

ECOLOGICAL PROBLEMS OF WATER RESOURCES IN UKRAINE

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Actually, there are many problems with water resources in the world. Unfortunately, Ukraine is not an exception in this regard. At this poor rate, by 2025, two-thirds of the world will experience a shortage of drinking water. Therefore, many scientists devote their activities to solving this problem.

Regrettably, Ukraine is one of the countries in Europe that is least supplied with water. The ecological condition of river basins and territorial waters of the Azov and Black Seas is deteriorating due to toxic and biogenic pollution. Saturated use of groundwater in our country leads to significant depletion of groundwater horizons. In many regions, groundwater quality does not meet official requirements.

Due to the peculiarities of geographical conditions, the distribution of water and the chemical composition of the underground hydrosphere on the territory of Ukraine are uneven. The largest water resources are located in the northern and northwestern regions of Ukraine. In return, the southern regions of the country are not rich in water resources. The ecological situation in these regions does not allow normal consumption and use of these waters.

The main consumers of water are industry - 36%, agriculture - 41%, communal economy - 23%. (Safranov T., Berlinskyi N., & Volkov A., 2016, p. 124) Industry includes electric power, chemical industry and metallurgy. Water is an important resource for agriculture, without which it would not exist.

The primary polluters of Ukraine's water resources are the coal industry, metallurgical, energy, chemical and municipal enterprises. The municipal economy accounts for half of the harmful emissions of substances into water. Owing of the powerful influx of pollutants into groundwater, their pollution has increased more than 4 times in the last 20 years alone.

High temperature in summer also affects water quality, which causes the

mass “blooming” of water and reduces the level of dissolved oxygen. Regrettably, little attention is paid to this problem, so the vegetation in the water simply rots, due to which the quality of the water deteriorates significantly.

According to modern tests, deviations from the norm in organoleptic indicators (up to 72%), overnormal mineralization up to 28%, and an excess of chemical substances up to 16% are found in drinking water samples.

Urgant measures regarding economical and rational use of water resources:

- development of reasonable irrigation standards
- replacement of water units with air cooling units
- application of reverse water supply systems
- implementation of waterless water uses systems (full cycle of sewage pipe cleaning)
- decrease in the percentage of water-intensive industries in Ukraine
- protection of underground and surface waters from pollution
- preserving the quality of natural and drinking waters

The most innovative sustainable methods of water purification should be paid special attention:

- Reverse osmosis. Reverse osmosis filters are one of the newest filters that provide, perhaps, the most advanced water purification today. With their help, water is purified from almost all substances dissolved in it, organic impurities, inorganic chemical compounds, salts of heavy metals, viruses, bacteria and microbes.
- Nanofiltration. One of the most progressive technologies, noted for its versatility. Deprives water of color characteristics, halogen-containing organic impurities, without requiring addition of reagents. It involves both filtration and coagulation, sometimes it may require preliminary ultrafiltration or reverse osmosis.
- Photocatalysis. Another innovative technology, the essence of which is that suspended and dissolved organic impurities are removed from surface water sources without preliminary cleaning and chemical treatment. It envisages the

involvement of a capillary membrane (one or several).

Conclusion:

At the moment, the water infrastructure of Ukraine needs changes and reconstruction. The first task is to improve water quality and preserve the quantity of drinking water. It is of vital importance to fight these environmental problems, because it affects all citizens of the country and it directly concerns the preservation of nature for future generations.

References:

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