

RISE Foundation position paper on Water and Agriculture

The challenges and possible solutions



The Water Framework Directive (WFD) requires that river, lakes, ground and coastal waters reach good ecological and chemical status by 2015. **Considering that:**

- ✓ On average 40 % percent of EU land-use is utilised agricultural area;
- ✓ In places over 80 per cent of rivers and 75 per cent of groundwater are under pressure from diffuse pollution;
- ✓ In terms of quantity, on average, 24 % of total water abstraction in Europe is used for agriculture (in Southern countries it can be more than two thirds);
- ✓ Two thirds of European river basin districts show that nutrient enrichment is due to farming practice and in just under half of River Basin Districts, water contamination from priority substances comes from agriculture;
- ✓ The Global Environment Outlook estimates that the developed world will see water consumption demands rise an additional 18% by the year 2050 (ca. 40% in the developing world)

It is obvious that agriculture impacts in many ways the good chemical and good quantitative status of groundwater and surface waters; and that significant progress is needed to reach the goal of **sustainable water management in agriculture**. It is imperative that agriculture achieve more ‘crop per drop’, and that water management be part of a holistic approach to resource management in an era of intense pressure on natural resources and climate change. Agriculture is not solely responsible for all these pressures, but it is a large contributor and therefore must be a key factor in any solution.



Farming can generate many pollutants, including nitrates, phosphates, pesticides, slurries, soil particles, heavy metals, oil from machinery and faecal pathogens from livestock manure. However many of these are also essential inputs to productive farming in an era of growing global food insecurity when there is a need to maintain and even improve yields to meet the rising demand. Therefore, we need:

- ✓ An appropriate mix of **sound regulatory policies** which clarify farm level obligations as well as cost distribution among water users and beneficiaries;
- ✓ **Technology** which helps farmers optimise the use of inputs and get more ‘crop for their drop’;
- ✓ Sound **extension services** to help the farming sector receive the support and training it needs to improve holistic management of resources at farm and river-basin level;
- ✓ **Public-private initiatives and financing** to compensate for the shortfall in public funds compared to ambitions in full knowledge of the fact that public spending and regulation alone without the participation of the market and the private sector will **fail** to adequately address the pervasive market failures that have led to the undersupply of public goods in agriculture.

It is also vital to ensure a **better body of information, knowledge and monitoring** to cover the hydrological and environmental aspects of water systems across Europe to improve the

decision-making process which is necessary to advance the sustainable management of water. All stakeholders must also be involved in the design of policies, and the planning and management of water resources because we cannot expect farmers to initiate changes in their water management purely based on upward shift in the regulatory baseline – they will be far more likely to initiate changes if their awareness of sustainable water management can be managed through partnerships, voluntary schemes or innovative market measures where they are leaders in the process rather than recipients of aid contingent on respecting rules.

All farmers, including small farmers need to develop water management strategies which collectively will help move the farming sector in the direction of more sustainable water management. Policy-makers need to seek ways to encourage farmers, water service providers and users to form associations aimed at improved water management using a **multidisciplinary, integrated approach towards water policy**.

1. Regulatory policy (CAP and WFD)



Wide calls from environmental organisations to include the WFD explicitly in the cross compliance regime under pillar one have not fully materialised in the legislative proposal from the European Commission for the CAP post 2014 released last October. Without the inclusion of specific WFD objectives in cross compliance, water-related actions under the second pillar will not be sufficient to counteract pressures on water quality and availability which have been in the past encouraged by pillar 1 payments. It

is imperative that pillar one work better with the WFD and pillar two to support sustainable water management in the future. The legislative proposal from the EC is in its current state, insufficient to protect water resources and encourage farmers to keep it clean and use less for the following main reasons:

Firstly, the extent to which WFD will be included in cross compliance remains ambiguous. For WFD obligations to be included in future statutory mandatory requirements, the SMRs or GAEC standards would need to set out clear farm-level requirements. Currently, some articles in the WFD make it clear which obligations fall on farmers while others are less clear. This needs to be clarified and interpreted uniformly across all member states. E.g. by making it explicit that the abstraction of water for irrigation without a permit would not be tolerated by including this WFD article in the cross compliance regime.

Secondly, improving water management presupposes a strengthening of extension services that is unlikely to take place (rural development funding is set to decline in real terms and detail on how to improve the Farm Advisory System is scant). Sustainability as well as competitiveness will fall short without a massive increase of, and improvement in extension services advising farmers on how to adapt. If green targeting penalizes farmer income, it will fail.

Thirdly, the reform does not mention public-private cooperation which addresses innovative payment schemes for public goods provision which are so important for a sector where resource ownership and use is highly fragmented, and where the principle of cost-recovery involves a large number of stakeholders.

Technology

Plant protection and fertilization are inherently linked to sustainable water management and food production and can increase water efficiency in agriculture. Improving crop yield (or rather reducing crop loss) is one contribution to more sustainable fresh water management, another is reducing the water required to grow a crop. New technologies offer valuable solutions for areas that currently experience drought conditions, or due to climate change might expect to in the coming years. On the other hand, if used inappropriately, plant protection products and heavy nutrient loads can also lead to groundwater pollution which once polluted can be difficult to clean. In order to improve their application practices and handling, it is necessary to encourage and support new technologies which can help farmers decrease the amounts of inputs needed in farming and minimize the risk of run-off and leaching – many of which already exist and include: advanced censoring and GPS monitoring, focused spray nozzles, and drip and micro irrigation technologies. This needs nonetheless to be supported by adequate research on microbiological alternatives for pest control, innovative nutrient recycling systems which better integrate waste, energy and agricultural policies and adequate advisory services for farmers and spray operators on the pathways and impacts of the chemicals and ways of reducing environmental impacts.

Extension services:



A key aspect to achieving WFD objectives is offering advice and guidance to the farming sector; especially in environmentally sensitive farming areas but also more generally to help implement new greening measures. Regarding WFD implementation, it is crucial to develop a Farm Advisory System (FAS) to support the implementation of the cross-compliance requirements and standards which is carried out in a cooperative framework between key players such as chambers of agriculture, farmers, authorities,

and water agencies and utilities with a substantial amount of communication. The current FAS is highly heterogeneous and patchy across the EU member states and needs strengthening, whereas the CAP reform proposal offers little detail on practical ways it could be improved. It is clear that rural development funding for FAS is inadequate to meet the financial requirements of a broad-based FAS to go beyond the current cross compliance requirements and cover such important subjects as sustainable water management, climate change mitigation and adaptation, farmland biodiversity and fire and flood protection. The private sector can evidently play a substantial role in knowledge transfer to farmers upon the sale of new technologies and products but systems in which purely private schemes operate have tended to focus on profitability and product safety rather than public goods and a high level of environmental protection. A possible solution could be a combination of the public and private system (through pooled funding and management) to ensure added value and sound business sense is combined with public interest goals. In the meantime, more money could be ring-fenced under pillar 2 for FAS.

Public-private solutions:

Legislation is one among various ways of bringing about environmental improvements. It is however, urgent to bolster dwindling public funds available for spending on public goods with private funding to share the costs of good water management among diffuse groups of stakeholders. This requires finding payment methods which not only offer an efficient incentive to providers, but also take equity and sustainability considerations into account for all stakeholders. Water pricing policies (incentive pricing, cost recovery and the polluter-pays principle) can surely act as an incentive for the sustainable use of water resources and ensure that the costs of water services, including environmental and resource costs, are recovered; and revenues generated by water-related green taxes and charges to specifically support adaptation measures in the agricultural sector



can also help, as can rural development funding through the CAP. But the WFD objectives cannot be achieved without close cooperation among all the stakeholders directly involved, who have the necessary knowledge of site-specific hydrological and agricultural conditions, and without additional financial resources. Because of the limitation of public funds under the CAP, additional sources of funding and supporting voluntary schemes have to be found. A few examples follow:

1. **European Water Stewardship** - Because of the limitation of public funds under the CAP, the benefit of voluntary solutions such as the European Water Stewardship (EWS) system created by the EWP should be hailed to help the farming sector receive the support and training it needs to move further towards sustainable water management. In so far as such a system could also in time, develop an advisory service at the river basin level, notably through cooperation with farmers associations, this could also go a long way in closing the gap between the declared ambitions to bolster the advice and training given to farmers to support their implementation of greening elements in the CAP, and the unlikely allocation of sufficient funds to such a goal. Furthermore, EWS places farmers at the centre of strategies for water management at farm level, which has the advantage of being a bottom-up process as opposed to the top-down nature of CAP regulation.

The EWS is part of a new water governance approach which should:

- ✓ Raise awareness of the role of major water users in reaching the objectives of the WFD in terms of water abstraction and water status;
- ✓ Improve the holistic management of resources on the farm since water use is also connected to energy use and other inputs and participating farmers are asked to develop a water management strategy ;
- ✓ Improve cooperation of water users at river basin level in line with the WFD philosophy.

2. **Contracts for services** -Cooperative, bilateral, binding agreements between private or public water companies on the one hand, and farmers, foresters and other land managers on the other, in their catchment area can allow to manage land in such a way as to reduce some costs of water treatment and save other costs by avoiding well closures and/or tapping remote water resources. Compensation payments and other economic advantages of co-operative agreements are only one of the advantages of this kind of deal. The economic efficiency of voluntary cooperation can be assessed by comparing the total expenditure for changing farming practices (including advisory programmes and monitoring services) with the costs

saved, such as in water treating and blending, conveying remote resources, using mineral fertilisers and pesticides. The arrangement is economically efficient if the difference between saved costs, which are equivalent with economic benefits, and the total expenditure is positive, i.e. the economic net benefit has a value greater than zero. Many contracts for services also rely on non-economic advantages as incentives. In some cases, the threat of litigation, hand-in-hand with the polluter-pays principle, can provide enough incentive for farmers to reach an agreement with the authorities and/or water utilities. The environmental effect of these contracts for services can be enhanced if they underpin appropriate regulatory measures, whether water-based or not (e.g. measures regarding land-use activities), as well as relevant public support measures (e.g. single farm payment, crop insurance).

3. **Habitat banking** – This is an innovative new financial mechanism which can bolster the finance available for sustainable water management by farmers by creating new revenue streams for public goods provision. A ‘habitat bank’ helps address losses to ecosystem services, including biodiversity, by putting a price on ecosystem damages, and involving all relevant stakeholders. For example, **Environment bank ltd** incentivises developers to buy Conservation Credits as indemnity for ecological damage from new development; it then uses these credits to finance investments by land managers, who are prepared to forego income from production activities in order to restore areas of land creating new wildlife habitats, wildlife corridors, wetlands, woodlands; providing flood mitigation and storing carbon, reconnecting fragmented habitats and so on. This helps farmers obtain the income necessary to provide more eco-system services to society, and their respect of regulatory obligations such as those regarding the Habitats Directive, the WFD, nitrates and pesticides utilization, and agricultural practices, is enhanced. The Community benefits from a better environment, and can appreciate the benefits of new developments without the loss of vital eco-systems.



How is RISE supporting these objectives?

✓ **CAP reform**– publication of a study for the European Parliament What tools for the European Agricultural Policy to encourage the provision of public goods? – with a special push for flanking measures to support the regulatory measures and help farmers obtain the necessary incentives to improve their natural resource management (together with the IEEP, Vti and INEA); intellectual input for the annual Forums for the Future of Agriculture organized by ELO and Syngenta, Green week, and many other workshops and conferences on CAP reform and WFD.

✓ **Water stewardship** -Collaboration with the **European Water Partnership** (EWP) to pilot test their Water Stewardship Programme on two pilot farms in the region of Kortrijk, in the Leie River basin, Western-Flanders. RISE financed the training given to farmers, and the external evaluation and advice provided to farmers This pilot project, along with others across Europe revealed that there is still a long way to go before we reach the goal of sustainable water management across river basins in Europe. RISE plans to actively work with the EWS to help develop this next stage of the project and looks forward to continuing its fruitful partnership with them. A new project will follow in 2012.



✓ **Innovative financial mechanisms** - In 2011, RISE began supporting the work of the **Environment Bank Ltd** to promote the concept of habitat banking to support the provision of public goods provision in agriculture. We supported this instrument as a flanking measure to deliver public goods alongside the CAP and are organizing a workshop to promote the initiative in the EP in December. RISE will continue to push for this instrument to be piloted and developed across Europe as part of the ‘no net loss’ to the environment initiative included in the European biodiversity strategy released by the Commission in July. We hope to show the win-win nature of such an instrument for developers, farmers, planners, local and regional governments and rural citizens.

✓ **New technologies** - in 2011 we began working with the Lombardy based **Acqua & Sole** group to promote a project integrating agriculture and energy policies through nutrient recycling in Lombardy. This is a private initiative to support a better recycling of nutrients in the soil so that farmers can be less dependent on imported mineral fertilisers and reduce the amount of surplus nutrients in the soil and groundwater. The technology works by recycling municipal sewage sludge and organic waste in a thermal reactor unit which removes harmful substances to produce a clean fertiliser without pathogens which farmers can obtain free of charge to apply to nutrient-deficient land as an alternative to chemical fertiliser. We will organise workshops to promote such new technologies which support farmers economically and with environmental management in 2012.

Conclusion

Pervasive air, soil and water pollution in agriculture cannot be effectively tackled simply by strengthening the regulatory framework alone and without a holistic approach to natural resource management. Furthermore, unless the relevant measures can be made attractive to farmers, and flanking measures alongside the CAP,(including innovative financial instruments, voluntary schemes and the market) are harnessed at the same time, the widespread uptake and implementation which is needed to secure the sustainable management of our finite water resources will fail. Farmers can be expected to comply with measures aimed at enhancing public goods production if they are well briefed, can rely on stronger and efficient extension services, and benefit from the necessary incentives. We aim to support all initiatives which lead in this direction.

2102 is the international year of water, help us make it a plentiful one!

Please contact us for more information about our ideas, projects and priorities.

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