METHODOLOGY FOR CHOOSING ENVIRONMENTAL SAFETY PRIORITIES OBJECTIVES OF SUSTAINABLE DEVELOPMENT OF CIVIL ENGINEERING FACILITIES

N. O. Teliura, Ph.D in Technical Science, Associate Professor,
O. O. Olijnik, students, O. S. Lomakina, Senior Lecturer

O. M. Beketov National University of Urban Economy in Kharkiv,
17 Marshala Bazhanova Street, Kharkiv 61002, Ukraine
e-mail: nata.teliura@ukr.net

The theoretical and methodological approach to the choice of ecological safe direction of agglomerations development. Groups of indicators and indexes for the selection procedure implementation have been defined. The proposed approach using allows to involve local authorities specialists of different profiles to manage of environmental safety of agglomerations from the position of their sustainable development [1]. The methodological approach essence is to use the Analytic Hierarchy Process (AHP). It has been proposed and implemented groups of indicators and indexes, formulated as sustainable development components – environmental, social and economic. Relevant specialists, as experts, based on information of different types (statistical, forecast, direct measurement data) on the particular agglomeration, give their own judgments about the priority of the advantages of the group characteristics of indicators and indexes.

The results of judgments processing of experts according to the formal procedure of AHP are the basis for decision-making in choosing the environmental safe direction of civil engineering facilities development. The multi-criteria hierarchical structure of the choice of environmental safe direction of civil engineering facilities development has been represented by the sequence of actions, which includes three stages: construction of the hierarchical model of features comparison; global weights determination, consistency index and selection of the best development direction.

The advantage of the proposed multi-criteria methodological approach is the ability to combine to the one decision-making algorithm the original data, which differ in content and the presentation form. The AHP methodical approach at definition of priority technologies of drainage from the settlements territories has been developed. Criteria formulated as components of sustainable development – environmental, social and economic-technological for the decision-making method at technological measures choosing for environmental safe.

Reference

1. Teliura N., Tsapko N., Khabarova H., Lomakina O., Pshenichnova O. Selection Methodology of Ecological Safety Priorities of Sustainable Development Goals of Urban Agglomerations // Integrated Computer Technologies in Mechanical Engineering - 2021. ICTM 2021. Lecture Notes in Networks and Systems, Springer, Cham. 2022. – P. 941–950. https://doi.org/10.1007/978-3-030-94259-5_73