

TV White Spaces: Perspectives



Regional Radio Seminar
Tunis, 13 December 2013

Francois Rancy, Director BR



Agenda

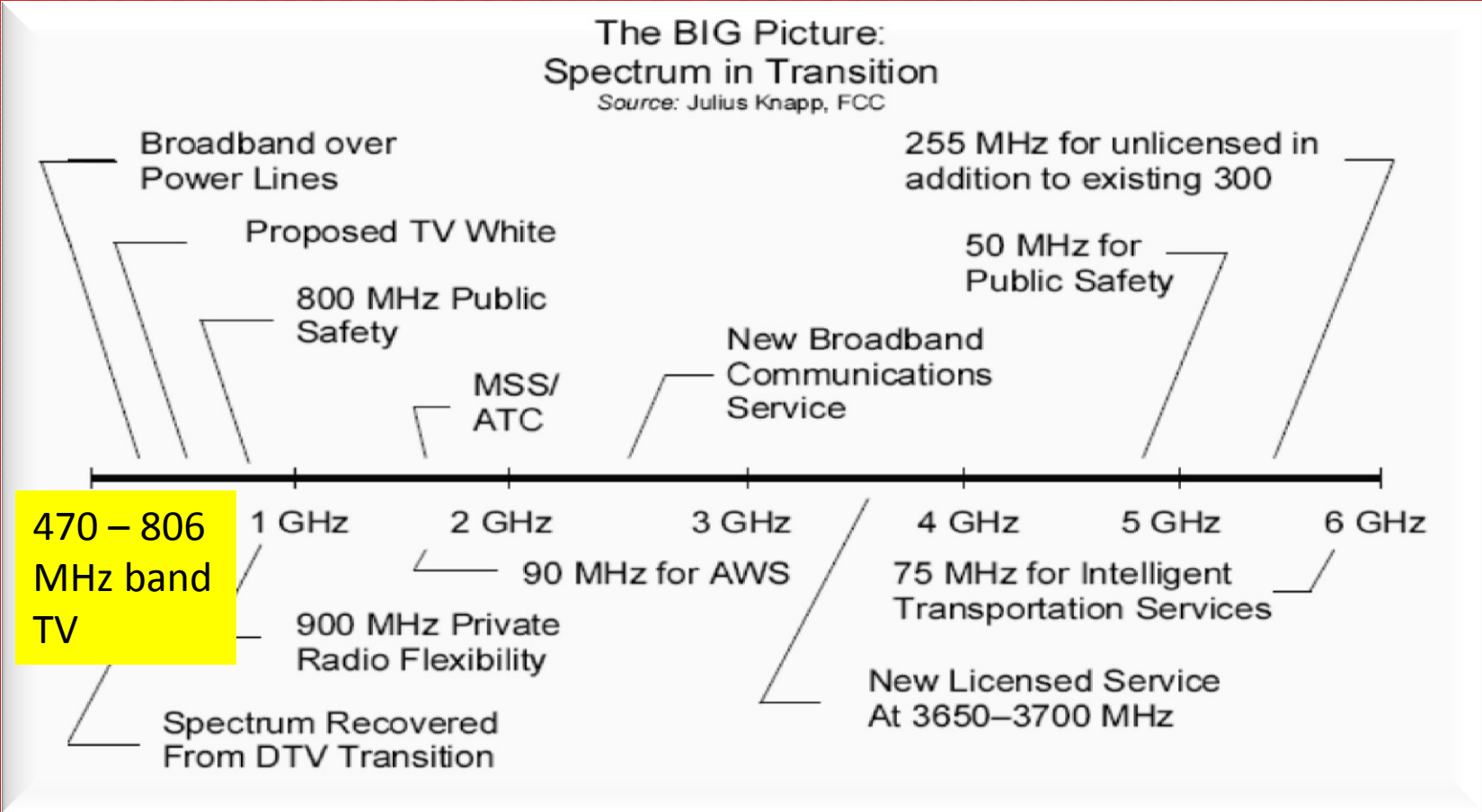
- I. What are TV white spaces (TVWS)?**
- II. How are TVWS being used?**
- III. Why to look at maximizing efficiency?**
- IV. What factors should be considered for implementing TVWS in the long term?**
- V. Conclusions**

This presentation is based on contents from the GSR13 (Global Symposium for Regulators) discussion paper on TVWS (Warsaw, Poland):

http://www.itu.int/en/ITU-D/Conferences/GSR/Documents/GSR_paper_WhiteSpaces_Gomez.pdf



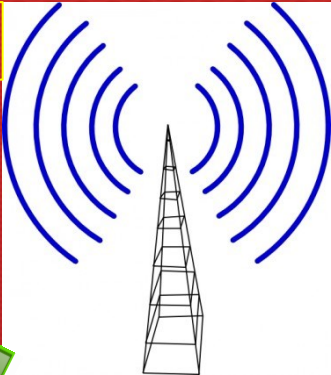
I. What are TV white spaces (TVWS)?



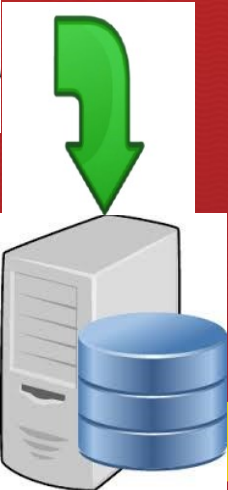
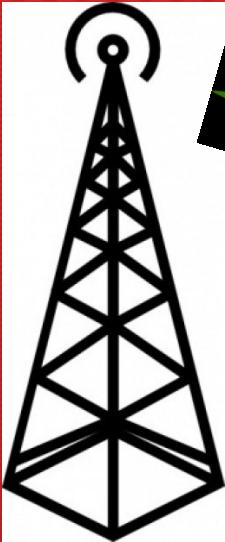
II. How are TVWS being used?

TVWS base station consults an authorized database to identify idle TV channels

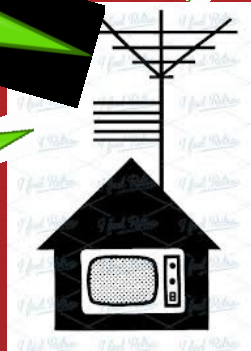
TV coverage



UHF TV bands used opportunistically by TVWS networks



TVWS for mobiles in hot spot (802.11af)

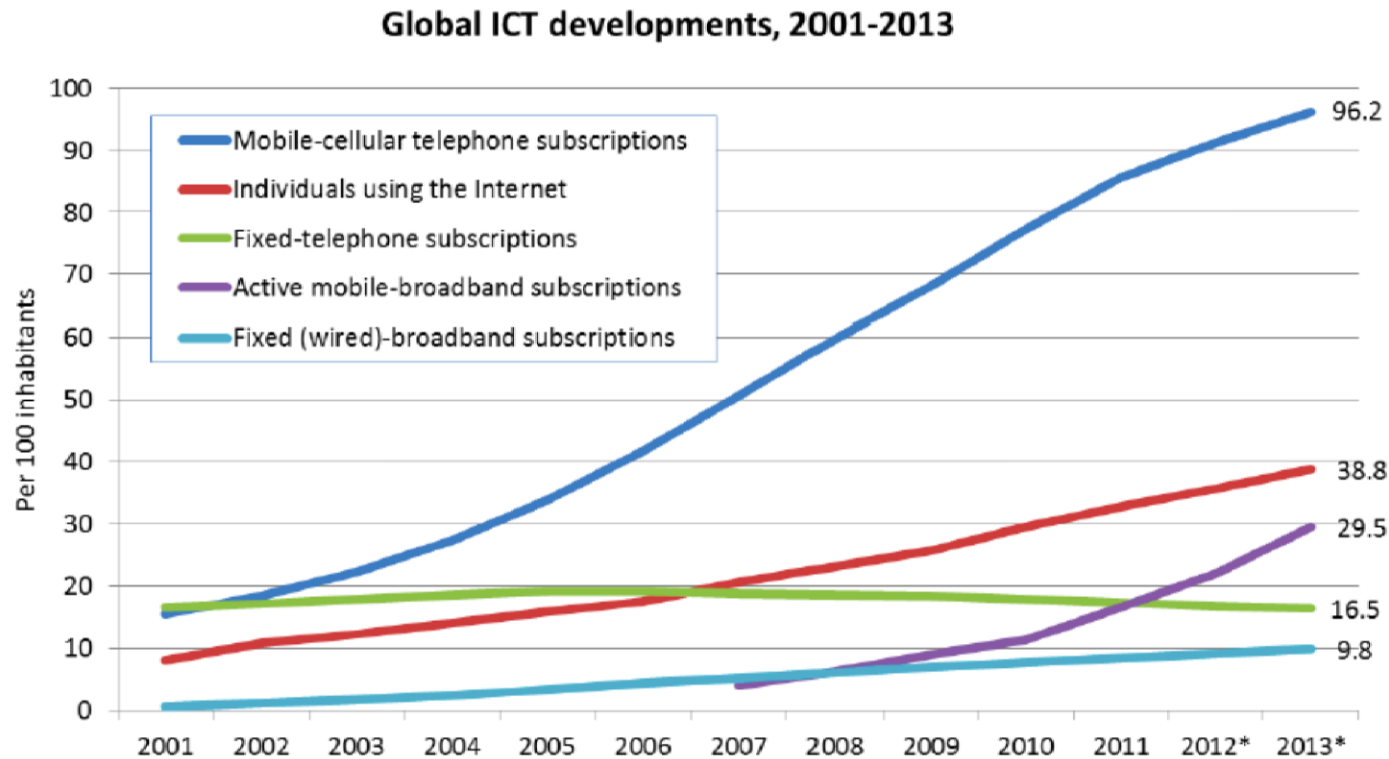


TVWS for fixed point-to-multipoint (802.22)

Approved database to identify idle TV channels



III. Why to look at maximizing efficiency?



Note: * Estimate

Source: ITU World Telecommunication /ICT Indicators database

Source: ITU.



III. Why to look at maximizing efficiency?

CONTINUOUS HIGH GROWTH OF MOBILE BROADBAND

More than 2 billion subscriptions worldwide by end 2013*

Americas

460 million subscriptions

48% penetration

28% CAGR (2010-2013)

Europe

422 million subscriptions

68% penetration

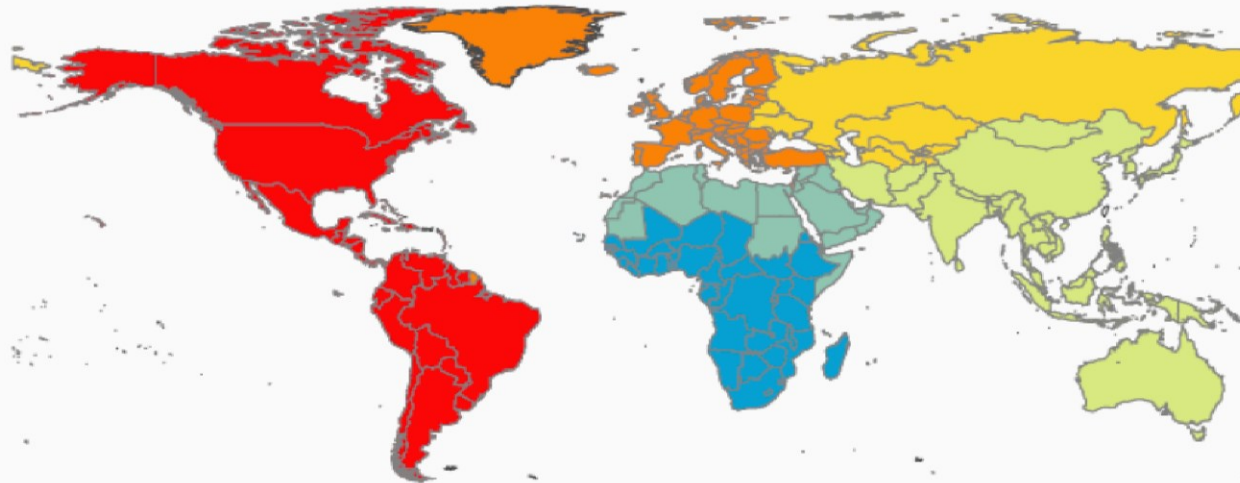
33% CAGR (2010-2013)

CIS

129 million subscriptions

46% penetration

27% CAGR (2010-2013)



Arab States

71 million subscriptions

19% penetration

55% CAGR (2010-2013)

Africa

93 million subscriptions

11% penetration

82% CAGR (2010-2013)

Asia-Pacific

895 million subscriptions

22% penetration

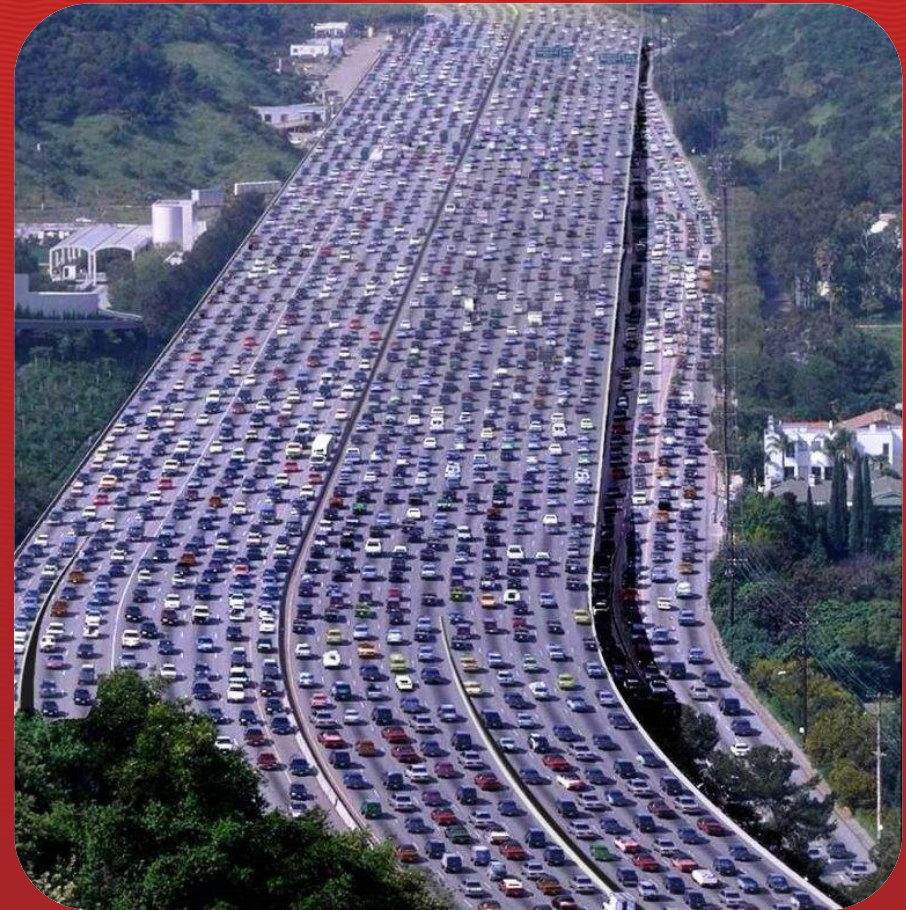
45% CAGR (2010-2013)

Source: ITU World Telecommunication /ICT Indicators database

Note: * Estimate

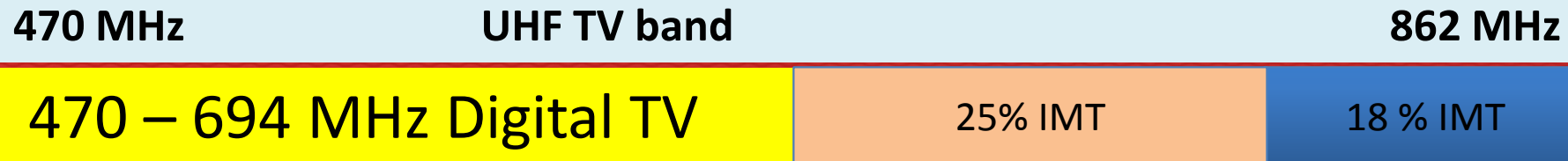


III. Why to look at maximizing efficiency?



IV. What factors should be considered for the long term implementation of TVWS?

Europe



Americas

470 – 698 MHz Digital TV

Portion subject to reverse auctions in US for mobile

Digital Dividend for IMT: 698-806 MHz

Transition to digital TV has freed-up spectrum for IMT: Comparison of ITU-R Region 1 (Africa, Europe, Middle East) and Region 2 (Americas)

WRC 07: 790 – 862 MHz digital dividend for IMT: 18 %

WRC 12: 694 – 790 MHz digital dividend for IMT: 25 %

In the US, 600 – 698 MHz reverse auctions for mobile

IV. What factors should be considered for the long term implementation of TVWS?

Recent discussions on TVWS use: (FCC workshop in Washington DC, 8 Nov 2013)

- A viable business case for TVWS requires a minimum of 30 MHz available everywhere
- Such bandwidth may not be available in large cities.
- In addition to TV protection/interference, further constraints arise from :
 - Wireless microphones
 - Radioastronomy (channel 37 and adjacent channels)
 - Wireless Medical Telemetry Systems (WMTS) two channels
 - Interference between TVWS and LTE (including adjacent channels)



IV. What factors should be considered for the long term implementation of TVWS? Questions from the GSR discussion paper

1. Probability of more digital dividends?

2. Transition to digital TV: amount of spectrum left for TVWS?

3. Is there a need for some form of long term security of tenure for TVWS?

4. Could regulatory changes result in increased costs?

5. What are the total costs of network deployment and who pays?

6. What would be the quality and type of service provided by TVWS?

7. What is the potential for bandwidth bottleneck for users of TVWS?

8. Border coordination requirements?

9. Sustainable and scalable infrastructure is achieved/complemented?

10. Existing solutions with economies of scale at hand?

IV. Conclusions

- **Dynamic Spectrum access is being considered as a possible solution to improve spectrum efficiency and address the need for access to broadband in underserved areas.**
- **While trials are still underway, it is clear that a number of technical, operational and regulatory aspects need to be addressed.**
- **Possible use of these techniques in the TV bands needs to take into account the current and future developments in the use of these bands for broadcasting, IMT mobile broadband systems and other radio services and applications.**
- **These aspects are being addressed in the ITU-R Study Group activities.**
- **Given the possible implications on the long term sustainability of the wireless ecosystem, participation in these activities is encouraged.**





Thank you...

