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## Advanced monitoring of soil salinization risk in the Neretva Delta agroecosystem

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This paper presents the concept of the project “Advanced monitoring of soil salinization risk in the Neretva Delta agroecosystem” (Delta Sal). Aim of the project is to develop and implement an advanced system for monitoring, forecasting and reporting the water and soil conditions in the Neretva Delta agroecosystem that is primarily used for agriculture. Selected pilot location is specific due to its biodiversity – water network within the delta consists of surface irrigation and drainage canal network, carst aquifer dominated by the tidal regime while also replenished by the freshwater from the upstream river flow, all of which are used for citrus fruits production while at the same time influencing the water regime of adjacent protected salt marshes ecosystem. Neretva Delta is dominated by the traditional farming methods practiced in the polder systems. Salt water intrusion is present in the entire delta, which is reflecting on the irrigation water quality and subsequently on the agricultural production of citruses that are salt-sensitive horticultural crops. Extensive spatial and temporal monitoring of water quality data through multisensory monitoring stations will be used for development of guidelines for salt stress alleviation in citrus fruits. This paper presents the outline of the project, methodology of analysis and selection of representative agricultural parcels for the research, rationale of farmer’s current decision-making that affects the agricultural landscape pattern and proposed monitoring network. Monitoring is focused on continuous real-time measurements of surface water levels and index water velocity using radars, shallow and deep piezometers for monitoring of ground water levels, rain gauges, multiparameter water quality measurements (dissolved oxygen, water depth, electrical conductivity, total dissolved solids, salinity, pH, oxidation reduction potential, temperature, nitrate and chloride). Data is transmitted in real-time to the cloud-based interface for remote access. Integrated data management will be used in the upcoming project stages for analysis of salt water intrusion on Neretva Delta agricultural production. Final outcome of the project are guidelines for Neretva Delta management with the future outlook in the climate change context, compliant with UNFCCC convention under which this area falls into one of the most vulnerable areas in Croatia.

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