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THE PROBLEM OF CHANGING THE ECOLOGICAL STATE OF WATER BODIES OF UKRAINE

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The partial loss of the ecological balance of the biosphere caused the formation of the technosphere, which led to the transformation of the natural modes of development of all components of the biosphere. Compared to the atmosphere and lithosphere, more intensive man-caused influences, quantitative and qualitative depletion are experienced by different components of the hydrosphere (primarily river): from small to large rivers and their basins (Table 1).

Table 1.
Water resources of Ukraine

Type of resources	Resources per year, km^3			Water supply of the territory, thousand m^3/km^2
	average water content	low water	very shallow	
Local river runoff	52,4	41,4	29,7	49,2
Inflow from adjacent territories	34,7	28,8	22,9	37,9
Groundwater not hydraulically connected to river runoff	7,0	7,0	7,0	11,6
Total resources	94,1	77,2	59,4	98,4

The main rivers of Ukraine are: Dnieper (total length 2201 km, within Ukraine 981 km; average annual runoff 53.5 km^3), Dniester (total length 1362 km, within Ukraine 705 km; runoff 8.7 km^3), Southern Bug (length 806 km; runoff 3.4 km cubic.), Seversky Donets (total length 1053 km, within Ukraine 672 km; runoff 5 km cubic.).

In terms of drinking water reserves and the number of water supply sources, Ukraine ranks last in Europe, and specific water consumption rates are 2-3 times higher than in developed countries. The main reason for high rates of specific water consumption in Ukraine is water losses, which in water supply systems reach 30-40%, and in some regions exceed 50%.

In general, Ukraine's water resources can be described as insufficient. In low-water years, water shortages are felt even in large river basins. In total, there are more than 70,000 rivers in Ukraine, but only 117 of them are more than 100 km long. In summer,

rivers become shallow, many of them flow and even dry up. There are more than 20,000 lakes in the country, 43 of which have an area of more than 10 km^2. Large lakes are located in the floodplains of the Danube and on the Black Sea coast (Yalpug, Sasyk, etc.). The largest lake in Polissya is Svityaz. Synevyr is the largest lake in the Carpathians. The total area of swamps is 12 thousand km^2. They are located mainly in Polissya. Estimated reserves of fresh groundwater are 27.4 cubic meters. km, of which 8.9 cubic meters. km are not associated with surface runoff [1].

Small and medium-sized inland rivers are the main source of water replenishment of poor quality of large rivers. That is, large rivers undergo indirect man-made changes in accordance with the principles of hierarchical unity of aquatic ecosystems, due to pollution of medium and small rivers. Every year the quality of small and medium rivers (especially small ones) deteriorates as the man-made load on the natural regimes of small rivers increases, which are a source of pollution of medium rivers, which in turn affect the following structural units of river basin systems.

Surface waters are indispensable natural resources of economic and social development of the country. The vast majority of the country's rivers have a man-made nature due to excessive discharges. According to the UNESCO rating, Ukraine ranks 95th among 122 countries in terms of water quality and rational water use. And this indicates the need to improve the management system of ecological safety of surface aquatic ecosystems for their rational use of water and ensuring ecologically safe functioning.

Thus, increasing the level of environmental safety of surface water bodies in conditions of intensive man-made impact is an important urgent task for all water basins of Ukraine.

The appearance of technogenic transformed water bodies has become a natural component of the structure of the ecological hierarchy of natural systems, the development of which is caused by the modifying action of man-made factors. The largest structural and functional changes in the hierarchy of natural systems occur in the basins of large rivers, the water quality of which depends on the hydrographic structures of their formation.

The problem of stable functioning of aquatic ecosystems of different levels of pollution is typical for all river basins of Ukraine without exception, because at this stage there are no water bodies with an inviolable state of dynamic equilibrium. In Ukraine, almost all GEs are technogenic, quantitatively and qualitatively depleted, the water quality of most of them in terms of pollution (61%) does not meet current regulations. However, the Dnieper basin is the most polluted and transformed.

The main reasons for the change in the ecological state of surface water bodies and the imbalance of their functioning are the high level of man-caused load due to the intensive development of technogenesis based on the use of resource and technological potentials.

In Ukraine, the tendency to deteriorate the ecological status of surface water bodies is growing every year, as about 7.7 billion m^3 of untreated wastewater is discharged to surface water.

The problem of changing the ecological status of surface water bodies is relevant for all water basins of Ukraine [2]. Water in most of them is classified as

"contaminated" and "dirty" (quality class IV-V). The most acute situation is observed in the basins of the Dnieper, the Seversky Donets, the rivers of the Azov Sea, some tributaries of the Dniester and the Western Bug, where water quality is classified as "very dirty" (class VI).

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