

# **Development and Usage of a Computer Model of Evaluating the Scenarios of Projects for the Creation of Fire Fighting Systems of Rural Communities**

## **Abstract**

The analysis of the state of the theory and practice of project management for the development of fire fighting systems of communities of Ukraine and the world is carried out. The expediency of designing and using a computer model for evaluating scenarios of projects for the creation of fire fighting systems of rural communities is substantiated. There is an algorithm developed and the computer model of estimation of projects' scenarios of creation of fire extinguishing systems in rural communities take into account peculiarities of changing project environment of the mentioned projects. They are based on simulation modeling of projects, and also provide a quick assessment of each of the development scenarios for the development of firefighting communities. The proposed computer model provides an iterative overview of the possible variants of the project configuration objects for the creation of fire fighting systems of rural communities for each of the five substantiated scenarios and provides an identification of the effective scenario among them according to the criterion of maximum value. On the basis of the developed and tested computer model, a quantitative assessment of the scenarios of the creation of fire extinguishing systems for the conditions of the Zhovtanets community was performed. It is established that the value of projects depends both on the type of objects of configuration, and on the location of fire and rescue units on its territory. It is substantiated that the smallest consolidated expenses (UAH 2155,725 thousand) are observed for the desired condition of the fire extinguishing system of the Zhovtanets community in the scenario, which involves the creation of a fire brigade of the III category in the Kolodentsi village. Such a scenario of the development of a fire extinguishing system, compared with its current state, provides a reduction of annual damage from fires by 158.58 thousand UAH, or 7.9 %. © 2019 IEEE.