OPTAIN

Optimal Strategies to Retain Water and Nutrients

OPTAIN

Policy Brief

Legislative recommendations for future harmonisation of water and agricultural policy on local, regional, national, and EU levels

Optimal strategies to retain and reuse water and nutrients in small agricultural catchments across different soil-climatic regions in Europe

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May, 2023

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The Policy Brief should be cited as follows:

Cvejić R., Enge C., Nesheim I., Glavan, M. 2023. Legislative recommendations for future harmonisation of water and agricultural policy on local, regional, national, and EU levels. University of Ljubljana (UL) and Norwegian Institute for Water Research (NIVA), EU Horizon 2020 Research and Innovation Action, H2020-EU.3.2.1.1 (SFS-23-2019), Grant agreement No. 862756, Optimal strategies to retain and reuse water and nutrients in small agricultural catchments across different soil-climatic regions in Europe (OPTAIN), www.optain.eu.

All figures developed by GWP Central and Eastern Europe

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With thanks to reviewers: Kinga Farkas-Iványi, Tatenda Lemann, Tomasz Okruszko, Mikołaj Piniewski, Michael Strauch, Brigitta Szabó, Julia Szulecka, Martin Volk, and Felix Witing

Acknowledgements:

This publication is made possible through the OPTAIN research project - Grant Number 862756 (http://www.optain.eu/) with financial assistance from the European Union's Horizon 2020 research and innovation programme. The content of this publication is the sole responsibility of the University of Ljubljana (UL) and Norwegian Institute for Water Research (NIVA) and in no way reflects the views of the European Union and/or the OPTAIN partners.

The authors would like to thank the members of the OPTAIN consortium for their support and interest in this area of research, which inspired making this knowledge more publicly accessible. Specifically, they would also like to thank other researchers active in this area of policy and whose research supported this analysis.

About the Policy Brief

State governments and institutions develop policies through laws, regulations, procedures, administrative actions, incentives, information campaigns, and voluntary practices. However, the outcome of a policy depends on how it is specified, negotiated, interpreted, implemented, and enforced by different sectors, regions and actors. The OPTAIN project (https://www.optain.eu/) proposes a social and scientific journey towards increasing and understanding the multiple benefits of Natural/Small Water Retention Measures (NSWRMs).

NSWRMs have been identified as strategic for reaching agri-environmental policy objectives, including good water quality, good ecological status, balanced water quantity, protection of natural resources, and climate change adaptation and mitigation. Therefore, NSWRMs represent one of the baseline tools for the future integrated achievement of water and agricultural policy goals on local, regional, national, and EU levels. NSWRMs cover on-farm measures such as buffer strips and hedges, crop rotation, strip cropping along contours, intercropping, no and low till agriculture, green cover, early sowing, traditional terracing, controlled traffic farming, mulching, and drainage.

However, NSWRMs also cover smaller structural measures, such as basins and ponds, partial wetland restoration, floodplain restoration and management, stream bed re-naturalization, riverbed material renaturalization, and restoration of natural infiltration to groundwater that are sometimes implemented at a farm level, however, more often their implementation extends cross-farms.

This Policy Brief presents the Key Messages on challenges and recommendations for governance and policy instruments that tackle water quality – nutrient recovery, nutrient uptake and soil erosion, and water quantity – floods, droughts and retention, and adaptation to climate change. It is based on a survey of policy arrangements in twelve European countries: Belgium, Czech Republic, Germany, Hungary, Italy, Latvia, Lithuania, Norway, Poland, Slovenia, Sweden, and Switzerland.

The survey was conducted among authorities and experts in the agriculture, water, and environmental sectors. The survey was conducted in the winter and spring of 2022. In the survey, 144 informants were asked to share their views about challenges and possible solutions in legislation and governance arrangements that impact water-use efficiency, use of tools and techniques for water and nutrient management, and economic sustainability of technologies on-farm and in small agricultural catchments level.

In addition, content analysis of the collected data was used to analyse answers to the open-end questions, which were formed to look for gaps and solutions in implementing and promoting NSWRMs. Finally, the lessons are formulated for policymakers who may adopt them at different levels for future harmonisation of water, agricultural, and other cross-sectoral policies.

OPTAIN - OPtimal strategies to retAIN and re-use water and nutrients in small agricultural catchments across different soil-climatic regions in Europe (EU-funded research and innovation project, 2020-2025) proposes a social and scientific journey towards the increase and better understanding of the multiple benefits of Natural/Small Water Retention Measures (NSWRMs). Find more at https://www.optain.eu/

Key Messages

The Policy Brief represents a compilation of five Key Messages addressing governance conditions and policy instruments for improved implementation of NSWRM.

Here are the five Key Messages summarized:

1. **Harmonization of agro-environmental policy** – Increased use of cross-referencing in the directives and strategy documents is needed for improved coherence on national and local levels.
2. **Inter-sectoral cooperation** – Intersectoral arenas must be established on the different administrative governance levels for harmonized agro-environmental policy programmes.
3. **Financial and technical support schemes** – Advancing financial schemes for higher integration of water and agricultural policy in practice demands multipurpose interventions with an acceptable cost-benefit ratio and special consideration of specific land ownership, farm size, and landscape characteristics.
4. **Competent administration and accessible data** – Improved administration competencies, simplified procedures, and increased data availability must be accomplished to better support end-users in integrating water and agricultural policy in practice.
5. **Education, awareness raising, and communication** – Awareness and knowledge are essential for municipalities, local communities, water managers, and farmers to be able to adopt new measures and approaches for water and nutrient retention.

In the following, each Key Message is structured to present (i) The challenge, (ii) Evidence, i.e., experts' opinions in the survey, (iii) Recommendations, if needed, (iv) Explanation, and where applicable also, (iv) Best practice example.

Finally, the five Key Messages are graphically summarised "in a Nutshell" at the end of the Policy Brief.

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Key Message 1 | Harmonization of agro-environmental policy

Increased use of cross-referencing between agricultural and environmental policies and strategy documents is needed for improved coherence on national and local levels.

Challenge

Strategies and directives, such as the Common Agricultural Policy (CAP), the Water Framework Directive, the Nitrates Directive, and the Habitats Directive, are developed by different sector authorities, and this can cause ineffective policy programmes.

Evidence

The OPTAIN survey results show that incoherent policy objectives significantly hamper effective implementation of measures most of the surveyed countries

Specifically, the lack of cross-referencing between the Water Framework Directive and the Common Agricultural Policy can cause incoherent spatial planning for reaching ecological status objectives.

In addition, some respondents say that legal acts need a more precise and explicit reference to specific measures, such as NSWRM.

Measures supported by the Common Agricultural Policy (such as environmental focus areas and greening) must be developed further to contribute to reaching the Water Framework Directive objectives.

Furthermore, climate change mitigation continues to be only indirectly or vaguely addressed by acts and strategies in most of the surveyed countries.

Recommendation

- Improved harmonization of the Common Agricultural Policy, the Nitrates Directive, the Habitats and the Birds Directives, and the Water Framework Directive are needed for a more effective programme of measures and coherent financial periods.
- Cross-referencing between directives and policies should be more frequently applied to enhance policy coherence.
- Projected climate change impacts need stronger consideration in agriculture, water, and nature protection directives and policies.

Explanation

Cross-referencing between directives, acts, and strategies is an important legal mechanism for promoting policy coherence, especially when this also addresses the roles and responsibilities of authorities. The Common Agriculture Policy cross-compliance mechanism with the EU rules on public, animal, and plant health, animal welfare; and the environment, linking to the Nitrates Directive, the Birds and the Habitats Directive, and the statutory requirements represent an example and a powerful mechanism to enhance policy coherence.

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Key Message 2 | Inter-sectoral cooperation

Intersectoral arenas need to be established on the different administrative governance levels for harmonized agro-environmental policy programmes.

Challenge

Increased agricultural production and environmental objectives represent contrasting national policy goals that can lead to incoherence and contradictory policies.

Evidence

OPTAIN research on challenges shows that sector policies are developed in silo compartments. Respondents in several cases say there are contradictions between agricultural subsidies and environmental objectives. An important reason is that incoherent spatial planning causes land area conflicts regarding agricultural production and environmental goals/measures.

Recommendation

- Establishment of inter-ministry and inter-sectoral groups on a national level and on a regional level to discuss and coordinate selections of Good Agricultural and Environmental Conditions strategies, greening, and common agricultural practice coordinated with river basin ecological status objectives and programme of measures.
- Collaboration among municipalities on a sub-basin district level for coordinated monitoring important for developing a targeted programme of measures, and climate strategies, and furthermore to contribute to mutual learning and capacity building.
- A responsible secretary (leader) for each platform needs to be appointed, as this will contribute to more effective multi-level governance processes. In addition, EU and national programmes need to allocate funds to employ secretaries on sub-basin levels.

Good practice example

A project case study area, the Morsa sub-basin district in Norway, represents an example of local sector coordination. A sub-basin district committee was established Morsa in 1999 and included local and some county and state regional authorities, and representation from the farmer organization and the water company. The committee has a secretary, and there is a working group on agriculture and the environment. The secretary is employed with funds from the municipalities in the sub-basin and with some national support. The platform has been important for a shared understanding and awareness of problems, coordinated long-term monitoring efforts, knowledge exchange, and the possibility to influence discussions.

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Key Message 3 | Financial and technical support schemes

Advancing financial schemes for higher integration of water and agricultural policy in practice demands multipurpose interventions with acceptable cost-benefit ratio and special consideration of specific land ownership, farm size, and landscape characteristics.

Challenge

The use of existing financial support for mainstreaming NSWRM is challenged by the complex administrative processes required for NSWRM implementation. In addition, local stakeholders have low decision-making support in implementing NSWRM, which, influenced by land ownership structure, hampers achieving multipurpose policy objectives.

Evidence

OPTAIN research indicated insufficient financial support, not only for implementing measures but also for the organisation of farmers in the catchments in more than half of the surveyed countries.

Similarly, low policy integration at the measure level was raised as an issue in almost half of the surveyed countries. The respondents indicated that the subsidies allocation is not sensitive enough to landscape vulnerability conditions, e.g., soil depth and terrain, and the related water pollution vulnerability.

Furthermore, financial mechanisms fail to consider the role of land ownership in landscape management, both in countries with fragmented agricultural landscapes and in countries with large average size of farms.

Either way, structural interventions are adopted slowly. Respondents prefer structural landownership modification (buying private land and putting it in public service) at specific catchment areas to ease the implementation of NSWRM (e.g., buffer zones).

Recommendation

- Design attractive multipurpose funding schemes that better respond to particular landscape vulnerability conditions, e.g., soil depth and terrain and the related water pollution vulnerability, to increase the stakeholder motivation for local or catchment adoptability.
- Incorporate good soil conservation practices into legislation. Consistent application of sanctions and subsidies are recommended.
- Significantly improve technical or expert support to end-users to help overcome procedural challenges related to NSWRM implementation, such as acquiring permits and placing of measures in the landscape.
- Apply new financial interventions to manage landownership locally at critical parts of catchments. It will help overcome some of the obstacles to NSWRM implementation related to management responsibility.

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Key Message 4 | Competent administration, and accessible data

Improved competencies of administration, simplified procedures, and increased data availability need to be accomplished to better support end-users in integrating water and agricultural policy in practices.

Challenge

Mainstreaming NSWRM at the national level is challenged due to insufficient administrative capacity affected by inadequate knowledge and competencies.

Evidence

OPTAIN research at the country level indicated insufficient human resources and weak administrative apparatus in nearly half of the surveyed countries. The reasons are inadequate knowledge, aging, lack of green vision, and positive appreciation of ecosystems and their services.

Furthermore, complex legislation and highly bureaucratic processes that discourage end users, especially in the case of a low cost-benefit ratio and high implementation costs, were highlighted as significant challenges in almost half of the surveyed countries.

Some of the NSWRM measures, such as ponds and buffer strips, are complex to implement from a land-ownership viewpoint and, therefore, not easily implemented by farmers alone. Respondents pointed out a significant lack of well-trained local, regional, or national services to support the implementation efficiently.

Some respondents pointed out insufficient monitoring programmes and, in some cases, low environmental data accessibility and a lack of user-friendly web data services.

Recommendation

- Design and run adequate certified training programmes for public administration and experts to improve knowledge concerning NSWRM implementation at national and local scales.
- Simplify NSWRM implementation procedures from an end-user point of view through, e.g., legislation optimisation, simplification of the process of acquiring permissions, and improved process support to end-users in the planning and implementation phase.
- Improve national monitoring programmes and establish local monitoring programmes where necessary to evaluate the NSWRM effects better. In addition, a high priority is installing user-friendly public geographical information systems with adequate data services.

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Key Message 5 | Education, awareness raising, and communication

Awareness and knowledge are essential for municipalities, local communities, water managers, and farmers to adopt new measures and approaches for water and nutrient retention.

Challenge

While national and regional plans and policies outline environmental protection, climate action, and adaptation, the actual impact happens on a local level, and requires knowledge and engagement in these communities.

Evidence

In more than half of the cases, communication of agri-environmental policies on a local level was perceived as ineffective. Respondents identified lack of awareness or insufficient knowledge of policies, costs and benefits as challenges to implementing NSWRMs. Especially communication strategies related to spatial planning and climate change were considered inefficient.

Recommendation

- Facilitate two-way communication by actively requesting feedback and allowing time for discussions in decision-making and planning processes with stakeholder groups.
- Formal and informal education should include practical demonstrations, field visits, pilot studies, courses, and formal training.
- Target and tailor communication by diversifying communication channels and formats to reach relevant groups through platforms and media they are familiar with.
- General awareness raising. Less engaged stakeholders and the general public should also be informed about the challenges and importance of measures using digital and traditional media information campaigns.
- Ensure personal and free-of-charge support services for farmers and other stakeholders for proper implementation and maintenance of NSWRM, including practical assistance with application forms and other documentation related to NSWRM implementation on the ground.

Explanation

Knowledge about the need for water and nutrient retention to reduce drought and flooding in society can create pressure for change and opportunities for decision-makers and others to act and receive support in their work. In addition, formal and informal education for the more involved and specialised actors working within agri-environmental sectors can ease implementation efforts and reduce silo-thinking by introducing shared knowledge and frameworks to improve understanding and coordination efforts across sectors.

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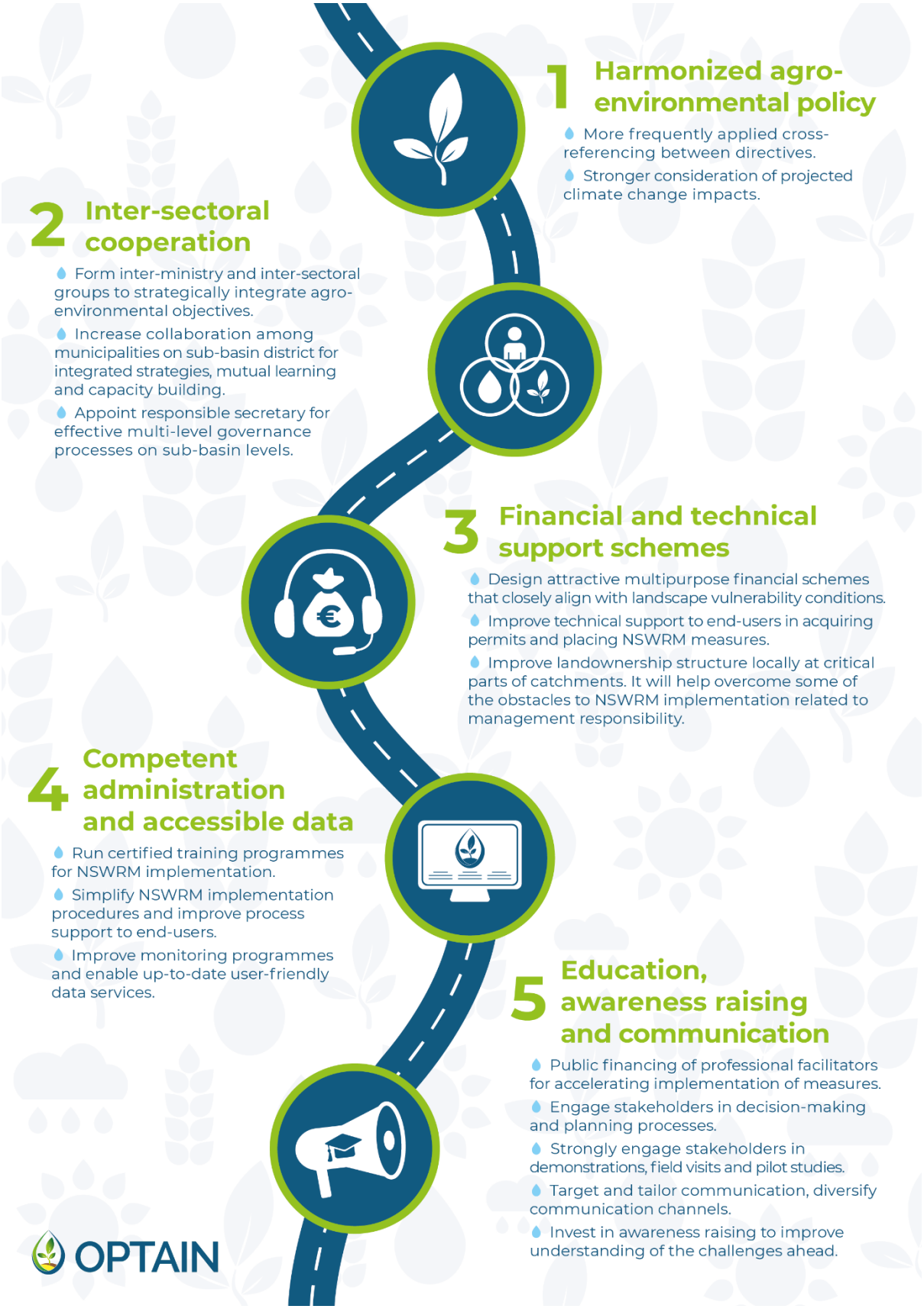
OPTAIN

Policy Brief: Legislative recommendations for future harmonisation of water and agricultural policy on local, regional, national, and EU levels

Policy Brief in a Nutshell



1 Harmonized agro-environmental policy

- More frequently applied cross-referencing between directives.
- Stronger consideration of projected climate change impacts.

2 Inter-sectoral cooperation

- Form inter-ministry and inter-sectoral groups to strategically integrate agro-environmental objectives.
- Increase collaboration among municipalities on sub-basin district for integrated strategies, mutual learning and capacity building.
- Appoint responsible secretary for effective multi-level governance processes on sub-basin levels.

3 Financial and technical support schemes

- Design attractive multipurpose financial schemes that closely align with landscape vulnerability conditions.
- Improve technical support to end-users in acquiring permits and placing NSWRM measures.
- Improve landownership structure locally at critical parts of catchments. It will help overcome some of the obstacles to NSWRM implementation related to management responsibility.

4 Competent administration and accessible data

- Run certified training programmes for NSWRM implementation.
- Simplify NSWRM implementation procedures and improve process support to end-users.
- Improve monitoring programmes and enable up-to-date user-friendly data services.

5 Education, awareness raising and communication

- Public financing of professional facilitators for accelerating implementation of measures.
- Engage stakeholders in decision-making and planning processes.
- Strongly engage stakeholders in demonstrations, field visits and pilot studies.
- Target and tailor communication, diversify communication channels.
- Invest in awareness raising to improve understanding of the challenges ahead.

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About OPTAIN

OPTAIN - OPtimal strategies to retAIN and reuse water and nutrients in small agricultural catchments across different soil-climatic regions in Europe (EU-funded research and innovation project, 2020-2025) proposes a social and scientific journey towards the increase and better understanding of the multiple benefits of Natural/Small Water Retention Measures (NSWRMs). **But why is this important?** To better adapt to extreme events exacerbating conflicts between agricultural water uses and other human and environmental demands for water. How is that done? By elaborating on the current state of knowledge, the experience of stakeholders from the case studies involved in the project, and innovative scientific modelling and optimization approaches. Thus OPTAIN aims to:

- Identify efficient and easy-to-implement techniques for retaining and reusing water and nutrients in small agricultural catchments across Boreal, Continental, and Pannonian regions.
- Optimize the spatial allocation and combination of NSWRMs, based on environmental and economic sustainability indicators.

OPTAIN focuses on 14 case studies across Continental (7), Pannonia (3), and Boreal (4) biogeographical regions of Europe, including one Pannonia-Continental cross-border case. All case studies represent small catchments (4.5-250 km^2) dominated by agricultural land use but cover various soil-climatic zones and agricultural systems. The distribution of case studies reflects well on the share of agricultural land within the different H2020 focus regions.