

## **Section 07. Challenges in Environmental Protection**

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### **Analysis of Land Reclamation Methods**

Recultivation is a set of measures for the ecological and economic restoration of lands and water resources, the fertility of which as a result of human activity has significantly decreased. The purpose of the reclamation is to improve the environmental conditions, restore the productivity of disturbed lands and reservoirs.

As a result of economic activity, the disturbed territories are divided into two groups:

1. Lands damaged by bulk ground, dumps, hydro dumps, waste pits and dumps;
2. Areas damaged by excavation, open pit mines, extraction of local building materials and peat, dips and deflections at the site of underground mining, reserves and trenches in the construction of linear structures.

Thus, it caused the need to rejuvenate this area with a corresponding variety of plant species.

One of the main priorities should be the adoption of rational methods of ecological restoration.

For various types of excavations there are correspondingly different types of reclamation.

For dry quarries, the following work is performed:

1. Planning works on surface formation;
2. Transportation from a warehouse and application of a soil-vegetative layer;
3. Reclamation and sowing of herbs in the prepared territory.

Reclamation of watered quarries.

Recultivation of watered quarries is carried out as follows:

1. Planning works on surface formation;
2. Filling the pit with water. After that, dry quarries can be used as sites for construction, pasture, afforestation, etc. A watered quarry is used as a reservoir for different purposes.

Reclamation of stone quarries.

Reclamation of stone quarries, the process of processing them for a territory that can be used for economic purposes, is more difficult. Because the soil is not intended for biological reclamation.

In such situations, the following types of work are carried out:

1. Planning works on surface formation;
2. Filling of loose overburden and soil;
3. Sowing of seeds;
4. Reclamation of the developed areas of peat deposits.

#### Reclamation of dumps

When reclaiming dumps, the following types of work are performed:

1. Removal of the soil-vegetation layer on the site of the falling dump, transport and storage in convenient places for subsequent use;
2. Formation of slopes of the heap;
3. Planning works on the formed surfaces;
4. Transportation from a warehouse and application of a soil-vegetative layer on the formed and planned surfaces;
5. Construction of special purpose roads, reclamation;
6. Devices of special hydraulic structures if necessary;
7. Seeding of seeds.

#### Reclamation of peat deposits

The possibility of using the developed peat bogs after reclamation depends on the methods of peat extraction, water regime, age of production. Recultivation of such deposits takes place in three stages.

1. Establishment of a drainage and humidification system that ensures a rapid drainage of water with areas during wet periods and moistening of the root layer of the soil during droughty periods, and also ensuring moistening of the root layer of the soil through sluices during the vegetation period;

2. Conducting cultural, technical and planning works. In parallel we work on reclamation in the fields build roads, and when reclamation of peat quarries roads are built only after the performance of planning works;

3. Performance of cultural and technical works. Their main task is the clearing of areas from woody and shrubby vegetation. Clearing, as a rule, consists of ripping, cutting, milling and scaling.

Thus, for any type of mining operations, regardless of the minerals and methods of its occurrence, the most effective method of reclamation can be selected.