

**COST 869**  
**“Mitigation options for Nutrient Reduction in Surface Water and Groundwaters”**

**Small organizing meeting on 14 Dec. 2006**  
**Hotel Schiphol A4, Amsterdam, The Netherlands**

**List of participants**

<b>Name</b>	<b>country</b>	
Wim Chardon	Netherlands	chair
Iggy Litaor	Israel	vice-chair WG1
Nicolaos Skoulikidis	Greece	vice-chair WG2
Oscar Schoumans	Netherlands	chair WG3
Antonio Lo Porto	Italy	vice-chair WG3
Brian Kronvang	Denmark	chair WG4
Peter Strauss	Austria	vice-chair WG4

**WG1** *Localisation of critical source areas in catchments*

**WG2** *Influence of nutrients on ecological processes in surface waters*

**WG3** *Mitigation options*

**WG4** *Evaluation of projects in example areas across the EU*

The meeting was organized on a very short term so, unfortunately, not all could be present: Louise Heathwaite (UK), vice-chair, and chair of WG1, and Seppo Rekolainen (FI), chair of WG2 were not able to attend.

**The following items were on the agenda for this meeting:**

1. Focus of action on P versus N; interaction between N and P
2. General discussion per WG
3. Short Term Scientific Missions (STSMs)
4. Discussion of topics for (joint) meetings

**DRAFT Report**

**Focus of action on P versus N; interaction between N and P**

Strauss: in Austria there are no target levels for P in surface water. During 25 years work was done on N, so there is much experience and legislation. P is not seen as urgent; also because input of P has strongly decreased during the last decades, people think that the problem has been solved. Agriculture is not seen as a source of P; ecological aspects of P are well known.

Chardon: also in the Netherlands the concentrations of N and P in surface water decreased between 1985 and 1995, but then they stabilized on a too high level.

Strauss: many people are working on the prevention of N leaching, if they all want to join the COST Action there is a risk that people who work on P loss do not have the chance of getting involved.

Kronvang and Strauss: winter crops like cereals are often sown for reducing nitrate loss during winter. However, the sowing may lead to enhanced erosion, and thus to more P loss.

### **General discussion, summarized per WG:**

#### **WG1** *Localisation of critical source areas in catchments*

Litaor: a study (J. Environ. Qual. 32:335-343, 2003) showed that places with a high degree of P saturation were not connected to ground water, so did not form an environmental risk.

Lo Porto: every country has to send information to Brussels about environmental aspects of nutrients, this could be used for our Action. Structural information about land use and slopes can be collected more easily than about implementation of options, e.g. via remote sensing.

Kronvang: in Denmark 70% of all soils have tile drains. An inventory was made of the soils that have macropores; most macropores were made by earthworms.

Strauss: tile drains reduce denitrification, and are thus sources of nitrate loss. Slit injection of manure will reduce loss of P via tile drains, because macropores are destroyed.

Skoulidikis: in Greece tile drains are not used, only open drains.

Litaor: in Israel tile drains are not used anymore, because they are a source of pollution.

#### **WG2** *Influence of nutrients on ecological processes in surface waters*

Schoumans: the concept of Critical Source Areas (CSA, WG1) is discussed only from a chemical and transport point of view, ecology (WG2) should be included.

Skoulidikis: the DPSIR concept (Driving forces, Pressures, State, Impacts, Responses) Rekolainen presented during the MC meeting in Brussels could be used: WG 1 studies Pressures (loss of N or P from soils, e.g. CSAs), leading to certain concentrations in surface and ground waters (State). WG2 will study the ecological impacts of these concentrations, and WG3 and WG4 the Responses (mitigation options) that should lead to a reduction of the Pressures.

Kronvang: the European Rebecca project has made a link between chemistry and ecology.

Litaor: background values for nutrients in surface water are often not available.

#### **WG3+4** *Mitigation options, Evaluation of projects in example areas across the EU*

Litaor: interaction between countries is important; some countries have much experience with mitigation options, while other countries have just started.

Kronvang: a report was prepared (in Danish) in which the effectiveness of 40 options is evaluated.

Skoulidikis: implementing options can be difficult since it is hardly possible to control the behaviour of farmers. Litaor: the government often has no power on this point.

Schoumans: implementation can be influenced by culture.

Lo Porto: the purpose of the Action could be to produce (i) a handbook with options and ideas to change current management practices and (ii) models or toolboxes with which CSA's can be detected and the effectiveness of options can be estimated.

Schoumans: for the WFD every country has to make River Basin Management Plans (RBMP) in which it is described how the water quality will be improved, if necessary. It would be interesting to know why specific methods / options for improvement are chosen. This will be of interest for others who have to prepare a RBMP.

Kronvang: the cost-effectiveness of an option – price for reducing the loss of one kg N or P – is most important. In Denmark creating wetlands is considered most cost-effective, with wet buffer zones next.

Lo Porto: these two options cannot be used in Italy, since there is a shortage of water due to the high evaporation. Because it is too dry, denitrification will not occur.

Litaor: the costs of preventing nutrient loss must be compared with the costs of e.g. treatment of water that is pumped for the production of drinking water. Water managers have to reserve water for protecting wetlands.

### **Short Term Scientific Missions (STSMs); young scientists**

Kronvang: within COST 832 STSMs were useful for making surveys. Strauss: the survey I tried to make yielded only reactions from 3 countries, so surveys are not always successful. A discussion during a meeting in which representatives from each country present the way options are implemented may be more effective than an inventory.

The following topics were suggested for STSMs:

- for WG1: to make a survey of methods used for finding CSAs. Litaor: it is possible to have a student from Israel to make this survey.
- for WG4: all countries must have sent data to the EU DG Environment on diffuse pollution. It would be interesting to know how estimations were made.

Litaor: The CSO wants to stimulate that young scientists get involved in COST actions, and has produced a (confidential) draft document on this topic.

### **Meetings**

In the following table ideas for meetings and topics are summarized. Meetings in 2008 have to be discussed during the next MC meeting (Devon, UK).

<b>When</b>	<b>Where</b>	<b>WG / MC</b>	<b>Topics</b>
May 21, 2007	Oslo, Norway	WG2	Small Meeting
May 23-25, 2007	Biri, Norway	WG1	Approaches of tools to localise Critical Source Areas in catchments
Nov./Dec. 2007	Devon, UK	WG3 + MC	<ul style="list-style-type: none"> <li>- Classification of options</li> <li>- Methods for assessing the effectiveness of options</li> <li>- Analysis of reports in which options are discussed and selected (e.g. Denmark, UK)</li> <li>- Why were options selected for existing RBMPs?</li> </ul>

<b>When</b>	<b>Where</b>	<b>WG / MC</b>	<b>Topics</b>
March 2008	Austria	WG4	<ul style="list-style-type: none"> <li>- Evaluation of datasets from small catchment studies.</li> <li>- What happened, and why?</li> <li>- Trend analysis, with and without correction of flow.</li> <li>- Combining with ecological data?</li> </ul>
Autumn 2008	Italy	WG1-4 + MC	<ul style="list-style-type: none"> <li>- real effectiveness of options, for concentrations and ecology</li> <li>- cost effectiveness</li> <li>- policy implementation</li> <li>- RBMPs</li> </ul>