



Ministry of Information Technology



UNIVERSAL SERVICE FUND

Better Networks

More Connectivity

**Expansion of OFC to
Union Councils**

9th July 2019

www.usf.org.pk

AGENDA

No.	Topic
1	USF Introduction
2	Existing USF OFC Programme
3	Future Expansion Programme – OFC to Union Councils
4	Recommendations for Demand Side
5	Modalities
Open Discussion /Q&A	

Agenda No 1: USF Introduction

WHY USF ?

- Despite massive growth in the telecommunication sector, many areas remain Un/Under Served

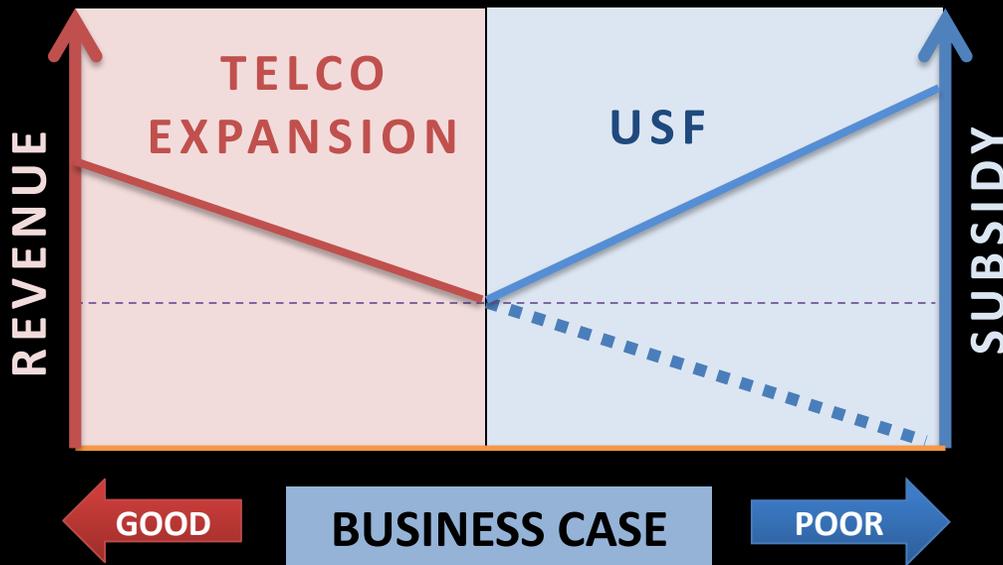


Generator Shifting in Progress



Challenges!

- Difficult Terrain
- Sparse Population
- Harsh Weathers
- Availability of Electricity
- Availability of Backhaul
- Poor Logistics
- Poor Business Case
- Challenges of Law & Order situation



USF Objectives & Policy Guidelines

- As per Section 33B sub-Section 2 of the Telecommunication Act :

“ The Universal Service Fund is to be utilized exclusively to provide access to telecommunication services to people in the un-served, under served, rural, remote areas and other expenditures to be made and incurred by the Federal Government in managing USF. ”

USF PROGRAMMES



NG-BSD

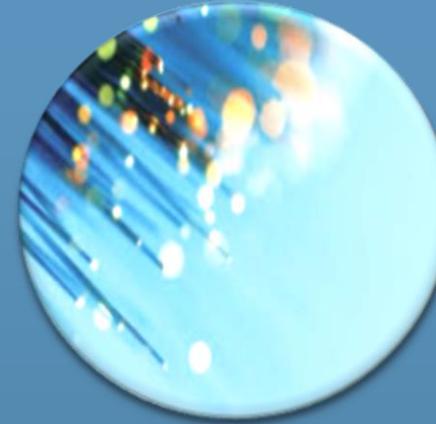
Next Generation Broadband for Sustainable Development

- High Speed Broadband for application Coverage to **population** and **commuters**



Broadband

- Fixed Broadband
- Primarily through DSL, EVDO & WiMAX



Optic Fiber

Extension of Fiber Optic Connectivity to unserved areas



Special Projects for Digital Inclusion

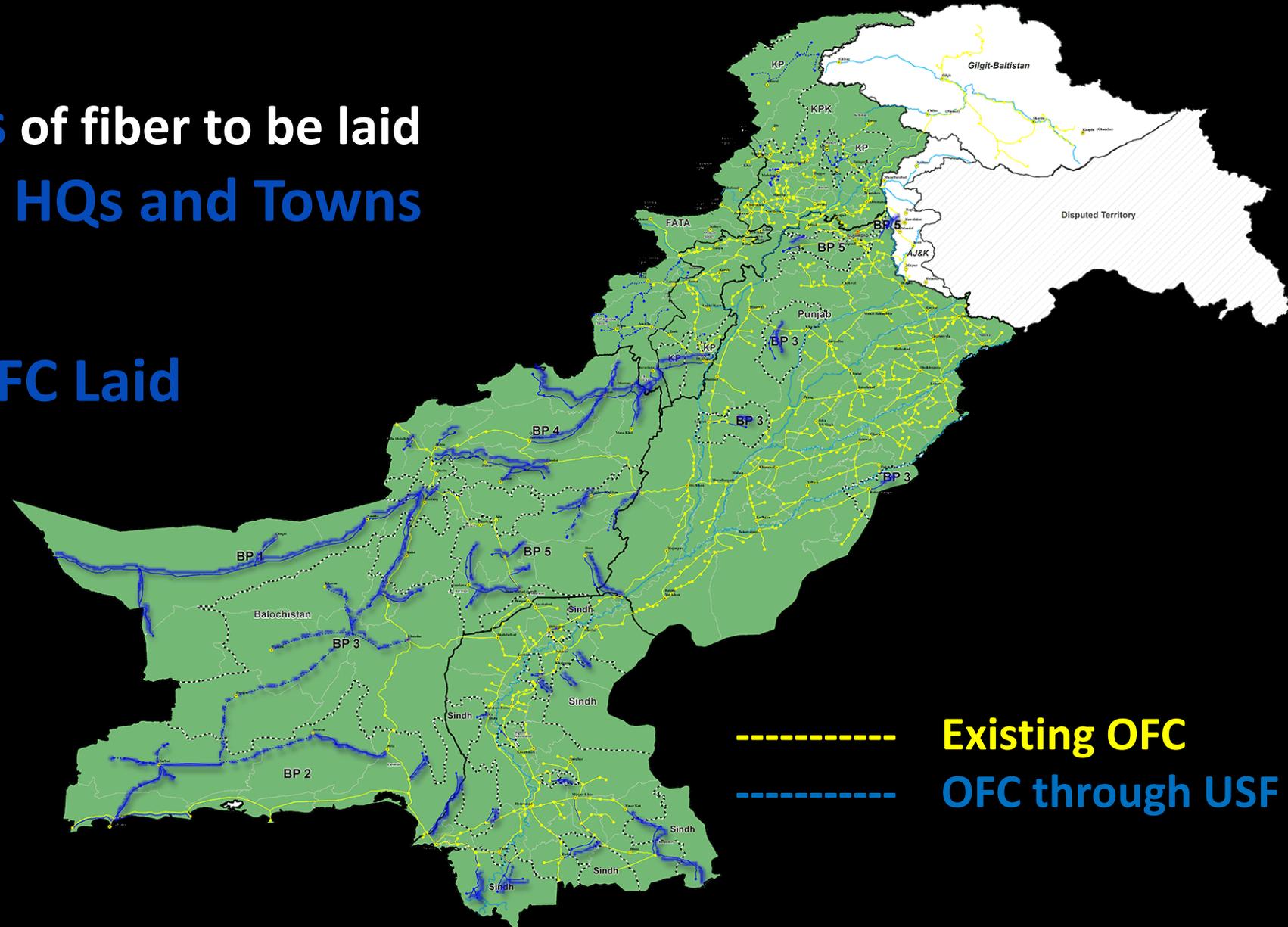
to extend the benefits of modern technologies to the marginalized sections of the society where license is not required

BROADBAND PROLIFERATION & DIGITAL INCLUSION

Agenda No 2: Existing USF OFC Programme

USF OFC Programme – Connecting THQs and Towns

- More than **8,893 kms** of fiber to be laid to connect **201 Tehsil HQs and Towns** Across Country
- Around **7,200 Kms OFC Laid**



Existing OFC Programme - Status

S. No.	Package	Target THQ/ Towns	Kms of OFC required	Target Districts	Implementation Status
1	Sind	17	1,069	Badin, Dadu, Khairpur, Kashmore, Nawabshah, Sanghar, Shikarpur, Sukkur, Tharparkar, Thatta	Completed
2	BP – 1	9	887	Nushki, Chaghi, Kharan, Mastung	Completed
3	BP – 2	21	1,396	Kech, Awaran, Lasbela, Gwadar	75%
4	BP – 3	18	1,361	Kalat, Kharan, Panjgoor, Khuzdar, Hoshab, Bahawalnagar, Layyah, Khushab	75%
5	BP – 4	18	1,285	Killa Abdullah, Musakhel, Pishin, Loralai, Sibi, Ziarat, Zhob, DI Khan, Killa Saifullah	Completed
6	BP – 5	19	786	Bolan, Dera Bugti, Jhal Magsi, Kohlu, Nasirabad, Sibi, Attock, Rawalpindi	Completed
7	KPK	35	619	Lower Dir, Chitral, Shangla, DI Khan, Batagram, Malakand, Mansehra, Swat	25%
8	FATA – P1	24	653	FR Bannu, FR Lakki Marwat, FR Tank, North Waziristan Agency, South Waziristan Agency	Contracted
9	FATA – P2	40	837	Bajaur Agency, Mohmand Agency, Khyber Agency, Orakzai Agency, Kurram Agency, FR Peshawar, FR Kohat	Tender Launched
	Total	201	8,893		

Utilization of USF OFC Networks

BALUCHISTAN

Project	Node	Installed Capacity*	Capacity utilizing	
Baluchistan Package-1	Taftan	2.5G	25%	
	Nokundi	2.5G	60%	
	Mashkhel	2.5G	60%	
	Dalbadin	2.5G	60%	
	Chaghi	622 MB	50%	
	Ahmedwal	2.5G	60%	
	Noshki	10G	60%	
	Dringar	10G	60%	
	Mastung	2.5G	70%	
	Dasht	622 MB	20%	
	Baluchistan Package-4	Norak Gulistan	2.5G	10%
		Abdul Rehaman Zai	10G	10%
Pishin		2.5G	20%	
Manzaki		2.5G	20%	
Bashore		2.5G	20%	
Kuchlak		10G	90%	
Bostan		2.5G	10%	
Kan Bangla		2.5G	75%	
Kawas		622 MB	60%	
Zindra		622 MB	60%	
Ziarat		10G	80%	
Sanjawi		622 MB	75%	
Hernai		2.5G	75%	
Duki		2.5G	70%	
Lora Lai		10G	80%	
Qila Saifullah		10G	80%	
Gawal		10G	80%	
Karam Din Karez		2.5G	10%	
Mir Ali Khel		2.5G	10%	
Zhob		10G	80%	
Musa Khel		10G	70%	
Karam Sherani		10G	70%	
Daraban		2.5G	70%	

SIND

Project	Node	Installed Capacity	Capacity utilizing
Sindh Package	Keti Bandar	622 MB	50%
	Ghorabari	622 MB	50%
	Mirpur Sakro	2.5G	50%
	Garho	2.5G	60%
	Sujawal	2.5G	60%
	Chaur Jamali	622 MB	10%
	Jati	622 MB	20%
	Shahbandar	622 MB	10%
	Badin	622 MB	60%
	Tando Bhago	622 MB	70%
	Judho	622 MB	60%
	Jam Nawaz Ali	622 MB	40%
	Berani	622 MB	75%
	Tando Adam	622 MB	40%
	Umerkot	2.5G	60%
	Chachro	2.5G	30%
	IslamKot	2.5G	60%
	Nagar Parkar	2.5G	20%
	Sobhedero	2.5G	70%
	Setharja	622 MB	20%
	Sui	622 MB	30%
	Johi	622 MB	10%
	Nawab Wali Muhammad	622 MB	10%
	Kot Digi	622 MB	20%
	Nar Chundhko	622 MB	10%
	Rohri	622 MB	20%
	Salehpat	2.5G	10%
	Khanpur	622 MB	10%
	Thano Bula Khan	622 MB	10%
Tangwani	622 MB	10%	
Daulatpur	622 MB	20%	
Ranipur	2.5G	20%	
Mirpur Khas	622 MB	70%	
Mirwah	622 MB	10%	

All nodes being utilized

* Per Node

USF OFC Package-2 : Tender Launched



FATA Package - 2
USF Planned OFC Network
 (Bajaur, Mohmand, Khyber, Orakzai, Kurram, FR Peshawar & Kohat)
Federally Administered Tribal Areas (FATA)

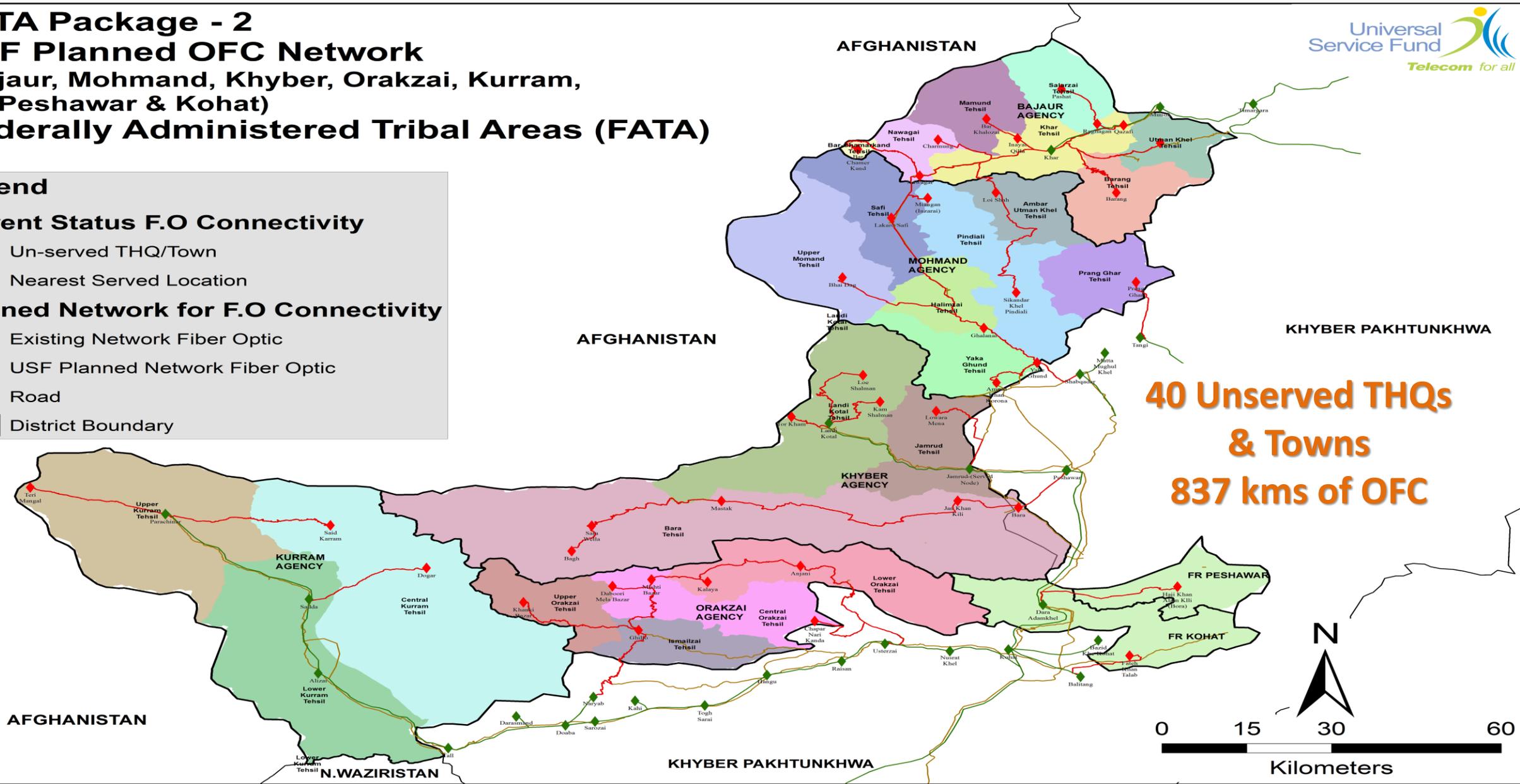
Legend

Current Status F.O Connectivity

- ◆ Un-served THQ/Town
- ◆ Nearest Served Location

Planned Network for F.O Connectivity

- Existing Network Fiber Optic
- USF Planned Network Fiber Optic
- Road
- District Boundary



40 Unserved THQs & Towns
837 kms of OFC

Agenda No 3: Future Expansion Programme - OFC to UCs

Deep Fiberization - Why ?

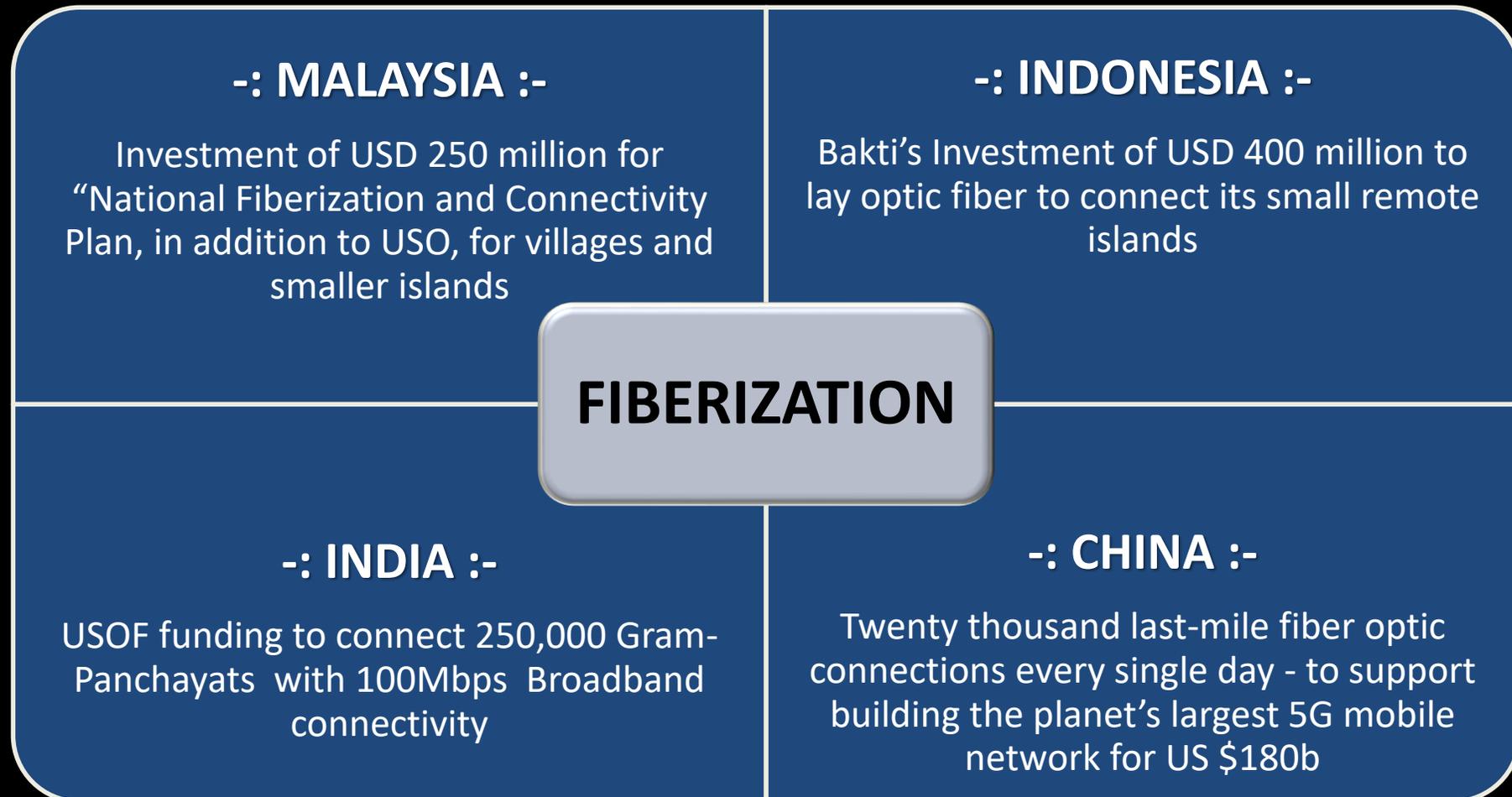
- Broadband is essential - **10% growth in Broadband increases GDP by 1%**
- Modern Digital Services – e-health, e-education, e-government etc. **require reliable, low latency, scalable high-speed connectivity – possible only through OFC**
- Massive Bandwidths, provided by OFC, cater for existing telecom infrastructure as well as **future 5G networks and services**
- Strong Backhaul is of **national strategic importance**

Telecom Policy 2015

“ There should be a presumption in favour of the use of fibre over microwave in backhaul and fibre over copper in wireline access to meet growing fixed and mobile broadband requirements. ”

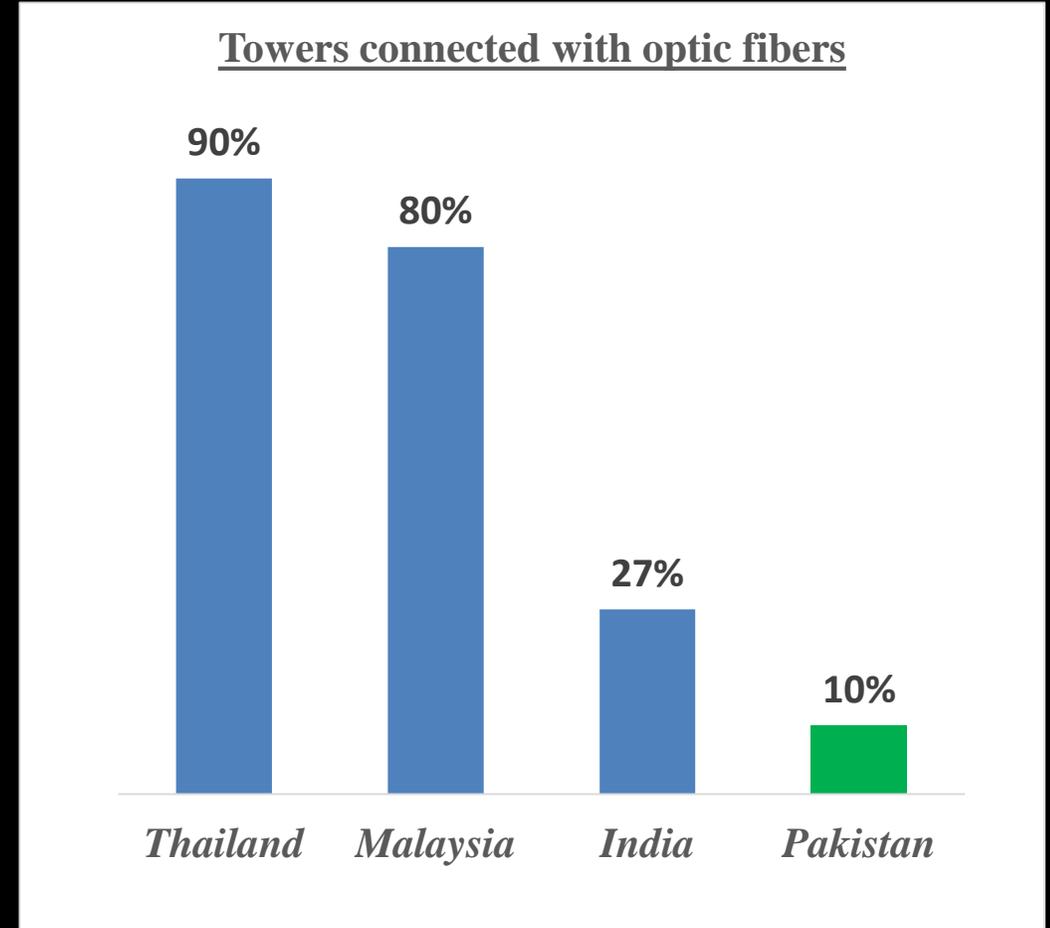
Fiberization Trends

- **FIBERIZATION** being promoted in all developing and developed countries that focus on ICT based economies



OFC – Tower Connectivity Status

- In Pakistan **less than 10% towers** have OF connectivity
- Reason - **Higher CAPEX**
- Operators resort to **point-to-point Microwave radios** which suffer from :-
 - **Lower Bandwidth** – lower service **quality**
 - Traffic **choking** with increased subscribers/demand
 - Spectrum utilization



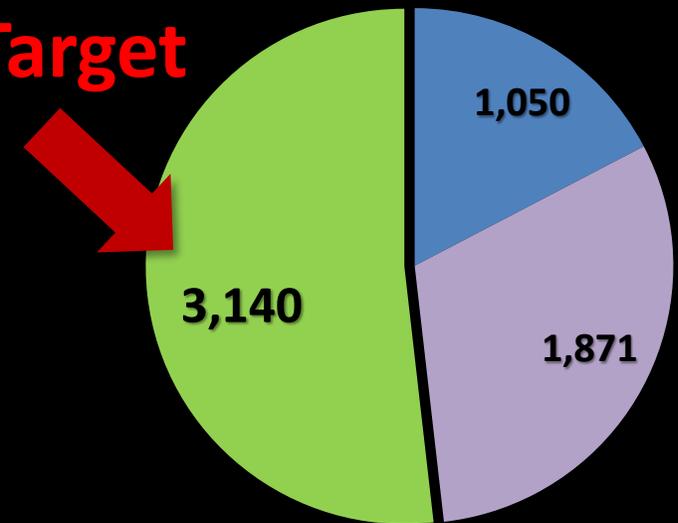
Proposed Programme - Fiber to Union Councils

■ Background

- With launch of USF NG-BSD program - High speed backhaul to Telecom Sites & Access Nodes is essential
 - ~90% of Telecom Sites are without Optic Fiber Connectivity
 - Deeper Fiberization to support future uptake for 4G/5G services
- Preliminary study conducted by USF revealed that 3,140 out of 6,061 UCs are without Optic Fiber Connectivity

Optical Fiber Connectivity status of UCs	
Total UCs in Pakistan	6,061
UCs having OFC and Node	1,050
UCs with OFC passing through but without Node	1,871
UCs with out presence of OFC- USF Target	3,140

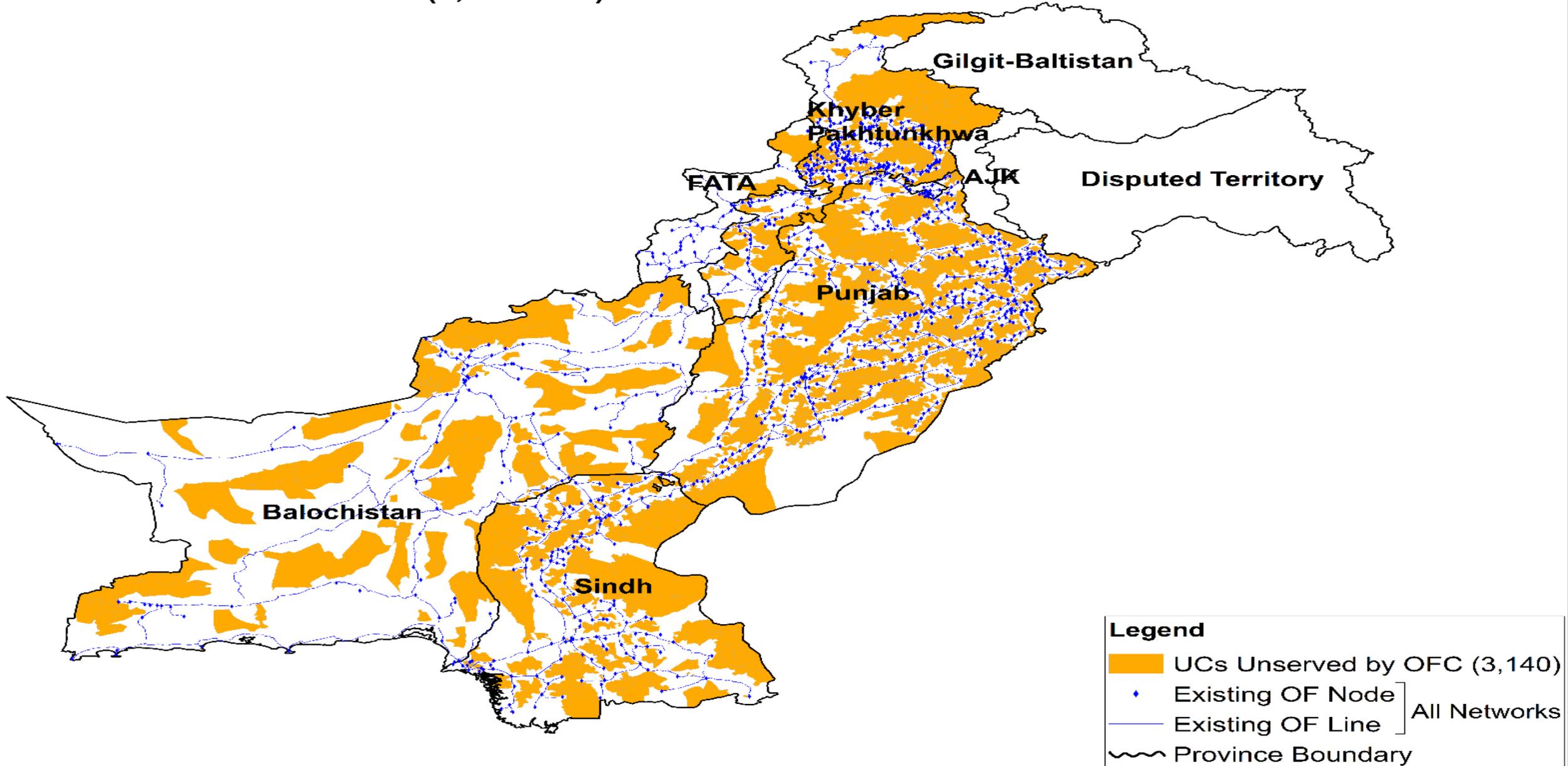
USF Target



■ Connected ■ Fiber but not connected ■ No Fiber

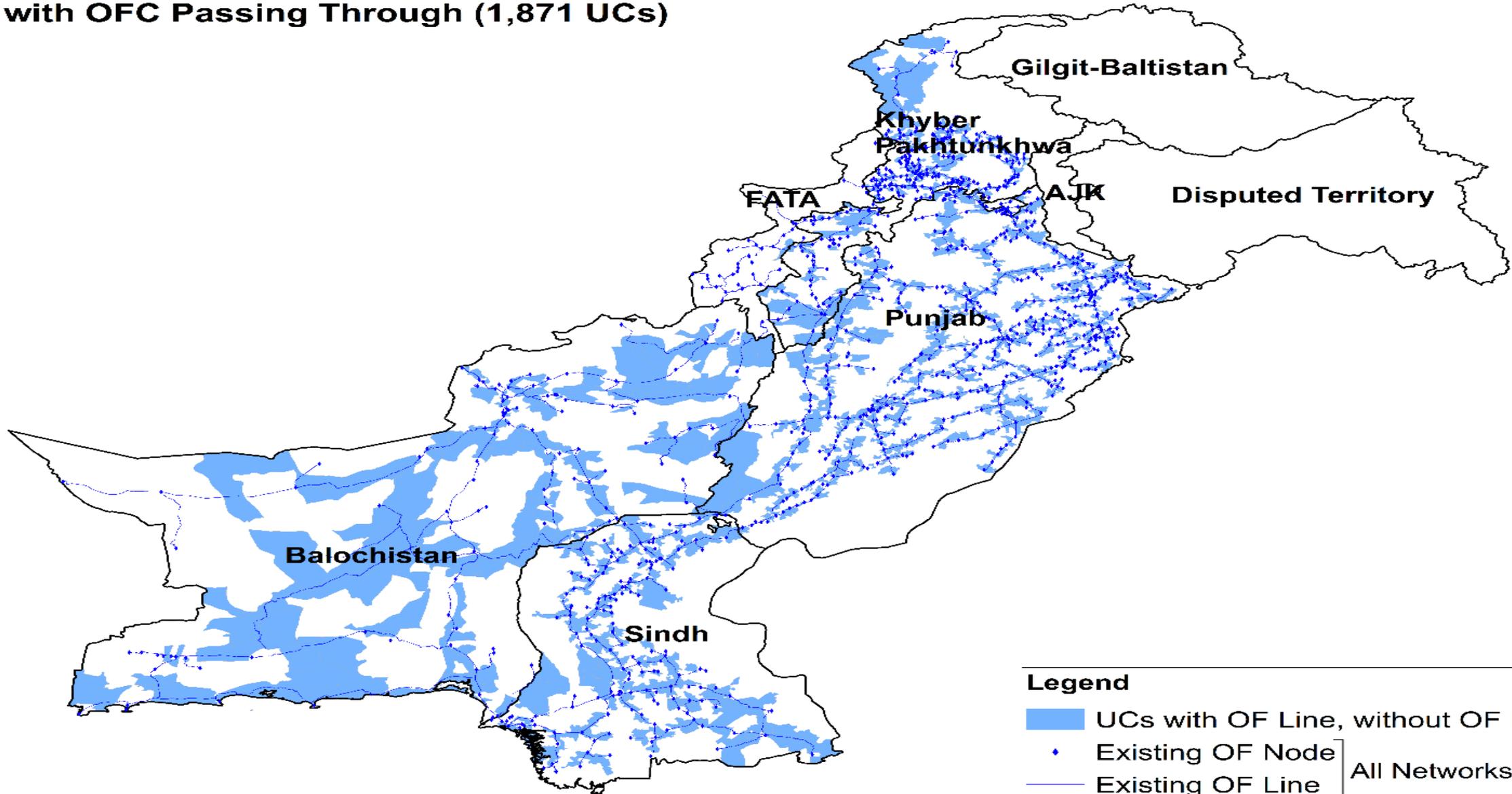
Unserved Union Councils

Unserved Union Councils (3,140 UCs)



Fiber Passing Through Union Councils

Unserved Union Councils
with OFC Passing Through (1,871 UCs)

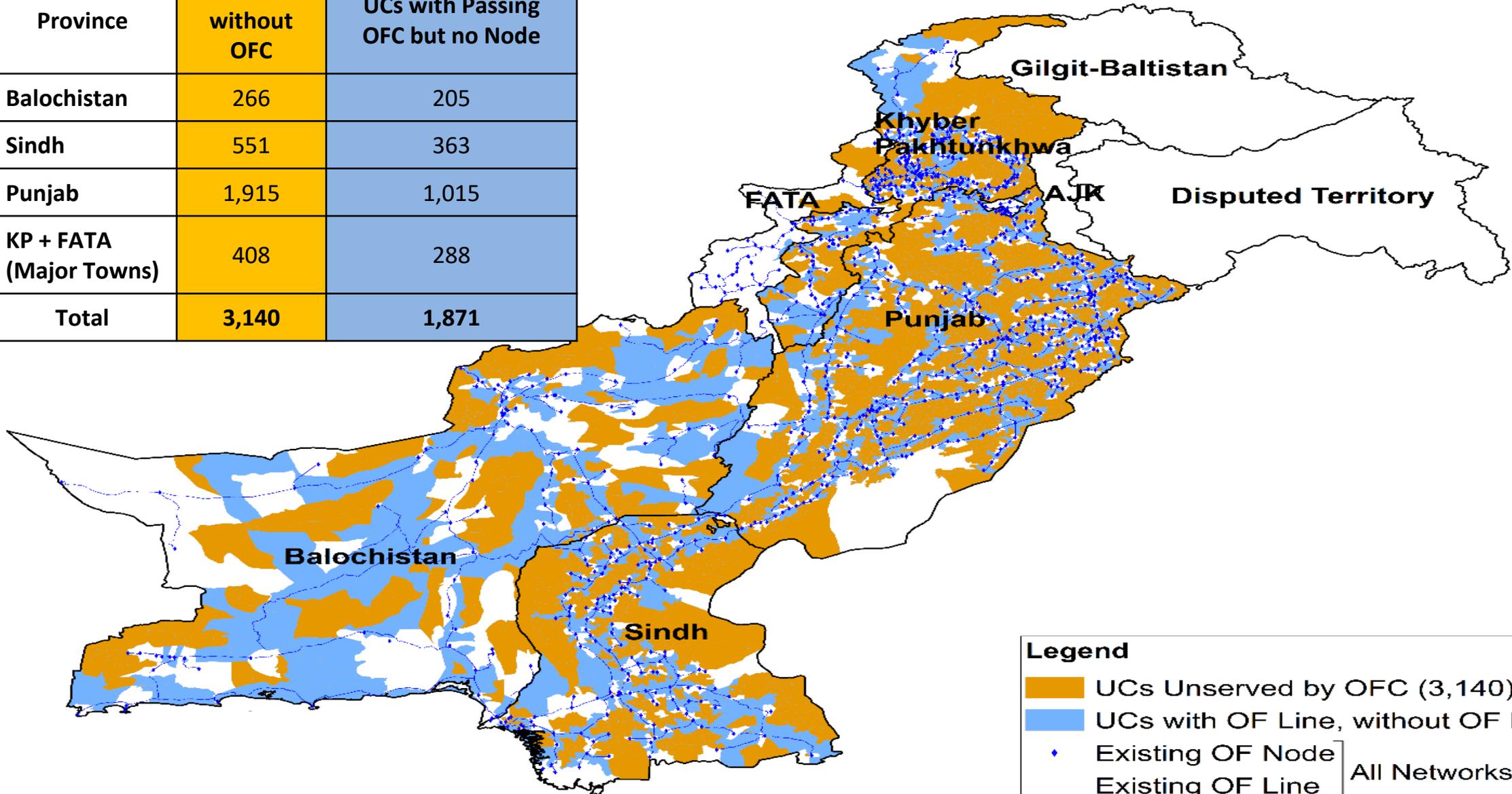


Legend

- UCs with OF Line, without OF Node (1,871)
 - Existing OF Node
 - Existing OF Line
 - Province Boundary
- All Networks

UCs Without OFC Backhaul Service

Province	UCs without OFC	UCs with Passing OFC but no Node
Balochistan	266	205
Sindh	551	363
Punjab	1,915	1,015
KP + FATA (Major Towns)	408	288
Total	3,140	1,871



Legend

- UCs Unserved by OFC (3,140)
- UCs with OF Line, without OF Node (1,871)
- Existing OF Node
- Existing OF Line
- All Networks
- Province Boundary

Agenda No 4: Recommendations for Demand Side

Recommendations:

- Subsidise optic fiber connectivity to all unserved Union Councils (UCs), in a phased manner, connecting in UCs *inter-alia*
 - **towers of Mobile Broadband,**
 - **rural schools,**
 - **local government offices,**
 - **health-care centers,**
 - **WiFi hotspots, etc.**
- **Open access of OFC to all stakeholders.** Modalities of Fiber Infrastructure and Bandwidth sharing open for discussion
- Ensure wherever USF subsidizes its “Next Generation Broadband for Sustainable Development” program, **only Optic Fiber to be used in backhaul** to connect the towers - at least the hub-sites.

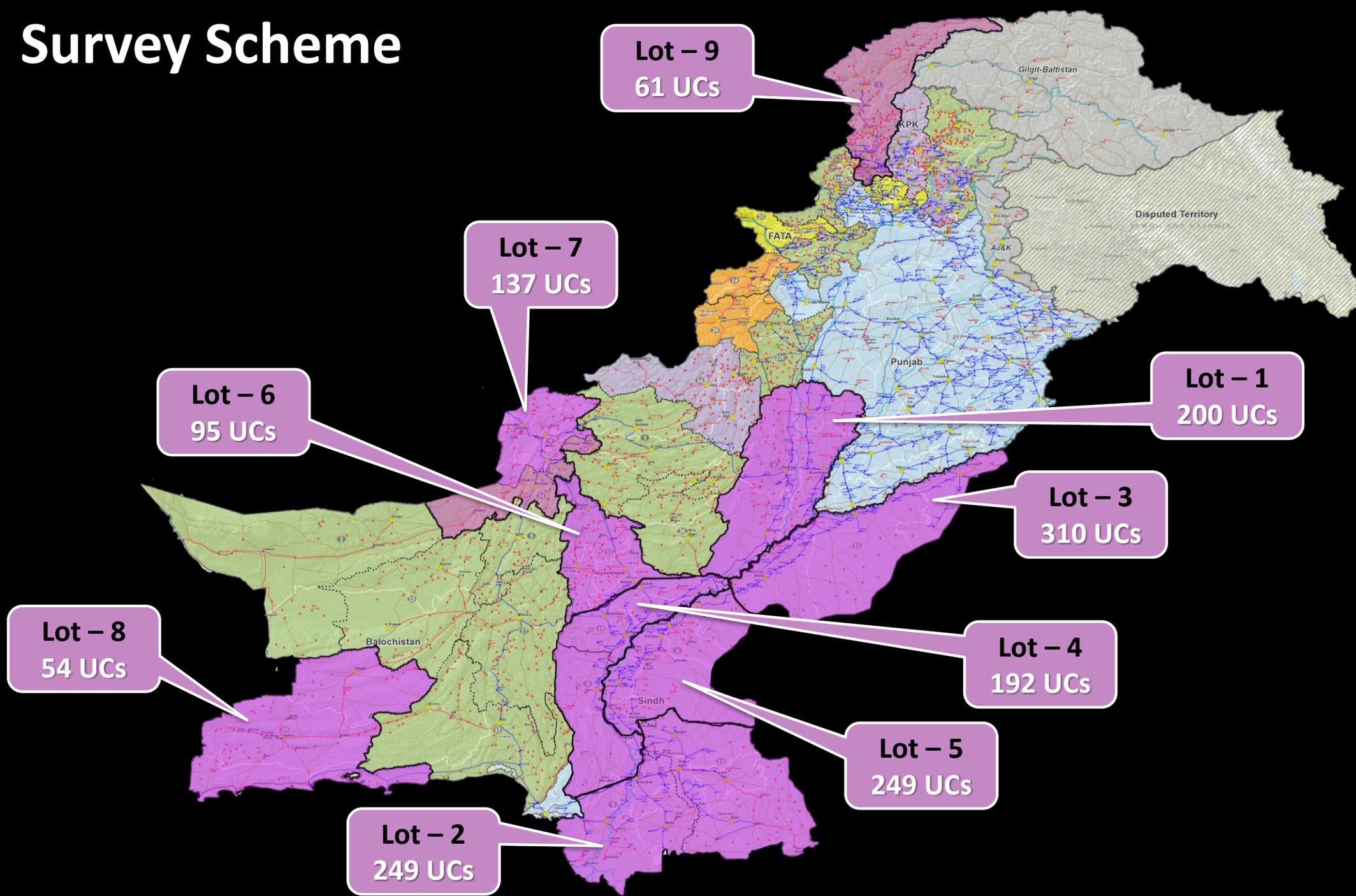
Agenda No 5: Modalities

a) Surveys

- A detailed on-ground study through external experts/consultants to ascertain:
 - Union Councils which are underserved with respect to optic fiber connectivity
 - Identify beneficiaries of USF's OFC connectivity
 - Determine OFC route parameters such as length, type of soil, etc.
 - Recommend plant and equipment for universal connectivity to nodes, sites and end beneficiaries
 - Setup a priority of projects in line with the NG-BSD Program and budgetary constraints
- Based on the study, country wide optic fiber packages shall be created and bid out after Board's approval

OF operators are requested to share their network details with USF

Survey Scheme



b) Qualification Criteria

- Bidders to have valid Licenses for OF Infrastructure AND Services
- Universal Service Fund Contributor
- Consortia fulfilling the condition of valid license for OF Infrastructure AND Services and led by USF Contributing Operators

c) Project Timelines

- Tender for USF OFC Projects to be launched once the survey is completed, with each project to connect ~300 UCs by laying ~1,000 kms.
- Submission of bids for first project- 45 days after tender publication
- Submission of bids for subsequent project- every 30 days
- Implementation time line of 18 months with 4 implementation milestones

Feedback Received

- Regulatory Duty and Taxes on OFC plant and Equipment
- Tax rates for Telecommunication Sector
- Law full Interception
- Right of Way
- Identification of termination points and WiFi Zones in UCs
- Project implementation timelines to be 24 Months
- Open Competitive Bidding – No Reserve Price
- CAPEX as well as OPEX
- Difficult projects, prone to delays- Capping of Liquidated Damages to 10% of Subsidy

Open Discussion

Q & A

Thank You