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# **BOOK OF ABSTRACTS**

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**THE ASSESSMENT ALGORITHM FOR SUSTAINABLE  
DEVELOPMENT GOALS IN THE HUKIV, DERELUY, AND  
VYZHENKA RIVER BASIN SYSTEMS OF CHERNIVTSI  
OBLAST**

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The study deals with an integral assessment of hydromorphological and geocological conditions of the Hukiv (flatland type of river), Dereluy (foothill type of river), and Vyzhenka (mountainous type of river) river basin systems. The indicators characterizing the river basin in the best way as a holistic system, the channel, floodplain, and watershed altogether, in natural reference conditions and in terms of human economic activity are addressed.

The assessment hydromorphological test and geocological monitoring of small rivers (SWOT-analysis) in accordance with the developed universal algorithm for hydromorphological assessment of small river basins for the sustainable development goals are generated and fulfilled. Interpretation maps for the sustainable development of the Hukiv, Dereluy and Vyzhenka rivers are created. The practical importance and relevance

concerns the potential application of the proposed monitoring and the algorithm to solve methodological and applied problems related to the functioning of the systems "basin-river-human" and "basin-river-riverbed" in terms of modern human activity and needs; the need to modify consumer-type stereotypes for the use of natural resources, as well as to provide recommendations for enhancing the resource-efficient and sustainable activities in basin systems and small rivers.

Previous studies in the field and relevant mathematical calculations contributed to developing an algorithm for the ecological and hydromorphological assessment of basins for the sustainable development goals. The latter enables to critically delimit the river basins areas according to the need for sustainable development. The diverse indicators forming its basis characterize small river basins in various ways. The algorithm operation principle is the sequential summation of indicators of individual blocks: transformation of the river network (by length and number of tributaries of different order), anthropogenic transformation, conflicts of the nature use types (quantitative, dynamic indicator and intensity), erosion hazard, floodplain assessment (in response to the land use type), the riverbed processes hazards, hydromorphological assessment of the riverbed state and coastal vegetation (according to the quality classes), the assessment of land use and the degree of the basin territory study. The points of the algorithm blocks are arranged in an ascending order in relation to the component intensity of the block. The minimum possible number of points is 14, the maximum is 57. This algorithm may be considered universal in relation to the assessment of the hydrological factor of the natural environment not only in the study areas, but also in the similar ones. The algorithm does not consider the economic and social components of potential sustainable development.

The algorithm enables to identify specific problems in the functioning of the system "riverbed-floodplain-basin-human" and respond in a timely manner to these challenges, minimizing the influence of the factor from the outside or inside. The work involves constant monitoring of indicators and, if necessary, mapping of the possible development ways for the timely response measures.