

Remote Area Connectivity

16th September, 2016

Medium to Provide Connectivity

2

- Optical Fibre Cable(OFC) : Cheap, Reliable and high bandwidth capacity
- Radio : Where OFC not economical and medium bandwidth requirement
- Satellite : Costliest, deployed in remote and hilly areas

Connectivity in LWE areas

3

S. No.	State	No. of Locations
1	Andhra Pradesh	41
2	Telangana	186
3	Bihar	184
4	Chhattisgarh	497
5	Jharkhand	782
6	Maharashtra	60
7	Madhya Pradesh	22
8	Odisha	253
9	Uttar Pradesh	78
10	West Bengal	96
Total		2199

Development Plans for NER

4

- Comprehensive Telecom Development Plan for NER
 - ▣ Mobile connectivity to uncovered villages
 - ▣ Seamless connectivity along the National Highways
 - ▣ Augmentation of optical fibre connectivity for District connectivity

- Scheme for augmenting optical fibre connectivity from District HQs to Block HQs.

- BharatNet/NOFN – Block HQs to Gram Panchayat connectivity

- Alternate international connectivity(10 Gbps) to North-East through Bangladesh

Uncovered Villages NER (Mobile 2G)

5

State	Villages		
	Total Inhabited (Census2011)	Uncovered	% uncovered Villages
Assam	25,496	2,885	11.32%
Sikkim	426	23	5.40%
Meghalaya	6,471	2,389	36.92%
Mizoram	704	258	36.65%
Tripura	889	2	0.22%
Nagaland	1,407	137	9.74%
Manipur	2,547	610	23.95%
Ar Pradesh	5,260	2,886	54.87%
TOTAL	43,200	9,190	21.27%

Uncovered Villages (Except NER) 2G Mobile

6

S. No	Name of the State/ Service Area	Uncovered Villages
1	Andhra Pradesh	3812
2	Bihar	2534
3	Jharkhand	5949
4	Gujarat	1275
5	Haryana	2
6	Himachal Pradesh	2416
7	Jammu & Kashmir	460
8	Karnataka	0
9	Kerala	0
10	Madhya Pradesh	5926
11	Chhattisgarh	4041
12	Maharashtra	4792
13	Odisha	10398
14	Punjab	91
15	Rajasthan	770
16	Tamil Nadu	113
17	Uttar Pradesh	266
18	Uttarakhand	1876
19	West Bengal	487
20	Andaman& Nicobar	190
21	Goa	65
22	Puducherry	0
23	Dadar & Nagar Haveli	5
24	Daman & Diu	1
25	Telangana	1009
26	Lakshdweep	1
	Grand Total	46479

BharatNet(NOFN)

7

- National Optical Fibre Network (NOFN)/BharatNet project is planned to connect all Gram Panchayats (approx. 2.5 Lakh) in the country
- Optimal mix of underground fibre, fibre over power lines, radio and satellite media for providing broadband connectivity by all categories of service providers on non-discriminatory basis.

□ Contd.

BharatNet Phases

- High speed broadband connectivity to all GPs under BharatNet in three phases
- **Phase-I** : Fibre connectivity (linear configuration) to 1 lakh GPs is targeted by March, 2017
- **Phase-II** : Remaining 1.5 lakh GPs using an optimal mix of underground fibre, fibre over power lines, radio and satellite media by December, 2018
- **Phase-III** : A state- of- the-art network including fibre between districts and blocks and with for 5G services and Internet of Things era with underground OFC in ring architecture are planned to be completed by 2023

BharatNet Status

9

As on 10.09.2016

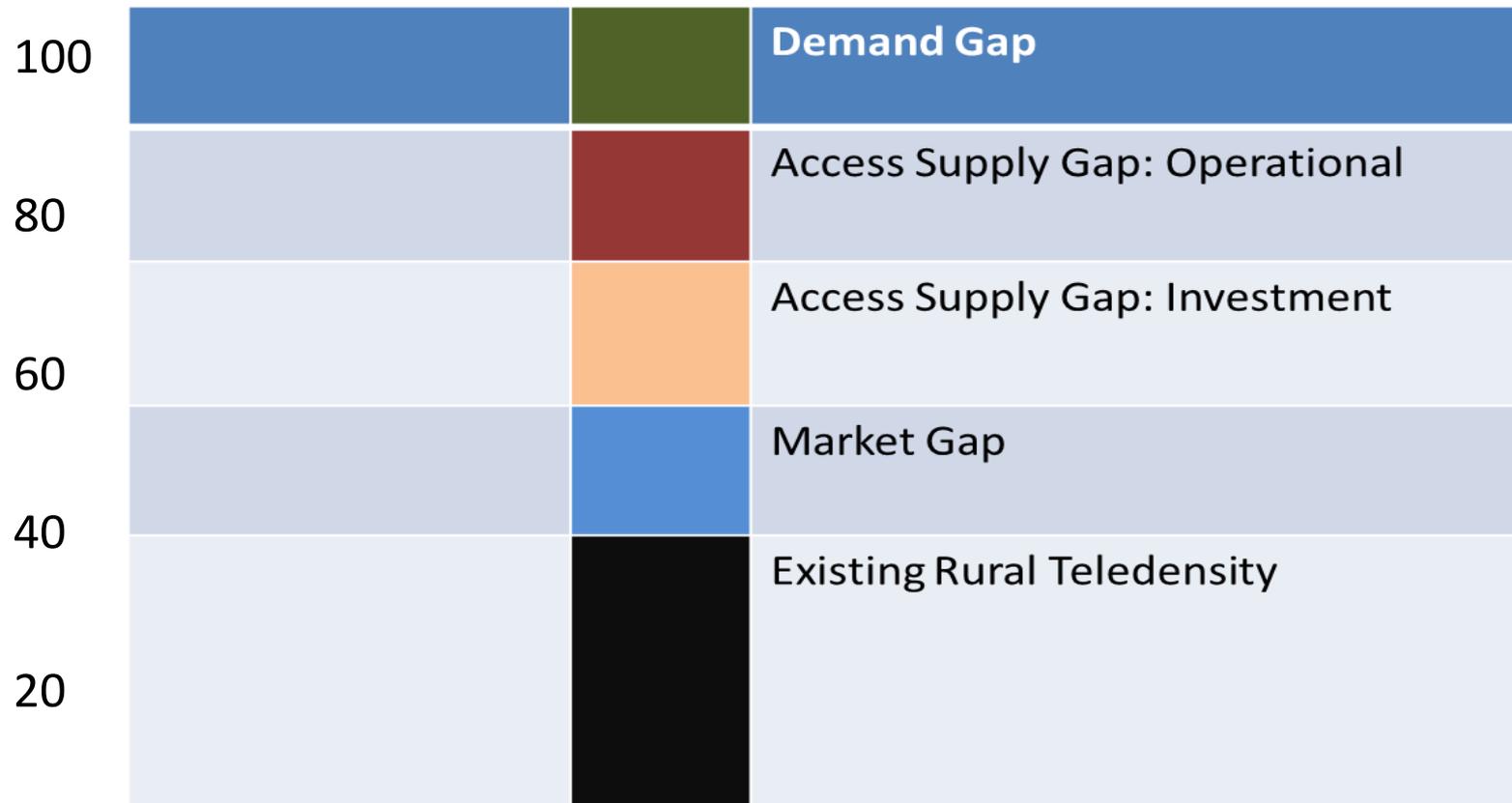
- Optical Fibre Cable (OFC) has been laid in 58,658 Gram Panchayats(GPs)
- Connectivity has been provided in a total of 9,105 (GPs)
- Optical Fibre Cable(OFC) has been laid in 1,34,173 km.

Impact on Economy through Broadband penetration

- World Bank released its report in 2009 that every 10 percentage points of broadband penetration, developing economies grew by 1.38%.
- ICRIER (Indian Council for Research and International Economic Relations) released a report in 2012 with a key finding that “Indian States can be expected to grow by 1.08% points for every 10% increase in the number of internet subscribers.”

Connectivity : Gap analysis

11

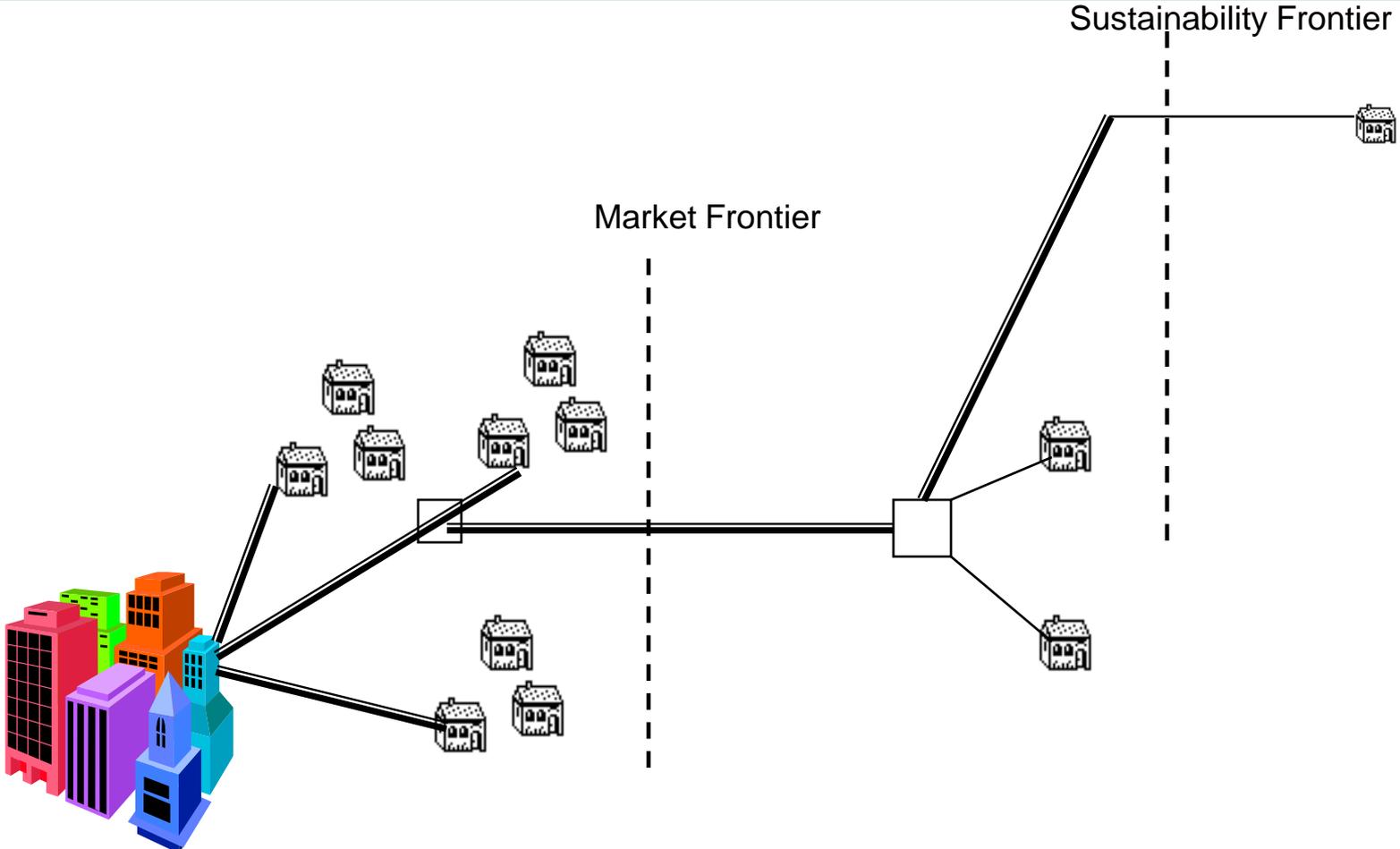


Thank You

Strategies to Increase Rural Connectivity

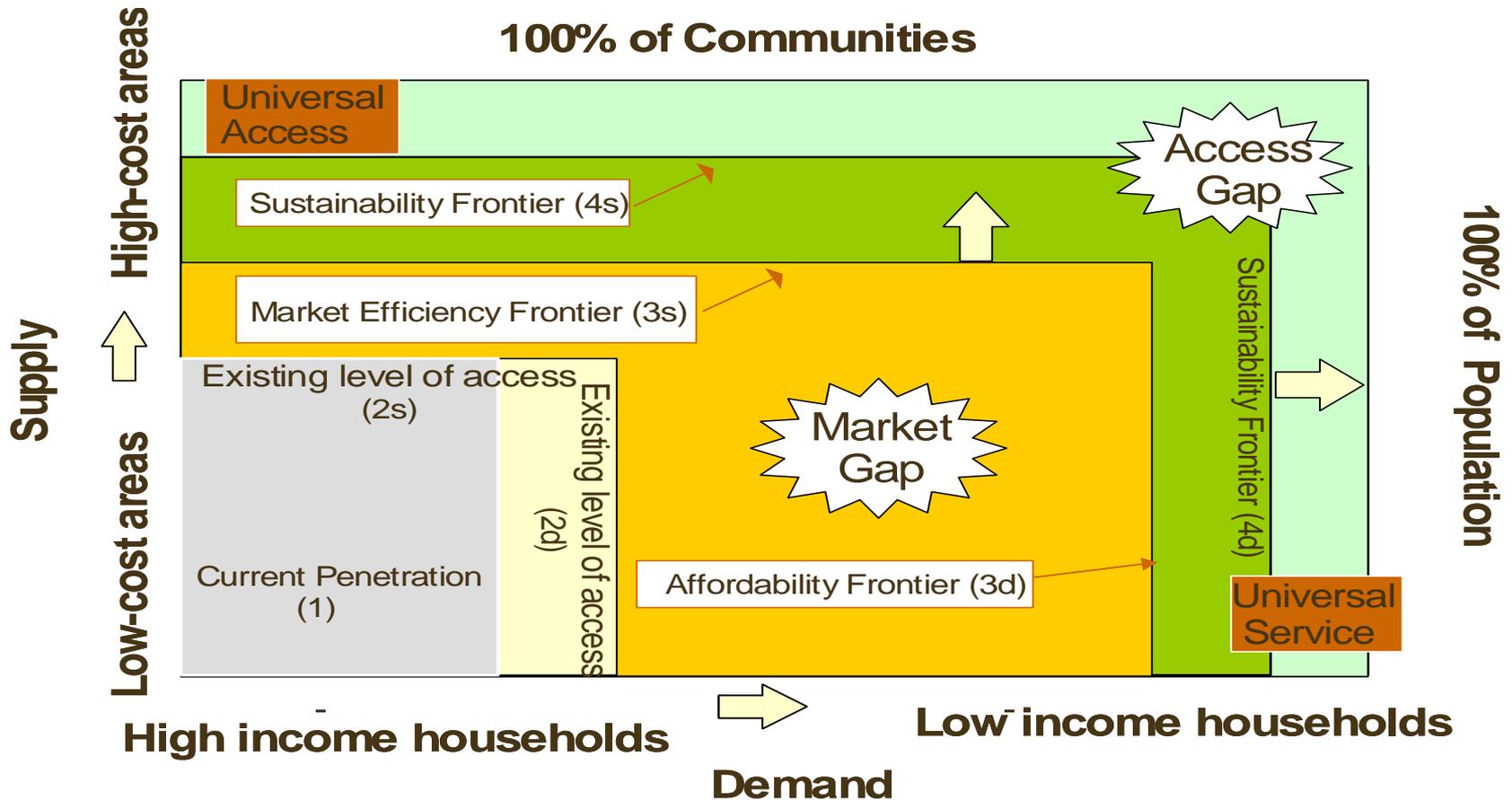
- Through the Universal Services Obligation Fund to provide capital and operational subsidy for investment in rural and remote areas
- The challenges for increasing access to rural areas comprise two different groups:
 - Related to the costs and investments implied in reaching and serving low-income and rural areas (supply-based)
 - Related to the characteristics of the population in these areas (demand-based)
- The third level of gap in rural penetration arises due to low incomes of the target population translating itself into low demand - the access demand gap.

Market Frontier Concept



Demand Vs Supply : Gaps Concept

15



Elevating digitization

16

- Government incentives to improve climate for investment
- Targeted public sector intervention to fill defined access gaps e.g. Universal Service Programmes
- Using ICTs to deliver government services
- Build ICT literacy and skilled human capital by investing in training programs and education incentives
- Regional benchmarking and sharing statistics and success models
- Regulatory imperatives specific to national / regional context
 - Competition based regulatory interventions
 - Level playing field for all market participants

Digitization

17



Ubiquity

Monetization

Affordability

Usability

Reliability

Skill

Speed

How do we measure the Economic Impact of Adoption

18

- **GDP Growth**

- an increase in digitization of 10 % triggers a 0.50% to 0.62% gain in per capita GDP

- **Unemployment Rate**

- an increase of 10% in digitization reduces a nation's unemployment rate by 0.84%

- **Innovation**

- 10-point increase in digitization results in a 6-point increase in the country's score on the Global Innovation Index

19

Thank You

NOFN Phase 1 Progress

20

Items	Planned	Achieved (as on 20.03.2016)
Pipe laid (Km)	2,30,000	1,30,535
OFC pulled (Km)	2,30,000	1,02,539
Pipe laid (GPs)	1,00,000	54,603
OFC pulled (GPs)	1,00,000	43,815
Connectivity(GPs)	1,00,000	5,655