GREENING PRACTICE IN OVERBURDEN ROCK DUMPS OF THE IRON ORE QUARRIES IN KRYVYI RIH

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At the territory of Kryvyi Rih, where from the end of the 20th century iron ore mining was performed in the open way, and in the following decades by underground method, dozens of decommissioned dumps and those in which the overburden rock is continuously backfilled are concentrated in a small area. The area of the largest dumps is close to 1000 hectares and their height to 100 m, these dumps create serious environmental problems for the region as dust blown from their surface spreads to residential areas of settlements. Reclamation of dumps, as a way of protection against wind and water erosion, is traditionally carried out in two stages: technical – alignment with the help of a heavy technique of the dump surface with subsequent soil application of 30–35 cm to create favourable conditions for the growing of plants, biological – planting of seedlings, in most cases *Robinia pseudoacacia* L., in this soil. Technical reclamation stage takes around 80% expenses on the dumps greening. Completely, it is possible to exclude this stage by using biological features of the plants, which are available to colonize the dumps after 10–15 years of rock backfilling. Herewith, not only herbaceous, but also woody plants grow on the dumps, seeds of which get into not only from the nearby plantations by anemochoric or zoochoric pathways. It is possible to actively assist to this elemental process with considerable time reduction for the dump greening. For this, previously, it is needed to estimate differentially the whole surface of a dump with respect to forest suitability and growth of leguminous plants as well. According to investigations (from 2005) of the iron ore dumps self growing of Kryvyi Rih there were some species found which successfully grow at the different places of the dump surface depending on mechanical and physical and chemical rock contents and also weathering stage.

Experience has shown that growth of herbaceous and woody plants is successful, which renew themselves due to seeds of local reproduction and demonstrate high vegetative mobility. We have elaborate ways and methods of the iron ore dumps greening by landing seedlings in the rock substrateds of these dumps. Species of woody plants were identified and tested, it has been established that they are much more stable, decorative and long-lived than *Robinia pseudoacacia*. A small number of species, which have reached the reproductive stage of development, could recover themselves due to own seeds in dump conditions. Depending on technogenic formations, there are some 3–6 species out of this group. As a rule, they are introduced species and they are able to form micropopulations in the dump conditions. There are also several herbaceous species of the local flora and introduced ones, which successfully develop and renew themselves in the dump conditions at the quite large areas. Steppe plants of natural flora penetrate the dumps, where they do not encounter competition with other species and form stable phytocoenoses. Among such species, vegetatively mobile cereals dominate, which are capable to form dense colonies with significant overground biomass. Dead biomass in the autumn period leads to the formation of a "cushion" of plant remains covering large areas (several hectares) with respect to the horizontal surfaces and slopes of the dumps. Assistance to the processes of natural colonization of iron ore dumps by woody and herbaceous plants is an effective and low-cost way of their greening.

Key words: Kryvyi Rih, Iron Ore Quarries, Dumps, Greening