Bridge the Digital Divide
Stop the Pandemics

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ITU Report : Digital Divide is Growing !!

Affordable
Optical Cable Solution

Digital Divide ‘a Matter of Life and Death’

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- **Need to bridge the digital divide**

UN Secretary General (June 2020)

Digital Divide ‘a Matter of Life and Death’ amid COVID-19 Crisis
https://www.un.org/press/en/2020/sgsm20118.doc.htm

UN Trade and Commerce (April 2020)

Coronavirus reveals need to bridge digital divide
https://unctad.org/en/pages/newsdetails.aspx?OriginalVersionID=2322

- **Wireline is critical**

US Telecom CEO

5G is Wired Wireless (Dec. 2019)
https://www.ustelecom.org/5g-is-wired-wireless/

Global 5G Era

Optical Cable Backhaul is a MUST for WiFi

- High data rate
- Low latency
- Massive connectivity

2G	3G	4G	5G
2.4kbps~ 28.8kbps	384kbps(CDMA2000) ~14Mbps(HSPA)~ 110Mbps(LTE)	50Mbps~ 1Gbps	1Gbps~ 50Gbps

Typical Cable Installation Today

conventional optical cables

To save the cost and time

“DIY” is happening

More Affordability and Speed Needed

Lightweight Robust Optical Cable and ITU-T Standardization

Lightweight Robust Optical Cable

The Key: Stainless Steel Tube

3.6 mm

Laser Welding

Stainless Steel Tube

≤48 Fiber Cores

Rodent Proof

Proposed Cable, survived

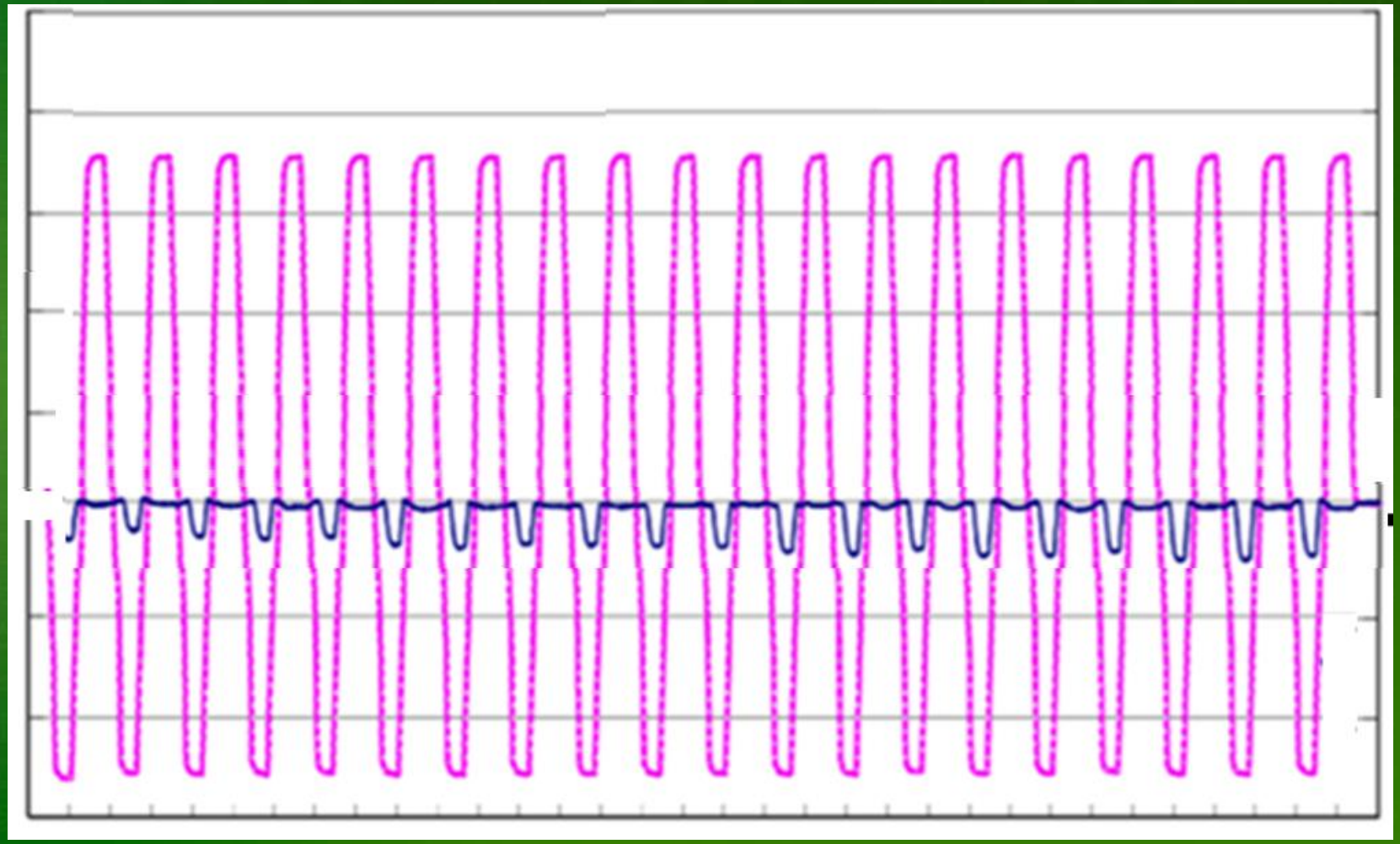
Conventional Cable, broken

Cable Crush Resistance

Up to 2000 kg/100 mm

Heat Cycle

After 20 cycles in 300 Hours



+70 ℃

- Optical loss change
<0.06 dB/km

- Residual optical loss
-0.001 dB/km

-50 ℃

200 m cable with 24 fibre cores (spliced at each end)

1180℃,15 min

Optical Loss <0.05 dB

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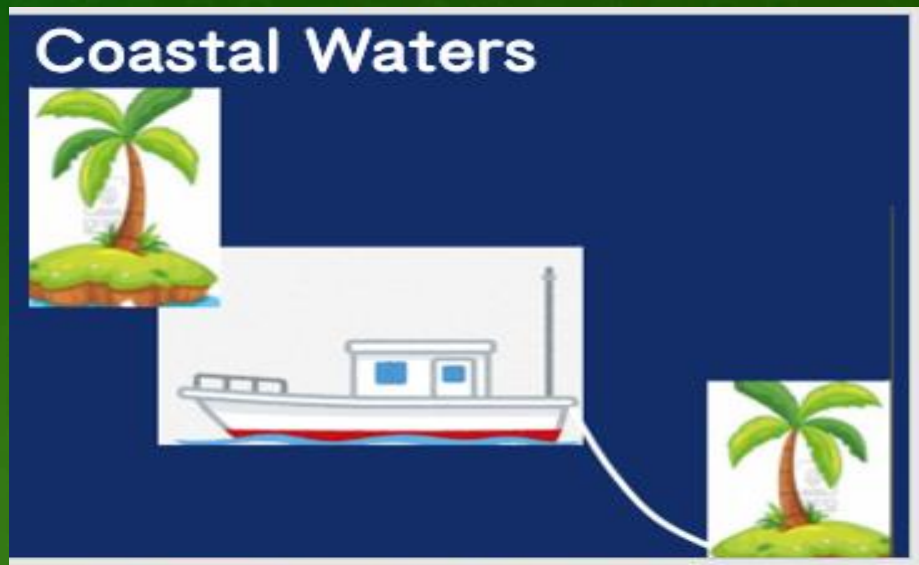
All-Round Installation (1)

All-Round Installation (2)



New ITU-T Standards

Pub. 2016-2018

ITU-T SG5 and SG15

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ITU-T

TELECOMMUNICATION
STANDARDIZATION SECTOR
OF ITU

L.1700

(06/2016)

Affordability-First Concept for Closing the Digital Divide

CONSTRUCTION, INSTALLATION AND PROTECTION OF CABLES AND OTHER ELEMENTS OF OUTSIDE PLANT

Requirements and framework for low-cost sustainable telecommunications infrastructure for rural communications in developing countries

ITUNews
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Abou
Emerging Trends
November 21, 2016
New ITU standard can help bring broadband to rural communities
L.1700

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ITU-T

TELECOMMUNICATION
STANDARDIZATION SECTOR
OF ITU

L.110

(08/2017)

Lightweight Robust Opt. Cable for Direct Surface Application

PLANT

Optical fibre cables for direct surface application

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ITU-T L.163

TELECOMMUNICATION STANDARDIZATION SECTOR OF ITU

(11/2018)

L.110 Cable Installation in DIY (Do-It-Yourself)

...AND PROTECTION
...CABLES AND OTHER ELEMENTS OF OUTSIDE PLANT

Optical fibre cables – Guidance and installation technique

Criteria for optical fibre cable installation with minimal existing infrastructure

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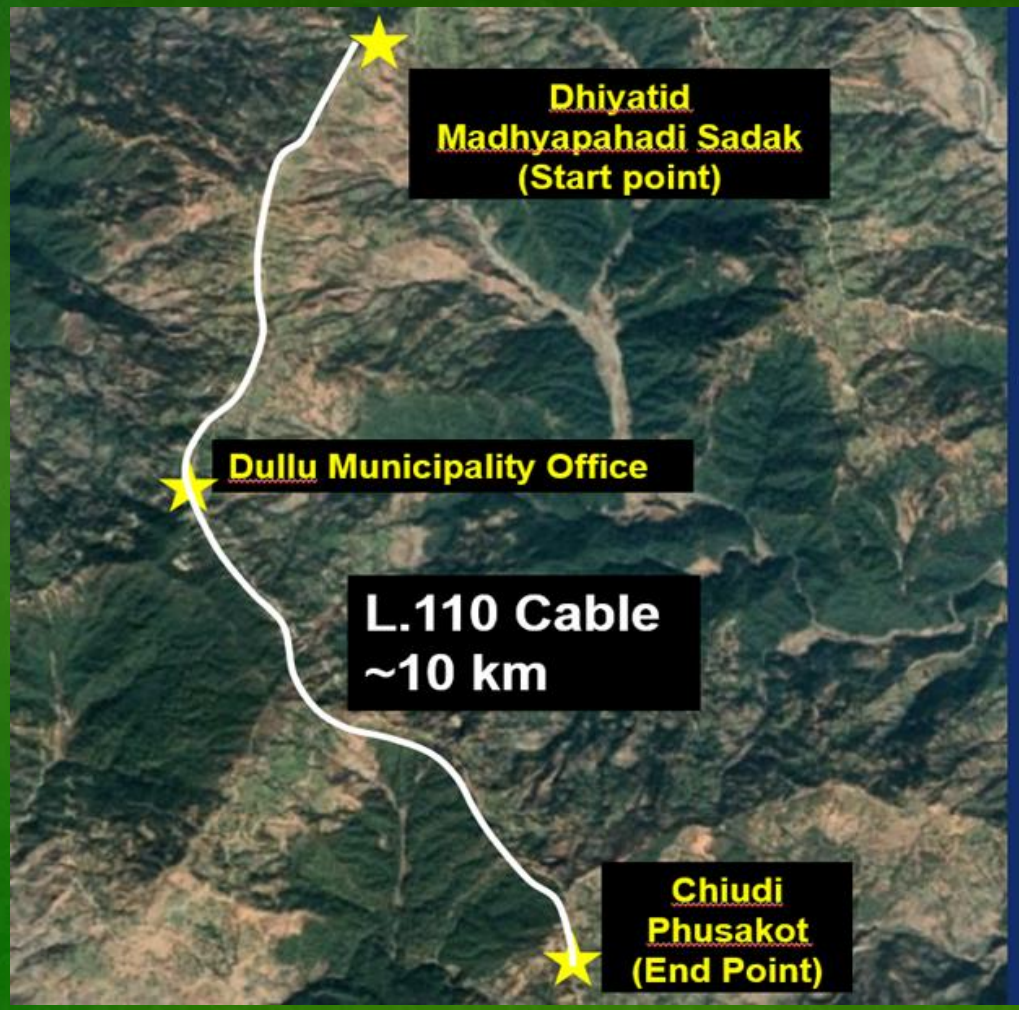
Deployment of the solution

Dullu Municipality, 2019
West Nepal Mountain Village



Broadband Connectivity in Dullu Municipality With
- -Hospital
- -Health Centers
- -Municipality Office
- -Ward Offices
- -School
- -Wi-Fi base stations

APT Project Category II

~10 km L.110 Cable

Mongolia, 2019

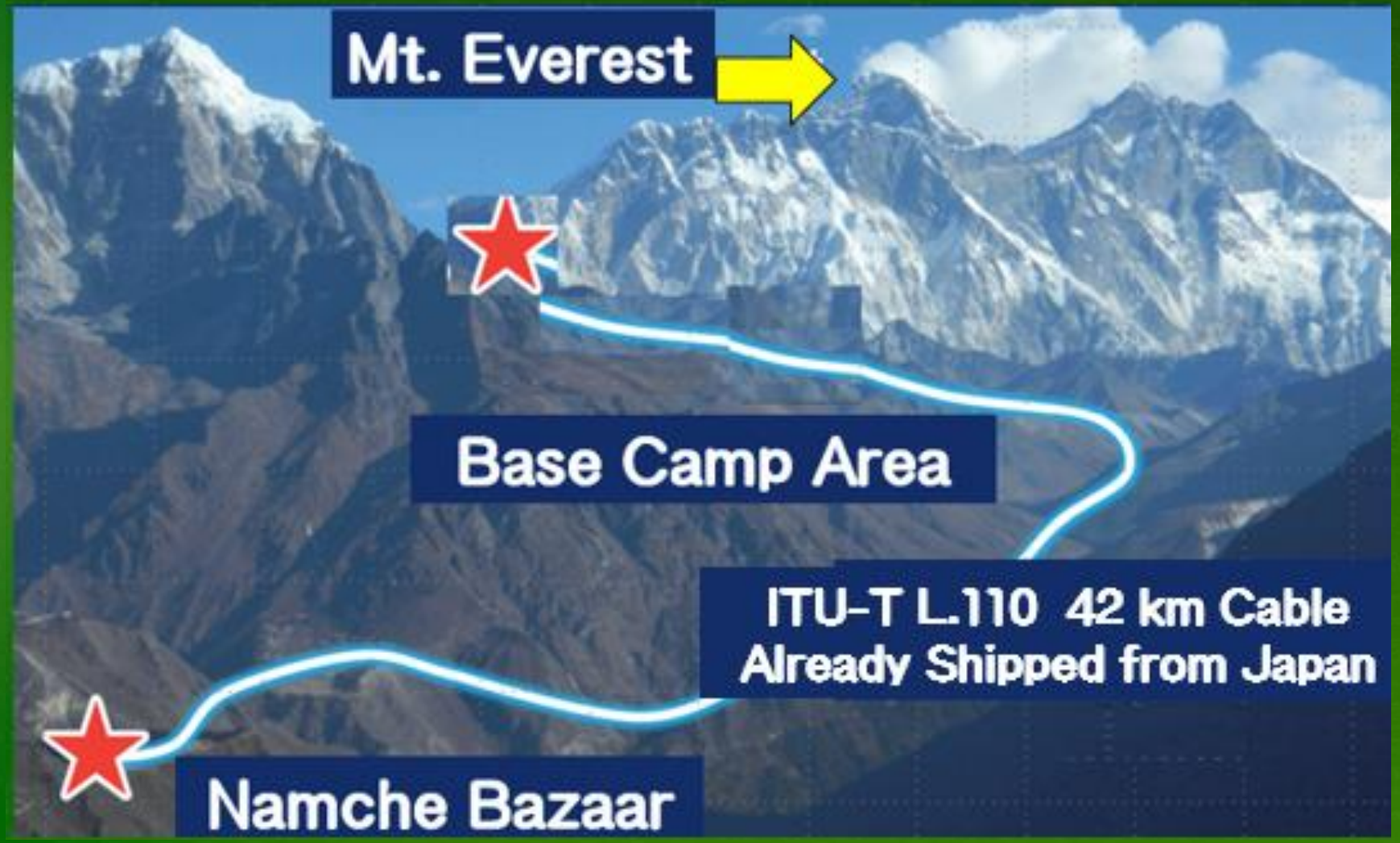
Most cold area / Desert

APT Project
Category II
L.110 Cable, ~22 km

50% suspended (existing poles)
50% buried
coldest at -40 to -50℃

- Arkhangai /province/ center — L.110 Cable, 4 km
- Bayankhongor /province/ center — L.110 Cable, 5.8 km
- Tereji area — L.110 Cable, 12 km

Everest Project, ongoing 2020



As a TEIN Project

Trans-Eurasia
Information Network

Cost Reduction Example

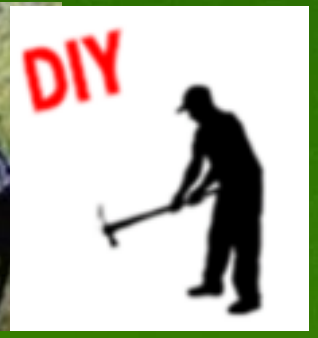
Meeting ITU-T L.1700, L.110 and L.163

Civil works	58	k US$/km
Cable	~ 1	k US$/km
Manhole	4.8	kUS$/km
Pipe	8.0	kUS$/km

72 k US$/km

data by Korea Telecom, at UNESCAP, Sept. 2013, Baku

↓ 88% Cost Reduction



- Civil Works 3.3 k US$/km
  - 100 US$/head/day
  - 300 m/day (10 Workers)
- Cable < 4-5 kUS$/km
- No Manhole, No Duct

8.3 k US$/km

Bridge the Digital Divide (1)

Stop the Pandemics

- ☆ Broadband solution BIRD is now available meeting the ITU standards.
- ☆ The solution has been deployed in Japan for 20,000 km, in 25 years.
- ☆ Rural areas in Nepal and Mongolia deployed the solution in 2019.
  Two more for 2020-2021 in Nepal.

Bridge the Digital Divide (2)
Stop the Pandemics

- ☆ How to prioritize, quickly globally implement this solution

  Media, Governments, Universal Service Funds
  Development Banks, Grants, Foundations,
  Investors, Suppliers, Local Communities, etc..

- ☆ Let's cooperate, not compete against the tough alien

This pandemic is changing the perception of the Internet – and the digital divide
ITU Digital World Blog, May 15, 2020

↑ CTRL-click

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Thank You