UiO : Department of Technology Systems
University of Oslo

NGI-NO Y1 review, Sep2020

Next Generation Internet
-
Sustainability and Societal Security

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3 GOOD HEALTH AND WELL-BEING

4 QUALITY EDUCATION

5 GENDER EQUALITY

8 DECENT WORK AND ECONOMIC GROWTH

10 REDUCED INEQUALITIES

9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

16 PEACE, JUSTICE AND STRONG INSTITUTIONS

17 PARTNERSHIPS FOR THE GOALS

Internet Lite for All

Target 9.C

Target 16.10

"Non discriminating access" project

➡ funded by RCN and Mfa/Norad (14.9 MNOK for 2017-2020)

➡ Tanzania: digital health

Addressing the Priorities of Norway

- Report to Stortinget 11 (2019-2020), Priorities
  - Access, skills, regulations, inclusion

- "Boys have the toys"
  - digital divide in both devices
  - and mobile broadband access

- Integrated model for digital inclusion
  - School connectivity (SDG indicator 4.A.1)
  - Knowledge Portal as facilitator
  - Knowledge transfer
  - Community involvement

Norwegian Ministry of Foreign Affairs

Summary

Meld. St. 11 (2019–2020) Report to the Storting (white paper)

Digital transformation and development policy

Access

Skills

Regulations

Inclusion

https://www.regjeringen.no/no/dokumenter/meldst11_summary/id2699502/?ch=1

UiO's professor Josef Noll reflects on the challenges we face to deliver on our vision of internet

"Our vision is to improve the life of **every human** through **free access to information** on the Internet…."

"This vision is carrying us forward every single day.
We **solved** the **challenge of access**, and are focusing now on **National Knowledge Portal**s to **empower** individuals, societies and nations. Through **free access** to the portal we address **access**, **skills**, **regulations** and **inclusion**"

6G & SDGs

- 6G white paper
- Webinar
- Follow-up with Jorge Pereira (EU DG Connect)

6G CHANNEL

The first webinar in the 6G Research Visions Webinar Series "Challenges for 6G Addressing a Sustainable Future – What Is Missing Today?" will present the findings by the expert group members who prepared the White Paper on 6G Drivers and the UN SDGs. In the webinar, representatives of the group give talks on the novel linkage between 6G and the UN SDGs, the megatrends that steer the development of 6G, and the proposed three-fold role of 6G to ensure sustainability.

The webinar is moderated by Dr. Marja Matinmikko-Blue who led the Expert Group.

Expert Group representatives, presenting some of the group's key discoveries, include **Dr. Volker Ziegler**, Nokia Bell Labs, Germany; Assoc. Prof. Marianne Kinnula, University of Oulu, Finland; **Dr. Panos Kostakos**, University of Oulu, Finland; and **Dr. Josef Noll**, University of Oslo & Basic Internet Foundation.

After the talks, a minimum of **30 minutes is reserved for discussion** on the path towards sustainable 6G. **A recorded video of the webinar** will be openly available after the event.

In her research work, Dr. Marja Matinmikko-Blue – Research Coordinator of 6G Flagship at the University of Oulu, Finland – takes an interdisciplinary approach bringing together technical, business and regulatory domains of wireless

In his current role of 6G leadership at Nokia Bell Labs, Dr. Volker Ziegler leads digital transformation initiatives aimed at exploring and leveraging innovations with customers and partners in the fledgling ecosystem for the 6G era. He is actively working

Marianne Kinnula is an Associate Professor in human-centred design and digitalization at University of Oulu and vice-leader of the INTERACT Research Unit. Her research is in the fields of Information Systems and Human-Computer Interaction;

Dr. Panos Kostakos is a postdoctoral researcher at the Center for Ubiquitous Computing (UBICOMP), University of Oulu. His research interests include applied data analytics and AI for smart and safe cities. In 2019 he co-chaired the

Besides being Professor at UiO, Josef Noll is Secretary General of the Basic Internet Foundation. The Foundation was established by UiO and Kjeller Innovation, to solely focus on digital inclusion. From his industrial background as group leader in

Discussion topics

☒ Jorge Pereira (DG Connect)

Situation in Europe on Rural Connectivity

[edit]

- 50 Million people in Europe - about 10% of the population only have 3G
- cost to connect with broadband for all are 250 Billion Euros

EU activities:

- H2020 call on cross-border hinders (100 M€ call)
- 5G coverage of these main corridors, new call coming up (~100 M€)
- *Idea: connectivity along the major highways will trigger connectivity of villages close to the high-ways*
- Coverage of rural areas: - coverage of highways, as entry to rural areas ("cross border corridors - 1 billion Euro")
- costs for 1 Billion for school, hospitals, police, fire brigade connectivity

Triggers for market take-up [edit]

Access to information is a social right

- Establish at least one Information Spot (*InfoSpot*) in each village providing free access to information for all
- Radio tower for 700 MHz rural coverage - basic wireless access 1 Mbit/s (up to 10 Mbit/s)
- Establishing the market demand through scale up from base connectivity

Regulations for *access to information is a social right* (#5GforAll)

- free access to information (text, pictures & lightweight Web), as it is only marginal costs for operators. Example: Normal Web https://basicinternet.org vs AMP: https://basicinternet.org/amp/
- European & National Knowledge Portal: http://NationalKnowledgePortal.net   see example of Estonia, India,…
- free access zero-rated access to the Knowledge Portals
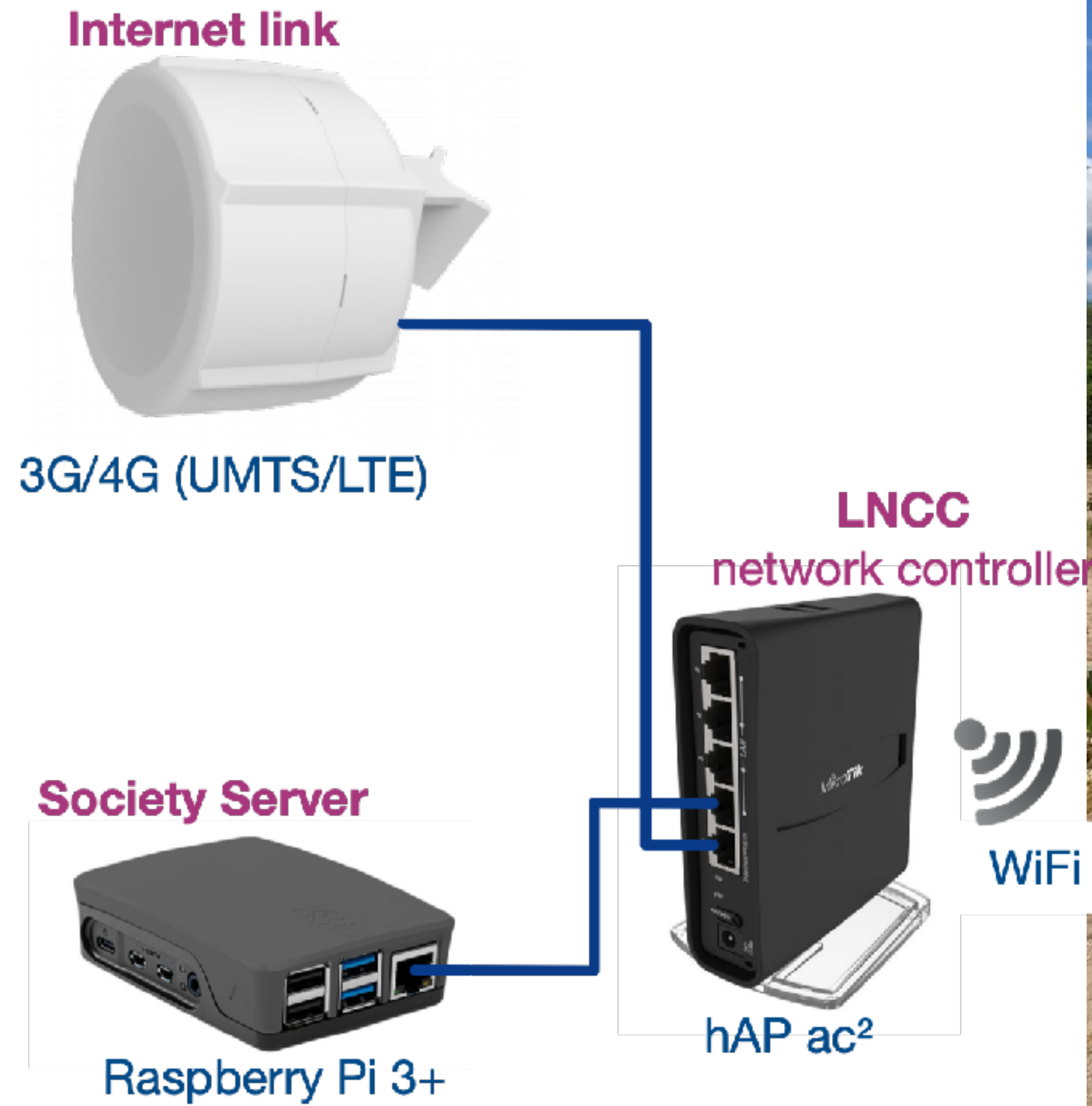- Social Broadband: 2,5,10 Mbit/s for 10€/month

https://its-wiki.no/wiki/BasicInternet:Free_Access_to_Information_in_Europe

School Connectivity

- 10 Schools in TZ
- Focus on sustainability
- Costs sharing
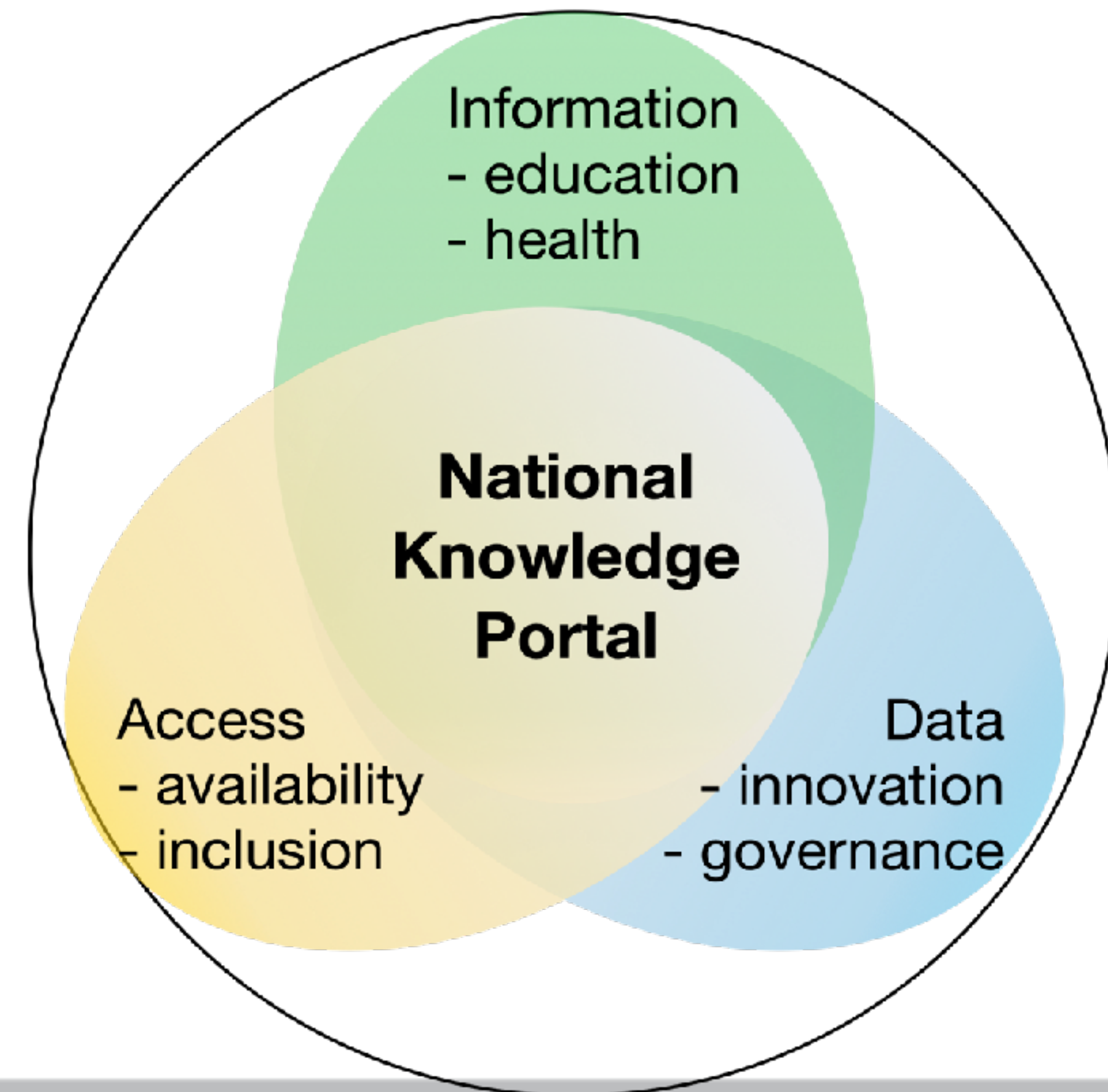 - 1/3 Norway
  - 1/3 Vodacom, Tigo, TTCL
  - 1/3 UCSAF (Gov)

Technology to be Used.

Internet link

3G/4G (UMTS/LTE)

LNCC
network controller

Society Server

WiFi

Raspberry Pi 3+

hAP ac²

Addressing global connectivity challenges through Innovations & Collaborations

**Meaningful connectivity** to the internet on **daily basis and skills for** _using an_ **appropriate device** _with_ **enough data** _and a_ **fast connection.**

Information
- education
- health

National Knowledge Portal

Access
- availability
- inclusion

Data
- innovation
- governance

Realisation

- SchoolNet distribution
  - educational network by Ministry of Education (MoE)
  - national fibre on high-voltage lines
  - fibre to microwave
- Microwave distribution
  - 0-5 km: point to multipoint
  - 5-15 km: point to point (mast)
  - >15 km: microwave relay mast
- Local school
  - receive microwave antenna
  - local Wifi distribution: local network controller & school server
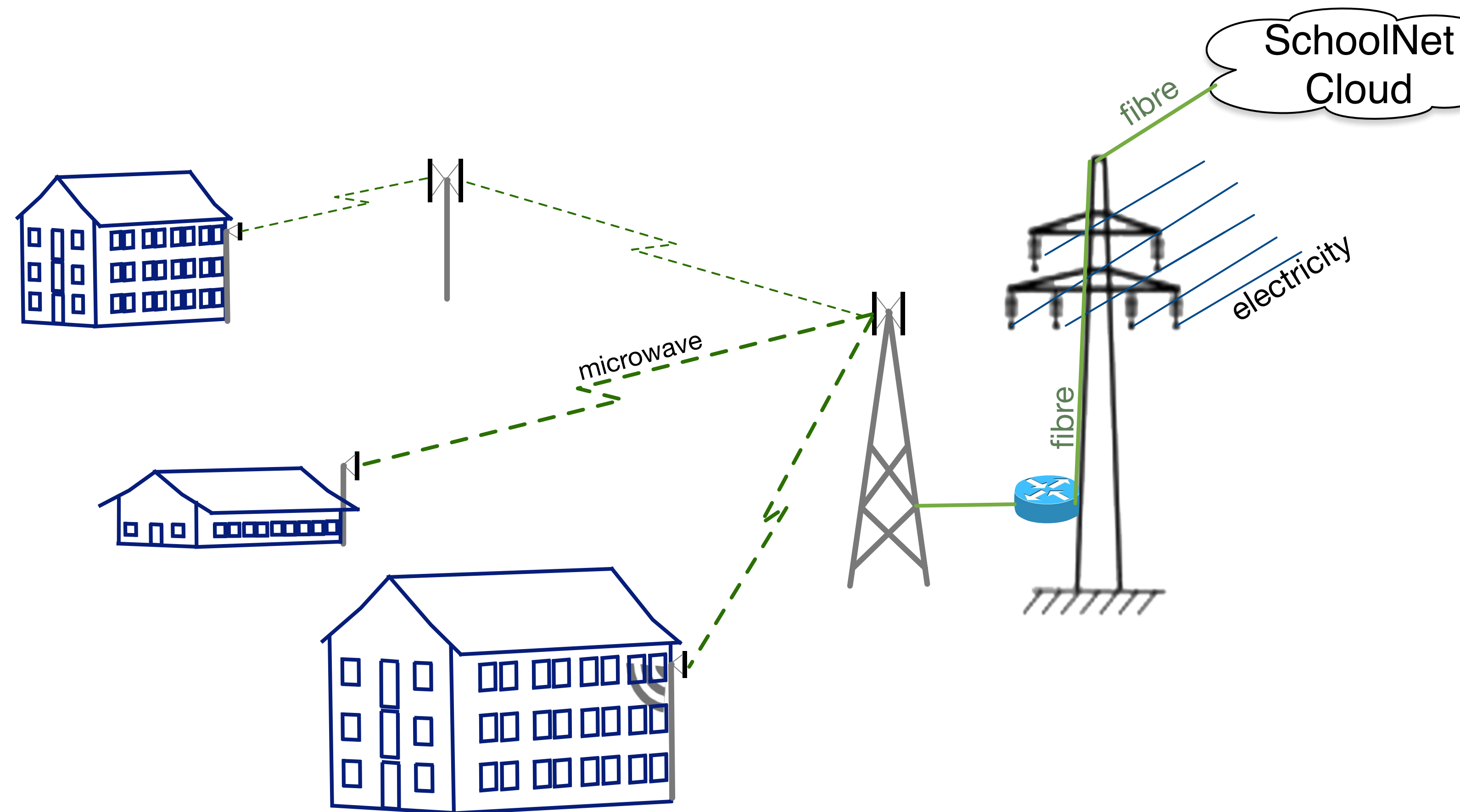
Free access to information - in Ethiopia

- Government Ethiopia - Agreement
  - ➡ "free access to health & education"
  - ➡ Ministry of Health
  - ➡ Ministry of Education

- Ethio Telecom offers "zero rating"
  - ➡ Health (MoH): MoH.gov.et
  - ➡ Ephi.gov.et & Covid19.et
  - ➡ Education: National Digital Library NDL.ethernet.edu.et

- follow-up from discussions after African Innovation Week (AIW2019)

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ethio telecom

ኢትዮ ቴሌኮም የክፍተኛ ትምህርት ተቋማት ተማሪዎች እና መምህራን ትምህርታዊ መረጃዎችን ከ http://ndl.ethernet.edu.et/ በነፃ ማግኘት እንዲችሉ አደረገ

በአገራችን የኮሮና ቫይረስ (COVID-19) ወረርሽኝን ለመከላከል በመንግስት በኩል በርካታ እርምጃዎች እየተወሰዱ ሲሆን ከአነዚሁም መካከል የገፅ ለገፅ ትምህርት በማቋረጥ ተማሪዎች ቤታቸው እንዲቆዩ መደረጉ ይታወቃል።

ከዚሁ ጋር በተያያዘ ኩባንያችን ከግንቦት 21 ቀን 2012 ዓ.ም ጀምሮ የክፍተኛ ትምህርት ተቋማት መምህራን እና ተማሪዎች ከትምህርት ጋር ተያያዥነት ያላቸውን አጋዥ መረጃዎች ከ http://ndl.ethernet.edu.et/ በነፃ ማግኘት እንዲችሉ በማድረግ የመማር ማስተማሩ ሂደት እንዲቀጥል የበኩላን አስተዋፅኦ ማድረጉን በደስታ ይገልፃል።

በተመሳሳይ ሁኔታ ኩባንያችን ስለወረርሽኙ ወቅታዊ መረጃ ለህብረተሰቡ አያሰጡ የሚገኙትን የጤና ሚኒስቴር http://www.moh.gov.et ፣ የኢትዮጵያ ህብረተሰብ ጤና አጋስቲትዩት http://www.ephi.gov.et አንዲሁም የተቀናጀ የኮቪድ 19 መቆጣጠሪያ ስርዓት ድረ-ገፅን http://www.covid19.et በነፃ አያቀረበ መሆኑ ይታወቃል።