



Adaptation Options for Land Drainage Systems Towards Sustainable Agriculture and Environment: A Czech Perspective

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In this paper, issues of agricultural drainage systems are introduced and discussed from the views of their former, current and future roles and functioning in the Czech Republic (CR). A methodologically disparate survey was done on thirty–nine model localities in CR with different intensity and state of land drainage systems, aimed at description of commonly occurred problems and possible adaptations of agricultural drainage as perceived by farmers, land owners, landscape managers or by protective water management. The survey was focused on technical state of drainage, fragmentation of land ownership within drained areas as well as on possible conflicts between agricultural and environmental interests in a landscape. Achieved results confirmed that there is obviously an increasing need to reassess some functions of prevailing single-purpose agricultural drainage systems. Drainage intensity and detected unfavourable technical state of drainage systems as well as the risks connected with the anticipated climate change from the view of possible water scarcity claims for a complex solution.

An array of adaptation options for agricultural drainage systems is presented, aiming at enhancement of water retention time and improvement of water quality. It encompasses additional flow-controlling measures on tiles or ditches, or facilities for making selected parts of a drainage system inoperable in order to retain or slow down the drainage runoff, to establish water accumulation zones and to enhance water self-cleaning processes.

However, it was revealed that the question of landowner parcels fragmentation on drained land in CR would dramatically complicate design and realization of these measures. Presented solutions and findings are propounded with a respect to contemporary and future state policies and international strategies for sustainable agriculture, water management and environment.