

## **Method of assessing the prospects of the exploitation of coal resources in the deposits of liquidated hard coal mines**

After the political changes in the period of 20<sup>th</sup> and 21<sup>st</sup> century hard coal mining has implemented restructuring activities. A rational reduction of the costs of the mining industry may refer to liquidation of mines that are considered as permanently unprofitable. The liquidation of mine is the last and natural stage of mining activity. A decision of the liquidation of the mining plant may be issued as a result of a depletion of the exploited deposit, unprofitability of extraction in particularly unfavorable mining and geological conditions, an expiry of a concession or excessive environmental degradation. Only in the case of resources exhaustion it does not come to leaving unused parts of the deposit. In the case of the occurrence of the other three reasons of mine liquidation, there will be always areas with unused deposit. Spółka Restrukturyzacji Kopalń S.A. conducts activities connected with revitalization and restructuring of hard coal mines put into liquidation. Changes that occurs in the world politics resulted in the increase of the interest in the management of abandoned hard coal resources. The assessment of the management of coal resources of the deposits of liquidated mines has not be the subject of scientific research yet aimed at determining the principles of rationalizing these processes and the available literature concerns only selected general issues related to this problem. The main aim of this publication was achieved which was to develop a method of planning and managing the processes of the assessment of the prospects of coal resources development of liquidated hard coals mines and its deposit in the change of economic, social and political conditions perspective. In addition, the method of hierarchical analysis of the AHP process was adapted and applied to assess the legitimacy of the development of hard coal deposits, based on the parameters that characterize them, such as natural hazards, geological and mining conditions or technical and technological conditions. The analysis of the state of knowledge and a review of the available literature provided the basis for the application of the method of hierarchical analysis of the AHP process, adapted specifically to the conditions of the operations of Spółka Restrukturyzacji Kopalń S.A. The questionnaire studies that was conducted with the people directly managing the mines liquidation allowed for the determination of the AHP method assessment criteria, together with the corresponding sub (partial) assessments. The publication also includes the analysis of abandoned deposits of the liquidated mines. Operation that lead to the reactivation of the resources of liquidated mines are individual in nature, which significantly hinders making the right decision. The described method adapts the method of hierarchical analysis of the AHP process and the quotient transformation, providing a tool supporting the Management Board of Spółka Restrukturyzacji Kopalń S.A. in the valorization of abandoned resources of liquidated mining plants. The proposed method suggests to the designer so as to assign resources to appropriate decision clusters (groups). Moreover, it signals to the designer which resources should be permanently discarded, which are potentially manageable and which resources should be postponed until the change of market conditions. The innovative proprietary method will provide the basis for further research aimed at improving the efficiency and effectiveness of deposit management processes in a mining enterprise dealing with restructuring, revitalization and liquidation of mining plants.

The publication consists of an introduction, justification of the purposefulness of undertaking, a critical review of literature thematically related to the scope of research, description of research methods and tools, and research results. It ends with a summary and conclusions resulting from the analyzes that carried out.