
INFORMATION SYSTEM FOR REGENERATION OF LANDSCAPE AFFECTED BY MINING

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ABSTRACT

As a result of mining and quarrying is the exploitation of the landscape (e.g., mine depression or heaps as results of underground mining, or change in landscape due to opencast mining). Restoration of affected landscape is necessary in accordance with current legislation so as to allow its continued use. There are a number of procedures, methods and solutions for reclamation. The aim of our work was to design the information system which would provide basis for planning and decision making about process and methods of reclamation. Our approach to the revitalization of the landscape affected by mining activities is based on the restoration of its function throughout the area, together with the renewal of the diversity of landscape structure. The starting point is to restore the permanent sustainability area. Based on the analysis of the necessary information the information system described in this paper has been designed and developed. Part of the solution is the creation of models proposed alternative strategies for landscape reclamation and future usage. Landscape modelling problems were mainly solved by using a geographic information system technology. The information system, developed models and analysing the results led to construction the digital models of landscape restoration and its subsequent presentation in 3D including the creation of a virtual scene.

Keywords: reclamation, restoration of the landscape, information system, GIS, virtual reality

INTRODUCTION

Renewal of functional use of the countryside affected by minerals mining makes an integral part of the area preparation before the exploitation start, but it is necessary mainly in the course of the mining process and after its termination. In connection with the minimization of costs of damage suffered in the area concerned, the main aim of the strategy of landscape restoration after mining activities is the permanent sustainability of countryside, complex solution of restoration in consideration of maintenance of functional use and simultaneously biotic variability in cultural post-mining countryside, with successful co-existence of all the countryside elements - productive and non-productive ones. The basic starting point is the whole-area solution of functions and relations restoration in the countryside areas. The requirement of the whole-area solution of mining countryside restoration is based on the countryside zoning depending on past and future functional use.