

**Joanna Kidawa**

***HYDROLOGICAL CONDITIONS OF VEGETATION DEVELOPMENT IN THE AREAS OF OPENCAST EXPLOITATION OF MINERALS DEPOSITS***

***HYDROLOGICZNE UWARUNKOWANIA ROZWOJU ROŚLINNOŚCI NA OBSZARACH ODKRYWKOWEJ EKSPLOATACJI ZŁÓŻ SUROWCÓW MINERALNYCH***

**ABSTRACT**

The exploitation of mineral deposits leads to changes in the natural environment of mining areas. These changes are most often identified with the transformation of relief and water relations. Particularly profound changes in the environment are caused by opencast mining, during which vegetation, soil, relief and water relations are disturbed. Despite previous research, few studies include a comprehensive description of post-mining areas. The issue of how these facilities operate is still little understood. The current knowledge on the processes (interactions) between water, ground and vegetation conditions in post-mining habitats should be considered negligible. Therefore, the main objective of the research was to clarify the mechanisms and processes that lead to the development and functioning of anthropogenic post-mining environments. In the case of some mines that have been rehabilitated, plant species unsuitable for the habitat type have been introduced, often resulting in their fallout and spontaneous colonisation processes. Studies on selected opencast mines indicate that the direction of spontaneous colonisation by vegetation is determined not only by the type of substrate and relief but also by the hydrological and hydrochemical conditions of the workings. Therefore, choosing an appropriate reclamation direction after the cessation of mining should be preceded by a detailed analysis of hydrological relations, geotechnical properties of the substrate, landforms and the nature of vegetation spontaneously colonising the mines. Addressing this research problem was a task that required extensive hydrological, hydrochemical, soil science and botanical studies, the results of which are presented in the publications constituting the basis of this doctoral dissertation. These publications showed significant relationships between vegetation and abiotic conditions of the habitat. The results obtained in the course of the research, reflected in the submitted doctoral dissertation, contribute to the knowledge about the relationship between hydrological and hydrochemical factors and colonisation by plants.