

Connecting the world: challenges and opportunities

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The Sustainable Development Goals

In 2015, the United Nations adopted 17 Sustainable Development Goals (SDGs) as part of the Agenda 2030 to achieve a better future for all

These goals apply to all countries, whether developing or developed

Radiocommunication have a key supporting role in achieving each and everyone of these 17 SDGs



The Sustainable Development Goals



ITU is committed to connecting the world

Our mission is to promote, facilitate and foster affordable and universal access to telecommunication, information and communication technology networks, services and applications and their use for social, economic and environmentally sustainable growth and development.

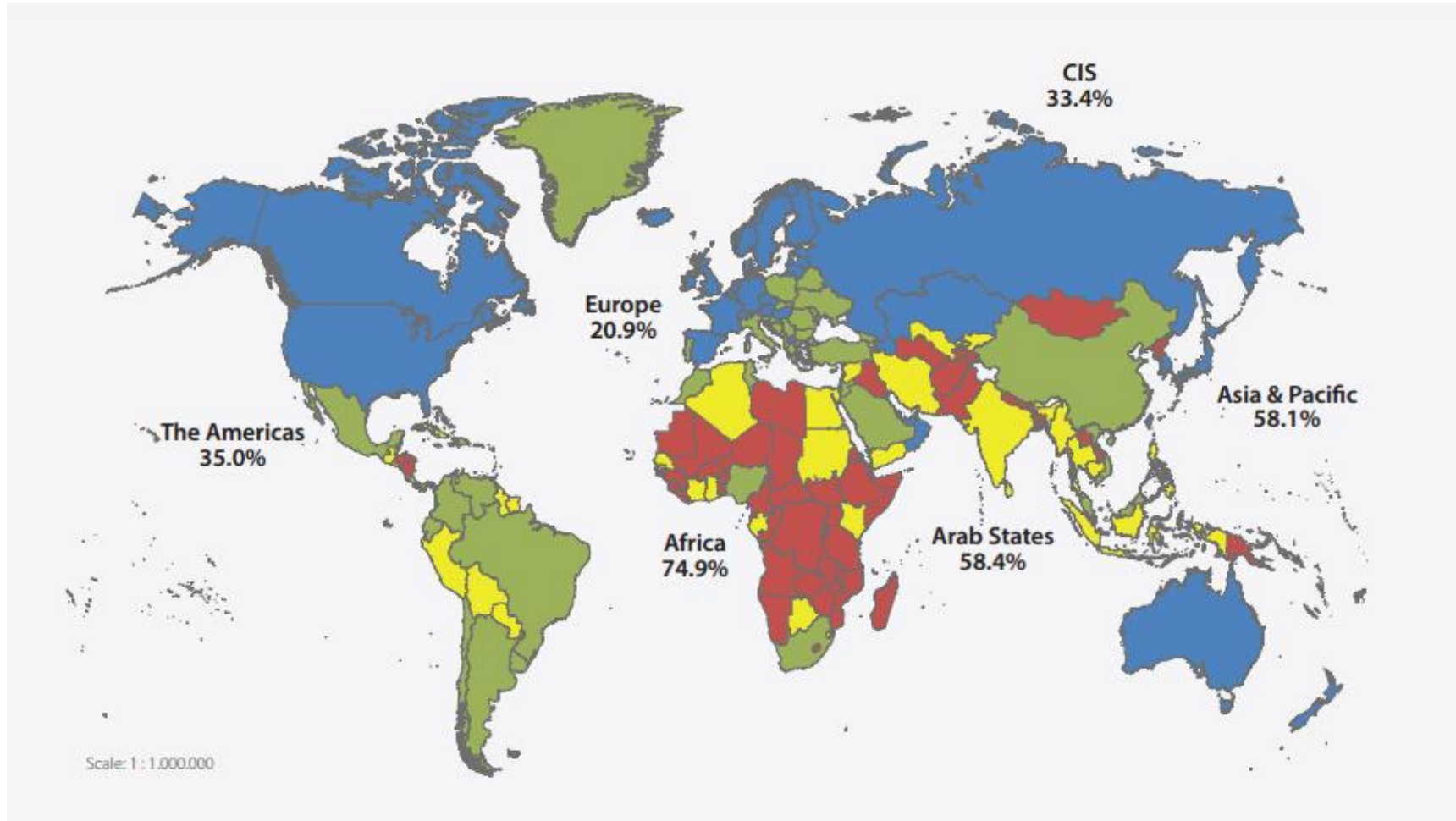


ITU-R

- Defines and manages the international regulatory framework for the use of spectrum and satellite orbits by radiocommunication services
- Develops worldwide standards on radiocommunications. More than 1,500 standards are currently in force and available online free of charge

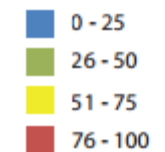


Population not using the Internet



52% of the world's population is **not** using the Internet

Percentage of individuals NOT using the Internet



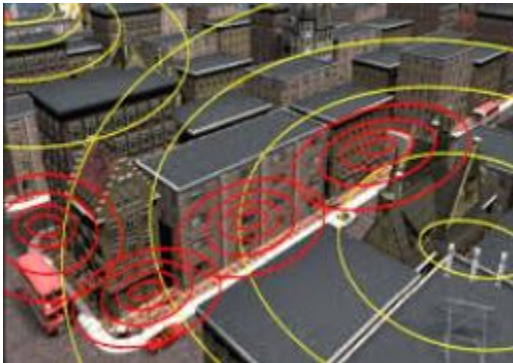
Source: ICT Fact and Figures 2016 & 2017.

How to solve this puzzle?
What are the needs, challenges
and solutions for Connected and
Unconnected areas?



Connected Areas

- Challenges to ensure suitable access to broadband include:
 - Outdoor & Indoor coverage
 - Availability of high capacity networks
 - High demand for spectrum resources (below and above 6GHz)
 - High competition for resources
 - Affordability of devices and subscription

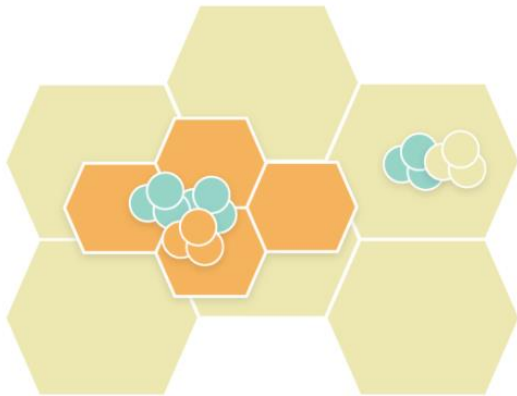


Increasing demand for
spectrum resources



Connected Areas

- Solution comes from deploying several overlapping networks:
 - Large, long-term investments (e.g. IMT Networks)
 - Small, short-term investments (e.g. Wi-Fi Networks)
 - Overlapping macro, micro, pico, and femto cells
 - Networks with quality obligations & best effort networks



Spectrum resources are key to
provide mobile broadband services



Connected Areas

- Increase in spectrum utilization/efficiency may come from:
 - Upgrade to latest technology of Mobile networks, from 3G, 4G, to 5G
 - Wi-Fi in 2.4 GHz, 5.8 GHz and additional frequency bands under consideration for WRC-19 for unlicensed spectrum (6 GHz)
 - Licensed Shared Access (LSA), Licensed Assisted Access (LAA), LTE Unlicensed (LTE-U), LTE-WLAN Aggregation (LWA), MulteFire
 - FCC Citizens Band Radio Service (CBRS) three-tier approach in 3.5 GHz
- Allocation of globally harmonized spectrum bands ensures availability of ecosystem and affordability of devices
- Identification of additional spectrum bands for IMT above 6 GHz at WRC-19 will supply the spectrum required for 5G



Will the solutions developed for
Connected areas solve the challenges
of Unconnected areas?

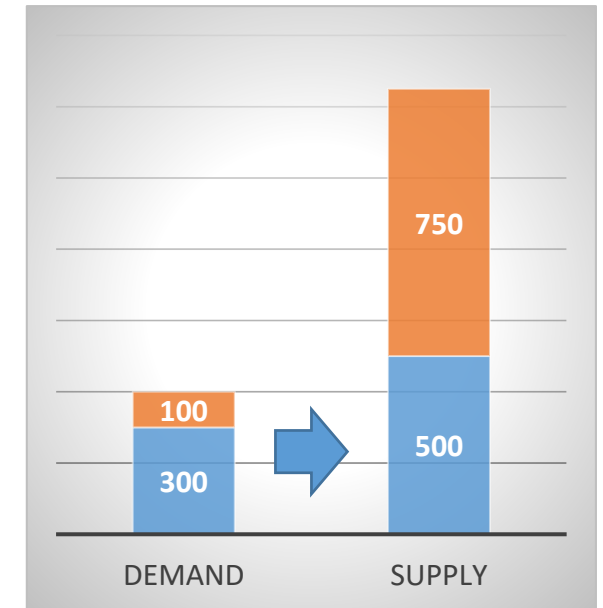


Unconnected Areas

- Challenges to ensure access to broadband include:
 - Lack of electricity infrastructure
 - Affordability of devices and subscription
 - Literacy and digital literacy
 - Lack of awareness & lack of local content
 - Lack of investment & lack of backhaul



**Spectrum is not the bottleneck
for the lack of mobile broadband**



Unconnected Areas

- Technological Solutions
 - Satellite networks (GSO and Non-GSO)
 - High Altitude Platform Systems
 - Fixed service backhaul (e.g. microwave radios)
 - Mobile services in lower frequency bands (e.g. digital dividend bands)
- Spectrum Management Solutions
 - Spectrum below 1 GHz (e.g. 700 MHz band)
 - National/regional and local spectrum auctions
 - Spectrum coverage obligations in rural and remote areas
 - Penalties to inefficient usage of spectrum
 - Licensed Shared Access (LSA)



Unconnected Areas

- Public Policies
 - Use alternative power-sources (green sources)
 - Reduce taxation
 - Promote competition
 - Promote network/infrastructure sharing
 - Use direct public investment, where necessary
 - Promote local content, and applications such as: mobile money, e-government, M2M

Other solutions are welcome to solve the broadband challenges of rural areas!



Join the ITU-R

ITU Members from the industry have the opportunity to **influence the decisions that impact their business** and enjoy the following benefits:

- ✓ Network with ICT regulators, policy-makers and experts from industry & academia
- ✓ Contribute to global standards and best practices
- ✓ Advise governments on ICT strategies and technologies
- ✓ Participate / Lead Study Groups on emerging issues in the ICT field
- ✓ Get visibility on the international scene
- ✓ Share expertise and access training and specialized seminars
- ✓ Participate in global and regional conferences and debates
- ✓ Launch innovative public-private partnerships
- ✓ Get access to world-leading ICT statistics, studies and restricted information
- ✓ And more ...

More information on : www.itu.int/en/join

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Our members

193

MEMBER
STATES



+700

INDUSTRY &
INTERNATIONAL
ORGANIZATIONS



+100

ACADEMIA
MEMBERS



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Thank you

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