## **Fiberization in Pakistan**

High speed and good quality digital services, that are now essential for internet enabled businesses, require massive amounts of internet bandwidth, particularly in backhaul and backbone networks. This is only possible through optic fiber links. Thus, from a **national strategic perspective**, broadband infrastructure is comparable with conventional infrastructure like electricity, roads and railways. Just as countries that could ensure cheap electricity for their users revolutionized their economies, countries that can get fiber access to everyone will have huge advantages over those who do it slowly.

Today's social, economic and sustainability problems can only be solved with the assistance of ICT. Therefore, the ICT infrastructure needs to be robust. It has to have enormous capacity. It needs to be secure and to be able to protect privacy. There is simply no other infrastructure technology, except optic fibers, that is up to that job. Fiber Optic Networks can handle the capacity of data and applications that will be needed to run the cities and countries from today onwards.

Once optic fiber cable is in the ground, it lasts for forty or fifty years. It is essentially **future proof**, because its information-carrying capacity can be almost infinitely upgraded without digging up the cable, merely by swapping out the electronics that encode and power the pulses of light that travel within its walls. The relatively infinite capacity of optic fiber cables means that they are what economists refer to as **non-rival asset**, that is the use of the capacity by one operator in no way affects or impedes the use of it by another. On any modern fiber infrastructure there is enough room for all players using all the capacity they can use for the foreseeable future without encroaching upon each other.

If we look around our country, and see which countries are doing better in developing ICTbased futuristic economies, we see all of them promoting optic fiber penetration, also called "**fiberization**", in their respective countries. Eg:

- **Malaysia** is investing One Billion Ringgit (USD 250 million) for "National Fiberization and Connectivity Plan" (NFCP), in addition to its Universal Service Obligation (USO) program of extending optic fibers to villages and smaller islands.
- **Indonesian** USF (Bakti) signed PPP contracts worth USD 400 million to lay optic fibers to connect nearly all its small remote islands.
- Indian USOF is funding to connect 250,000 Gram-Panchayats (clusters of about 5 villages) with optic fibers promising100 MBPS broadband connectivity.
- **China** is installing twenty thousand last-mile fiber optic connections every single day. It is due to the extensive fiber network that the *South China Morning Post* reported "China set to build the planet's largest 5G mobile network for US \$180b."

Consequently, in Malaysia 60% cellular towers are connected with fibers, in India 27%, and in Thailand more than 90%, cellular towers are connected with fibers. In Pakistan less than 10% towers have optic fiber connectivity.

There are many reasons of low fiberizaton in the country. One reason is that optic fibers need **very high investment**. The increasing worldwide demand and resultant shortage of optic fibers is causing further increase in global prices.

In the absence of fibers, the mobile operators cover their backhaul/backbone requirements with the cheaper point-to-point microwave



radios, which not only fail to provide the same level of broadband quality, they are also liable to run out of capacity as the data traffic soars. Connecting towers with fibers also improves the efficient use of scarce and limited resource of spectrum, as it encourages the mobile broadband operators to shift tower connectivity away from microwave radios saving the spectrum only for the highest value application.

## Pakistan

In the rural areas, USF Pakistan was the first in the region to fund optic fiber cables up to the unserved Tehsils. However, now the need is to extend optic fiber connectivity to the villages - at least up to the "Union Council" (UC) level.

Out of over 6,000 UCs in Pakistan Optic Fibers need to be taken to about 3,100+ UCs. This is expected to cost aprox PkR 40 Billion. In addition, nearly 2,000 UCs have fibers passing through, but not connected. It is obviously going to cost much less.

This will involve laying of optic fibers in form of thousands of spurs all over the country - providing jobs to entire range of workers, from unskilled road diggers to high qualified network managers. The enormous



opportunities that high speed, good quality, broadband will bring, will be in addition.

## **USF Recommendations:**

- Subsidise optic fiber connectivity to all unserved Union Councils (UCs), in a phased manner, connecting *inter-alia* towers of mobile broadband, rural schools, local government offices, health-care centers, WiFi hotspots, etc. in the UCs.
- Review future USF Agreements with the operators so that equal and non-discriminatory access to the fiber bandwidth is available to ALL potential users.
- Ensure wherever USF subsidizes upgrades in its "Next Generation Broadband for Sustainable Development" program (2G to 3G/4G), only optic fibers are used in the backhaul to connect the towers at least the hub-sites. For this the last-mile wireless/mobile operators may bid in consortium with their LDI partners.
- Provide a public WiFi hot spot at point of termination of OFC within the Union Council