Nature-based solutions for improving drainage systems in Vojvodina, Serbia

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Presence of the drainage system in Vojvodina creates part of the conditions required for stable plant production. Occurrences of extreme amounts of excess water in the last decades, as consequence of climate change, are an increasingly common occurrence, creating the need to increase the efficiency of the drainage system. In the whole process, nature-based solutions for improving drainage systems can get a significant and multi-useful place. The biggest problem in their introduction is overcoming the correction of the existing technical approach in land reclamation, but also in agriculture. The basic idea of reducing the inflow of excess water into the canal network is the application of nature-based solutions and riparian buffers as supplementary melioration measures on certain areas. The factors on the basis of which a decision would be made on the areas on which nature-based solutions for improving drainage systems will be implemented primarily depend on the threats to the soil by water. By identifying the key factors and their adequate evaluation, the classification and mapping of the most suitable areas for the application of nature-based solutions for improving drainage systems can be carried out. In this paper the area suitable for the establishment of nature-based solutions (along the watercourse) will be obtained by applying GIS methodology, by overlapping different layers. The layers used are pedological map, digital model of the relief – land slope, land use and drainage classes. The drainage system "Plavna" was chosen as an example of one of the larger watershed areas in Vojvodina, where it would be shown how, nature-based solutions can use for improving drainage systems with the application of GIS. It would be possible to reach areas that could be used not only for increasing the efficiency of that system, but also for optimal afforestation of the area and increase in biodiversity.