

Water and Environment Support

in the ENI Southern Neighbourhood region



Explore the Potential of Natural Water Retention Measures (NWRM) at the catchment scale
Activity No. : N-W-JO-2

Proposed economic incentives and regulation framework for NWRM & storm water management in the country

Stakeholders' Consultation Workshop

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Kempinski Hotel, Amman, Jordan

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NWRMs Applicability

- NWRM offer a variety of measures that are relevant EU wide. But:
 - Their design needs to be tailored for each eco-region.
 - Benefit depends on type, location, implementation design and combination with other measures.
- NWRM are far from being applied in all cases in which they would be an option/the best option. There is a need for a change of thinking to ensure NWRM are duly considered in planning processes.
- Enhanced knowledge is required for supporting the optimisation of NWRM and their combination with other measures, for quantifying their impacts at large scale, and for estimating all their benefits.





NWRMs Applicability

- Research and demonstration in pilot activities is to be promoted to gather further evidence on the (real) effects of NWRM on flood mitigation at the catchment scale.
- There is no integrated framework to assess the net benefits and the cost-effectiveness of strategies for achieving multiple policy goals.
- Funding sources are available at the European and at other levels. But the utilisation of available financial resources for financing NWRM remains limited.
- Smart financial engineering is essential to the implementation of NWRM – searching for synergies between different funding instruments including innovative financing instruments.





NWRMs Applicability

- Raising awareness on the potential role of NWRM remains essential – including with local communities and across sectors.
- NWRM can help achieving the objectives of different EU and national policies. However, their contributions to different objectives are rarely assessed because of the absence of multiple impact monitoring.
- The multifunctional and multi-sector character of NWRM requires enhanced collaboration between stakeholders representing different sectors.
- Enhanced coordination between planning processes across different policy areas (e.g. River Basin and Flood Risk Management, but also nature protection, rural development and land use/spatial planning) will provide more opportunities for NWRM and for their multiple benefits to be considered.





NWRMs Applicability

- Spatial planning is key for the successful implementation of NWRM.
- Urban planners should make the water cycle explicit in their territorial planning. The concept has now shifted from “design against nature” to “design with nature”.
- NWRM offer multiple benefits and opportunities for achieving WFD and FDs objectives and as such should be included in the RBMPs and FRMPs. NWRM often represent a "better environmental option".



NWRMs Applicability vs Dams



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- Policy and Decision makers are often (if not always) reluctant to use NWRMs instead of “traditional” practices namely “**a dam construction**”. Dams as flood protection units are indeed efficient in term of routing flood peaks downstream by attenuating and translating flood peaks even in the case that water level is on the overflow level at the onset of a flood event.
- However, the construction of a (multipurpose) dam includes a lot of uncertainties (e.g. hydrological, geological, geotechnical, financial) that may disproportionally enhance the total cost of the project and the construction period, if not to abolish any plans.
- The “million dollar question” is if **cumulatively** the effects of many small-scale NWRMs may have a –more- significant effect on flood peaks attenuation and storage in the catchment with less economic costs.



Proposed actions



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Task 4: Review of economic incentives and regulation regarding storm water management

A cost–benefit analysis will be performed for the selected NWRMs, comparing the economic and environmental **benefits** of the water retained in natural and/or artificial storages (economically by the associated usage (irrigation, water supply, etc.), flood defense and environmentally by the water quality of the recipients) with the **costs** of applying the NWRMs. According to the analysis and the sustainability of the concept in general, the economic incentives for further adopting NWRMs will be proposed and a regulation framework on the application of the NWRMs for the whole of the country will be prepared.

Results

- Cost – benefit analyses of NWRMs comparing the costs (cost of construction, pollution, etc.) with the benefits per m³ retained in storage (including benefits from flood defense).
- Assessment of funding options according to the nature of retention (groundwater, surface water) and purpose of water use.
- Economic incentives for the application of NWRM
- Basic structure of regulation manual regarding application of NWRM in Jordan.



General Incentives in favour of NWRMs



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1. **Cost Saving:** If designed correctly NWRMs are very capable of being cost-effective alternative to an expensive concrete-based infrastructure flood defence project.
2. **Flood control:** By using NWRMs most of the times there is advanced flood protection to an existing system.
3. **Water quality:** Swales, raingardens and other NWRMs apart from flood defence provide bio infiltration improving the quality of the water that is drained.
4. **Aesthetic improvement and recreation:** A new retention pond can have a big impact on the local community's recreational activities. Swales and raingardens can make a neighbourhood more beautiful.
5. **Job Creation:** The implementation of NWRMs requires a lot of stages of construction that involves a lot of different occupations. This will create more job opportunities for local people.
6. **Resilience in climate variability:** Climate variability and future resilience was always an issue for mankind. NWR infrastructure will reduce the costs of adapting to these changes.



Basic Structure Of Regulation Manual Regarding Application Of NWRMs In Jordan



1. Introduction. Highlighting the importance of and water management in Jordan and explaining the need for NWRMs. Summary of regulations manual
2. Legal information. This section discusses the existing legal regulations like the National Water Strategy (2016-2025) and identifies areas that need modification.
3. Definitions. Presentation of all the definitions related to the subject of regulation of NWRMs.
4. Types of NWRMs. Description of the diverse group of NWRMs.
5. Planning. Guidelines for the implementation of NWRMs in Jordan.
6. Permitting and Enforcement. Finally, presentation of the implementation and effectiveness metrics. Provide possible mechanisms for enforcing NWRMs regulations.





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Thank you for your attention

