

# PhD DEFENCE



Maria Theresia Hedegaard Konrad

## LAND ECONOMIC ASPECTS OF WATER QUALITY IMPROVEMENTS

Nutrient leakages from arable land continue to cause significant harm to water quality across Europe and interest is growing to identify cost-effective ways of improving water quality from land use and land management. During her PhD studies, Maria Theresia Hedegaard Konrad has evaluated various spatially explicit land-based strategies and their economic and environmental outcomes from a land economic perspective in Denmark, at high resolution.

The dissertation is based on operational research to find optimal spatial allocation of abatement activities to meet a pre-specified nitrogen-load reduction target at catchment level and to investigate synergies and trade-offs between multiple purposes of land use policies. The study areas are two Danish catchments: Odense Fjord catchment and Limfjorden catchment. In addition, an econometric analysis at national level is conducted to investigate the motivations and barriers of private land owners to change land use to a more cost-effective strategy for water quality improvement, taking the case of energy crops.

Maria Theresia Hedegaard Konrad finds that knowledge on spatial variation in abatement effects and costs is important when exploring cost-efficient solutions. However, conclusions from a one-dimensional analysis such as looking at nitrogen abatement may change when including other environmental dimensions, such as carbon sequestration. Finally, the determinants of desired land use change may include other drivers than monetary. Encouraging collaboration between land owners may overcome some of the barriers of supplying an efficient supply of water quality improvements.

The PhD degree was completed at the Department of Environmental Science, Science and Technology, Aarhus University.

**TIME: Friday 2 October 2015 at 13.00**

**Place:** K1.36, Department of Environmental Science, Aarhus University, Frederiksborgvej 399, 4000 Roskilde

**Title of dissertation:** Land Economic Aspects of Water Quality Improvements

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Associate Professor, Dr. Katarina Elofsson, Swedish University of Agricultural Sciences, Sweden;  
Professor, Dr. Frank Wätzold, Brandenburg University of Technology, Germany; and  
Senior Researcher, Dr. Marianne Zandersen (chair), Aarhus University, Denmark.

**Main supervisor:**

Professor Mette Termansen, Department of Environmental Science, Aarhus University

**Language:** The dissertation will be defended in English

The defence is public.

The dissertation is publicly available from [Pure](#).

**Reception:** After the defence there will be a reception in the same building.

