

# Future Spectrum Requirements in APAC

WRC-15 lunchtime seminar

Geneva, 5 November 2015

**A mobile operator's perspective**
Jon Fredrik Baksaas, Chairman
GSMA

**A vendor's perspective**
Dr. Michael Peeters, Wireless Division CTO
Alcatel Lucent

**Recommended new mobile bands**
Peng Zhao, Senior Policy Manager
GSMA

**Q&A, buffet lunch and networking**





# A mobile operator's perspective

Jon Fredrik Baksaas, Chairman
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# A vendor's perspective

Dr. Michael Peeters, Wireless Division CTO
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# Harmonization: ever more necessary

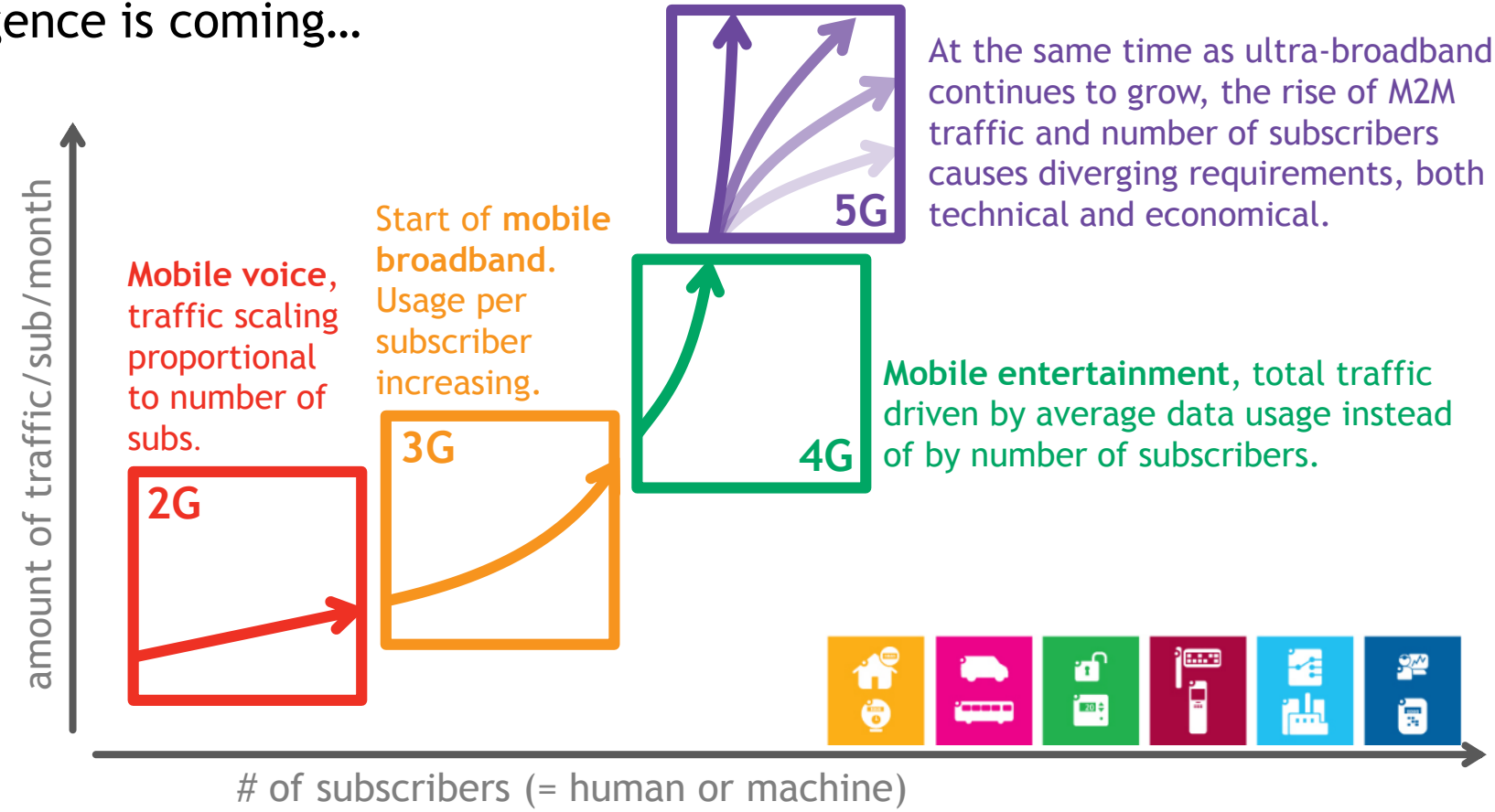
Dr.Ir. Michael Peeters, Alcatel-Lucent

20151105 Geneva, WRC-15



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# Divergence is coming…



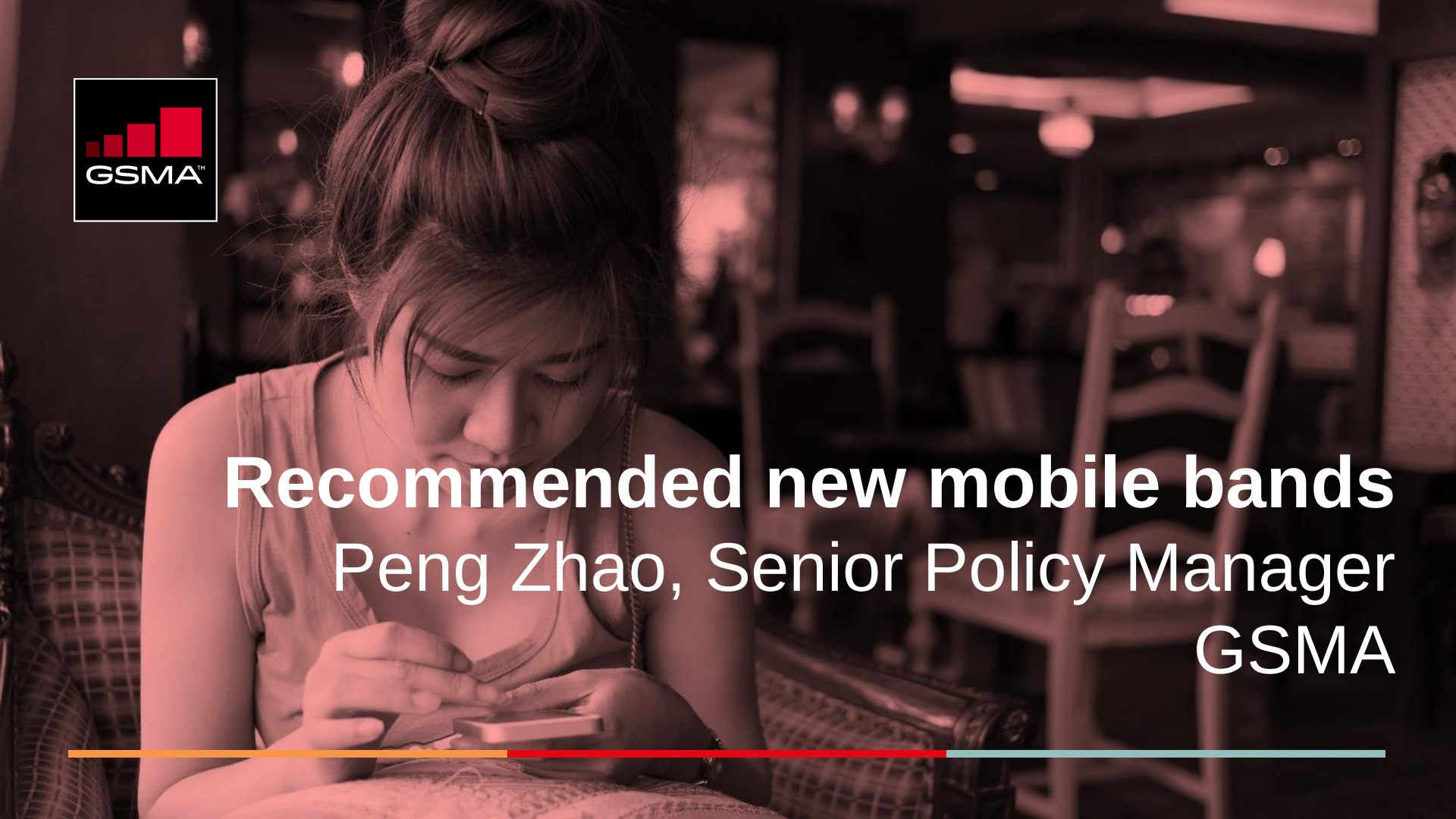

**Mobile voice**, traffic scaling proportional to number of subs.

Start of **mobile broadband**. Usage per subscriber increasing.

At the same time as ultra-broadband continues to grow, the rise of M2M traffic and number of subscribers causes diverging requirements, both technical and economical.

**Mobile entertainment**, total traffic driven by average data usage instead of by number of subscribers.


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# Recommended new mobile bands

Peng Zhao, Senior Policy Manager
GSMA

# GSMA recommended new mobile bands

## Sub-700 MHz UHF

(470-694/8 MHz)



*The key to the future of widespread mobile broadband coverage*

## L-band

(1350-1400 MHz & 1427-1518 MHz)




*A good mixture of coverage and capacity*

## 2.7-2.9 GHz



*A good capacity band that would allow use of existing 2.6GHz cell sites*

## C-band

(3.4-3.8 GHz & 3.8-4.2 GHz)



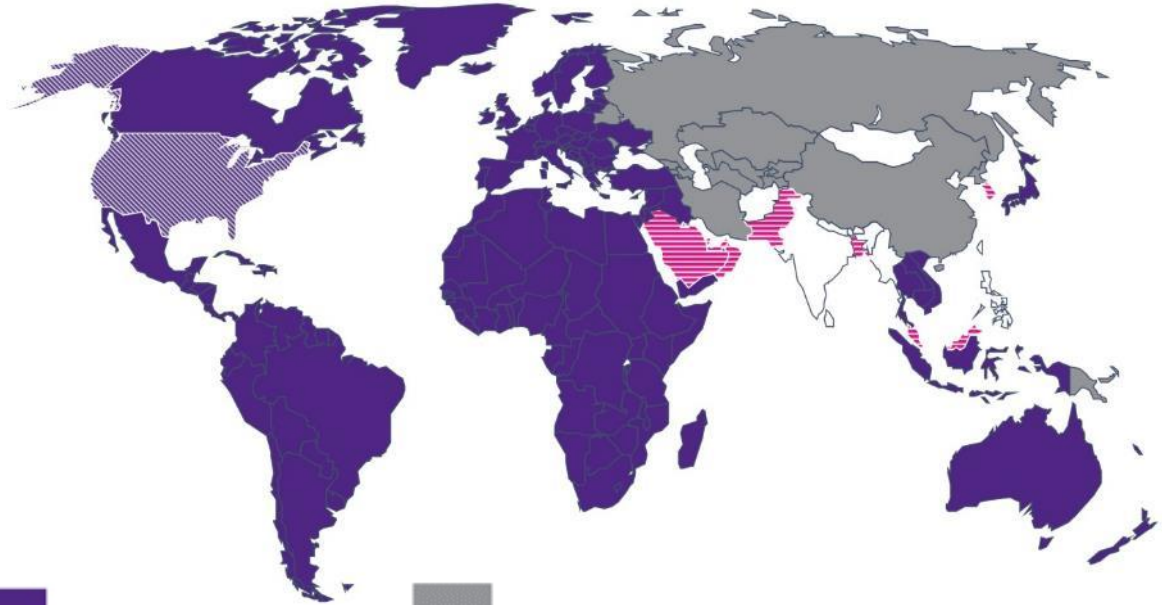
*Large bandwidth could provide capacity to support high-speed mobile broadband*

# Agenda Item 1.1 is at risk in Region 3

- **APT common proposal identifies only 5% more IMT spectrum (i.e. 51 MHz)**
  - Only supports 1427-1452 MHz & 1492-1518 MHz for IMT
  - Most other regional proposals support 300-400 MHz more IMT spectrum
- **APAC risks falling behind other regions in the mobile broadband race**
  - No new IMT spectrum has been identified in APAC since WRC-07 (pre-iPhone)
  - APAC has high spectrum requirements due to large cities so can't wait until WRC-23
- **Some APAC countries see the danger and submitted multi-country proposals to:**
  - Identify the "missing" part of the L-band (1452-1492 MHz): 12 countries from Region 3
  - Identify all or part of UHF (470-694 MHz): including NZL and PNG alongside parts of region 2
  - Various proposals to identify additional parts of C-band from Australia, Japan and Korea

**FUTURE OF MOBILE IN APAC IS IN DANGER DUE TO THE PRESENT WRC-15 POSITION**

# L-BAND (1350-1400 MHz & 1427-1518 MHz)



- The band provides a good mixture of mobile coverage and capacity
- 1452-1492 MHz is largely unused
- Three countries have already auctioned this band and more countries are considering
- In APAC, current support for 1452-1492 MHz includes: AUS, BRU, CBG, INS, J, KOR, LAO, MLA, NZL, SNG, THA, VTN
- $9bn of *additional* benefit could be realised if the APAC countries opposing changed their position [1]

**Support 60-80 MHz**

**OPPOSED TO 60-80 MHz**

**Support 40 MHz**

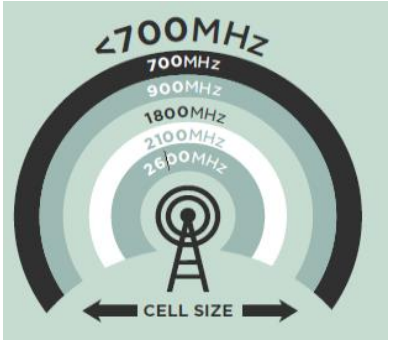
**Unknown/undecided**

**Support 80 MHz but will not use**

*Source: Plum Consulting (Oct 2015)*

# Sub-700MHz (470-694/8MHz): Key for coverage

**Extremely important for scaling affordable mobile broadband services everywhere including in rural areas and inside buildings**




**Current UHF usage (470-694/8MHz):**

- Mostly supports terrestrial broadcast TV services (together with VHF)
- Use of terrestrial broadcast varies by country

**How to accommodate mobile *in a portion of UHF:***

- The evolution of terrestrial broadcast delivery means more can be done with less spectrum
- Less demand for large number of TV channels in future as IPTV use grows
- Case studies in South Asia indicate that releasing Band V for IMT could add 1.5% to GDP

**VARIATION IN TERRESTRIAL BROADCAST USE MEANS REGULATORS SHOULD HAVE FLEXIBILITY TO USE THE BAND AS THEY WISH**

# C-BAND (3.4-4.2 GHz)

## EXCELLENT CAPACITY BAND – SUPPORTS BEST POSSIBLE MOBILE EXPERIENCE

- **Sharing studies prove satellite & IMT can both use the band under the *right* conditions**
  - When a C-band portion is assigned for IMT in city centres, full FSS use can continue in rural and suburban areas - a separation distance of 5 km would typically be required
  - Several markets already use the band for both services - including an LTE service in the UK
- **Benefits of IMT in part of C-band exceed costs by approximately 8 times in APAC**
- **London & Shenzhen would receive an additional U$440 million in economic benefits**
  - A capacity crunch could occur in Shenzhen around 2020 without C-band IMT spectrum

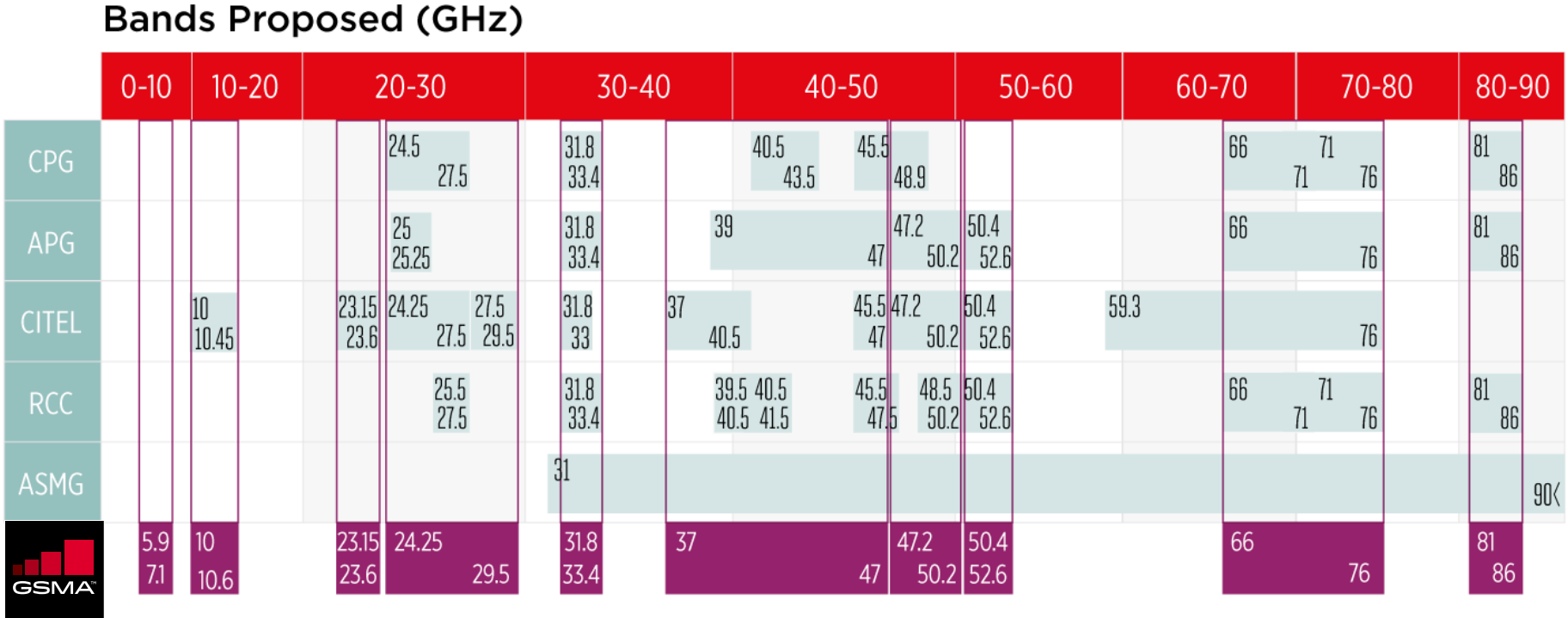
**IMT IN THE C-BAND IN APAC WOULD DRIVE 100K NEW JOBS AND DRIVE US$53 BILLION IN GOVERNMENT REVENUES**



# Enable the future of IMT: AI 10

## IMT 2020 WILL RELY ON MUCH WIDER MOBILE BANDS

- WRC-19 Agenda Item needed for IMT identification > 6 GHz



# Let's secure the future of mobile at WRC-15

## FUTURE OF MOBILE IN APAC IS AT RISK WITH CURRENT WRC POSITION

- **Mobile traffic is growing faster than anyone's expectations**
  - 2014-2019: 10x traffic growth currently expected in APAC
- **Region 3 has more to lose than other regions**
  - Very high mobile spectrum requirements due to large, densely populated cities
  - Most telecom equipment and devices built in APAC - so worst affected by slowdown
- **Significant economic benefits of mobile at risk in APAC**
  - Mobile contributed US$1tn in 2014 (4.7% GDP), rising to US$1.8tn in 2020 (5.9%)
- **Flexibility is essential to allow countries to react to their evolving situations**
  - New bands won't be licensed to operators until governments see clear demand
  - Advanced markets who use bands first drive lower-cost devices for those using later


GSMA
Any questions?