

## **Ecosystem Services and Excess Water Management: Analysis of Ecosystem Services in Areas Exposed to Excess Water Inundation**

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**Abstract :** Nowadays, among the measures taken to offset the consequences of climate change, water resources management is one of the key tools, which can include excess water management. As a result of climate change's effects and as a result of the frequent inappropriate land use, more and more areas are affected by the excess water inundation. Hungary is located in the deepest part of the Pannonian Basin, which is exposed to water damage - especially lowland areas that are endangered by floods or excess waters. The periodical presence of excess water creates specific habitats in a given area, which have ecological, functional, and aesthetic values. Excess water inundation affects approximately 74% of Hungary's lowland areas, of which about 46% is also under nature protection (such as national parks, protected landscape areas, nature conservation areas, Natura 2000 sites, etc.). These data prove that areas exposed to excess water inundation - which are predominantly characterized by agricultural land uses - have an important ecological role. Other research works have confirmed the presence of numerous rare and endangered plant species in drainage canals, on grasslands exposed to excess water, and on special agricultural fields with mud vegetation. The goal of this research is to define and analyze ecosystem services of areas exposed to excess water inundation. In addition to this, it is also important to determine the quantified indicators of these areas' natural and landscape values besides the presence of protected species and the naturalness of habitats, so all in all, to analyze the various nature protections related to excess water. As a result, a practice-orientated assessment method has been developed that provides the ecological water demand, assimilates to ecological and habitat aspects, contributes to adaptive excess water management, and last but not least, increases or maintains the share of the green infrastructure network. In this way, it also contributes to reduce and mitigate the negative effects of climate change.

**Keywords :** ecosystem services, landscape architecture, excess water management, green infrastructure planning

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