

## ***Interactive comment on “Co-operative agreements and the EU Water Framework Directive in conjunction with the Common Agricultural Policy” by I. Heinz***

### **Anonymous Referee #1**

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#### General comments

Interesting up-to-date overview on policy options to reach objectives of the EU Water Framework Directive (WFD) in the agricultural sector, strong with respect to information on drinking water protection through co-operative agreements versus command and control approaches in different EU member states, especially Germany, weaker in explaining the instruments of the current EU Common Agricultural Policy (decoupling, cross-compliance, agri-environmental measures, etc.) and their potential impact on water protection.

1) Does the paper address relevant scientific questions within the scope of HESS? Yes,

under the heading “Hydrology and Social Sciences“.

2) Does the paper present novel concepts, ideas, tools, or data? Yes, especially regarding combination and conflict between command and control versus voluntary approaches for water protection.

3) Are substantial conclusions reached? Conclusions contain a agenda for future research

4) Are the scientific methods and assumptions valid and clearly outlined? Yes

5) Are the results sufficient to support the interpretations and conclusions? Conclusions regarding the efficiency of CAs need more evidence.

7) Do the authors give proper credit to related work and clearly indicate their own new/original contribution? Yes

8) Does the title clearly reflect the contents of the paper? Yes

9) Does the abstract provide a concise and complete summary? Yes

10) Is the overall presentation well structured and clear? Yes

11) Is the language fluent and precise? Yes, but revision by native speaker might be helpful.

13) Should any parts of the paper (text, formulae, figures, tables) be clarified, reduced, combined, or eliminated? Clarification on cross compliance and decoupling (agric. policy)

14) Are the number and quality of references appropriate? Yes

15) Is the amount and quality of supplementary material appropriate? Yes

Specific comments

Section 2, especially page 1599, line 11–24, and case studies pp. 1601–1604: Is there

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a clear proof for higher effectiveness of CAs compared to mandatory standards, or is it an opinion? Obviously, due to time lags between action and effect, the diffuse nature of pollution and the preventive character of drinking water protection through CAs, it is not an easy task to find evidence for effectiveness and economic efficiency of CAs. The author does not mention and cite evaluation efforts to assess more systematically (and thus beyond single case studies) the performance of CAs. A clearer with/without comparison would be useful to illustrate the impacts of CAs in a changing world. Also in the counterfactual situation (without CAs) technical progress, changing production pattern and evolution of good farming practice have led to decreasing emissions in many European regions, e.g. regarding nitrogen surplus (EEA, 2005). The pure fact that conditions in CA areas improved does not supply evidence that this can be attributed solely to CAs. Here, disentanglement of elements influencing the change of emissions from agriculture (and immissions into water bodies) is necessary. As the author mentions that CAs have been established for more than 20 years, the question arises whether there are comprehensive and more analytical evaluations on their impacts on water quality which could be reflected in the paper (in section 5, such evaluation is mentioned as a topic for the agenda for future research).

The author refers to the influence of the ban of the herbicide atrazin in the CA area “Stevertalsperre” (page 1602, line 14). Atrazine was an important source of pollution in German ground water, and its abolishment can be attributed to command and control measures, which could be quite effective in some cases. Thus, it would be helpful to separate the contribution of CAs compared to the pesticide ban. Clearer explanation why and under which conditions command and control approaches are less applicable compared to consensus-oriented CAs is recommended. There are different aspects influencing this conclusion, among others:

- Are measures area- or farm-specific and thus difficult to be implemented as mandatory standards, or is there scope for generalisation?

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- When applying voluntary measures, does self-selection of cost-efficient measures by farmers out-weight windfall profits occurring when measures are implemented anyway, also without support?
- Are mandatory requirements just and reasonable for the farmers addressed?
- Is technical advice and implementation of voluntary measures compatible with ambitious mandatory requirements?
- Can consensus be reached only for voluntary standards?
- Will compliance with voluntary standards be higher compared to mandatory standards?

Note: The question whether control of compliance with standards is feasible or not is independent from its voluntary or mandatory character. The definition of obligatory standards always influences the scope for voluntary requirements, while established voluntary approaches might influence also the evolution of mandatory standards. Also, the emphasis on purely voluntary approaches of EU co-funded agri-environmental measures might have impacts on the decision where to set the baseline of good farming practice, as mandatory requirements limit the scope for co-funded measures. Regarding this aspect, new rural development measures of the CAP should be mentioned (compensation of mandatory measures for implementing WFD). Further, a comparison with nitrogen and water protection policies in Denmark which tend to be more restrictive is recommended (see e.g. Kjaer et al., 2005).

Section 4: Cross compliance (CC) could be described more in detail, giving examples which standards are relevant for water protection (see recommended web link below for potential sources). CC is clearly focussing on command and control and thus might be less compatible with CAs. Potential sanctions in form of direct payment reductions can lead to less confidential co-operation, while technical advice and audits can

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help to reconcile both approaches. Another problem is that CC requirements are defined normally at a central level, while water protection rules are for a regional or local level. Therefore, standards are often different to a certain degree due to different legal sources, and thus may confuse farmers what the overall requirements are.

Page 1610, line 1–2: Agricultural production with adverse effects on the aquatic environment can be reduced without loss of direct payments, but NOT necessarily without any income losses due to changed market revenues! Note also that several EU member states have only partially decoupled certain direct payments, and also the energy plant top-up payment is coupled to production.

Technical corrections: Nolte and OsterbUrg (2006); Box 2: Considerable cost could be saved by CA ...

Sources:

EEA (2005): Source apportionment of nitrogen and phosphorus inputs into the aquatic environment. EEA Report No 7/2005.

Kjaer, S., Feenstra, P., Mikkelsen, S., Iversen, T. M. (2005): The regulation of Nutrient Losses in Denmark to Control Aquatic Pollution from Agriculture. In: OECD (2005): Evaluating Agri-Environmental Policies: Design, Practice and Results. Paris.

Useful information on cross compliance: <http://www.ieep.eu/projectminisites/crosscompliance/index.php>

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 4, 1593, 2007.

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