CLEARANCE

CLEARANCE – CircuLar Economy Approach to River pollution by Agricultural Nutrients with use of Carbon-storing Ecosystems

CLEARANCE is a project financed under the ERA-NET Cofund WaterWorks 2015 Call – developed by the Water Challenges for a Changing World Joint Programme Initiative (Water JPI).
The CLEARANCE project aims to develop an integrated landscape-ecological, socio-economic and policy framework for using wetland buffer zones (WBZ) in circular economies of water purification and nutrient re-use in agriculturally used catchments. WBZ are wetlands located between the agricultural land and aquatic ecosystems, capturing nutrient-rich runoff water before it reaches rivers and lakes to reduce nutrient loads in surface waters at water-land interface.

More about Clearance:
https://www.moorwissen.de/en/paludikultur/projekte/clearance/index.php
Content editor of policy recommendations and contact for further questions:
Rafael Ziegler (rziegler@uni-greifswald.de)
Photo credit:
Wendelin Wichtmann

CLEARANCE partners:

UNIWERSYTET WARSZAWSKI

SZKOŁA GŁÓWNA GOSPODARSTWA WIEJSKIEGO W WARSZAWIE

UNIVERSITÄT GREIFSWALD
Wissen lockt. Seit 1456

GREIFSWALD MIRE CENTRE

AARHUS UNIVERSITY

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Radboud Universiteit Nijmegen

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GRÜNE LIGA Netzwerk Ökologischer Bewegungen

CLEARANCE funders:

Water JPI

JOINT CALL 2016

European Commission

Narodowe Centrum Badań i Rozwoju

Innovation Fund Denmark

FNR
Fachagentur Nachwachsende Rohstoffe e.V.

Gefördert durch:

Bundesministerium für Ernährung und Landwirtschaft

aufgrund eines Beschlusses des Deutschen Bundestages

Förderung durch das EU Rahmenprogramm für Forschung und Innovation, Horizon 2020
Funded by BMEL based on a decision by German Bundestag.

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BRUSSELS DECLARATION

12. SEPTEMBER 2018

RESTORING RIPARIAN WETLANDS FOR CLEAN WATER AND AGRICULTURE – POLICY RECOMMENDATIONS FOR THE EUROPEAN WATER FRAMEWORK DIRECTIVE, FITNESS CHECK AND REVIEW PROCESS, AS WELL AS THE COMMON AGRICULTURAL POLICY REVIEW PROCESS

The European Water Framework Directive (WFD) is under review and a fitness check is being organised by the European Commission. The check follows the criteria of 1) effectiveness, 2) efficiency, 3) relevance, 4) coherence and 5) EU added value. The policy recommendations below emerge from the Clearance research project, the work of its partners as well as policy workshop in Brussels, 12.9.2019.[1]

The recommendations follow these criteria with a specific focus on the relation of nutrients from agriculture and their retention in wetland buffer zones along rivers. Throughout, the recommendations also stress the key importance of wetland restoration, and specifically rewetted peatlands, for climate mitigation and adaption.

The river basin management plans carried out for the WFD need clear nutrient reduction targets along with measures to reduce the pressure from agriculture on water quality. In accordance with the polluter pays principle of the WFD, good agricultural practices (including fertilisation limits) have to be defined and effectively enforced in implementation. For the further reduction of the remaining nutrient loads from agriculture, there are two interlinked options: agro-ecology and wetland restoration.[2]

Wetlands serve as a sink for nitrogen, phosphorus and greenhouse gases, if water levels and flow conditions are (semi)natural. Restored riparian wetlands on formerly drained organic soils allow greenhouse gas emission reductions of 10 – 35 t CO_2 equiv. per hectare/year[3]**, and riparian wetlands can remove most of the nitrogen and phosphorus load from agriculture.**[4]

Restored wetlands improve water cycling and slow down the outflow to lower parts of the catchment, thereby decreasing the risks of droughts and floods. Functioning wetlands provide habitats for specially adapted flora and fauna (biodiversity value) and can be connected to innovative types of wet agriculture. Agricultural harvest of wetland biomass supports the nitrogen and phosphorus removal function, and recovers these resources as building material, for energy production, fodder or composting. Thus, wetland restoration and wet agriculture are key for achieving the goals of a circular and carbon-neutral economy.[5]

1. Innovation for *effective* implementation: Make wetland restoration with wet agriculture a mission-oriented EU-innovation topic under FP9 with bottom-up demonstrations projects and experiments across Member States.

The WFD has received praise worldwide and has enabled many success stories of water protection. Still, its implementation is difficult and much delayed.[6] New scientific insights and innovative ways for effective implementation are called for. One of the tasks, beyond a still prevailing focus on market failure, is market creation and the development of new markets for wet agriculture and the bio-economy.[7] The policy context of the WFD can offer a rich environment for this by acknowledging, promoting and funding wetland restoration and wet agriculture within integrated water management plans as well as associated policies (see point 4).

2. Wetland buffer zones are a *cost-efficient*, nature-based solution to reduce nutrient load and therefore should be much more widely used.

Cost comparison of wastewater treatment plants and wetland buffer zones, as different measures for the reduction of nutrient loads in water, show the latter to be a cost efficient method.[8] In addition, they have co-benefits like flood control, local cooling, food and biomass production as well as the value of wetland communities for biodiversity and recreation.

1) We would like to thank all participants for their valuable contributions.
2) Wetlands are "areas of marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt" (Ramsar Convention). It "may incorporate riparian and coastal zones adjacent to the wetlands" (ibid).
3) G. Jurasinski, A. Günther, V. Huth, J. Couwenberg & S. Glatzel (2016) Greenhouse gas emissions. In: Paludiculture – productive use of wet peatlands, pp. 79–94 (see footnote 4 for full reference).
4) C.C. Hoffmann, P. Berg, M. Dahl, S.E. Larsen, H.E. Andersen, B. Andersen (2006) Groundwater flow and transport of nutrient through a riparian meadow – field data and modeling. J. Hydrol. (331) 315–335.
5) W. Wichtmann, C. Schröder & H. Joosten (2016). Paludiculture – productive use of wet peatlands. Climate protection, biodiversity, regional economic benefits. Stuttgart: Schweizerbart Science Publishers.
6) See the 4th implementation report – http://ec.europa.eu/environment/water/water-framework/impl_reports.htm#fourth.
7) See Clearance WP 5 – R. Ziegler (2018) Innovation towards a circular economy – an exploration of water alternatives from a civil society perspective", ISIRC 2018 Heidelberg; M. Mazzucato (2016) From market fixing to market-creating: a new framework for innovation policy. Industry and Innovation 23 (2) 140–56, 2016.
8) See M. Trepel (2010) Assessing the cost-effectiveness of the water purification function of wetlands for environmental planning. Ecological Complexity (7) 320–326.

3. Encourage member states to assess best approaches to wetland restoration and wet agriculture given their institutional and geographical contexts ensuring *relevance* of this approach.

About two-third of European wetlands that existed a hundred years ago have been lost.[9] In addition to the loss of habitat for wildlife and of nutrient retention capacities, in particular drained peatlands are a potent source of greenhouse gases. Globally, the EU is the second biggest source of greenhouse emissions from peatlands after Indonesia. 99 % of these emissions are caused by 16 out of 28 Members States, especially from Northern and Central Europe; for example in Germany, drained peatlands contribute 8 % of the agricultural area while their emissions cause 37% of emissions from agriculture.[10] Member States have to develop appropriate rules and incentives, including funding possibilities for improved agricultural practice as well as wetland restoration and wet agriculture, keeping in mind also the 2050 climate change goals of the Paris agreement and associated emission reduction planning.

4. Meeting the WFD goals requires policy *coherence*, especially with the Common Agricultural Policy (CAP) and Regional Development plans.

A shared understanding of water as an inter-sectoral challenge for water management, agriculture, environmental protection, energy, industry and transportation provides the basis on which to implement the WFD. In particular, the instruments of the CAP are crucial for meeting the goals of the WFD. For example, the nitrate limit of 50mg/l is difficult to achieve, if CAP instruments heavily subsidize intensive agriculture and the use of mineral fertilisers but not wet agriculture on rewetted soils. Members States should be encouraged to draw on the state of the art to ensure that wetland-adapted plants and value chain options of wet agriculture are appropriately recognized. Cross-compliance with WFD goals is needed, and the plan to include WFD nitrate and phosphate goals as well as buffer strips as part of CAP conditionality is therefore much appreciated. Buffer zones should be defined functionally in terms of effective nutrient removal. Climate mitigation and adaption measures are also very welcome in CAP conditionality. Effective protection and restoration of carbon-rich soils is a key contribution to meeting the Paris goals. Wetland restoration and wet agriculture should be systematically supported and promoted under CAP. Monitoring and scientific assessment of wet agriculture across different types of wetlands and wetland buffer zones is important to improve the knowledge base and planning possibilities for farmers as part of the EU circular economy initiative. EU regional rural development finance should be considered systematically as an opportunity for wetland restoration and wet agriculture as a land consolidation 2.0, as the example of Denmark suggests.[11] Misuse of regional development finance for so-called "river maintenance" and "dredging" should be stopped[12] and likewise CAP subsidies for agriculture on drained wetlands. Instead, restoration and wet agriculture as alternatives for local economy actors should be promoted.[12] A final but important consideration is climate protection and the co-benefits of wetland restoration for emission reduction as well as improved water retention in the landscape, thereby improving terrestrial water cycling and climate change adaptation in times of increasing floods and droughts.

5. Establish an EU-level expert group on wetland restoration and wet agriculture to ensure *EU added value*.

The WFD is well known for its principle of catchments rather than administrative territories as the primary unit of organisation. Like rivers, climate change does not stop at national or regional borders. An EU-level expert group would ensure knowledge sharing between Member States and joint action for meeting European water and climate protection goals. It would assess the state of the art in research and practice, develop results-oriented methods and indicators as well as an effective communication strategy to improve awareness of wetland restoration options and capacity building across Member States. It is important to move from good but often isolated projects and new ideas to effective strategies with structural impact at the scale of catchments and landscapes.

9) See https://www.eea.europa.eu/publications/92-9167-205-X/page015.html.
10) See Greifswald Moor Centrum, Informationspapier zur Rolle der Moore in der Gemeinsamen Agrarpolitik (GAP) ab 2011, June 2018. By contrast, in Southern Europe tourism and hydropower might be especially important considerations (see "Water, Wetlands and Nature-based Solutions in a Nexus Context in the Mediterranean", Policy Brief, August 2018 by offyourmap.org).
11) On land consolidation see M. Hartvigsen (2014) Land consolidation and land banking in Denmark - tradition, multi-purpose and perspectives, Danish Journal of Geoinformatics and Land Management 122 (47) 1-7. On nitrate retention see C. C. Hoffmann & A. Baattrup-Pedersen (2007) Re-establishing freshwater wetlands in Denmark, Ecological Engineering (30) 157–166.
12) See E. Jablonska et al (2013) Summary and interpretation of the preliminary findings of the report – Inventory and assessment of the environmental effects of 'maintenance', WWF: Warsaw.
13) See Clearance WP 3, and for good practice examples see https://www.moorwissen.de/en/paludikultur/imdetail/umsetzungsbeispiele/umsetzungsbeispiele.php.