

Workshop

Basic and supplementary measures and anticipated effects

15 - 17 February 2016
ECRAN 61384

Integration of National Water Retention Measures in river basin management



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Structure of the presentation

- **NWRM definitions**
- **EU policy context**
- **NWRM aims**
- **EU Blueprint and NWRM**
- **NWRM classification**
- **Key issues PoM**
- **Policy synergies**
- **NWRM financing**
- **NWRM examples**



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Natural Water Retention Measures definitions

- NWRM: measures aiming to restore and maintain water related ecosystems through natural means
- NWRM: green infrastructures intended to:
 - maintain and restore landscape, soils and aquifers in order to improve their natural properties and services they provide for water flow and quality regulation
 - to reduce vulnerability to floods and droughts
 - support climate change adaptation

NWRMs are living systems adjusted to the local context



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EU policy context

EU policy to support the NWRM realization

WFD

Nitrates Directive

CAP Health Check

An information package "Towards Better Environmental Options in Flood Risk Management" communicated by the Commission to Water Directors highlighting the role and benefits of Natural Flood Risk Management (2011)

The White Paper on Adaptation to Climate Change suggesting that "working with nature's capacity to absorb or control impacts in urban and rural areas can be a more efficient way of adapting than simply focusing on physical infrastructure(2011)

The Blueprint to safeguard Europe's water resources" (2012) => The New CIS work- programme Green Infrastructure Communication (2013)

Climate Change Adaptation Strategy (2013)

The Green Infrastructure Communication (2013) suggested that support is needed for strategic planning and management of natural areas to deliver multiple ecosystem services and contribute to water management and reduction of flood and drought risks



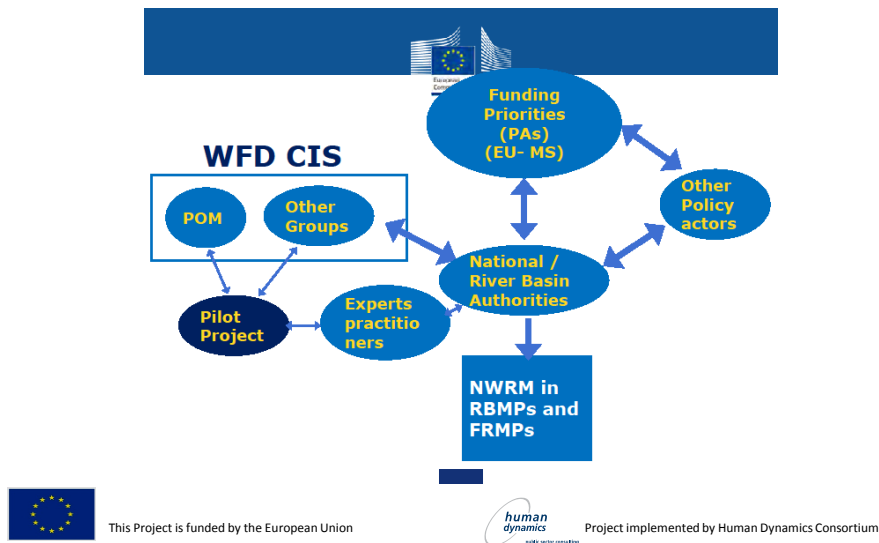
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WFD Common Implementation Strategy

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NWRM aims

- reduce impact of diffuse pollution
- regulate the flow regime in natural pattern and reduce vulnerability to Climate Change
- restore the deteriorated morphological element on the riparian area and the floodplain,
- improve water status (surface and groundwater) (incl. DW, BW)
- support Natural Flood Risk Management

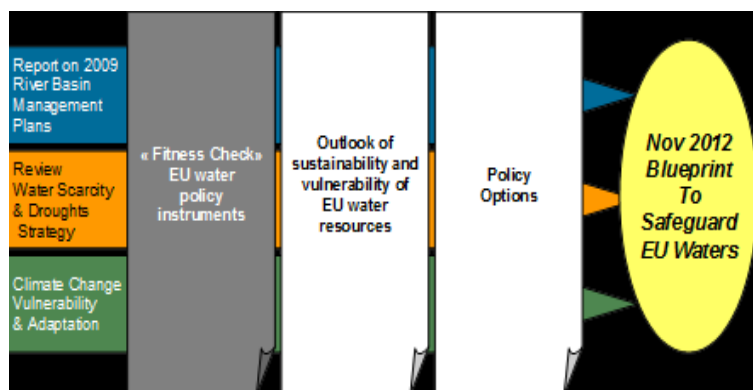


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EU Blueprint (1)



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EU Blueprint (2)

Major challenges: flood, water scarcity and drought
Blueprint IA: NWRM implementation to improve water resource efficiency and sustainability

Categories

- **water efficiency measures**
- **alternative water supply sources**
- **natural water retention measures.**



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EU Blueprint (3)

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Stresses the importance of green infrastructures for reducing the impacts of floods, droughts, and land use related pressures

- Proposes that Member States expand green infrastructures using the River Basin Management Plans that require an **integrated approach to managing water resources** across policy areas and sectors.
- NWRM to be supported by: The Commission developed with CIS tools for facilitating NWRM uptake in the next RBMPs and FRMPs
- To prioritise funding of natural infrastructures and ecosystem based adaptation for the water sector in the ESIF
- Use conditionalities, such as greening of the CAP



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EU Blueprint (4)

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The CIS work program took into account the Blueprint proposals (in relation to the structure and deliverables)

• Working Group PoM and deliverable on CIS

- Launched Pilot Project: "Integration of Natural Water Retention Measures in river basin management"
- Commission draws attention to the inclusion of green infrastructure in the Partnership Agreements negotiated with Member States (funding priorities for the next 7 years are being identified)
- Encourage synergies with other EU policies exploited



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EU Blueprint (5)

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NEW CIS Work Programme

- **Strengthening the implementation of EU water policy through the second river basin management plans**
- The Water Blueprint 2012 identified serious implementation **gaps** and delays as well as actions that need to be taken to speed up the achievement of the WFD 'good status' objective.
- Building on the successful co-operation of the past decade, water directors endorsed the new CIS Work Programme (WP) 2013-2015



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EU Blueprint (6)

The Water Blueprint's time horizon is closely related to the **EU's 2020 Strategy** and, in particular, to the **2011 Resource Efficiency Roadmap**, of which the Blueprint is the water milestone.

The Blueprint covers a longer time span, up to 2050, and is expected to drive EU water policy over the long term.



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NWRM classification

- **Classification of NWRMs (Stella Report, 2012)**
- **Rivers, lakes and their wetlands;** wetland restoration and creation, floodplain restoration, re-meandering, natural bank stabilisation, basins and ponds, restoration of lakes
- **Aquifers;** artificial groundwater recharge (AGR)
- **Agriculture;** restoring and maintaining meadows and pastures, buffer strips, soil conservation crop practices (crop rotation, strip cropping, intercropping, interlayer crops), no or reduced tillage, green cover, early sowing, traditional terracing
- **Forestry and pastures;** continuous cover forestry, maintaining and developing riparian forest, afforestation of agriculture land
- **Urban development;** filter strips and swales, permeable surfaces and filter drains, infiltration devices, green roofs



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Where we can use NWRM in the PoM?

Expected contribution from NWRMs for the PoM

- NWRMs might be cost-effective alternatives to be considered as part of the RBMP programs of measures
- They can help meet RBMP aims as stated in the WFD, the FD, the Strategy for Water Scarcity and Droughts, climate change adaptation, sustainable urban development
- NWRMs might yield important direct benefits relevant for water management
- NWRMs come along with other significant benefits



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Key issues when we use NWRM in the PoM (1)

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- Not every measure that increases the water stored in water bodies is an NWRM
- NWRMs are interventions over water related ecosystems - the result of actions taken directly over soil, an aquifer, a floodplain, a forest or any other element that regulates the water cycle
- NWRMs use natural processes - functions commonly performed by nature that slow down water flows, increase infiltration rates, control storm flows, store water, reduce pollution loads
- Natural water retention relevant for water resource efficiency and sustainability



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Key issues when we use NWRM in the PoM (2)

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- NWRM - a process to adapt existing developments in order to enhance or recover the water regulation functions provided by them that were reduced or lost when these developments took place
- Sometimes NWRM restoration may recover the original structure (e.g. floodplain recovery), sometimes they may recover the lost functions but not the original structure delivering them in the past
- Restoration might also be the creation of new “ecosystems” (e.g. green-roofs) to perform “ecosystems functions” not previously performed by nature (water retention in the plain to avoid the flood reaching a large city for example).



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Synergies with other policies

NWRM have Links with other Policies

Env. Policy: Biodiversity Strategy, Nature 2000, Habitats Directive, LIFE, Soil Strategy

WFD

Nitrates Directive

Climate Change Adaptation Strategy

Forest Strategy

Regional Policy: Cohesion Funds, ERDF

Agricultural Policy: CAP, EAFRD

Research and Innovation funds



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NWRM financing

Promote NWRM in European Structural and Investment Funds (ESIF) (Partnership Agreements)

CAP Pillar I – (conditionality)

Research and Innovation Funds

LIFE

Other financial instruments e.g. EIB



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Financing potential through European Structural and Investment Funds (ESIF)

- Legislative package framing cohesion policy for 2014-2020
- EU investment is targeted on Europe's long-term goals for growth and jobs ("Europe 2020") and sustainable development
 - *ESI Funds:* European Regional Development Fund (ERDF)
 - the Cohesion Fund (CF)
 - the European Agricultural Fund for Rural Development (EAFRD)
 - the European Social Fund (ESF)
 - European Maritime and Fisheries Fund (EMFF)



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Projects as examples of Green Infrastructure elements

LIFE projects which have restored flood plain ecosystems and at the same time contributed to flood prevention

- Prevention of flooding by grassland protection (Belgium)
- Removal of obstacles to flooding such as poplars and maize crops through land acquisition
- Restoring the Danube's natural river dynamics
- Removal of bank stabilization and reconnection of stagnant waters on the floodplains with the river
- Wise use of floodplains (UK)
- Sustainable management of floodplains, focus on stakeholder participation
- Establishing a European Centre for River Restoration
- River restoration to satisfy WFD requirements for quality and quantity



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Case study Swedish project on NWRM

Case study	Measures	NWRM/WFD
Construction of bank protection to prevent erosion of salt marshes	Dam to stop erosion	NWRM?; WFD?
Restoration of a brackish water reduced tidal area	Installation of a culvert for exchange between salt and freshwater habitats	NWRM; WFD
Habitat creation	Creation of breaches in the sea wall to open the site to tidal action	NWRM; WFD
Fish way	Installation of behavioral barrier and fish pumping stations	NWRM; WFD
River restoration	Renaturalization of the river	NWRM; WFD
Creation of side channels along Rhine	3 side channels created, rehabilitation of riparian zone	NWRM; WFD



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Wetlands in the DRB (1)

AT: National parks "Lake Neusiedl-Seewinkel" (9.064 ha) and "Donau-Auen" (9.323 ha). Nature and landscape protection area

HU: The remediation of the existing wetlands are subsidized by the frame of the Environment and Energy Operational Programme (KEOP)

BG: In 2011 the national list with wetlands of international importance extended with "Karst Dragoman marsh complex" with a total area of 14,967 ha, which includes some of the last preserved karst marshes in Bulgaria.

Project Wetlands Restoration - physical restoration of the wetlands in the two protected areas.



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Wetlands in the DRB (2)

SI: Wetlands conservation - BioMura project
connecting main river with side branches, introduction
of sustainable alluvial forest maintenance. The Mura
river space is among the richest ecosystems in Slovenia.



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Wetlands in the DRB (3)

MD: WB Project Agricultural Pollution Control (2004-2009) restored wetlands:
6.6 ha (Sarata-Rezesi site);

the program of restoration included the introduction of nutrient filtration
through hydrologic enhancement practices, improved water quality
monitoring, and a tree planting sub-program.

UA: Black Sea region of Ukraine has 600,000 ha of wetlands.

Danube plavni - international importance

Programs of rehabilitated systems in Lower Danube (Ireland's Tatarin,
Ermakov, lakes Katlabukh, Saf'yany) ongoing in cooperation with Wild World
Fund.

About 12 000 ha (33 objects) will be restored at performance of the Tizsa
RBMP.



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Demo project: Making space for water in the Bodrog River Basin (HU-SK-UA)



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Wetlands in the DRB (5)

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UNDP GEF MSP Integrating multiple benefits of wetlands and floodplains into improved transboundary management for the Tisza River Basin

Good example of floodplain restoration - create temporary “space” for water during flood events.

Benefits: improved habitats conditions (related to water regime and water quality, and agricultural use, nutrient retention and /or removal etc.).



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NWRM: Wetlands costs

Investment costs very site specific (water treatment, flood protection)

€150k to €400k/ha

Opportunity costs ~ loss in agricultural production

Scheldt project (Belgium) – loss of agricultural land estimated as €30k/ha

Restoring costs



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Maintenance costs: low but on long term

NWRM: Wetlands benefits for water resources management

Integral component of WFD

Cross cutting measures, relevant to different policy domains – WFD, Natura2000, CAP, European Marine Strategy, Floods Directive

Increase water storage, contribute to groundwater replenishment and attenuate run-off.

Contribute to improved water quality
Represent a biodiversity value themselves.



Provide important ecosystem services such as:

Controlling water quality, water retention, flood prevention, soil protection and controlling sedimentation.

Nutrient reduction

Drought reduction

Flood risk reduction

Groundwater recharge

Supporting wildlife habitat in riparian areas Natura 2000

Tourism and recreation

Evidence shows the wetlands are the most effective measures



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Thank you!



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