

## **WORLD EXPERIENCE OF RECLAMATION OF NON-METALLIC ROCK DUMPS**

**Introduction.** Construction work requires a large amount of building materials. It should be noted that any construction works are impacted by nature. In construction works of various types, sand, granite and other materials can be used. In addition to the construction work is being carried out on the extraction of minerals. Works of this type are marked by changes in the landscape of the earth, which are manifested in the form of quarries and dumps. It has recently been established that all changes in the surface of the earth must be restored. Restoration is necessary in connection with the fact that natural recovery can last for many years or it may not be at all. In order to restore by artificial means, the reclamation of quarries of building materials is used.

Reclamation is a complex of organizational, technical, biotechnological and legal measures, which are carried out with the purpose of soil restoration, improvement of the condition and productivity of lands after extraction mineral resources.

The processes of the reclamation are divided into two stages: mining, biological.

Mining reclamation (mining technical restoration) is carried out in accordance with the approved reclamation project. The complex of measures of mining technical reclamation includes: reduction to a rationally possible minimum of the area for mining; application of such technologies, which assure the maximum reduction of harmful effects of mining on the environment; separate removal and preservation of soil-vegetation layer; selective formation of dumps and covering their surface with a layer of fertile soil or the placement of external dumps in ravines, beams and other unsuitable areas; restoration or construction of new access roads to the reclaimed territory.

Biological reclamation is carried out by a mining enterprise or special organizations. Biological recultivation, depending on specific conditions, is carried out in two main directions: agricultural - restoration of fertility of disturbed lands; forestry - restoration of disturbed lands to a condition suitable for the cultivation of effective tree species, shrubs, etc .

The world experience in land reclamation is only around 80 years old. The first land reclamation work was carried out in 1926 in areas affected by mining operations (USA, Indiana). Widespread development in Europe and the United States has been reclaimed in prewar years, and mainly after the Second World War.

**Aim and methods.** To date, this problem has found a solution in creating a vegetation cover on the reclamation surfaces of the dump. For this purpose, hydrosowing of perennial grasses, which may include water, soil, sawdust, seeds, small doses of mineral fertilizers, film-forming materials, etc., is used. Planting the surface of dumps with the help of perennial grasses and woody shrub vegetation, selected for specific conditions, weakens erosion processes, increases the stability of slopes and accelerates the formation of multi-tier communities of biota.

In the practice of reclamation, method of hydrosowing is developed as a chemical-biological method of biological reclamation of slopes. This method was tested and began to give positive results, both in foreign and domestic quarries.

From the usual crop hydrosowing differs by the method of distribution of seed material, in which the uniform distribution of seeds on the strengthening surface is carried out by a jet of a special emulsion mixture. Distributed emulsion forms a protective layer, which creates favorable conditions for germination of seeds, promotes the preservation of heat and moisture in the soil, and improves the water-thermal regime for plants.

Mulching materials, bending, give an additional nutrient medium, and the forming film prevents erosion.

The composition of the emulsion mixture includes: mulch material, bitumen emulsion, herbal and mineral fertilizer seeds. In foreign practice, as mulch, a rod of straw, hay, sawdust, leaves, pine needles, soybeans, etc., is used as mulch. For the activation of the processes of soil formation into the composition of the hydro-mixture, bacterial preparations containing complexes of microorganisms are involved in the transformation of phosphorus and nitrogen and in the accumulation of organic matter.

At present, reclamation in this way is carried out in Germany, England, the United States and other countries.

Also airsowing, seeding on steep slopes by hydraulic fill, landing manually are widely practiced. Of great importance is the selection of species of wood and bush plants, the most resistant to complex environmental conditions, which is based on observation of natural overgrown dumps.

**Conclusions.** The non-metallic rocks dumps for a long time remained a big problem for the environment and human life. In this work, attention was paid to one of the methods of reclamation through gardening of dumps, in particular the use of hydrosowing.