

# Measures to Prevent Salinization of Crops in Surkhandarya Region of the Republic of Uzbekistan

*Khudoikulov Asliddin Turakul oglu<sup>1</sup>, Rakhimov Murod<sup>2</sup>*

**Annotation:** The top porous layer of the earth's surface that is fertile is called soil. The role of soils in nature and in society is enormous. Soil is a living environment, a source of nutrients for organisms, and plays an important role in the small biological and large geological circulation of substances. Soil is composed of solid, liquid, and gaseous components and is formed as a result of the complex interaction of climate, rocks, plants and animals, and microorganisms. 1 gram of soil contains more than a million simple animals and low plants.

**Keywords:** salinity, parent rock, erosion, pesticide, soil.

Salinization is the process by which water-soluble mineral salts accumulate in the soil. Salinity is mainly characteristic of lowlands in deserts and semi-deserts, as well as in areas where groundwater does not flow. Salinity can be primary or secondary. Primary salinization is the evaporation of saline (mineralized) groundwater, the dissolution of salts from soil-forming parent rocks, or wind-blown saline dust around water bodies (eol factor), the biological accumulation of salts by plants. Secondary Sh. Violation of soil water regime, ie improper irrigation, occurs in areas where it occurs in the primary city. The secondary city has a variety of seasonal, spotted, and massive occurrences. Seasonal Sh. accumulation of salt in the soil during the growing season of agricultural crops. This is mainly due to increased evaporation of groundwater, which rises during irrigation in the summer months. Autumn saline washing is carried out in the soil against the seasonal city. Spotted salinization occurs in areas where the area is not well washed and where groundwater evaporates strongly. Massive salinization occurs near the surface of highly mineralized groundwater and covers the entire surface of the irrigated area.

Saline soils are soils that contain more than 0.1% of water-soluble harmful salts or more than 0.25% (0.3%) of the dry residue in the aquifer. Saline soils are found mainly in arid climates (Pakistan, India, China, USA, Central Asia, South America, Africa, Australia, etc.) in large areas, and among unsalted soils in small massifs. More than half of the irrigated land in Central Asia and southern Kazakhstan, and about 75-80% of the developed land, is saline to varying degrees. The salinity of the soil is determined by the total amount of harmful salts (gypsum, minus the amount). According to this sign, saline soils are weak (harmful salts 0.1-0.2%), moderate (0.2-0.4%), strong (0.4-0.8%), very strongly saline (saline soils). ; More than 0.8%). Natural saline soils are divided into chloride, sulfate chloride, chloride sulfate, sulfate, soda sulfate, sulfate, chloride soda, soda, sulfate or chloride hydrocarbonate (alkaline earth elements) saline soils according to their chemical composition (salinity type).

Throughout human history, 2 billion more fertile soils have been rendered unusable. Every year, the area of agricultural land on the planet is reduced by 5-7 million hectares due to salinization. The increase in human impact on soils is due to the development of irrigated agriculture and animal husbandry. Irrigated agriculture has a history of almost 5,000 years in Movarounnahr. The world's arable land accounts for 10 percent of the world's land area and accounts for 0.5 percent of the world's population. The current state of the earth's crust is determined primarily by the activities of human society. Humans have a positive and negative impact on soils. Man can increase the fertility of soils, improve the condition of lands. At the same time, as a result of urban development, environmental pollution, non-compliance with agro-technical measures, soils can be directly destroyed, rendered unusable, eroded. Today, the reduction in soil area is taking place thousands of times faster than its recovery.

In nature, soil erosion or erosion is caused by wind and water. Accelerated water and wind erosion occur as a result of human activity. Anthropogenic erosion is a consequence of the misuse of soil resources, the main causes of which are deforestation and deforestation, non-compliance with the norms of grazing, the use of incorrect farming methods, and others. According to various estimates, 3,500 hectares of fertile soil are lost to erosion every day. Water erosion is more common in the foothills and mountainous areas, while wind erosion is more common in the plains. Dust storms have reportedly blown up to 25 centimeters of soil in a matter of hours.

Many measures have been developed to prevent and combat erosion. These include vegetation restoration, proper agro-technical measures, construction of green shields, regular hydraulic measures, etc. Soil salinity is one of the major environmental problems in irrigated agriculture. Soil salinization occurs as a result of rising groundwater levels when irrigation is not carried out properly. Primary and secondary salinity are observed. In secondary salinization, the water rises through the capillaries and the salt remains in the soil, or as a result of over-irrigation, the groundwater becomes saline with dissolved salts. Secondary salinity is more harmful. Soil salinization is observed in many countries in Asia, America and Africa. Ditches are dug to prevent salinization, and the soil is washed away. Soil swamping is mainly observed in areas with high humidity. Wetlands are also formed around the reservoirs. Special reclamation measures will be carried out to

<sup>1</sup> Termez Institute of Engineering and Technology Food Technology

<sup>2</sup> Termez Institute of Engineering and Technology Food Technology

drain the swamps. It is important to protect soils from contamination. The chemicalization of agriculture increases the contamination of soils with various chemical compounds. If mineral fertilizers are not selected properly and used in moderation, the condition of the soil will change and fertility will be impaired. Excessive use of pesticides, herbicides, insecticides, defoliants, which are widely used against pests, weeds and plant diseases, has a very negative impact on the soil. Pesticides kill beneficial microorganisms in the soil and lead to a decrease in humus. For example, 15 years after the use of the DDT pesticide, it was still found to be present in the soil. Pesticides pass through the food chain and can be harmful to human health. Scientists are currently working on biocides that can be broken down in a short period of time. Soils are also polluted by industrial enterprises, transport waste, and municipal waste. Chemical and metallurgical wastes, as well as mining wastes, pollute and dispose of soils. Mercury, lead, fluoride and other highly toxic compounds accumulate in the soil. This has a negative effect on plants, some of which die and cause various dangerous diseases in humans. It is difficult to clean the soil with special measures. Therefore, measures to prevent soil contamination should be taken in a timely manner and legal control should be established. It is important to prevent desertification in arid areas. Blocking the path of moving sands and building green shields will save the soil. There is also the problem of nesting in different ways. Urban and road construction will destroy fertile soils. Extraction of mineral resources also destroys a lot of soil. There are special measures to prevent such processes.

Uzbekistan's agricultural production uses 95% of land resources and 85% of water resources. Irrigated land accounts for 15 percent of the total land fund. (More than 50% of irrigated lands in Uzbekistan are saline, especially in the Bukhara, Syrdarya and Surkhandarya regions of the Republic of Karakalpakstan. The amount of humus in the soil has decreased by 30-50%. Such lands are common in Fergana, Surkhandarya and Kashkadarya regions. The level of soil contamination with pesticides is high. One of the main reasons for this situation is the long-term dominance of cotton monoculture.

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According to the depth of the upper boundary of the salt horizon: saline soils with salts in the upper meter layer of the soil profile and the upper boundaries of the deep saline-saline horizon are located in the second meter. Potential saline water contains easily soluble salts at a depth of 2-5 m, i.e. in bedrock and bedrock.

It is also used for various other purposes in the disposal of various hazardous wastes underground. Thousands of tons of harmful compounds are stored in mining dumps and pose a constant threat to the environment. It is important to normalize the human impact on the geological environment and prevent its negative changes.

Tens of thousands of hectares of fertile land will be turned into industrial steppes. Water, air, soil are polluted, and plants and animals are harmed. Rehabilitation of abandoned lands is called reclamation. Reclamation is carried out in two stages: 1-mining technical reclamation, 2-biological recultivation. In the first stage, the surface is leveled, the condition is improved, and after biological reclamation, the soil layer and vegetation are restored.

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