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A NEW SPECTRUM MINDSET

**November 3-5, 2020**

VIRTUAL EVENT

ITU response to the effects faced by the unconnected in a post COVID-19 world

NOVEMBER 3, 2020



### **Mario Maniewicz, Director, Radiocommunication Bureau, International Telecommunication Union (ITU)**

Mr. Mario Maniewicz was elected Director of the ITU Radiocommunication Bureau at the ITU Plenipotentiary Conference 2018 in Dubai, United Arab Emirates. He took office on 1 January 2019.

Mario Maniewicz is an electronic engineer specialized in telecommunications. He has been with the ITU for over 30 years, where he has held various positions of responsibility in the Radiocommunication and Development Bureaux as well as in ITU Regional Offices.

As Director, Mr. Maniewicz is responsible for the management of the Radiocommunication Bureau, which organizes and co-ordinates the work of the Radiocommunication Sector whose aim is to ensure the rational, equitable, efficient and economical use of the radio-frequency spectrum and satellite orbits.



# ITU response to the effects faced by the unconnected in a post COVID-19 world

**Mario Maniewicz**  
Director of the Radiocommunications Bureau  
Nov/2020



# Our Mission

**ITU is committed to connecting all the world's people** – wherever they live and whatever their means. Through our work, we protect and support everyone's right to communicate.

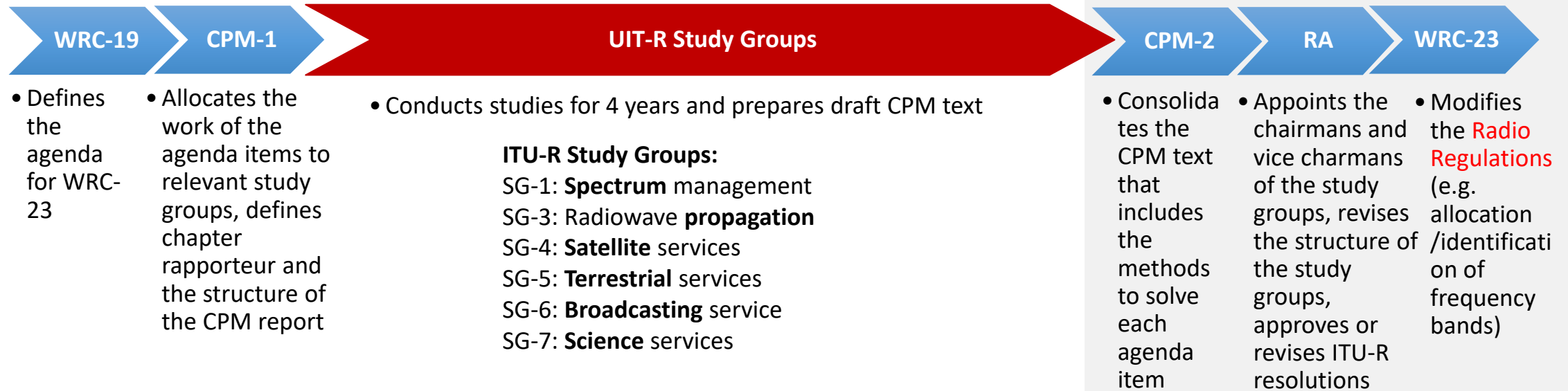


# ITU-R objectives

- Develop and update **international regulations on the use of spectrum and orbits**
- **Apply** these regulations (frequency register and coordination)
- Develop and adopt **standards and best practices** on the use of orbit/spectrum
- **Disseminate information** on these regulations, standards and best practices



# WRC Process



- Consolidates Regional and multicountry proposals





# Is there a shortcut?

## Shortcut

- Ad hoc approaches of one country/technology risk never achieving global or even regional adoption
- E.g. lack of global harmonization with regards to CDMA and WiMax technologies resulted in their substitution in several countries

## WRC process

- The time required to conduct studies and achieve consensus-based decisions is worth the benefits achieved by global harmonization and interference free operations
- Once the frequencies are harmonized, they allow for faster and cheaper deployment of networks around the world



# IMT – Low-Bands < 1GHz

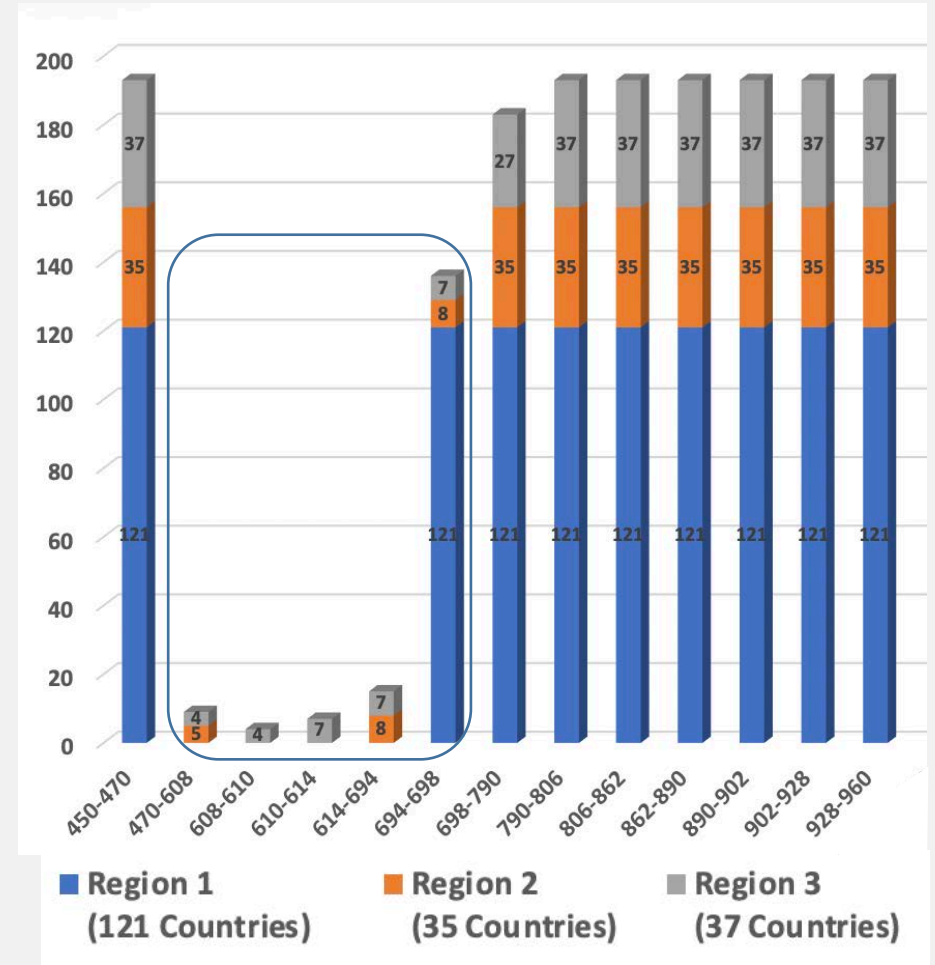
## WRC-15

- Identified the 700 MHz for IMT

## WRC-23

- **Review the spectrum use and spectrum needs of existing services** in the frequency band **470-960 MHz in Region 1** and consider possible regulatory actions in the frequency band **470-694 MHz**
  - **Greater coverage area**
  - **Non-line of sight**
  - **Better indoor penetration**

Based on RR - Edition of 2020



**IMT identification under the  
Mobile service in Bands < 1 GHz**



# IMT – Mid-Bands

## WRC-23

- Identification of the frequency bands 3 300-3 400 MHz, 3 600-3 800 MHz, 6 425-7 025 MHz, 7 025-7 125 MHz and 10.0-10.5 GHz for IMT
  - 3 600-3 800 MHz
  - 6 425-7 025 MHz
  - 7 025-7 125 MHz

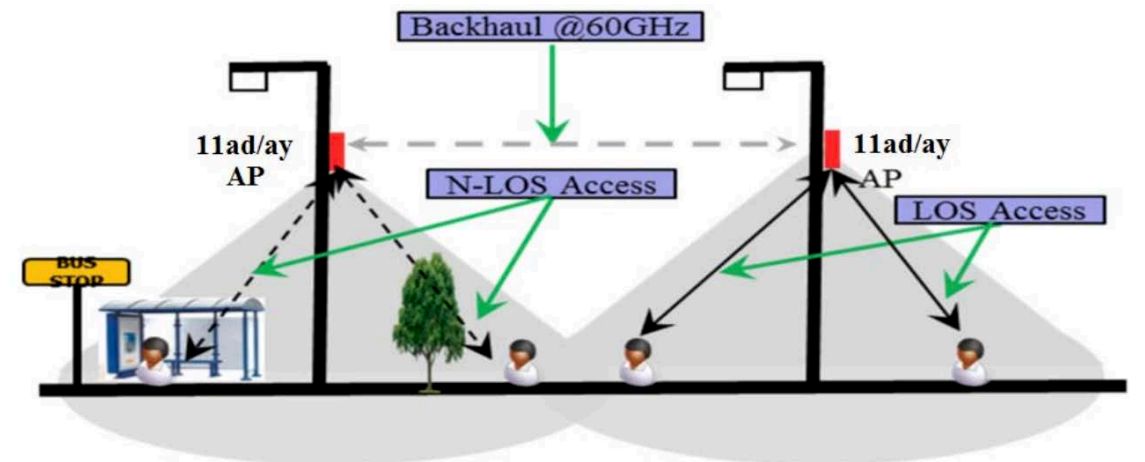


**“Unlicensed” or “Shared” Bands**

# IMT and MGWS

## WRC-19

- Global identification in the **66-71 GHz band for IMT**
  - Administrations wishing to implement IMT, which are also wishing to implement **other applications of the mobile service, including other wireless access systems (WAS)** in the same frequency band, consider coexistence between IMT and these applications.
    - E.g. of other wireless access systems include: **Multiple Gigabit Wireless System (MGWS)**



RLAN and Backhaul in the 66-71 GHz band

# WAS/RLAN

## WRC-19

- WRC-19 changed the regulatory conditions for **WAS/RLANs in the band 5 150 -5 250 MHz.**
- Allowing the use of Wi-Fi devices in trains and cars.
- It also permits a **limited deployment of outdoor WAS/RLANs,** with due protection of space services



**RLAN in the 5 150 -5 250 MHz band**

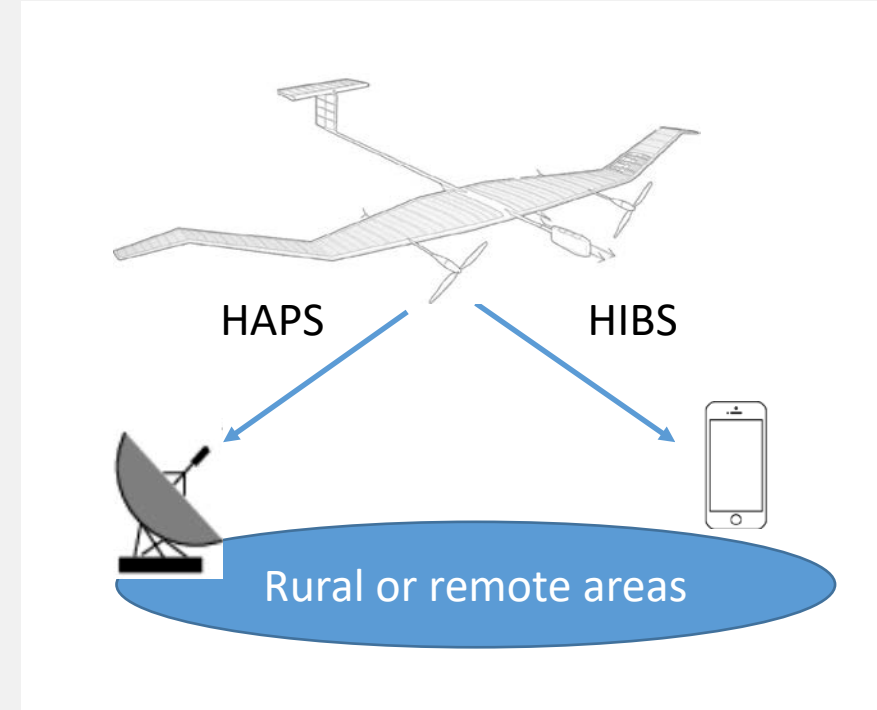
# HAPS/HIBS

## WRC-19 - HAPS

- Identified frequency bands for high altitude platform stations (HAPS) on a global and regional basis in the **fixed service**
- This will facilitate the development and implementation of HAPS and **enable affordable broadband connectivity** and telecommunication services in **underserved communities and in rural and remote areas**, including mountainous and desert zones, thus connecting the unconnected.

## WRC-23 - HIBS

- Use of high-altitude platform stations as IMT base stations (HIBS) in the **mobile service** in certain frequency **bands below 2.7 GHz** already identified for IMT

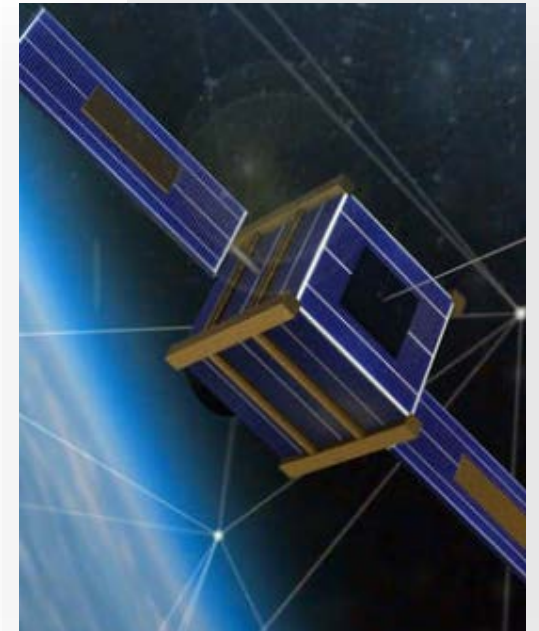


**Fixed backhaul and mobile access**

# Non-GSO systems

## WRC-19

- Adopted a new regulatory framework, including the bringing into use and a **milestone-based approach** for the deployment of non-geostationary satellite constellations (non-GSO) in specific frequency bands and services.
- The regulatory framework will **enable mega constellations of satellites** - hundreds to thousands of spacecraft in low-Earth orbit - to rapidly come to fruition ensuring the operation of as many systems as possible.
- This will **ensure more affordable means of connectivity is provided to rural and remote areas**. Thus providing innovative solutions to bridging the digital divide as well as providing broadband for all.



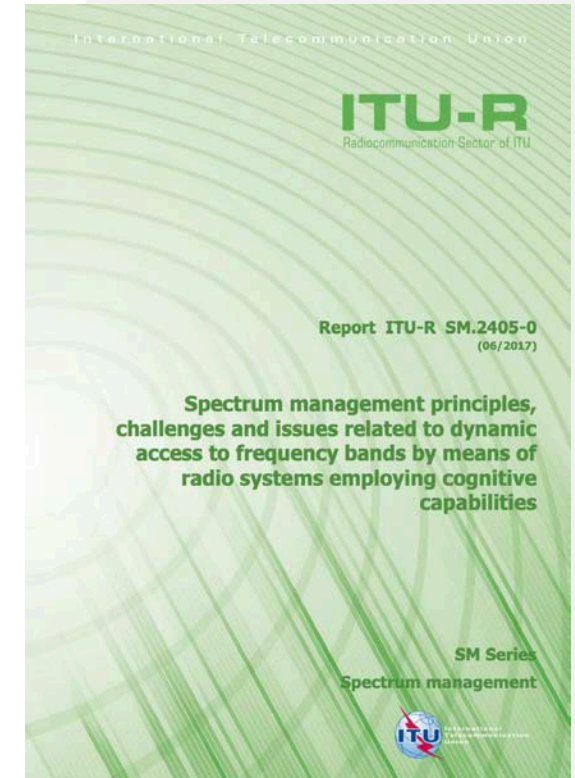
**Backhaul for fixed and mobile networks**



# International Standards and Reports

## ITU-R Study Group 1, Working Party 1B – **Studies on Spectrum management**

- Report ITU-R SM.2405-0: Spectrum management principles, challenges and issues related to **dynamic access to frequency bands** by means of radio systems employing **cognitive capabilities**
- ITU-R 240/1: Assessment of **spectrum efficiency** and **economic value**
- ITU-R 241/1: Methodologies for **assessing or predicting spectrum availability**
- Report SM.2404-0: Regulatory tools to support **enhanced shared use of the spectrum**



# National regulation

## **Dos**

- Incorporate in the national table of frequency allocation the changes made by WRC-19
- Incorporate in the national regulatory framework the standards approved by the ITU-R Study Groups
- Contribute to the on-going studies within the ITU-R study groups and the Regional organizations towards the preparation for WRC-23
- Build a long term spectrum planning policy

## **Don't**

- Define a spectrum management policy today that might be affected by the outcomes of WRC-23.



# Best Practices

## UK – OFCOM

- If the spectrum is not being used or planned for use in a particular area for the next 3 years, Ofcom enables **access to licensed mobile spectrum** for new users

## Mexico - IFT

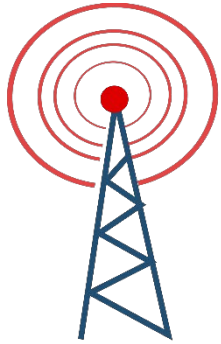
- **Reserved 800 MHz band for “social” use** by communities of 2,500 people or less, or communities located in a designated indigenous region or priority zone

## Brazil - ANATEL

- **Eliminated licensing requirements** for broadband providers using short-range devices with fewer than 5,000 users



# Additional challenges



## Infrastructure

- Ensure energy supply
- Implement high speed **backhaul** (satellite, fiber, HAPS, microwave)
- Implement **access** networks



## Capital

- Increase investment of public and private sectors
- Implement innovative business cases (to compensate the high costs of installation and operation and low returns)
- Provide **affordable devices and services**



## Knowledge

- Improve technical knowledge of staff
- Improve ICT literacy (including **digital literacy, awareness, and development of local content**)

# Observations during COVID-19

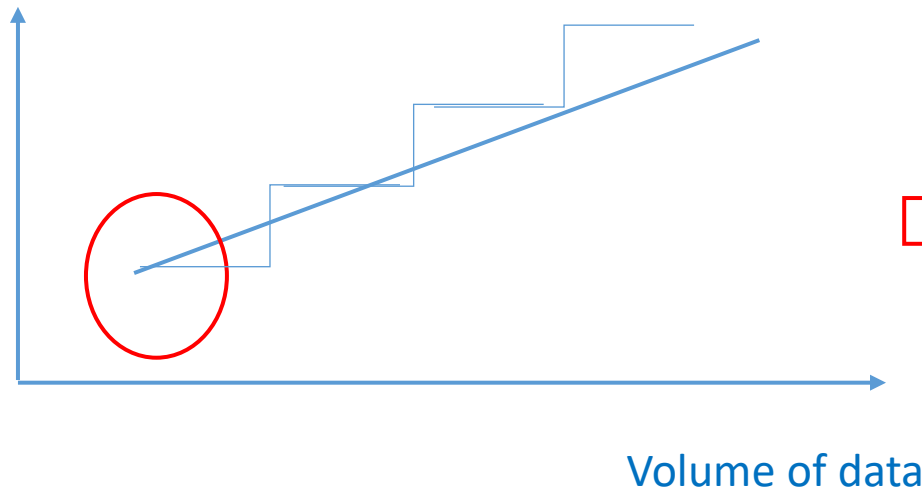
## Mobile networks

- Lower barrier to entry
- Lower cost of devices
- Lower pre-paid plans

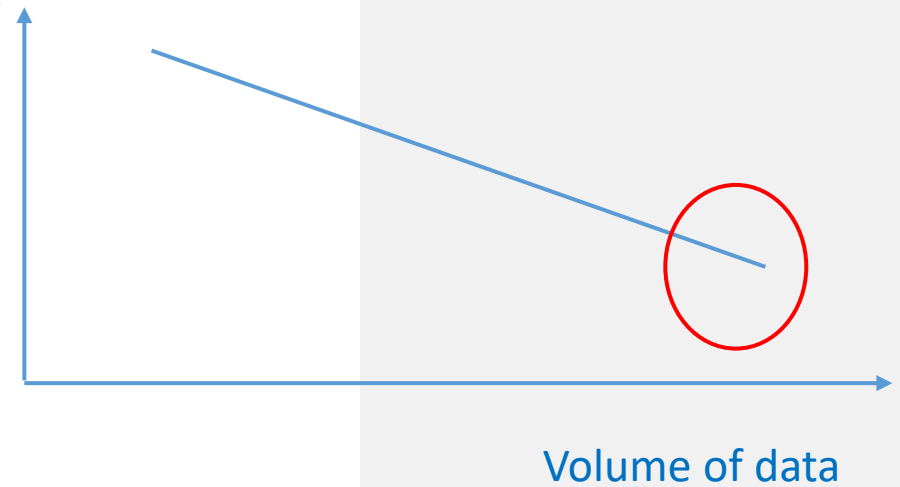
## Fixed networks

- Higher fixed cost
- Lower variable cost (per MHz)
- Higher speed
- Used for teleworking and e-Learning

Cost per MHz



Cost per MHz





# Join the ITU

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193

MEMBER  
STATES



+700

INDUSTRY &  
INTERNATIONAL  
ORGANIZATIONS



+100

ACADEMIA  
MEMBERS



Join the ITU: <https://www.itu.int/en/join/Pages/default.aspx>

# Thank you

**Mario Maniewicz**  
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