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COST Action 869, Working Group 4:

Evaluation of projects in example areas: The Swiss Midland Lakes.

June 24 - 26, 2009, Nottwil (CH)

Final Report

July 2009

Organization Committee

- Christian Stamm, Main Organizer, Swiss Federal Institute of Aquatic Science and Technology (Eawag), Dübendorf
- Josef Blum, AgroEcoConsult, Sempach, formerly: Department for Agriculture and Forest Canton Lucerne
- Emmanuel Frossard, Swiss Federal Institute of Technology ETH Zürich, Lindau
- Astrid Oberson, Swiss Federal Institute of Technology ETH Zürich, Lindau
- Volker Prasuhn, Agroscope Reckenholz-Tänikon Research Station ART, Zürich

Scope and form of the workshop:

The goal of the workshop was to share experiences on mitigation success and failure stories across Europe. We used the case study of Lake Sempach as a starting point. On the first day (June 24), the participants were welcomed by the head of the Cantonal Parliament of Lucerne. Not only being the highest representative of the Canton, but also as biologist A. Borgula explained why mitigation was an important topic for the region where the workshop took place. Afterwards, two further introductory lectures were given. The first by E. Frossard put the workshop into the larger context of the entire COST Action 869. The second one by C. Stamm was devoted to present the study case and to highlight major steps during the process of eutrophication and mitigation experienced by the lake over the last 40 years. The bike tour after dinner got the participants around the entire lake with two stops for explanations. J. Blum, the local organizer, explained the technical details of the lake aeration and activities along the lake shore for teaching school classes.

The second day was devoted to field and farm visits in the region. On three farms with fairly different philosophies and economic structure the participants were introduced into specific aspects of mitigation programmes in Switzerland and in the specific region to tackle problems of P losses from agriculture. Nutrient balances and direct payments, retention ponds, buffer stripes and no-till practices were the major topics presented. The visits were guided by experienced people from Cantonal authorities (J. Blum, F. Stadelmann, W. Sturny) with the farmers (J. Ineichen-Bieri, H.-P. Fleischlin-Gloor, F. Rösli-Jurt) present for discussing specific questions. This opportunity was much appreciated and participants were intensively discussing their experiences with the farmers.

In the afternoon, the specific experiences on single farms were put into a larger socio-economic context. B. Meier presented an economic analysis of how mitigation programmes had affected structural change in agriculture of the study area. The results indicate that positive short-term effects might be counter-balanced in the long run because structural changes on farms may be severely slowed down rendering these farms vulnerable to economic problems in the future.
The second presentation of the afternoon session shed light onto an aspect very different from economics. It addressed how the behaviour of farmers may be affected by the exchange of ideas with other farmers and how this may be used by extension services. P. Fry introduced an innovative approach by using videos with interviews with farmers telling their experiences, e.g., on no-till farming, in their own language (Swiss dialects) on their own land. One of the videos had been subtitled in English and was shown the first time to an international audience.

The final two presentations were given by a representative of the association of the municipalities in the lake catchment, and by a speaker presenting on behalf of the Federal Offices for the Environment as well as the Federal Offices for Agriculture. These two talks gave the participants an impression of how authorities at different levels have experienced the problems of eutrophication and what will be important for the future development from their point of view. During the Conference Dinner at Lucerne, the participants had ample time to discuss their impressions and exchange ideas in a beautiful surrounding.

The third day was devoted to present and discuss the experiences from the different countries. The scope of the presentations was very broad. On the one hand, the talks and poster presentations demonstrated the large variability with regard to agricultural, economic or climatic conditions that need to be taken into consideration when talking about mitigation across Europe. Nevertheless, the involvement of stakeholders including farmers was a recurring theme and several promising approaches had been presented. On the other hand, topics like how to deal with scientific uncertainty regarding the efficiency of mitigation options or the question whether a change in human diet will be required were discussed. This wide perspective was also reflected in the (short) final discussion that was structured according to the three topics “What can we transfer to other regions or countries?”, “How is collaborative action possible despite significant uncertainties regarding mitigation options?”, and “Do we need to optimize within given boundary conditions or do we need to change them (e.g., less meat in human diets)?”.

The workshop was a successful event of scientific exchange. It was attended by participants from scientists from 20 countries. Given the topic, the audience was not restricted to researchers but entailed practitioners as well (from the host country as well as from across Europe). This was a fruitful combination fostering specific and targeted discussion and exchange of ideas on mitigation and implementation. In concrete terms, the workshop resulted in the possibility of linking activities on pilot farms in different countries and to present the Swiss videos on environmentally friendly farming practices abroad.
The discussions profited a lot from the high quality of most presentations. They were to the point and well prepared and presented. Obviously, the country coordinators had done a good job in selecting the people delegated to the workshop. Accordingly, the participants were actively involved during the entire duration of the workshop.
As a side effect of the lively scientific exchange the excursion gave the opportunity to a local newspaper to participate in the excursion. An article in the Swiss newspaper for the farming community (“Schweizer Bauer”) published on July 1, 2009, summarized important aspects that popped up during the discussion with the international experts on the issues (see attachment).

Programme:

Day 1: Arrival, Introduction

15:00 Arrival, Registration

16:00 **Welcome**
(Adrian Borgula, biologist, President of the Cantonal Parliament Lucerne)

16:10 **Introduction to the workshop**
(E. Frossard, P. Strauss)

16:30 **The Lake Sempach case study: Overview of 30 years of research**
(C. Stamm)

17:30 **Dinner**

19:00 Bike tour around Lake Sempach

Day 2: "The Swiss Experience"

08:30 **Field visits** (2 groups, on 3 farms)
(organizer: J. Blum, consultant)

12:45 Lunch (on a farm)

13:30 Return to conference center

14:00 **Socio-economic evaluation of mitigation programs in the Lake Sempach area**
(B. Meier, consultant)

14:45 **New approaches to communicate with farmers**
(P. Fry, consultant)

15:30 Coffee break

16:00 **Involving the public / municipalities**
(J. Peter, president of the association of the municipalities within the lake catchment, mayor of Neuenkirch)

16.30 **What are the lessons learned by the federal agencies?**
V. Kessler (Federal Office for Agriculture, FOA)

19:00 **Dinner in Lucerne**

Day 3: Experiences from other European countries and beyond

08:30 **How to account for the uncertainty of mitigation options in implementing management strategies?** (Brian Kronvang, Dk)

09:15 **Collaborative approaches to the development and implementation of agri-environmental measures in the UK** (Nigel Watson, UK)

09:35 **Pilot farmers as ambassadors of excellent agricultural practice**
(Frans Aarts, Wageningen, NL)

09:55 **Decreasing nutrient leaching at country and county level in Sweden**
(Anuschka Heeb, Se)

10:15 Coffee break, Poster presentation (Titles see below)

Day 3: Experiences from other European countries and beyond (Continuation)

11:00 **Integrated projects in the region of lake Vansjø, Norway for reduced phosphorus runoff from vegetable fields** (Anne Falk Øgaard, No)

11:20 **Measures for decreasing of water resources pollution in Slovak Republic** (Jaroslav Antal, Sk)

11:40 **Human nutrition as key to nutrient emissions into water** (Simon Thaler, A)

12.00 Lunch

13.30 **Nutrient mitigation options in agricultural landscapes– the New Zealand experience** (Deborah J. Ballantine, NZ)

13.50 **Mitigation measures to reduce agricultural nitrogen and phosphorus losses in Ireland** (Nicholas Holden, Ie)

14:10 **Irrigated agriculture improvements to reduce aquifer pollution: a case study from a Portuguese vulnerable area** (Daniela Valente Simões dos Santos, Pt)

14:30 **Pedagogic tools incorporated into Territ'eau Framework to protect the water quality** (Sylvie Guiet, F)

14:50 **How to ensure long term effects of mitigation? - Example from the EU-Life project AGWAPLAN** (Irene Wiborg, Dk)

15:10 Coffee Break

15:40 **Final discussion: what can we learn out of 30 years „Lake Sempach" and examples from other countries?**

16:30 Closure

Posters:

Franz Stadelmann (CH)	**Agricultural measures to restore the Swiss midland lakes (Sempach, Baldegg, Hallwil)**
Klaus Isermann (D)	**Multiplicity, effectiveness and efficiency of a healthy human nutrition in respect both to human health and environment**
Uwe Schindler (D)	**Land use and agricultural management effects on deep drainage and solute leaching**
Nick Holden (Ie)	**Development of a sustainable nutrient management decision support system for Ireland**
M. Iggy Litaor (Is)	**The Agmon lake-wetland complex: A Mediterranean example of land use change from farming to ecotourism**

Antanas Sigitas Sileika (Li)	**Drainage and groundwater quality change after construction of manure storage in the demonstration cow farm**
M.I.P de Lima (Pt)	**Vulnerability of water bodies to diffuse pollution in small islands: a hydrological perspective**
E. Filiche (Ro)	**The impact of soil erosion on the quality of groundwater as drinking water source in Perieni County**
Barbro Ulén (Se)	**Focus on phosphorus (P) at catchment level in Sweden**
Goswin Heckrath (Dk)	**A P Index-based mitigation planning tool for reducing phosphorus losses from land to water in Denmark**
Claudia Hahn (CH)	**Artificial rainfall experiments on the Swiss Plateau to assess phosphorus losses from soils and manure**
Frank Liebisch (CH)	**Soil and plant indicators to minimize phosphate inputs in permanent grasslands**
Nadine Kon (CH)	**Mapping of contributing areas for diffuse water pollution - a study of feasibility**

cs, July 7, 2009