Proceedings of the International Conference «European Green Dimensions: Fundamental, Applied, and Industrial Aspects», June 5–7, 2025



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The Proceedings covers such questions: European Green deal; Climate change; Energy efficiency, renewable energy; Conservation of biodiversity; Water resources management; Water quality, wastewater treatment; Protection of atmospheric air, environmental control and monitoring systems; Industrial and household waste management; Sustainable development and education for sustainable development.



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River Basin Management in Ukraine

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EU policy and strategy for environmental management, including natural waters, seeks to achieve sustainability in the water sector in the territory of its member states. One of the main EU documents in terms of water quality and water management is the Water Framework Directive [1]. Management is based on river basins and watersheds (the basin principle).

In the process of water resources management based on the basin principle, an important document is the river basin management plan [2].

In the process of environmental and economic reforms in Ukraine, prices for special use of water resources have been set, and economic responsibility for environmental pollution, including water bodies, has been introduced.

Ukraine's aspirations to become a member of the EU in the future require approximation of its legislation and improvement of the management system in the field of water resources use, protection and reclamation in accordance with EU requirements.

The main problem with the effectiveness of basin management is the creation and functioning of a financial mechanism that would guarantee a direct link between water use fees and the financing of priority water protection measures within the basin.

Currently, the process of approximating Ukrainian legislation to the European one is in an active phase. However, it can already be confidently stated that Ukraine has made sufficient efforts to legislate for the implementation of integrated approaches to water resources management based on the basin principle. At the same time, the problems of practical implementation of this principle in water resources management remain urgent.

References

1. On establishing a framework for Community action in the field of water policy: Directive 2000/60/EC of the European Parliament and of the Council of October 23, 2000. URL: https://zakon.rada.gov.ua/laws/show/994_962#Text

2. On Approval of the Procedure for Developing a River Basin Management Plan: Resolution of the Cabinet of Ministers of Ukraine of May 18, 2017, No. 336. URL: http://zakon2.rada.gov.ua/laws/show/336-2017-п