Bosti	296631
Karbi Anglong	Diphu (873)	Mainopha Colony	296632
Karbi Anglong	Diphu (873)	Dhonsiri Dimai Dili	296633
Karbi Anglong	Diphu (873)	Manikondh Bosti	296641
Karbi Anglong	Diphu (873)	Mensing Ronghang	296656
Karbi Anglong	Diphu (873)	Upper Dillaji (Teron Gaon)	296663
Karbi Anglong	Diphu (873)	Shanti Bosti	296668
Karbi Anglong	Diphu (873)	Upper Dillaji Adivashi Gaon	296670
Karbi Anglong	Diphu (873)	Central Range Diphu	296723
Karbi Anglong	Diphu (873)	Central Range Manja	296724
Karbi Anglong	Diphu (873)	Lahorijan Beat Eastern Range (Rongapahar)	296726
Karbi Anglong	Diphu (873)	Western Range Borlangpher	296728
Karbi Anglong	Diphu (873)	Northern Range Bokolia (Kaki)	296729
Karbi Anglong	Diphu (873)	Singhashan Reserve Forest	296730
Karbi Anglong	Diphu (873)	Dillangi Reserve Forest	296731
Karbi Anglong	Phuloni (1075)	Uttar Borbil No.2	296828
Karbi Anglong	Phuloni (1075)	Dumukhi	296880
Karbi Anglong	Phuloni (1075)	Tokubari	296990
Karbi Anglong	Phuloni (1075)	Ampathar	296994
Karbi Anglong	Phuloni (1075)	Ganapath Gour Gaon	297004
Karbi Anglong	Phuloni (1075)	Sedeng Terang	297012
Karbi Anglong	Phuloni (1075)	Tingkreng Hori Engleng	297228
Karbi Anglong	Phuloni	Ati Gaon	297243

District	Sub-District	Village Name	Village Code		District	Sub-District	Village Name	Village Code
						(1075)		
Dhemaji	Jonai (384)	No.2 Kemere	289536		Karbi Anglong	Phuloni (1075)	Langdhai Likhan	297244
Dhemaji	Jonai (384)	No.1 Jelam	289589		Karbi Anglong	Phuloni (1075)	Longjenso	297245
Dhemaji	Jonai (384)	Kemi	289592		Karbi Anglong	Phuloni (1075)	Thedong	297247
Dhemaji	Jonai (384)	Oriamghat No.1	289594		Karbi Anglong	Phuloni (1075)	Bhet Killing Gaon	297248
Dhemaji	Jonai (384)	Kobuchapori West	289597		Karbi Anglong	Phuloni (1075)	Sai Engti	297249
Dhemaji	Jonai (384)	Kobuchapori East	289598		Karbi Anglong	Phuloni (1075)	Ram Sing Tisso	297262
Dhemaji	Jonai (384)	Kobuchapori North	289599		Karbi Anglong	Phuloni (1075)	Langbung Dingpi	297273
Dhemaji	Jonai (384)	Kobuchapori South	289610		Karbi Anglong	Phuloni (1075)	Langbung Dingpi-2	297276
Dhemaji	Jonai (384)	Majiali Chapori	289612		Karbi Anglong	Phuloni (1075)	Hemari Singnar	297286
Dhemaji	Jonai (384)	Mechaki Oughuli	289613		Karbi Anglong	Phuloni (1075)	Sakai Langso	297316
Dhemaji	Jonai (384)	Mechaki Kailaali	289614		Karbi Anglong	Phuloni (1075)	Bura Rongpi	297321
Dhemaji	Jonai (384)	No.2 Santapur Ladan Guri	289618		Karbi Anglong	Phuloni (1075)	Manai Terang	297342
Dhemaji	Jonai (384)	Sirung	289619		Karbi Anglong	Phuloni (1075)	Langhin Bazar Bl.-1	297395
Dhemaji	Dhakuakhana (Pt-I) (51)	No.1 Karmi Pathar	289671		Karbi Anglong	Phuloni (1075)	Men Kathar (Kehai Engti)	297490
Dhemaji	Dhakuakhana (Pt-I) (51)	No.2 Karmi Pathar	289672		Karbi Anglong	Phuloni (1075)	Chilim Khuwa (Semson Engti)	297497
Dhemaji	Dhakuakhana (Pt-I) (51)	No.2 Tapit	289673		Karbi Anglong	Phuloni (1075)	Motiar Engti (Sarthe Engti)	297498
Dhemaji	Subansiri (Pt-I) (38)	Mingmang Badati	289685		Karbi Anglong	Phuloni (1075)	Kania Pungi (Khasia Punji)	297500
Dhemaji	Subansiri (Pt-I) (38)	Jengrai Gaon	289686		Karbi Anglong	Phuloni (1075)	Dokai Bey (Longki Bey)	297515
Dhemaji	Gogamukh (173)	Dirpai NLR Grant	289712		Karbi Anglong	Phuloni (1075)	Kaipani (Suren Teron)	297518
Dhemaji	Gogamukh (173)	Kayam Borpathar	289735		Karbi Anglong	Phuloni (1075)	Sarthe Timung (Rongmi Timung)	297521
Dhemaji	Gogamukh (173)	Ghasi Pathar	289749		Karbi Anglong	Phuloni (1075)	Kat Teron (Sarthe Teron)	297534
Dhemaji	Gogamukh (173)	Phulguri	289753		Karbi Anglong	Phuloni (1075)	Chilim Engti (Nokbey Engti)	297540
Dhemaji	Gogamukh (173)	Kadamtala Pathar	289754		Karbi Anglong	Phuloni (1075)	Kha Engti	297554
Dhemaji	Gogamukh (173)	Barobhuyan	289755		Karbi Anglong	Phuloni (1075)	Sikari Ronghang	297572
Dhemaji	Gogamukh (173)	No.1 Kadamguri	289791		Karbi Anglong	Phuloni (1075)	Dok Ronghang	297577
Dhemaji	Gogamukh (173)	Bhebeli Pathar	289816		Karbi Anglong	Phuloni (1075)	Sabrashi Rongphar	297590
Dhemaji	Gogamukh (173)	Bordoibam Bagan No.1/10 Myadi	289877		Karbi Anglong	Phuloni (1075)	Kaja Kramsa	297591

District	Sub-District	Village Name	Village Code
Dhubri	Agamoni (83)	Bouserkuti	280727
Dhubri	Golokganj (Pt) (103)	Pachim Tokererchara	280832
Dhubri	Dhubri (Pt) (154)	Sastarghat Pt.III	280998
Dhubri	Dhubri (Pt) (154)	Sastarghat Pt.II	280999
Dhubri	Dhubri (Pt) (154)	Patamari	281000
Dhubri	Dhubri (Pt) (154)	Dighaltari Pt.II	281001
Dhubri	Dhubri (Pt) (154)	Dighaltari Pt.I	281002
Dhubri	Dhubri (Pt) (154)	Sastarghat Pt.I	281003
Dhubri	Dhubri (Pt) (154)	Bhagdahar	281004
Dhubri	Dhubri (Pt) (154)	Montirchar	281022
Dhubri	Dhubri (Pt) (154)	Chala Kura Pt II	281035
Dhubri	Dhubri (Pt) (154)	Chala Kura Pt I	281037
Dhubri	Bagribari (Pt) (120)	Katlamari Pt.II	281147
Dhubri	South Salmara (201)	Gadupara Bhijapara	281450
Dhubri	South Salmara (201)	Nateseralga Pt.II (Natineralga Pt.II)	281465
Dhubri	South Salmara (201)	Kathieralga No.I	281469
Dhubri	South Salmara (201)	Monirchar Pt.I	281474
Dhubri	South Salmara (201)	Charkatdanga Pt.II	281478
Dhubri	South Salmara (201)	Mahamayarchar	281490
Dhubri	South Salmara (201)	Kathearalga Pt.I	281493
Dhubri	South Salmara (201)	Kathearalga Pt.II	281494
Dhubri	South Salmara (201)	Kathearalga Pt.III	281495
Dhubri	South Salmara (201)	Kathearalga Pt.IV	281496
Dhubri	South Salmara (201)	Baushkata Pt.I	281592
Dhubri	South Salmara (201)	Baushkata Pt.IV	281595
Dhubri	South Salmara (201)	Baushkata Pt.V	281596
Dhubri	South Salmara (201)	Charia Gram	281603
Dhubri	Mankachar (114)	Dewaneralga Pt.I	281646

District	Sub-District	Village Name	Village Code
Karbi Anglong	Phuloni (1075)	Sarthe Tokbi Gaon	297611
Karbi Anglong	Phuloni (1075)	Phuloni Bazar	297614
Karbi Anglong	Phuloni (1075)	Nandu Bey	297615
Karbi Anglong	Phuloni (1075)	Garjoga	297617
Karbi Anglong	Phuloni (1075)	Chandra Athai gaon	297619
Karbi Anglong	Phuloni (1075)	Puthijuri Khasia	297623
Karbi Anglong	Phuloni (1075)	Gobin Rongphar	297625
Karbi Anglong	Phuloni (1075)	Borsing Rongphar gaon	297634
Karbi Anglong	Phuloni (1075)	Centre Bazar	297636
Karbi Anglong	Phuloni (1075)	Khulai Kro	297638
Karbi Anglong	Phuloni (1075)	Pak-Et-Bey	297643
Karbi Anglong	Phuloni (1075)	Korsing Kro	297646
Karbi Anglong	Phuloni (1075)	Choiang gaon	297647
Karbi Anglong	Phuloni (1075)	Dhing Kro	297650
Karbi Anglong	Phuloni (1075)	Ram Lokjan	297669
Karbi Anglong	Phuloni (1075)	Mohansing Engleng	297674
Karbi Anglong	Phuloni (1075)	Basa Teplong gaon	297687
Karbi Anglong	Phuloni (1075)	Rongkut Horizon gaon	297689
Karbi Anglong	Phuloni (1075)	Rongkut Chouhan Bosti	297690
Karbi Anglong	Phuloni (1075)	Jeng Rongpi	297692
Karbi Anglong	Phuloni (1075)	Manduli Boro gaon	297695
Karbi Anglong	Phuloni (1075)	Sambe Teron	297699
Karbi Anglong	Phuloni (1075)	Bidyasing Tokbi	297707
Karbi Anglong	Phuloni (1075)	Longnit Terang	297710
Karbi Anglong	Phuloni (1075)	Parakhuwa Mechpara	297729
Karbi Anglong	Phuloni (1075)	Kumjai Tokbi	297732
Karbi Anglong	Phuloni (1075)	Long Terang	297733
Karbi Anglong	Phuloni	Angjok Rongphar	297736

District	Sub-District	Village Name	Village Code		District	Sub-District	Village Name	Village Code
						(1075)		
Dhubri	Mankachar (114)	Dewaneralga Pt.II	281647		Karbi Anglong	Phuloni (1075)	Singthu Langso	297737
Dhubri	Mankachar (114)	Maliralga Pt.I	281662		Karbi Anglong	Phuloni (1075)	Satnami Gaon	297748
Dhubri	Mankachar (114)	Nepureralga	281663		Karbi Anglong	Phuloni (1075)	Baje Tokbi	297749
Dhubri	Mankachar (114)	Depkaidalbari	281758		Karbi Anglong	Phuloni (1075)	Chakra Bey	297750
Dibrugarh	Dibrugarh West (189)	Tepar Pather Gaon	291119		Karbi Anglong	Phuloni (1075)	Plong Kro	297755
Dibrugarh	Dibrugarh West (189)	Chakoi Pathar Bridhi Block	291184		Karbi Anglong	Phuloni (1075)	Sarthe Ronghang	297760
Dibrugarh	Dibrugarh West (189)	Burisuti Kaibatra Gaon	291189		Karbi Anglong	Phuloni (1075)	Jokan Anglong	297761
Dibrugarh	Chabua (123)	Laimekuri Chapori	291357		Karbi Anglong	Phuloni (1075)	Bakulghat	297762
Dibrugarh	Chabua (123)	Charkhalia Chapori	291358		Karbi Anglong	Phuloni (1075)	Rongkut Urdhajan	297770
Dibrugarh	Chabua (123)	Charkhalia Chapori	291360		Karbi Anglong	Phuloni (1075)	Dey Taro	297775
Dibrugarh	Chabua (123)	Charaki Chapori	291364		Karbi Anglong	Phuloni (1075)	Ahrok Taro	297776
Dibrugarh	Chabua (123)	Mohmara Chapori	291477		Karbi Anglong	Phuloni (1075)	Jeng Ronghang	297779
Dibrugarh	Chabua (123)	Rongmala Gaon	291478		Karbi Anglong	Silonijan (406)	Christan Gaon	297827
Dima Hasao	Umrangso (201)	Amrudisa (Amrdisa)	298217		Karbi Anglong	Silonijan (406)	Kudam Singnar	297850
Dima Hasao	Umrangso (201)	Dimadaowapu	298223		Karbi Anglong	Silonijan (406)	Rawon Teron	297866
Dima Hasao	Umrangso (201)	Choto Longfer	298235		Karbi Anglong	Silonijan (406)	Panjan Rangpi	297867
Dima Hasao	Umrangso (201)	Kokdalangso (Kokdanglangso)	298242		Karbi Anglong	Silonijan (406)	Bepari Engti	297873
Dima Hasao	Umrangso (201)	Choto Larpheng	298250		Karbi Anglong	Silonijan (406)	Ram Lekthe	297874
Dima Hasao	Umrangso (201)	Railinghadi	298280		Karbi Anglong	Silonijan (406)	Gudam Teron	297913
Dima Hasao	Umrangso (201)	Nayapur	298299		Karbi Anglong	Silonijan (406)	Uttar Dhalajan	297932
Dima Hasao	Umrangso (201)	Phalai Pahadi	298324		Karbi Anglong	Silonijan (406)	Wophang Asar (Bidyasing Teron)	297938
Dima Hasao	Umrangso (201)	Puralangso	298330		Karbi Anglong	Silonijan (406)	Wophang Rongpi	297950
Dima Hasao	Umrangso (201)	Nasingwari (Narsing Wari)	298331		Karbi Anglong	Silonijan (406)	Upper Daigrung	297953
Dima Hasao	Umrangso (201)	29th Km Kruminglangdisa	298343		Karbi Anglong	Silonijan (406)	Bura Takbi	297955
Dima Hasao	Umrangso (201)	Tumbung	298346		Karbi Anglong	Silonijan (406)	Bura Tisso (Nokbe Tisso)	297965
Dima Hasao	Umrangso (201)	Miyungpur Raji	298347		Karbi Anglong	Silonijan (406)	Bonsing Timung	297968
Dima Hasao	Umrangso (201)	Assam Quarry	298350		Karbi Anglong	Silonijan (406)	Mouzasing Ronghang	297969
Dima Hasao	Umrangso (201)	Longchirui (Lungcheirui)	298352		Karbi Anglong	Silonijan (406)	Longki Tisso	297979
Dima Hasao	Umrangso (201)	Sikilangso	298354		Karbi Anglong	Silonijan (406)	Rensing (Taksing) Singnar	297999
Dima Hasao	Umrangso (201)	Choto Lakhingdong	298367		Karbi Anglong	Silonijan (406)	Nihang Bey	298023
Dima Hasao	Umrangso (201)	Rongkhola	298371		Karbi Anglong	Silonijan (406)	Basa Terang	298040
Dima Hasao	Umrangso (201)	Sangbar (P. Sangbhar)	298384		Karbi Anglong	Silonijan (406)	Longning Terang	298041
Dima Hasao	Umrangso (201)	New Sangbar	298388		Karbi Anglong	Silonijan (406)	Khinary	298045

District	Sub-District	Village Name	Village Code
Dima Hasao	Umrangso (201)	Garampani Nepali Basti	298393
Dima Hasao	Umrangso (201)	Bhalukurung	298394
Dima Hasao	Umrangso (201)	Longrung	298395
Dima Hasao	Umrangso (201)	Dithur Tea Garden	298396
Dima Hasao	Umrangso (201)	Khobak	298404
Dima Hasao	Umrangso (201)	Thaisling Hower	298407
Dima Hasao	Haflong (156)	Retzol	298416
Dima Hasao	Haflong (156)	Boro Mulkoi	298417
Dima Hasao	Haflong (156)	Kapurchera	298422
Dima Hasao	Haflong (156)	Boro Narainpur	298426
Dima Hasao	Haflong (156)	Sampradisa	298432
Dima Hasao	Haflong (156)	Doloi Chunga	298433
Dima Hasao	Haflong (156)	Dibrucherra	298451
Dima Hasao	Haflong (156)	Maharajpur	298459
Dima Hasao	Haflong (156)	Inchaikang	298466
Dima Hasao	Haflong (156)	Kubing	298468
Dima Hasao	Haflong (156)	Michidui (Michidul)	298471
Dima Hasao	Haflong (156)	Boro Chenam	298477
Dima Hasao	Haflong (156)	Buolsol	298484
Dima Hasao	Haflong (156)	Amlangbra	298508
Dima Hasao	Haflong (156)	Dersi	298512
Dima Hasao	Haflong (156)	Thana Lambra	298514
Dima Hasao	Haflong (156)	Sontilla	298538
Dima Hasao	Haflong (156)	Thuruk	298551
Dima Hasao	Haflong (156)	Mouldam	298554
Dima Hasao	Haflong (156)	Huonveng (HJO)	298558
Dima Hasao	Haflong (156)	Bethel	298560
Dima Hasao	Haflong (156)	Hmunthajao (Bagan-II HJO)	298561
Karbi Anglong	Silonijan (406)	Japijuri	298142
Karbi Anglong	Silonijan (406)	Bogiram Ronghang	298151
Karimganj	Nilambazar (180)	Fatepur Pt II	300342
Karimganj	Nilambazar (180)	Fatepur Pt III	300343
Karimganj	Nilambazar (180)	Meghna Pt III	300347
Karimganj	Patharkandi (206)	Uzan Lakshipur	300445
Karimganj	Patharkandi (206)	Paschim Lakshipur	300446
Karimganj	Patharkandi (206)	Bhubrighat T.E.	300503
Karimganj	Patharkandi (206)	Dewali F.V.	300618
Karimganj	Ramakrishna Nagar (290)	Jummahal Pt II	300660
Karimganj	Ramakrishna Nagar (290)	Nayanabin	300672
Karimganj	Ramakrishna Nagar (290)	Dullavecherra T.E. Pt IV	300820
Karimganj	Ramakrishna Nagar (290)	Hempur	300882
Karimganj	Ramakrishna Nagar (290)	Bhudaikuri	300889
Karimganj	Ramakrishna Nagar (290)	Dakshin Lalargaon	300898
Karimganj	Ramakrishna Nagar (290)	Barbalia	300899
Karimganj	Ramakrishna Nagar (290)	Baruatilla	300903
Karimganj	Ramakrishna Nagar (290)	Birajapur	300904
Karimganj	Ramakrishna Nagar (290)	Kalamagura	300905
Karimganj	Ramakrishna Nagar (290)	Bara Bhubirbond	300908
Kokrajhar	Gossiagaon (Pt) (304)	Khukshiguri No.1	279597
Kokrajhar	Gossiagaon (Pt) (304)	Moktaigaon-I	279598
Kokrajhar	Gossiagaon (Pt) (304)	Borjabil No.1	279602
Kokrajhar	Gossiagaon (Pt) (304)	Saljuri No.2	279621
Kokrajhar	Gossiagaon (Pt) (304)	Saljuri No.1	279622
Kokrajhar	Gossiagaon (Pt) (304)	Borjabil No.2	279623
Kokrajhar	Gossiagaon (Pt) (304)	Bajugaon No.2	279629
Kokrajhar	Gossiagaon (Pt) (304)	Moktaigaon-II	279630

District	Sub-District	Village Name	Village Code
Dima Hasao	Haflong (156)	Simtuilung	298562
Dima Hasao	Haflong (156)	Prabso Rajee	298567
Dima Hasao	Haflong (156)	Boulmoul Bagan	298568
Dima Hasao	Haflong (156)	Zion	298569
Dima Hasao	Mahur (135)	Muollien	298593
Dima Hasao	Mahur (135)	Mouchar (Mancher)	298595
Dima Hasao	Mahur (135)	P. Hmarlushai (P. Hinarlushai)	298601
Dima Hasao	Mahur (135)	Chillei (Chidei)	298602
Dima Hasao	Mahur (135)	Boro Arkap	298603
Dima Hasao	Mahur (135)	Tuolpui	298604
Dima Hasao	Mahur (135)	Lairi (Luri)	298607
Dima Hasao	Mahur (135)	Nomjang	298611
Dima Hasao	Mahur (135)	Lasang (Laisang)	298612
Dima Hasao	Mahur (135)	Changpijang	298613
Dima Hasao	Mahur (135)	Pangmoul	298614
Dima Hasao	Mahur (135)	N. Leikul	298627
Dima Hasao	Mahur (135)	Boljung	298628
Dima Hasao	Mahur (135)	Ashalu	298637
Dima Hasao	Mahur (135)	Impui (Ch)	298642
Dima Hasao	Mahur (135)	Hangrum -ll	298647
Dima Hasao	Mahur (135)	Baladhan	298649
Dima Hasao	Mahur (135)	Kepeilo (Kepeito)	298651
Dima Hasao	Mahur (135)	Hangrum	298652
Dima Hasao	Mahur (135)	Boro Ninglo	298653
Dima Hasao	Mahur (135)	Choto Laisong	298654
Dima Hasao	Mahur (135)	N. Ninglo	298655
Dima Hasao	Mahur (135)	Hajaichak	298656
Dima Hasao	Mahur (135)	Keraidelo	298657
Kokrajhar	Gossiagaon (Pt) (304)	Khukshiguri No.2	279631
Kokrajhar	Gossiagaon (Pt) (304)	Jaraguri P.G.R.-I	279633
Kokrajhar	Gossiagaon (Pt) (304)	Dakhin Mukuldanga	279652
Kokrajhar	Gossiagaon (Pt) (304)	Uttar Saulmari	279654
Kokrajhar	Gossiagaon (Pt) (304)	Joylaigaon	279687
Kokrajhar	Gossiagaon (Pt) (304)	Koporagaon	279689
Kokrajhar	Gossiagaon (Pt) (304)	No.1 Chekadani	279692
Kokrajhar	Gossiagaon (Pt) (304)	Gorumarachar No.2	279746
Kokrajhar	Gossiagaon (Pt) (304)	Gossaigaon No.1	279771
Kokrajhar	Gossiagaon (Pt) (304)	Bosabil F V	279788
Kokrajhar	Gossiagaon (Pt) (304)	Bangtijhora F V	279789
Kokrajhar	Gossiagaon (Pt) (304)	Raimona F V	279790
Kokrajhar	Gossiagaon (Pt) (304)	Mothambil F V	279791
Kokrajhar	Gossiagaon (Pt) (304)	Oxiguri F V	279792
Kokrajhar	Gossiagaon (Pt) (304)	Amritpur F V	279793
Kokrajhar	Gossiagaon (Pt) (304)	Dumbazar F V	279794
Kokrajhar	Gossiagaon (Pt) (304)	Jaleswari F.V.	279807
Kokrajhar	Gossiagaon (Pt) (304)	Pokalagi F.V.	279808
Kokrajhar	Gossiagaon (Pt) (304)	Nandipur F.V.	279810
Kokrajhar	Gossiagaon (Pt) (304)	Ranipur F.V.	279811
Kokrajhar	Gossiagaon (Pt) (304)	Dalgaon F.V.	279812
Kokrajhar	Gossiagaon (Pt) (304)	Kusumbil F.V.	279815
Kokrajhar	Gossiagaon (Pt) (304)	Alinagar F.V.	279817
Kokrajhar	Gossiagaon (Pt) (304)	Haldibari F.V.	279820
Kokrajhar	Gossiagaon (Pt) (304)	Rajendrapur F.V.	279829
Kokrajhar	Gossiagaon (Pt) (304)	Ranendrapur F.V.	279830
Kokrajhar	Gossiagaon (Pt) (304)	Jakati F.V.	279845
Kokrajhar	Gossiagaon	Harinagar F.V.	279847

District	Sub-District	Village Name	Village Code		District	Sub-District	Village Name	Village Code
						(Pt) (304)		
Dima Hasao	Mahur (135)	Laisong Bagan	298658		Kokrajhar	Gossiagaon (Pt) (304)	Lalpur F.V.	279848
Dima Hasao	Mahur (135)	N. Songkhai	298660		Kokrajhar	Gossiagaon (Pt) (304)	Sundrijhora F.V.	279851
Dima Hasao	Mahur (135)	P. Songkhai	298661		Kokrajhar	Gossiagaon (Pt) (304)	Upendranagar F.V.	279852
Dima Hasao	Mahur (135)	Duijung	298662		Kokrajhar	Gossiagaon (Pt) (304)	Patharbari F.V.	279862
Dima Hasao	Mahur (135)	Laisang	298679		Kokrajhar	Gossiagaon (Pt) (304)	Bamunijhora F.V.	279870
Dima Hasao	Mahur (135)	Chotorongmailai	298687		Kokrajhar	Gossiagaon (Pt) (304)	Singibil F.V.	279879
Dima Hasao	Mahur (135)	Mahur Garden	298690		Kokrajhar	Gossiagaon (Pt) (304)	Surendrapur F.V.	279883
Dima Hasao	Mahur (135)	Hewangberam	298692		Kokrajhar	Gossiagaon (Pt) (304)	Borabadha F.V.	279889
Dima Hasao	Mahur (135)	Songbung	298697		Kokrajhar	Bhowraguri (93)	Singimari-II	279943
Dima Hasao	Mahur (135)	Tilla Basti	298702		Kokrajhar	Bhowraguri (93)	Singimari-I	279944
Dima Hasao	Mahur (135)	Laisong Bagan	298704		Kokrajhar	Bhowraguri (93)	Fulkumari Pt.-II	279947
Dima Hasao	Maibong (203)	Hatikhali Garden	298715		Kokrajhar	Bhowraguri (93)	Panbari Pt.-II	279969
Dima Hasao	Maibong (203)	Hatikhali Garden pt.II	298716		Kokrajhar	Bhowraguri (93)	Khangkhuraibari Pt.-I	279973
Dima Hasao	Maibong (203)	Hatikhali Garden pt.III	298717		Kokrajhar	Kokrajhar (Pt) (225)	Uttar Latagaon Chedamari	280202
Dima Hasao	Maibong (203)	Lungding Khelma	298721		Kokrajhar	Kokrajhar (Pt) (225)	Saralpara F.V.	280359
Dima Hasao	Maibong (203)	Dimahading	298730		Kokrajhar	Kokrajhar (Pt) (225)	Ultapani F V	280361
Dima Hasao	Maibong (203)	Boro Lalbong	298733		Kokrajhar	Kokrajhar (Pt) (225)	Labanyapur F V	280362
Dima Hasao	Maibong (203)	Gereso -I	298745		Kokrajhar	Golokganj (Pt) (45)	Mosulijhora Pathardubi Pt.-I	280393
Dima Hasao	Maibong (203)	Longrenbra	298760		Kokrajhar	Golokganj (Pt) (45)	Masalijhorajhar Pt.-I	280394
Dima Hasao	Maibong (203)	Khepre	298764		Kokrajhar	Golokganj (Pt) (45)	Maulijhoragaon Pt.II	280395
Dima Hasao	Maibong (203)	Prasadimdik	298769		Kokrajhar	Golokganj (Pt) (45)	Amjhora	280401
Dima Hasao	Maibong (203)	Daoblibdisa	298771		Kokrajhar	Bagribari (Pt) (118)	Motijhorajhar N.C.	280503
Dima Hasao	Maibong (203)	Tongikro	298772		Kokrajhar	Bagribari (Pt) (118)	Matijhorajhar Pt.I	280504
Dima Hasao	Maibong (203)	Nobdilangting	298773		Kokrajhar	Bagribari (Pt) (118)	Amjhora	280505
Dima Hasao	Maibong (203)	Drangbra	298774		Kokrajhar	Bagribari (Pt) (118)	Tulsijhora Pt.-III	280509
Dima Hasao	Maibong (203)	Natun Path	298776		Kokrajhar	Bagribari (Pt) (118)	Matijhorajhar Pt.2	280512
Dima Hasao	Maibong (203)	Khepre-II	298778		Kokrajhar	Bagribari (Pt) (118)	Monglajhora	280515

District	Sub-District	Village Name	Village Code
Dima Hasao	Maibong (203)	Mupa	298789
Dima Hasao	Maibong (203)	Kasmaipur	298799
Dima Hasao	Maibong (203)	Didambra	298811
Dima Hasao	Maibong (203)	Nablaidisa	298812
Dima Hasao	Maibong (203)	Drang Bathari	298816
Dima Hasao	Maibong (203)	Hajadisa	298817
Dima Hasao	Maibong (203)	Borodiger	298818
Dima Hasao	Maibong (203)	Digerkro	298820
Dima Hasao	Maibong (203)	Thingvom	298821
Dima Hasao	Maibong (203)	Sambudhanpur	298839
Dima Hasao	Maibong (203)	Harichandpur	298840
Dima Hasao	Maibong (203)	Purana Maibang Deswali Bosti	298841
Dima Hasao	Maibong (203)	Guilong	298864
Dima Hasao	Maibong (203)	Thapa	298871
Dima Hasao	Maibong (203)	Semkhor	298877
Dima Hasao	Maibong (203)	N/Sobojai	298882
Dima Hasao	Maibong (203)	Wajao	298884
Dima Hasao	Maibong (203)	Langgaobra	298885
Dima Hasao	Maibong (203)	Langgaokro	298886
Dima Hasao	Maibong (203)	Kaotaibari-II	298895
Dima Hasao	Maibong (203)	Dima Haplai	298899
Goalpara	Lakhipur (268)	Chergeralga	281763
Goalpara	Lakhipur (268)	Raichander Char	281765
Goalpara	Lakhipur (268)	Kodamtola	281808
Goalpara	Lakhipur (268)	Fetangapara	281815
Goalpara	Lakhipur (268)	Cholakura Pt-III	281886
Goalpara	Lakhipur (268)	Lotibari River N.C. Pt-II	281900
Goalpara	Lakhipur (268)	Rowkhowa Pt-II	281913
Goalpara	Lakhipur (268)	Krishapur	281979
Kokrajhar	Bagribari (Pt) (118)	Monglaghat	280516
Kokrajhar	Bagribari (Pt) (118)	Harijhora	280520
Kokrajhar	Bagribari (Pt) (118)	Sisti Pt.-III	280544
Kokrajhar	Bagribari (Pt) (118)	Changbandha Pt.-III	280552
Kokrajhar	Bagribari (Pt) (118)	Garaimari Pt.-I	280567
Kokrajhar	Bagribari (Pt) (118)	Lalmati Pt.-II	280593
Kokrajhar	Chapar (Pt.) (37)	Damodarpur Pt.-II	280631
Kokrajhar	Chapar (Pt.) (37)	Bashbari Pt.-II	280640
Lakhimpur	Narayanpur (203)	Makuwari	287579
Lakhimpur	Narayanpur (203)	Borkhamti	287580
Lakhimpur	Bihpuria (173)	Pabhamukh Bhekeli	287707
Lakhimpur	Bihpuria (173)	Kaniajan No.1	287708
Lakhimpur	Bihpuria (173)	Aunibari No.2	287710
Lakhimpur	Bihpuria (173)	Pava Forest Habitation	287755
Lakhimpur	Naobiacha (148)	Grant No.134/131	287780
Lakhimpur	Naobiacha (148)	Kimin Bazar	287896
Lakhimpur	Kadam (155)	Tangaghat	288021
Lakhimpur	Kadam (155)	Ghaulichuk	288022
Lakhimpur	Kadam (155)	Mergaon	288023
Lakhimpur	Kadam (155)	Goriamari	288024
Lakhimpur	Kadam (155)	Pamagaon N.C.	288055
Lakhimpur	Kadam (155)	No.2 Ghagarmukh	288056
Lakhimpur	Kadam (155)	Darga Gaon	288057
Lakhimpur	North Lakhimpur (227)	No.1 Bamunijan	288155
Lakhimpur	North Lakhimpur (227)	No.2 Bamunijan	288156
Lakhimpur	North Lakhimpur (227)	Palashpara Tamunarchuk	288157
Lakhimpur	North Lakhimpur (227)	Ghumasuti Bebejia	288160
Lakhimpur	North Lakhimpur (227)	Naharani N.C.	288164
Lakhimpur	North Lakhimpur (227)	Uhani N.C.	288165

District	Sub-District	Village Name	Village Code
Goalpara	Balijana (222)	Sunari Sota	282061
Goalpara	Balijana (222)	Boghmara	282192
Goalpara	Balijana (222)	Ajagar Pahar N.C.	282202
Goalpara	Balijana (222)	Darakona	282239
Golaghat	Khumtai (69)	Alami Chapori	294286
Golaghat	Khumtai (69)	No.2 Pathori	294293
Golaghat	Golaghat (333)	Kamalapur	294672
Golaghat	Golaghat (333)	Gobinpur (Madhupur-Santipur)	294675
Golaghat	Golaghat (333)	Pachim Panbari	294676
Golaghat	Golaghat (333)	Panbari No.1	294677
Golaghat	Golaghat (333)	Chawdanag Pothar	294680
Golaghat	Golaghat (333)	Dighal Pani Miching	294687
Golaghat	Golaghat (333)	Nagpur	294705
Golaghat	Golaghat (333)	Nahartoli No. 1	294743
Golaghat	Golaghat (333)	Nahartoli No. 2	294744
Golaghat	Golaghat (333)	Puspaban	294746
Golaghat	Golaghat (333)	Merapani Forest Block	294747
Golaghat	Golaghat (333)	Sonalipathar	294749
Golaghat	Golaghat (333)	Doyangpar	294750

District	Sub-District	Village Name	Village Code
Lakhimpur	North Lakhimpur (227)	Uriam Tola N.C.	288166
Lakhimpur	North Lakhimpur (227)	Mahara Barchapari	288169
Lakhimpur	North Lakhimpur (227)	Bandarkata N.C.	288170
Lakhimpur	North Lakhimpur (227)	Mahara Barchapari	288172
Lakhimpur	North Lakhimpur (227)	Gualbari N.C.	288173
Lakhimpur	North Lakhimpur (227)	Adisuti N.C.	288174
Lakhimpur	North Lakhimpur (227)	Karah Chapari	288179
Lakhimpur	North Lakhimpur (227)	Gamchuk	288180
Lakhimpur	North Lakhimpur (227)	Singimari N.C	288181
Lakhimpur	North Lakhimpur (227)	Jengrai N.C.	288183
Lakhimpur	North Lakhimpur (227)	Dhala Miri N.C.	288194
Lakhimpur	North Lakhimpur (227)	Ligiramukh	288195
Lakhimpur	North Lakhimpur (227)	Na-Ali Miri N.C.	288197
Lakhimpur	North Lakhimpur (227)	Morolia N.C.	288269
Lakhimpur	North Lakhimpur (227)	Kulamua N.C.	288270
Lakhimpur	North Lakhimpur (227)	Jariguri Pakania	288284
Lakhimpur	Dhakuakhana (Pt-I) (163)	Jagi Dangdhara	288404
Lakhimpur	Dhakuakhana (Pt-I) (163)	Arkep Baligaon	288405
Lakhimpur	Dhakuakhana (Pt-I) (163)	Barkhaman Gaon	288407

District	Sub-District	Village Name	Village Code
Golaghat	Golaghat (333)	Endibari	294752
Golaghat	Golaghat (333)	Lotanpur Torani	294753
Golaghat	Golaghat (333)	No.1 Torani Lilapur	294754
Golaghat	Golaghat (333)	Hatiyekhowa	294756
Golaghat	Golaghat (333)	Ratanpur Doyalpur	294757
Golaghat	Golaghat (333)	Torani Na-pam (Habi)	294758
Golaghat	Golaghat (333)	Binaypur	294765
Golaghat	Morangi (100)	Hatimora Putta	294780
Golaghat	Sarupathar (425)	Sonaribil No.3	294980
Golaghat	Sarupathar (425)	Doyalpur No.2	294983
Golaghat	Sarupathar (425)	Doyalpur No.3	294984
Golaghat	Sarupathar (425)	Pithaghat No.2	294990
Golaghat	Sarupathar (425)	Ajharguri No.2	294999
Golaghat	Sarupathar (425)	Madhupur No.1	295001
Golaghat	Sarupathar (425)	Madhupur No.2	295002
Golaghat	Sarupathar (425)	Chetonapur	295006
Golaghat	Sarupathar (425)	Lakhinagar No.1	295007
Golaghat	Sarupathar (425)	Lakhinagar No.2	295008
Golaghat	Sarupathar (425)	Dimorujan	295023
Golaghat	Sarupathar (425)	Da-Kawalipathar No.1	295026
Golaghat	Sarupathar (425)	Jahajibosti	295029
Golaghat	Sarupathar (425)	Gholapani	295030
Golaghat	Sarupathar (425)	Lachit Gaon No.2	295031
Golaghat	Sarupathar (425)	Lachit Gaon No.1	295032
Golaghat	Sarupathar (425)	Chetiagaon No.1	295036
Golaghat	Sarupathar (425)	Chetiagaon No.2	295037
Golaghat	Sarupathar (425)	Kempur	295038
Golaghat	Sarupathar (425)	Chainpur	295040

District	Sub-District	Village Name	Village Code
Lakhimpur	Dhakuakhana (Pt-I) (163)	N.C. Kangkan Chapari Baghchuk	288413
Lakhimpur	Dhakuakhana (Pt-I) (163)	N.C. Amlakhi Kutur	288414
Lakhimpur	Dhakuakhana (Pt-I) (163)	Bhoma Kapson N.C.	288425
Lakhimpur	Dhakuakhana (Pt-I) (163)	Barbil Bandana N.C.	288426
Lakhimpur	Dhakuakhana (Pt-I) (163)	N.C. Bhoma Chutia	288431
Lakhimpur	Dhakuakhana (Pt-I) (163)	N.C. Amlokhi Bandana	288433
Lakhimpur	Dhakuakhana (Pt-I) (163)	N.C. Aunibari	288441
Lakhimpur	Dhakuakhana (Pt-I) (163)	N.C. Kekuripamua	288442
Lakhimpur	Dhakuakhana (Pt-I) (163)	N.C. Miligaon	288444
Lakhimpur	Dhakuakhana (Pt-I) (163)	N.C. Tekeliphuta	288447
Lakhimpur	Subansiri (Pt-I) (115)	Kumbang Baliyani N.C.	288489
Lakhimpur	Subansiri (Pt-I) (115)	Sakpara Balahi	288494
Lakhimpur	Subansiri (Pt-I) (115)	Chakuli Gaon	288498
Lakhimpur	Subansiri (Pt-I) (115)	Sampara Balahi N.C.	288500
Lakhimpur	Subansiri (Pt-I) (115)	No.1 Barkhamukh N.C.	288519
Lakhimpur	Subansiri (Pt-I) (115)	Bogichur Koligaon	288552
Lakhimpur	Subansiri (Pt-I) (115)	Bagum	288554
Lakhimpur	Subansiri (Pt-I) (115)	No.1 Hatimara	288559
Lakhimpur	Subansiri (Pt-I) (115)	No.3 Hatimara	288561
Lakhimpur	Subansiri (Pt-I) (115)	Chatiwana Chapari	288562
Lakhimpur	Subansiri (Pt-I) (115)	Khura Chuk	288563
Morigaon	Mayong (180)	Parariguri	283445
Morigaon	Bhuragaon (122)	Pithakhaiti	283616
Morigaon	Bhuragaon (122)	Ejariguri	283618
Morigaon	Bhuragaon (122)	Merbeel Habi	283623
Morigaon	Bhuragaon (122)	Merbeel	283624
Morigaon	Bhuragaon (122)	Mirikamari	283644
Morigaon	Bhuragaon (122)	Sandahkati Kachari Gaon	283682

District	Sub-District	Village Name	Village Code
Golaghat	Sarupathar (425)	Narayan Pathar	295068
Golaghat	Sarupathar (425)	Sonali Pathar No 1&2	295104
Golaghat	Sarupathar (425)	Panjan No.1	295108
Golaghat	Sarupathar (425)	Ming Mang No.2	295111
Golaghat	Sarupathar (425)	Kuki Bosti	295112
Golaghat	Sarupathar (425)	Aao Bosti	295113
Golaghat	Sarupathar (425)	Garobasti	295121
Golaghat	Sarupathar (425)	Lakhi Kachari	295122
Golaghat	Sarupathar (425)	Kiyazu	295124
Golaghat	Sarupathar (425)	Sramik Gaon	295133
Golaghat	Sarupathar (425)	Panchamukhi	295166
Golaghat	Sarupathar (425)	Nepali Bosti	295172
Golaghat	Sarupathar (425)	Yampha Naga Bosti	295182
Golaghat	Sarupathar (425)	Hasto	295206
Golaghat	Sarupathar (425)	Naba Bontipur	295272
Golaghat	Sarupathar (425)	Nikhokho Bongaon	295273
Golaghat	Sarupathar (425)	Majgaon Chungajan	295274
Golaghat	Sarupathar (425)	Sukanjan	295275
Golaghat	Sarupathar (425)	Jonakipathar No.1	295283
Hailakandi	Lala (87)	Dhalchera Tripura Punjee	301122
Hailakandi	Lala (87)	Lalachera F.V.	301125
Hailakandi	Lala (87)	Bilaipur F.V.	301126
Hailakandi	Lala (87)	Lalpani F.V.	301127
Hailakandi	Lala (87)	Borthal F.V.	301128
Hailakandi	Lala (87)	Dhalchera F.V.	301129
Hailakandi	Katlichara (111)	Dhancherra N.C.	301136
Hailakandi	Katlichara (111)	Ramsantipur	301137
Hailakandi	Katlichara (111)	Gollacherra	301192
Hailakandi	Katlichara (111)	Kachurthal	301193
Morigaon	Laharighat (103)	No.1 Tengaguri	283739
Morigaon	Laharighat (103)	No.2 Tengaguri	283740
Morigaon	Laharighat (103)	Kaurihagi	283741
Morigaon	Laharighat (103)	Kashipuri	283742
Morigaon	Laharighat (103)	Tengaguri Gaon	283743
Morigaon	Laharighat (103)	Kisamguri	283745
Morigaon	Morigaon (167)	Aujari Pathar	283900
Nagaon	Kaliabor (224)	Burapahar No.2	284256
Nagaon	Dhing (101)	Batadraba Bar Bheti	284609
Nagaon	Hojai (105)	Pachim Dhaniram Pather	285147
Nagaon	Hojai (105)	Dighaljar (Dighaljarani) (Doboka Dighaljarani F.V.	285189
Nagaon	Lanka (186)	Pagla Basti	285445
Nagaon	Lanka (186)	Sarkey Bosti	285446
Nagaon	Lanka (186)	Lal Mati	285447
Nagaon	Lanka (186)	The Dong Hola Chakma Basti	285448
Nalbari	Barkhetrai (124)	Kalputa	303734
Nalbari	Barkhetrai (124)	Lawtolipara	303736
Nalbari	Barkhetrai (124)	Pubkazia	303738
Nalbari	Barkhetrai (124)	Madhya Kazia	303740
Nalbari	Barkhetrai (124)	Kalarchar	303742
Nalbari	Barkhetrai (124)	N.C.Pubkazia	303743
Nalbari	Barkhetrai (124)	Sobhamari	303789
Nalbari	Barkhetrai (124)	Bhelakhaiti	303791
Nalbari	Barkhetrai (124)	No.2.Bhelengimari	303793
Nalbari	Barkhetrai (124)	No.3.Bhelengimari	303794
Nalbari	Barkhetrai (124)	Bhelengimari (A.Block)	303795
Nalbari	Barkhetrai (124)	Bhelengimari (B.Block)	303796
Nalbari	Barkhetrai (124)	No.1.Natun Chaprapara	303797
Nalbari	Barkhetrai (124)	Natun Chaprapara	303798

District	Sub-District	Village Name	Village Code
Hailakandi	Katlichara (111)	Bhai-Bonti	301195
Hailakandi	Katlichara (111)	Bangla Vasha	301197
Hailakandi	Katlichara (111)	Santipur N.C.	301207
Hailakandi	Katlichara (111)	Baruncherra F.V.	301229
Hailakandi	Katlichara (111)	Jalnacherra F.V.	301232
Hailakandi	Katlichara (111)	Bathcherra F.V.	301234
Hailakandi	Katlichara (111)	Ramnathpur F.V.	301240
Jorhat	Majuli (248)	Rangamuri	293309
Jorhat	Majuli (248)	Saru Phakua	293315
Jorhat	Majuli (248)	Huttar	293318
Jorhat	Majuli (248)	Sagunpara Chapori	293331
Jorhat	Majuli (248)	Sarai Chapori	293333
Jorhat	Majuli (248)	Dhodang Chapori	293334
Jorhat	Majuli (248)	Burha Chapori N C	293335
Jorhat	Majuli (248)	Major Chapori N.C.	293350
Jorhat	Majuli (248)	Okhala Chuk	293351
Jorhat	Majuli (248)	Sakupara No.1	293353
Jorhat	Majuli (248)	Sakupara No.2	293354
Jorhat	Majuli (248)	Kumolia Chapori N.C.	293356
Jorhat	Majuli (248)	Molual Kaibartta Miri	293363
Jorhat	Majuli (248)	Molual Miri	293364
Jorhat	Majuli (248)	Malapindha Chilakola Miri	293371
Jorhat	Majuli (248)	Natun Kartik Chapori N.C.	293381
Jorhat	Majuli (248)	Bedang Chapori N.C.	293389
Jorhat	Majuli (248)	Chikari Gaon	293524
Jorhat	Majuli (248)	Gezera	293534
Jorhat	Jorhat East (73)	Satal Bagh Chapori	293691
Jorhat	Jorhat East (73)	Bajor Chiga	293693
Jorhat	Jorhat East (73)	Major Chapori	293694

District	Sub-District	Village Name	Village Code
Nalbari	Barkhetrai (124)	No.2.Natun Chaprapara	303799
Nalbari	Barkhetrai (124)	No.3.Natun Chaprapara	303800
Nalbari	Barkhetrai (124)	Puran Chaprapara	303801
Nalbari	Barkhetrai (124)	Tupkar Char	303802
Nalbari	Barkhetrai (124)	Bhanganmari	303803
Nalbari	Barkhetrai (124)	No.2.Bhelamari	303820
Nalbari	Barkhetrai (124)	No.2.Balattari	303824
Nalbari	Barkhetrai (124)	Na Para Pam	303825
Nalbari	Barkhetrai (124)	Tilardia	303827
Nalbari	Barkhetrai (124)	Barsulia	303829
Nalbari	Barkhetrai (124)	No.1.Barbala	303830
Nalbari	Barkhetrai (124)	No.2.Barbala	303831
Nalbari	Barkhetrai (124)	No.5.Barbala	303834
Sivasagar	Dimow (158)	Milonkur	292422
Sivasagar	Amguri (111)	Lalimchiga Chapori	292770
Sivasagar	Sonari (226)	Boga Bagh T.G	293085
Sivasagar	Sonari (226)	Gazuating Grant & Rongsali T E	293169
Sonitpur	Dhekiajuli (Pt) (385)	No.5 Belsiri	285588
Sonitpur	Dhekiajuli (Pt) (385)	Dhekiajuli Bagan No.1	285678
Sonitpur	Dhekiajuli (Pt) (385)	Singari Tutala Gaon	285831
Sonitpur	Dhekiajuli (Pt) (385)	Dhiraiati Gaon	285837
Sonitpur	Dhekiajuli (Pt) (385)	Marisali Tapu	285856
Sonitpur	Dhekiajuli (Pt) (385)	Kania Tapu	285858
Sonitpur	Chariduar (331)	Amloga No.1	285883
Sonitpur	Chariduar (331)	Ran Gajan Miri Pathar	285997
Sonitpur	Chariduar (331)	Kerimari Betbari	286195
Sonitpur	Chariduar (331)	No.2 Ghogra R.G.	286201
Sonitpur	Chariduar (331)	Amloga Piyush Parly	286202
Sonitpur	Chariduar (331)	Thekeraloga	286203

District	Sub-District	Village Name	Village Code
Jorhat	Jorhat East (73)	Kamalabaria N.C. (CT)	293754
Jorhat	Teok (156)	Sagumpara Gaon	293762
Jorhat	Mariani (85)	No.2 Naginijan	294107
Kamrup	Chhaygaon (149)	Upar Dhania	302733
Kamrup	Chhaygaon (149)	Bhutar Gari	302782
Kamrup	Chhaygaon (149)	Katah Bari Bakarapara	302784
Kamrup	Chhaygaon (149)	Barkhal N.C.	302787
Kamrup	Chhaygaon (149)	Gale Buka	302788
Kamrup	Chhaygaon (149)	Chakrasila	302791
Kamrup	Chhaygaon (149)	Sakhumuri No.2	302797
Kamrup	Chhaygaon (149)	Sakhumuri No.1	302798
Kamrup	Chhaygaon (149)	Paru Gaon	302800
Kamrup	Chhaygaon (149)	Umring Kuna	302801
Kamrup	Chhaygaon (149)	Ukium No.1	302802
Kamrup	Chhaygaon (149)	Jarua Gaon F.V.	302823
Kamrup	Chhaygaon (149)	Makhandal F.V.	302835
Kamrup	Chhaygaon (149)	Daledunga F.V.	302836
Kamrup	Chhaygaon (149)	Dighal Bill F.V.	302837
Kamrup	Chhaygaon (149)	Barjar F.V.	302838
Kamrup	Chhaygaon (149)	Daledunga F.V.	302843
Kamrup	Chhaygaon (149)	Nayapara F.V.	302844
Kamrup	Chhaygaon (149)	Rihabari F.V.	302855
Kamrup	Goriomari (78)	1 No.Bala Gaon	302874
Kamrup	Boko (140)	Lep Gaon	303056
Kamrup	Boko (140)	Mathaputa	303071
Kamrup	Boko (140)	Gijang	303072
Kamrup	Boko (140)	Hahim	303073
Kamrup	Boko (140)	Hahim N.C.	303078
Kamrup	Boko (140)	Garuduba (Garudubi)	303079
Kamrup	Boko (140)	Bhaluk Mari N.C	303097
Kamrup	Boko (140)	Goshanimara	303104
Kamrup	Boko (140)	Mokebari	303139
Kamrup	Boko (140)	Lower Lumpi	303140
Kamrup	Boko (140)	Harsa Nagar	303142
Kamrup	Boko (140)	Kampa Doni (Kampadali)	303150
Kamrup	Boko (140)	Upar Tarabari	303152
Kamrup	Palasbari (201)	Pagladia N.C. (Pagaladia N.C.)	303164
Kamrup	Palasbari (201)	Simina No.2	303209
Sonitpur	Chariduar (331)	Satai Namile	286204
Sonitpur	Chariduar (331)	Jarashar	286205
Sonitpur	Tezpur (136)	Arimara Pathar	286231
Sonitpur	Tezpur (136)	Guli Pam	286337
Sonitpur	Biswanath (378)	Maruabasti	286573
Sonitpur	Biswanath (378)	Majuli Ghur T.E. 4/16	286591
Sonitpur	Biswanath (378)	Majuli Garh 101/156	286624
Sonitpur	Biswanath (378)	Barajuli T.E. 3/51	286873
Sonitpur	Biswanath (378)	Moinaguri F.V.	286910
Sonitpur	Biswanath (378)	Milanpur	286914
Sonitpur	Biswanath (378)	Thaikirguri	286917
Sonitpur	Biswanath (378)	Mugachang	286918
Sonitpur	Biswanath (378)	Koyalajuli	286919
Sonitpur	Biswanath (378)	Omarjan	286921
Sonitpur	Biswanath (378)	Rongajan (Pabhoi R.F.)	286922
Sonitpur	Helem (223)	Gopal Jarani	287060
Sonitpur	Helem (223)	No.1 Bortamuli	287113
Sonitpur	Helem (223)	No.2 Bortamuli	287114
Sonitpur	Helem (223)	Lokasa Bortamuli	287115
Sonitpur	Helem (223)	Santi Pur	287127
Sonitpur	Helem (223)	Milan Pur	287128
Sonitpur	Helem (223)	Simalugari	287148
Sonitpur	Gohpur (231)	No.1 Chirakhowa	287256
Sonitpur	Gohpur (231)	No.2 Chirakhowa	287257
Sonitpur	Gohpur (231)	Rajghar Lakhipur	287272
Sonitpur	Gohpur (231)	Udangsri	287273
Sonitpur	Gohpur (231)	Brahmapur	287274
Sonitpur	Gohpur (231)	Dubia Karbi	287280
Sonitpur	Gohpur (231)	Dakhin Gopsarguri	287290
Sonitpur	Gohpur (231)	Gajen Pathar	287319
Sonitpur	Gohpur (231)	Naren Guri	287331
Tinsukia	Sadiya (174)	Purana Repot	289887
Tinsukia	Sadiya (174)	2 No. Chillling	289889
Tinsukia	Sadiya (174)	Chilling Madhupur	289890
Tinsukia	Sadiya (174)	Chilling Ming Mang	289892
Tinsukia	Sadiya (174)	Napun	289893
Tinsukia	Sadiya (174)	Teliabari	289895
Tinsukia	Sadiya (174)	Charah Gaon	289902

District	Sub-District	Village Name	Village Code
Kamrup	Palasbari (201)	Dhengargaon	303234
Kamrup	Palasbari (201)	Japangbari	303246
Kamrup	Palasbari (201)	Khonapara	303247
Kamrup	Palasbari (201)	Baregaon No.2	303250
Kamrup	Palasbari (201)	Baregaon No.1	303252
Kamrup	Palasbari (201)	Muhudi	303277
Kamrup	Palasbari (201)	Salmer	303293
Kamrup	Palasbari (201)	Umchur	303294
Kamrup	Palasbari (201)	Umchur N.C.	303295
Kamrup	Palasbari (201)	Dalong Molong F.V.	303351
Kamrup	Palasbari (201)	Nagaon F.V.	303352
Kamrup	North Guwahati (Pt.) (34)	Berbaka	303375
Kamrup Metropolitan	North Guwahati (Pt.) (6)	Numalijalah (Part)	303428
Kamrup Metropolitan	Sonapur (145)	Aparikola Gaon	303482
Kamrup Metropolitan	Sonapur (145)	Aparikola N.C.	303493
Kamrup Metropolitan	Sonapur (145)	Barkacharang N.C.	303497
Kamrup Metropolitan	Sonapur (145)	Kalangpur N.C.	303498
Kamrup Metropolitan	Sonapur (145)	Uppar Killing N.C.	303499
Kamrup Metropolitan	Chandrapur (44)	2 No. Niz-Panbari	303609
Karbi Anglong	Donka (568)	Hadau	295305
Karbi Anglong	Donka (568)	Silangkunchi	295310
Karbi Anglong	Donka (568)	Langerdang	295312
Karbi Anglong	Donka (568)	Phutsari	295313
Karbi Anglong	Donka (568)	Roman Marjong	295315
Karbi Anglong	Donka (568)	Umswai	295316
Karbi Anglong	Donka (568)	Lang Arkhon(Umswai)	295317
Karbi Anglong	Donka (568)	Rumphom	295318
Karbi Anglong	Donka (568)	Chidamakha	295319
Karbi Anglong	Donka (568)	Umlata-Ap	295321
Karbi Anglong	Donka (568)	Umswai Langdo(Lalung)	295322
Karbi Anglong	Donka (568)	Marjong Lalung	295323
Tinsukia	Sadiya (174)	Buraburi Deori	289909
Tinsukia	Sadiya (174)	Padumphula gaon	289974
Tinsukia	Sadiya (174)	Tupsinga Gaon N.C.	289991
Tinsukia	Sadiya (174)	Kapawpathar Deori	289998
Tinsukia	Sadiya (174)	Takajan gaon (Tokajan Deori)	289999
Tinsukia	Sadiya (174)	Magar Gaon (Ambikapur)	290000
Tinsukia	Sadiya (174)	Milanpur Deori	290001
Tinsukia	Sadiya (174)	Udaipur Deori	290002
Tinsukia	Sadiya (174)	Natai Deori	290005
Tinsukia	Sadiya (174)	Na-chaki gaon	290010
Tinsukia	Sadiya (174)	Bhabala	290016
Tinsukia	Sadiya (174)	Borgoya Deori Gaon	290018
Tinsukia	Sadiya (174)	Saru Dhania	290019
Tinsukia	Sadiya (174)	Gargaon N.C.	290025
Tinsukia	Sadiya (174)	Majkachari	290042
Tinsukia	Sadiya (174)	Bogaribari	290044
Tinsukia	Sadiya (174)	Ganeshbari	290048
Tinsukia	Sadiya (174)	Natun Gaon	290049
Tinsukia	Sadiya (174)	Na Tarani	290050
Tinsukia	Sadiya (174)	Deopani Chapori	290053
Tinsukia	Doom Dooma (428)	Kaliapani Vill. N.C.	290059
Tinsukia	Doom Dooma (428)	Phol Bari Habi Gaon	290122
Tinsukia	Doom Dooma (428)	Dighal Tarang T.E. 120/123/215	290223
Tinsukia	Doom Dooma (428)	Diamuli T.E. 269 Nlr	290226
Tinsukia	Doom Dooma (428)	Rupai T.E. 249/246/265/250	290231
Tinsukia	Doom Dooma (428)	Rupai T.E. 38/32 WLA	290241
Tinsukia	Doom Dooma (428)	Rupai T.E. 265 Nlr (Rupai T.E. 265/540 WLA)	290242
Tinsukia	Doom Dooma (428)	Duwonia Maithong No-6	290330
Tinsukia	Doom Dooma (428)	Hahkhati Gaon	290335
Tinsukia	Doom Dooma (428)	Saru Mechai No-3	290353
Tinsukia	Doom Dooma (428)	Bor Mechai No-3	290364

District	Sub-District	Village Name	Village Code
Karbi Anglong	Donka (568)	Pantalo	295326
Karbi Anglong	Donka (568)	Moroh	295329
Karbi Anglong	Donka (568)	Umseneng(Maolen)	295331
Karbi Anglong	Donka (568)	Umjiri	295334
Karbi Anglong	Donka (568)	Rongchek	295337
Karbi Anglong	Donka (568)	Umpanai Dukan	295339
Karbi Anglong	Donka (568)	Birsingki	295340
Karbi Anglong	Donka (568)	Umsamukh	295341
Karbi Anglong	Donka (568)	Umbormon	295342
Karbi Anglong	Donka (568)	Ullukuachi	295345
Karbi Anglong	Donka (568)	Umkasi	295346
Karbi Anglong	Donka (568)	Silaguri	295355
Karbi Anglong	Donka (568)	Terangnagor	295357
Karbi Anglong	Donka (568)	Ahom Buroi	295367
Karbi Anglong	Donka (568)	Bor-Amli	295382
Karbi Anglong	Donka (568)	Borkok	295390
Karbi Anglong	Donka (568)	Khatomari	295395
Karbi Anglong	Donka (568)	Plimplam Abi	295397
Karbi Anglong	Donka (568)	Sarbura Senar	295412
Karbi Anglong	Donka (568)	Langtuk Teron	295413
Karbi Anglong	Donka (568)	Sucha	295416
Karbi Anglong	Donka (568)	Maj Barpathar	295417
Karbi Anglong	Donka (568)	Harlok Jasera	295418
Karbi Anglong	Donka (568)	Amtereng	295432
Karbi Anglong	Donka (568)	Umswai Christian	295434
Karbi Anglong	Donka (568)	Umpani Chistian	295436
Karbi Anglong	Donka (568)	Rong Phom	295448

District	Sub-District	Village Name	Village Code
Tinsukia	Doom Dooma (428)	Tongana T.E. No-22 Wla.	290383
Tinsukia	Doom Dooma (428)	Badalbheta T.E. 28 Wl	290470
Tinsukia	Tinsukia (261)	Limbuguri T.E.No-98 Darkhasta	290517
Tinsukia	Tinsukia (261)	Borbheta Kuhiyar Bari	290634
Tinsukia	Margherita (318)	Borhollong No.3	290769
Tinsukia	Margherita (318)	Bebejia N.C.	290823
Tinsukia	Margherita (318)	Nim Gaon No.2	290988
Tinsukia	Margherita (318)	Parbatipur N.C.	291013
Tinsukia	Margherita (318)	Golai AOC Block Gaon	291043
Tinsukia	Margherita (318)	Makum T.E. 88 No. Grant	291045
Tinsukia	Margherita (318)	Namphai NC	291047
Tinsukia	Margherita (318)	Katha Ramnagar NC	291048
Tinsukia	Margherita (318)	Namphoi Forest Village	291055
Tinsukia	Margherita (318)	Dhekiajan Forest Village No.1	291058
Udalguri	Khoirabari (Pt) (84)	Banderigaon	305424
Udalguri	Kalaigaon (Pt) (78)	Dala Grant (Dalas Grant)	305457
Udalguri	Kalaigaon (Pt) (78)	Pakimurigaon	305471
Udalguri	Kalaigaon (Pt) (78)	Bangaon (Bongaon)	305501
Udalguri	Harisanga (203)	Dharamjulikhaira Grant	305559
Udalguri	Harisanga (203)	Atherighatkhaira Grant	305560
Udalguri	Harisanga (203)	Khoirajhar	305561
Udalguri	Harisanga (203)	No.1Tankiabasti (Toni Basti No.1)	305582
Udalguri	Harisanga (203)	No.2 Tanki Basti(Noni Basti No.2)	305583
Udalguri	Harisanga (203)	Nonke Suklabagan	305585
Udalguri	Harisanga (203)	Dharamjuli TE	305623
Udalguri	Harisanga (203)	Burhapujasali	305641
Udalguri	Harisanga (203)	No.3 Liching	305727

District	Sub-District	Village Name	Village Code
Karbi Anglong	Donka (568)	Uzandonka	295453
Karbi Anglong	Donka (568)	Linchika	295454
Karbi Anglong	Donka (568)	Nok Terang	295457
Karbi Anglong	Donka (568)	Ronghidi	295463
Karbi Anglong	Donka (568)	Thai-Hong	295475
Karbi Anglong	Donka (568)	Amlet	295477
Karbi Anglong	Donka (568)	San Sika Nihang Basti	295478
Karbi Anglong	Donka (568)	Langthat	295481
Karbi Anglong	Donka (568)	Rongklirdap Tokli Gaon	295578
Karbi Anglong	Donka (568)	Hanlokrok	295618
Karbi Anglong	Donka (568)	Ling Ding	295620
Karbi Anglong	Donka (568)	Longle-Athan	295630
Karbi Anglong	Donka (568)	Badong	295662
Karbi Anglong	Donka (568)	Baida	295663
Karbi Anglong	Donka (568)	Umchera	295666
Karbi Anglong	Donka (568)	Langkircha	295670
Karbi Anglong	Donka (568)	Longpai	295671
Karbi Anglong	Donka (568)	Arting Sanphaw	295674
Karbi Anglong	Donka (568)	Am-Ih	295676
Karbi Anglong	Donka (568)	Umpaweng(Langhemphi)	295677
Karbi Anglong	Donka (568)	Langkeroi	295678
Karbi Anglong	Donka (568)	Tadolangso	295679

District	Sub-District	Village Name	Village Code
Udalguri	Harisanga (203)	Merbangachuba	305758
Udalguri	Harisanga (203)	Khalingduar RF	305761
Udalguri	Udalguri (226)	Amjuli No.2	305763
Udalguri	Udalguri (226)	Amjuli No.3	305764
Udalguri	Udalguri (226)	Daodigaon	305778
Udalguri	Udalguri (226)	Baghcai Chuburi	305819
Udalguri	Udalguri (226)	No.4 Borigaon	305825
Udalguri	Udalguri (226)	Bhairabkunda	305837
Udalguri	Udalguri (226)	Kukurbhukia	305908
Udalguri	Udalguri (226)	No.1 Dhansiri Bagan	305915
Udalguri	Udalguri (226)	No.2 Dhansiri Bagan	305916
Udalguri	Udalguri (226)	No.4 Rongapani	305921
Udalguri	Udalguri (226)	Niz Rongapani	305923
Udalguri	Udalguri (226)	Hajaragaon	305954
Udalguri	Udalguri (226)	Bhairabkunda Reserve Forest	305987
Udalguri	Mazbat (138)	Hatipota No.1	305992
Udalguri	Mazbat (138)	Hatipota No.2	305993
Udalguri	Mazbat (138)	Deochanigaon	305994
Udalguri	Mazbat (138)	Jingabil	305995
Udalguri	Mazbat (138)	No.2 Betibari T.E.	305996
Udalguri	Mazbat (138)	Rowtagaon	306008
Udalguri	Mazbat (138)	Gorhbasti	306031
Udalguri	Mazbat (138)	Shillong khuti (Shillang khuti NC)	306050
Udalguri	Mazbat (138)	Rowta Reserve Forest	306125

Uncovered villages in Sikkim with Population above 250 (as per 2011 census)

District	Sub - District	Village Name	Village Code
East District	Gangtok (75)	Gnathang	261315
East District	Gangtok (75)	Pangthang Forest Block	261320
East District	Pakyong (29)	Chochenpheri	261352
East District	Pakyong (29)	Latuk	261353
East District	Rongli (20)	Rolep	261357
East District	Rongli (20)	Lamaten	261358
East District	Rongli (20)	Lingtam	261359
East District	Rongli (20)	Phadamchen	261360
North District	Chungthang (9)	Shipgyer	260928
North District	Chungthang (9)	Thangu Forest Block	260931
North District	Mangan (46)	Lingdem	260942
North District	Mangan (46)	Tingbong	260943
North District	Mangan (46)	Lingzah-Tolung	260944
West District	Gyalshing (73)	Topung	260992
West District	Gyalshing (73)	Singrangpung	260993
West District	Soreng (52)	Bhareng	261082
West District	Soreng (52)	Ribdi	261083

Uncovered villages in Nagaland with Population above 250 (as per 2011 census)

District	Sub - District	Village Name	Village Code		District	Sub - District	Village Name	Village Code
Kiphire	Pungro (19)	Chomi	268158		Tuensang	Noklak (9)	Pangsha (New)	267963
Kiphire	Pungro (19)	Luthur	268163		Tuensang	Noklak (9)	Wansoi	267966
Kiphire	Pungro (19)	Khongjiri	268170		Tuensang	Noklak (9)	Nokyan	267967
Kiphire	Pungro (19)	Mimi	268171		Tuensang	Chingmei (6)	Taknyu	267972
Kiphire	Khnogsa (8)	Penkim	268178		Tuensang	Chingmei (6)	Yimpang	267973
Kiphire	Khnogsa (8)	Fakim	268179		Tuensang	Nokhu (7)	Aniashu	267982
Kohima	Tseminyu (32)	Rumensinyu	268184		Tuensang	Nokhu (7)	Choklangan	267984
Kohima	Tsogin (7)	Longwesunyu	268216		Tuensang	Tsurungto (3)	Rurur 'A' +'B'	268006
Kohima	Kezocha (10)	Kijumetouma	268251		Tuensang	Thonoknyu (17)	Sanglao	268022
Kohima	Sechu Zubza (16)	Thekrejuma	268282		Tuensang	Thonoknyu (17)	Peshu	268025
Mokokchung	Longchem (16)	Yajang 'A'	267100		Tuensang	Thonoknyu (17)	Wui	268028
Mokokchung	Longchem (16)	Yajang 'C'	267101		Tuensang	Thonoknyu (17)	Chilliso	268029
Mokokchung	Longchem (16)	Changdang	267110		Tuensang	Thonoknyu (17)	Kenjong	268031
Mon	Naginimora (6)	Tiru (Lower)	266967		Tuensang	Thonoknyu (17)	Thonoknyu Hq	268032
Mon	Naginimora (6)	Tiru (Upper)	266968		Tuensang	Thonoknyu (17)	Thonoknyu Vill.	268033
Mon	Tizit (16)	Yanpan	266975		Tuensang	Thonoknyu (17)	Thoktsur	268034
Mon	Tizit (16)	Tela	266976		Tuensang	Thonoknyu (17)	Chipur	268035
Mon	Hunta (10)	Neitong	266991		Tuensang	Thonoknyu (17)	Pang	268036
Mon	Hunta (10)	Longting	266996		Wokha	Changpang (20)	Aghuatito	267400
Mon	Hunta (10)	Nokyan	266997		Wokha	Changpang (20)	Akuhaiqua	267402
Mon	Shangnyu (5)	Zangkham	267000		Wokha	Changpang (20)	Khakuthato	267404
Peren	Ahibung (25)	Pellhang	268339		Wokha	Changpang (20)	Tssori (New)	267407
Peren	Ahibung (25)	New Beisumpui	268344		Wokha	Changpang (20)	Tssori (Old)	267408
Peren	Ahibung (25)	Bongkolong	268345		Wokha	Changpang (20)	ONGC Changpang	267416
Peren	Ahibung (25)	Old Beisumpui	268350		Wokha	Aitepyong (9)	Zukeshe	267419
Peren	Kebai Khelma (13)	Old Soget	268357		Wokha	Bhandari (31)	Yimpang	267429
Peren	Kebai Khelma (13)	Khelma	268358		Wokha	Bhandari (31)	Sungkha	267450
Peren	Kebai Khelma (13)	Nkio (New)	268360		Wokha	Lotsu (8)	Lotsu Vill.	267482
Peren	Kebai Khelma (13)	New Ngaolong	268363		Wokha	Lotsu (8)	Lotsu Hq	267483
Peren	Nsong (8)	Old Ngaulong	268367		Wokha	Lotsu (8)	Pyangsa	267484
Peren	Nsong (8)	Nsong Vill.	268368		Wokha	Lotsu (8)	Moilan	267485
Peren	Nsong (8)	Lalong	268370		Wokha	Ralan (17)	Liphayan	267487
Peren	Nsong (8)	Nzauna	268371		Wokha	Ralan (17)	Soshan	267491
Peren	Tening (20)	Heiranglwa	268372		Wokha	Ralan (17)	Wochan	267492
Peren	Tening (20)	New Tesen	268373		Wokha	Wozhuro (10)	Hanku	267508
Peren	Tening (20)	Old Tesen	268374		Wokha	Wozhuro (10)	N.Longchum	267509
Peren	Tening (20)	Nzau Namsan	268389		Wokha	Wozhuro (10)	Yankeli	267510
Peren	Tening (20)	Ntu	268390		Wokha	Wozhuro (10)	Meriyan	267511
Peren	Peren (10)	Ndunglwa	268395		Wokha	Englan (10)	Doyang Hydro left Bank (South Wing)	267535

District	Sub - District	Village Name	Village Code		District	Sub - District	Village Name	Village Code
Phek	Khuza (7)	Tehephu	267807		Zunheboto	Asuto (27)	Achikuchu 'A'	267252
Phek	Khuza (7)	Khutsokhuno	267808		Zunheboto	Asuto (27)	Melahumi	267266
Phek	Meluri (13)	Mollen	267818		Zunheboto	Satoi (11)	Tsutoho	267395
Phek	Meluri (13)	Reguri	267820		Zunheboto	Satoi (11)	Hokiye	267398
Phek	Phor (10)	Phor	267823					
Phek	Phokhungri (11)	Sutsu	267832					
Phek	Phokhungri (11)	Laruri	267833					
Phek	Phokhungri (11)	Phokhungri Vill.	267835					
Phek	Phokhungri (11)	Phokhungri Hq	267836					
Phek	Phokhungri (11)	Zipu	267837					
Phek	Phokhungri (11)	New Thewati	267842					

Uncovered villages in Tripura with Population above 250 (as per 2011 census)			
District	**Sub - District**	**Village Name**	**Village Code**
South Tripura	Karbuk (19)	Chakpur	272350
West Tripura	Mungiakumi (14)	Nunachhara R.F.	271980

Uncovered villages in Arunachal Pradesh with Population above 250 (as per 2011 census)

District	Sub - District	Village Name	Village Code
Anjwa	Hawai (62)	Watong	266926
Anjwa	Hayuliang (68)	Khupa Township	266672
Anjwa	Hayuliang (68)	Khupa village(khupaliang)	266673
Anjwa	Hayuliang (68)	Hayuliang	266712
Anjwa	Kibithoo (12)	Musai	266869
Anjwa	Kibithoo (12)	Kibithoo H.Q.	266876
Anjwa	Walong (25)	Walong H.Q.	266901
Changlang	Changlang (58)	Khuchep	264097
Changlang	Jairampur (14)	New Khamdu	264230
Changlang	Jairampur (14)	Tengmo	264233
Changlang	Kharsang (30)	Injan I	264321
Changlang	Kharsang (30)	Lower Injan II	264322
Changlang	Khimiyong (15)	Jongji Havi	264045
Changlang	Khimiyong (15)	Khimiyong Village	264051
Changlang	Lyngok-Longtai (6)	Phinbiro - I	264181
Changlang	Manmao (22)	Tengman	264158
Changlang	Miao (47)	Songkin II	264279
Changlang	Miao (47)	M'Pen I	264284
Changlang	Miao (47)	M'Pen II	264285
Changlang	Miao (47)	Budhisatta	264290
Changlang	Miao (47)	Kamalapuri	264292
Changlang	Namtok (17)	Ranchiline	264140
Changlang	Namtok (17)	Old Namtok	264141
Changlang	Namtok (17)	Longran Village	264147
Changlang	Vijoynagar (14)	Daragaon	264238
Changlang	Vijoynagar (14)	Phaparbari	264240
Changlang	Vijoynagar (14)	Gandhigram Bl.I & II	264244
Changlang	Vijoynagar (14)	Twohut	264247
East Kameng	Pakke-Kessang (24)	Rilloh	261940
East Kameng	Pakke-Kessang (24)	Ngoleka	261947
East Kameng	Pakke-Kessang (24)	Pakke-Keshang H.Q./Upper Bazar Line/Lower Bazar line	261949
East Kameng	Pizirang (Veo) (30)	Pakro	261960
East Kameng	Pizirang (Veo) (30)	Taroyar	261971

District	Sub - District	Village Name	Village Code
East Kameng	Pizirang (Veo) (30)	Sede	261974
East Kameng	Pizirang (Veo) (30)	Ningcho	261978
East Kameng	Pizirang (Veo) (30)	Kamrung(Neping)	261979
East Kameng	Pizirang (Veo) (30)	Lumdung	261982
East Kameng	Pizirang (Veo) (30)	New Nere	261985
East Kameng	Richukorang (28)	Bana Camp	262000
East Kameng	Richukorang (28)	Silla	262008
East Kameng	Richukorang (28)	Yangsey	262009
East Kameng	Seppa (54)	Tata Tara	262018
East Kameng	Seppa (54)	Pagyawah Model Village	262019
East Kameng	Seppa (54)	Wessang- I DIET Complex	262026
East Kameng	Seppa (54)	Pampoli	262027
East Kameng	Seppa (54)	Loffa	262037
East Kameng	Seppa (54)	Hamba – Pinda	262039
East Kameng	Seppa (54)	Sengriwa	262045
East Kameng	Seppa (54)	Tassomlora	262053
East Kameng	Seppa (54)	Pakoti	262055
East Kameng	Lada (27)	Tawe	262073
East Kameng	Lada (27)	Lada H.Q.	262082
East Kameng	Lada (27)	Sekang	262092
East Kameng	Lada (27)	Lower Liyak	262094
East Kameng	Bameng (38)	Pakke Camp	262099
East Kameng	Bameng (38)	Londa	262102
East Kameng	Bameng (38)	Bameng H.Q.	262132
East Kameng	Pipu- Dipu (34)	Pipu H.Q.	262134
East Kameng	Pipu- Dipu (34)	Doka	262137
East Kameng	Pipu- Dipu (34)	Flago	262139
East Kameng	Pipu- Dipu (34)	Bokar	262142
East Kameng	Pipu- Dipu (34)	Wotte Cheda	262155
East Kameng	Pipu- Dipu (34)	Attarang	262161
East Kameng	Gyawe Purang (17)	Tagang Warang	262179
East Kameng	Gyawe Purang (17)	Richi Lamgu	262182
East Kameng	Khenewa (26)	Sangbia	262191
East Kameng	Khenewa (26)	Pordung	262195
East Kameng	Khenewa (26)	Waii	262199
East Kameng	Khenewa (26)	Rawa	262200
East Kameng	Khenewa (26)	Jokhia	262204
East Kameng	Khenewa (26)	Jomoh	262207
East Kameng	Khenewa (26)	Khenewa H.Q.	262210
East Kameng	Chyangtajo (35)	Wada Bagang	262212
East Kameng	Chyangtajo (35)	Yangfo	262214
East Kameng	Chyangtajo (35)	Jayang Bagang	262218
East Kameng	Chyangtajo (35)	Kesse Bagang	262219
East Kameng	Chyangtajo (35)	Laching Bagang	262238
East Kameng	Sewa (32)	Bengde	262250
East Kameng	Sewa (32)	Krema Pao	262253
East Kameng	Sewa (32)	Lamnio	262257

District	Sub - District	Village Name	Village Code
East Kameng	Sewa (32)	Nari Camp	262264
East Siang	Boleng (10)	Pareng	263780
East Siang	Boleng (10)	Yingku	263782
East Siang	Boleng (10)	Sine	263783
East Siang	Rega (7)	Pangkang(Kumku)/Pangkang Jorkong	263787
East Siang	Rega (7)	Riga(Mongku)/Mobuk	263789
East Siang	Rega (7)	Sitang	263791
East Siang	Rega (7)	Parong	263793
East Siang	Pangin (9)	Yeksi	263796
East Siang	Pangin (9)	Koreng	263797
East Siang	Pangin (9)	Tarak	263798
East Siang	Kebang (10)	Yemsing	263811
East Siang	Rebo-Perging (7)	Komsing(Karo)	263814
East Siang	Rebo-Perging (7)	Komsing(Kumku)	263815
East Siang	Rebo-Perging (7)	Riew	263816
East Siang	Rebo-Perging (7)	Mopit	263818
East Siang	Koyu (12)	Tabi Ripo	263820
East Siang	Koyu (12)	Koyu	263825
East Siang	Kora (5)	Korang	263834
East Siang	Neri (8)	Depi	263842
East Siang	Neri (8)	Depi Moli	263843
East Siang	New Seren (8)	Pam	263847
East Siang	Bilat (8)	Remi	263856
East Siang	Namsing (9)	Ngopok	263919
East Siang	Namsing (9)	Kiyit	263920
East Siang	Namsing (9)	Borguli	263921
East Siang	Namsing (9)	Namsing	263925
East Siang	Namsing (9)	Gadum	263926
East Siang	Namsing (9)	Mer	263927
Kurung Kumey	Palin (71)	Sanglum	265182
Kurung Kumey	Palin (71)	Riope-Riome	265197
Kurung Kumey	Palin (71)	Jaming Happa	265235
Kurung Kumey	Yangte (39)	Nioya	265242
Kurung Kumey	Yangte (39)	Ania Koyer	265246
Kurung Kumey	Yangte (39)	Niringha	265247
Kurung Kumey	Yangte (39)	Yaba	265248
Kurung Kumey	Yangte (39)	Koping	265251
Kurung Kumey	Yangte (39)	Serek	265262
Kurung Kumey	Yangte (39)	Dari	265265
Kurung Kumey	Sangram (73)	Sangmey	265297
Kurung Kumey	Sangram (73)	Leel	265299
Kurung Kumey	Sangram (73)	Peel	265313
Kurung Kumey	Sangram (73)	Sangram H.Q.	265340
Kurung Kumey	Nyapin (44)	Nyapin H.Q.	265353
Kurung Kumey	Nyapin (44)	Longlefoth	265372
Kurung Kumey	Nyapin (44)	Hiya	265381

District	Sub - District	Village Name	Village Code
Kurung Kumey	Nyapin (44)	Yarda	265382
Kurung Kumey	Phassang (29)	Pinche(Pinchi)	265409
Kurung Kumey	Koloriang (75)	Nangram	265438
Kurung Kumey	Chambang (59)	Chambang	265501
Kurung Kumey	Chambang (59)	Pate	265505
Kurung Kumey	Chambang (59)	Shaatey	265506
Kurung Kumey	Ganget (67)	Paring	265588
Kurung Kumey	Tarak Lengdi (46)	Rabang Cityee	265651
Kurung Kumey	Sarli (39)	Sarli	265673
Kurung Kumey	Parsi-Parlo (65)	Rengchi Poriang	265719
Kurung Kumey	Parsi-Parlo (65)	Molo	265724
Kurung Kumey	Parsi-Parlo (65)	Sera I	265728
Kurung Kumey	Parsi-Parlo (65)	Hashi	265763
Kurung Kumey	Damin (53)	Damin H.Q.	265777
Kurung Kumey	Damin (53)	Fuba	265808
Kurung Kumey	Longding Koling (Pipsorang) (35)	Longding Koling H.Q.	265830
Kurung Kumey	Longding Koling (Pipsorang) (35)	Sepaha	265834
Kurung Kumey	Longding Koling (Pipsorang) (35)	Koleng	265835
Kurung Kumey	Longding Koling (Pipsorang) (35)	Korapu	265837
Kurung Kumey	Longding Koling (Pipsorang) (35)	Gyapin	265840
Kurung Kumey	Longding Koling (Pipsorang) (35)	Nabiya	265843
Kurung Kumey	Longding Koling (Pipsorang) (35)	Ha	265846
Kurung Kumey	Longding Koling (Pipsorang) (35)	Kaba	265849
Kurung Kumey	Longding Koling (Pipsorang) (35)	Pilua	265850
Kurung Kumey	Tali (41)	Tali H.Q.	265865
Kurung Kumey	Tali (41)	Loa	265866
Kurung Kumey	Tali (41)	Lengha	265868
Kurung Kumey	Tali (41)	Ruhi	265873
Kurung Kumey	Tali (41)	Tungmor	265876
Kurung Kumey	Tali (41)	Gimba	265877
Kurung Kumey	Tali (41)	Guchi	265880
Kurung Kumey	Tali (41)	Tagongpuk	265884
Kurung Kumey	Tali (41)	Roing	265887
Kurung Kumey	Tali (41)	Lodokore	265888
Kurung Kumey	Tali (41)	Yorda	265891
Kurung Kumey	Tali (41)	Jhapuk	265892
Kurung Kumey	Tali (41)	Lota	265894
Kurung Kumey	Tali (41)	Dotte	265898
Lohit	Sunpura (17)	Old Sunpura	266364
Lohit	Sunpura (17)	Digaru	266370

District	Sub - District	Village Name	Village Code
Lohit	Sunpura (17)	Lapsing Camp	266375
Lohit	Tezu (51)	Tohangam	266416
Lohit	Chong Kham (44)	Momong	266488
Lohit	Chong Kham (44)	Marua camp	266499
Lohit	Chong Kham (44)	Empong (M'Pong)	266503
Lohit	Chong Kham (44)	Chowkham - I	266521
Lohit	Lathao (19)	Sapey kung estate	266564
Lohit	Lathao (19)	Tenga Pani Mukh	266578
Lohit	Piyong (27)	Piyong Singphoo	266582
Lohit	Piyong (27)	Piyong Khampti	266583
Lohit	Lekang Mahadevpur (54)	Kharira Chuk	266613
Lohit	Lekang Mahadevpur (54)	Sikari chuk	266622
Lohit	Lekang Mahadevpur (54)	Boka Beel	266623
Lohit	Lekang Mahadevpur (54)	Nongkhon II	266631
Lohit	Lekang Mahadevpur (54)	Adivasi Chuk	266644
Lower Dibang Valley	Roing (157)	Mayu II	266149
Lower Dibang Valley	Roing (157)	Maka I (Meka Model I)	266159
Lower Dibang Valley	Roing (157)	Simari -II(L/Camp)	266171
Lower Dibang Valley	Roing (157)	Jia I	266184
Lower Dibang Valley	Roing (157)	Bakshek(Doleswar)	266215
Lower Dibang Valley	Roing (157)	Turung	266228
Lower Dibang Valley	Roing (157)	Abali II	266234
Lower Dibang Valley	Roing (157)	Shina	266238
Lower Dibang Valley	Roing (157)	Angali	266239
Lower Dibang Valley	Roing (157)	Alumo	266240
Lower Dibang Valley	Roing (157)	Iduli Tea Village	266243
Lower Dibang Valley	Roing (157)	Yinkong	266262
Lower Dibang Valley	Roing (157)	Kayi	266263
Lower Dibang Valley	Roing (157)	Keraa Ati	266264
Lower Dibang Valley	Roing (157)	Ezengo	266280
Lower Dibang Valley	Roing (157)	Bukku	266284
Lower Dibang Valley	Dambuk (30)	Bizari III	266303
Lower Dibang Valley	Dambuk (30)	Gandhi (Lasum)	266305
Lower Dibang Valley	Dambuk (30)	Gamyoing	266309
Lower Dibang Valley	Dambuk (30)	Remi	266327
Lower Dibang Valley	Tenali Paglam (13)	Anpum II	266330
Lower Dibang Valley	Tenali Paglam (13)	Anpum III	266331
Lower Dibang Valley	Tenali Paglam (13)	Paglam II	266334
Lower Dibang Valley	Tenali Paglam (13)	Paglam III	266335
Lower Dibang Valley	Tenali Paglam (13)	Tinali H.Q.	266336
Lower Dibang Valley	Tenali Paglam (13)	Mobuk	266340
Lower Dibang Valley	Koronu (20)	Anuboli	266353
Lower Dibang Valley	Koronu (20)	Atanu	266354
Lower Dibang Valley	Koronu (20)	New Denlo-3	266358
Lower Dibang Valley	Koronu (20)	Koliya	266360
Lower Subansuri	Old Ziro (88)	Dinkhu	264745
Lower Subansuri	Old Ziro (88)	Gyati	264749

District	Sub - District	Village Name	Village Code
Lower Subansuri	Old Ziro (88)	Tasso	264750
Lower Subansuri	Old Ziro (88)	Yashibo	264767
Lower Subansuri	Old Ziro (88)	Chabo	264770
Lower Subansuri	Old Ziro (88)	Lempia Ayo	264780
Lower Subansuri	Yachuli (58)	Khoru Yorda	264843
Lower Subansuri	Yachuli (58)	Nyuch	264851
Lower Subansuri	Yachuli (58)	Doka Paya	264855
Lower Subansuri	Yachuli (58)	Tilly	264862
Lower Subansuri	Pistana (57)	Khach	264989
Lower Subansuri	Dollunmukh (21)	Rottom	265120
Lower Subansuri	Raga (45)	Jal	265155
Papum Para	Banderdawa (52)	PTC Banderdewa	262336
Papum Para	Banderdawa (52)	Forest Colony	262337
Papum Para	Banderdawa (52)	Banderdewa Market Line	262338
Papum Para	Banderdawa (52)	Banderdewa Tani-I	262341
Papum Para	Banderdawa (52)	Banderdewa Aniya	262343
Papum Para	Banderdawa (52)	Banderdewa 5/1	262344
Papum Para	Banderdawa (52)	Lower Dobum	262351
Papum Para	Banderdawa (52)	Upper Dobum	262352
Papum Para	Banderdawa (52)	Upper Kharsingsa	262353
Papum Para	Banderdawa (52)	Kharsingsa RWD Colony	262357
Papum Para	Sangdupota (Besar Nello) (48)	Rakap	262363
Papum Para	Taraso (28)	Lower Taraso	262411
Papum Para	Itanagar (22)	Lobi Dariya	262456
Papum Para	Toru (42)	Laptap	262555
Papum Para	Toru (42)	Pech	262556
Papum Para	Mengio (43)	Sakiang	262712
Papum Para	Kimin (26)	Khudh	262752
Papum Para	Kakoi (9)	Kakoi	262754
Tawang	Zemithang (18)	Shoktsen	261377
Tawang	Zemithang (18)	Khobleteng	261387
Tawang	Lumla (22)	New Lumla	261397
Tawang	Lumla (22)	Kharteng	261410
Tawang	Dudunghar (27)	Blaiteng	261419
Tawang	Tawang Circle (77)	Mandrelling	261449
Tawang	Tawang Circle (77)	Kyableng	261504
Tawang	Jang (8)	Dungse	261557
Tawang	Lhou (25)	Tsewkhar/DHPD colony	261562
Tawang	Thingbu (6)	Mago	261607
Tirap	Namsang (20)	Natun Kheti	264412
Tirap	Soha (12)	Turet	264425
Tirap	Soha (12)	Kenon	264432
Tirap	Khonsa (52)	Old Chanyak (Kolagaon)	264434
Tirap	Khonsa (52)	Old Katang	264438
Tirap	Khonsa (52)	Kapu	264465
Tirap	Khonsa (52)	Longo	264466

District	Sub - District	Village Name	Village Code
Tirap	Khonsa (52)	Thinsa	264474
Tirap	Khonsa (52)	Moktowa - I	264475
Tirap	Dadam (10)	Hukan	264486
Tirap	Dadam (10)	Bera	264487
Tirap	Dadam (10)	Upper Chinkui	264488
Tirap	Dadam (10)	New Kothin	264492
Tirap	Dadam (10)	Laho	264494
Tirap	Dadam (10)	Dadam	264495
Tirap	Kanubari (15)	Dasatong	264498
Tirap	Kanubari (15)	Luaksim	264499
Tirap	Kanubari (15)	Longhua	264501
Tirap	Kanubari (15)	Banfera	264502
Tirap	Kanubari (15)	kamkah	264503
Tirap	Kanubari (15)	Wanu	264505
Tirap	Lawnu (17)	Rusa	264511
Tirap	Lawnu (17)	Kamku Rusa	264514
Tirap	Lawnu (17)	Hasse Rusa	264515
Tirap	Lawnu (17)	Tiru-Russa	264517
Tirap	Lawnu (17)	Chopsa	264519
Tirap	Lawnu (17)	Chopnu	264520
Tirap	Longding (14)	Zedua	264529
Tirap	Longding (14)	Nianu	264530
Tirap	Longding (14)	Niausa	264531
Tirap	Longding (14)	Mintong	264532
Tirap	Longding (14)	Longphong	264533
Tirap	Longding (14)	Tissa Camp	264535
Tirap	Longding (14)	Senua Noksa	264536
Tirap	Longding (14)	Chanu	264537
Tirap	Longding (14)	Ozakho	264539
Tirap	Longding (14)	Longsom	264540
Tirap	Pumao (5)	Longkhaw	264542
Tirap	Pumao (5)	Chatting	264544
Tirap	Pumao (5)	Pumao	264545
Tirap	Pangchao (13)	Konnu	264548
Tirap	Pangchao (13)	Konsa	264549
Tirap	Pangchao (13)	Kamhua Nonku	264550
Tirap	Pangchao (13)	Komhua Nonku II	264551
Tirap	Pangchao (13)	Kamhua Noksa	264552
Tirap	Pangchao (13)	Khasa	264554
Tirap	Pangchao (13)	Jagan	264555
Tirap	Pangchao (13)	Votnu	264556
Tirap	Wakka (13)	Changkhao	264560
Tirap	Wakka (13)	Khanu	264561
Tirap	Wakka (13)	Chop	264562
Tirap	Wakka (13)	Nginu	264563
Tirap	Wakka (13)	Ngissa	264565
Tirap	Wakka (13)	Khogla	264567

District	Sub - District	Village Name	Village Code
Tirap	Wakka (13)	Wakka	264569
Tirap	Wakka (13)	Wakka H.Q.	264572
Tirap	Laju (19)	Laju	264573
Tirap	Laju (19)	Lower Chinhan	264574
Tirap	Laju (19)	Noglo	264576
Tirap	Laju (19)	Lonyen	264577
Tirap	Laju (19)	Lower Sinnu	264578
Tirap	Laju (19)	Raho	264579
Tirap	Laju (19)	Longliang	264580
Tirap	Laju (19)	Upper Kolam	264584
Tirap	Laju (19)	Lower Kolam	264585
Tirap	Laju (19)	Tutnyu	264586
Tirap	Laju (19)	New Kothung	264587
Tirap	Laju (19)	Old Kothung	264588
Tirap	Laju (19)	Nogna	264589
Tirap	Laju (19)	Thungjang	264590
Tirap	Laju (19)	Laju H.Q.	264591
Upper Siang	Tuting (20)	Ningging	263937
Upper Siang	Tuting (20)	Pekong	263947
Upper Siang	Megging (5)	Pango	263950
Upper Siang	Yingkiong (7)	Gobuk	263979
Upper Siang	Yingkiong (7)	Pugging	263980
Upper Siang	Yingkiong (7)	Simong	263982
Upper Siang	Jengging (13)	Bomdo	263985
Upper Siang	Jengging (13)	Janbo	263986
Upper Siang	Geku (13)	Komkar(Sizer)	263999
Upper Siang	Geku (13)	Komkar(Rasing)	264000
Upper Siang	Geku (13)	Jommo-Kupak	264003
Upper Siang	Geku (13)	Sumsing	264009
Upper Siang	Mariyang (17)	Damro-Gidum	264012
Upper Siang	Mariyang (17)	Millang Lonpong	264016
Upper Siang	Mariyang (17)	New Millang	264019
Upper Siang	Mariyang (17)	Dalbing Gidum	264020
Upper Siang	Mopom Adipasi (4)	Adipasi-Sibuk	264028
Upper Siang	Mopom Adipasi (4)	Adipasi-Bine	264030
Upper Siang	Katan (8)	Sibum	264032
Upper Siang	Katan (8)	Pongging	264034
Upper Siang	Katan (8)	Padu Tangkum	264036
Upper Siang	Katan (8)	Katan H.Q.	264039
Upper Subansiri	Taksing (14)	Taksing H.Q.	262776
Upper Subansiri	Limeking (22)	Limeking H.Q.	262798
Upper Subansiri	Nacho (51)	Nacho H.Q.	262827
Upper Subansiri	Taliha (86)	Rigia	262961
Upper Subansiri	Taliha (86)	Doyom	262980
Upper Subansiri	Taliha (86)	Taliha H.Q.	262984
Upper Subansiri	Chetam (Peer Yapu) (58)	Mengnia	263063
Upper Subansiri	Daporijo (47)	Bomi-koto	263114

District	Sub - District	Village Name	Village Code
Upper Subansiri	Daporijo (47)	Sikar - I	263123
Upper Subansiri	Daporijo (47)	Sikar - II	263125
Upper Subansiri	Daporijo (47)	Sippi	263129
Upper Subansiri	Puchi Geko (50)	Puchi Geku H.Q.	263154
Upper Subansiri	Baririjo (19)	Baririjo H.Q.	263292
West Kameng	Dirang (88)	Yewang(Jyoti Nagar)	261643
West Kameng	Dirang (88)	Warjung	261691
West Kameng	Dirang (88)	Dungmanbaha	261697
West Kameng	Thembang (12)	Namsu	261700
West Kameng	Thembang (12)	Thembang H.Q.	261701
West Kameng	Nafra (34)	Longtin	261712
West Kameng	Nafra (34)	Upper Dzang	261713
West Kameng	Kalaktang (24)	Dengzi(including lower Dengzi)	261754
West Kameng	Kalaktang (24)	Boha	261756
West Kameng	Kalaktang (24)	Rongthangjurpam	261758
West Kameng	Kalaktang (24)	Ankalin PWD/RWD Labour Camp	261759
West Kameng	Kalaktang (24)	Ankalin Village	261760
West Kameng	Kalaktang (24)	Domkho	261763
West Kameng	Rupa (21)	Thungri	261783
West Kameng	Rupa (21)	Jungpam	261794
West Kameng	Rupa (21)	Zomoje	261796
West Kameng	Rupa (21)	Rupa (CT)	261802
West Kameng	Singchung (31)	Wanghoo	261803
West Kameng	Singchung (31)	64 Mile Camp (Jahek)_	261804
West Kameng	Singchung (31)	Tenga Village	261809
West Kameng	Singchung (31)	Ramalingpam	261811
West Kameng	Singchung (31)	Dahung River Side-I	261817
West Kameng	Singchung (31)	Ita village	261819
West Kameng	Singchung (31)	Bichom	261828
West Kameng	Jamiri (13)	Jamiri Point	261841
West Kameng	Thirzino (31)	Palizi	261848
West Kameng	Bhalukpong (7)	Model Village	261874
West Siang	Monigong (46)	Monigong H.Q.	263350
West Siang	Monigong (46)	Karle	263377
West Siang	Payum (15)	Gate	263410
West Siang	Payum (15)	Gasheng	263411
West Siang	Payum (15)	Payum	263413
West Siang	Tato (22)	Tato Village	263425
West Siang	Tato (22)	Tato H.Q. (including Labour Camp)	263444
West Siang	Kaying (12)	Kaying H.Q.	263447
West Siang	Kaying (12)	Kaying Village	263448
West Siang	Kaying (12)	Sirum	263450
West Siang	Kaying (12)	Tumbin	263451
West Siang	Kaying (12)	Paksing	263453

District	Sub - District	Village Name	Village Code
West Siang	Kaying (12)	Kerang I	263455
West Siang	Kaying (12)	Bogne	263456
West Siang	Kaying (12)	New Kerang	263457
West Siang	Darak (11)	Darak HQ	263460
West Siang	Kamba (32)	Ruyi	263475
West Siang	Kamba (32)	DPG College Kamki Diet N.E. Farm Kamki	263476
West Siang	Kamba (32)	Nomuk	263483
West Siang	Kamba (32)	Lipu Bene	263486
West Siang	Kamba (32)	Dego Kamki	263488
West Siang	Rumgong (8)	Bingung	263503
West Siang	Rumgong (8)	Yasing	263504
West Siang	Rumgong (8)	Jomo	263508
West Siang	Jomlu Mobuk (16)	Mori	263514
West Siang	Jomlu Mobuk (16)	Pessing	263522
West Siang	Jomlu Mobuk (16)	Pangkeng	263523
West Siang	Liromoba (25)	Bole	263527
West Siang	Liromoba (25)	Bopu	263528
West Siang	Liromoba (25)	Liromoba H.Q.	263544
West Siang	Yomcha (17)	Gamkak	263557
West Siang	Aalo (46)	Eyi	263568
West Siang	Aalo (46)	Logum Jini	263570
West Siang	Aalo (46)	Hissam	263572
West Siang	Aalo (46)	Yeggo	263576
West Siang	Aalo (46)	Jirdin	263577
West Siang	Aalo (46)	Kombo Tarsu Mobuk	263581
West Siang	Aalo (46)	Tadin	263583
West Siang	Aalo (46)	Nyorak Rakte	263585
West Siang	Aalo (46)	Tabasora	263590
West Siang	Aalo (46)	Yigi Kaum(Eshi Moku)	263596
West Siang	Aalo (46)	Pobdi	263602
West Siang	Aalo (46)	Kombo Pomte(Kombo Monku)	263606
West Siang	Aalo (46)	Kombo Papak	263607
West Siang	Aalo (46)	Vivek Nagar (R.K. Mission)	263612
West Siang	Tirbin (30)	Deke	263621
West Siang	Tirbin (30)	Chekor Lombi	263625
West Siang	Tirbin (30)	Tirbin (HQ)	263630
West Siang	Tirbin (30)	Ratak Gamlin	263638
West Siang	Tirbin (30)	Tai	263639
West Siang	Basar (30)	Old Bam	263644
West Siang	Basar (30)	Kadi	263655
West Siang	Basar (30)	Chirne	263656
West Siang	Basar (30)	Nyobom(Old Market)	263657
West Siang	Basar (30)	Galu	263659
West Siang	Basar (30)	Nyigam	263664
West Siang	Basar (30)	Pagi	263665
West Siang	Basar (30)	Disi	263666

District	Sub - District	Village Name	Village Code
West Siang	Basar (30)	Echi Chiku	263669
West Siang	Basar (30)	Sago	263671
West Siang	Daring (12)	Padi	263674
West Siang	Daring (12)	New Daring	263677
West Siang	Daring (12)	Old Daring	263681
West Siang	Likabali (23)	Dipa	263734
West Siang	Kangku (26)	Kangku	263750
West Siang	Bagra (16)	Doji Jelly	263763
West Siang	Bagra (16)	Doji Jeku	263764
West Siang	Bagra (16)	Bagra Takpu	263765
West Siang	Bagra (16)	Bagra Higi	263767
West Siang	Bagra (16)	Bagra Lipu	263768
West Siang	Bagra (16)	Angu	263773

Uncovered villages in Manipur with Population above 250 (as per 2011 census)

District	Sub - District	Village Name	Village Code
Chandel	Tengnoupal (98)	Lamlong Khunou	270711
Chandel	Tengnoupal (98)	Chalson Tengnoupal	270737
Chandel	Tengnoupal (98)	Yangoubung	270739
Chandel	Tengnoupal (98)	T.Khonomjang	270740
Chandel	Chakpikarong (171)	Haika	270933
Chandel	Chakpikarong (171)	Phiranmachet	270947
Chandel	Chakpikarong (171)	Moltuh	270951
Chandel	Chakpikarong (171)	P.Chehjang	270954
Chandel	Chakpikarong (171)	K.Savumpa	270955
Chandel	Chakpikarong (171)	Thingphai	270959
Chandel	Chakpikarong (171)	Ts.Laijang	270960
Chandel	Chakpikarong (171)	Changpol	270962
Chandel	Chakpikarong (171)	T.Nampao	270967
Chandel	Chakpikarong (171)	Yangoulen	270970
Chandel	Chakpikarong (171)	Sehao	270977
Chandel	Chakpikarong (171)	Sehlon	270995
Chandel	Chakpikarong (171)	New Somtal	271004
Chandel	Chakpikarong (171)	Sangni	271012
Churachandpur	Tapaimukh(40)	Tuisen (Notunlalpani)	269275
Churachandpur	Tapaimukh(40)	Buangmun	269276
Churachandpur	Tapaimukh(40)	Lower Kharkhuplien	269283
Churachandpur	Tapaimukh(40)	Kh. Jaikhan	269284
Churachandpur	Tapaimukh(40)	Thingpan	269285
Churachandpur	Tapaimukh(40)	Kangreng	269286
Churachandpur	Tapaimukh(40)	Thingkal	269287
Churachandpur	Tapaimukh(40)	Ngampabung	269288
Churachandpur	Tapaimukh(40)	Tuolbung	269289
Churachandpur	Tapaimukh(40)	Tieulien	269290
Churachandpur	Tapaimukh(40)	Patpuihmun	269291
Churachandpur	Tapaimukh(40)	Taithu	269292
Churachandpur	Tapaimukh(40)	Damdei	269293
Churachandpur	Tapaimukh(40)	Tinsuong	269294
Churachandpur	Tapaimukh(40)	Pherzawl	269296
Churachandpur	Tapaimukh(40)	Sartuinek	269297
Churachandpur	Tapaimukh(40)	Parbung	269298
Churachandpur	Tapaimukh(40)	Lungthulien	269299
Churachandpur	Tapaimukh(40)	Leisen	269301
Churachandpur	Tapaimukh(40)	Rovakot	269302
Churachandpur	Tapaimukh(40)	Senvon	269303
Churachandpur	Tapaimukh(40)	Parvachawm	269304

District	Sub - District	Village Name	Village Code
Churachandpur	Thanlon (49)	Paikholum J. (Muntha)	269305
Churachandpur	Thanlon (49)	Suangsang	269309
Churachandpur	Thanlon (49)	Khoken	269311
Churachandpur	Thanlon (49)	Leijangphai	269317
Churachandpur	Thanlon (49)	Aibulon	269329
Churachandpur	Thanlon (49)	Phaitong	269330
Churachandpur	Thanlon (49)	Maite	269331
Churachandpur	Thanlon (49)	Phaipheng	269333
Churachandpur	Thanlon (49)	Sainoujang	269337
Churachandpur	Thanlon (49)	Phailiangbung	269339
Churachandpur	Thanlon (49)	Pamjal	269340
Churachandpur	Thanlon (49)	Mualnuam	269348
Churachandpur	Thanlon (49)	Songtal	269350
Churachandpur	Thanlon (49)	Khajang	269352
Churachandpur	Thanlon (49)	Sinjawl	269353
Churachandpur	Churachandpur North(123)	Chongchin	269354
Churachandpur	Churachandpur North(123)	Nungsai	269367
Churachandpur	Churachandpur North(123)	Aina	269368
Churachandpur	Churachandpur North(123)	Mamong	269374
Churachandpur	Churachandpur North(123)	Chingmei Kuki	269375
Churachandpur	Churachandpur North(123)	Khanpi	269376
Churachandpur	Churachandpur North(123)	Mollen	269378
Churachandpur	Churachandpur North(123)	Silen	269392
Churachandpur	Churachandpur North(123)	Kukimun	269396
Churachandpur	Churachandpur North(123)	Kungpinaosen	269404
Churachandpur	Churachandpur North(123)	New Kungpi	269405
Churachandpur	Churachandpur North(123)	Ukha Loikhai	269421
Churachandpur	Churachandpur North(123)	Najang	269423
Churachandpur	Churachandpur North(123)	Henglep	269426
Churachandpur	Churachandpur North(123)	Nabil Khuman	269441
Churachandpur	Churachandpur North(123)	Kolhen	269445
Churachandpur	Churachandpur North(123)	Lhanjang	269454
Churachandpur	Churachandpur North(123)	Moldak	269456

District	Sub - District	Village Name	Village Code
Churachandpur	Churachandpur North(123)	Munpi	269460
Churachandpur	Churachandpur North(123)	Chongkhojou	269461
Churachandpur	Churachandpur North(123)	Thingken	269462
Churachandpur	Churachandpur North(123)	Tuilumjang	269463
Churachandpur	Churachandpur North(123)	P.Sejol	269464
Churachandpur	Churachandpur North(123)	Vungbuk	269469
Churachandpur	Churachandpur North(123)	Tuilaphai	269470
Churachandpur	Churachandpur North(123)	Singmun	269472
Churachandpur	Churachandpur (326)	Teisaljang	269738
Churachandpur	Churachandpur (326)	Singheu	269740
Churachandpur	Churachandpur (326)	T.Khuangkhai	269742
Churachandpur	Churachandpur (326)	Luihoihmolcham	269799
Churachandpur	Singngat (65)	Tonglon (K)	269809
Churachandpur	Singngat (65)	Tuikuimuallum	269855
Churachandpur	Singngat (65)	Suangdoh	269856
Churachandpur	Singngat (65)	Lungthul (L)	269859
Churachandpur	Singngat (65)	Kangkap	269861
Imphal East	Porompat (55)	Kongkham Leikai (OG)	270325
Imphal East	Keirou Bitra (36)	Andro(Pt)	270356
Imphal East	Keirou Bitra (36)	Itham	270359
Senapati	Sadar Hills West (139)	T. Khonomphai	268575
Senapati	Sadar Hills West (139)	Phoikon	268578
Senapati	Sadar Hills West (139)	Langka	268606
Senapati	Sadar Hills West (139)	P.Khothah	268644
Senapati	Sadar Hills West (139)	S. Khomunnom	268645
Senapati	Sadar Hills West (139)	T.Lhanghoi	268676
Senapati	Sadar Hills West (139)	N. Gamhoi	268678
Senapati	Saitu Gamzphazol (178)	Tingkai Khunou	268841
Senapati	Sadar Hills East (229)	Thingphai	268861
Senapati	Sadar Hills East (229)	Jangnoi	268862
Senapati	Sadar Hills East (229)	Tingpibung	268864
Senapati	Sadar Hills East (229)	Zalenphai	268865
Senapati	Sadar Hills East (229)	Gangpikon	268866
Senapati	Sadar Hills East (229)	Gampum	268868
Senapati	Sadar Hills East (229)	S.Khonomphai	268869
Senapati	Sadar Hills East (229)	T.Gamnom	268870
Senapati	Sadar Hills East (229)	Songbem	268871
Senapati	Sadar Hills East (229)	Gallam	268872
Senapati	Sadar Hills East (229)	Phuleijang	268874

District	Sub - District	Village Name	Village Code
Senapati	Sadar Hills East (229)	Phoikon	268875
Senapati	Sadar Hills East (229)	Wapabung	268876
Senapati	Sadar Hills East (229)	Sonphung	268878
Senapati	Sadar Hills East (229)	Nungka	268898
Senapati	Sadar Hills East (229)	L.Molnom	269021
Senapati	Sadar Hills East (229)	Kaihao Tangkhul	269023
Senapati	Sadar Hills East (229)	Tangkhul Khullen	269068
Tamenglong	Tamenglong West (54)	Mandu	269090
Tamenglong	Tamenglong West (54)	Kandihang	269091
Tamenglong	Tamenglong West (54)	Katangam	269097
Tamenglong	Tamenglong West (54)	Longchai	269098
Tamenglong	Tamenglong West (54)	Magulong	269099
Tamenglong	Tamenglong West (54)	Katang	269100
Tamenglong	Tamenglong West (54)	Impa	269101
Tamenglong	Tamenglong West (54)	Inem	269102
Tamenglong	Tamenglong West (54)	Phelong	269104
Tamenglong	Tamenglong West (54)	Ningning	269109
Tamenglong	Tamenglong West (54)	Chingkao	269110
Tamenglong	Tamenglong West (54)	Atengba	269113
Tamenglong	Tamenglong West (54)	Aben	269120
Tamenglong	Tamenglong West (54)	Lhangnom	269139
Tamenglong	Tamenglong North (30)	Lenglong	269143
Tamenglong	Tamenglong North (30)	Konphung	269144
Tamenglong	Tamenglong North (30)	Dikiuram	269145
Tamenglong	Tamenglong North (30)	Langpram	269146
Tamenglong	Tamenglong North (30)	Taipram	269147
Tamenglong	Tamenglong North (30)	Pallong	269148
Tamenglong	Tamenglong North (30)	Piulong	269151
Tamenglong	Tamenglong North (30)	Kawalong	269154
Tamenglong	Tamenglong North (30)	Tamah	269155
Tamenglong	Tamenglong North (30)	Old Takou	269156
Tamenglong	Tamenglong North (30)	Chaton I	269158
Tamenglong	Tamenglong North (30)	Elleng	269159
Tamenglong	Tamenglong North (30)	Dunong	269160
Tamenglong	Tamenglong North (30)	Makuinong	269161
Tamenglong	Tamenglong North (30)	Old Lemta	269163
Tamenglong	Tamenglong North (30)	Kuilong-I	269164
Tamenglong	Tamenglong North (30)	Old Kadi	269165
Tamenglong	Tamenglong North (30)	Nurathen	269170
Tamenglong	Tamenglong North (30)	Khundong Khunkhaiba	269171
Tamenglong	Tamenglong (35)	Nagaching	269187
Tamenglong	Tamenglong (35)	Ejeirong	269190
Tamenglong	Tamenglong (35)	Oktan	269193
Tamenglong	Tamenglong (35)	Kabui Khullen	269194

District	Sub - District	Village Name	Village Code
Tamenglong	Tamenglong (35)	Thingra	269195
Tamenglong	Tamenglong (35)	Kajinglong	269196
Tamenglong	Tamenglong (35)	Bakua	269206
Tamenglong	Nungba (57)	Thingou	269208
Tamenglong	Nungba (57)	Kambiron	269215
Tamenglong	Nungba (57)	Kekrunaga	269216
Tamenglong	Nungba (57)	Muktikhullen	269217
Tamenglong	Nungba (57)	Khoupum	269243
Tamenglong	Nungba (57)	Nungadang	269244
Tamenglong	Nungba (57)	Leishok	269251
Tamenglong	Nungba (57)	Shangji	269260
Tamenglong	Nungba (57)	Dollang	269261
Tamenglong	Nungba (57)	Jouzangtek	269262
Tamenglong	Nungba (57)	Nungsai	269263
Tamenglong	Nungba (57)	Luwanglong Khullen	269264
Thoubal	Thoubal (49)	Ingourok	269972
Ukhrul	Ukhrul North (27)	Razai Khullen	270366
Ukhrul	Ukhrul North (27)	Razai Khunou	270367
Ukhrul	Ukhrul North (27)	Chinjaroi Khunou	270368
Ukhrul	Ukhrul North (27)	Chingjaroi Christian	270369
Ukhrul	Ukhrul North (27)	Namrei	270370
Ukhrul	Ukhrul North (27)	Maremphung	270371
Ukhrul	Ukhrul North (27)	Marem	270372
Ukhrul	Ukhrul North (27)	Awang Kasom	270379
Ukhrul	Ukhrul North (27)	Kongai	270381
Ukhrul	Ukhrul North (27)	Wahong	270382
Ukhrul	Ukhrul North (27)	New Tusom	270383
Ukhrul	Ukhrul North (27)	Tusom Christian	270384
Ukhrul	Ukhrul North (27)	Challow	270385
Ukhrul	Ukhrul North (27)	Huishu	270387
Ukhrul	Ukhrul North (27)	K/ Phungrei	270388
Ukhrul	Ukhrul Central (69)	Tora	270396
Ukhrul	Ukhrul Central (69)	Champhung	270397
Ukhrul	Ukhrul Central (69)	Tanrui(Leisan)	270398
Ukhrul	Ukhrul Central (69)	Sanakeithel	270407
Ukhrul	Ukhrul Central (69)	Khamanom	270416
Ukhrul	Ukhrul Central (69)	Changa	270440
Ukhrul	Ukhrul Central (69)	Khamasom	270450
Ukhrul	Ukhrul Central (69)	Sihai Khunou	270452
Ukhrul	Ukhrul Central (69)	Mapum	270453
Ukhrul	Ukhrul Central (69)	Pushing	270454
Ukhrul	Ukhrul Central (69)	Chingshou(Zingsui)	270455
Ukhrul	Ukhrul Central (69)	Lonshak	270456
Ukhrul	Kamjong Chassad (45)	Bungpa Khullen	270458

District	Sub - District	Village Name	Village Code
Ukhrul	Kamjong Chassad (45)	Sampui	270460
Ukhrul	Kamjong Chassad (45)	Bungpa Khunou	270461
Ukhrul	Kamjong Chassad (45)	Kongkan	270465
Ukhrul	Kamjong Chassad (45)	Aishi	270466
Ukhrul	Kamjong Chassad (45)	Molvailup	270468
Ukhrul	Kamjong Chassad (45)	Phaikok	270471
Ukhrul	Kamjong Chassad (45)	Chatric	270474
Ukhrul	Kamjong Chassad (45)	Chamu	270476
Ukhrul	Kamjong Chassad (45)	Ningchou	270483
Ukhrul	Kamjong Chassad (45)	Kangpat Khullen	270484
Ukhrul	Kamjong Chassad (45)	Kangpat Khunou	270487
Ukhrul	Kamjong Chassad (45)	Grihang	270488
Ukhrul	Kamjong Chassad (45)	Nampisha	270489
Ukhrul	Kamjong Chassad (45)	Langli	270490
Ukhrul	Kamjong Chassad (45)	Maku	270492
Ukhrul	Kamjong Chassad (45)	Shingcha	270494
Ukhrul	Kamjong Chassad (45)	Chahong Khullen	270496
Ukhrul	Kamjong Chassad (45)	Hangkou	270497
Ukhrul	Kamjong Chassad (45)	Ningthi	270498
Ukhrul	Pungyar Phaisat (37)	Lamlai Khunou	270505
Ukhrul	Pungyar Phaisat (37)	Thawai(K)	270509
Ukhrul	Pungyar Phaisat (37)	Lungphu	270511
Ukhrul	Pungyar Phaisat (37)	Shingkap	270514
Ukhrul	Pungyar Phaisat (37)	T. Hundung Khullen	270516
Ukhrul	Pungyar Phaisat (37)	H. Goda	270521
Ukhrul	Pungyar Phaisat (37)	Alang	270523
Ukhrul	Pungyar Phaisat (37)	Khongjal	270525
Ukhrul	Pungyar Phaisat (37)	Chungkai	270528
Ukhrul	Pungyar Phaisat (37)	Tusom	270529
Ukhrul	Pungyar Phaisat (37)	Khambi	270530
Ukhrul	Pungyar Phaisat (37)	Meiring	270531
Ukhrul	Pungyar Phaisat (37)	Ngaprum	270533
Ukhrul	Pungyar Phaisat (37)	Nongman	270534
Ukhrul	Pungyar Phaisat (37)	Sorde	270535
Ukhrul	Pungyar Phaisat (37)	Sorbung	270538
Ukhrul	Pungyar Phaisat (37)	Honkhuiphung	270539
Ukhrul	Ukhrul South (36)	Nongdam	270540
Ukhrul	Ukhrul South (36)	Chongdan	270544
Ukhrul	Ukhrul South (36)	Kangoi	270545
Ukhrul	Ukhrul South (36)	Yeasem	270547
Ukhrul	Ukhrul South (36)	Kasom Somrei	270549
Ukhrul	Ukhrul South (36)	Shungriphai	270550
Ukhrul	Ukhrul South (36)	K.Leihaoram	270552
Ukhrul	Ukhrul South (36)	Lairam Phungka	270556

District	Sub - District	Village Name	Village Code
Ukhrul	Ukhrul South (36)	Lairam Khullen	270557
Ukhrul	Ukhrul South (36)	Khamlang	270560
Ukhrul	Ukhrul South (36)	Mawai	270561
Ukhrul	Ukhrul South (36)	Tarong	270563
Ukhrul	Ukhrul South (36)	Nambashi Khullen	270565
Ukhrul	Ukhrul South (36)	Manthouram	270567
Ukhrul	Ukhrul South (36)	Khongle	270568
Ukhrul	Ukhrul South (36)	Kashung	270569
Ukhrul	Ukhrul South (36)	Kangkum	270571

Uncovered villages in Mizoram with Population above 250 (as per 2011 census)

District	Sub - District	Village Name	Village Code
Champhai	Khawbung (27)	Buang	271350
Champhai	Khawbung (27)	Khuangleng	271351
Champhai	Khawbung (27)	Bulfekzawl	271352
Champhai	Khawbung (27)	Hruaikawn (old)	271353
Champhai	Khawbung (27)	Sesih	271355
Champhai	Khawbung (27)	Bungzung	271357
Champhai	Khawbung (27)	Vanzau	271358
Champhai	Khawbung (27)	Sazep	271362
Champhai	Khawbung (27)	Lianpui	271363
Champhai	Khawbung (27)	Vangchhia	271364
Champhai	Khawbung (27)	Thekte	271372
Champhai	Khawbung (27)	Khankawn	271373
Champhai	Khawbung (27)	Thekpui	271374
Champhai	East Lundar (Part) (3)	Tlangpui	271376
Kolasib	"N" Thingdawl (20)	N.Hlimen	271139
Kolasib	"N" Thingdawl (20)	Thingthelh	271140
Lawngtlai	Chawngte (84)	Kurbalavasora	271615
Lawngtlai	Chawngte (84)	Borapansury II	271617
Lawngtlai	Chawngte (84)	Ugulsury	271618
Lawngtlai	Chawngte (84)	Silsury	271624
Lawngtlai	Chawngte (84)	Chhotapansury	271626
Lawngtlai	Chawngte (84)	Songrasury	271627
Lawngtlai	Chawngte (84)	W.Saizawh	271628
Lawngtlai	Chawngte (84)	Gulsingbabsora	271636
Lawngtlai	Chawngte (84)	Nagdarasora	271637
Lawngtlai	Chawngte (84)	Geraguluksora	271638
Lawngtlai	Chawngte (84)	Jarulsury	271642
Lawngtlai	Chawngte (84)	Ugudasury 'S'	271643
Lawngtlai	Chawngte (84)	Jamersury(Serlui)	271645
Lawngtlai	Chawngte (84)	Bungkawn 'S'	271646
Lawngtlai	Chawngte (84)	Kukurduleya	271647
Lawngtlai	Chawngte (84)	Ulusury	271648
Lawngtlai	Chawngte (84)	Mandirasora	271649
Lawngtlai	Chawngte (84)	Mainababsora I	271650
Lawngtlai	Chawngte (84)	Mainababsora II	271652
Lawngtlai	Chawngte (84)	Borakabakhali	271654
Lawngtlai	Chawngte (84)	Ajasora	271655
Lawngtlai	Chawngte (84)	Borkolok	271656
Lawngtlai	Chawngte (84)	Simeisuri	271657
Lawngtlai	Chawngte (84)	Vaseitlang I	271658
Lawngtlai	Chawngte (84)	Vaseitlang II	271659
Lawngtlai	Chawngte (84)	Golasuri	271660
Lawngtlai	Chawngte (84)	Betbonya	271661
Lawngtlai	Chawngte (84)	Rengashya	271662

District	Sub - District	Village Name	Village Code
Lawngtlai	Chawngte (84)	Longpuighat	271663
Lawngtlai	Chawngte (84)	Futsury	271664
Lawngtlai	Chawngte (84)	Lokhisuri	271667
Lawngtlai	Chawngte (84)	Devasora	271668
Lawngtlai	Chawngte (84)	Ludisora	271670
Lawngtlai	Chawngte (84)	Chhotaguisuri I	271672
Lawngtlai	Chawngte (84)	Chhotaguisuri II	271673
Lawngtlai	Chawngte (84)	Jaruldulbasora	271676
Lawngtlai	Chawngte (84)	Boraituli	271678
Lawngtlai	Chawngte (84)	Damdep I (New Jognasuri I)	271679
Lawngtlai	Chawngte (84)	Damdep II (New Jognasuri II)	271680
Lawngtlai	Chawngte (84)	Boraguisuri	271681
Lawngtlai	Chawngte (84)	Chhippui(Fultuli)	271682
Lawngtlai	Chawngte (84)	Bilosora	271684
Lawngtlai	Chawngte (84)	Silosora	271685
Lawngtlai	Chawngte (84)	Devasora ‘S’	271686
Lawngtlai	Chawngte (84)	Parva I	271687
Lawngtlai	Chawngte (84)	Parva III	271689
Lawngtlai	Chawngte (84)	Kamtuli	271690
Lawngtlai	Chawngte (84)	Bondukbangsora	271692
Lawngtlai	Lawngtlai (38)	Chawngtelui	271705
Lawngtlai	Lawngtlai (38)	Diltlang ‘S’	271706
Lawngtlai	Lawngtlai (38)	Ngengpuikai	271707
Lawngtlai	Lawngtlai (38)	Rulkual	271716
Lawngtlai	Lawngtlai (38)	Saizawh ‘E’	271719
Lawngtlai	Lawngtlai (38)	Kawrthindeng	271720
Lawngtlai	Lawngtlai (38)	Darnamtlang	271721
Lawngtlai	Lawngtlai (38)	Hruitezawl	271723
Lawngtlai	Lawngtlai (38)	Tuithumhnar	271724
Lawngtlai	Lawngtlai (38)	Lunghauka	271726
Lawngtlai	Lawngtlai (38)	Hmawngbu	271728
Lawngtlai	Lawngtlai (38)	Hmawngbuchhuah	271729
Lawngtlai	Lawngtlai (38)	Kakichhuah	271730
Lawngtlai	Lawngtlai (38)	Zochawchhuah	271731
Lawngtlai	Lawngtlai (38)	Ngengpuitlang	271734
Lawngtlai	"S" Bungtlang (27)	Jognasuri	271736
Lawngtlai	"S" Bungtlang (27)	Karlui	271737
Lawngtlai	"S" Bungtlang (27)	S.Bungtlang	271738
Lawngtlai	"S" Bungtlang (27)	Hmunnuam	271740
Lawngtlai	"S" Bungtlang (27)	Pandawnglui	271741
Lawngtlai	"S" Bungtlang (27)	Damlui	271742
Lawngtlai	"S" Bungtlang (27)	Nghalimlui	271743

District	Sub - District	Village Name	Village Code
Lawngtlai	"S" Bungtlang (27)	Vaseikai	271744
Lawngtlai	"S" Bungtlang (27)	Saibawh	271745
Lawngtlai	"S" Bungtlang (27)	Fangfarlui	271746
Lawngtlai	"S" Bungtlang (27)	M.Kawnpui	271747
Lawngtlai	"S" Bungtlang (27)	Chikhurlui	271749
Lawngtlai	"S" Bungtlang (27)	Balisora	271750
Lawngtlai	"S" Bungtlang (27)	Vathuampui	271751
Lawngtlai	"S" Bungtlang (27)	Chamdur 'P' I	271752
Lawngtlai	"S" Bungtlang (27)	Chamdurtlang I	271754
Lawngtlai	"S" Bungtlang (27)	Ngunlingkhua	271757
Lawngtlai	"S" Bungtlang (27)	Tuisentlang	271758
Lawngtlai	"S" Bungtlang (27)	Dumzautlang	271759
Lawngtlai	"S" Bungtlang (27)	Dumzau I	271760
Lawngtlai	"S" Bungtlang (27)	Tuichawngtlang	271761
Lawngtlai	Sangtu (19)	Lungtian	271765
Lawngtlai	Sangtu (19)	Cheural	271766
Lawngtlai	Sangtu (19)	Rawlbuk	271767
Lawngtlai	Sangtu (19)	Lungpher	271769
Lawngtlai	Sangtu (19)	Siachangkawn	271770
Lawngtlai	Sangtu (19)	Tialdawngi Lung	271774
Lawngtlai	Sangtu (19)	Vawmbuk	271775
Lawngtlai	Sangtu (19)	Archhuang	271776
Lawngtlai	Sangtu (19)	Thaltlang	271777
Lawngtlai	Sangtu (19)	Sentetfiang	271778
Lawngtlai	Sangtu (19)	Sangau 'W'	271779
Lawngtlai	Sangtu (19)	Sangau 'E'	271780
Lawngtlai	Sangtu (19)	Pangkhua	271781
Lunglei	West Bunghmun (40)	Mar'S'	271419
Lunglei	West Bunghmun (40)	Terabonia	271420
Lunglei	West Bunghmun (40)	Sesawm	271421
Lunglei	West Bunghmun (40)	Laisawral	271422
Lunglei	West Bunghmun (40)	Darngawn	271424
Lunglei	West Bunghmun (40)	Dengsur	271425
Lunglei	West Bunghmun (40)	S.Dampui	271430
Lunglei	West Bunghmun (40)	Thenhlum	271433
Lunglei	West Bunghmun (40)	Changpui	271435
Lunglei	West Bunghmun (40)	Lungchem	271436
Lunglei	West Bunghmun (40)	W.Bunghmun	271437
Lunglei	West Bunghmun (40)	Sachan	271438
Lunglei	West Bunghmun (40)	New Sachan	271439
Lunglei	West Bunghmun (40)	Salmar	271442
Lunglei	West Bunghmun (40)	Mauzam	271443
Lunglei	West Bunghmun (40)	Bandiasora	271444
Lunglei	West Bunghmun (40)	Devasuri	271446
Lunglei	West Bunghmun (40)	Malsuri	271448

District	Sub - District	Village Name	Village Code
Lunglei	West Bunghmun (40)	Puankhai	271449
Lunglei	West Bunghmun (40)	New Belkhai (Tuikawi)	271451
Lunglei	West Bunghmun (40)	Sumasumi	271452
Lunglei	West Bunghmun (40)	Sertlangpui	271455
Lunglei	Lungsen (82)	Ukdasuri (Tuilet)	271459
Lunglei	Lungsen (82)	Khojoisuri Old	271502
Lunglei	Lungsen (82)	Silkur	271503
Lunglei	Lungsen (82)	Khojaisuri	271510
Lunglei	Lungsen (82)	Bornasuri	271511
Lunglei	Lungsen (82)	S.Chawilung	271512
Lunglei	Lungsen (82)	Khawmawi	271528
Lunglei	Lungsen (82)	Tuisen Bolia	271535
Lunglei	Lungsen (82)	Tuisen chhuah	271536
Lunglei	Lunglei (48)	Ramlaitui	271544
Lunglei	Lunglei (48)	Chhipphir	271545
Lunglei	Lunglei (48)	Ralvawng	271562
Lunglei	Lunglei (48)	Thualthu	271579
Lunglei	Hnahthial (25)	S.Chawngtui	271594
Lunglei	Hnahthial (25)	Tarpho	271595
Lunglei	Hnahthial (25)	Khawhri	271596
Lunglei	Hnahthial (25)	Cherhlun	271598
Lunglei	Hnahthial (25)	New Ngharchhip	271600
Lunglei	Hnahthial (25)	Thingsai	271601
Lunglei	Hnahthial (25)	Bualpui H	271602
Lunglei	Hnahthial (25)	Darzo	271610
Lunglei	Hnahthial (25)	Muallianpui	271611
Mamit	Zawlnuam (66)	Hriphaw	271018
Mamit	Zawlnuam (66)	Serhmun	271030
Mamit	Zawlnuam (66)	W.Bunghmun	271033
Mamit	Zawlnuam (66)	Suarhliap	271056
Mamit	Zawlnuam (66)	Tuipuibari	271064
Mamit	Zawlnuam (66)	Rajivnagar	271065
Mamit	Zawlnuam (66)	Andermanik	271068
Mamit	Zawlnuam (66)	Tuidam	271071
Mamit	West Phaileng (33)	Khawhnai	271084
Mamit	West Phaileng (33)	Tuirum	271085
Mamit	West Phaileng (33)	Kawnmawi	271089
Mamit	West Phaileng (33)	N.Chhippui	271090
Mamit	West Phaileng (33)	Saithah	271093
Mamit	West Phaileng (33)	Parvatui	271097
Mamit	West Phaileng (33)	W.Phulpui	271104
Mamit	West Phaileng (33)	Silsuri	271106
Mamit	West Phaileng (33)	Pukzing	271107
Mamit	West Phaileng (33)	Pukzing vengthar	271108

District	Sub - District	Village Name	Village Code
Mamit	West Phaileng (33)	Hnahva	271109
Mamit	West Phaileng (33)	Hruiduk	271110
Mamit	West Phaileng (33)	Marpara North	271111
Mamit	Reiek (24)	W.Lungdar	271126
Mamit	Reiek (24)	Khawrihnim	271127
Mamit	Reiek (24)	Bawlte	271129
Mamit	Reiek (24)	Darlung	271131
Mamit	Reiek (24)	S.Sabual	271132
Mamit	Reiek (24)	Lungphun	271134
Saiha	Tuipang (41)	Tuisih	271785
Saiha	Tuipang (41)	New Latawh	271790
Saiha	Tuipang (41)	Zawngling	271795
Saiha	Tuipang (41)	Chakhang	271797
Saiha	Tuipang (41)	Siasi	271798
Saiha	Tuipang (41)	Mawhre	271799
Saiha	Tuipang (41)	Chapui	271800
Saiha	Tuipang (41)	Khopai	271801
Saiha	Tuipang (41)	Kaisih	271803
Saiha	Tuipang (41)	Lehri (New Latawh)	271806
Saiha	Tuipang (41)	Lawngban	271807
Saiha	Tuipang (41)	Lungdar(Lodaw)	271808
Saiha	Tuipang (41)	Phura	271811
Saiha	Tuipang (41)	Vahai	271812
Saiha	Tuipang (41)	Tongkolong	271813
Saiha	Tuipang (41)	Mipu	271814
Saiha	Tuipang (41)	Laki	271815
Saiha	Tuipang (41)	Longmasu	271817
Saiha	Tuipang (41)	Bymari	271818
Saiha	Tuipang (41)	Lungpuk	271820
Saiha	Saiha (20)	Maubawk 'L'	271828
Saiha	Saiha (20)	Lungbun	271832
Saiha	Saiha (20)	Phusa	271833
Saiha	Saiha (20)	Siata	271835
Serchhip	Serchhip (18)	Hmuntha	271388
Serchhip	Serchhip (18)	Rullam	271389
Serchhip	Serchhip (18)	E.Thinglian	271394
Serchhip	Serchhip (18)	Vanchengpui	271403
Serchhip	East Lungdar Part (15)	Lungkawlh	271417

Uncovered villages in Meghalaya with Population above 250 (as per 2011 census)

District	Sub - District	Village Name	Village Code
East Garo Hills	Resubelpara (337)	Lower Sualmari	274407
East Garo Hills	Resubelpara (337)	Thakurbilla Garo	274409
East Garo Hills	Resubelpara (337)	Sarapara	274411
East Garo Hills	Resubelpara (337)	Upper Sualmari	274420
East Garo Hills	Resubelpara (337)	Dujong Akong	274427
East Garo Hills	Resubelpara (337)	Dangorpita	274439
East Garo Hills	Resubelpara (337)	Upper Bolsong B.Mohol	274447
East Garo Hills	Resubelpara (337)	Lower Bolsong B.Mohol	274448
East Garo Hills	Resubelpara (337)	Ane Aga	274450
East Garo Hills	Resubelpara (337)	Upper Dengnanggre	274460
East Garo Hills	Resubelpara (337)	Bongbanchi Songma	274464
East Garo Hills	Resubelpara (337)	Wasim Dajongpara	274467
East Garo Hills	Resubelpara (337)	Samkalak Jongdikgre	274487
East Garo Hills	Resubelpara (337)	Chisim Aduma	274489
East Garo Hills	Resubelpara (337)	Achotchong Chibolgre	274491
East Garo Hills	Resubelpara (337)	Maodam	274493
East Garo Hills	Resubelpara (337)	Maodam Ajanggre	274494
East Garo Hills	Resubelpara (337)	Kaldong Songma	274603
East Garo Hills	Resubelpara (337)	Thapa Dangri	274622
East Garo Hills	Resubelpara (337)	Kawak	274659
East Garo Hills	Resubelpara (337)	Balmikram	274717
East Garo Hills	Dambo /Rongjeng (197)	Mejolgre Amebang	274745
East Garo Hills	Dambo /Rongjeng (197)	Cheran Chikal	274761
East Garo Hills	Dambo /Rongjeng (197)	Cheran Songgitcham	274763
East Garo Hills	Dambo /Rongjeng (197)	Simseng Rongal	274770

District	Sub - District	Village Name	Village Code
East Garo Hills	Dambo /Rongjeng (197)	Simseng Bongga	274771
East Garo Hills	Dambo /Rongjeng (197)	Gabil Daningka	274776
East Garo Hills	Dambo /Rongjeng (197)	Rogu Alda	274777
East Garo Hills	Dambo /Rongjeng (197)	Gabil Ading	274778
East Garo Hills	Dambo /Rongjeng (197)	Rongchong	274781
East Garo Hills	Dambo /Rongjeng (197)	Nengkram	274782
East Garo Hills	Dambo /Rongjeng (197)	Ronga Agal	274783
East Garo Hills	Dambo /Rongjeng (197)	Nongbak Darang	274785
East Garo Hills	Dambo /Rongjeng (197)	Asim Agal	274786
East Garo Hills	Dambo /Rongjeng (197)	Imtra-Apal (Mangsang Imtra-Gittim)	274788
East Garo Hills	Dambo /Rongjeng (197)	Chitil Apal	274791
East Garo Hills	Dambo /Rongjeng (197)	Mangsang Bamil	274792
East Garo Hills	Dambo /Rongjeng (197)	Lower Bamil	274794
East Garo Hills	Dambo /Rongjeng (197)	Mariapal	274795
East Garo Hills	Dambo /Rongjeng (197)	Babupara	274796
East Garo Hills	Dambo /Rongjeng (197)	Sarangkill	274799
East Garo Hills	Dambo /Rongjeng (197)	Ronggisim Songma	274800
East Garo Hills	Dambo /Rongjeng (197)	upper Nangbak Apal	274807
East Garo Hills	Dambo /Rongjeng (197)	Lower Nongbak Apal	274808
East Garo Hills	Dambo /Rongjeng (197)	Rangberam	274809
East Garo Hills	Dambo /Rongjeng (197)	Gabil Patal Upper	274811
East Garo Hills	Dambo /Rongjeng (197)	Lower Gabil Patal	274812
East Garo Hills	Dambo /Rongjeng (197)	Mejolgre Wancho	274813
East Garo Hills	Dambo /Rongjeng (197)	Jawalgre Songgital	274816
East Garo Hills	Dambo /Rongjeng (197)	Dagal Simreng	274818
East Garo Hills	Dambo /Rongjeng (197)	Rongmil	274825
East Garo Hills	Dambo /Rongjeng (197)	Gabil Bisa	274827

District	Sub - District	Village Name	Village Code
East Garo Hills	Dambo /Rongjeng (197)	Nongbak Rengkil	274828
East Garo Hills	Dambo /Rongjeng (197)	Simsam Atimbo	274831
East Garo Hills	Dambo /Rongjeng (197)	Ambrichicho	274835
East Garo Hills	Dambo /Rongjeng (197)	Dambo Bima	274836
East Garo Hills	Dambo /Rongjeng (197)	Mangsang Mokura	274837
East Garo Hills	Dambo /Rongjeng (197)	Dosikgittim	274840
East Garo Hills	Dambo /Rongjeng (197)	Haslong Nagimaram	274841
East Garo Hills	Dambo /Rongjeng (197)	Haslong Mechimram	274843
East Garo Hills	Dambo /Rongjeng (197)	Dambo Watesa	274846
East Garo Hills	Dambo /Rongjeng (197)	Dambo Reserve I	274848
East Garo Hills	Dambo /Rongjeng (197)	Dambo Rongdeng	274849
East Garo Hills	Dambo /Rongjeng (197)	Thaugittim	274850
East Garo Hills	Dambo /Rongjeng (197)	Chigro Agal	274851
East Garo Hills	Dambo /Rongjeng (197)	Dambo Gittim (Dambo Gitonggittim)	274852
East Garo Hills	Dambo /Rongjeng (197)	Dambo Mrok	274856
East Garo Hills	Dambo /Rongjeng (197)	Rongjeng Reserve	274857
East Garo Hills	Dambo /Rongjeng (197)	Rongjeng Chiring Dokrugittim	274858
East Garo Hills	Dambo /Rongjeng (197)	Nengjringgttim	274862
East Garo Hills	Dambo /Rongjeng (197)	Wajagittim	274863
East Garo Hills	Dambo /Rongjeng (197)	Aragittim	274864
East Garo Hills	Dambo /Rongjeng (197)	Ambare Ading	274865
East Garo Hills	Dambo /Rongjeng (197)	Gongdop	274868
East Garo Hills	Dambo /Rongjeng (197)	Rangkugittim	274895
East Garo Hills	Dambo /Rongjeng (197)	Naringgiri Songma	274896
East Garo Hills	Dambo /Rongjeng (197)	Wakchikong	274909
East Garo Hills	Dambo /Rongjeng (197)	Rongjeng Chigisimgittim	274911
East Garo Hills	Dambo /Rongjeng (197)	Darugre Songma	274915

District	Sub - District	Village Name	Village Code
East Garo Hills	Dambo /Rongjeng (197)	Milsanggitim	274916
East Garo Hills	Dambo /Rongjeng (197)	Milawe	274917
East Garo Hills	Dambo /Rongjeng (197)	Chigisin	274920
East Garo Hills	Dambo /Rongjeng (197)	Terrace Gittim	274926
East Garo Hills	Dambo /Rongjeng (197)	Danal Surigittim	274927
East Garo Hills	Dambo /Rongjeng (197)	Chigisim Bisik	274929
East Garo Hills	Dambo /Rongjeng (197)	Rongdu Dabit	274933
East Garo Hills	Dambo /Rongjeng (197)	Rongdu Rongit	274935
East Garo Hills	Karkutta (188)	Dangkong Garo	274941
East Garo Hills	Karkutta (188)	Arai Apal	274942
East Garo Hills	Karkutta (188)	Gairong	274943
East Garo Hills	Karkutta (188)	Chima Apal	274944
East Garo Hills	Karkutta (188)	Sarangma A	274945
East Garo Hills	Karkutta (188)	Sarangma B	274946
East Garo Hills	Karkutta (188)	Depa	274947
East Garo Hills	Karkutta (188)	Depa Garat	274948
East Garo Hills	Karkutta (188)	Dangkong Rabha	274949
East Garo Hills	Karkutta (188)	Imbanggi	274950
East Garo Hills	Karkutta (188)	Wageasi	274951
East Garo Hills	Karkutta (188)	Mendima Rabha	274952
East Garo Hills	Karkutta (188)	Mendima (Garo)	274954
East Garo Hills	Karkutta (188)	Bolgrimgittim (Baksalpara)	274956
East Garo Hills	Karkutta (188)	Nachirongdik	274964
East Garo Hills	Karkutta (188)	Tebrongpara	274968
East Garo Hills	Karkutta (188)	Kama Gandim	274970
East Garo Hills	Karkutta (188)	Menadoba	274978
East Garo Hills	Karkutta (188)	Lower Rongbu	274980

District	Sub - District	Village Name	Village Code
East Garo Hills	Karkutta (188)	Bagabatta	274981
East Garo Hills	Karkutta (188)	Upper Rongbu	274983
East Garo Hills	Karkutta (188)	Lower Bolmedang	274984
East Garo Hills	Karkutta (188)	Chilpara Reserve	274985
East Garo Hills	Karkutta (188)	Chilpara	274986
East Garo Hills	Karkutta (188)	Tengasot	274987
East Garo Hills	Karkutta (188)	Bugakol	274992
East Garo Hills	Karkutta (188)	New Amerim	274994
East Garo Hills	Karkutta (188)	Upper Bolmedang	274999
East Garo Hills	Karkutta (188)	Chibongga A	275000
East Garo Hills	Karkutta (188)	Chibongga B	275001
East Garo Hills	Karkutta (188)	Rajasimla Songma	275018
East Garo Hills	Karkutta (188)	Uguri	275021
East Garo Hills	Karkutta (188)	Rajasimla Wari	275022
East Garo Hills	Karkutta (188)	Rangga	275025
East Garo Hills	Karkutta (188)	Tokkol	275026
East Garo Hills	Karkutta (188)	Badaka	275027
East Garo Hills	Karkutta (188)	Imsambal	275032
East Garo Hills	Karkutta (188)	Sakware	275042
East Garo Hills	Karkutta (188)	Mingkrak Chinalsa	275053
East Garo Hills	Karkutta (188)	Gorok	275054
East Garo Hills	Karkutta (188)	Waramja	275060
East Garo Hills	Karkutta (188)	Dochisoram	275061
East Garo Hills	Karkutta (188)	Ildek Reserve	275062
East Garo Hills	Karkutta (188)	Chachinat	275066
East Garo Hills	Karkutta (188)	Chiwaki	275069
East Garo Hills	Karkutta (188)	Megam Ading	275070

District	Sub - District	Village Name	Village Code
East Garo Hills	Karkutta (188)	Watregittim	275071
East Garo Hills	Karkutta (188)	Upper Bolsaldam	275072
East Garo Hills	Karkutta (188)	Silkigittim	275074
East Garo Hills	Karkutta (188)	Upper Jambal	275075
East Garo Hills	Karkutta (188)	Golde Nanggrak	275078
East Garo Hills	Karkutta (188)	Amerim	275080
East Garo Hills	Karkutta (188)	Renggok Saram	275083
East Garo Hills	Karkutta (188)	Upper Sambrak	275084
East Garo Hills	Karkutta (188)	Lower Sambrak	275085
East Garo Hills	Karkutta (188)	Soba Jambal	275087
East Garo Hills	Karkutta (188)	Lower Sari Awe	275090
East Garo Hills	Karkutta (188)	Kalwe	275091
East Garo Hills	Karkutta (188)	Ildek Akong	275095
East Garo Hills	Karkutta (188)	Tingba	275096
East Garo Hills	Karkutta (188)	Aruagre	275098
East Garo Hills	Karkutta (188)	Mawdipara	275101
East Garo Hills	Karkutta (188)	Mittegittim	275105
East Garo Hills	Karkutta (188)	Nongbak Chichra	275108
East Garo Hills	Karkutta (188)	Rakuma	275109
East Garo Hills	Karkutta (188)	Dokongsi A	275110
East Garo Hills	Karkutta (188)	Dokongsi C	275112
East Garo Hills	Karkutta (188)	Rongchri	275114
East Garo Hills	Karkutta (188)	Illagittim Songma	275121
East Garo Hills	Karkutta (188)	Jongkigittim	275122
East Garo Hills	Karkutta (188)	Nongbak Wapil	275125
East Garo Hills	Karkutta (188)	Nongbak Rongbang	275128
East Garo Hills	Songsak (229)	New Mendal	275134

District	Sub - District	Village Name	Village Code
East Garo Hills	Songsak (229)	Elatchi Apal (Rabha)	275153
East Garo Hills	Songsak (229)	Mendu Apal	275154
East Garo Hills	Songsak (229)	Akarok Songgitcham	275158
East Garo Hills	Songsak (229)	Jogogre	275171
East Garo Hills	Songsak (229)	Rongrong Antidam	275180
East Garo Hills	Songsak (229)	Do'kigre	275184
East Garo Hills	Songsak (229)	Songsak Wagopgre	275188
East Garo Hills	Songsak (229)	Gabil Songgitcham	275189
East Garo Hills	Songsak (229)	Gabil Songgital	275191
East Garo Hills	Songsak (229)	Gra Songgitcham	275195
East Garo Hills	Songsak (229)	Aberamgre	275203
East Garo Hills	Songsak (229)	Dagal Samithi	275219
East Garo Hills	Songsak (229)	Daga Apal	275220
East Garo Hills	Songsak (229)	Dagal Aringa	275222
East Garo Hills	Songsak (229)	Koksi Songma	275232
East Garo Hills	Songsak (229)	Chidimit Namesa	275235
East Garo Hills	Songsak (229)	Songkama-Waksogre	275237
East Garo Hills	Songsak (229)	Koksi Nengsat	275238
East Garo Hills	Songsak (229)	Dalbot Songma	275251
East Garo Hills	Songsak (229)	Asil Songgital	275256
East Garo Hills	Songsak (229)	Barikgre	275257
East Garo Hills	Songsak (229)	Chinabat	275258
East Garo Hills	Songsak (229)	Rimrang Bonegre	275259
East Garo Hills	Songsak (229)	Samin Indikim	275265
East Garo Hills	Songsak (229)	Gongrang	275274
East Garo Hills	Songsak (229)	Rongdolgre	275297

District	Sub - District	Village Name	Village Code
East Garo Hills	Songsak (229)	Napak-A'pal (Songma)	275309
East Garo Hills	Songsak (229)	Songsak Agitok	275313
East Garo Hills	Songsak (229)	Songsak Agitok	275314
East Garo Hills	Songsak (229)	Chidekgre Bone	275315
East Garo Hills	Songsak (229)	Bolmoram Dochokgre	275354
East Garo Hills	Songsak (229)	Dobu Bazar (Cherasu Gittim)	275357
East Garo Hills	Samanda (159)	Songma Enggok	275369
East Garo Hills	Samanda (159)	Rongsak Songma (Rongsakgre)	275395
East Garo Hills	Samanda (159)	Mandalgre	275454
East Garo Hills	Samanda (159)	Nengkra Watregrittim	275486
East Garo Hills	Samanda (159)	Rongbinggre (A)	275513
East Garo Hills	Samanda (159)	Rongbing Boldak (B)	275515
East Khasi Hills	Mawphlang (184)	Banglasohphie	278072
East Khasi Hills	Mawphlang (184)	Kynroh Nonglum	278075
East Khasi Hills	Mawphlang (184)	Dewlieh Mawrisnai	278091
East Khasi Hills	Mawphlang (184)	Jabar Nongneng	278100
East Khasi Hills	Mawphlang (184)	Weilyngkut A	278114
East Khasi Hills	Mawphlang (184)	Nongbsap B	278119
East Khasi Hills	Mawphlang (184)	Kharrngoi	278214
East Khasi Hills	Mawphlang (184)	Wahlyngkien Ramklang	278228
East Khasi Hills	Mawphlang (184)	Thainthynroh Mawlum	278238
East Khasi Hills	Mawphlang (184)	Phanniewlahneng	278240
East Khasi Hills	Mawphlang (184)	Phanniewlahrum	278241
East Khasi Hills	Mawphlang (184)	Mawkynroh	278251
East Khasi Hills	Mylliem (107)	Lumpdeng	278284
East Khasi Hills	Mawryngkneng (64)	Jaroit	278405
East Khasi Hills	Mawkynrew (71)	Khlieh-a-sem	278482
East Khasi Hills	Khatarshnong Laitkroh (98)	Nongbah	278579
East Khasi Hills	Khatarshnong Laitkroh (98)	Madanfootball	278586

District	Sub - District	Village Name	Village Code
East Khasi Hills	Khatarshnong Laitkroh (98)	Nongthymmai (Raid Nongkynrih)	278593
East Khasi Hills	Mawsynram (166)	Mawlum Tyrsad	278597
East Khasi Hills	Mawsynram (166)	Nongshluid	278642
East Khasi Hills	Mawsynram (166)	Kynrang	278667
East Khasi Hills	Mawsynram (166)	Mawpen	278668
East Khasi Hills	Mawsynram (166)	Phlangwanbroi	278672
East Khasi Hills	Mawsynram (166)	Sinai Mawshynrut	278679
East Khasi Hills	Mawsynram (166)	Mawlyngbna	278683
East Khasi Hills	Mawsynram (166)	Thyllaw Warding	278691
East Khasi Hills	Mawsynram (166)	Dholai Bhowal	278693
East Khasi Hills	Mawsynram (166)	Dholai Malai	278697
East Khasi Hills	Mawsynram (166)	Kharabri (Garo)	278703
East Khasi Hills	Mawsynram (166)	Phodstein Dongrum	278723
East Khasi Hills	Mawsynram (166)	Dangar Dop	278727
East Khasi Hills	Mawsynram (166)	Pyndenborsora	278729
East Khasi Hills	Mawsynram (166)	Sonatola	278731
East Khasi Hills	Mawsynram (166)	Nongkriah	278736
East Khasi Hills	Mawsynram (166)	Kosudup	278739
East Khasi Hills	Mawsynram (166)	Makhali	278741
East Khasi Hills	Shella Bholaganj (140)	Mawthangsohkhyllung	278855
East Khasi Hills	Shella Bholaganj (140)	Diengsiar Mawlong	278857
East Khasi Hills	Shella Bholaganj (140)	New Kamorah	278872
East Khasi Hills	Shella Bholaganj (140)	Khahmalai	278875
East Khasi Hills	Shella Bholaganj (140)	Kalatek	278887
East Khasi Hills	Shella Bholaganj (140)	Kalibari	278888
East Khasi Hills	Shella Bholaganj (140)	Dhorom	278889
East Khasi Hills	Shella Bholaganj (140)	Diengrai	278890
East Khasi Hills	Shella Bholaganj (140)	Umsawmaskon	278899
East Khasi Hills	Pynursla (156)	Nongjri	278903
East Khasi Hills	Pynursla (156)	Umniuh Iarbniaw	278990
Jaintia Hills	Thadlaskein (133)	Khonsaro	279060
Jaintia Hills	Thadlaskein (133)	Rtiang Sanphew	279069
Jaintia Hills	Thadlaskein (133)	Myngngor	279078
Jaintia Hills	Thadlaskein (133)	Umjalisiaw	279089
Jaintia Hills	Thadlaskein (133)	Iongshiwiat	279109
Jaintia Hills	Thadlaskein (133)	Moobakhon	279114
Jaintia Hills	Thadlaskein (133)	Iongsnieh Takhniang	279116
Jaintia Hills	Thadlaskein (133)	Madansynrang	279120
Jaintia Hills	Thadlaskein (133)	Moolephaw	279143

District	Sub - District	Village Name	Village Code
Jaintia Hills	Laskein (100)	Tum-Tum	279209
Jaintia Hills	Laskein (100)	Mooshroot	279213
Jaintia Hills	Laskein (100)	Shilliang Myntang	279216
Jaintia Hills	Laskein (100)	Sookhlieh	279221
Jaintia Hills	Laskein (100)	Lummuriap	279224
Jaintia Hills	Laskein (100)	Pdeimutong	279251
Jaintia Hills	Laskein (100)	Khlookynrin	279262
Jaintia Hills	Laskein (100)	Praing	279279
Jaintia Hills	Laskein (100)	Umdinlieng	279280
Jaintia Hills	Laskein (100)	Iawthymmei	279281
Jaintia Hills	Amlarem (98)	Nongbareh Rim	279317
Jaintia Hills	Amlarem (98)	Jong - u - Shen	279356
Jaintia Hills	Amlarem (98)	Twah - u - Sdiah	279357
Jaintia Hills	Khliehriat (109)	Wah Sarang	279427
Jaintia Hills	Khliehriat (109)	Rngad	279429
Jaintia Hills	Khliehriat (109)	Shilliang Umshong	279439
Jaintia Hills	Khliehriat (109)	Lum Shken	279441
Jaintia Hills	Khliehriat (109)	Lum Puthoi	279442
Jaintia Hills	Khliehriat (109)	Musiang Lamare (Old)	279456
Jaintia Hills	Saipung (97)	Lakasein	279501
Jaintia Hills	Saipung (97)	Umkyrpong	279503
Jaintia Hills	Saipung (97)	Sahkai	279508
Jaintia Hills	Saipung (97)	Mulait Bri Sutnga	279514
Jaintia Hills	Saipung (97)	Mulait Bri Sumer	279515
Jaintia Hills	Saipung (97)	Mookhain	279516
Jaintia Hills	Saipung (97)	Samasi	279517
Jaintia Hills	Saipung (97)	Mynthning	279518
Jaintia Hills	Saipung (97)	Lamyrsiang	279525
Jaintia Hills	Saipung (97)	Mooknor	279535
Jaintia Hills	Saipung (97)	Khannar	279536
Jaintia Hills	Saipung (97)	Lura	279547
Jaintia Hills	Saipung (97)	Thuruk	279551
Jaintia Hills	Saipung (97)	Lelad	279553
Jaintia Hills	Saipung (97)	Tangnub	279556
Jaintia Hills	Saipung (97)	Moulhoi	279558
Jaintia Hills	Saipung (97)	Saibual	279559
Jaintia Hills	Saipung (97)	Moulsei	279566
Jaintia Hills	Saipung (97)	Kulpui	279577
Jaintia Hills	Saipung (97)	Moullian	279580
Ribhoi	Umling (223)	Paham Birthem	277437
Ribhoi	Umling (223)	Mawphrew	277438

District	Sub - District	Village Name	Village Code
Ribhoi	Umling (223)	Nongrabil	277441
Ribhoi	Umling (223)	Chibra	277448
Ribhoi	Umling (223)	Shakoi Kuna	277537
Ribhoi	Umling (223)	Marmain	277544
Ribhoi	Umling (223)	Pahammardaloi	277579
Ribhoi	Umling (223)	Purdua	277583
Ribhoi	Umling (223)	Himpala	277586
Ribhoi	Umling (223)	Tapempoanglong	277588
Ribhoi	Umling (223)	Umphing	277631
Ribhoi	Jirang (107)	Gonopati	277660
Ribhoi	Jirang (107)	Umshru	277664
Ribhoi	Jirang (107)	Pahamushru	277665
Ribhoi	Jirang (107)	Umkrem Dykhong	277666
Ribhoi	Jirang (107)	Nongrim Jirang	277668
Ribhoi	Jirang (107)	Patgaon	277671
Ribhoi	Jirang (107)	Umiong	277673
Ribhoi	Jirang (107)	Nongsier	277679
Ribhoi	Jirang (107)	Mynnar Jirang	277680
Ribhoi	Jirang (107)	Pathardharo (Umjyrha)	277692
Ribhoi	Jirang (107)	Balakhowa	277694
Ribhoi	Jirang (107)	mawden Mawshohshrieh	277699
Ribhoi	Jirang (107)	Belahari	277704
Ribhoi	Jirang (107)	Jumbari Gaon	277709
Ribhoi	Jirang (107)	Warmawsaw	277710
Ribhoi	Jirang (107)	Nongdom Mawpliang	277712
Ribhoi	Jirang (107)	Umshohphria	277715
Ribhoi	Jirang (107)	Umrit	277717
Ribhoi	Jirang (107)	Mawskeilum	277718
Ribhoi	Jirang (107)	Mawskeithem	277720
Ribhoi	Jirang (107)	Umkadhor	277721
Ribhoi	Jirang (107)	Sohkyrbam Domphlang	277722
Ribhoi	Jirang (107)	Sohkyrbam Rim	277723
Ribhoi	Jirang (107)	Nongwah Mawlein	277724
Ribhoi	Jirang (107)	Nongwah Paham Ryngkang	277725
Ribhoi	Jirang (107)	Nongwah Mawtamur	277726
Ribhoi	Jirang (107)	Nongbirlum	277729
Ribhoi	Jirang (107)	Nongbirthem	277731
Ribhoi	Jirang (107)	Ummar	277732
Ribhoi	Jirang (107)	Umsong	277733

District	Sub - District	Village Name	Village Code
Ribhoi	Jirang (107)	Nongladew	277735
Ribhoi	Jirang (107)	Jalilum	277736
Ribhoi	Jirang (107)	Tasku Rim	277739
Ribhoi	Umsning (306)	Amjong	277770
Ribhoi	Umsning (306)	Lymphuid	277774
Ribhoi	Umsning (306)	Umsiang Mawpdeng	277779
Ribhoi	Umsning (306)	Mawker	277780
Ribhoi	Umsning (306)	Mawshang Mawksiew	277781
Ribhoi	Umsning (306)	Umtrai	277782
Ribhoi	Umsning (306)	Korhadem	277785
Ribhoi	Umsning (306)	Mawalaho	277789
Ribhoi	Umsning (306)	Lamalong	277794
Ribhoi	Umsning (306)	Paitklong	277848
Ribhoi	Umsning (306)	Umtangi	277849
Ribhoi	Umsning (306)	Mawpyrhut	277855
Ribhoi	Umsning (306)	Umdamli	277869
Ribhoi	Umsning (306)	Ladmawrong	277870
Ribhoi	Umsning (306)	Umsait Sning Pdeng	277871
Ribhoi	Umsning (306)	Tyrsopdeng	277886
Ribhoi	Umsning (306)	Lumdiengjri	277887
Ribhoi	Umsning (306)	Mawshut	277892
Ribhoi	Umsning (306)	Liarbang Thiahmiet	277896
Ribhoi	Umsning (306)	Umpohwin Pdeng	277961
Ribhoi	Umsning (306)	Umpohwin Nongnup	277962
Ribhoi	Umsning (306)	Nongrim Umpohwin	277963
South Garo Hills	Chokpot (309)	Durabanda Agitok	275517
South Garo Hills	Chokpot (309)	Durabanda Chambugong	275519
South Garo Hills	Chokpot (309)	Dana Adugiri	275524
South Garo Hills	Chokpot (309)	Dura-Asimgiri	275545
South Garo Hills	Chokpot (309)	Dagal Songgital	275553
South Garo Hills	Chokpot (309)	Jetragiri	275570
South Garo Hills	Chokpot (309)	Paromgre	275573
South Garo Hills	Chokpot (309)	Emandurabangda	275576
South Garo Hills	Chokpot (309)	Reni Badima	275585
South Garo Hills	Chokpot (309)	Dangkipara	275606
South Garo Hills	Chokpot (309)	Sangknigiri	275616
South Garo Hills	Chokpot (309)	Dobagre	275624
South Garo Hills	Chokpot (309)	Dobagre	275638

District	Sub - District	Village Name	Village Code
South Garo Hills	Chokpot (309)	Bolsal Ading	275644
South Garo Hills	Chokpot (309)	Warimagiri	275651
South Garo Hills	Chokpot (309)	Chokpotgiri	275659
South Garo Hills	Chokpot (309)	Daringgre	275661
South Garo Hills	Chokpot (309)	Asugiri	275683
South Garo Hills	Chokpot (309)	Watibokgre	275698
South Garo Hills	Chokpot (309)	Dagal Gopre (A)	275700
South Garo Hills	Chokpot (309)	Kenegre	275703
South Garo Hills	Chokpot (309)	Kene Chania	275711
South Garo Hills	Chokpot (309)	Bolchimdagre	275727
South Garo Hills	Chokpot (309)	Balwatgre	275783
South Garo Hills	Chokpot (309)	Rongrakgre	275785
South Garo Hills	Chokpot (309)	Tebilgiri	275799
South Garo Hills	Chokpot (309)	Silki Betagiri	275801
South Garo Hills	Chokpot (309)	Tengki Songmong	275805
South Garo Hills	Chokpot (309)	Mon Dobakolgre	275807
South Garo Hills	Chokpot (309)	Silki Christiangittim	275808
South Garo Hills	Chokpot (309)	Tengki Badimagiri	275810
South Garo Hills	Chokpot (309)	Ronganggre	275817
South Garo Hills	Chokpot (309)	Kemranggiri	275820
South Garo Hills	Chokpot (309)	Rongrikimgre	275821
South Garo Hills	Gasupara (180)	Lower Gasuapara	275876
South Garo Hills	Gasupara (180)	Sawekolgiri	275961
South Garo Hills	Gasupara (180)	Buga Dongram	275963
South Garo Hills	Gasupara (180)	Chengkali	275987
South Garo Hills	Gasupara (180)	Baigonkona	276002
South Garo Hills	Baghmara (172)	Nongalbibra Bazar	276017
South Garo Hills	Baghmara (172)	Rongkandi Jongsinggittim	276026
South Garo Hills	Baghmara (172)	Me.S.E.B. Complex	276027
South Garo Hills	Baghmara (172)	Pattal Gittim	276031
South Garo Hills	Baghmara (172)	Darang Daju	276035
South Garo Hills	Baghmara (172)	Mengkulgittim	276038
South Garo Hills	Baghmara (172)	Rongsa Awe	276039
South Garo Hills	Baghmara (172)	Badri Rongding Awe	276042
South Garo Hills	Baghmara (172)	Badri Watregittim	276044
South Garo Hills	Baghmara (172)	Badri Maidumgittim	276047
South Garo Hills	Baghmara (172)	Siju Damik Gittim	276049

District	Sub - District	Village Name	Village Code
South Garo Hills	Baghmara (172)	Siju Tolegiri	276053
South Garo Hills	Baghmara (172)	Siju Ganga Awe	276061
South Garo Hills	Baghmara (172)	Siju Nengru Gittim	276063
South Garo Hills	Baghmara (172)	Emangre	276070
South Garo Hills	Baghmara (172)	Siju Duramong	276074
South Garo Hills	Baghmara (172)	Siju Asakbanda	276075
South Garo Hills	Baghmara (172)	Siju Rongkenggittim	276076
South Garo Hills	Baghmara (172)	Nengkong Mandagre	276082
South Garo Hills	Baghmara (172)	Rongmatma	276083
South Garo Hills	Baghmara (172)	Chibagre	276087
South Garo Hills	Baghmara (172)	Ronchekgre	276092
South Garo Hills	Baghmara (172)	Karukol Adinggre	276107
South Garo Hills	Baghmara (172)	Karukol Jalaigre	276110
South Garo Hills	Baghmara (172)	Tainang Songmong	276116
South Garo Hills	Baghmara (172)	Upper Dosogre	276135
South Garo Hills	Baghmara (172)	Mikpak Balsragittim	276144
South Garo Hills	Baghmara (172)	Domdomagre	276164
South Garo Hills	Baghmara (172)	Chambil Badimagre	276166
South Garo Hills	Rongara (143)	Rongsu Agal	276179
South Garo Hills	Rongara (143)	Dallenggittim	276196
South Garo Hills	Rongara (143)	Rongaigittim	276202
South Garo Hills	Rongara (143)	Bul Awe	276209
South Garo Hills	Rongara (143)	Moradam	276211
South Garo Hills	Rongara (143)	Halwa Atong	276213
South Garo Hills	Rongara (143)	Taidang	276217
South Garo Hills	Rongara (143)	Gulpani Songmong	276235
South Garo Hills	Rongara (143)	Gulpani Nokat	276244
South Garo Hills	Rongara (143)	Gaobari	276258
South Garo Hills	Rongara (143)	Rongtotma	276261
South Garo Hills	Rongara (143)	New Rongara	276262
South Garo Hills	Rongara (143)	Lower Nekora	276269
South Garo Hills	Rongara (143)	Nadangkol	276300
South Garo Hills	Rongara (143)	Chenggni Songmong	276304
South Garo Hills	Rongara (143)	Rambil Gittim	276320
West Garo Hills	Selsella (361)	Bangalkata	272765
West Garo Hills	Selsella (361)	Apalgre	272766
West Garo Hills	Selsella (361)	Upper Shyamnagar	272778

District	Sub - District	Village Name	Village Code
West Garo Hills	Selsella (361)	Shyamding (Garo)	272784
West Garo Hills	Selsella (361)	Kotchugre	272805
West Garo Hills	Selsella (361)	Lower Wadagokgre	272822
West Garo Hills	Selsella (361)	Gimegre	272828
West Garo Hills	Selsella (361)	Noyagaon	272840
West Garo Hills	Selsella (361)	Noyagaon I	272841
West Garo Hills	Selsella (361)	Kasharipara	272897
West Garo Hills	Selsella (361)	Khilbhoi	272908
West Garo Hills	Selsella (361)	Baklagre	272922
West Garo Hills	Selsella (361)	Khalpara	272923
West Garo Hills	Selsella (361)	Dipkaigre	272925
West Garo Hills	Selsella (361)	Singwilgre	272927
West Garo Hills	Selsella (361)	Chamaguri(Rc)	272932
West Garo Hills	Selsella (361)	Tikrindagre	272939
West Garo Hills	Selsella (361)	Okkanggre	272944
West Garo Hills	Selsella (361)	Upper Chidinagre	272962
West Garo Hills	Selsella (361)	Dabakgre	273003
West Garo Hills	Selsella (361)	Wajadagre	273005
West Garo Hills	Selsella (361)	Apalgre	273033
West Garo Hills	Selsella (361)	Balanggre	273070
West Garo Hills	Selsella (361)	Dopatchigre	273092
West Garo Hills	Dadenggiri (132)	Hollaidanga	273105
West Garo Hills	Dadenggiri (132)	Bandanggre	273110
West Garo Hills	Dadenggiri (132)	Dinganpara	273118
West Garo Hills	Dadenggiri (132)	Debraggre	273120
West Garo Hills	Dadenggiri (132)	Chandigre	273122
West Garo Hills	Dadenggiri (132)	Tepatangre	273126
West Garo Hills	Dadenggiri (132)	Amonggre	273140
West Garo Hills	Dadenggiri (132)	Dalbenggre	273141
West Garo Hills	Dadenggiri (132)	Egopara	273142
West Garo Hills	Dadenggiri (132)	Dajugre	273144
West Garo Hills	Dadenggiri (132)	Bangranggre	273150
West Garo Hills	Dadenggiri (132)	Rondupara	273158
West Garo Hills	Dadenggiri (132)	Deringgagre	273160
West Garo Hills	Dadenggiri (132)	Domasalgre	273162
West Garo Hills	Dadenggiri (132)	Tebrongre Songma	273166
West Garo Hills	Dadenggiri (132)	Rengbonggre	273167
West Garo Hills	Dadenggiri (132)	Nengchonggre	273168
West Garo Hills	Dadenggiri (132)	Songmarenggre	273175
West Garo Hills	Dadenggiri (132)	Rebugre	273183
West Garo Hills	Dadenggiri (132)	Bakjek Songgitcham	273187

District	Sub - District	Village Name	Village Code
West Garo Hills	Dadenggiri (132)	Upper Baljek Aduma	273190
West Garo Hills	Dadenggiri (132)	Lower Baljek Aduma	273191
West Garo Hills	Dadenggiri (132)	Chenggalgre	273194
West Garo Hills	Dadenggiri (132)	Dilsigre	273197
West Garo Hills	Dadenggiri (132)	Ajrigre	273198
West Garo Hills	Tikrikilla (201)	Borobatapara	273257
West Garo Hills	Tikrikilla (201)	Upper Kharsengdap	273262
West Garo Hills	Tikrikilla (201)	Balbalgre	273277
West Garo Hills	Tikrikilla (201)	Pedaldoba (Rabha)	273281
West Garo Hills	Tikrikilla (201)	Borodoldonga	273297
West Garo Hills	Tikrikilla (201)	Lower Damachiga	273299
West Garo Hills	Tikrikilla (201)	Rabukong	273329
West Garo Hills	Tikrikilla (201)	Gonda Apalgre	273334
West Garo Hills	Tikrikilla (201)	Ravagre	273335
West Garo Hills	Tikrikilla (201)	Saltok Kurong	273341
West Garo Hills	Tikrikilla (201)	Upper Damachiga	273344
West Garo Hills	Tikrikilla (201)	Bollonggitok	273350
West Garo Hills	Tikrikilla (201)	Lower Chigijanggre	273351
West Garo Hills	Tikrikilla (201)	Upper Chigijanggre	273352
West Garo Hills	Tikrikilla (201)	Rangtapgre	273355
West Garo Hills	Tikrikilla (201)	Upper Rimbigre	273356
West Garo Hills	Tikrikilla (201)	Bolchukatonggre	273366
West Garo Hills	Tikrikilla (201)	Jamdamgre	273371
West Garo Hills	Tikrikilla (201)	Rongmali	273372
West Garo Hills	Tikrikilla (201)	Napakgre	273376
West Garo Hills	Tikrikilla (201)	Laskarpara (Garo)	273380
West Garo Hills	Tikrikilla (201)	Megapara	273383
West Garo Hills	Tikrikilla (201)	Kakunanggre	273385
West Garo Hills	Tikrikilla (201)	Dobok Jakolgre	273390
West Garo Hills	Tikrikilla (201)	Andal Sikgre	273391
West Garo Hills	Tikrikilla (201)	Upper Chisikgre	273393
West Garo Hills	Tikrikilla (201)	Renggigre	273398
West Garo Hills	Tikrikilla (201)	Deosali	273402
West Garo Hills	Tikrikilla (201)	Aitibi	273403
West Garo Hills	Tikrikilla (201)	Jongchipara (Nokat)	273406
West Garo Hills	Tikrikilla (201)	Raksamgre	273411
West Garo Hills	Tikrikilla (201)	Rongmakgre	273413
West Garo Hills	Tikrikilla (201)	Apalgre	273416

District	Sub - District	Village Name	Village Code
West Garo Hills	Tikrikilla (201)	Chimagre	273417
West Garo Hills	Tikrikilla (201)	Didapara	273419
West Garo Hills	Tikrikilla (201)	Upper Watregre	273424
West Garo Hills	Tikrikilla (201)	Doabokgre	273429
West Garo Hills	Tikrikilla (201)	Jangrapara Songgitcham	273434
West Garo Hills	Rongrm (181)	Bottregre	273461
West Garo Hills	Rongrm (181)	Waramasim	273482
West Garo Hills	Rongrm (181)	Chasinggre	273506
West Garo Hills	Rongrm (181)	Dura Songma	273584
West Garo Hills	Betasing (204)	Chondon Noket	273620
West Garo Hills	Betasing (204)	Galmara	273631
West Garo Hills	Betasing (204)	Ishakuri	273634
West Garo Hills	Betasing (204)	Sonamite Koch	273670
West Garo Hills	Betasing (204)	Chondonpara	273675
West Garo Hills	Betasing (204)	Sonamite	273680
West Garo Hills	Betasing (204)	Alekapara	273681
West Garo Hills	Betasing (204)	Saptoka	273682
West Garo Hills	Betasing (204)	Dengnakpara	273690
West Garo Hills	Betasing (204)	Skagre	273701
West Garo Hills	Betasing (204)	Kumli	273710
West Garo Hills	Betasing (204)	Sipra Kumli	273711
West Garo Hills	Betasing (204)	Bainapara	273734
West Garo Hills	Betasing (204)	Sipragaon	273739
West Garo Hills	Betasing (204)	Batajolgaon	273742
West Garo Hills	Betasing (204)	Sulguri A	273746
West Garo Hills	Betasing (204)	Sulguri B	273747
West Garo Hills	Betasing (204)	Ampatigri	273749
West Garo Hills	Betasing (204)	Hatisil	273773
West Garo Hills	Betasing (204)	Murchapani	273788
West Garo Hills	Betasing (204)	Chikimilgre	273793
West Garo Hills	Betasing (204)	Latrigre	273809
West Garo Hills	Betasing (204)	Chengkompara	273810
West Garo Hills	Betasing (204)	Bolsalgre	273811
West Garo Hills	Betasing (204)	Borolatri	273812
West Garo Hills	Betasing (204)	Asinagre	273816
West Garo Hills	Zikzak (223)	Kambakpara Songgitchm	273834
West Garo Hills	Zikzak (223)	Dimiligre	273835
West Garo Hills	Zikzak (223)	Kuligaon Hajong	273839
West Garo Hills	Zikzak (223)	Kuligaon Koch	273840
West Garo Hills	Zikzak (223)	Lower Kalaichar	273848
West Garo Hills	Zikzak (223)	Kalaigaon Bilipara	273861
West Garo Hills	Zikzak (223)	Kalaicher Bazar	273867
West Garo Hills	Zikzak (223)	Bollonggiri B	273870
West Garo Hills	Zikzak (223)	Tewaligre	273872

District	Sub - District	Village Name	Village Code
West Garo Hills	Zikzak (223)	Sindilgre	273883
West Garo Hills	Zikzak (223)	Digligre	273900
West Garo Hills	Zikzak (223)	Marahalipara	273901
West Garo Hills	Zikzak (223)	Garagre	273902
West Garo Hills	Zikzak (223)	Mekdual Adinggre	273909
West Garo Hills	Zikzak (223)	Bolgakgre	273917
West Garo Hills	Zikzak (223)	Damalgre	273918
West Garo Hills	Zikzak (223)	Salmanpara	273919
West Garo Hills	Zikzak (223)	Wagepara	273926
West Garo Hills	Zikzak (223)	Dombagre	273927
West Garo Hills	Zikzak (223)	Rongkaigre	273929
West Garo Hills	Zikzak (223)	Rongkaigiri Chambugong Gittim	273930
West Garo Hills	Zikzak (223)	Merengipara	273943
West Garo Hills	Zikzak (223)	Hullukona	273967
West Garo Hills	Zikzak (223)	Kangkanggre	273969
West Garo Hills	Zikzak (223)	Rongsepgre	273970
West Garo Hills	Zikzak (223)	Santangpara	273971
West Garo Hills	Zikzak (223)	Rimtangpara	273972
West Garo Hills	Zikzak (223)	Dingampara	273974
West Garo Hills	Zikzak (223)	Josipara	273975
West Garo Hills	Zikzak (223)	Damdilaka	273976
West Garo Hills	Zikzak (223)	Beparipara	273988
West Garo Hills	Zikzak (223)	Ghegapara	273991
West Garo Hills	Zikzak (223)	Paulpara	273992
West Garo Hills	Zikzak (223)	Nandichar II	273993
West Garo Hills	Zikzak (223)	Tosildarpara	273997
West Garo Hills	Zikzak (223)	Patelipara	273998
West Garo Hills	Zikzak (223)	Basya Raypara	273999
West Garo Hills	Zikzak (223)	Robidaspara II	274000
West Garo Hills	Zikzak (223)	Fakirpara	274003
West Garo Hills	Zikzak (223)	Julapara	274004
West Garo Hills	Zikzak (223)	Babupara	274005
West Garo Hills	Zikzak (223)	Mothergaon	274007
West Garo Hills	Zikzak (223)	Modokpara	274010
West Garo Hills	Zikzak (223)	Kajipara	274011
West Garo Hills	Zikzak (223)	kulupara	274012
West Garo Hills	Zikzak (223)	Gugrakandi	274013
West Garo Hills	Zikzak (223)	Tungrurchar	274015
West Garo Hills	Zikzak (223)	Kamampara	274017
West Garo Hills	Zikzak (223)	Karipara	274018
West Garo Hills	Zikzak (223)	Bidukura	274023
West Garo Hills	Zikzak (223)	Kentrikona	274028
West Garo Hills	Zikzak (223)	Debajani	274033
West Garo Hills	Zikzak (223)	Bildoba	274035

District	Sub - District	Village Name	Village Code
West Garo Hills	Zikzak (223)	Gujangpara	274036
West Garo Hills	Zikzak (223)	Durapara	274038
West Garo Hills	Zikzak (223)	Bakdagiri	274039
West Garo Hills	Zikzak (223)	Jengrinpara	274040
West Garo Hills	Zikzak (223)	Rapangpanggiri	274043
West Garo Hills	Zikzak (223)	Gopinathkilla	274044
West Garo Hills	Zikzak (223)	Sanjangpara	274045
West Garo Hills	Gambegre (160)	Mengkakgre	274122
West Garo Hills	Gambegre (160)	Hajongpara	274132
West Garo Hills	Gambegre (160)	Goragre Manchigittim	274133
West Garo Hills	Gambegre (160)	Churabudugre	274145
West Garo Hills	Gambegre (160)	Somonpara (Meguagre)	274155
West Garo Hills	Gambegre (160)	Tochapara	274159
West Garo Hills	Gambegre (160)	Anchenggre B	274164
West Garo Hills	Gambegre (160)	Rakwapara	274166
West Garo Hills	Gambegre (160)	Kerupara (Bokmagre)	274167
West Garo Hills	Gambegre (160)	Rangmangiri	274168
West Garo Hills	Gambegre (160)	Mebitpara	274169
West Garo Hills	Gambegre (160)	Rimrangpara	274170
West Garo Hills	Gambegre (160)	Chenggapara	274172
West Garo Hills	Gambegre (160)	Sandagre	274175
West Garo Hills	Gambegre (160)	Jongbhu	274177
West Garo Hills	Dalu (201)	Babelapara	274212
West Garo Hills	Dalu (201)	Darong-Adu	274217
West Garo Hills	Dalu (201)	Hatimara	274218
West Garo Hills	Dalu (201)	Balijhora	274224
West Garo Hills	Dalu (201)	Gobindapara	274225
West Garo Hills	Dalu (201)	Chotto-Bolang	274228
West Garo Hills	Dalu (201)	Chongnapara	274229
West Garo Hills	Dalu (201)	Madragre	274230
West Garo Hills	Dalu (201)	Sanjengpara	274233
West Garo Hills	Dalu (201)	Sandagre polpola	274239
West Garo Hills	Dalu (201)	Nekdalgre	274242
West Garo Hills	Dalu (201)	Marapara	274273
West Garo Hills	Dalu (201)	Chanapara	274300
West Garo Hills	Dalu (201)	Jarangpara	274304
West Garo Hills	Dalu (201)	Kotchu Adok	274305
West Garo Hills	Dalu (201)	Bhatua Gaon	274306
West Garo Hills	Dalu (201)	Jarangkona	274307
West Garo Hills	Dalu (201)	Porakhasia	274309
West Garo Hills	Dalu (201)	Dobakura A	274310
West Garo Hills	Dalu (201)	Dobakura B	274311
West Garo Hills	Dalu (201)	Halchati	274312

District	Sub - District	Village Name	Village Code
West Garo Hills	Dalu (201)	Belabor	274313
West Garo Hills	Dalu (201)	Rengrampara	274326
West Garo Hills	Dalu (201)	Molmegre Nokat (Thallanggre)	274331
West Garo Hills	Dalu (201)	Chandabhoi A	274341
West Garo Hills	Dalu (201)	Chandobhoi B	274342
West Garo Hills	Dalu (201)	Koinabhoi A	274344
West Garo Hills	Dalu (201)	Koinabhoi B	274345
West Garo Hills	Dalu (201)	Koinabhoi C	274346
West Garo Hills	Dalu (201)	Tibapara A	274353
West Garo Hills	Dalu (201)	Tibapara B	274354
West Garo Hills	Dalu (201)	Thibapara (Delbugre)	274356
West Garo Hills	Dalu (201)	Rimrangpara A	274363
West Garo Hills	Dalu (201)	Dolddengagre	274373
West Garo Hills	Dalu (201)	Josipara Sangsarek	274378
West Khasi Hills	Mawshynrut (328)	Porla Nongtrai	276321
West Khasi Hills	Mawshynrut (328)	Langdongdai	276323
West Khasi Hills	Mawshynrut (328)	Malang Khasi	276332
West Khasi Hills	Mawshynrut (328)	Amagaon	276334
West Khasi Hills	Mawshynrut (328)	Salbari	276336
West Khasi Hills	Mawshynrut (328)	Ranighat	276338
West Khasi Hills	Mawshynrut (328)	Umshiak	276340
West Khasi Hills	Mawshynrut (328)	Aradonga	276342
West Khasi Hills	Mawshynrut (328)	Rangolpara	276343
West Khasi Hills	Mawshynrut (328)	Malapara	276358
West Khasi Hills	Mawshynrut (328)	Nurmati (Mawram)	276370
West Khasi Hills	Mawshynrut (328)	Hahuapara	276375
West Khasi Hills	Mawshynrut (328)	Tynghor	276381
West Khasi Hills	Mawshynrut (328)	Umsohpieng	276387
West Khasi Hills	Mawshynrut (328)	Myndo	276389
West Khasi Hills	Mawshynrut (328)	Joypur	276392
West Khasi Hills	Mawshynrut (328)	Nongmawlein	276395
West Khasi Hills	Mawshynrut (328)	Rangseng	276396
West Khasi Hills	Mawshynrut (328)	Nongmisei	276403
West Khasi Hills	Mawshynrut (328)	Mawdongkiang	276404
West Khasi Hills	Mawshynrut (328)	Mawkumkha	276409
West Khasi Hills	Mawshynrut (328)	Tynhiang	276410
West Khasi Hills	Mawshynrut (328)	Mawribah	276412
West Khasi Hills	Mawshynrut (328)	Mawsikar	276417
West Khasi Hills	Mawshynrut (328)	Mawdiangsnam	276419
West Khasi Hills	Mawshynrut (328)	Umyiap	276420
West Khasi Hills	Mawshynrut (328)	Kriangrin	276427
West Khasi Hills	Mawshynrut (328)	Langpih	276429
West Khasi Hills	Mawshynrut (328)	Umwahlang	276431

District	Sub - District	Village Name	Village Code
West Khasi Hills	Mawshynrut (328)	Ktiehthawiar	276433
West Khasi Hills	Mawshynrut (328)	Langja	276439
West Khasi Hills	Mawshynrut (328)	Kyrdum	276441
West Khasi Hills	Mawshynrut (328)	Khyllem Sangrin	276444
West Khasi Hills	Mawshynrut (328)	Thaiem	276447
West Khasi Hills	Mawshynrut (328)	Riangshiang	276472
West Khasi Hills	Mawshynrut (328)	Jynruniangbrak	276474
West Khasi Hills	Mawshynrut (328)	Nongjri	276477
West Khasi Hills	Mawshynrut (328)	Nongrynniaw	276483
West Khasi Hills	Mawshynrut (328)	Riangkang	276484
West Khasi Hills	Mawshynrut (328)	Pormawthar	276485
West Khasi Hills	Mawshynrut (328)	Nongrynkew B	276499
West Khasi Hills	Mawshynrut (328)	Mawthylliang	276500
West Khasi Hills	Mawshynrut (328)	Nongsleh	276501
West Khasi Hills	Mawshynrut (328)	Jenepih	276504
West Khasi Hills	Mawshynrut (328)	Mawsaw	276505
West Khasi Hills	Mawshynrut (328)	Nongsynrang	276527
West Khasi Hills	Mawshynrut (328)	Mawlaidong	276532
West Khasi Hills	Mawshynrut (328)	Mangsangdaso	276544
West Khasi Hills	Mawshynrut (328)	Umdein	276550
West Khasi Hills	Mawshynrut (328)	Langumshing B	276553
West Khasi Hills	Mawshynrut (328)	Riangba	276554
West Khasi Hills	Mawshynrut (328)	Nongkrong	276557
West Khasi Hills	Mawshynrut (328)	Nongjaiaw	276559
West Khasi Hills	Mawshynrut (328)	Photjalei	276562
West Khasi Hills	Mawshynrut (328)	Langshonthiang	276566
West Khasi Hills	Mawshynrut (328)	Umdang	276572
West Khasi Hills	Mawshynrut (328)	Shallang Sohbar	276579
West Khasi Hills	Mawshynrut (328)	Shallang Songsak	276580
West Khasi Hills	Mawshynrut (328)	Rongkhugre A	276583
West Khasi Hills	Mawshynrut (328)	Rongkhugre B	276584
West Khasi Hills	Mawshynrut (328)	Swangre Hamegoan	276600
West Khasi Hills	Mawshynrut (328)	Mongshram Rongbeng	276602
West Khasi Hills	Mawshynrut (328)	Awiak	276613
West Khasi Hills	Mawshynrut (328)	Goreng B	276617
West Khasi Hills	Mawshynrut (328)	Mawbon Agar	276620
West Khasi Hills	Mawshynrut (328)	Kyllon Mathei	276621
West Khasi Hills	Mawshynrut (328)	Nengchigre	276625
West Khasi Hills	Mawshynrut (328)	Niangju	276627
West Khasi Hills	Mawshynrut (328)	Bokchung	276628
West Khasi Hills	Mawshynrut (328)	Riangdim	276635
West Khasi Hills	Nongstoin (238)	Mawrok	276652
West Khasi Hills	Nongstoin (238)	Ukiam	276655
West Khasi Hills	Nongstoin (238)	Umkhamdor	276656

District	Sub - District	Village Name	Village Code
West Khasi Hills	Nongstoin (238)	Waregro	276660
West Khasi Hills	Nongstoin (238)	Nongspung Kyrshai	276662
West Khasi Hills	Nongstoin (238)	Dolidonga	276668
West Khasi Hills	Nongstoin (238)	Khynrin	276685
West Khasi Hills	Nongstoin (238)	Synia	276693
West Khasi Hills	Nongstoin (238)	Mawlangstieh	276695
West Khasi Hills	Nongstoin (238)	Mawthir	276700
West Khasi Hills	Nongstoin (238)	Umsiej	276707
West Khasi Hills	Nongstoin (238)	Mawbuhtraw	276713
West Khasi Hills	Nongstoin (238)	Nongkroh Rambrai	276717
West Khasi Hills	Nongstoin (238)	Nongkdait	276735
West Khasi Hills	Nongstoin (238)	Domshohksoin	276738
West Khasi Hills	Nongstoin (238)	Mawkohniang	276746
West Khasi Hills	Nongstoin (238)	Mawliehdein	276772
West Khasi Hills	Nongstoin (238)	Mawpon	276779
West Khasi Hills	Nongstoin (238)	Nongrangoi	276795
West Khasi Hills	Nongstoin (238)	Miangshang	276804
West Khasi Hills	Nongstoin (238)	Nongshyrkon A	276809
West Khasi Hills	Nongstoin (238)	Nongkhlaw A	276827
West Khasi Hills	Nongstoin (238)	Jaidoh	276835
West Khasi Hills	Nongstoin (238)	Marang	276838
West Khasi Hills	Nongstoin (238)	Dommyntong	276843
West Khasi Hills	Nongstoin (238)	Mawmarin	276878
West Khasi Hills	Nongstoin (238)	Nonglanglieh	276882
West Khasi Hills	Mawthadraishan (104)	Mawlangsu	276889
West Khasi Hills	Mawthadraishan (104)	Nongeitthamah	276891
West Khasi Hills	Mawthadraishan (104)	Mawlum Ramkdait	276899
West Khasi Hills	Mawthadraishan (104)	Mynnimawbri	276922
West Khasi Hills	Mawthadraishan (104)	Mawsynnam	276931
West Khasi Hills	Mawthadraishan (104)	Mawkatad	276932
West Khasi Hills	Mawthadraishan (104)	Mawthohbeh	276937
West Khasi Hills	Mawthadraishan (104)	Kynshi Lawdihshit	276953
West Khasi Hills	Mawthadraishan (104)	Mawkhan Pombeh	276978
West Khasi Hills	Mawthadraishan (104)	Mawblei Mawjnoin	276979
West Khasi Hills	Mairang (144)	Mawiongjadap	276998
West Khasi Hills	Mairang (144)	Ladpnarrim	277004
West Khasi Hills	Mairang (144)	Patharlyndan	277006
West Khasi Hills	Mairang (144)	Lawsiej	277009
West Khasi Hills	Mairang (144)	Dongki ingding	277012
West Khasi Hills	Mairang (144)	Umsakhlawmyriaw	277019

District	Sub - District	Village Name	Village Code
West Khasi Hills	Mairang (144)	Umpdem	277023
West Khasi Hills	Mairang (144)	Nongthyllep	277038
West Khasi Hills	Mairang (144)	Mawkyi	277039
West Khasi Hills	Mairang (144)	Nongktieh tharia	277049
West Khasi Hills	Mairang (144)	Laitdombah	277050
West Khasi Hills	Mairang (144)	Mawtikhar(kyrnai shong)	277060
West Khasi Hills	Mairang (144)	Mynsian nongliput	277093
West Khasi Hills	Mairang (144)	Pyrda thymmai	277097
West Khasi Hills	Mairang (144)	Nongthliew sharum	277105
West Khasi Hills	Mairang (144)	Nongthliew	277109
West Khasi Hills	Ranikor (161)	Nongkulang	277142
West Khasi Hills	Ranikor (161)	Nongjri	277143
West Khasi Hills	Ranikor (161)	Nonghyllam	277145
West Khasi Hills	Ranikor (161)	Wahkaji	277149
West Khasi Hills	Ranikor (161)	Phlangdiloin	277152
West Khasi Hills	Ranikor (161)	Pyndensynnia	277156
West Khasi Hills	Ranikor (161)	Shnongkalong	277168
West Khasi Hills	Ranikor (161)	Dirang	277170
West Khasi Hills	Ranikor (161)	Thiepdiengngan	277180
West Khasi Hills	Ranikor (161)	Dommawlein	277185
West Khasi Hills	Ranikor (161)	Nongpdengkynbah	277187
West Khasi Hills	Ranikor (161)	Sarin	277188
West Khasi Hills	Ranikor (161)	Raibah	277189
West Khasi Hills	Ranikor (161)	Mawpud	277190
West Khasi Hills	Ranikor (161)	Lower Mawpud	277191
West Khasi Hills	Ranikor (161)	Trongpleng	277195
West Khasi Hills	Ranikor (161)	Pyndensohsham	277199
West Khasi Hills	Ranikor (161)	Munai	277205
West Khasi Hills	Ranikor (161)	Munaisora	277208
West Khasi Hills	Ranikor (161)	Mawlongbah	277209
West Khasi Hills	Ranikor (161)	Ranikor	277211
West Khasi Hills	Ranikor (161)	Nolikata	277212
West Khasi Hills	Ranikor (161)	Pamdaba	277213
West Khasi Hills	Ranikor (161)	Alikwareng	277214
West Khasi Hills	Ranikor (161)	Rajaju	277215
West Khasi Hills	Ranikor (161)	Khonjoy A	277219
West Khasi Hills	Ranikor (161)	Chibak	277220
West Khasi Hills	Ranikor (161)	Chimasora	277227
West Khasi Hills	Ranikor (161)	Koraibari	277233
West Khasi Hills	Ranikor (161)	Majisora	277236
West Khasi Hills	Ranikor (161)	Bagli	277239
West Khasi Hills	Ranikor (161)	Noasora	277240

District	Sub - District	Village Name	Village Code
West Khasi Hills	Ranikor (161)	Rongdusora	277241
West Khasi Hills	Ranikor (161)	Tilagao	277251
West Khasi Hills	Ranikor (161)	Kangklak	277253
West Khasi Hills	Ranikor (161)	Bolabeta	277259
West Khasi Hills	Ranikor (161)	Koraikora	277261
West Khasi Hills	Ranikor (161)	West Rangasora	277262
West Khasi Hills	Ranikor (161)	Wanokchiring	277264
West Khasi Hills	Ranikor (161)	Lower Koltapara	277271
West Khasi Hills	Ranikor (161)	Sodorkura	277272
West Khasi Hills	Ranikor (161)	Lower Rajapara	277273
West Khasi Hills	Ranikor (161)	Lower Puksora	277278
West Khasi Hills	Ranikor (161)	Panchiring A	277279
West Khasi Hills	Ranikor (161)	Upper Puksora	277282
West Khasi Hills	Ranikor (161)	Kakorkura	277294
West Khasi Hills	Mawkyrwat (140)	Myriem	277308
West Khasi Hills	Mawkyrwat (140)	Mawjarain	277310
West Khasi Hills	Mawkyrwat (140)	Awro	277311
West Khasi Hills	Mawkyrwat (140)	Kensimphlang	277312
West Khasi Hills	Mawkyrwat (140)	Mawsaw	277316
West Khasi Hills	Mawkyrwat (140)	Mawsaw Mihngi	277317
West Khasi Hills	Mawkyrwat (140)	Rangdikhew	277319
West Khasi Hills	Mawkyrwat (140)	Pynden Mawramhah	277331
West Khasi Hills	Mawkyrwat (140)	Nonglyngkein	277332
West Khasi Hills	Mawkyrwat (140)	Laitlawsnai	277333
West Khasi Hills	Mawkyrwat (140)	Domruah Mawmietbah	277340
West Khasi Hills	Mawkyrwat (140)	Wahsiej	277344
West Khasi Hills	Mawkyrwat (140)	Rangjadong	277435

Annexure – VI

SITE SURVEY REPORT

(UNCOVERED VILLAGE)

NORTH EAST CIRCLE

VILLAGE NAME: Gabil Boldilgittim

DISTRICT: East GaroHills

STATE: Meghalaya

DATE: 15-JUL-2013

LOCATION OVERVIEW

Survey conducted for "Gabil Boldilgittim" which is a census town and headquarters of the East Garo Hills district of the Indian state of Meghalaya. The important crops are potatoes, rice, maize, pineapples, bananas, etc. The service sector is made up of real estate and insurance companies , its mountain forests are distinct from the lowland tropical forests to the north and south.

Following are few demographic and economic aspects relative to said village

Locational Information	
Area	16Sq Km
Altitude in Meters from Sea Level	336
Demography	
Total Population	894
Male / Female population	465 / 429
No. of Households	154
Economic details	
Main Sources of Income	Vegetation , Fruit, Handlooms
Educational Facilities	
No. of Primary Schools	1

Site Description:

- Site will be new built GBT site.
- Tower height approximately50mtr.
- Tower will meet EMF radiation norm
- From the planned location we can cover two more villages (Rongberam , Mejolgre Wancho) .

Connectivity:

- 4 nos.15Ghz (1.2 m ant) new linksare required to connect this village in East Garohills District.
- 1 Repeater required for to connect the link of site planned in this village.

SURVEY REPORT:

Search Area			
Latitude:	25.719996 N/S	Longitude:	90.819594 E/W
Search Area Radius :	500 M	Antenna Ht. from Ground Level	50 M

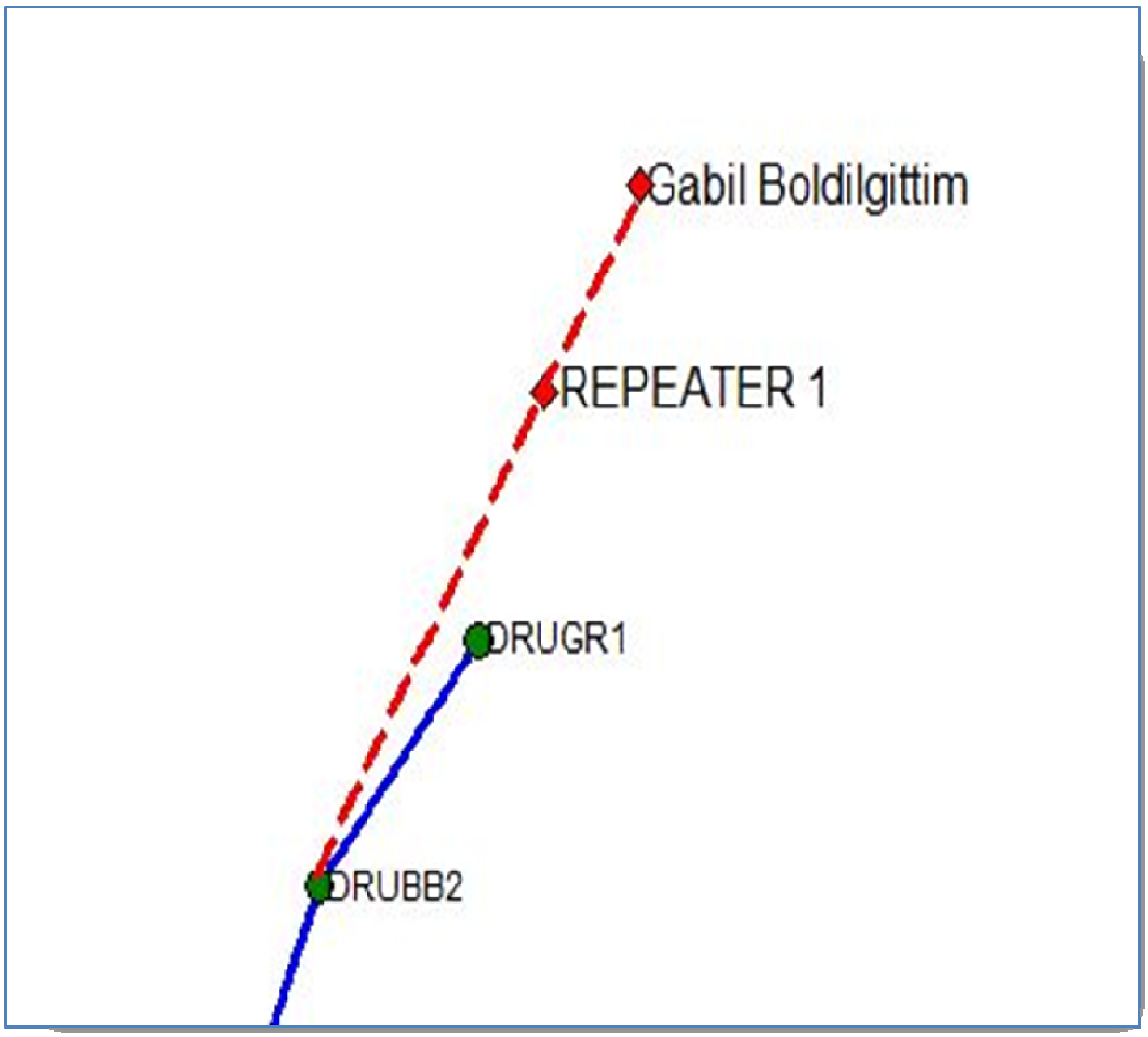
Antenna configuration

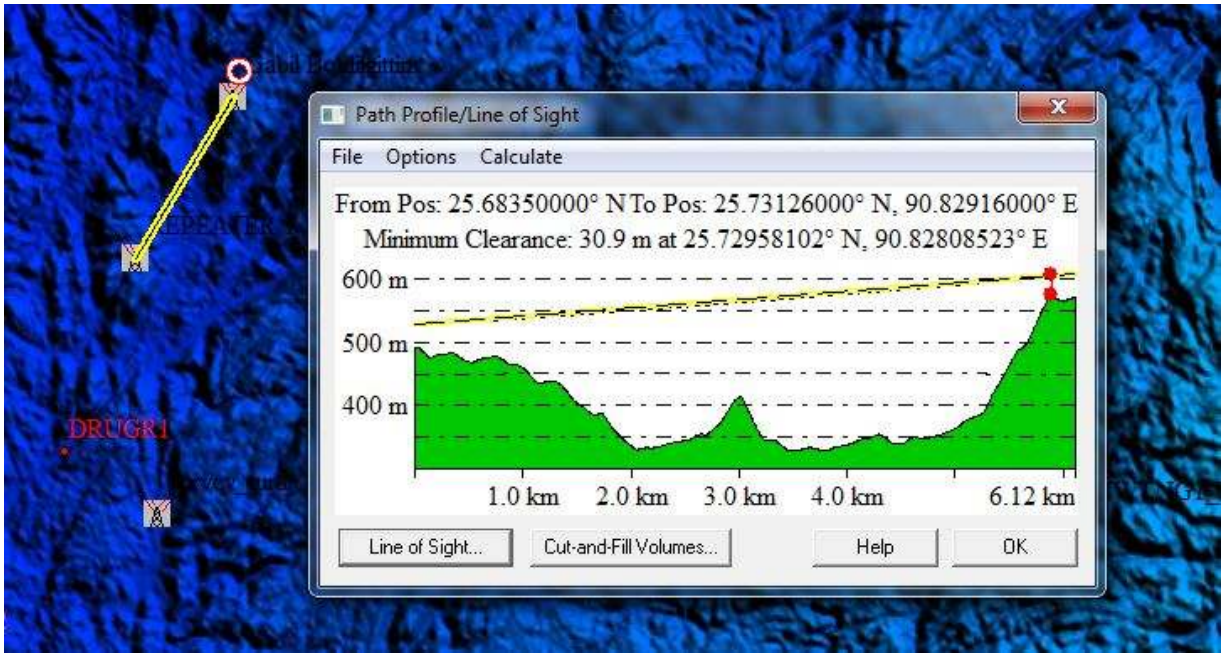
Sector	Radio ant Type	Antenna Ht	Antenna Dir.*
1	5752.00\5752.00_935_01DT	45	60
2	5752.00\5752.00_935_01DT	45	180
3	5752.00\5752.00_935_01DT	45	320

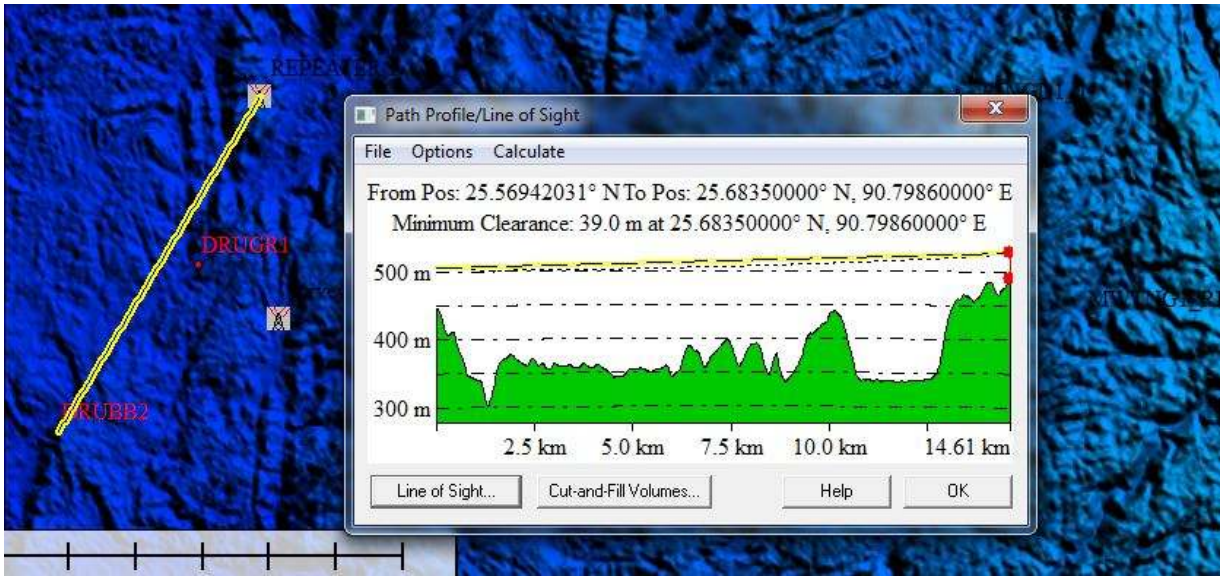
	Microwave ant. Size	No. of Antenna	Antenna Ht	Antenna Dir.
1	1.2 m	1	48	211
2	1.2 m	1	48	31
3	1.2 m	1	48	214
4	1.2 m	1	59	34

State	Site Name	Lat A	Long A	Proposed Tower	Proposed Connectivity From	Lat B	Long B	BRG_A	BRG_B	Hop Length	HT_A	HT_B
NE	Gabil Boldilgittim	25.719996	90.819594	40 M	REPEATER 1	25.691707	90.803634	211	31	6.27	38	38
NE	REPEATER 1	25.691707	90.803634	40 M	DRUBB2	25.56942	90.72561	214	34	14.54	38	59

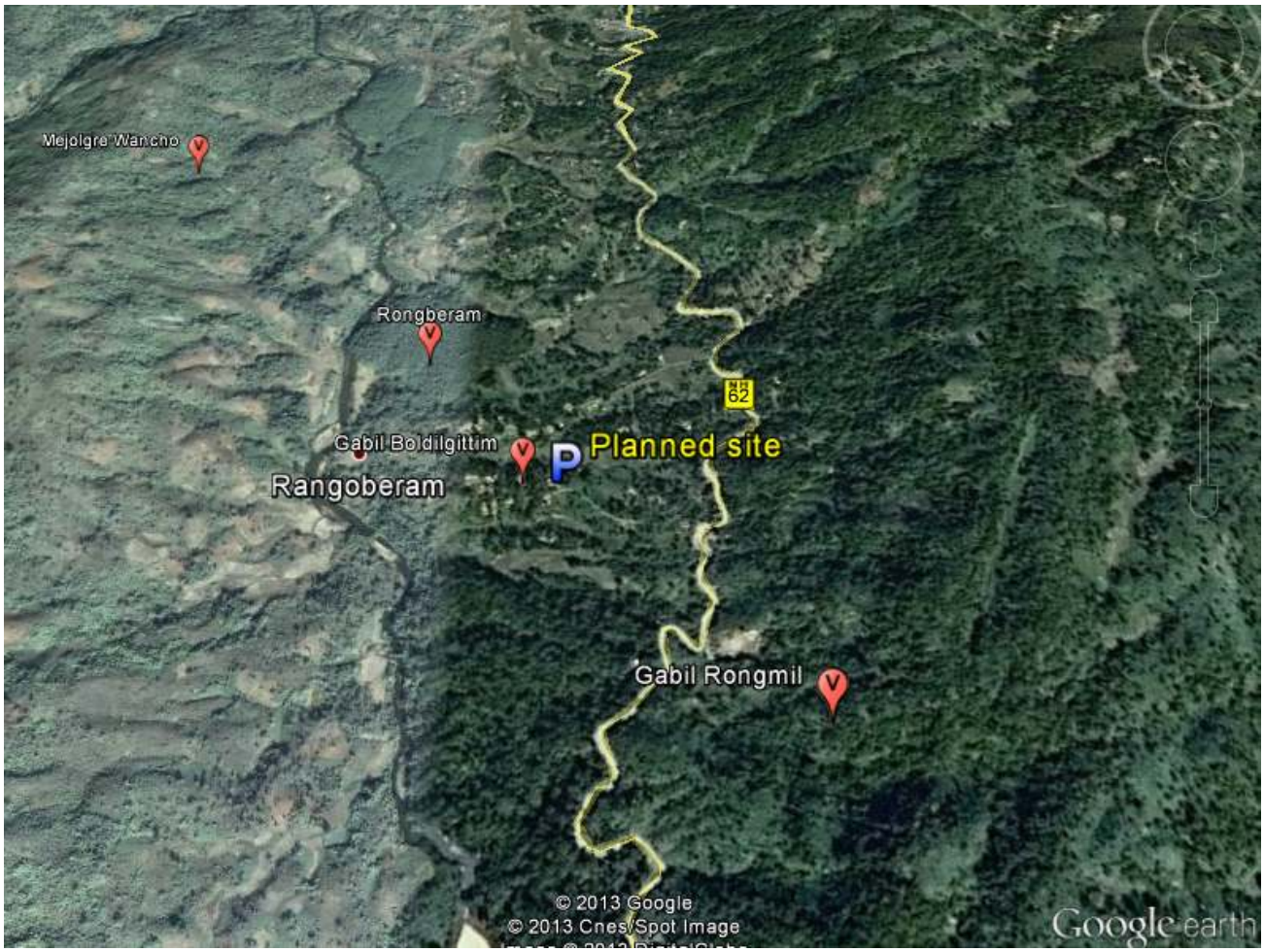
MW CONNECTIVITY PLAN FOR SITE GABIL BOLDILGITTIM (NE)



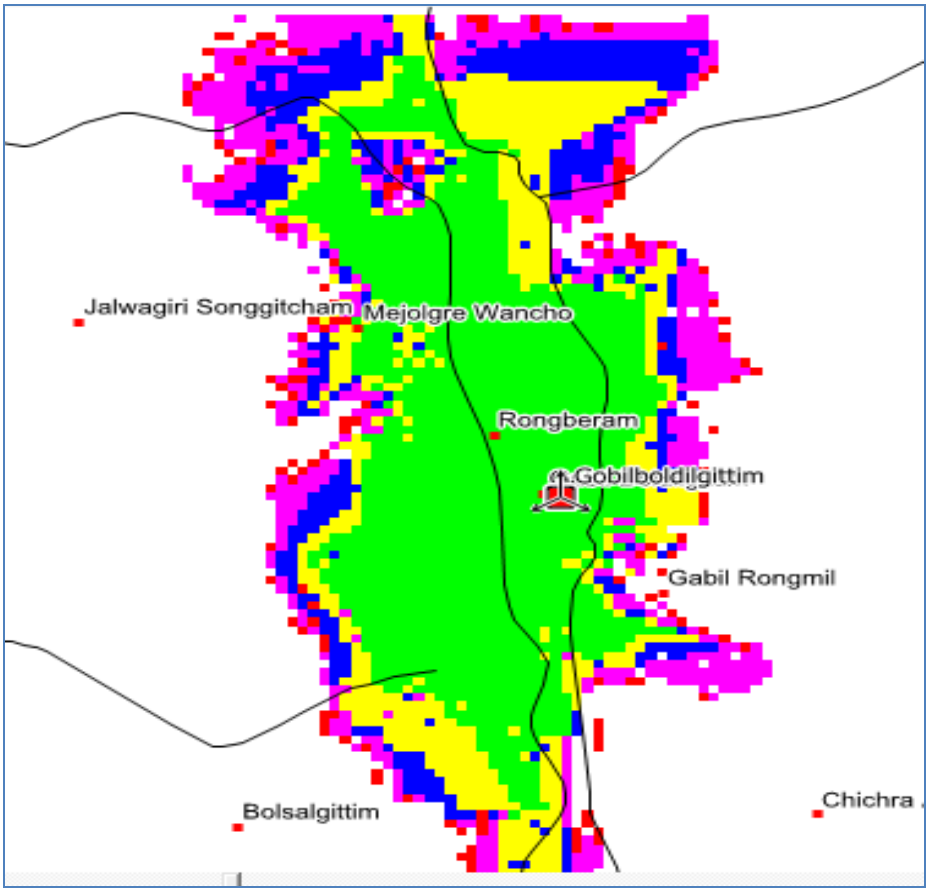

Path Profile/Line of Sight
File Options Calculate
From Pos: 25.68350000° N To Pos: 25.73126000° N, 90.82916000° E
Minimum Clearance: 30.9 m at 25.72958102° N, 90.82808523° E
600 m
500 m
400 m
1.0 km
2.0 km
3.0 km
4.0 km
6.12 km
Line of Sight...
Cut-and-Fill Volumes...
Help
OK
DRUGR1

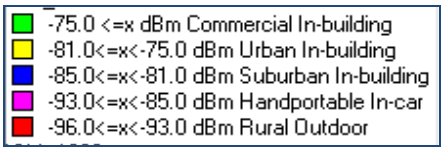

Path Profile/Line of Sight
File Options Calculate
From Pos: 25.56942031° N To Pos: 25.68350000° N, 90.79860000° E
Minimum Clearance: 39.0 m at 25.68350000° N, 90.79860000° E
500 m
400 m
300 m
2.5 km
5.0 km
7.5 km
10.0 km
14.61 km
Line of Sight...
Cut-and-Fill Volumes...
Help
OK
DRUGR1
DRUBB2

GOOGLE EARTH SNAP:



PREDICTION PLOT:





CAPITAL EXPENDITURE TO BE INCURRED FOR BUILDING UP THE SITE IN MEGHAYALA–GABIL BOLDILGITTIM

Sl No	Expenditure Type	Item Description	Gabil boldilgittim Site	RPT1	Total
1	Capex	GBT 50 MTR	900000	900000	1800000
2	Capex	Site Civil - 50 MTR (Foundation, Boundary wall, Guard Room)	600000	600000	1200000
3	Capex	Shelter - 3mX2.5m	80000	80000	160000
4	Capex	15KVA Diesel Generator	300000	300000	600000
5	Capex	Site Internal Electrical	120000	120000	240000
6	Capex	GSM Antenna	45000		45000
7	Capex	Microwave Hop	300000	300000	600000
8	Capex	Microwave Antenna (1.2 Mtr Antenna)	80000	80000	160000
10	Capex	RF Cable	42000		42000
11	Capex	Indoor 6202 BTS	600781	453781	1054562
12	Capex	BTS Installation Material	20000	20000	40000
13	Capex	PIU - 15KVA	50000	50000	100000
14	Capex	SMPS - 48V	30000	30000	60000
15	Capex	300AH Battery Bank	90000	90000	180000
16	Capex	Air Conditioner - 1.5 TRX2	120000	120000	240000
17	Capex	EB Connection (with Transformer)	700000	700000	1400000
18	Capex	Transportation Charges	60000	60000	120000
19	Capex	I&C Services	50000	50000	100000
20	Capex	Survey, Planning & Optimization	99625	99625	199250
TOTAL			4287406	4053406	8340812

Note:

- The Total CAPEX shown above is indicative incremental investment and some part of this investment is borne by Tower companies too.

Annexure – VII

Details of uncovered Highway patches in Arunachal Pradesh

NH 52A Break up Town wise:

Route	*From Town*	*To Town*	*Approx Route Span (Km)*	*Covered*	*Uncovered*
From Assam border-Itanagar- upto Assam border	Assam Boarder	Naharlagun	27	27	0
	Naharlagun	Itanagar	15	15	0
Total			**42**	**42**	**0**

NH 153 Break up Town wise:

Route	*From Town*	*To Town*	*Approx Route Span (Km)*	*Covered*	*Uncovered*
From Assam border-Myanmar border (Still Well road)	Khamdu	Namgoi Vill-III	40	10	30
Total			**40**	**10**	**30**

NH 52 Break up Town wise:

Route	*From Town*	*To Town*	*Approx Route Span (Km)*	*Covered*	*Uncovered*
Baihata-Charali-Tezpur-Bander Dewa-North Lakhimpur-Pasighat-Tezu-Sitapani Junction with National Highway No.37 near Saikhoaghat	Assam Boarder	Pasighat	40	40	0
	Pasighat	Roing	75	30	45
	Roing	Tezu	80	80	0
	Tezu	Namsai	100	100	0
	Namsai	Assam Boarder	15	15	0
Total			**310**	**265**	**45**

NH 37 Break up Town wise:

Route	*From Town*	*To Town*	*Approx Route Span (Km)*	*Covered*	*Uncovered*
The NH No. 37 is extended from its dead near Saikhowaghat in Assam to join NH 52 near Roing in Arunachal Pradesh	Saikhowaghat	Roing	60	60	0

NH 37 Break up Town wise:

Route	*From Town*	*To Town*	*Approx Route Span (Km)*	*Covered*	*Uncovered*
Baihata-Charali-Tezpur-Bander Dewa-North Lakhimpur- Pasighat-Tezu-Sitapani Junction with National Highway No.37 near Saikhoaghat	Assam Boarder	Pasighat	40	40	0
	Pasighat	Roing	75	75	0
	Roing	Tezu	80	80	0
	Tezu	Namsai	100	100	0
	Namsai	Assam Boarder	15	15	0
Total			310	310	0

NH 229 Break up Town wise:

Route	*From Town*	*To Town*	*Approx Route Span (Km)*	*Covered*	*Uncovered*
The highways starting from Tawang passing through Bomdila, Nechipu, Seppa, Sagalee, Ziro, Daporijo, Aalong and terminating at Pasighat in the State of Arunachal Pradesh	Towang Passing	Bomdila	130	0	130
	Bomdila	Sappa	130	0	130
	Sappa	Ziro	180	21	159
	Ziro	Daporijo	180	7	173
	Daporijo	Along	190	0	190
	Along	Passighat	280	15	265
Total			**1090**	**43**	**1047**

NH 52B Break up Town wise:

Route	*From Town*	*To Town*	*Approx Route Span (Km)*	*Covered*	*Uncovered*
The highways starting from Mahadevpur passing through Namchik, Changlang, Khonsa and Kanubari in the State of Arunachal Pradesh and terminating near Dibrugarh in the State of Assam, joining with approaches to Bogibeel bridge	Mahadevpur	Assam Boarder	70	50	20
	namchuk	Changlang	170	160	10
	Changlang	Khonsa	130	100	30
	Khonsa	Assam Boarder	80	44	36
			450	354	96

Abbreviations Used

S.No.	Abbreviation	Expansion
1.	2G	Second Generation
2.	3G	Third Generation
3.	ADSS	All Dielectric Self-supporting
4.	AGR	Adjusted Gross Revenue
5.	ATC	Air Traffic Control
6.	BBNL	Bharat Broadband Network Limited
7.	BHQs	Block Head Quarters
8.	BOO	Build, Operate & Own basis
9.	BSNL	Bharat Sanchar Nigam Limited
10.	BTS	Base Transceiver Station
11.	BW	Bandwidth
12.	BWA	Broadband Wireless Access
13.	CDMA	Code Division Multiple Access
14.	C-DoT	Centre for Development of Telematics
15.	CSC	Common Service Centers
16.	DGs	Diesel Generators
17.	DHQs	District Head Quarters
18.	DMW	Digital Microwave
19.	DOS	Department of Space
20.	DoT	Department of Telecommunications
21.	DSL	Digital Subscriber Line
22.	DWDM	Dense Wavelength Division Multiplexing
23.	DXC	Digital Cross Connect
24.	EMF	Electro Magnetic Field

25.	Gbps	Giga bit per second
26.	GBT	Ground Based Towers
27.	GDP	Gross Domestic Product
28.	GPs	Gram Panchayats
29.	ICAR	Indian Council of Agricultural Research
30.	ICR	Intra-circle Roaming
31.	IOCL	Indian Oil Corporation Limited
32.	ISRO	Indian Space Research Organisation
33.	LSA	Licensed Service Area
34.	LT	Low Tension
35.	Mbps	Megabit per second
36.	MW	Microwave
37.	NER	North Eastern Region
38.	NIC	National Informatics Center
39.	NOC	No Objection Certificate
40.	NOFN	National Optical Fibre Network
41.	NTP 2012	National Telecom Policy 2012
42.	OADM	Optical Add-Drop Multiplexer
43.	OFC	Optical Fibre Cable
44.	OFC (U/G)	Optical Fibre Cable - Underground
45.	OPGW	Optical Ground Wire
46.	OTM	Optical Terminal Multiplexer
47.	PGCIL	Power Grid Corporation of India Limited
48.	POA	Point of Access
49.	POI	Point of Interconnection
50.	POP	Points of Presence

51.	PSU	Public Sector Undertaking
52.	PWD	Public Works Department
53.	QoS	Quality of Service
54.	Railtel	Railtel Corporation of India
55.	RNC	Radio Network Controller
56.	ROW	Right of Way
57.	RTT	Roof Top Towers
58.	SACFA	Standing Advisory Committee on Radio Frequency Allocation
59.	SDHQ	Sub District Headquarter
60.	SEB	State Electricity Board
61.	SWAN	State Wide Area Network
62.	TERM	Telecom Enforcement, Resource and Monitoring
63.	TRAI	Telecom Regulatory Authority of India
64.	TSPs	Telecom Service Providers
65.	USO	Universal Service Obligation
66.	USOF	Universal Service Obligation Fund
67.	USOFA	USOF Administration
68.	USPs	Universal Service Providers
69.	VSAT	Virtual Satellite Aperture Terminal
70.	WiMAX	Worldwide Interoperability for Microwave Access
71.	WLL	Wireless Local Loop
72.	WPC	Wireless Planning & Coordination Wing