

WRC-19

The impact on the SDGs

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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



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



WRC-19



RA-19 & WRC-19

Radiocommunication Assembly 2019 (RA-19)

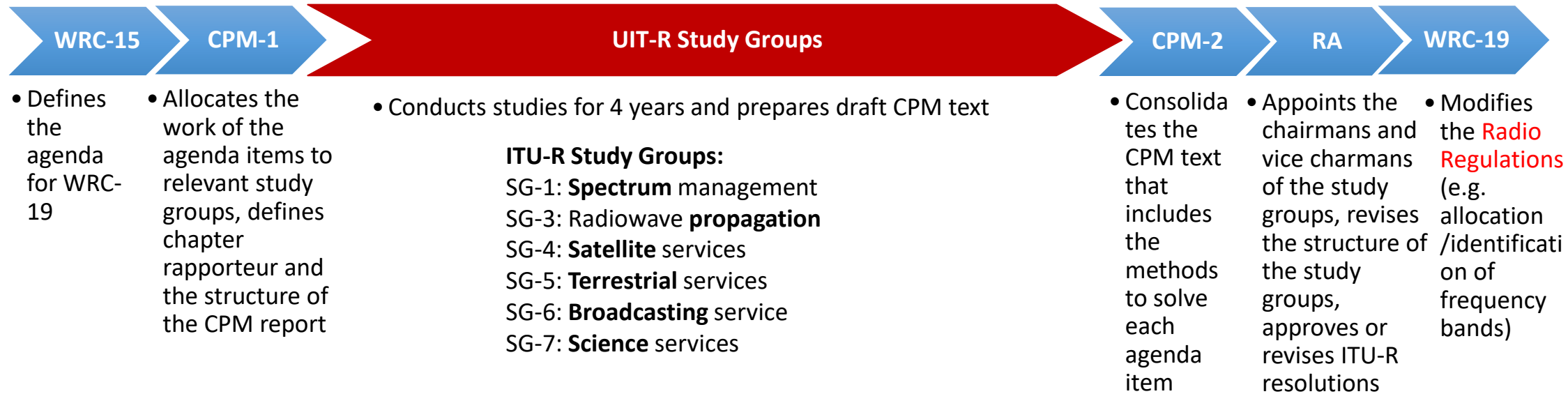
- 21-25 October 2019

World Radiocommunication Conference 2019 (WRC-19)

- 28 October to 22 November 2019



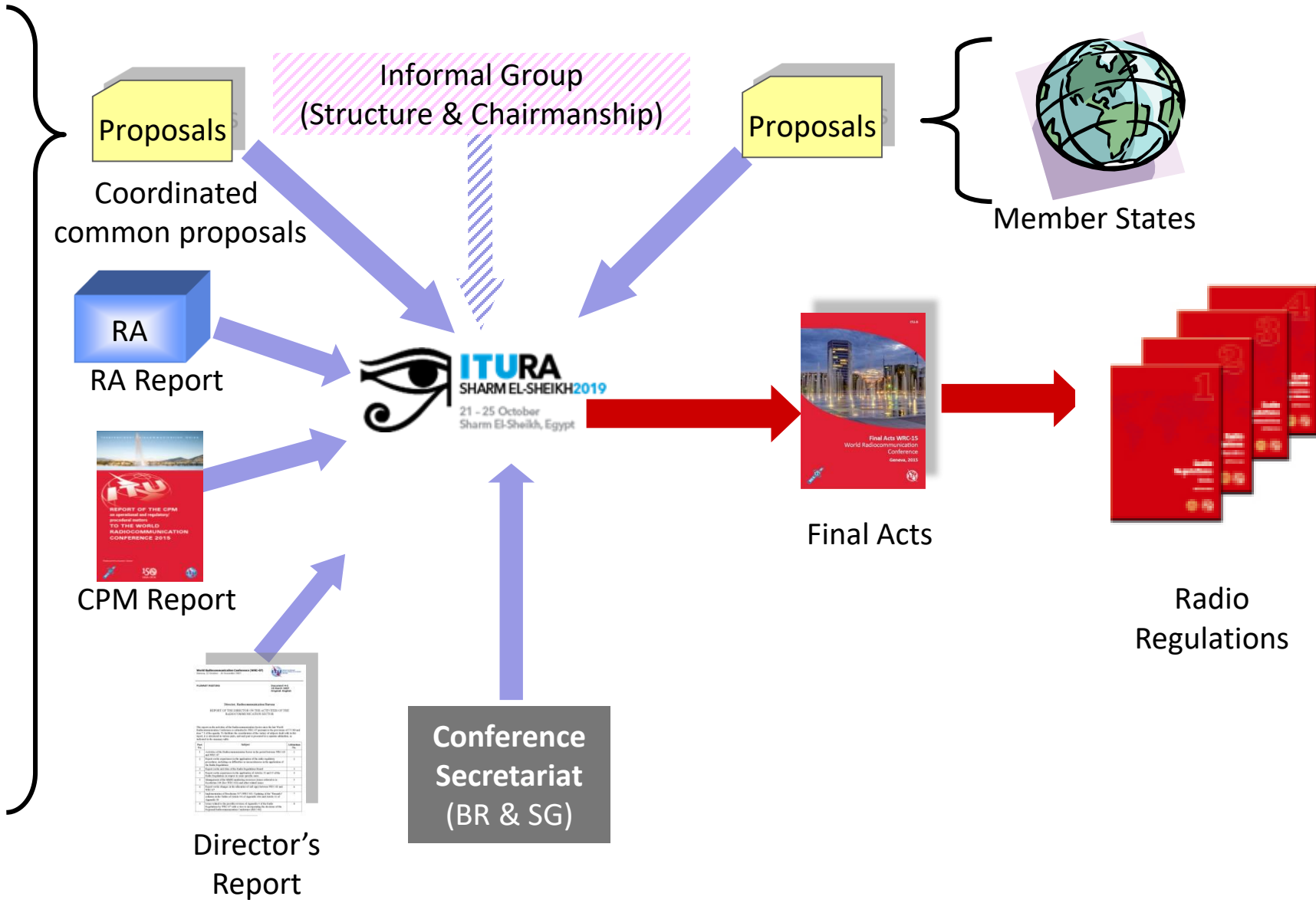
WRC-19



- Consolidates Regional and Multicountry proposals



WRC-19



Connectivity

SDG 9, SDG 11 etc

A-I

G-L

M-R

T-Z



1965:06:14

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Agenda Item 1.13 – IMT

5G

1.13 to consider **identification** of frequency bands for the future development of **International Mobile Telecommunications (IMT)**, including possible additional allocations to the mobile service on a primary basis, in accordance with Resolution **238 [COM6/20] (WRC-15)**

Bands which have allocations to the mobile service on a primary basis:

- 24.25-27.5 GHz
- 37-40.5 GHz, 42.5-43.5 GHz, 45.5-47 GHz, 47.2-50.2 GHz, 50.4-52.6 GHz,
- 66-76 GHz, 81-86 GHz

Bands that may require additional allocations to the mobile service on a primary basis:

- 31.8-33.4 GHz
- 40.5-42.5 GHz, 47-47.2 GHz

▶ [Res. 238 \(WRC-15\)](#)



Agenda Item 1.16 – RLAN



1.16 to consider issues related to wireless access systems, including radio local area networks **(WAS/RLAN)**, in the frequency bands between **5 150 MHz and 5 925 MHz**, and take the appropriate regulatory actions, including additional spectrum allocations to the mobile service, in accordance with Resolution **239 [COM6/22] (WRC-15)**

▶ [Res. 239 \(WRC-15\)](#)

Agenda Item 1.14 – HAPS

1.14 to consider, on the basis of ITU R studies in accordance with Resolution **160 [COM6/21] (WRC-15)**, appropriate regulatory actions for **high-altitude platform stations (HAPS)**, within existing fixed-service allocations.

Existing HAPS identifications:

- on a global level: 47.2-47.5, 47.9-48.2 GHz
- on a regional level, outside Region 2: 27.9-28.2 GHz and 31.0-31.3 GHz
- and in 5 countries (Footnote 5.457): 6 440-6 520 MHz and 6 560-6 640 MHz

Study new frequency bands:

- on a global level: 38-39.5 GHz,
- on a regional level, in Region 2: 21.4-22 GHz and 24.25-27.5 GHz

▶ [Res. 160 \(WRC-15\)](#)



Agenda Item 1.6 – non-GSO FSS

1.6 to consider the development of a regulatory framework for **non-GSO FSS satellite** systems that may operate in the frequency bands **37.5-39.5 GHz** (space-to-Earth), **39.5-42.5 GHz** (space-to-Earth), **47.2-50.2 GHz** (Earth-to-space) and **50.4-51.4 GHz** (Earth-to-space), in accordance with Resolution **159 [COM6/18] (WRC-15)**;

▶ [Res. 159 \(WRC-15\)](#)



Agenda Item 1.5 – ESIM

1.5 to consider the use of the frequency bands **17.7-19.7 GHz** (space-to-Earth) and **27.5-29.5 GHz** (Earth-to-space) by **earth stations in motion** communicating with geostationary space stations **in the fixed-satellite service** and take appropriate action, in accordance with Resolution **158 [COM6/17] (WRC-15)**;

▶ [Res. 158 \(WRC-15\)](#)



Climate & Earth

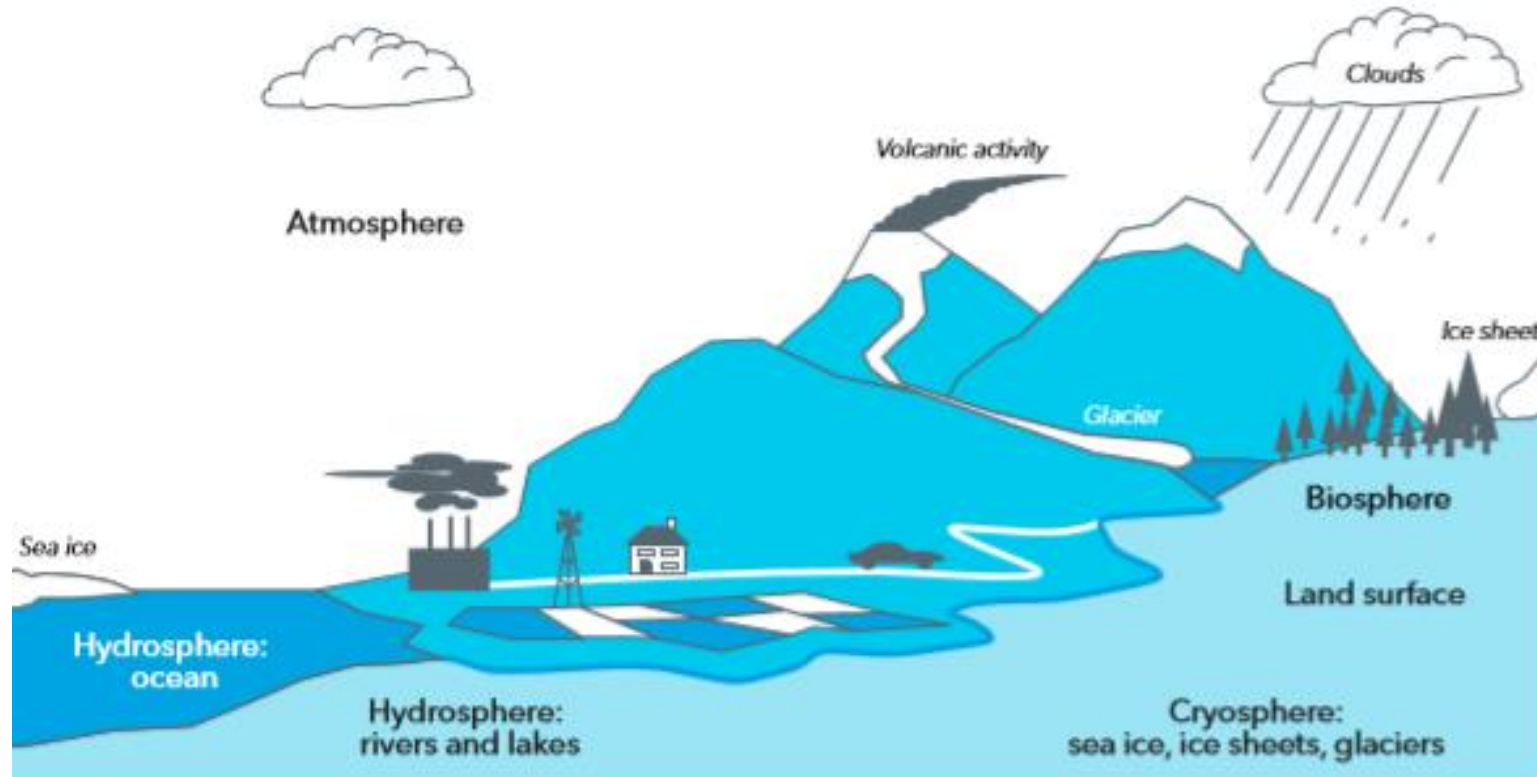
SDG 13, SDG 14, SDG 15 etc



Earth Observation systems

1. Obtain information - characteristics of the Earth and its natural phenomena, state of the environment and meteorology
2. Improve weather forecast and weather prediction
3. Provide more reliable and timely warnings of extreme weather events

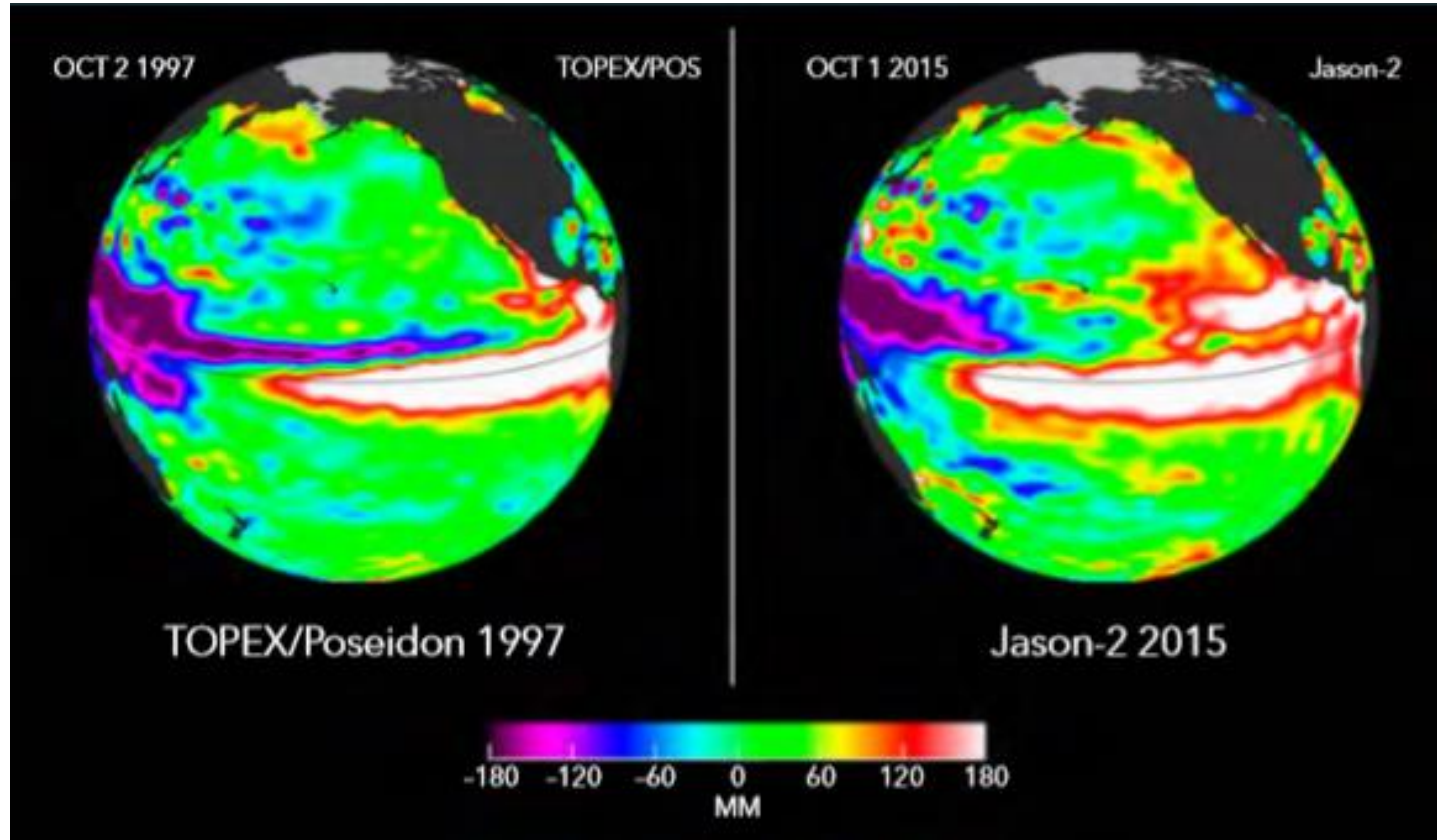
Earth information



Source: Adapted from "Climate Change 2001: Working Group I: The Scientific Basis – The Climate System" – Intergovernmental Panel on Climate Change (IPCC)

Earth system components observed by passive sensors

Forecast & prediction



It is possible to predict El Niño from ocean data obtained by satellite (active altimetry radars).

A huge anomalous arrival of warm water can be seen on the coast of Peru in 1997 and 2015.

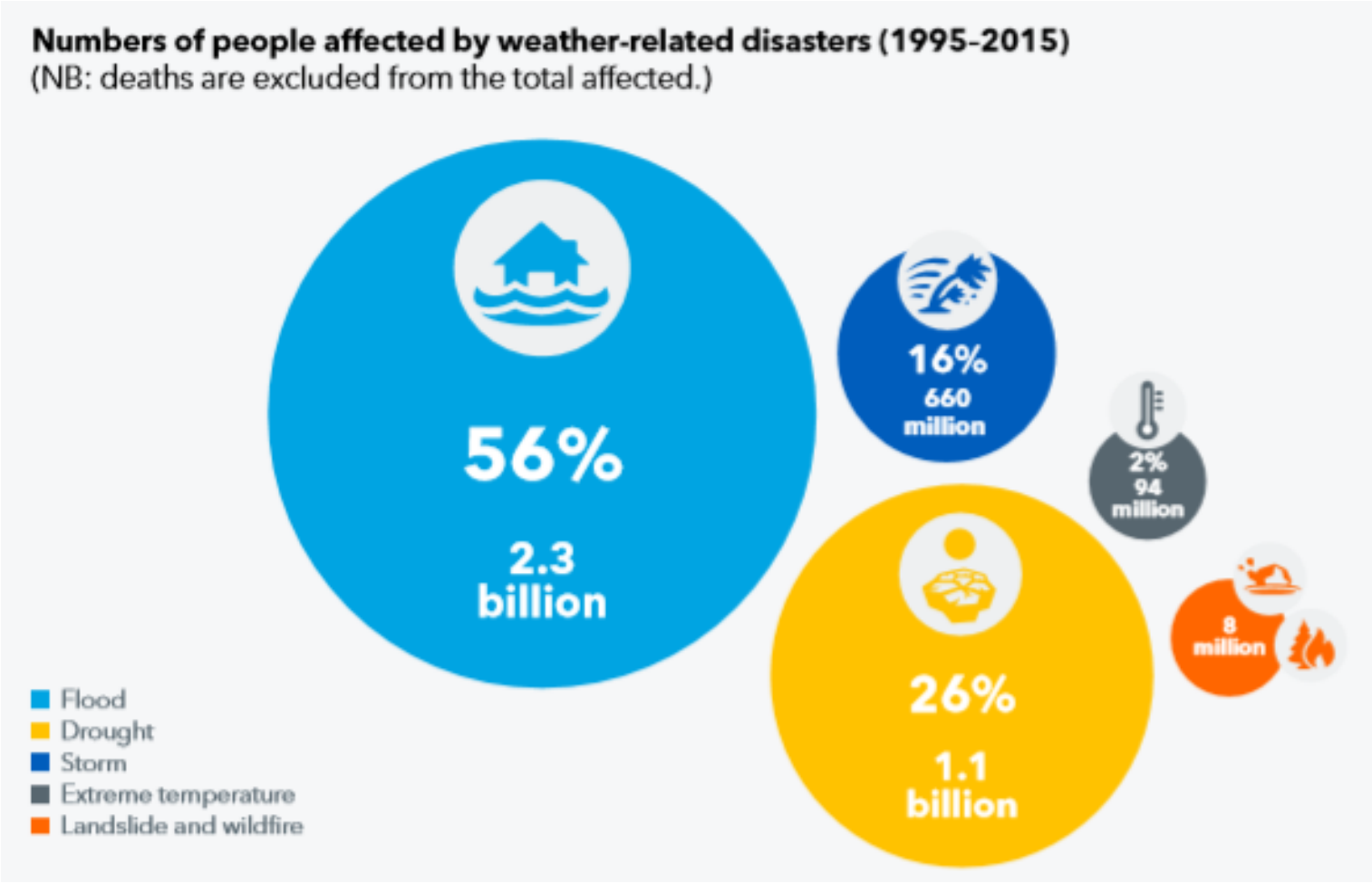
Early warnings



Approximately 90% of all disasters are weather-related.

IRIN/Tung X. Ngo

Human cost of weather-related disasters



Earth Observation systems

Active sensors

Radar systems on spaceborne platforms. They obtain data through the transmission and reception of radiowaves.

E.g. SAR, altimeters, precipitation radars, cloud profile radars etc



Passive sensors

Very sensitive receivers that measure the electromagnetic energy emitted and scattered by the Earth, and the chemical constituents in the Earth's atmosphere.



WRC-19 agenda items critical for remote sensing

- Agenda Item 1.16 (WAS/RLAN)
 - Frequency range 5350–5470 MHz
 - ITU-R study results show that there are no feasible mitigation techniques to facilitate sharing between RLAN and EESS (active) in this band
 - NOC - only one method is proposed in the CPM text
- Agenda Item 1.13 (IMT)
 - Frequency range 24.25–27.5 GHz
 - ITU-R compatibility studies were performed between **IMT-2020 and the EESS (passive) in the band 23.6-24.0 GHz** (and in the bands 50.2-50.4 GHz and 52.6-54.25 GHz - second harmonics)
 - Levels of unwanted emissions to protect EESS (passive) were defined for UE and BS

WRC-19 agenda items critical for remote sensing

- Agenda Item 1.14 (HAPS)
 - Frequency bands 21.4–22 GHz and 24.25–27.5 GHz, 31–31.3 GHz
- Agenda Item 1.6 (non-GSO)
 - Frequency bands 37.5–39.5 GHz, 39.5–42.5 GHz, 47.2–50.2 GHz and 50.4–51.4 GHz
- Agenda Item 9.1.9 (FSS)
 - Frequency band 51.4–52.4 GHz

Earth Observation systems

1. Earth Observation Systems collect information about the earth, and use the information to make forecasts and predictions that will then provide more reliable warnings to the population
2. Information and forecasts are made available worldwide, so all countries benefit, regardless of whether they own or not a satellite
3. Enable the protection of people and property
4. Passive sensors capture signals at frequencies determined by molecular physics so they cannot move to another frequency band and since the signals are very weak, they require protection from radio-frequency interference

Conclusion



Conclusion

1. Radiocommunications have a key role in supporting the achievement of the SDGs
2. WRC-19 will consider several services that have the potential to increase Connectivity (Agenda items 1.13, 1.16, 1.14, 1.5, 1.6)
 - These services impact directly **SDG 9 (Industry, Innovation and Infrastructure)** and **SDG 11 (Sustainable Cities and Communities)**
3. The decisions taken at WRC-19 can also impact other services not under the agenda, such as Earth Observation Systems
 - These systems impacts directly **SDG 13 (Climate Action)**, **SDG 14 (Life Below Water)**, **SDG 15 (Life on Land)**

Thank you

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