NATIONAL OPTIC FIBRE NETWORK

Status Study

A REVIEW OF THE PILOT BLOCKS

Primary Survey & Analysis
by Digital Empowerment Foundation

DEF
DIGITAL EMPOWERMENT *foundation*

EXECUTIVE SUMMARY

The National Optical Fiber Network (NOFN) is a government project aimed at providing broadband connectivity to 2, 50,000 Gram Panchayats in an effort to provide last mile connectivity as critical infrastructure. Bharat Broadband Network Limited (BBNL) was created to implement the project. Through funding of Rs. 20,000 Cr from the Universal Service Obligation Fund (USOF), the government committed itself to delivering this project effectively *(BBNL 1).*

The NOFN's aim was to provide all necessary government services to citizens in an effort to allow then access to information which would lead to their empowerment and development. It was a result of the coming together of policy and a vision of managing a high quality network with a link to services to provide on-demand access to citizens.

Testing the viability of such a large-scale network infrastructure project is imperative. To check the issues and challenges in the implementation of the NOFN and contrast it with the planning and management schedule, BBNL implemented a pilot project in 59 Gram Panchayats in 3 Blocks. *(BBNL 2)*

In December 2014, DEF conducted a study to analyse connectivity in the pilot locations of the NOFN (which consists of 30 Gram Panchayats in Rajasthan, 15 in Andhra Pradesh and 14 in North Tripura).

The study reveals that there is a fairly large gap between the initial claims made and the realities. There is an uneven distribution of NOFN among the gram Panchayats. Even in the pilot phase, only 67% of the Panchayats had a hard-line connection to NOFN (20.5% have no connection to NOFN at all). Not all the Panchayats with a connection were actually connected to NOFN – only 45.5% of the Panchayats surveyed had access to the services provided by NOFN.

Further, the average broadband connectivity is 50 MBPs at Gram Panchayat level, which falls short of the envisioned goal of 100 MBPs. Even where there is NOFN connectivity, the ecosystem of services is below the planned suite. As for the rural areas beyond the Panchayats, NOFN connectivity has not reached/been distributed there as BBNL promised.

This study highlights the importance of the NOFN as not only physical infrastructure but an integral part of allowing citizens access to services. This further links to highlighting the importance of proper management and sustainability of any infrastructure that is laid down by the government.

INTRODUCTION

The National Optical Fiber Network (NOFN) is a project of the Government of India (GoI) envisioning optical fiber connectivity to 2,50,000 Gram Panchayats (GP) in all states and UTs. It has a total outlay of Rs. 20,000 Cr and is funded by the Universal Service Obligation Fund (USOF) of the Government. It was envisioned as a network to provide last mile connectivity at the village level and to allow access to government to citizen (G2C) services.

As part of the vision of allowing broadband access at all administrative levels and at various governance institutions, the NOFN is to be integrated with pre-existing network infrastructures: State Wide Area Networks (SWANs), State Data Centres (SDCs), National Knowledge Network (NKN) and National Informatics Centre Network (NICNET); to create a national network backbone.

PLACING THE NOFN IN POLICY HISTORY

The NOFN is the latest in a series of pan-India programs that focus on augmenting the network infrastructure of the country. Its evolution begins with the National e-Governance Plan, which was created in 2006 to provide ICT enabled delivery of Government services. Public IT platforms such as State Wide Area Networks (SWANs), State Data Centres (SDCs) and Common Service Centres (CSCs) were important in the successful implementation of the NeGP. SWANs were envisioned to provide connectivity from the State/UT Headquarters (SHQ) up to the Block Headquarters (BHQ) level via District/ sub-Divisional Headquarters (DHQ), in a vertical hierarchical structure with a minimum bandwidth capacity of 2 Mbps per link.

The Common Service Centre (CSC) was the cornerstone of the NeGP and it was envisioned as community level access centre to video, voice, data and content services in the realms of e-governance, education, health, telemedicine, entertainment as well as other private services. Providing communities with access to information and services relating to livelihoods, education, health, access to market, entertainment and utility services was a vision of the CSC initiative.

In 2010, ITU & UNESCO setup the Broadband Commission for Digital Development that underlined that expanding broadband access in every country was vital to accelerating progress towards the MDGs by the target date of 2015 and sought commitments from all member countries to create and implement such plans. Later in 2010, the Office of the Adviser to the Prime Minister; Public Information Infrastructure & Innovations; released a whitepaper that emphasised the need to connect all the Gram Panchayats in India via an optical fiber network.

In 2011, the GoI approved the creation of the National Optical Fiber Network. A Special Purpose Vehicle (SPV); Bharat Broadband Network Limited (BBNL) was created to implement and coordinate the project. BBNL was awarded a National Long Distance Operating (NLDO) license, Department of Telecom which provided it wholesale bandwidth license. On-ground implementation responsibility was outsourced to 3 Public Sector Undertakings (PSU); BSNL, RAILTEL and PGCIL (Power Grid Corporation Ltd.) which further had discretion to outsource cable laying tasks to private Internet Service Providers (ISP). The funding for the project was to come from the Universal Service Obligation Fund (USOF) at a cost of USD 4 billion. The USOF is funded through a Universal Service Levy (USL) which has presently been fixed at 5% of the Adjusted Gross Revenue (AGR) of all Telecom Service Providers except the pure value added service providers. In addition, the Central Govt. may also give grants and loans.

The NOFN was scheduled to roll out in a phased manner by December 2012. (Department of Telecommunications, 2013) A pilot project covering 59 GPs in 3 Blocks was scheduled for completion by October 2012. The Department of Telecommunications, in their 2013-2014 Annual Report has stated that the NOFN rollout deadline has now been shifted to De-

cember 2016. (Department of Telecommunications, 2014) It also states that as of October 2012, the 59 GPs included in the pilot project have been provided with 100Mbps bandwidth.

In 2012, the Digital Empowerment Foundation (DEF) implemented the National Digital Literacy Mission (NDLM) programme, a joint effort of the industry and civil society organizations in pilot locations of NOFN. The programme aimed to make one adult per household to digitally literate. With 12 months of ground intervention in 3 blocks across India, the programme made 1700 adults to be digitally literate. The thrust behind this pilot was not mere digital literacy drive but to also draw key lessons and understanding on the usage of NOFN connectivity in India: the trends, need, scope, challenges, and future prospects.

In 2014, DEF conducted a status study to analyse connectivity and access infrastructure in pilot locations of the NOFN. The primary objective of this survey was to understand the status of NOFN connectivity, accessibility and whether it has been extended further to achieve the objectives of 'Digital India' mission. The study was conducted in 30 GPs of Arain (Rajasthan), 15 GPs of Pravada (Andhra Pradesh) and 14 GPs of Panisagar (North Tripura).

BBNL OBJECTIVES & NOFN TIMELINES

The Telecom Commission approved a 3-phase implementation of the NOFN programme[1]. As per the Telecom Commission's phase plan, the first phase of the NOFN planned to cover 100,000 gram panchayats by 31st March 2014. The second phase aimed to cover another 100,000 by March 2015. And in the third phase, an additional 50,000 by September 2015.

Phase	Timeline	Coverage
Pilot Phase	October 2012	3 Blocks
1st Phase	31st March 2014	100,000 GPs
2nd Phase	31st March 2015	100,000 GPs
3rd Phase	September 2015	50,000 GPs

However, according to DOT's Annual Report 2013-2014, the timeline for deploying NOFN has been further revised and extended. The revised timeline is:

Phase	Timeline	Coverage
Phase I	31st March 2015	1,00,000 GPs
Phase II	31st March 2016	1,00,000 GPs
Phase III	31st December 2016	50,000 GPs

The deployment of NOFN was based on the utilizing the existing optic fibre network of BSNL, PGCIL and RAILTEL in the ratio of 70%, 15% and 15% respectively. As per NOFN deployment plan, BSNL was asked to handle 18 territories of the country, RAILTEL in 11 and PGCIL was asked to deploy in 4.

Organisation	Coverage	Areas
BSNL	75% Coverage	Andaman and Nicobar, Assam, Bihar, Chandigarh, Chattisgarh, Haryana, Jammu and Kashmir, Karnataka, Kerala, Lakshadweep, Madhya Pradesh, Maharashtra, Punjab, Rajasthan, Sikkim, Uttar Pradesh, Uttarakhand and West Bengal
POWERGRID	15% Coverage	Andhra Pradesh, Himachal Pradesh, Jharkhand and Orissa

[1]Document procured from BBNL

Organisation	Coverage	Areas
RAILTEL	15% Coverage	Arunachal Pradesh, Dadra and Nagar Havelli, Daman and Diu, Gujarat, Manipur, Meghalaya, Mizoram, Nagaland, Pondicherry, Tamil Nadu and Tripura

SURVEY OBJECTIVES
- To understand the current status of access infrastructure in the pilot locations
- To understand whether connectivity is available at gram panchayats
- To understand whether the connectivity provided under NOFN has been further distributed

METHODOLOGY AND SAMPLE DETAILS
The study was conducted through randomised quota sampling. The purpose of the NOFN was to provide internet connectivity at the Panchayat level. Our study focused on the presence of NOFN connection infrastructure and connectivity at a total of 112 Schools, Government Offices and Panchayats. A total of 107 persons (83 males and 24 females across 58 Gram Panchayats responded to the survey[2]. A full list of respondents along with demographic information can be found in Annexures 1, 2 & 3.

The results presented in this study are based on responses from government officers, teachers and others who were the planned target beneficiaries of the NOFN rollout. The questionnaire used in the survey can be found in Annexure 4.

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[2]In later stage of NOFN implementation, Dharmanagar block was excluded from NOFN Pilot stage plan (BBNL)

SUMMARY OF RESULTS

TOTALS

Of the 112 institutions covered under the survey, our study found that 67% (75) had the hard-line connection to the NOFN and 20.5% (23) have no connection to the NOFN (See Figure 1).
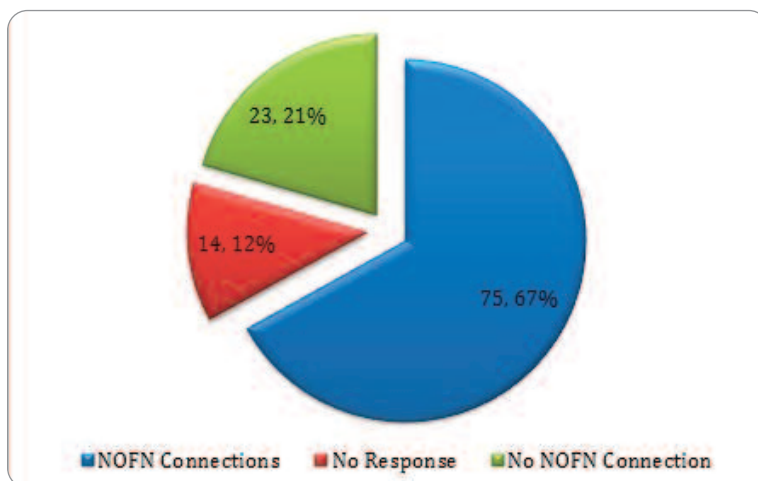

Figure 1: Status of NOFN Availability in Pilot Blocks

However, when we viewed connection and connectivity as mutually exclusive, we found that only 45.5% (51) of the total had a working NOFN connection whereas 21.4% (24) had a hard-line connection to the NOFN but no access to services (See Figure 2).
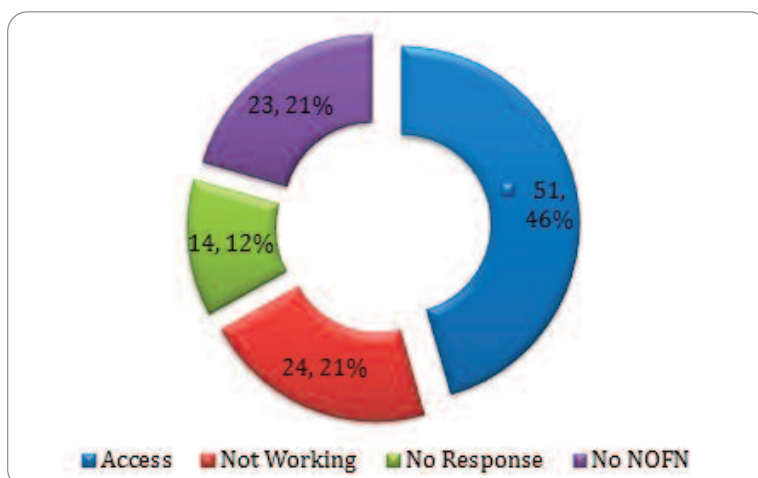
Figure 2: Status of NOFN Connectivity in Pilot Blocks

Of the 75 institutions with NOFN connections, only 68% (51) have access v/s 32% that only have the connection (See Figure 3). It should be stated that access implies the presence of a connection.
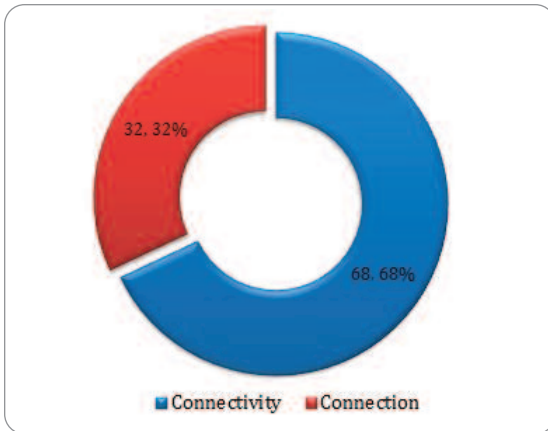
Figure 3: Connection V/S Access in Pilot Blocks

SCHOOLS

Of the 26 schools covered in this study, equal numbers had a NOFN connection V/s absence of the same (46% (12) each). We received no responses from only 2 institutions (See Figure 4).
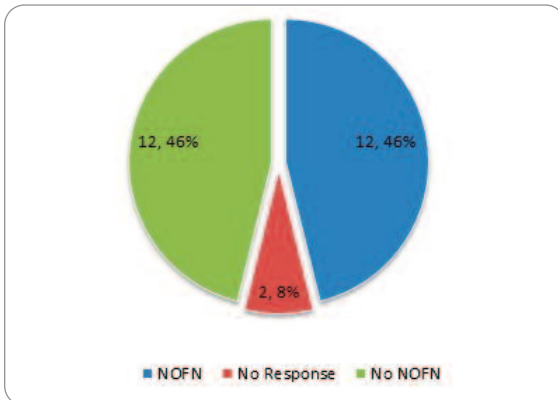
Figure 4: Status of NOFN Connectivity in Schools of Pilot Blocks

GOVERNMENT OFFICES

Of the 28 government offices studied, 39% (11) had no NOFN connection V/s. 25% (7) having one. We received no responses regarding 36% (10) of the offices in the study area. (See Figure 5)
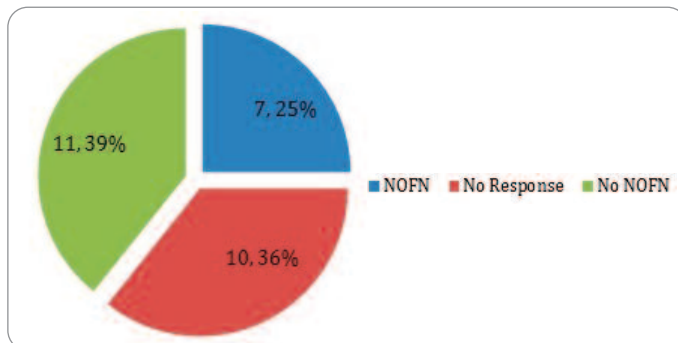
Figure 5: Status of NOFN Connectivity in Govt. Offices

PANCHAYATS

An overwhelming majority of 96.5% (56) of the total 58 claimed NOFN connectivity, with only 2 giving no response. (See Figure 6)
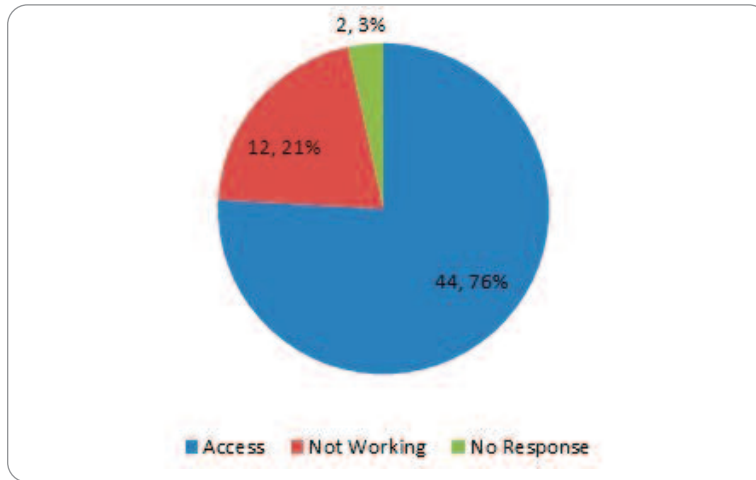
Figure 6: Status of NOFN Connectivity in Panchayats

DETAILED RESULTS

ARAIN BLOCK, AJMER DISTRICT, RAJASTHAN

Arain is one of the largest blocks in the Ajmer District of Rajasthan. It is close to the historical town of Kishangarh.

The NOFN promises bandwidth of 100 MBPs. However, during our study, we found that the average speed is 50MBPs. Out of 30 GPs, 67% (20) have NOFN connections, and 33% (10) do not have NOFN connectivity (Fig 7).

The study also reveals each GP has a Rajiv Gandhi Seva Kendra (IT Centre) and an NOFN connection has been available for the past two years, however 20% of them have computers which are either not working or not in good condition. Moreover, 10% of the respondents at the IT centre claimed that they received NOFN connectivity; however, it was disconnected later (Fig 8). In the cases where connectivity is available, panchayat members are limited to generating birth and death certificates.

Demographic Indicator	Value
Total Population	6149 persons 3187 males 2962 females 1077 children
Households	~2000 HHs
Total Literacy Rate	80% 78% (male) 962% (female)
Governance Structures	30 Gram Panchayats
Educational Institutions	73 Primary Schools 70 Middle Schools 49 Secondary Schools
Healthcare Institutions	11 Primary Health Centres 1 Community Health Centre

Figure 7: Status of NOFN Connection Vs. Access – Arain

While when it was asked to school authorities regarding NOFN connectivity – the respondents said that they are aware about NOFN line to be connected to their schools but none of these schools are connected.
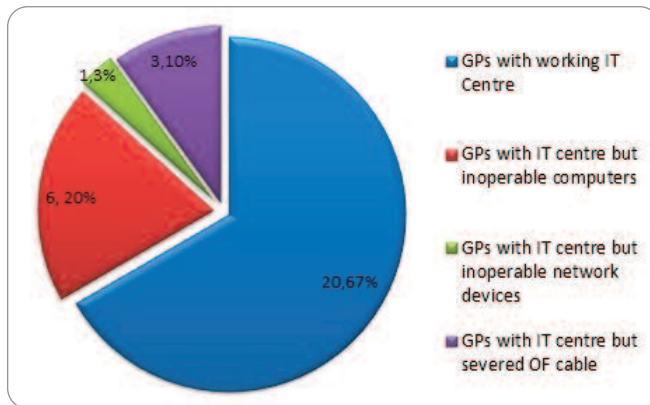
Figure 8: Status of NOFN Access Infrastructure – Arain

Legend:
- GPs with working IT Centre
- GPs with IT centre but inoperable computers
- GPs with IT centre but inoperable network devices
- GPs with IT centre but severed OF cable

Values: 3,10% 1,3% 6,20% 20,67%

TILONIA

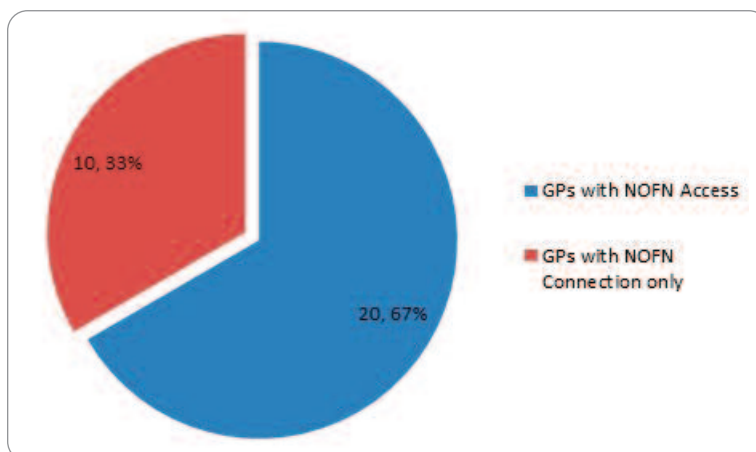Tilonia is a small village and a Panchayat in Ajmer district in Rajasthan, located 8 kilometres off National Highway 8, also known as Jaipur - Ajmer highway connecting Mumbai. Tilonia is also one of those very few villages of India which can be found on Google Map and if you search Tilonia, there would hundreds of results come. And the reason of Tilonia being popular worldwide and searchable on Internet is because of the great works of Barefoot College and the college is also located in Tilonia village barely a kilometre from the railway station of Tilonia.

In fact Tilonia Panchayat or Gram Sabha building is also quite vibrant and buzzing with activities. They have two ancient computers but functional and the computer operator is a volunteer provided by Barefoot College, her name is Kaushalya. The Sarpanch, Kamla is also a very active Leader and have operational computer at her home also. In other words, Tilonia is a kind of Panchayat and village which has seen many progressive developments including many legislations also it has influenced like equal wages for women, RTI, Right to Hear and so on. Barefoot College itself is functional less than 500 meters from the Panchayat building, where even BSNL exchange is also located.

Yet, the Tilonia Panchayat do not have Internet connectivity. When this researcher reached Tilonia Gram Sabha on 17th around noon to find out whether the National Optic Fibre Network (NOFN) has reached the Panchayat building, I was pleasantly surprised that NOFN line was very much installed and there was a box on a wall which had a stamp of BBNL (Bharat Broadband Network Limited), the special purpose vehicle or a company created by Department of Telecom to manage and implement 20,000 crore fund allocated to ensure that every

one of the 249,450 Panchayats has 100MBPS dedicated fibre line to ensure people and government services at the last mile is adequately and efficiently delivered.

However, the real story is that the NOFN line that is mysteriously hanging from BBNL box on a wall in the Panchayat House is without life and soul. The box and the wire is there for the last about one year as per the staff working at the Panchayat house, but it is non functional. There's is no data flow or for that matter any Internet life in the BBNL box or the fibre pipe. The appended photos are self explanatory about the existing situation of the NOFN and its functionality and even its potential at Tilonia Panchayat which is symbolic to the fact laying and installing the fibre line across all 250,000 is one task but to make them work to benefit the masses is another challenge. We have, as a country, government after government, made millions of structures, roads, and infrastructure but if they are seen as whether they are functional or live or active for the citizens, the answer would be a sorry No. Because to make a infrastructure is a very small part of its sustained functionality for which the approach has to be well planned, executed and monitored.

PRAVADA BLOCK, VISHAKAPATNAM DISTRICT, ANDHRA PRADESH

Pravada Block has 20 GPs within it. Out of 14 GPs covered by our study[3], 10 have NOFN connections; however, 35% of GPs mentioned that NOFN connection is not working in their GP; 7% claimed that they do not have connection; 7% GPs are using other connectivity and 14% are not aware about NOFN connectivity. (See Figure 9)

Demographic Indicator	Value
Total Population	78165 persons 39430 males 38735 females
Governance Structures	20 Gram Panchayats
Educational Institutions	48 Primary Schools 4 Middle Schools 10 Secondary Schools
Healthcare Institutions	2 Primary Health Centres
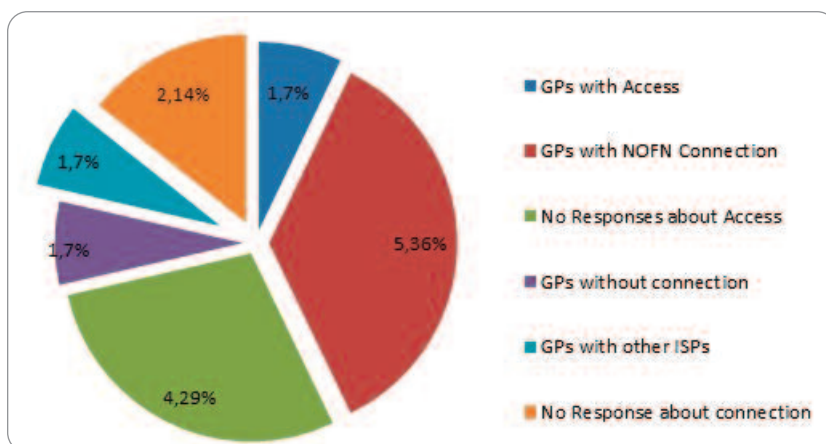
Figure 9: NOFN Connection Vs. Access in GPs – Pravada

Pie chart legend:
- GPs with Access (1,7%)
- GPs with NOFN Connection (5,36%)
- No Responses about Access (4,29%)
- GPs without connection (1,7%)
- GPs with other ISPs (1,7%)
- No Response about connection (2,14%)

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[3]Though Pravada has 20 GP, however 14 GPs have been covered in the Pilot NOFN Phase (BBNL)

6 respondents from GPs claimed that though the NOFN infrastructure was present, it has not been working after the recent cyclone. Moreover, the connection is limited for using MeeSeva Services.

While in 12 schools located in Pravada, 41% (5) do have internet connection, however, 25% (3) said that the connection is not working in their schools. Moreover, an overwhelming majority of 50% do not have NOFN connectivity (See Fig 10).
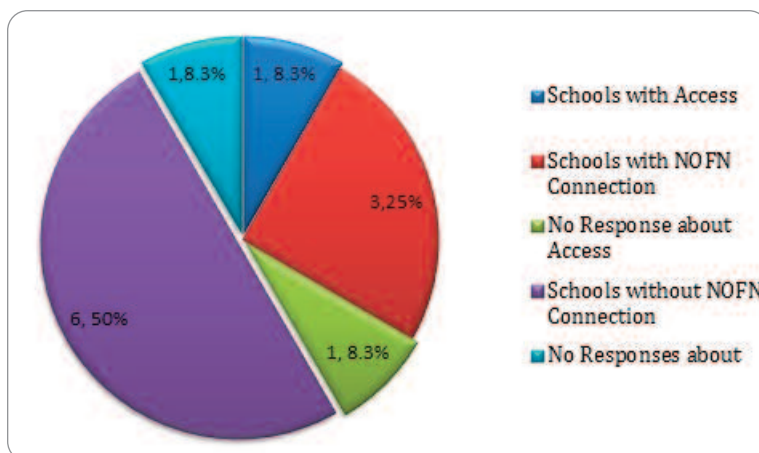
Figure 10: Status of NOFN Connection V/s Access in Schools – Pravada

PANISAGAR BLOCK, NORTH TRIPURA DISTRICT, TRIPURA

Panisagar is one of the blocks of North Tripura district. In Panisagar, there are 14 schools located in 14 GPs of Panisagar[4]. The study identifies that NOFN line has been reached 14 GPs, but average internet connectivity available is just 3-4 hours per day. Further, the connection has not been extended

Demographic Indicator	Value
Area	116.4
Total Population	53,845
No of Gram Panchayats	11
ADC Villages	3

from Panchayats to any government institution or offices. Apart from BSNL, RAILTEL is also authorized for further distribution of NOFN connection, however, the study also identifies that there exists a communication gap between RAILTEL and BSNL officials. Even though C-DOT is the implementation partner for signal transmission and all equipment related maintenance at panchayat level, BSNL is not facilitating smooth communication with C-DOT to ensure a high level of NOFN connectivity at Panisagar.

Of Panisagars' 14 schools, 57% (8) have NOFN connection. Surprisingly, the NOFN connectivity is not available at 6 of them. Therefore, these schools are left to gain access to the internet via private ISPs, defeating the purpose of the NOFN. And in only 2 schools does the NOFN connection work.

Of the 14 government offices in the area, 78% (11) do not have a connection and 2 have connections but lack access to the network.

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[4]14 Gram Panchayat include 11 GPs+3 ADC (Autonomous District Council) Villages (BBNL)

DISCUSSION

Our study found gaps in the claims of BBNL which points to a less than optimal deployment of the NOFN in the pilot blocks. The NOFN was envisioned as not only a physical network backbone but an access enabling infrastructure. However, our findings show that the presence of a connection is not a predicator of the presence of access.

In one of the blocks, the speed of the connection was shown to be less than the 100MBPs promised by the NOFN. The quantum of services available at the GP level also shows a level of inadequacy.

Further, the vision of the NOFNs' stakeholder matrix was to allow cooperation between BBNL, PSUs, State Governments and others. However, given the hurdles identified in the distribution of the NOFN, It is clear that communication and cooperation between the stakeholders leaves a lot to be desired.

Claim	Reality
As on October 2012, the pilot phase has been completed and covered 59 Gram Panchayats in 3 Blocks	The study identifies that even in pilot phase, NOFN hard line has been reached to 3 Blocks but not completely covered 59 Gram Panchayats. The study identifies that just 67% had the hard-line connection to the NOFN and 20.5% have no connection to the NOFN
According to the mission of BBNL, 100 MBPs Broadband connectivity to be provided at all the Gram Panchayats	The study identifies that average broadband connectivity is 50MBPs at gram panchayat level.
According to BBNL, the NOFN connectivity can be provided further in rural regions.	The study identifies in Arain block, the NOFN connection has not been further distributed beyond gram panchayat.
The mission of BBNL states that connectivity will be further proliferated for G2C, B2C and P2P Broadband services in rural areas.	The study identifies that the usage of NOFN connectivity is limited to e-Governance services that too birth and death registration certificates.
BBNL guidelines states that NOFN line can be further provided through telecom service provider/internet service provider	The study reveals that BBNL has not further provided through telecom service providers/internet service providers

RECOMMENDATIONS

Based on our findings, DEF suggests that a committee of independent reviewers should be constituted at USOF to oversee the effective rollout of the NOFN and delivery of services.

The current implementation of the NOFN in the pilot blocks has been very top-down. We suggest engaging with local community leaders and CSOs & NGOs to ensure a horizontal and bottom-up approach. This would be advantageous in accounting for stakeholder incentives, ensuring mechanisms for participation and impact assessment. This would all eventually lead to the long term sustainability and expansion of the NOFN.

Expanding the ecosystem of services provided through the NOFN to the subjects stated in the Eleventh Schedule of the Constitution of India would empower local governance institutions and allow the full realisation of the 73rd Constitutional Amendment.

Finally, the government should look at the mechanisms of further distribution of NOFN connectivity at the local level by exploring the possibility of village level ISP licenses similar to local community radio licensing.

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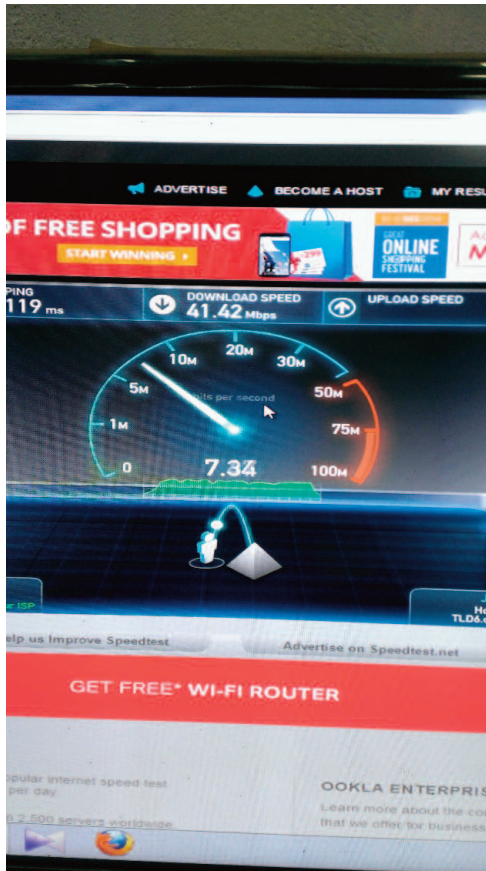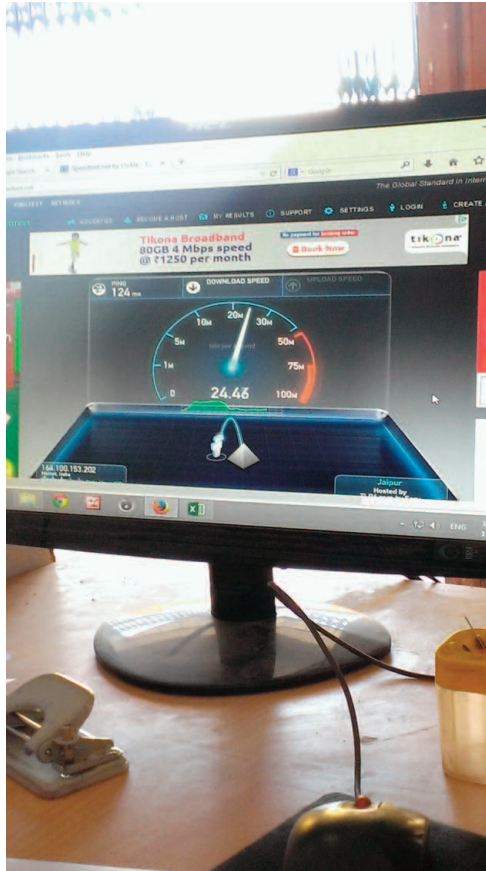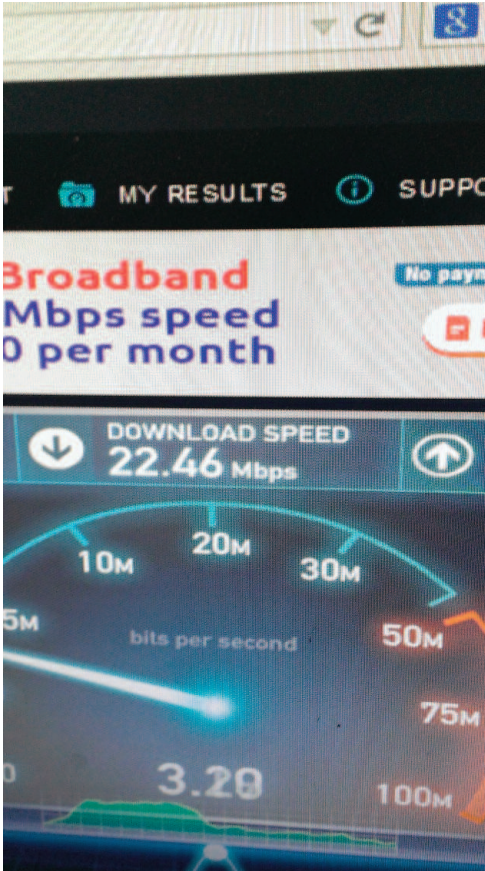
Testing NOFN speed at Arian Panchayat

OFC (Optical Fibre Network) equipments in pilot locations

Access infrastructure & equipments in pilot locations

Gorlivanipalem Zilla Panchayat Office

Naidupalem Panchayat Office

Primary School located in Salapuvani gram panchayat of Visakhapatnam District

Higher secondary school located in Akodiya gram panchayat, Arian

Bharakanikum Zilla Panchayat School

ANNEXURES

ANNEXURE 1: RESPONDENTS DETAILS AT ARAIN

	INTERVIEW INFORMTION		RESPONDENT INFORMATION		GEOGRAPHIC LOCATION					
S.NO	DATE	INTERVIEWER NAME	NAME	GENDER	STATE	DISTRICT NAME	GRAM PANCHAYAT	BLOCK NAME	PINCODE
1	DATE	NABEEL AHMAD	BHAWAR GOPAL GAUR	MALE	RAJASTHAN	AJMER	ARAIN	ARAIN	305813
2	12/7/2014	NABEEL AHMAD	DURGESH KUWAR	MALE	RAJASTHAN	AJMER	BHAMOLAV	ARAIN	305813
3	12/7/2014	NABEEL AHMAD	SHUGNI DEVI	FEMALE	RAJASTHAN	AJMER	DADIYA	ARAIN	305813
4	12/7/2014	NABEEL AHMAD	GHANSHYAM CHANDEL	MALE	RAJASTHAN	AJMER	AAKODIYA	ARAIN	305813
5	12/7/2014	NABEEL AHMAD	LAXMAN JAAT	MALE	RAJASTHAN	AJMER	KALANADA	ARAIN	305813
6	12/7/2014	NABEEL AHMAD	GANPATH LAL	MALE	RAJASTHAN	AJMER	DASOOK	ARAIN	305813
7	12/7/2014	NABEEL AHMAD	UMRAO MAL JAIN	MALE	RAJASTHAN	AJMER	JHEROTA	ARAIN	305813
8	12/8/2014	NABEEL AHMAD	RAMDEV	MALE	RAJASTHAN	AJMER	BHAGODEET	ARAIN	305813
9	12/8/2014	NABEEL AHMAD	SAWAR LAL BHEEL	MALE	RAJASTHAN	AJMER	SANDOLIYA	ARAIN	305813
10	12/8/2014	NABEEL AHMAD	HARI RAM	MALE	RAJASTHAN	AJMER	SIRONJ	ARAIN	305813
11	12/8/2014	NABEEL AHMAD	RANGLALA	MALE	RAJASTHAN	AJMER	MANOHAR-PURA	ARAIN	305813
12	12/8/2014	NABEEL AHMAD	DEVI LAL	MALE	RAJASTHAN	AJMER	KASEER	ARAIN	305813
13	12/8/2014	NABEEL AHMAD	LADO RAM	MALE	RAJASTHAN	AJMER	BORADA	ARAIN	305813
14	12/8/2014	NABEEL AHMAD	PRAMOD KHE-WAT	MALE	RAJASTHAN	AJMER	GOTHIYANA	ARAIN	305813
15	12/9/2014	NABEEL AHMAD	RAM DAYAL JAAT	MALE	RAJASTHAN	AJMER	KATSOORA	ARAIN	305813
16	12/9/2014	NABEEL AHMAD	NARENDRA SINGH	MALE	RAJASTHAN	AJMER	LAMBA	ARAIN	305813
17	12/9/2014	NABEEL AHMAD	SUBHASH BIYANI	MALE	RAJASTHAN	AJMER	RAMPALI	ARAIN	305813
18	12/9/2014	NABEEL AHMAD	NARENDRA VAISHAV	MALE	RAJASTHAN	AJMER	AJGARA	ARAIN	305813

19	12/9/2014	NABEEL AHMAD	SHIVRAJ GURJAR	MALE	RAJASTHAN	AJMER	LALLAI	ARAIN	305813
20	12/9/2014	NABEEL AHMAD	EHLAD BALAI	MALE	RAJASTHAN	AJMER	BHAWAN-PURA	ARAIN	305813
21	12/9/2014	NABEEL AHMAD	RAMESH GURJAR	MALE	RAJASTHAN	AJMER	SOOPA	ARAIN	305813
22	12/9/2014	NABEEL AHMAD	MADHU MANTRI	FEMALE	RAJASTHAN	AJMER	SAMPLA	ARAIN	305813
23	12/10/2014	NABEEL AHMAD	RAMLAL JI BHEEL	MALE	RAJASTHAN	AJMER	DEVPURI	ARAIN	305813
24	12/10/2014	NABEEL AHMAD	NARAYAN SINGH	MALE	RAJASTHAN	AJMER	HINGONIYA	ARAIN	305813
25	12/10/2014	NABEEL AHMAD	NARENDRA SONI	MALE	RAJASTHAN	AJMER	HARPURA	ARAIN	305813
26	12/10/2014	NABEEL AHMAD	PRAMOD KHAROL	MALE	RAJASTHAN	AJMER	KHIRIYA	ARAIN	305813
27	12/10/2014	NABEEL AHMAD	HIRA DEVI	FEMALE	RAJASTHAN	AJMER	BIRLA	ARAIN	305813
28	12/10/2014	NABEEL AHMAD	GHISA LAL DHAKAD	MALE	RAJASTHAN	AJMER	SYAR	ARAIN	305813
29	12/10/2014	NABEEL AHMAD	SUSHILA JAAT	MALE	RAJASTHAN	AJMER	FATEHGARH	ARAIN	305813
30	12/10/2014	NABEEL AHMAD	SURESH KUMAR JAIN	MALE	RAJASTHAN	AJMER	MANDAVARI-YA	ARAIN	305813

ANNEXURE 2: RESPONDENT DETAILS AT VIZAG

S. No	Interviewer Name	Respondent Name	male/female	Respondent position	Gram Panchayat Name	Block Name	District Name	Pincode
1	Shahid Siddiqui/ Seshegri	satanu sathi babu (satyanarayana)	male	sarpanch	salapuvani palem	paravada	vishkhapatnam	515219
2	Shahid Siddiqui/ Seshegri	suseela (H.M)	Female	School head master	salapuvani palem	paravada	vishkhapatnam	515219
3	Shahid Siddiqui/ Seshegri	N.shravani	Female	(operator) govt office	salapuvani palem	paravada	vishkhapatnam	515219
4	Shahid Siddiqui/ Seshegri	Bandam Nooka Ratnam	Female	sarpanch	Pedamusidivada	paravada	vishkhapatnam	531019
5	Shahid Siddiqui/ Seshegri	Nageswara Rao	male	School head master	Pedamusidivada	paravada	vishkhapatnam	531019
6	Shahid Siddiqui/ Seshegri	S. Aruna	Female	mee seva(govt office)	Pedamusidivada	paravada	vishkhapatnam	531019
7	Shahid Siddiqui/ Seshegri	Hadaka Raju Naidu	male	sarpanch	Kannuru	paravada	vishkhapatnam	521002
8	Shahid Siddiqui/ Seshegri	Vara lakshmi	Female	operator, mee seva(govt office)	Kannuru	paravada	vishkhapatnam	521002
9	Shahid Siddiqui/ Seshegri	CH. Ramu Naidu	male	sarpanch	seshagiri	paravada	vishkhapatnam	531021

10	Shahid Siddiqui/ Seshegri	D.Krishna Kumari	Female	School head master	seshagiri	paravada	vishkhapatnam	531021
11	Shahid Siddiqui/ Seshegri	M.SRIMIVASAN	male	Sr. Asst, Hospital	seshagiri	paravada	vishkhapatnam	531021
12	Shahid Siddiqui/ Seshegri	K.RAMANAMMA	female	sarpanch	NAIDUPALEM	Paravada	vishkhapatnam	531020
13	Shahid Siddiqui/ Seshegri	K.krishna veni	female	School head master	NAIDUPALEM	Paravada	vishkhapatnam	531020
14	Shahid Siddiqui/ Seshegri	K.Naresh	male	coordinator,- mee seva(govt office)	NAIDUPALEM	Paravada	vishkhapatnam	531020
15	Shahid Siddiqui/ Seshegri	T.Bappayya	male	School head master	Vadachepe- rupalli	Paravada	vishkhapatnam	531020
16	Shahid Siddiqui/ Seshegri	Hercy Bai	female	sarpanch	Muthyalamma Palem	Paravada	vishkhapatnam	531020
17	Shahid Siddiqui/ Seshegri	Pyla padma	female	sarpanch	THANAM	Paravada	vishkhapatnam	531021
18	Shahid Siddiqui/ Seshegri	K.CHITTI BABU	male	School head master	THANAM	Paravada	vishkhapatnam	531021
19	Shahid Siddiqui/ Seshegri	BONDA TATA RAO	male	sarpanch	BHARINIKAM	Paravada	vishkhapatnam	531021
20	Shahid Siddiqui/ Seshegri	B.H ma Kumari	female	School head master	BHARINIKAM	Paravada	vishkhapatnam	531021
21	Shahid Siddiqu- Wi/Seshegri	GORLI Kanaka Rao	male	sarpanch	GORLIVANI PALEM	Paravada	vishkhapatnam	531021
22	Shahid Siddiqui/ Seshegri	P.Sunny Babu	male	mee seva, govt office	GORLIVANI PALEM	Paravada	vishkhapatnam	531021
23	Shahid Siddiqui/ Seshegri	R.pyd. Thalli	female	sarpanch	PAYAKARAO BONANGI	Paravada	vishkhapatnam	531021
24	Shahid Siddiqui/ Seshegri	Gladdis	female	School head master	PAYAKARAO BONANGI	Paravada	vishkhapatnam	531021
25	Shahid Siddiqui/ Seshegri	B. Haritha	female	operator, mee seva, govt office	PAYAKARAO BONANGI	Paravada	vishkhapatnam	531021
26	Shahid Siddiqui/ Seshegri	T.Hari Krishna	male	sarpanch	RAVADA	Paravada	vishkhapatnam	531020
27	Shahid Siddiqui/ Seshegri	P. Madhavi Principal	female	School head master	RAVADA	Paravada	vishkhapatnam	531020
28	Shahid Siddiqui/ Seshegri	RAMA Rao	male	sarpanch	KALAPAKA	Paravada	vishkhapatnam	531021
29	Shahid Siddiqui/ Seshegri	K.Gopal Rao	male	School head master	KALAPAKA	Paravada	vishkhapatnam	531021
30	Shahid Siddiqui/ Seshegri	Bondaru Mad- hai latha	female	sarpanch	VENNELAPALEM	Paravada	vishkhapatnam	531020
31	Shahid Siddiqui/ Seshegri	VENNELAPALEM / V. VIJAYA	female	School head master	VENNELAPALEM	Paravada	vishkhapatnam	531020
32	Shahid Siddiqui/ Seshegri	PAILA AK- KUNAIDU	male	operator, mee seva, govt office	VENNELAPALEM	Paravada	vishkhapatnam	531020

ANNEXURE 3: RESPONDENT DETAILS AT PANISAGAR

Sl. No	Interviewer Name	Respondent Name	male/female	Respondent position	Gram Pan-chayat Name	Block Name	District Name	Pin code
1	A K M Gulzar Hussain	Mr. Jeiluabum Halam	male	Panchayat Member	Noagang	Panisagar	North Tripura	799260
2	A K M Gulzar Hussain	Neiluangir Halam	male	Sarpanch	Noagang	Panisagar	North Tripura	799260
3	A K M Gulzar Hussain	Mr. Ditlumani Halam	male	School head master	Noagang	Panisagar	North Tripura	799260
4	A K M Gulzar Hussain	Mr. Zatuapuia Chonnel	male	Project Assistant, Sub Zonal Development Office	Noagang	Panisagar	North Tripura	799260
5	A K M Gulzar Hussain	Mr. Ringreiray Halam	male	Sarpanch	Indurail	Panisagar	North Tripura	799260
6	A K M Gulzar Hussain	Mr. Dinomoni Dev Barma	male	School head master	Indurail	Panisagar	North Tripura	799260
7	A K M Gulzar Hussain	Mr. Anitar Ram	male	Post Master	Indurail	Panisagar	North Tripura	799260
8	A K M Gulzar Hussain	Mr. Kanu Ranjan Das	male	Sarpanch Secretary	Jalabasa	Panisagar	North Tripura	799260
9	A K M Gulzar Hussain	Mrs. Smiriti Nath	female	Sarpanch	Jalabasa	Panisagar	North Tripura	799260
10	A K M Gulzar Hussain	Mr. Swapam Kr. Dev	male	Teacher	Jalabasa	Panisagar	North Tripura	799260
11	A K M Gulzar Hussain	Dr. Sanjoy Das	male	CMO	Jalabasa	Panisagar	North Tripura	799260
12	A K M Gulzar Hussain	Mr. Krishna-pada Datta	male	Sarpanch Seceretary	Rowa	Panisagar	North Tripura	799260
13	A K M Gulzar Hussain	Mr. Rajib Sen	male	Principal In charge	Rowa	Panisagar	North Tripura	799260
14	A K M Gulzar Hussain	Mrs. Preeti Nath	female	Post Master	Rowa	Panisagar	North Tripura	799260
15	A K M Gulzar Hussain	Mr. Dhananjay Reang	male	Sarpanch Secretary	Chandra Halam Para	Panisagar	North Tripura	799260
16	A K M Gulzar Hussain	Mr. Denial Kurbah	male	Principal	Chandra Halam Para	Panisagar	North Tripura	799260
17	A K M Gulzar Hussain	Mrs. Arti Rani Nath	female	Post Master	Chandra Halam Para	Panisagar	North Tripura	799260
18	A K M Gulzar Hussain	Mr. Biplab Nath	male	Panchayat Member	Agnipasa	Panisagar	North Tripura	799260
19	A K M Gulzar Hussain	Mr. Anil Chandra Nath	male	Head Master	Agnipasa	Panisagar	North Tripura	799260
20	A K M Gulzar Hussain	Mr. Satyajit Das	male	Health Center In charge	Agnipasa	Panisagar	North Tripura	799260
21	A K M Gulzar Hussain	Mr. L. Darlong, TCS	male	Executive Officer, Nagar Panchayat	Panisagar	Panisagar	North Tripura	799260
22	A K M Gulzar Hussain	Mr. Biren Shina	male	Principal In charge	Panisagar	Panisagar	North Tripura	799260
23	A K M Gulzar Hussain	Mr. AK Pur-kasthya	male	Agriculture Officer	Panisagar	Panisagar	North Tripura	799260

24	A K M Gulzar Hussain	Mr. Subash Chandra Das	Male	Sarpanch Secretary	West Panisagar	Panisagar	North Tripura	799260
25	A K M Gulzar Hussain	Mr. Biswajit Das	Male	Head Master	West Panisagar	Panisagar	North Tripura	799260
26	A K M Gulzar Hussain	Mr. Rajesh Chakma	Male	Vetenary Sub-center incharge	West Panisagar	Panisagar	North Tripura	799260
27	A K M Gulzar Hussain	Mr. Dilip Das	Male	Sarpanch	Pekuchrra	Panisagar	North Tripura	799260
28	A K M Gulzar Hussain	Mr. Meghalal Archarya	Male	Principal	Pekuchrra	Panisagar	North Tripura	799260
29	A K M Gulzar Hussain	Mrs. Reena Dhar	female	Post Master	Pekuchrra	Panisagar	North Tripura	799260
30	A K M Gulzar Hussain	Mr. Bhidu Bushan Nath	male	Sarpanch Secretary	Bilthai	Panisagar	North Tripura	799260
31	A K M Gulzar Hussain	Mr. Paritosh Nath	male	Teacher	Bilthai	Panisagar	North Tripura	799260
32	A K M Gulzar Hussain	Mr. Rishikesh Sarkar	male	Post Master	Bilthai	Panisagar	North Tripura	799260
33	A K M Gulzar Hussain	Mr. Hindra Malakar	Male	Panchayat Member	Ramnagar	Panisagar	North Tripura	799260
34	A K M Gulzar Hussain	Mr. Dulal Dey	male	Teacher	Ramnagar	Panisagar	North Tripura	799260
35	A K M Gulzar Hussain	Mr. Rajesh Paul	male	Post Master	Ramnagar	Panisagar	North Tripura	799260
36	A K M Gulzar Hussain	Mr. Ram Babu Singh	male	Sarpanch	Deocherra	Panisagar	North Tripura	799260
37	A K M Gulzar Hussain	Mr. Sumjonpar Halam	male	Teacher	Deocherra	Panisagar	North Tripura	799260
38	A K M Gulzar Hussain	Mr. Bishnu pada Bhowmik	male	Post Master	Deocherra	Panisagar	North Tripura	799260
39	A K M Gulzar Hussain	Mr. Prajesh Das	male	Panchayat Member	North Padmabil	Panisagar	North Tripura	799260
40	A K M Gulzar Hussain	Mr. Pran Gopal Sharma	male	Teacher	North Padmabil	Panisagar	North Tripura	799260
41	A K M Gulzar Hussain	Mr. Nivesh Chakrabarty	male	Post Master	North Padmabil	Panisagar	North Tripura	799260
42	A K M Gulzar Hussain	Mr. Bipul Bushan Paul	male	Panchayat Secretary	South Padmabil	Panisagar	North Tripura	799260
43	A K M Gulzar Hussain	Mr. Manmohan Dev Nath	male	Principal In charge	South Padmabil	Panisagar	North Tripura	799260

ANNEXURE 4: QUESTIONNAIRE TO STUDY CONNECTIVITY AND ACCESS INFRASTRUCTURE STATUS IN GRAM PANCHAYATS OF NOFN (NATIONAL OPTIC FIBRE NETWORK)

Survey Questionnaire

Guidelines for Survey Interview:
1. *Please note that the questionnaire below is addressed to an individual respondent only.*
2. *Make sure that all answers are given by the respondent and nobody else on his/her behalf.*
3. *Note that interviews should not be conducted in groups.*
4. *Before starting the interview, introduce yourself and ask if the respondent is willing to spare half an hour for the survey. If not, request for another appointment at a suitable time.*
5. *All the * marked questions are compulsory. They HAVE to be answered.*
6. *Try to get clear responses. Avoid writing 'NA' for relevant questions. Find alternative ways to get the answer.*
7. *Make sure you are familiar with all questions in the survey before you conduct the survey*
8. *This questionnaire is* **confidential** *and it will not be shared with any interviewee*

Section A: Interview Information

Date *	
Interviewer Name *	
Interview Duration (minutes) *	

Section B: Respondent Information

Respondent Name *		
Mobile/Phone Number		
Email Address		
Gender *	Male	Female

Section C: Geographic Location

State	
District Name	
Block Name	
Gram Panchayat Name	
Address	
Pin Code	
Take the photo of the location (make sure that GPS is On)	Attach the photograph in JPG

Section D: Understanding NOFN (National Optic Fibre Network) Status
(Please put tick mark on the basis of answer given by interviewee)

D.1 Block Development Officer/Local Railtel/BBNL/BSNL Officer

Respondent Name *		
Mobile/Phone Number		
Email Address		
Gender *	Male	Female

1.	Whether NOFN Line has been deployed or not	Yes ( ) No ( )
2.	Whether NOFN line is working or not	Yes ( ) No ( )
3.	For how long NOFN line has been working.	( ) Year ( ) Month
4.	Whether NOFN line is further distributed	Yes ( ) No ( )
5.	Are you distributing this connection further connectivity?	Yes ( ) No ( )
6.	If yes, please give details about where it has been distributed	Schools ( ) Gram Panchayat ( ) Government Office ( ) Post Office ( ) PHC ( ) Hospital ( )
7.	Who is providing you backhaul (backend) connectivity?	BSNL ( ) Railtel ( )
8.	Who is further it distributing?	Powergrid ( )
9.	How are you further distributing the connection?	BSNL Railtel
10.	What is the cost of further distribution?	Wi Fi Land Line

D.2. Sarpanch/ Panchayat Member/ Sarpanch Secretary

Respondent Name *		
Mobile/Phone Number		
Email Address		
Gender *	Male	Female

1.	Are you aware that Gram Panchayat is connected with NOFN?	Yes ( ) No ( )
2.	If not, do you want that your GP should have internet connectivity?	Yes ( ) No ( )
3.	If Yes, then how long your gram panchayat has been connected with internet	Yes ( ) No ( )
4.	For what purpose, are Gram Panchayat Members using connectivity	Yes ( ) No ( )

D.3. School

Respondent Name *		
Mobile/Phone Number		
Email Address		
Gender *	Male	Female

1.	Are you aware that school is connected with NOFN?	Yes ( ) No ( )
2.	If not, do you want that your school should have internet connectivity?	Yes ( ) No ( )
3.	If Yes, then how long your school has been connected with internet	Yes ( ) No ( )
4.	Are you paying any cost for internet connectivity?	Yes ( ) No ( )

D.3. Government Office

Respondent Name *		
Mobile/Phone Number		
Email Address		
Gender *	Male	Female

1.	Are you aware that Govt. Office/Post Office is connected with NOFN	Yes ( ) No ( )
2.	If not, do you want that your Govt. office/Post office should have internet connectivity?	Yes ( ) No ( )
3.	If Yes, then how long your Government/Post Office has been connected with internet.	Yes ( ) No ( )
4.	Are you paying any cost for your connectivity?	Yes ( ) No ( )

ANNEXURE 5: OSAMA'S COLUMN ON BROADBAND, ACCESS AND CONNECTIVITY PUBLISHED AT LIVEMINT

S.NO	Published in	News	News
1	MON, NOV (17 2014)	Smart villages before smart cities	http://www.livemint.com/Opinion/Xw9R1L0bKb-d0RUQjHbG94J/Smart-villages-before-smart-cities.html?utm_source=copy
2	MON, NOV (03 2014)	Zuckerberg, Facebook, Internet.org and Indian villages	http://www.livemint.com/Opinion/FBePf7xWFjQ3rxyQ3UDTBI/Zuckerberg-Facebook-Internetorg-and-Indian-villages.html
3	MON, OCT (27 2014)	Digital infrastructure in panchayat villages	http://www.livemint.com/Opinion/ZxH8C4VRZQgcV7KRdh-pnHN/Digital-infrastructure-in-panchayat-villages.html
4	MON, OCT (06 2014)	Undoing of IT labs in schools	http://www.livemint.com/Opinion/TSf7gsuCUDdlsM8LKT-gcpN/Undoing-of-IT-labs-in-schools.html
5	SUN, SEP (28 2014)	Towards Digital India: One positive step at a time	http://www.livemint.com/Opinion/7gKoXbQtoVRQVLHm41ZJON/Towards-Digital-India-One-positive-step-at-a-time.html
6	MON, JUL (07 2014)	Broadband push raises hopes	http://www.livemint.com/Opinion/Z387BiruNKVTQa1TGNdxgM/Broadband-push-raises-hopes.html
7	SUN, JUN (15 2014)	Bringing Internet to villages	http://www.livemint.com/Opinion/TQil2t6ZYHiKMWqY-p0U500/Bringing-Internet-to-villages.html?utm_source=copy
8	MON, JUN (02 2014)	The connected world of Jhamtse Gatsal	http://www.livemint.com/Opinion/hv03t6UZFGUJvjXRC6EuxL/The-connected-world-of-Jhamtse-Gatsal.html?utm_source=copy
9	SUN, MAY (18 2014)	Osama Manzar | Taking minorities on board	http://www.livemint.com/Opinion/FnhZ8l7eWJXG52PuRX-IIZI/Osama-Manzar--Taking-minorities-on-board.html?utm_source=copy

S.NO	Published in	News	News
10	MON, MAY (12 2014)	A digital inclusion vision for next government	http://www.livemint.com/Opinion/L40BcDyegvsoos4j7csEH0/A-digital-inclusion-vision-for-next-govt.html?utm_source=copy
11	SAT, JAN (04 2014)	New Year Ideas | Live and work in a village	http://www.livemint.com/Leisure/vecMn5hW6yxVR-CBEEamXI0/New-Year-Ideas--Live-and-work-in-a-village.html
12	MON, NOV (25 2013)	Let NGOs provide rural Net services	http://www.livemint.com/Specials/Nvjt8MPtKbZYuMt5eLv7JI/Let-NGOs-provide-rural-Net-services.html?utm_source=copy
13	Mon, Jul (08 2013)	Mobiles for social change	http://www.livemint.com/Opinion/VFWm6SnjiD5BnUVy7vJdDM/Mobiles-for-social-change.html?utm_source=copy
14	Sun, Jun (30 2013)	Uttarakhand crisis underlines community radio's importance	http://www.livemint.com/Opinion/DaNUPoIpIPqbXmImhawaJI/Uttarakhand-crisis-underlines-community-radios-importance.html?utm_source=copy
15	Mon, Jun (24 2013)	Broadband Internet's rural role	http://www.livemint.com/Opinion/X0Wc0GavkFlY0vMUGbk5QK/Broadband-Internets-rural-role.html?utm_source=copy
16	Mon, Jun (17 2013)	Move to mobile governance	http://www.livemint.com/Opinion/R7wrt21KLGLIB3BavN3ow0/Move-to-mobile-governance.html?utm_source=copy
17	Sun, Jun (02 2013)	Tribal development with digital inclusion	http://www.livemint.com/Opinion/D69oVlyjUVXGSpT3Hv-MUFI/Tribal-development-with-digital-inclusion.html?utm_source=copy

ANNEXURE 6: ARTICLES RELATED TO BROADBAND, ACCESS & NOFN PUBLISHED AT NATIONAL NEWSPAPERS

S.NO	Published in	News	News
1	Andhra Pradesh government plans 15 Mbps broadband service at Rs 150/month	11 Jan, 2015	http://economictimes.india-times.com/articleshow/45840683.cms?intenttarget=no&utm_source=contentofinterest&utm_medium=text&utm_campaign=cppstutm_source=copyurce=copym_source=copy
2	Sterlite to shut broadband services from February 12	Jan 15, 2015	http://articles.economic-times.indiatimes.com/2015-01-15/news/58108987_1_sterlite-technologies-ltd-broadband-services-sterlite-networks
3	Keralas Idukki First District to Join NOFN	January 13 2015, The Economic Times	http://articles.economic-times.indiatimes.com/2015-01-13/news/58024200_1_first-district-digital-india-idukki
4	Videocon Telecom to invest Rs 340 crore for ISP expansion	January 7, 2015	http://www.telecomlead.com/telecom-services/videocon-telecom-invest-rs-340-crore-isp-expansion-55266
5	Why India's Proposal at the ITU is Troubling for Internet Freedom (Part 1) – CIS India	October 30, 2014	http://www.medianama.com/2014/10/223-why-indias-proposal-at-the-itu-is-troubling-for-internet-freedom-part-1-cis-india/
6	TRAI wants private sector entry in NOFN, promote cable broadband & others	September 26, 2014	http://www.medianama.com/2014/09/223-trai-broadband-adoption-consultation/
7	You ambushed each other, and now you're trying to get someone else to save you – Venky Nishtala, CTO, Rediff	August 7, 2014	http://www.medianama.com/2014/08/223-you-ambushed-each-other-and-now-youre-trying-to-get-someone-else-to-save-you-venky-nishtala-cto-rediff/

S.NO	Published in	News	News
8	Govt to rope in pvt bodies for OFC connectivity	Sep 5, 2014	http://timesofindia.india-times.com/city/delhi/Govt-to-rope-in-pvt-bodies-for-OFC-connectivity/articleshow/41749889.cms
9	Special ISP Fees Could Unlock Cable Last Miles For B'Band	July 04, 2014	http://www.lightreading.in/lightreadingindia/news-analysis/296896/special-isp-fees-unlock-cable-miles-b-band?utm_source=referrence_article
10	DoT wants to make Broadband Internet a basic right in new National Broadband Policy	June 20, 2014	http://www.medianama.com/2014/06/223-dot-wants-to-make-broadband-internet-a-basic-right-in-new-national-broadband-policy/
11	ACT reveals new brand identity, claims largest non-telecom ISP in India with 5 lakh subscribers	26 July, 2014	http://www.indiantelevision.com/iworld/broadband/act-reveals-new-brand-identity-claims-largest-non-telecom-isp-in-india-with-5-lakh-subscribers-140726
12	Broadband growth rate just around 5 % between Feb-Mar this year	14 May, 2014	http://www.indiantelevision.com/regulators/trai/broadband-growth-rate-just-around-5-between-feb-mar-this-year-140514
13	TRAI gives recommendation for reserve price per MHz in 800 MHz band	29 Nov, 2014	http://www.indiantelevision.com/regulators/trai/trai-gives-recommendation-for-reserve-price-per-mhz-in-800-mhz-band-141129
14	Appreciable increase in broadband subscribers between May and June this year	22 August, 2014	http://www.indiantelevision.com/regulators/trai/appreciable-increase-in-broadband-subscribers-between-may-and-june-this-year-140822

S.NO	Published in	News	News
15	Broadband users rise to 82.22 million in November	09 Jan, 2015	http://www.indiantelevision.com/iworld/broadband/broadband-users-rise-to-8222-million-in-november-150109
16	Google ready to help India implement PM Modi's "Digital India" initiative	Jan 15, 2015	http://namastebharat.in/7449/google-ready-to-help-india-implement-pm-modis-digital-india-initiative
17	Broadband penetration: Trai criticises telecom department decision to involve only state-owned companies	Sep 26, 2014	http://articles.economictimes.indiatimes.com/2014-09-26/news/54353345_1_nofn-project-digital-india-bharat-broadband-networks
18	DoT asks state governments to waive right of way charges for speeding up NOFN rollout	Sep 2, 2014	http://articles.economictimes.indiatimes.com/2014-09-02/news/53480148_1_nofn-dot-digital-india-initiative

NATIONAL OPTIC FIBRE NETWORK

Status Study

A REVIEW OF THE PILOT BLOCKS

DEF
DIGITAL EMPOWERMENT *foundation*