



SCIENCE AND TECHNOLOGY OPTIONS ASSESSMENT OPTIONS BRIEF No 2013-01, May 2013

The Sustainable Management of Natural Resources, with a focus on water and agriculture

Water is a key natural resource targeted within the resource efficiency policy of the European Union, as well as within the global policy frameworks of the UN. Both water quality and water quantity play an important role in the sustainable management of this natural resource. Agriculture is dependent on many natural resources amongst which water. Climate change is expected to exacerbate existing pressures on both water and the agricultural sector, such as more frequent and more severe droughts and floods, affecting agricultural soils, and requiring adaptation by water users, farms, regions and Member States. Against evidence of pressures on water in the EU, this study has developed recommendations focussing on:

- **Sustainable water use and water efficiency**, while highlighting issues linked to agriculture and other sectors;
- **Agricultural land management with soil and water benefits**;
- **Measures within the Common Agricultural Policy (CAP)** to address sustainable management of water resources, including water quality, water use, regular water flows and sustainable management of soils.

This brief highlights recommended priority options in these areas. These options promote the EU's goals to achieve good ecological and chemical water status and improved performance of the agricultural sector, alongside other sectors. At the same time, the options aim to ensure that European agriculture maintains its natural resource base to be able to continue producing food in the future.

Six key areas for improvement have been identified:

- **The legislative framework** currently in place to protect Europe's waters needs to be implemented fully and effectively as well as adequately enforced.
- **Water priorities that have been articulated at the EU level** need to be more fully integrated and well implemented within the sectoral policies at EU, national and regional levels.
- **Water losses should be reduced and water savings and efficiency** should be increased, in particular in agriculture and water scarce areas.
- **Land and soil management approaches** aimed at combatting soil erosion, preventing loss of soil organic matter, sequestering soil carbon and improving water retention are critical for long-term sustainability of farming and healthy ecosystems. The CAP should play a role in promoting these approaches, but farmers and national and regional administrations should also initiate action.
- **EU funds, including CAP funds, allocated to water priorities** should be used in an efficient and effective way.
- **Improved data and decision support tools relating to water and soils** are essential for making informed decisions that support sustainable management of water and soil.

To make progress in these key areas, the following priority options should be addressed.

1. Options for sustainable water use and improved water efficiency

Fully implement and enforce regulations at national and local level

The body of existing water policies at EU level addresses the majority of relevant issues that impact on water use and water efficiency. The Water Framework Directive (WFD) is an overarching policy instrument that should drive improvements across the EU. Better enforcement and implementation of the whole regulatory framework is essential for reducing negative impacts on water, including impacts from agriculture. Stopping illegal water abstraction is one of the key improvements needed.

Better integrate water priorities into agricultural and energy policies; climate- and biodiversity-proof river basin management measures

Water priorities that have been articulated at the EU level need to be more fully integrated into and well implemented through sectoral policies at EU, national and regional levels. Energy and agriculture are major users of water and impact water quality, therefore, within these sectoral policies negative incentives should be reduced and water issues addressed. Safeguards should be introduced into bioenergy policies so that biomass cultivation and extraction does not lead to further pressure on soils and water.

Reduce water losses, increase water savings and efficiency

Several complementary approaches must be promoted. First, water savings and more efficient use of water should be achieved through water metering, improving irrigation efficiency, reducing leakages to a sustainable economic leakage level, and irrigation scheduling. In particular, water metering should be introduced and enforced via water policies, and could potentially target water scarce areas or water-intensive cropping systems. Second, improved water availability should be achieved through water re-use, rainwater harvesting and storage. EU-wide standards should be developed for water re-use. Third, improved land and soil management approaches will provide important water benefits.

Improve decision-making through the provision of better information and improve water allocation rules

Water is, to a large extent, a local issue but with cross-border dimensions and subject to change in time, so the same activity in different catchments, years or seasons may not have the same impact. Improved tools that provide information at the right scales and resolutions are necessary for policy makers, businesses and farms. Decision support tools, for example irrigation scheduling for farmers, robust methodologies for accounting for water balances and ecological flows to inform water allocation and pricing, and a thorough cost-benefit analysis including externalities, as required in the WFD should be developed and used more widely.

Ensure effective use of EU funds aimed at improvements in water infrastructure

Certain capital investments to increase water efficiency, metered water use, and water savings may merit public support under Structural and Cohesion funds, rural development, EIB loans, and LIFE+ funds. However, EU funds should be granted only for modernisations with clear additional environmental benefits over and above that which would have been achieved without the funding in place. The grants should thus comply with stringent eligibility criteria and safeguards. Several supporting options are also needed, such as research and innovation support, target-setting, guidance and information, and capacity-building.

2. Options for land management with water and soil benefits

Promote sustainable land and soil management practices through appropriate policies

Land management approaches to increase natural water retention at landscape level and soil management approaches to combat soil erosion, prevent loss of soil organic matter and sequester soil carbon should be promoted at EU, national and regional levels. Requirements for permanent vegetation cover should be applied more consistently under the GAEC – this would be highly effective in

combatting erosion. Second, maintaining and restoring wetlands, wet meadows and floodplains has valuable benefits for natural water retention, habitats and climate regulation, and critically depends on the CAP, LIFE+ and national funds. Other soil management actions, such as more complex crop rotations, intercropping of legumes or other N-fixing crops and reduced tillage can be promoted by agri-environment schemes where they go beyond the baseline requirements. Dissipation of large amounts of agri-environment-climate budgets on basic soil practices should be avoided.

Adopt good practices for identifying soil risks at regional and local levels across the EU

Priorities for soil management depend on identifying places where actual soil risks occur. Several approaches exist for identifying locations with soil risks, but they are not applied everywhere or sometimes inappropriate methods are used. There is a need to develop the technical capacity and tools to identify such areas, such as maps and soil inventories, incorporating local knowledge on nutrient levels and soil structure as well as scientifically validated sustainability indicators for adequate targeting of risk areas.

Establish routines for climate-proofing relevant regional and national programmes

Climate-proofing regional and national programmes and strategies (for several sectors in addition to agriculture and rural development such as industry, forestry, energy, business, or tourism) is a proactive approach to assessing the potential impact of soil management on climate change mitigation and adaptation. Integrating them into the regular cycle of programming rather than creating a separate task would be a cost-efficient solution.

Several supporting options are also needed, such as streamlining, guidance, raising awareness, etc.

3. Options for improved water and soil management through the CAP measures

Ensure that CAP cross-compliance requirements relating to water and GAEC standards relating to soil are strengthened and appropriately enforced

Basic soil and water management should be better integrated into the cross-compliance requirements and more adequately enforced. There are a limited number of current GAEC requirements operating within Member States that are specifically focussed on soil organic matter (SOM). Reinforced requirements are needed in particular to maintain soils containing low SOM that are at risk of complete depletion and soils containing high SOM such as peatlands and wetlands where the risk of large carbon losses is highest. Basic actions (permanent vegetation cover, contour ploughing and buffer strips) should be more fully enforced through the GAEC framework. The Sustainable Use of Pesticides Directive should be retained in the revised list of SMRs. The GAEC standards for the protection of groundwater against pollution and protection of soil organic matter should be kept in the revised framework, as agreed in the plenary vote by the European Parliament. The WFD should be re-instated in the list of SMRs. Training and advisory services should play a role in improving farmers' knowledge of the sustainability benefits of the GAEC standards.

Use RDP funds for capital investments only when significant benefits for water and soil are demonstrated; use stringent safeguards and eligibility requirements for water savings

Funding to improve sustainable water use, water efficiency on farms, and water quality should be carefully assessed against anticipated water impacts. Often these capital investments are driven primarily by economic objectives and have low additional benefits compared to investments that would have taken place without support. Therefore, it should be ensured that only infrastructure investments with demonstrated high water savings or water quality improvements receive public support. Where upfront costs are a barrier to the capital investment into new infrastructure on farms, for example in manure storage, public support is justifiable. If approved, the eligibility requirements set out for irrigation in the proposed Rural Development Regulation will be a welcome improvement.

Use RDP funds for land management only when significant benefits for water and soil are demonstrated or in priority areas; avoid double funding

RDP funds should be made available for land-based management with improved water and soil outcomes only where high impacts are demonstrated. In the CAP, these could be agri-environment-climate actions (which should build on lower tier requirements, including green payments and cross-compliance) and WFD payments. The use of CAP funds for remedial actions for agricultural water pollution, such as improved manure management, must be avoided. For these actions, the polluter-pays principle applies. Dissipating constrained agri-environment-climate allocations for business as usual management should be avoided.

Ensure that the 2017 and 2019 enhanced CAP reporting demonstrates the outcomes of Pillar 1 greening measures and RDP support for water and soils

The environmental elements of the revised CAP, most notably Pillar 1 greening measures, will be finalised in the Parliament, Council and Commission negotiations in the coming weeks. In the future, their environmental impacts should be rigorously monitored. It should be ensured that enhanced reporting in 2017 and 2019 on the use of CAP expenditure, foreseen in the proposed financing and monitoring regulation¹, adequately assesses impacts of greening measures and other environmental components of the 2013 reform. Such assessments would provide the necessary information to potentially improve sustainability impacts through CAP funds after 2020.

Based on a STOA study by the same title published in May 2013 (PE 488.825).

Editors:

IIEP, the Institute for European Environmental Policy
BIO Intelligence Service
Ecologic Institute

Authors:

Poláková J.; Berman S.; Naumann S.; Freluh-Larsen A.; Von Toggenburg J.; Farmer A.

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For further information, please contact:

Lieve Van Woensel, STOA Unit
Directorate European Added Value and Impact Assessment, DG Internal Policies
European Parliament
Rue Wiertz 60 - RMD 00J0012, B-1047 Brussels
E-mail: stoa@europarl.europa.eu

www.europarl.europa.eu/stoa/



¹ Article 110 of the proposed financing and monitoring Regulation COM(2011) 628/3 under negotiation between the European Parliament and the Council.