

Narrowing down from the broader perspective - the EU WFD and ND to the Danish agricultural nitrogen policies: Assessing past guidelines, implementation and the way forward

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The intensive nature of agricultural activities and the large number of vulnerable aquatic water bodies makes Denmark one of the most vulnerable regions for nitrate pollution among the EU Member States (DAA, 2016). This has called for several action plans, based on a national perspective, to mitigate nitrate pollution from agricultural sources in average of Denmark. The actions plans that were initiated some 30 years ago have seen a significant reduction in nitrate leaching to the ground and surface waters due to reduced nitrogen (N) application rate and enhanced N-use efficiency (Dalgaard et al., 2014). The progress has been made by a combination of market-based regulations, command and control, voluntary actions and among others (Dalgaard et al., 2014). Despite the fact that the application of N to crop remains far below the economic optimum, there is still the need for further reduction of N rates in certain vulnerable areas if the EU Water Framework and Habitat Directives are to be met (Dalgaard et al., 2014). This has called for more farm or region targeted measures that are currently under consideration for implementation across Denmark. This study assesses the Danish agricultural N policies that had been rolled out in the past in an attempt to meet the EU WFD and the Nitrate Directives. We assess the Danish policies under the four components (Objectives, Constraints, Instruments, and Strategies) of the agricultural policy framework proposed by Monke and Pearson (Monke & Pearson, 1989; Pearson et al., 1995). It is realized that tools for design and implementation of the Danish agricultural nitrogen policy fail to harmonize the different components of the agricultural policy framework. The assessment reveals why the Danish guidelines, implementation procedures have generated the recent results and the need for improved actions, tools, and instruments in order to meet the EU directives under the new targeted regulation. We propose an outline for effective design and implementation of Danish agricultural N regulations in order to meet the EU-WFD targets under the targeted regulation.

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