



NMHH

Nemzeti Média- és Hírközlési Hatóság

Spectrum outlook

2016-2020

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Deputy director general

21. November 2016.

- HNG became member of the EU in 2004.
- HNG implemented the EU's directives (including parts about electronics communications)
- HNG actively participates in shaping and implementing the common radio-spectrum policy

Main pillars:

- Regulation
- Policies

- Strategy for 5-year periods
 - 2011-15*, **2016-20**
- Defining the strategic tasks of spectrum management
 - National interests
 - International commitments (ITU, CEPT, EU, etc.)
- Changing domestic and international environment (economic, social and user environment, habits of consuming media)
- Economic, social policy, technological and regulatory trends

* The first strategy which handles civil and non-civil fields together.

Methodology

- Internal interviews with the administration experts (authorities and the ministries).
- External interviews with the service providers and their associations.
- Workshop with civil and non-civil frequency users or with their associations.



Highlighted target areas

1. Satisfying increasing needs for mobile broadband
2. Satisfying needs for audiovisual terrestrial broadcasting and digitalization
3. Satisfying needs for narrow and broadband PPDR applications
4. Preserving the values of non-civil radiocommunications and satisfying their needs
5. Shared or collective spectrum use
6. Supporting the early adoption of modern, innovative technologies
7. Ensuring efficient, high quality spectrum management
8. Establishing a flexible and open system of institutions, serving communicational tasks at a high level
9. Satisfying spectrum needs in a constantly changing socio-economic environment
10. Ensuring interference-free usage and carrying out measurements related to spectrum management
11. Securing the legal frames of spectrum-management at a high level, the constant modernization of the regulation, the effective representation of national interests

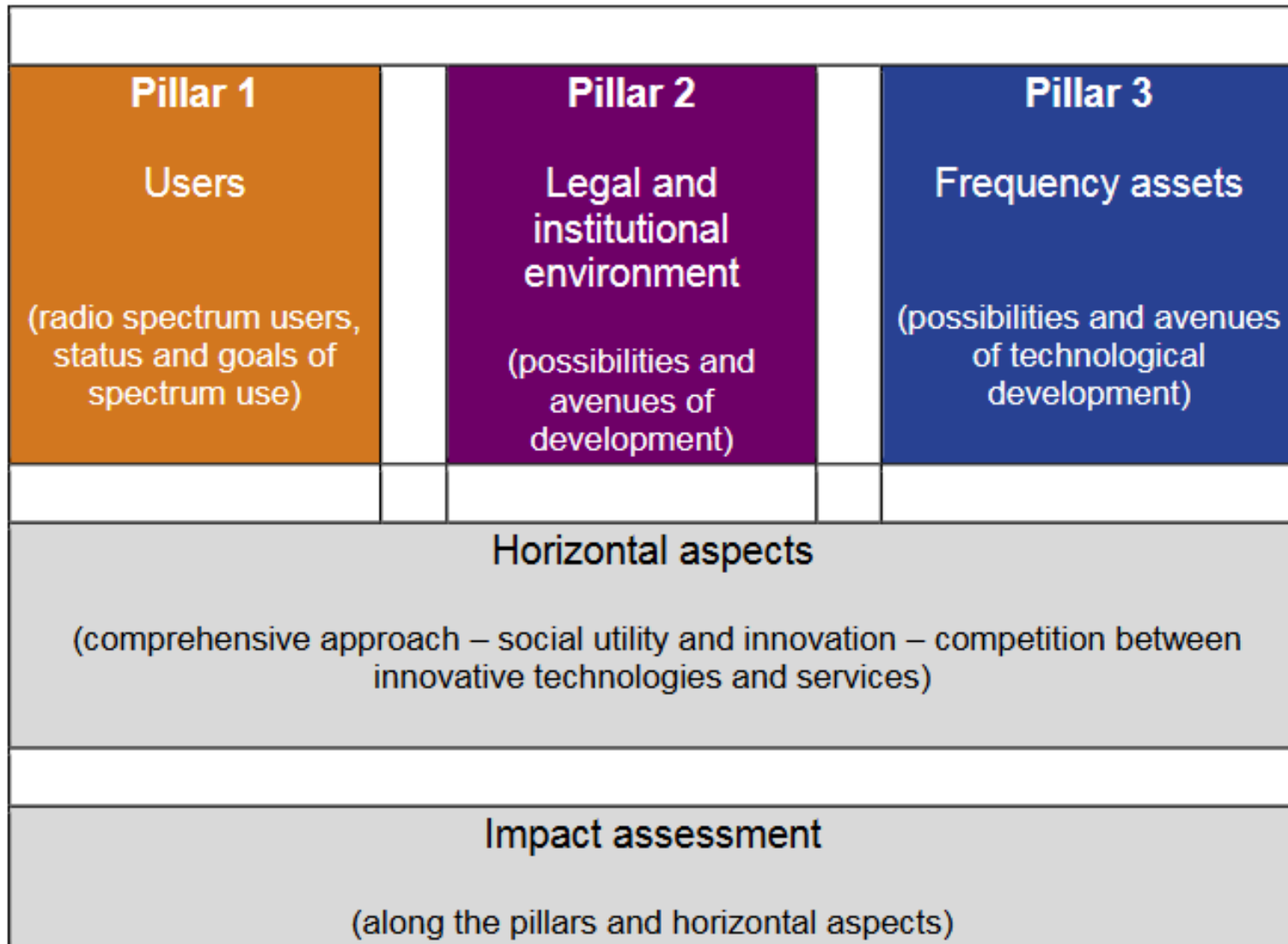
Main challenges until 2020

1. Necessary to harmonize the spectrum needs of mobile services with the frequency needs of terrestrial TV broadcasting
 - On the basis of EU regulations and the resolutions of WRC-15
 - Considering domestic needs and interests
2. Necessary to urge the development of the national telecommunications infrastructure and innovation more powerful than before
 - promoting the development of infocommunication
 - keeping pace with developing wired technologies
 - complex sales models, multi-band, return of spectrum
 - Phasing out obsolete technologies
 - urging early adoption as needed
 - public databases (<http://stir.nmhh.hu/?lang=2>), enhancing transparency
 - strengthening the facility of measurements (<http://szelessav.net/>)

Main challenges until 2020

3. Providing a sufficient spectrum for PPDR applications
 - Ensuring the future for narrow band use (EDR, voice, at least another 10 years)
 - Getting prepared for the broadband needs harmonized way
 - Serving broadband, and broader band needs, sales of 700 MHz, the future of the regulation of 410-430 MHz and 450-470 MHz bands
4. Necessary to secure the main regulatory framework for modern spectrum management
5. Necessary to secure the possibility of using the spectrum free of harmful interference
 - Authority acts as a mediator
 - Strategy of measurements
6. Necessary to secure the increasingly effective management related to the spectrum
 - Shared use, LSA
 - Secondary trading
 - Fees (the value of the spectrum, non-civil bands)

Pillars of strategy



1. Securing and providing for use the radio spectrum necessary for the further dynamic development of mobile services and mobile broadband services.
2. Providing radio spectrum necessary for TV and radio broadcasting, the continuous development of broadcasting and its digitization, and to meet their requirements at country, regional and local level.
3. Satisfying frequency needs necessary for the operation and development of PPDR applications
4. Satisfying frequency needs for development of non-civil radiocommunications
5. Supporting the early introduction of modern and innovative technologies



Legal and institutional system

1. Supporting the early introduction of modern, innovative technologies
2. Continuously providing the legal frameworks and conditions related to the field of spectrum management at a high level
3. Providing the harmonization tasks related to the field of spectrum management at a high level
4. Providing the communicational tasks related to the field of spectrum management at a high level
5. Measurement activities supporting spectrum management, continuously following technological development with improvements
6. We need make the system of institutions of spectrum management more flexible and more open toward users, consumers and the whole industry, it is necessary to preserve its domestic and international reputation and high quality

Frequency set

1. Providing sufficient spectrum to satisfy the ever-changing social-economic spectrum demand
2. Primary goal: to secure the quality of the radio spectrum and its interference-free use
3. Continuous modernization of the regulations assisting the efficient use of the radio spectrum, while improving the conditions of its operation and securing the operation itself

Devices needed to carry out the strategy



Regulatory system

- Between 2017-18 new telecommunications framework directive
- Short run
 - rethinking the fee decree
 - on the basis of experience the possible modification of the decree regarding secondary trade
 - innovative frequency auction model (incentive)
 - introducing fees in new cases (e.g. Aero CGC)

Ways of promotion

- Fee allowances
 - complete exemption from fee paying
 - band fee allowance for investment
 - fee allowance for frequency use
- Incentive fees (for efficiency)
 - in non-civil cases
- Tenders
 - provided they are allowed by EU regulations and electronic telecommunication rules (e.g. innovative technologies)

Monitoring and system of institutions

- Work plan
 - time-proportional tasks
 - Status report done before May 31st annually

Financial effects

- Maximizing social and economic usefulness at the same time
- Assessing the value of the radio spectrum and state assets
- Predictability of revenues for budget and NMHH
 - fee decree
- Necessary
 - knowledge the current market value of bands
 - sales schedule

Sales schedule

Radio spectrum - sales schedule	3400-3800 MHz	1452-1492 MHz	2300-2400 MHz	700 MHz	2100 MHz	2600 MHz	26 GHz
Mode of sales	Auction	Tender	Tender	Tender	Tender	Tender	Tender
Band segments to be sold	3410-3590 MHz 3600-3800 MHz	1452-1492 MHz band	?	703-733/758-788 MHz; and max 4X5MHz (738-758 MHz)	1965-1980/2155-2170 MHz or 1920-1980/2110-2170 MHz	2600-2615 MHz	24549-24605/25557-25613 MHz; 25249-25445/26257-25453 MHz
Possible ways of utilizing the band (applications)	MFCN (3410-3590 MHz FDD, 3600-3800 MHz TDD)	MFCN - SDL	LSA MFCN/PMSE	MFCN + ?SDL?	MFCN	MFCN	digital point-point, point-multi point
Date of liberation				September 5, 2020			April 30, 2019
Date of opening				September 5, 2020			April 30, 2019
Date of sale	Q 1 2016	Q 2 2018 -2019	Q 2 2018 -2019	Q 2 2018 -2019	Q 2 2018 -2019	Q 2 2018 -2019	Q 2 2018 -2019



NMHH

National Media and Infocommunications Authority

**National Media and
Infocommunications
Authority**

Spectrum Strategy 2016-2020

SUMMARY

Prepared by: NMHH
August 2015 - May 2016



http://english.nmhh.hu/dokumentum/170996/rss_nmhh_2016_komm_fin.pdf

NEMZETI FREKVENCIA-FELOSZTÁS

HUNGARIAN FREQUENCY ALLOCATIONS

RÁDIÓSZOLGÁLATOK SZÍNJELEZÉSEI RADIO SERVICE COLOR LEGEND

	1. KÖZLEKEDÉSI SZOLGÁLTATÁSOK (COMMUNICATION SERVICES)		10. RÁDIÓAMATŐR SZOLGÁLTATÁSOK (AMATEUR RADIO SERVICES)		19. RÁDIÓKÉP-ÉS RÁDIÓTELEVÍZIÓS SZOLGÁLTATÁSOK (RADIO AND TELEVISION BROADCASTING SERVICES)
	2. MÉRÉSI SZOLGÁLTATÁSOK (MEASUREMENT SERVICES)		11. RÁDIÓKÉP-ÉS RÁDIÓTELEVÍZIÓS SZOLGÁLTATÁSOK (RADIO AND TELEVISION BROADCASTING SERVICES)		20. RÁDIÓKÉP-ÉS RÁDIÓTELEVÍZIÓS SZOLGÁLTATÁSOK (RADIO AND TELEVISION BROADCASTING SERVICES)
	3. RÁDIÓKÉP-ÉS RÁDIÓTELEVÍZIÓS SZOLGÁLTATÁSOK (RADIO AND TELEVISION BROADCASTING SERVICES)		12. RÁDIÓKÉP-ÉS RÁDIÓTELEVÍZIÓS SZOLGÁLTATÁSOK (RADIO AND TELEVISION BROADCASTING SERVICES)		21. RÁDIÓKÉP-ÉS RÁDIÓTELEVÍZIÓS SZOLGÁLTATÁSOK (RADIO AND TELEVISION BROADCASTING SERVICES)
	4. RÁDIÓKÉP-ÉS RÁDIÓTELEVÍZIÓS SZOLGÁLTATÁSOK (RADIO AND TELEVISION BROADCASTING SERVICES)		13. RÁDIÓKÉP-ÉS RÁDIÓTELEVÍZIÓS SZOLGÁLTATÁSOK (RADIO AND TELEVISION BROADCASTING SERVICES)		22. RÁDIÓKÉP-ÉS RÁDIÓTELEVÍZIÓS SZOLGÁLTATÁSOK (RADIO AND TELEVISION BROADCASTING SERVICES)
	5. RÁDIÓKÉP-ÉS RÁDIÓTELEVÍZIÓS SZOLGÁLTATÁSOK (RADIO AND TELEVISION BROADCASTING SERVICES)		14. RÁDIÓKÉP-ÉS RÁDIÓTELEVÍZIÓS SZOLGÁLTATÁSOK (RADIO AND TELEVISION BROADCASTING SERVICES)		23. RÁDIÓKÉP-ÉS RÁDIÓTELEVÍZIÓS SZOLGÁLTATÁSOK (RADIO AND TELEVISION BROADCASTING SERVICES)
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NEMZETI FELOSZTÁS JELLEGE: ACTIVITY CODE

POLGÁRI (CIVIL)
NEM POLGÁRI (NON-CIVIL)
EGYÜTTES (CIVIL + NON-CIVIL, COMMON)

A SZOLGÁLAT JELLEGE: ALLOCATION USAGE DESIGNATION

1. Általános	2. Működés	3. Rádióamatőr
4. Távközlés	5. Működés	6. Rádióamatőr
7. Távközlés	8. Működés	9. Rádióamatőr
10. Távközlés	11. Működés	12. Rádióamatőr

A grafikus jelölés két színnel a nemzeti felosztásokról ad tájékoztatást.
The color allocation is indicated by the colors in the national frequency allocation.





**Thank you for your
attention**