

3. PRESENTATION OF THE NBS CATALOGUE

Nature-based Solutions for water resources

- Mr. Maxime Fouillet
OiEau

Implementing partners



Co-funded by

With funding from

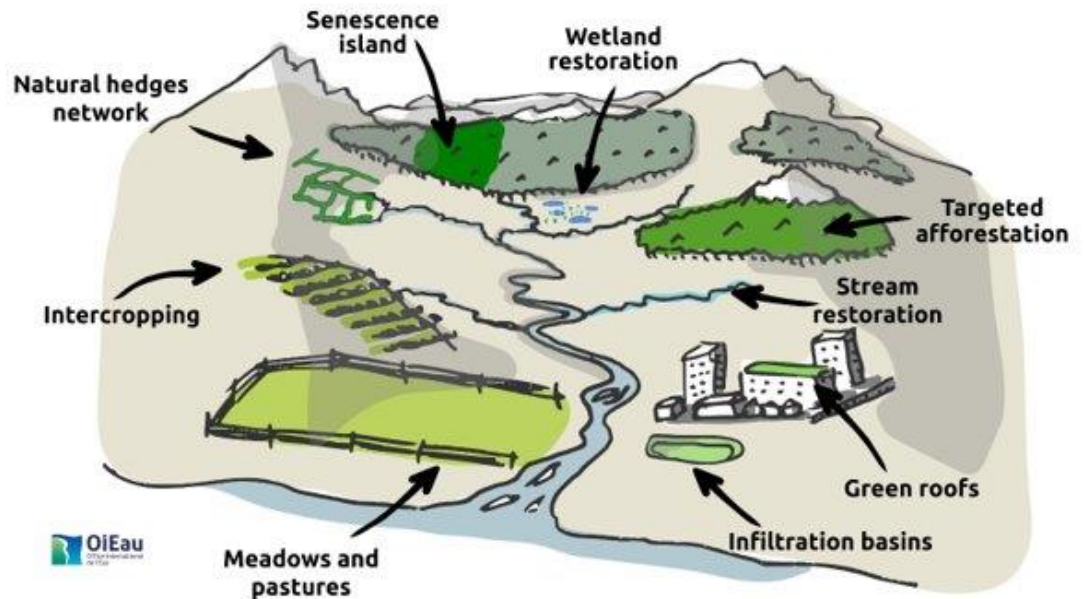




Funded by
the European Union

EU4Environment
Water and Data in Eastern Partner Countries

PRESENTATION OF THE NATURE-BASED SOLUTIONS CATALOGUE FOR RBMPS



6 July 2023

Maxime Fouillet,
International Office for Water (OI Eau)

Implementing partners



Co-funded by

With funding from



1. FRAMEWORK

- Objective : development and promotion of nature-based solutions
 - National workshops during National policy dialogues (*achieved*)
 - Regional workshop (*in progress*)
 - Preparation of a NbS catalogue (*in progress*)
 - Etc.
- Agenda for the catalog:
 - Today: presentation and discussion of first elements of the catalogue
 - Summer 2023: elaboration of the catalogue
 - Autumn 2023: publication of the catalogue
 - Post-autumn 2023: continuous update of the catalogue by users

Implementing partners

Co-funded by

With funding from

2. OBJECTIVES OF THE CATALOGUE

- Ease the integration of NbS into PoM
- Decision support: what NbS is relevant?
- Description of measures to integrate them into PoM
- Access to further technical references for implementation

The catalogue will be adapted and translated into the 5 languages of the Eastern Partner Countries to facilitate ownership and continuous update



Implementing partners

Co-funded by

With funding from



Funded by
the European Union

EU4Environment
Water and Data in Eastern Partner Countries

3. TENTATIVE OUTLINE FOR THE CATALOGUE

1. Introduction: the interest of Nature-based solutions for water resources management at the basin scale
2. Nature-based solutions and their implementation through RBMPs
 - a) Definitions and synonyms of Nature-based solutions
 - b) Nature-based solutions as measures of programmes of measures
3. Selecting Nature-based solutions
 - a) Point source pollution pressures
 - b) Diffuse source pollution pressures
 - c) Abstraction and diversion of flow
 - d) Hydromorphology pressures
4. Detailed presentation of Nature-based solutions
5. Implementing Nature-based solutions

Implementing partners



Austrian
Development
Agency



Co-funded by

With funding from

Austrian
Development
Cooperation





Funded by
the European Union

EU4Environment
Water and Data in Eastern Partner Countries

3. TENTATIVE OUTLINE FOR THE CATALOGUE

1. Introduction: the interest of Nature-based solutions for water resources management at the basin scale
2. Nature-based solutions and their implementation through RBMPs
 - a) Definitions and synonyms of Nature-based solutions
 - b) Nature-based solutions as measures of programmes of measures
3. Selecting Nature-based solutions
 - a) Point source pollution pressures
 - b) Diffuse source pollution pressures
 - c) Abstraction and diversion of flow
 - d) Hydromorphology pressures
4. Detailed presentation of Nature-based solutions
5. Implementing Nature-based solutions

Implementing partners



Co-funded by

With funding from





Funded by
the European Union

EU4Environment
Water and Data in Eastern Partner Countries

1. Introduction: the interest of Nature-based solutions for water resources management at the basin scale
2. Nature-based solutions and their implementation through RBMPs
 - a) Definitions and synonyms of Nature-based solutions
 - b) Nature-based solutions as measures of programmes of measures
3. Selecting Nature-based solutions
 - a) Point source pollution pressures
 - b) Diffuse source pollution pressures
 - c) Abstraction and diversion of flow
 - d) Hydromorphology pressures
4. Detailed presentation of Nature-based solutions
5. Implementing Nature-based solutions

Implementing partners



Co-funded by

With funding from





Funded by
the European Union

EU4Environment
Water and Data in Eastern Partner Countries

4. SELECTING THE APPROPRIATE NBS



Nature-based solutions

- For this matter, the catalogue will identify:

**Relevant NbS for
each pressure**

+

Their co-benefits

Implementing partners



Co-funded by

With funding from





Funded by
the European Union

EU4Environment
Water and Data in Eastern Partner Countries

4. SELECTING THE APPROPRIATE NBS

- Pressures types to be taken into account (consistent with WFD & EUWI+):
 - **Point source pollution:** urban waste water, storm overflows, industrials plants, contaminated sites, etc.
 - **Diffuse source pollution:** urban run-off, agricultural, forestry, transport, etc.
 - **Abstraction and flow diversion:** agriculture, public water supply, industry, cooling water, etc.
 - **Hydromorphological pressures:**
 - Physical alterations of channels/bed/riparian are/shore
 - Dams, barriers and locks
 - Hydrological alterations

Implementing partners



Austrian
Development
Agency



Co-funded by

With funding from

Austrian
Development
Cooperation





4. SELECTING THE APPROPRIATE NBS: A GLOBAL VIEW

Pressure type affecting water bodies		Types of nature-based solutions	Scale of implementation	Typical grey infrastructure and technology
Point source pollution	Agglomeration and industry	Rainwater management public features	City, village, industrial plant	Wastewater treatment plant and stormwater concrete infrastructures
		Constructed wetlands for wastewater treatment		

DRAFT

Implementing partners



Co-funded by

With funding from





4. SELECTING THE APPROPRIATE NBS: A GLOBAL VIEW

Pressure type affecting water bodies		Types of nature-based solutions	Scale of implementation	Typical grey infrastructure and technology
Point source pollution	Agglomeration and industry	Rainwater management public features	City, town, industrial plant	Wastewater treatment plant and stormwater infrastructures
		Artificial wetlands for wastewater treatment		
Diffuse source pollution	Agriculture	Improvement of cultivation practices	Agricultural plot	Modern farming equipment
		Conversion to lower impact land-use	Water body	None
	Urban run-off	Rainwater management public features	City, town, industrial plant	Stormwater infrastructures
	Forestry	Close-to-nature forestry	Water body	None
Abstraction or flow-diversion	Agriculture	Improvement of cultivation practices	Agricultural plot	Modern farming equipment Dams and groundwater pumping
	Others	Improvement of natural flow	Basin-scale	
Hydro-morphology	Physical alterations	Removal of transversal barriers	Basin-scale	None
		Controlled traffic forestry	Forestry plot	
		Restoration of riverine ecosystems	Stretch of water	
	Dams and barriers	Removal of barriers	Basin-scale	None
		Restoration of riverine ecosystems	Stretch of water	
	Hydrological alteration	Improvement of natural flow	Basin-scale	Reservoirs

DRAFT

Implementing partners



Co-funded by

With funding from



4. SELECTING THE APPROPRIATE NBS : DETAIL BY PRESSURES

- The most relevant nature-based solutions for each pressure type
- Including following informations:
 - The level of efficiency (high or moderate)
 - The name of the nature-based solution
 - The link to the detailed presentation of the nature-based solution
 - Co-benefits: focus on flood prevention and drought prevention (high, moderate, low) + contribution to other EU policies (high, moderate, low)
 - Corresponding KTM (key types of measures)

Implementing partners

Co-funded by

With funding from



4. SELECTING THE APPROPRIATE NBS : DETAIL BY PRESSURES

POINT SOURCE POLLUTION							
Pressure type	Efficiency	Relevant nature-based solutions	Detailed sheet	Co-benefits			KTM
				Floods	Drought	EU policies synergy	
Agglomeration and industry	H	Rainwater management public features	21	H	M	H	21
	H	Artificial wetlands for wastewater treatment	33	L	L	H	1/16/21
	M	Green roofs	14	M	L	M	21
	M	City gardens and urban farming	15	M	L	M	21
	M	Raingardens	16	M	M	M	21
	M	Forested parks	17	M	M	M	21
	M	Trees in urban areas	18	M	L	M	21
	M	Rainwater harvesting and storage	19	M	L	M	21
	M	Permeable surfaces	20	M	M	M	7
	M	De-artificialization (soils, built structures)	26	M	M	M	7

DRAFT

Implementing partners



Co-funded by

With funding from





Funded by
the European Union

EU4Environment
Water and Data in Eastern Partner Countries

1. Introduction: the interest of Nature-based solutions for water resources management at the basin scale
2. Nature-based solutions and their implementation through RBMPs
 - a) Definitions and synonyms of Nature-based solutions
 - b) Nature-based solutions as measures of programmes of measures
3. Selecting Nature-based solutions
 - a) Point source pollution pressures
 - b) Diffuse source pollution pressures
 - c) Abstraction and diversion of flow
 - d) Hydromorphology pressures
4. Detailed presentation of Nature-based solutions
5. Implementing Nature-based solutions

Implementing partners



Co-funded by

With funding from



6. DETAILED PRESENTATION OF NBS

- 45 potential nature-based solutions identified (to be discussed)
 - Farming practices
 - Forestry practices
 - Rainwater management solutions
 - Conversion of land-use
 - River, lake, wetland and coastal ecosystems restoration
 - Other landscape measures
 - Groundwater recharge

Implementing partners

Co-funded by


With funding from

6. DETAILED PRESENTATION OF NBS

Detailed sheet will include:

- Reference and name of the solution
- Short description
- Scale of implementation
- Co-benefits + EU policy contribution
- Pressures efficiency
- How to implement?
- Cost-calculation elements
- Case-studies
- Technical references

NATURE-BASED SOLUTIONS CATALOG | 21



34 - Floodplain restoration and management

Restoring floodplains means to reconnect them to the river, and to implement other actions allowing the restoration of their retention capacity and of ecosystem functions.

Scale of implementation:
This measure cannot be implemented in catchments with a small area, as the river will have limited or no floodplain.

CO-BENEFITS

[H] Flood prevention
[M] Drought prevention

Also contributes to:

- Flood directive
- Birds and habitat directives
- Nature restoration law
- Biodiversity strategy for 2030
- Green infrastructure strategy
- Nitrates directive

Pressures efficiency

Point source pollution	Diffuse source pollution		Hydromorphology		
Agglomeration and industry	Crops	Livestock	Ecological continuity	Water abstraction	Morphological modifications

How to implement?

The sustainable management of the pastures implies the adoption of measures aimed at preserving the optimal status of vegetation and soil fertility. A properly managed pasture and a pasture in a good condition ensures the provision of sufficient nutrition and energy to livestock during the whole grazing season. Effective pastoral grazing management can be used as tool not only to improve grassland/rangeland biodiversity but also to prevent land degradation and desertification through maintaining rangeland ecosystem integrity.

Cost calculations

- Units: ha
- Costs units: staff + equipment + seeds

Case-studies

- [Rotational grazing in 5 communities Armenia, 2017](#)
- [Sustainable pasture management plan for 4000 ha in Moldova, 2017](#)
- [Paddock system on 6,1 ha in Georgia, 2018](#)

Technical references

- [NWRM factsheet \[EN\]](#)
- [Pasture management in Georgia \[EN\]](#)

Implementing partners

Co-funded by

With funding from



6. DETAILED PRESENTATION OF NBS

20 | NATURE-BASED SOLUTIONS CATALOG



2 - Pasture sustainable management

Sustainable management of pastures offers the potential for temporary flood storage, increased water retention in the landscape and runoff attenuation. Soil cover is maintained at all times with rooted vegetation, this reduces the surface flow of water and allows greater infiltration to the soil. Rates of soil erosion are considerably lower than arable land with potential benefits for water quality.

Scale of implementation:

This measure operates at field and farm scale, but its implementation must be made at water body scale in order to combat pressures.

CO-BENEFITS

- [M] Flood prevention
- [M] Drought prevention

Also contributes to:

- **Flood directive**
- **Birds and habitat directives**
- Nitrate directive
- **Biodiversity strategy for 2030**
- **Soils strategy**
- Green infrastructure

DRAFT



6. DETAILED PRESENTATION OF NBS

Pressures efficiency

Point source pollution	Diffuse source pollution			Water abstraction and flow diversion		Hydromorphology			
	Agglomeration and industry	Agriculture	Urban run-off	Forestry	Agriculture	Others	Physical alterations	Dams and barriers	Hydrological alteration

How to implement?

The sustainable management of the pastures implies the adoption of measures aimed at preserving the optimal status of vegetation and soil fertility. A properly managed pasture and a pasture in a good condition ensures the provision of sufficient nutrition and energy to livestock during the whole grazing season. Effective pastoral grazing management can be used as tool not only to improve grassland/rangeland biodiversity but also to prevent land degradation and desertification through maintaining rangeland ecosystem integrity.

Case-studies

- [Rotational grazing in 5 communities Armenia](#), 2017
- [Sustainable pasture management plan for 4000 ha in Moldova](#), 2017
- [Paddock system on 6,1 ha in Georgia](#), 2018

Cost calculations

- Units: ha
- Costs units: staff + equipment + seeds

Technical references

- [NWRM factsheet](#) [EN]
- [Pasture management in Georgia](#) [EN]

DRAFT

Implementing partners



Co-funded by

With funding from





Funded by
the European Union

EU4Environment
Water and Data in Eastern Partner Countries

1. Introduction: the interest of Nature-based solutions for water resources management at the basin scale
2. Nature-based solutions and their implementation through RBMPs
 - a) Definitions and synonyms of Nature-based solutions
 - b) Nature-based solutions as measures of programmes of measures
3. Selecting Nature-based solutions
 - a) Point source pollution pressures
 - b) Diffuse source pollution pressures
 - c) Abstraction and diversion of flow
 - d) Hydromorphology pressures
4. Detailed presentation of Nature-based solutions
5. Implementing Nature-based solutions

Implementing partners



Co-funded by

With funding from





Funded by
the European Union

EU4Environment
Water and Data in Eastern Partner Countries

5. IMPLEMENTING NATURE-BASED SOLUTIONS

- This section will include information on:
 - Relevant methods and standards to implement Nature-based solutions
 - References for the monitoring of Nature-based solutions, as measuring the effects is very important to keep building knowledge
 - Information on funding and finance

Implementing partners



Austrian
Development
Agency



Co-funded by

With funding from

Austrian
Development
Cooperation





Funded by
the European Union

EU4Environment
Water and Data in Eastern Partner Countries

FOR MORE INFORMATION:

<https://www.eu4waterdata.eu/en/>

Funded by the European Union

EU4Environment
Water and Data in Eastern Partner Countries

English Machine translation

Home About Water resources Environmental Data Where we work News and Events Library

The EU-funded
“EU4Environment Water and Data”
contributes to the protection and sustainable use of water resources in the Eastern Partner Countries and to a better collection and access to reliable environmental data (water, air, land and waste)

READ MORE

COOKIES

m.fouillet@oieau.fr



1. Introduction: the interest of Nature-based solutions for water resources management at the basin scale
2. Nature-based solutions and their implementation through RBMPs
 - a) Definitions and synonyms of Nature-based solutions
 - b) Nature-based solutions as measures of programmes of measures
3. Selecting Nature-based solutions
 - a) Point source pollution pressures
 - b) Diffuse source pollution pressures
 - c) Abstraction and diversion of flow
 - d) Hydromorphology pressures
4. Detailed presentation of Nature-based solutions
5. Implementing Nature-based solutions