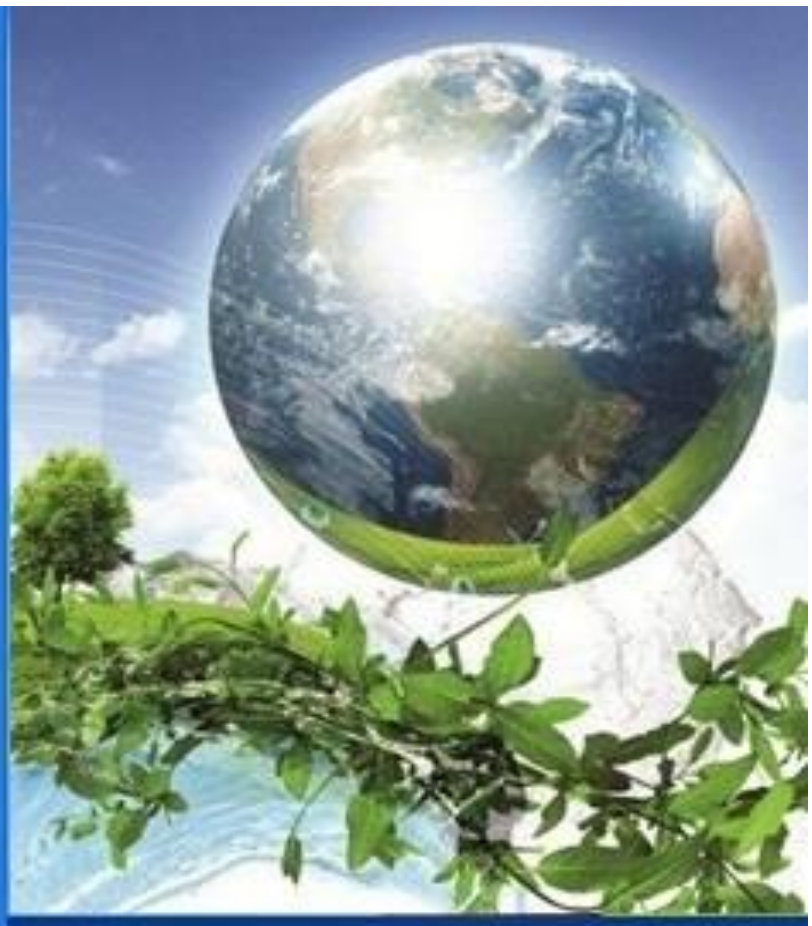

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Херсонський державний аграрно-економічний університет
Факультет рибного господарства та природокористування

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***17 - 19 березня 2021**, м. Херсон*

Херсон – 2021

Секція «ЕКОЛОГІЯ ТА ОХОРОНА НАВКОЛИШНЬОГО СЕРЕДОВИЩА»

MODERN PROBLEMS OF LAND RECULTIVATION

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Every day more and more natural areas need reclamation due to anthropogenic impact. In such areas, the landscape changes, natural conditions, water and wind erosion occur in part, this is a very important issue for all mankind. Modern land reclamation is able to restore most of the destroyed or partially damaged areas.

Land reclamation is a set of environmental and economic measures related to the restoration of land and water resources, which in turn have lost fertility as a result of anthropogenic factors. The main purpose of reclamation is to improve the natural environment and restore productivity on disturbed lands or reservoirs. Land disturbance is a process that occurs during the creation of landfills, installation of hydraulic structures, military tests, including testing of nuclear weapons, mining, use of exploration, prospecting, construction and other works that lead to disturbance of soil cover, hydrological regime of the area , formation of man-made relief and other changes in the state of the earth.

Reclamation of land plots is carried out through layer-by-layer application on unproductive land plots or plots without soil cover of removed soil massifs, and if necessary - and material rocks of the choice of the highest productivity of reclaimed lands. Reclaimed land is land where productivity, value and improved environmental conditions have been restored.

Land in which there have been changes in the structure of the terrain, the ecological condition of soils and parent rocks and in the hydrological regime as a result of mining, exploration, construction and other works is subject to reclamation.

• disturbed during the development of mineral deposits in the open or underground way, as well as peat extraction;

• laying of pipelines, construction, reclamation, logging, exploration, testing, operation, design and research and other works related to soil disturbance;

• liquidation of industrial, military, civil and other facilities and structures; storage and disposal of industrial, household and other waste;

• construction, operation and conservation of underground facilities and communications (mine workings, storage facilities, subways, sewerage facilities, etc.);

• elimination of the consequences of land pollution, if the conditions of their restoration require the removal of the upper fertile layer of soil; conducting military exercises outside the specially designated landfills for these purposes.

Reclamation of land plots after liquidation of waste management facilities.

Enterprises, institutions and organizations, as well as citizens whose activities are related to the accumulation of waste, are obliged to ensure the timely removal of such waste to special facilities used for their collection, storage, treatment, disposal, removal, disposal and disposal. .

The process of reclamation of disturbed lands is carried out in stages.

There are three main stages:

• Preparatory - contains a survey of disturbed and disturbed lands, preparation of feasibility studies and technical working projects for reclamation.

• Mining - involves planning, formation of slopes, removal and application of fertile soil layer, construction of hydraulic and reclamation structures, burial of toxic overburden, as well as other works that create the necessary conditions for further use of reclaimed land for its intended purpose, or for activities to restore soil fertility (biological stage).

At the technical stage, the landscape is adjusted (backfilling ditches, trenches, pits, depressions, dips, leveling and terracing of industrial heaps), hydraulic and reclamation structures are created, toxic waste is buried, and a fertile layer of soil is applied.

• Biological - includes a set of agronomic and phyto-reclamation measures aimed at improving agrophysical, agrochemical, biochemical and other soil properties. Restoration has historically been a set of flora, fauna and microorganisms. At the biological stage, agro-technical works are carried out, the purpose of which is to improve the properties of the soil.

Among the plants used to improve the quality of land, first of all we can name the herbaceous members of the legume family, which are able to fix atmospheric nitrogen. For example, in Australia, Clitoria ternatea is used to rehabilitate coal mine areas. Another plant that is actively used in land reclamation - Black poplar (Populus nigra).

The reclamation period can last 10 years or more. It includes technical and biological stages.

Many years of research on land reclamation conducted in Ukraine have shown that the determining factor in solving the problem is the scientific substantiation of the parameters of anthropotechnogenic edaphotopes (technosoils). One such parameter is physical properties. The interaction of biotic and abiotic soil components leads to the formation of the soil profile, determines soil fertility, its various properties, including environmental functions. An urgent problem is the monitoring of soil condition in the process of reclamation, its physical and water-physical properties, which, first of all, characterize the degree of cultivation and ecological condition of the soil cover. Features of the process of soil formation in man-made landscapes are diagnosed by changes in water-physical and physical properties. These dynamic indicators depend on the genesis, as well as technological operations at both technical and biological stages of reclamation.

Methods and techniques of biological reclamation in the world have long been developed. Experimental works on reclamation on an industrial scale are carried out in accordance with the general provisions on reclamation of disturbed lands in force in our country. More developed methods and ways of reclamation of heaps of coal deposits, known since the 70s of the twentieth century in the Donbass. However, then scientists dealt mainly with forestry problems - land reclamation with the help of woody plants for industrial plantings used a small number of species, mainly pine and sea buckthorn.

As a result of long-term observations, it became clear that plants on clean dumps develop better than when applying a fertile layer of soil. Scientists have discovered another advantage of their herbal mixtures - organic. As a rule, the duration of existence of ordinary steppe grass mixtures with the use of mineral and organic fertilizers is about 10 years. And then they "fall out". Researchers are paying more and more attention to soil degradation during technogenesis. Of the many types of soil degradation, their change under the influence of chemical pollution is becoming increasingly important.

In general, reclamation includes a set of mining, engineering, agricultural and other measures aimed at restoring the biological productivity and economic value of land or other works of land, as well as improving the environment

In most cases, land reclamation is carried out with a delay in the timing of their violation. This is due to irrational mining technology and objective factors associated with the conditions of field development. It is necessary to strive for such technology, in which the restoration of disturbed lands will be carried out as mining.

The method of biological reclamation has accelerated the process of restoring soil fertility, due to the fact that it does not require the application of a fertile layer and reduces the cost of its implementation. Biotechnological method based on the use of active strains of soil microorganisms involved in the conversion of compounds of carbon, phosphorus, potassium and nitrogen in the form assimilated by plants, mobilizing the potential fertility of rocks, resulting in a fertile layer on the surface of infertile soils .

The article is devoted to land reclamation. The technical and biological stages of reclamation were studied, as well as the processes of pollution calculation were considered in order to establish various connections and individual factors that operate in natural conditions.

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