# The European Defence Agency

## Synergies and challenges between Defence and Security (PPDR) applications. What implication for the EU ?

*PSC Europe Conference- 7-8 June 2011*

PSC Europe
Public Safety Communication Europe

*Disclaimer: The views expressed are those of the author and were developed within the EDA Project Team on Radio Spectrum. They cannot be considered as stating an official position of the EDA or the participating Member States*


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# EDA - Mission and functions

# Capabilities - Capability Development Plan (CDP)

## CDP Top 10 Priorities

- Counter-IED
- Medical support
- Intelligence Surveillance Recce
- Cyber Defence
- Increased Availability Helicopters
- Multinational Logistic Support
- CSDP Information Exchange
- Airlift Management
- Fuel and Energy
- Mobility Assurance

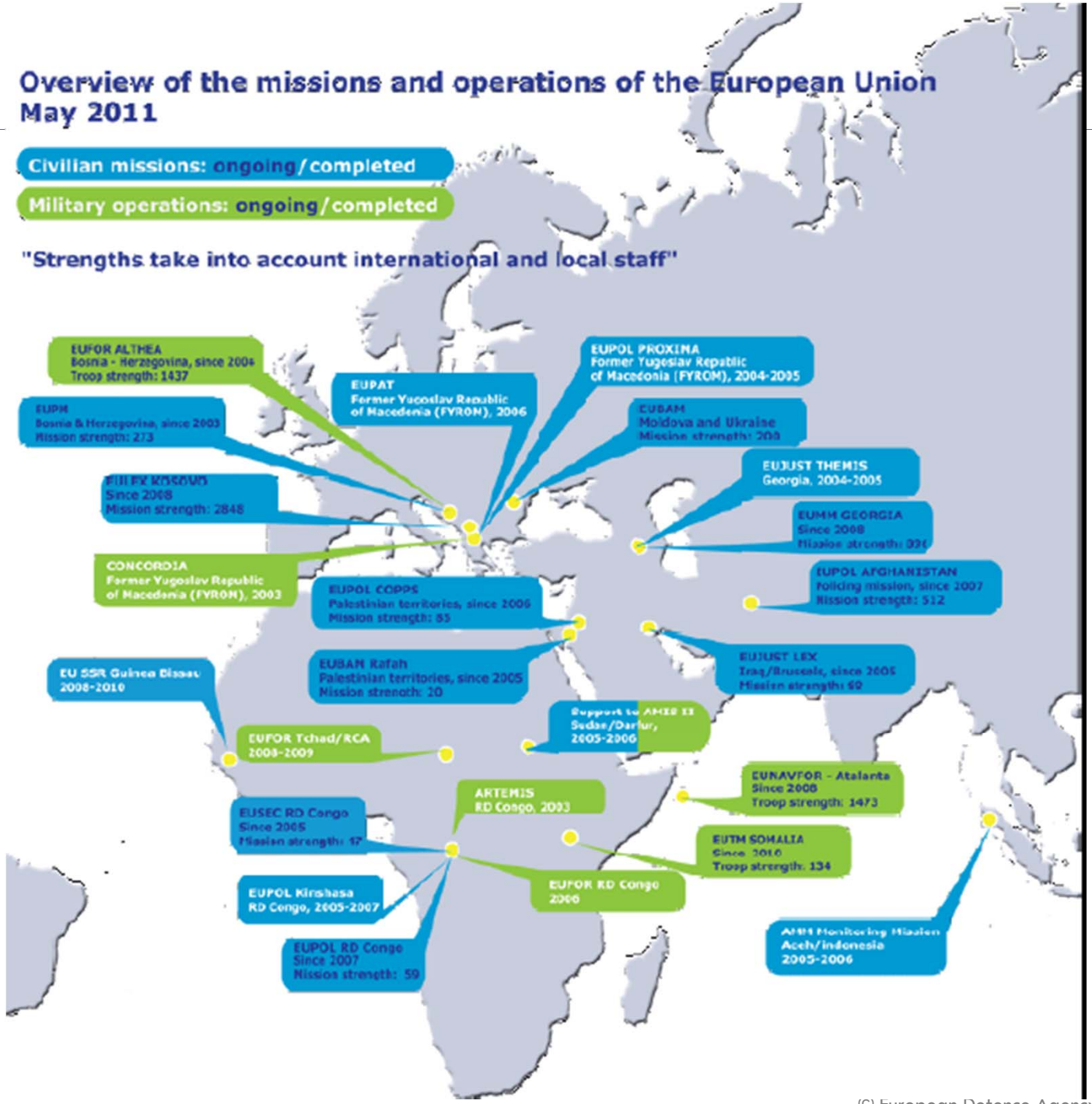
## Maturing / Mature Actions

- Maritime Mine Counter Measures
- Chemical Bio Rad Nuclear
- C-Man Portable Air Def Systems
- Human Intelligence

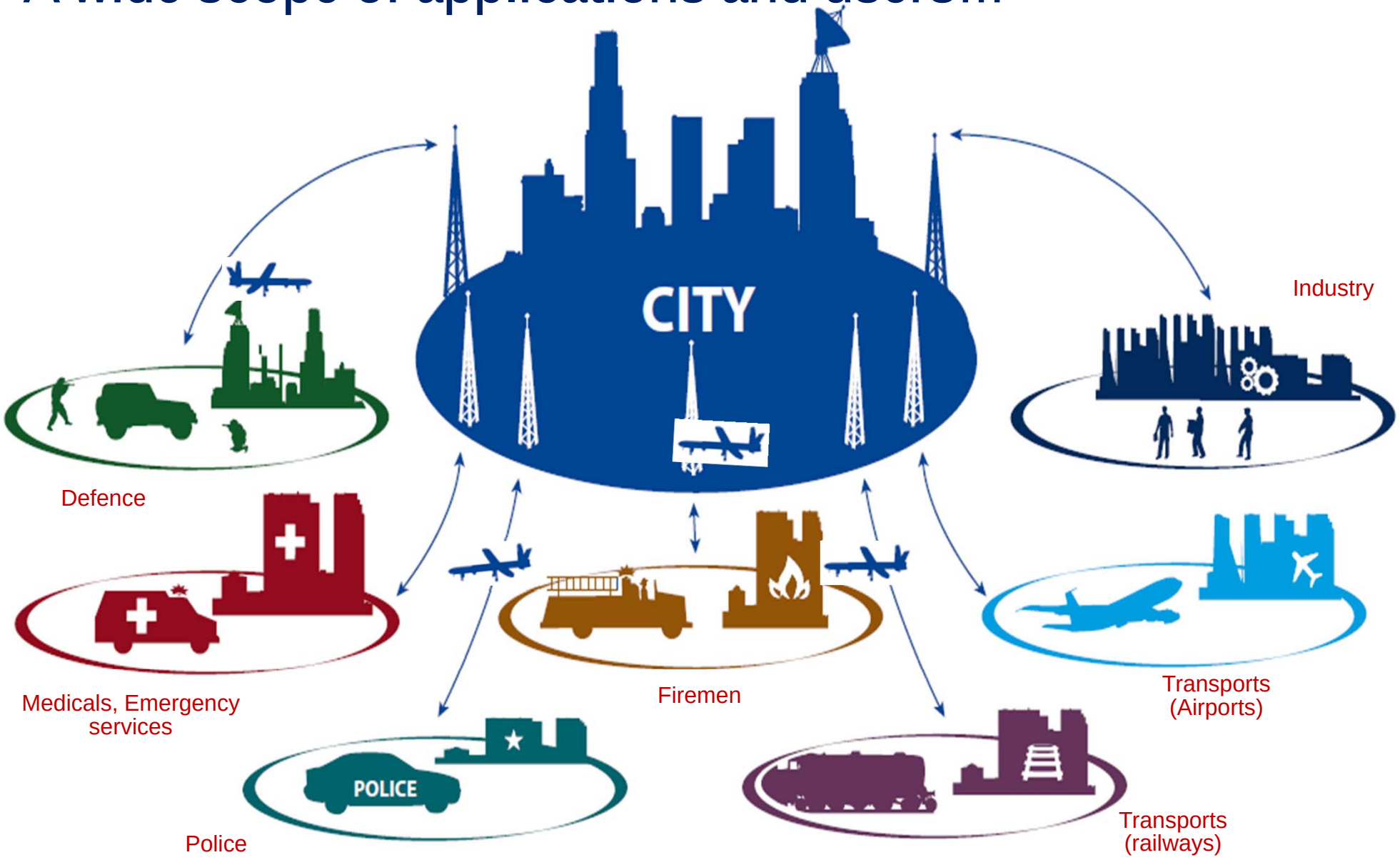
## Core Drivers / Environment

- Comprehensive Approach
- Network Enabled Capability
- Radio Spectrum Management
- Space
- Single European Sky

# Overview of the missions and operations of the European Union
## May 2011



# A wide scope of applications and users…

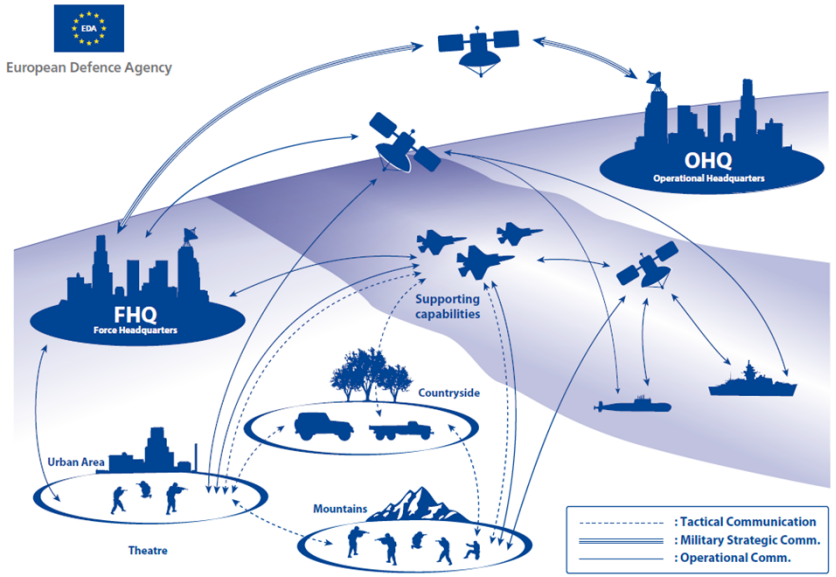


# Similarities between Defence and Disaster relief missions

- Deployment scenarios
  - Serious disruption of expected functionalitites
    - Transport , Supplies, Infrastructure
  - Remote area, no communication
  - Cross border/multi national teams
  - High request for interoperability
  - No remaining infrastructure (disaster)
  - Congestion or no use of commercial networks
  - Adhoc network/ permanent infrastructure

- C&C chain of command
  - Need to receive information on the operational environment,
  - Need for the decision maker to watch operation (live feed),
  - Need to decide and emanate orders
  - Need to assess the evolution of the operational situation after decision

- High expectations from Public, Politicians and Media
- Capability driven rather than market driven
- Need for Voice, Data and VTC (Video conference)



# PPDR/PMR context

Context: Need for broadband access (more data) and enhanced interoperability
- Primary focus on radio spectrum issues

- Growing interest for this topic
  - LEWP-RCEG initiative (Law Enforcement)
  - Mention of PPDR in the draft RSPP
  - Creation of a PT dedicated to Broad Band PPDR in CEPT WGFM (FM PT49)
  - Set of workshops and conferences

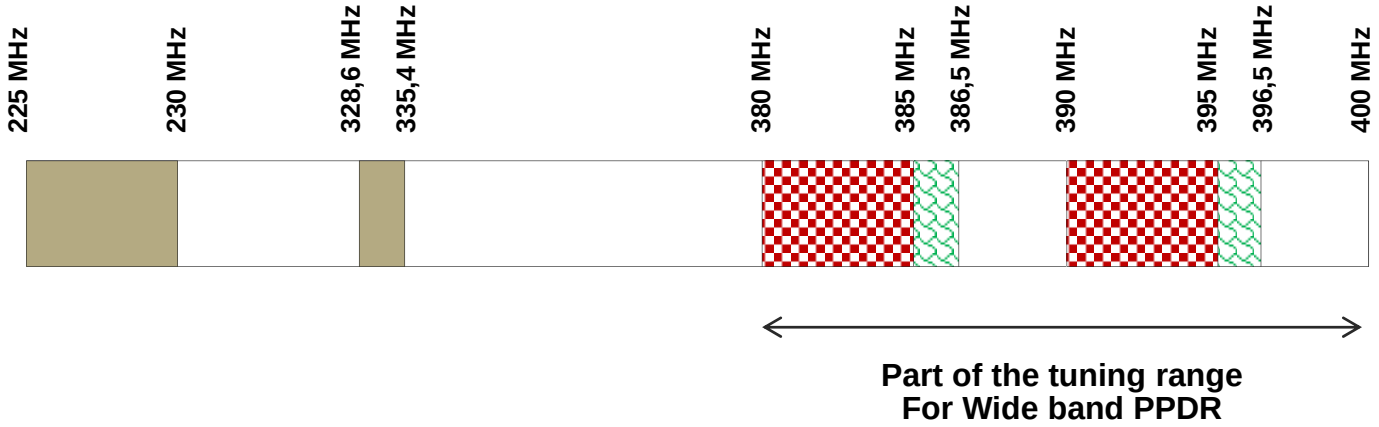
- Current regulations
  - ECC Decision (06)06: Narrow band PMR (<25 KHz)
  - ECC Decision (04)06: Wide band PMR (>25 KHz)
  - ECC Decision (08)05: PPDR (NB and WB)
  - ECC Rec (08)04: BBDR

- Large variety of standards never compatible or interoperable
  - Narrow band : DMR, TETRA, TETRAPOL
  - Wide band: TEDS, TAPS, TETRA, CDMA

❑ Question: Is the radio spectrum issue the main driver for wide band PPDR?

# Frequency issues

- 225-400 MHz band
  - Harmonised military band (Allotments and assignments by NATO)
  - AGA (Air Ground Air) assignments by NATO
  - Large scope of applications (Land, Maritime, Aeronautical, SatCom…)
  - THE band for tactical links in defence operations and safety mission in EU




**Narrow band PPDR/Emergency services (<25 KHz channel)**

**Military PMR(<25 KHz channel)**

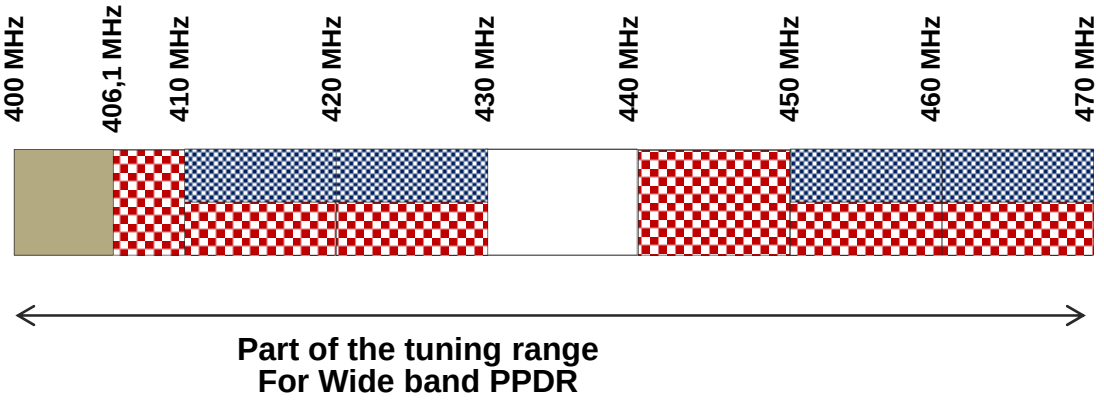
**Civil use (T-DAB; ILS)**

**Military use (Land, Maritime, Aeronautical, SatCom…)**

***Note: there might be national specificities***

# Frequency issues

- 400-470 MHz band
  - Core band ('tuning range') for PMR and PPDR applications
  - ECC report 102 highlights the band 380-430 MHz for wide band PPDR
  - Different national solutions implemented so far




**Narrow band PMR (<25 KHz channel)**

**Wide band PMR (>25 KHz channel)**

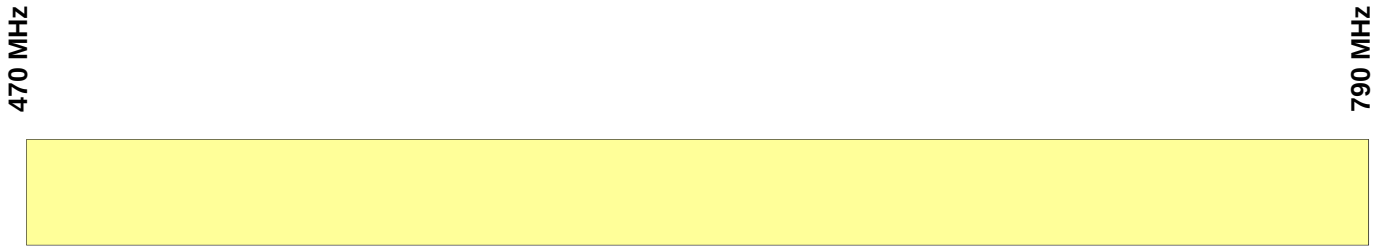
**Civil use (MetAids)**

**Other use (Radars, Radio amateur…)**

***Note: there might be national specificities***

# Frequency issues

- 470-790 MHz band
  - Broadcasting band (Digital TV, PMSE, other national use)
  - Scope for a second digital dividend
  - Business case for a broadband network for public users?

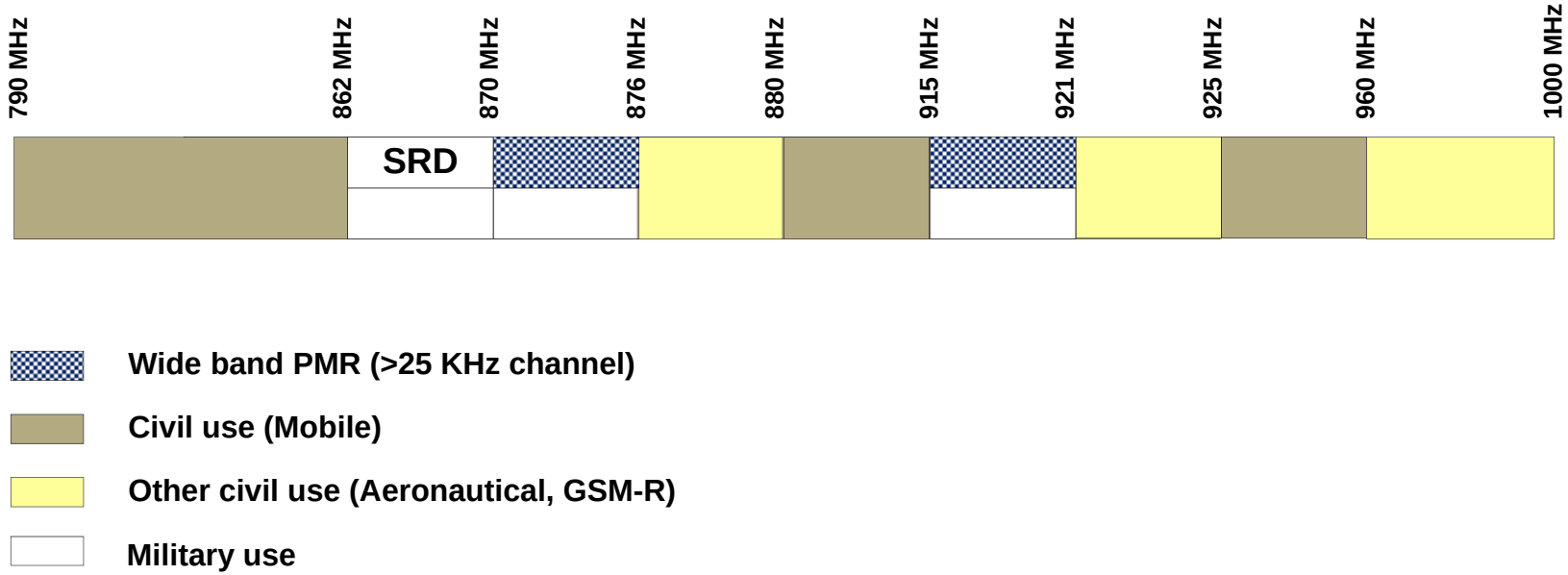



**Civil use (Broadcasting)**

***Note: there might be national specificities***

# Frequency issues

- 790 MHz-1 GHz band
  - First digital dividend (790-862 MHz)
  - SRD core band (863-870 MHz)
  - GSM-R, Aeronautical bands
  - Mobile network (ex-GSM bands)
  - No real PMR use reported (CEPT questionnaire)




***Note: there might be national specificities***

# Observations on spectrum allocations

| Frequency band | Narrow band | Wide band | Broad band |
|---|---|---|---|
| 68-87,5 MHz | X | | |
| 146-174 MHz | X | | |
| 380-385 MHz/ 390-395 MHz | X | X | |
| 406,1-410 MHz | X | | |
| 410-430 MHz | X | X | |
| 440-450 MHz | X | | |
| 450-470 MHz | X | X | |
| 970-876 MHz/ 915-921 MHz | | X | |
| 5150-5250 MHz | | | X (DR) |

- **Competing access to the bands below 1 GHz**
  - **Mobile broadband**
  - **TV**
  - **Broadband PPDR**
  - **Military needs (tactical communications, radars…)**
  - **Others (SRD, GSM-R…)**
- **Particularities of PPDR/PMR applications**
  - **large amount of frequencies available (HF, VHF and UHF)**
  - **Various standards and technologies available (TETRA, TETRAPOL, TEDS, TAPS, CDMA…)**
- **Lessons learned on how to accommodate evolving technology and needs**
  - **Digital switch over (Regional plan)**
  - **GSM refarming (WAPECS and technology neutral approach)**
  - **National initiative (French shared infrastructure INPT)**

**Evolution of needs for Security and Defence is not different from the mobile sector**

**We need to be creative to accommodate all needs**

# Conclusions

- SYNERGIES: Some similarities between Security and Defence applications.
  - Similarities for some deployment scenarios and topologies
  - Complementary action in the EU framework
  - Need for broadband access for PPDR and Tactical communications
  - Governance

- Main difference is on the set of equipments/standards
  - Military R&T activities focus on SDR and common waveform
  - Multiple standards implemented nationally for PPDR/Civil PMR

- CHALLENGES: Need for a strategy
  - Radio Spectrum is not the main issue
  - Harmonise standards and procedures
  - Business case
    - Public infrastructure and network
    - Sharing with the military?
    - Access to commercial network
  - Safeguard the spectrum requirements for military needs
  - NEC dimensions?
  - Satellite component ?

**Proposal**: A European Task Force to develop a strategy and roadmap for the introduction of broadband communications for defence and security purposes (not limited to wireless access policy)

- Involving all EU stakeholders and relevant organisations
- Involving EU Member States (Defence and Security)
- Involving industry

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