Conference Summary

CAP & WFD Workshop

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Draft Version

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Table of Contents

1 Background and aim of conference

After more than five years of discussions and negotiations, the EU Water Framework Directive (2000/60/EC) entered into force in 2000. The Directive sets a framework for the protection of all waters with the aim of reaching “good ecological status” for all Community waters by 2015. The successful implementation of the Water Framework Directive (WFD) depends strongly on agricultural land, use which is mainly influenced by the Common Agricultural Policy (CAP) (Herbke et al., 2006).

Acknowledging this, the Water Directors agreed in June 2004 to take action in the field of agriculture and water management by establishing the EU Strategic Steering Group (SSG) on WFD and Agriculture. During 2005-2006, the SSG mainly focused its activity on identifying the gaps between WFD requirements and what the existing CAP may deliver. Options were explored to bridge these gaps, but the level of analysis under the 2005/06 mandate was limited.

Two major conferences were held in London on 20-21 September 2005[1] and Vienna on 3-4 March 2006[2], starting a discussion process among the different Member States and both sectors (agriculture and water management). In order to address the gaps of previous work under the new mandate of the SSG, the continuation of the exchange of information was agreed, with the aim to identify best practices or "success stories" that should stimulate the further policy development in water and agriculture.

The Conference “WFD meets CAP – Looking for a consistent approach” (20-21 September 2007, Paris) was designed to provide a forum to discuss the different national approaches to tackle agricultural pressures as well as different types of measures (economic, supportive and technical). The event also started to trigger the exchange of different experiences gained and to share lessons learned from the different approaches.

Furthermore, prospective questions, such as the impacts of new technologies, the effects of the EU Biomass Action Plan, have also been dealt with lightly so far. The conference aimed to address these issues in more depth for the first time. In addition, in view of recent developments of the issue of water scarcity and droughts, there was a specific focus on the way to address these water quantity issues.

Finally, the conference aimed to further explore the links between the implementation of the WFD, and the CAP.

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1 For more detailed information on the London conference and the individual presentations, please refer to http://www.defra.gov.uk/environment/water/wfd/0509-conference/index.htm. (last accessed on 7th Sept. 2007).

2 The Vienna conference summary as well as all presentations can be downloaded from http://www.ecologic-events.de/cap-wfd/index.htm. (last accessed on 7th Sept. 2007).

2 State-of-play of WFD and agriculture related issues

Jean-Claude Vial (French Water Department), in his opening speech of the conference, exposed the principal issues to be considered:

- What sorts of measures should be envisaged, and how to evaluate their intrinsic interest, while considering their cost and the effectiveness of their implementation?
- How to rank and combine in a pertinent manner the different types of measures for a river basin district, in order to optimise their implementation with regard to the objectives imposed by the WFD?
- How should the cost of the programmes of measures be evaluated? Is the planned financial framework suitable, and are adequate financial resources available in order to achieve the WFD objectives?
- How to ensure that there is total coherence between the policies implemented as part of the WFD, and the changes that are being made to the CAP (end of the compulsory set-aside, CAP health check, CAP after 2013)?

There were five presentations during the plenary session to lay the foundation for discussion in the working groups which followed. They addressed the main linkages between water and agricultural policies and recent developments in both policy areas.

The first presentation by Stephanie Croguennec (DG Environment) discussed the inter-linkages between WFD implementation and agriculture issues. She reported on the state of WFD implementation and current issues surrounding agricultural production. On WFD, Croguennec stated that significant progress in implementation had been made but that the economic analysis with respect to cost recovery and water pricing needed further work. For agriculture, it was pointed out that in some Member States only partial decoupling had occurred for irrigated crops and the potential impacts of increasing crop prices had to be further addressed.

The Communication on water scarcity and droughts had been recently presented. With regards to agricultural issues, farming has significant impacts, particularly through over-abstraction and irrigation. Future adjustments of the CAP and the Health Check of 2008 could provide opportunities to examine how to further integrate water quantity issues in the relevant CAP instruments. The presentation explained the concept of water hierarchy, meaning that additional water supply infrastructure should be considered as an option only when other options have been exhausted, including water savings, improved water efficiency, effective water pricing policy. The need to ensure an efficient use of EU and national funds to improve water demand management, in particular through measures of adaptation, sustainable practices and more water savings was also highlighted. (for more information on the Communication on water scarcity and droughts, see: http://ec.europa.eu/environment/water/quantity/scarcity_en.htm).

Mark Cropper (DG Agriculture) gave a presentation on agriculture policy, focussing on the history of the Common Agriculture Policy's reforms and the gradual integration of environmental considerations. Cropper discussed the evolution of CAP from a focus on productivity to increasing competitiveness and enlargement and finally

incorporating sustainability criteria. Specifically, the 2008 Health Check was presented as a way to allow the possibility of further adjustments in line with the market and other developments such as adapting to new challenges including water management and climate change.

Faycal Bouraoui's (JRC) presentation concentrated on agricultural impacts on water resources in a changing environment. Specifically, he spoke about JRC's FATE project, which looked at the impacts of agrochemicals on the European water environment. Areas most vulnerable to high concentrations of nitrate and phosphorous were identified through computer modelling. Biomass crops (wheat, sunflower and rapeseed) were presented through computer maps to show agrichemical and water efficiency patterns in regions across Europe. Climate change impacts were also modelled so as to look at different scenarios with respect to chemicals and water efficiency. The work carried out by the European network of pilot river basins was also presented. Specifically the results related to the identification and prediction of pressures from agriculture as well as the initial development of a catalogue of mitigation measures.

Maria Fuentes' (DG Agriculture) presentation on climate change impacts on European agriculture focussed on the adaptation challenge for agricultural production. Challenges and uncertainties regarding adaptation were discussed with respect to land use, production methods and farm structures and strategies. Moreover, Fuentes stressed the need to improve adaptive capacity to deliver adaptation actions that farmers can use, in particular through the CAP.

Jan Erik Petersen (EEA) brought the plenary session to a close with his presentation on the current state of bioenergy in Europe and the importance of biomass production increasing in a sustainable way. He discussed the potential impacts on water resources with respect to quality and quantity, pathway and energy cropping approaches, impacts of the conversion process and impacts of cropping practices. Potential benefits of biomass production were also discussed for example using energy crops as buffer strips for limiting impacts from flooding. Preliminary conclusions that were drawn included the need to develop renewable energy resources in a sustainable way and the need to better integrate energy, water and agriculture policies.

3 Results from the Working Groups

3.1 Working Group 1

The discussions and results of this working group have been presented around the 3 leading questions of the working group. However, the discussion went wider than these questions onto the general issues of importance for cost and benefits work:

Question 1: "What are the key technical measures selected by your MS?"

- A variety of approaches are currently being tested and applied throughout Europe for developing the cost-effective sets of measures for implementing the WFD; the approaches of the three presentations were varied but addressed some common issues and difficulties.
- Lists / compendium of measures that could be used for WFD implementation regarding pressures coming from agriculture are often set up at national or river basin level. Such compilations identify and assess measures and their effectiveness and in some cases already move towards the identification of the most cost-effective list of measures to be considered.
- The key measures to be considered are mainly aimed at changing agricultural practices and reducing inputs; more details on specific measures can be found in the three presentations given. See http://www.ecologic-events.de/cap-wfd/en/programme.htm
- An overall important issue is the use of advisory measures aiming at reaching a win-win situation (reduction of agricultural pressures and reduced costs for farmers);
- Measures having multiple effects on the environment are particularly difficult to assess and rank.
- Depending on what specific cost-effectiveness is looking at, the information/monitoring requirements vary. For example, if selecting cost-effective measures on groundwater only within the agricultural sector, then measurements of nutrients in the top layer of soil at the start of the groundwater recharge period are needed. If searching for a cost-effective solution including all sectors (agriculture, households, industry), then measurements of nutrients in the surface water are required.
- Beyond technical measures, it is important to consider the current legal framework and potential changes to be made that could lead to an improved environmental status as well as use of economic instruments.

Question 2: "What are the tools for the calculation of cost effectiveness /cost benefits?"

- At the beginning of the process, it is important to clarify and define different scenarios on the objectives to be reached/level of ambition. Besides a scenario on reaching good ecological status in all water bodies, the feasibility of the objectives needs to be assessed during the first implementation cycle.
- Expert judgements are important and acceptable in this process, especially regarding the effectiveness of measures. As far as possible, these

assessments should be supported by modelling approaches and statistical analyses.

- A variety of approaches for assessing cost-effectiveness are used; especially the approaches for the effectiveness assessment vary (e.g. developing specific indicators e.g. Euro/kg reduction of a certain substance or establishing a more general ranking/prioritisation of measures).
- In this process, due to the uncertainties related to the costs and esp. effects of measures, using ranges for costs & effects of measures is advisable.
- The scale and scope for the cost-effectiveness assessment does make a difference for the results and interpretation of the results, e.g. looking at one pollutant vs. number of pollutants affects CEA results. In addition, changing scales influences the assessment of the measures' effects (e.g. they can be different across sub-basins or change when one moves up the scale and considers also the interlinkages between sub-basins).

Question 3: Are WFD exemptions for the agriculture sector being used or considered?

- In general, time exemptions and not lower environmental objectives are looked at in most Member States for the first implementation cycle of the WFD (due either to "natural conditions" esp. for groundwater or disproportionality of costs).
- Limited work has been done so far on assessing possible exemptions; because MSs are focusing their work on selecting possible measures first.
- So far the costs of measures have been looked at. There are a large number of methodological constraints/difficulties especially on the benefit assessment side. Since usually only part of the benefits can be quantified, they are commonly judged as being much lower than reality ("incomplete benefit assessments"). The need to have full CBAs and especially of quantitative nature was discussed.
- Issues of acceptance of benefit assessments were raised, as well as the question on how to integrate them in their "incomplete" form into decision-making.
- The role/relevance of affordability for the issues of exemptions/the assessment of disproportionality of costs remains unclear and needs to be clarified very soon.

Outlook: Additional issues raised

- The CE-considerations so far focus on chemical quality issues. Hydromorphological pressures/measures remain a big problem, especially their integration into the overall selection of measures.
- The most central point on the WFD-programmes of measures remains the cost distribution: who will pay for the measures? It was noted that it is necessary to compare the current financing volume for water management measures and the required financing for implementing the WFD (both for reaching good status in all water as well as a "feasible", less ambitious scenario). In relation to agriculture, one would also need to estimate the costs

of such measures for the agricultural sector in a (sub-)basin, as well at the size of relevant (potential) payments of the 1st and 2nd CAP-pillar. It is certain that the current CAP 2nd pillar payments will not be able to contribute significantly to WFD-implementation, while the first pillar has a very significant financing volume. This should be of interest during the upcoming "health check" of the CAP and possibilities for improvement need to be identified, including increased support for water management within rural development programmes

- The need to have a better idea of the amount of rural development funds required to address agricultural pressures in order to meet WFD objectives was highlighted. This assessment should be carried out at river basin or district level. The outcomes would help to further integrate water issues into rural development programmes at EU level.
- The cost-effectiveness of rural development measures compared to the cost-effectiveness of further standards in cross-compliance was also discussed. In a context of increasing crop prices, pressures related to further development of biofuels and limited budget for rural development, reinforcing cross-compliance and identifying complementary instruments (including taxation and pricing) might prove more cost-effective than taking action limited to rural development programmes.

3.2 Working Group 2

Discussions in this working group showed that in most Member States compulsory and voluntary measures coexist. Therefore, also the programmes of measures of the WFD are likely to include both types of instruments.

Compulsory measures usually involve measures to comply with EU legislation which can be included into cross-compliance. In some Member States, there are also legislative measures going beyond EU directives. Voluntary measures usually involve activities under the agri-environmental measures of the Rural Development Programmes as well as cooperative agreements (e.g. between water companies and farmers).

Nevertheless, it also becomes clear that there is no "fixed" definition of voluntary and compulsory measures. For instance, buffer strips are often put forward as a voluntary measure but they can also be considered a kind of compulsory set-aside. In the latter case, it is however important to carefully consider local farm conditions, keeping in mind that not every farmer needs to establish a buffer strip and that the location of such strips can be as important as their size.

Compulsory measures were suggested as quite suitable for targeting technical issues and infrastructure. Several participants emphasised that, in any case, only measures which can be easily controlled are helpful, such as storage facilities for livestock manure. Behaviours are more difficult to change with compulsory measures only. Therefore, when it comes to changing farmer behaviour, we need to work more with advice and training (measures of voluntary nature).

Some participants also felt that in the context of selecting measures to tackle agricultural pressures on water resources, we should first consider the results of the cost-effectiveness analysis under the WFD (i.e. work with a ranking of measures on

the basis of cost-effectiveness) and then consider a distinction between compulsory and voluntary instruments.

Some limitations of compulsory measures were discussed, especially the fact that they are:

- Costly for farmers to implement.
- Often received sceptically, since they do not create a partnership “feeling” as some voluntary measures do.
- Generally uncompensated. However, cases of compensated compulsory measures were also mentioned by Member States which intend to go beyond good farming practices under certain regulations.

As regards voluntary measures, except for agri-environmental programmes and cooperative agreements, they can include also educational measures. Education activities are especially helpful to achieve win-win situations. For instance, educating farmers to use fertilisers more wisely makes them soon realise that in this way they also spend less on fertilisers.

Participants mentioned that there are some examples of successful voluntary initiatives which come from farmers themselves instead of government (the example of the Pesticides Voluntary Initiative on pesticides in the UK was mentioned).

Cooperative agreements were discussed in this working group in the specific context of farmer & water supply industry partnerships aimed at protecting local drinking water quality in small catchments. Several cooperative agreements of this kind already exist in European countries such as Germany, France and the Netherlands and indeed seem to work well on a small catchment scale. In any case, cooperative agreements also need to be combined and supported by a basic level of compulsory measures. On the other hand, it was also emphasised that cooperative agreements are less suitable for solving large-scale problems such as eutrophication. This kind of agreements cannot be the only solution to meet the WFD objectives either, since the WFD addresses more than drinking water problems at local level.

Certain key challenges and limitations of voluntary measures were also discussed:

- We need to set the right targets when considering voluntary measures. This can be illustrated by the fact that in a basin under an agri-environment measure promoting set aside, not all farmers are equally responsible for water pollution. For this reason, we should work towards the identification of hot spots to indicate farms most appropriate for set aside.
- Voluntary measures usually require financial incentives to be effective.
- Voluntary measures may become less attractive due to the appearance of new sources of income for farmers, especially related to new markets for bioenergy crops as well as the rise of prices for agricultural products.
- Voluntary measures may fail to contribute adequately to set environmental targets, also in the context of the WFD environmental objectives, if they are not applied in a large enough area.

- The future contribution of voluntary measures to the achievement of WFD environmental objectives is uncertain, in case of discontinuation of funding for agri-environment measures.

Last but not least, there was broad consensus among working group participants that understanding and dialogue with farmers are very important for the (proper) application of measures. All measures, both voluntary and compulsory, should be accompanied by programmes of advice and awareness raising. It was considered important to bridge the different point of views, especially between authorities (who think on a catchment level) and farmers (who think on a very local farm level).

3.3 Working Group 3

The Rural Development Regulation (RDR) for the period 2007-2013 is designed to place agriculture in a broader context by covering three major policy objectives. These objectives aim to improve: i) competitiveness of farming and forestry (Axis 1); ii) environment and land management (Axis 2); and iii) quality of life and diversification (Axis 3). These three thematic axes are complemented by a fourth implementation axis (LEADER) that streamlines the local development strategies, which could also include WFD implementation.

This Group discussed how far rural development programmes contribute to the achievement of WFD objectives in individual MS. Based on three presentations (France, UK, Northern Ireland) and additional statements from other participants of the group the following conclusions can be drawn:

- The Rural Development Measures under the programme period 2007-2013 have not been designed to achieve the WFD targets. National targets and standards seem to be more important. One of the main reasons discussed was the difference in timing of both the WFD and RDR polices. Due to the uncertainty of what measures will be covered under the River Basin Management Plans, the design of RD measures often focused on measures related to the Nitrate Directive.
- The selection of measures can be categorised into two main approaches: i) a problem / territorial based approach where specific measures are taken to reduce pressures in hot spots (e.g. drinking water areas); or ii) a farmer based approach where the acceptance of measures on a broader scale is the main criteria. In both cases the success of the measures to improve water quality strongly depends on collective approaches. Only if farmers take up measures collectively can maximum improvements in water quality be achieved.
- Even if some RD measures have been subject to cost effectiveness analysis, it remains a difficult task to estimate the effectiveness of several measures. Often the time between implementation and the effect is several years. Additional appropriate indicators to assess effectiveness are still missing. Most indicators focus on nitrate, while some address acceptance by farmers. There was a clear statement by all participants that further work on indicators at the EU level is needed. A solution to overcome these problems could be a mix of modelling and monitoring where transboundary issues (e.g. share between cost and benefits) could also be addressed.

- The specific measure addressing income forgone due to WFD implementation (Art. 38 RDR) is currently on “stand by”. This issue is covered in more detail in session 7.
- Finally, there was a general agreement by all participants that the EU RD policy not only focuses on water protection but also several other issues, so often money is stretched in many cases. A possible solution to overcome this problem is changes in modulation under the currently ongoing “Health check” to provide more funds for water-related measures.

3.4 Working Group 4

Working Group 4 sought to identify and discuss potential threats and benefits coming from biomass production, as well as to explore how synergies and conflicts are currently considered in the drafting of national biomass action programmes and river basin management plans. Due to time constraints, sustainability criteria for biomass production were not discussed.

Discussion among participants focussed mainly on potential threats to the environment from biomass production and potential solutions to these threats. Issues surrounding legislation and the need for further research were also discussed in part. Based on the discussion, the following conclusions can be made:

- Potential risks from bioenergy cropping include impact on water quantity and issues surrounding handling of by-products resulting from production. It was highlighted that a structured approach needs to be taken when analysing potential impacts from land use change, crop rotation choice and farm management practice. Also consideration needs to be given to what agriculture systems are being replaced and what cropping systems are chosen.
- On by-product issues, participants considered how to utilise by-products to best review the total nutrient cycle. A German participant highlighted the ongoing issues with by-product material from bioethanol plants in Germany, as Germany is currently importing biomass crops from other countries in order to supply its production plants. Using by-products for fertilisation was discussed, but participants agreed that this type of use is not a solution since impacts of using by-products for fertilisation are less well-known. Another potential risk discussed was the approach farmers are taking to grow biomass crops. Issues surrounding monoculture plantations and heavy pesticide use were mentioned.
- Potential opportunities for biomass production focused on two particular ideas: flood retention zones and combining nutrient capture with energy crops. Participants agreed that creating buffer zones with energy crops to reduce effects of flooding was a useful way to integrate WFD perspectives into biomass production planning. Additionally, a Danish participant discussed his experiences with demonstration sites in Denmark where permanent energy crops have been planted as a way to deal with excess nutrients in water bodies from arable cropping. Participants also agreed that there is still insufficient data on present and future management of energy crops, so it is difficult to assess potential opportunities.

- The Group also discussed how to facilitate innovation changes; existing legislation needs to be adapted to best address new aspects of biomass production. Participants also agreed that energy policy needs to get involved to create a framework for environmentally friendly bioenergy systems. Additionally, issues surrounding how to legislate other actors (e.g. energy companies planting crops) were discussed. Along with the above mentioned nutrient capture, participants highlighted the fact that the scale of production needs to be taken into account to come up with solutions tailored to local socio-economic conditions. There was a clear statement by all participants that additional research is needed to enable better Life Cycle Assessments of bioenergy crops.

3.5 Working Group 5

Working Group 5 addressed the analysis of costs and benefits of measures (technical measures, policy instruments, “non-material” measures such as training systems and demonstration) to tackle water quantitative problems. The discussions and results of this working group where structured around four leading questions, which were:

- What are the technical measures selected by your MS to address water quantity problems? What is the importance given to water demand management measures (water savings, water efficiency, improved land planning, etc) versus water supply measures? Which are the criteria for their selection?
- What policy instruments (regulations, voluntary approaches, etc) are used to support those “technical” and "non-material" measures (advisory and training systems, demonstration, education, etc)?
- What are the tools for calculation cost effectiveness /cost benefits? How are uncertainty and data gaps dealt with?
- How far are WFD exemptions for the agriculture sector used? With which kind of justification?

Due to time constraints and the content of the different presentations that opened the debate, only the first three questions were discussed in this working group.

Technical measures

Different technical measures were dealt with in case studies. These include water saving measures in the livestock sector, rainwater harvesting, improved irrigation technologies , but also the use of recycled water/treated effluent that is limited to specific uses because of sanitary reasons and risk. These technical measures, however, were not discussed in much detail.

Policy instruments

The discussion focused on the role of pricing for influencing farmers’ behaviour and overall abstraction. Clearly, water pricing will not have the same effect depending on local hydrological conditions and on the characteristics of farming systems.

The potential for tradable water rights/quotas was also discussed. Today, there is little attention given to these instruments in Europe (apart for Spain where water

trading takes place at the local level in gravity irrigation systems). But experiences elsewhere (in Australia, in specific basins and irrigation systems in the US) shows the potential for water markets/water trading in terms of environmental and economic efficiency. Additional attention should be given in Europe to the potential of tradable water rights/quotas in particular in the context of the development of the programme of measures for reaching good water status in a cost-effective manner.

The benefits of voluntary measures were also discussed. In the light of the limited EU and national budgets, the need to focus available funds on priority areas has been pointed out. The fact that rural development programmes would not be sufficient to meet all WFD objectives in water bodies at risk due to agricultural pressures was also highlighted. Other solutions were suggested including the setting up of appropriate taxation and effective pricing policies and the introduction of new requirements related to water management into cross-compliance.

The potential for voluntary agreements between cities/water suppliers and the agriculture sector was also mentioned. Indeed, urban water suppliers could invest in the agriculture sector and support the development of modern irrigation technologies – the quantities of water saved because of these new technologies being them allocated to urban users with increasing demands. This approach might be very cost-effective in situations of structural water shortage.

In order to make these instruments work, the following pre-conditions have to be met:

- A social consensus among concerned parties (the level at which the consensus should be reached to be defined);
- A proper information system (in terms of who abstracts, when, how much, where) as basis to any policy development and management;
- The development and use of adequate indicators (integrating CAP & WFD concerns) to capture the current state and to create a basis for a sound monitoring that tracks the effectiveness of proposed instruments.

Applying economic analyses

Important elements to be considered for the economic analysis of different scenarios and potential actions aimed at improving the quantitative balance of water resources include:

- The need to widen the costs considered in the analysis (not only direct costs such as investments, operation & maintenance costs, but also indirect economic costs, the opportunity costs of water, social costs....);
- The temporal variability in the added value for irrigated agriculture – indeed, changes in value added over years can significantly change the outcome of a cost-effectiveness analysis or cost-benefit assessment;
- The spatial variability within a river basin in terms of access to water resources but also farming systems and farm constraints – this requiring data for the entire basin and specific sub-units of a given basin (as opposed to average values and data for the entire river basin only);

- Uncertainty (e.g. linked to dynamics of the economic context, to the life of infrastructure, to climate change….)
- The need to put sufficient efforts in assessing the effectiveness of demand-management measures or soft measures such as enhanced extension services (as these requires additional tools and expertise in particular in understanding the behaviour of farmers and the faming community);
- The need to widen the scope of the analysis when significant changes in agriculture production can be expected from actions aimed at improving the quantitative management of water resources, as these changes might impact on the agro-industry sector connected to agriculture (in terms of employment, value added, etc);
- The relevance of comparing potential measures proposed for the agriculture sector with potential measures proposed for other sectors – as the most significant gains and lessons from the cost-effectiveness analysis will come from comparison between sectors;

Beside economic challenges there are also some additional issues which make the analysis of costs and benefits of measures tackling water quantity pressures more difficult:

- There is a need to properly define „water quantity issues“ as these are not homogeneous among river basins (e.g. in terms of time and spatial scale, relationship to quality and ecology, relative importance of the different abstractors and in particular the agriculture sector, etc)
- Defining the environmental objective in terms of quantitative status remains a challenge (e.g. how to define minimum flow, how to account for the hydrological variability) that needs to be based on technical assessments and a consultation process. Today, it is often difficult to estimate the distance to a target that is not well defined.

3.6 Working Group 6

Working group 6 discussed the effects of environmentally-friendly agriculture, such as organic farming and integrated farm management, on water resources and thereby identified also related key challenges for farmers and main research needs.

Effects of environmentally-friendly agriculture on water

Discussions among group participants pointed out that sustainable environmentally-friendly farming systems:

- Address appropriately not only water pollution, such as nutrient loads, but also all other environmental compartments (biodiversity, air pollution, soil protection, greenhouse gas emissions), forming thus a holistic approach on environmental protection. For some participants, pollution with pesticides seems a more difficult issue to address. However, other legislative texts should also help to address this problem.
- Integrate environmental protection in the overall “farming business”, since actual effective implementation is dependent on the farmer’s willingness and the integration of water protection in his business approach is a key success factor.

- Facilitate the dialogue between farmers and society.

However, the following issues were also emphasised:

- Costs for adaptation of the farm to integrated farm management need to be at least partly compensated (either by the state or the market).
- In cases where conventional farming is already heavily regulated (e.g. in Sweden), organic farming has not been proven to decrease the losses of nitrogen and phosphorus.
- Developing dialogue and communication with farmers often proves to be the first most efficient measure to implement in order to explain the issues at stake, justify measures as well as to communicate precise information on the appropriate techniques which will facilitate the implementation of the measures.

Key challenges for farmers

The following key challenges were identified with regard to the implementation of new farming systems:

- Farmers need to understand and accept the measures proposed to ensure an efficient implementation.
- Farmers cannot put their livelihoods at risk and this imposes a clear limit to the implementation of measures.
- It is essential to "translate" society's expectations or requirements to farmers into their "own language", especially in terms of explaining and clarifying the following:
    - Why it is important, even for farmers, to comply with environmental standards (securing long term sustainability of their farming activity).
    - What precisely has to be respected in term of standards and in terms of the related measures.
- Access to technical knowledge is a major key success factor.
- Farmers have to be flexible in their farm management.

Research needs

Research and innovation are vital supportive elements to the implementation and to the environmental contribution of new farming systems. In specific, working group participants identified the need to:

- Develop modelling tools (software) for assessing water quality depending on on-farm parameters.
- Develop various measurement devices and kits for soil sampling, water and air quality control etc.

- Develop IT communication network to help farmers access appropriate information such as weather information.
- Develop models for economic analysis.
- Achieve impact assessment on the efficiency of certain measures such as retention zones and nature areas.
- Analyse the impact of climate change on growing conditions.
- Develop common acceptance of current research findings.

3.7 Working Group 7

Session 7 aimed to discuss the future specification of Art 38 of the Rural Development Regulation, which allows farmer compensation for income forgone due to WFD implementation. Based on the presentation and the statements made in the session, some Member States will use the Art 38 and wait for the writing of an implementing regulation. Some MS are not intending to use the Article at all, but this might change in cases of future revision of the national RD programmes.

Based on the intensive discussion in the working group, the following conclusions for the future specification can be drawn:

- As several measures already exist to address pressures on water exist, the use of Art 38 should focus on measures that address remaining problems (e.g. hydro-morphological pressures), or on situations where agri-environmental measures cannot be envisaged, considering local mandatory constraints.. The main aim should be to compensate for measures that are not covered under Cross Compliance or agri-environment measures.
- Therefore, the specification of Art 38 should allow flexibility and locally based approaches in order to allow local solutions (e.g. local solutions for wetlands or drinking water catchments).
- The measures that could be covered under Art 38 should be first and foremost cost-effective. The way of implementation (mandatory vs. voluntary) is less important.
- Eligibility should be given independently from the national design of the River Basin Management Plans, which might include mandatory or voluntary measures.

Due to the lack of time, the issue of duration and level of payments (e.g. temporary vs. full time) was not fully discussed. There was a limited discussion on a degressive approach for payments, and detailed in one of the presentation (length and amount of WFD payments reasoned at the territorial level, regarding the prospects of reaching the good water bodies status). However the Group ran out of time before it could map out payment rates or timings.

3.8 Working Group 8

Presentations from France and the Netherlands served as impulse case studies in this working group. The climate change challenges described in the French and Dutch contributions showed that water problems (under a changing climate) are bound to be spatially variable. While increased drought risk in the summer will probably be the main problem in France, the Netherlands will suffer from increased

flooding and sea level rise. In general, Member States seem to focus their management strategies on coping with extreme events and adapting to short- to medium-term impacts.

The adaptation options presented by France and the Netherlands showed that:

- Different types of impacts need different adaptation options taken at different levels.
- In France, adaptation measures are considered, on the one hand, on the farm level (e.g. relevant to crop choice & farming practices) and, on the other hand, on the river basin level (e.g. shift towards more collective management of water volumes, modernisation of irrigation, regulation of water, modulated water prices to better reflect seasonal water changes).
- In the Netherlands, a combination of technical solutions and spatial planning is put forward promoting a combination of measures in rivers (e.g. deeper channels), in streams (e.g. restoring meanders) and banks (establishment of more natural banks).
- The specific country contributions also showed that adaptation measures need to be supported by the following conditions:
    - Adequate research.
    - Finding markets for new crops promoted through adaptation measures.
    - Adequate advice and training of farmers.
    - Funding for land conversion, e.g. in the case of converting agricultural land back to wetlands.

The ensuing discussion between various Member States and stakeholders in this working group indicated that there will be regional differences concerning climate change impacts on agriculture and water availability but also temporal variation in water resources. Climate change is bound to affect water availability but also water demand.

Climate change also has to be considered early in the ongoing implementation of the WFD, especially in the objective setting and the selection of measures. Indeed, the WFD is a flexible Directive and there will be no static baseline for its long-term implementation. Nevertheless, it was emphasised that reaching the WFD objectives may be quite challenging in certain protected areas. In protected areas (also subject to requirements of the Habitat Directive), it is important to consider climate change impacts early on and avoid investing in action and measures which do not reflect the changed conditions of the protected area.

In terms of adaptation options, it is important to adapt crops to changing conditions with the support of agricultural policy. In a changing climate, the role of agriculture as provider of ecosystem services (e.g. wetlands) will also increase. Therefore, in the context of adaptation we should work more towards increasing the resilience of natural systems. Generally, it becomes apparent that many approaches are possible and available for adaptation. In the discussion of this working group, water pricing

and water saving technologies and practices stood out as key options. Water pricing should be used as an incentive for farmers to use water in a better way, while the price of water needs to better reflect water scarcity. As far as water saving technologies are concerned, it is key to support more efficient irrigation systems making use of funding available through the rural development programmes. Further adaptation options relate to regulatory measures (e.g. via cross compliance) as well as farm advisory services and communication strategies.

Finally, some key challenges were pointed out. Firstly, bioenergy developments and their impacts on water should not be excluded from discussions on climate change, agriculture and water (see also report of working group on biomass). There are risks but also opportunities (e.g. for crop replacement in dry areas) arising via the emergence of certain bioenergy crops. Secondly, in the discussion of voluntary and compulsory measures, we have to consider the challenge of rising prices which affect the uptake and incentive-creation of voluntary measures (see also report of working group on voluntary and compulsory measures).

3.9 Over All Conclusions from the Working Groups

1. Greater funding and/or emphasis should be given to water in Member States' Rural Development Programmes.

2. Further consideration needs to be given to indicators for success in the use of RDPs

3. Further work is required on the impacts of bio-mass, particularly the opportunities that present themselves.

4. In developing River Basin Management Plans Member States need to account for the multi-benefits of actions, particularly on climate change.

5. The discussions on cost and benefits recognised the difficulty of the subject, but were encouraged by the progress made so far.

4 Final remarks

In the final session, Peter Gammeltoft (DG ENV), Martin Hurst (UK Water Director) and Pascal Berteaud (French Water Director) pointed out that the conclusions of the Conference will constitute a useful input in the forthcoming discussion of the CAP health check. They should also help Member States in the preparation of their river basin management plans and programmes of measures.

It was recognised that the Strategic Steering Group on WFD and Agriculture would continue to play an active role in this context and contribute to the debate on the inter-linkage between WFD implementation and agriculture particularly through the development of the Catalogue of Measures. DG ENV will also take the opportunity at the up coming meetings of the Group to report on any outcomes related to work in progress at European level.

5 Annex 1: Final Conference Programme

Thursday, 20 September 2007:

13:00	Registration
14:00	**Session I – Opening** **Chair:** Pascal Berteaud, French Water Director
	State-of-play of WFD and agriculture related issues Stéphanie Croguennec, European Commission - DG Environment
	State-of-play of agricultural policy Mark Cropper, European Commission - DG Agriculture
	Agricultural impacts on water resources in a changing environment Faycal Bouraoui, European Commission - JRC
	Climate change and agriculture – what impacts, what perspectives for future Maria Fuentes Merino, European Commission - DG Agriculture
	Impacts of biofuel development on water issues Jan Erik Petersen, European Environment Agency
	Discussion
15:40	Coffee Break
16:00	**Session II – Parallel Working Groups**
	Cost and benefits of WFD programmes of measures – Agricultural pressures on water quality **Moderator: Pierre Strosser, ACTeon, France** **1st Speaker:** Sarah Feuillette, Agence de l'Eau Seine Normandie, France **2nd Speaker:** Lothar Nolte, Ministry of the Environment Lower Saxony, Germany **3rd Speaker:** Kor van Hoof, Flemish Environment Agency, Belgium **Rapporteur:** Eduard Interwies, Intersus
	Voluntary measures versus compulsory measures: looking for an effective approach **Moderator:** Sabine Rosenbaum, Ministry of Agriculture and Environment Schleswig-Holstein, Germany **1st Speaker:** Raimund Mair, Federal Ministry for Agriculture and Forestry, Environment and Water Management, Austria **2nd Speaker:** Patrice Mongelard, Department for Environment, Food and Rural Affairs, United Kingdom **Rapporteur:** Eleftheria Kampa, Ecologic Institute, Germany

WG 3	**Contribution of rural development programmes to WFD objectives** **Moderator:** Gaetane Suzenet, Water UK **1st Speaker:** Laurent Mary, Ministère de l'Agriculture et de la Pêche, France **2nd Speaker:** Russell Todd, Department for Environment, Food and Rural Affairs, United Kingdom **3rd Speaker:** Alex McGarel, WWF Northern Ireland, United Kingdom **Rapporteur:** Thomas Dworak, Ecologic Institute/Vienna, Austria
	The EU Biomass Action Plan and WFD objectives **Moderator:** Jan Erik Petersen, European Environment Agency **1st Speaker:** Hans-Peter Piorr, University of Applied Sience Eberswalde, Germany **2nd Speaker:** Teunis Spek, Provincial Government Gelderland, The Netherlands **Rapporteur:** Maria Berglund, Ecologic Institute, Germany
18:00	Closing of Day 1
18:00	**Evening reception** Invitation from the French Ministry for Ecology and Sustainable Development Boat Trip & Dinner Buffet Departure ASIEM (Conference Venue): 20.15 Arrival ASIEM (Conference Venue): 23.30

Friday, 21 September 2007:

9:00	**Session III** – **Report-back from working groups** **Chair:** Martin Hurst, UK Water Director
	Report-back from the working groups (Rapporteurs) Discussion
10:00	**Session IV – Parallel Working Groups**
	Cost and benefits of measures of WFD programmes of measures – Agricultural pressures on water quantity **Moderator:** Angel Barbero, Ministry of Agriculture, Fisheries and Food, Spain **1st Speaker:** Aline Comeau, Agence de l'Eau Adour-Garonne, France **2nd Speaker:** Pierre Strosser, ACTeon, France

	Rapporteur: Pierre Strosser, ACTeon, France
	New farming systems (e.g. integrated farm management), research and innovations in the agricultural sector: implications for water issues **Moderator:** Patrice Mongelard, DEFRA, United Kingdom **1st Speaker:** Caroline Drummond, Linking Environment and Farming (LEAF), United Kingdom **2nd Speaker:** Irene Wiborg, Agricultural Advisory Service, Denmark **3rd Speaker:** Ole T. Joergensen, Ministry of the Environment, Denmark **Rapporteur:** Christian Pallière, European Fertilizers Manufacturers Association
	Article 38: towards the development of implementing rules **Moderator:** Claude Neuberg, Administration de la Gestion de l'Eau. Luxemburg **1st Speaker:** Philippe Nouvel, Ministère de l'Écologie, du Développement et de l'Aménagement durables, France **2nd Speaker:** Pamela Taylor, Water UK **Rapporteur:** Thomas Dworak, Ecologic Institute/Vienna, Austria
WG 8	**Climate change and agriculture** **Moderator:** Maria Fuentes-Merino, European Commission - DG Agriculture **1st Speaker:** Kristell Cohu, Ministère de l'Agriculture et de la Pêche, France **2nd Speaker:** Renske van Tol, Ministry of Housing, Spatial Planning and the Environment, The Netherlands **Rapporteur:** Eleftheria Kampa, Ecologic Institute, Germany
11:40	Coffee Break
12:00	**Session V – Report-back from Working Groups** **Chair:** Peter Gammeltoft, European Commission - DG Environment
	Report-back from the Working Groups (Rapporteurs) Discussion
12:40	**Conclusions and the way forward** Martin Hurst, UK Water Director
13:00	Closing of Conference