https://www.proconference.org/index.php/gec/article/view/gec36-00-014
DOI: 10.30890/2709-1783.2024-36-00-014

UDC 354:328.185

CATEGORY-CONCEPTUAL FRAMEWORK FOR IMPROVING THE LEGAL MECHANISM OF INDUSTRIAL AND CONSUMER WASTE MANAGEMENT

Radionov Vadim
graduate student
https://orcid.org/0009-0001-0439-492X
O. M. Beketov National University of Urban Economy in Kharkiv,
Ukraine, Kharkiv, Chervonoglazivska Street, 17, 61002

Abstract. *The article analyzes various waste management mechanisms that are interconnected and collectively form a single technological cycle. A comparative analysis of the categories "waste management" and "waste technological cycle" is provided. The author substantiates the essence of the category "waste technological cycle" as a sequence of technological processes for the disposal of specific waste. This sequence is examined as the implementation of nine stages: from the generation of waste to the end of its existence. The article analyzes the stages of the product life cycle, passportization, collection, sorting, transportation, storage (warehousing), including recycling, burial, and/or destruction of waste. The content of the categories "waste life cycle" and "waste management processes" is compared. An analysis is given of the concept close in content to "legal support of hazardous waste management." The analysis of EU regulatory documents demonstrates how a state can develop its own waste management policy.*

Key words: *Concept of Sustainable Development, Mechanisms of Industrial and Consumer Waste Management, "Waste Technological Cycle," "Waste Life Cycle," "Waste Management Processes".*

Introduction.

In recent decades, the concept of sustainable development has taken a significant place at the global level in the formation of ecological principles. Its goal is balanced economic progress that considers preserving social and environmental potential for current and future generations. A strategic direction of the sustainable development concept is waste management, aimed at integrating waste into economic circulation within the principles of a circular economy, reducing negative environmental impacts, preventing ecosystem degradation, and depleting natural resources.

For Ukraine, this issue is also extremely relevant. Despite declaring national sustainable development goals in waste management, the level of recycling remains very low.

Analysis of the latest research. Various aspects of the outlined issues have become the subject of scientific research by Ukrainian and foreign scholars. In particular, the theoretical and methodological foundations of the waste management system are reflected in the works of N. Bocken, H. Vygovska, P. Ghisellini, N. A. Maksimenseva, N. Millar, V. Mishchenko, V. Haas, and others.

Core material.

According to the Ministry of Community Development, Territories, and Infrastructure of Ukraine, about 9.9% of household waste was recycled and utilized in 2022, of which 1.66% was incinerated, and 8.24% was sent to secondary raw material collection points and waste processing lines [1]. The National Waste Management Strategy envisages reducing the volume of household waste disposed of in landfills

from 95% (in 2016) to 50% by 2023 and to 30% by 2030 [2]. However, this indicator is "lagging behind" the established timelines, and out of 424 landfills requiring reclamation, only 24 have actually been reclaimed. Under martial law, the relatively small waste utilization capacities are significantly impacted by the energy supply crisis.

Despite efforts to maintain pre-war waste processing rates, businesses in this sector are suffering losses that local authorities cannot compensate for today. It should be noted that the function related to household waste processing requires appropriate preconditions, which typically become secondary during economic crises, hindering not just their operation but their very existence.

In 1,725 out of 29,711 settlements, separate collection of household waste has been implemented, 34 waste sorting lines have been built, one waste incineration plant (the "Energy" plant in Kyiv) and three waste incineration facilities are operational. Overall, about 7.64% of household waste has been recycled and utilized in Ukraine, of which 1.14% was incinerated, and 6.5% was sent to secondary raw material collection points and waste processing lines [3].

The number of overloaded landfills is 230 (3.8%), and 824 (13.8%) do not meet environmental safety standards. Of the 371 landfills that require reclamation, only 29 have actually been reclaimed [4].

Anthropogenic impact on the natural environment in recent decades has reached such proportions that it is becoming existential. Waste itself, as well as various types of economic activities related to its management, represents a specific object of environmental legal relations.

Waste management of industrial and consumer waste includes various types of economic activities with different legal, economic, technical, and other conditions. These activities are interconnected and collectively form a single technological cycle. Currently, the concept of "waste management" encompasses activities such as collection, accumulation, transportation, processing, utilization, neutralization, and placement (storage and disposal) of waste.

It is important to note that these activities, carried out in a specific technologically linked sequence, form part of a broader concept known as the "waste technological cycle." Unlike the legally defined term "waste management," the "waste technological cycle" does not have a pronounced legal component. This concept refers to the sequence of technological processes for the disposal of specific waste, which includes nine stages: from its generation to the end of its existence. These stages encompass the product life cycle, passportization, collection, sorting, transportation, storage (warehousing), including recycling, burial, and/or destruction of waste.

There is another concept similar in content-the concept of the "waste life cycle" or "waste management processes," which includes the following stages: generation, accumulation and temporary storage, primary processing (sorting, dehydration, neutralization, pressing, packaging, etc.), transportation, secondary processing (neutralization, modification, utilization, use as secondary raw materials), warehousing, disposal, and incineration.

The "waste life cycle" includes certain stages, starting from their generation in the production activities carried out at an industrial enterprise (in this case, we are talking about industrial waste) or by the population as a result of consuming products for

personal or household needs (consumer waste or household waste included in the composition of municipal solid waste), accumulation in specially designated places (in special containers on residential premises or at specialized enterprises), collection, removal, and transportation to the place of disposal (usually carried out by a specialized organization-a waste management operator), processing, and subsequent utilization, neutralization, and ending with their disposal (storage or burial in waste disposal facilities-such as specialized landfills or other facilities).

A concept that is somewhat similar in content to the above-mentioned legal categories is also the concept of "legal support for hazardous waste management," which was the subject of one of the dissertation studies conducted in Ukraine. The author considers the legal support for hazardous waste management as a set of legal norms, priorities, imperatives, and legal means aimed at establishing the legal regime of hazardous waste as objects of legal relations, with which the norms of legislation associate the emergence of specific legal subjectivity for participants in the field of hazardous waste management.

The author substantiates the existence of a comprehensive concept of legal support for hazardous waste management. According to this concept, hazardous waste management is an activity regulated by normative legal acts, carried out by specially authorized individuals and legal entities directly performing operations with these objects, and other entities in the field of environmental safety. This activity aims to prevent the generation of hazardous waste, ensure compliance with norms, standards, and environmental safety legislation, and reduce the threats (risks) of harm to the life, health, and property of various persons from the hazardous properties of such waste [5].

Improving the waste management system is recognized today as a key problem in the field of environmental protection. The main steps to address this problem were identified at the International Conference on Sustainable Development in Johannesburg in September 2002. These include, among other things: "prevention and minimization of waste and maximum reuse, recycling of resources; and the use of alternative environmentally safe materials, involving governments and all interested parties, to minimize adverse environmental impacts and increase resource efficiency."

In developing the sustainable development strategy, the European Commission emphasized that high economic growth rates must be accompanied by sustainable use of natural resources and an equally sustainable level of waste. This thesis was further developed in the provisions of the EU Environmental Action Program [6]. The general objective of the Program is to achieve "greater resource efficiency and better resource and waste management to ensure more sustainable production and consumption patterns."

The transformation of a resource at any stage of its life cycle – extraction and primary processing, deeper processing, and production of products from it, consumption, and conversion into waste – can impact the environment. In this regard, important components of an integrated approach to resource management are measures to prevent waste generation or their return to the economic cycle ("closing the resource loop"). Based on this, three waste management principles have been formulated in the EU:

Waste prevention: A key factor in any waste management strategy.

Recycling and reuse: If waste generation cannot be prevented, as much material as possible should be reused, preferably through recycling.

Improvement of final disposal technologies and monitoring: Where possible, waste that cannot be reused or recycled should be incinerated; landfill disposal should be used as a last resort. Both of these methods require careful monitoring due to their potential environmental hazards. The general provisions of the European Union on environmental issues and resource consumption (including waste management) are outlined in the founding treaty of the EU, signed in 1957, under the section "Environment." According to this Treaty, one of the key tasks of the EU is "to promote a high level of protection and improvement of the quality of the environment."

Over time, this provision of the Treaty has been developed in a large number of regulatory legal acts of pan-European legislation, governing environmental protection and natural resource consumption. A whole body of documents has been formed, which today is recognized as a separate area of law – environmental law, covering many aspects of human impact on the environment. Within this area of law, processes related to the generation, accounting, recycling, and disposal of waste are regulated in the EU by a number of documents, which can be divided into two main groups:

Programmatic – these are framework documents that set out the main goals in the relevant area for EU member states for the medium- and/or long-term perspective (usually from 3 to 5 years, but they can cover up to 10 years).

Regulatory (treaties, directives, regulations, standards, etc.) – these are generally binding on EU member states. They can be either framework in nature (e.g., the Waste Framework Directive) or focused on solving specific tasks (e.g., regulating permissible emission levels from waste incineration plants, final disposal technologies at landfills, etc.).

In addition, there are various communications, decisions of certain EU bodies (e. g., the European Court), and other documents that member states can refer to when developing their own policies on resource consumption and waste management.

Conclusions.

In examining the theoretical foundation for improving the legal regulation of relations in the field of waste management, we choose waste management as a set of legally significant activities regulated by legal norms and legislation.

Among the main mechanisms for implementing state policy in ensuring environmental safety is the creation of facilities that meet modern environmental requirements and standards for the disposal, treatment, recycling, and neutralization of production and consumption waste, as well as increasing the volume of their reuse through subsidies, tax and tariff benefits, and other forms of support.

References

1. Аналіз стану сфери поводження з побутовими відходами в Україні за 2022 рік. Міністерство розвитку громад та територій України: сайт. 18.05.2023. https://mtu.gov.ua/news/34323.html

2. Про схвалення Національної стратегії управління відходами в Україні до 2030 року. URL: https://zakon.rada.gov.ua/laws/show/820-2017-%D1%80#Text

3. У 1725 населених пунктах України впроваджено роздільне збирання побутових відходів. URL: https://greenpost.ua/news/u-1725-naselenyh-punktah-ukrayiny-vprovadzheno-rozdilne-zbyrannya-pobutovyh-vidhodiv-i41679

4. Дорожня карта реалізації Закону України «Про управління відходами»: збірка матеріалів Національного форуму «Поводження з відходами в Україні: законодавство, економіка, технології» (м. Київ, 24–25 листопада 2022 р.). – К. : Центр екологічної освіти та інформації, 2022. – 248 с. URL: https://grecolc.law/wp-content/uploads/2023/02/Tekst_Zbirky_Forum_Vidhody_-_2022__.pdf

5. Максименцева Н. О. Правове забезпечення поводження з небезпечними відходами: Автореф. дис. … канд. юрид. наук. Київ, 2006.

6. Environment policy: general principles and basic framework. URL: https://www.europarl.europa.eu/factsheets/en/sheet/71/environment-policy-general-principles-and-basic-framework