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CAUSES OF WATER POLLUTION OF THE DNIPRO BASIN

Pollution of water resources is now both direct and indirect in nature. This is related to climate changes, processes of agricultural intensification, and activities of housing and communal services, livestock and crop production. It is important nowadays that water is suffering from the consequences of war (since February 2022), military operations have been ongoing in Ukraine in connection with the full-scale invasion of the Russian Federation on the territory of Ukraine. The latter causes are a significant source of pollution of the water resources of the Dnipro basin, as active military operations have taken place in the territory of the basin over the past five months.

That is why, in the scientific studies, the main two causes of water pollution of the Dnipro River basin were identified (Figure 1): point and diffuse pollution of water resources and military activity – water conflict of war and consequences. Point and diffuse pollution are distributed as follows (Figure 1):

– The Upper Dnieper sub-basin has the following ratio: a) N_{total} – 24% (point – housing and communal economy) and 76% (diffuse – agricultural production (application of mineral and organic fertilizers); b) P_{total} – phosphorus load is distributed as follows: point is 83% (s.g. production, in particular land plowing), diffuse only 17%.

– The Middle Dnieper sub-basin has the following ratio: a) N_{total} – 52% point, 48% – diffuse; b) P_{total} – 80% point, 20% – diffuse.

– The Lower Dnipro sub-basin is the only one where point pollution with nitrogen outweighs the share of diffuse – 52% and 48%, respectively; the diffuse supply of nitrogen compounds is largely determined by the rural population; phosphate loading is as follows – 75% point, 25% diffuse.

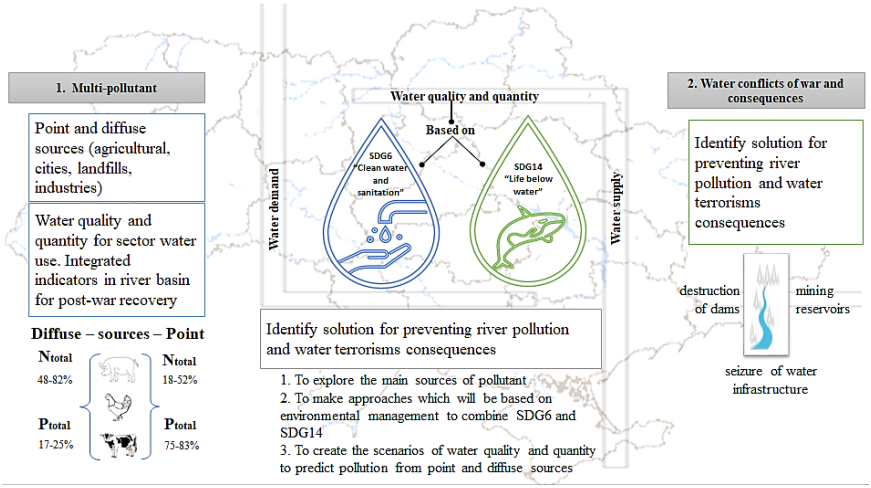

Figure 1. Causes of water pollution of the Dnieper basin in Ukraine
Source: [1–4]

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