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Assessment of the Multifunctional Benefits and Costs of changing land use in the Lake Glenstrup catchment area

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Taking agricultural land out of production or shifting form crop production to permanent grassland have recently been proposed in the Danish debate as a general measure for contribution to GHG reductions. One of the particular attributes of this measure is the creation of co-benefits as taking agricultural land out of production may affect a range of ecosystem services and economic goods such as reduced nutrient loads and emissions of greenhouse gasses, improved biodiversity, and recreational benefits. In this abstract, we present results from an *ex ante* socioeconomic Cost-Benefit analysis (CBA) with the purpose of assessing whether the expected benefits of a multifunctional land consolidation process in the catchment of Lake Glenstrup will outweigh the expected costs. The CBA incorporates impacts on both marketed and non-marketed goods such as changes in the agricultural production, nutrient loads, greenhouse gas emissions, and recreational opportunities. The CBA comprise a case-area of 575 ha around Lake Glenstrup, and land-use change expectedly on approximately 140 ha mainly changing from agricultural land in crop rotation to permanent grassland. Further, 200 ha of agricultural land will enter the land consolidation process leading to increased productivity thru improved land consolidation. Result shows an aggregate socioeconomic net benefit of 18 million DKK over a time horizon of 20 years. The main components are total cost of 18.5 million DKK caused by changes in agricultural land use, benefits of 35 million DKK associated with recreational and environmental improvements, and benefits of 1.5 million DKK from other effects. The result are driven by an number of benefits showing that focus on the multifunctional properties are crucial for optimizing the socioeconomic outcome when taking agricultural land out of production for environmental purposes.