УДК 332.025:330.15 **doi: 10.20998/2313-8890.2025.10.06**

Zubko Anastasia, PhD Candidate, +38(0472)64-70-55, ORCID ID: 0000-0003-0058-6067
Rauf Ablyazov East European University
16, Nechuy-Levitski str., Cherkassy, 18036, Ukraine

MANAGERIAL APPROACHES AND ORGANIZATIONAL MECHANISMS OF STRATEGIC DEVELOPMENT OF WATER MANAGEMENT AT THE REGIONAL LEVEL

Abstract*. The article examines the organizational and managerial mechanisms for implementing the strategy for developing water resources in the region, in the context of decentralization, climate change, and the growth of socio-economic risks. It is substantiated that effective management of water resources at the regional level requires a combination of territorial and basin approaches, as well as coordination among the state, local governments, businesses, and the main groups of water users. The role of the organizational and managerial mechanisms as key components of the regional organizational and economic mechanism for water management, ensuring the economic, social, and environmental efficiency of water resource use, is revealed. Attention is paid to the problems of water management in the southern regions of Ukraine, amid limited water resources, the degradation and destruction of hydraulic infrastructure, and the growth of anthropogenic pressure on water ecosystems. The expediency of strengthening the role of regional management is proven, provided that the state's strategic and regulatory functions are preserved, thereby increasing the adaptability of managerial decisions to the specifics of individual territories. The creation of territorial (basin) interdepartmental bodies for water management and the development of cluster structures of water users are proposed as tools to increase the efficiency of implementing regional development strategies. It is substantiated that the cluster approach in water management contributes to the concentration of resources, the attraction of investment, the introduction of innovative technologies, the restoration of irrigation, and the strengthening of food security in regions. The main conditions for the formation of water clusters are formulated, and their advantages, potential limitations, and operational risks are identified. The practical significance of the results lies in their possible use by state authorities and local self-government bodies to develop and implement water management strategies in the regions.*
Keywords: *water management, regional development, organizational and managerial mechanisms, basin management, cluster, decentralization.*

Зубко Анастасія Геннадіївна, здобувач, +38(0472)64-70-55, ORCID ID: 0000-0003-0058-6067
Східноєвропейський університет імені Рауфа Аблязова
вул. Нечуя-Левицького, 16, м. Черкаси, 18036, Україна

УПРАВЛІНСЬКІ ПІДХОДИ ТА ОРГАНІЗАЦІЙНІ МЕХАНІЗМИ СТРАТЕГІЧНОГО РОЗВИТКУ ВОДНОГО ГОСПОДАРСТВА НА РЕГІОНАЛЬНОМУ РІВНІ

Анотація*. У статті досліджено організаційно-управлінські механізми реалізації стратегії розвитку водного господарства регіону в умовах децентралізації, кліматичних змін та зростання соціально-економічних ризиків. Обґрунтовано, що ефективне управління водними ресурсами на регіональному рівні потребує поєднання територіального та басейнового підходів, а також узгодження інтересів держави, органів місцевого самоврядування, бізнесу*

та основних груп водокористувачів. Розкрито роль організаційно-управлінського механізму як ключової складової регіонального організаційно-економічного механізму водного господарства, що забезпечує досягнення економічної, соціальної та екологічної ефективності використання водних ресурсів. Особливу увагу приділено проблемам управління водокористуванням у південних регіонах України в умовах обмеженості водних ресурсів, деградації та руйнування гідротехнічної інфраструктури, а також зростання антропогенного навантаження на водні екосистеми. Доведено доцільність посилення ролі регіонального рівня управління за умови збереження стратегічних і регуляторних функцій держави, що дозволяє підвищити адаптивність управлінських рішень до специфіки окремих територій. Запропоновано створення територіальних (басейнових) міжвідомчих органів управління водним господарством та розвиток кластерних структур водокористувачів як інструментів підвищення ефективності реалізації регіональних стратегій розвитку. Обґрунтовано, що кластерний підхід у сфері водного господарства сприяє концентрації ресурсів, залученню інвестицій, впровадженню інноваційних технологій, відновленню зрошення та зміцненню продовольчої безпеки регіонів. Сформульовано основні умови створення водогосподарських кластерів, визначено їх переваги, потенційні обмеження та ризики функціонування. Практичне значення результатів полягає у можливості їх використання органами державної влади та місцевого самоврядування при розробленні й реалізації стратегій розвитку водного господарства регіонів.

Ключові слова: *водне господарство, регіональний розвиток, організаційно-управлінський механізм, басейнове управління, кластер, децентралізація.*

Formulation of the problem in a general form. Managerial approaches to the strategic development of water management at the regional level are currently based on integrated basin management, multi-level governance, and partnerships among the state, communities, and businesses. Organizational mechanisms are implemented through basin councils, river basin management plans, target programs, and coordination of regional strategies with national water policy.

Analysis of recent studies and publications. The problems of water resources management and water management development are widely represented in the works of domestic and foreign scientists. The issues of integrated water resources management and the basin approach are covered in the works of specialists of the State Agency of Water Resources of Ukraine, as well as in studies on modern water resources management – Marshall and M. Porter, who considered clusters a tool for increasing the economy's competitiveness.

Among Ukrainian scientists, significant contributions to the study of cluster mechanisms were made by A. Zhyhir, V. Parsiak, O. Zhukova, and A. Vashchylenko, who analyzed the economic content of clusters and their role in the development of economic sectors. Innovative and informational aspects of cluster formation are

considered in the works of A. Yamchuk. At the same time, the issues of adapting the cluster approach to the water sector, especially in the context of post-war recovery and climate challenges, remain insufficiently developed.

It is advisable to direct further scientific research to the development of institutional models for the functioning of water management clusters, the improvement of regulatory and legal support for their activities, and the introduction of digital systems to support management decisions in water use. Attention needs to be paid to assessing the effectiveness of cluster initiatives in restoring irrigation and adapting water management to climate and military challenges.

The purpose of the article is to substantiate organizational and managerial mechanisms for the implementation of the strategy for the development of water resources at the regional level and to develop practical recommendations for the combination of basin and territorial approaches, as well as the use of cluster structures in the water resources management system.

Presentation of the primary material of the study. Implementing the strategy for water management development in the region requires not only determining the main development directions and establishing a system of goals and levers, but also appropriate organizational support. The managerial and management mechanism is an integral part of the regional organizational and economic mechanism for water management.

The role of the organizational and management mechanism is to ensure compliance with the following conditions for the functioning of the water management industry of the region:

1. Provision of all users - household consumers, business entities of all types of economic activity with water resources in sufficient volume and proper quality in compliance with the requirements of environmental protection. This task directly aligns with the region's water management complex's primary goal and supports the coordination of economic and water security requirements.

2. Creating conditions for increasing the economic efficiency of water use – increasing productivity and reducing losses in all sectors of the regional economy, by

ensuring the joint receipt of economic effects by organized groups of users at the regional and interregional levels and their fair distribution.

3. Maximizing social efficiency, ensuring equal opportunities for all users to access water resources and related services, as well as providing the resilience of the regional community to natural and artificial (primarily military) challenges in the field of water use.

4. Management of water use risks, in particular deterioration of water resources quality due to pollution of water bodies, floods and droughts, overconsumption of water resources, increase in return use, etc. Risk management involves identifying and assessing risks, and choosing ways to overcome them, in particular: optimizing the benefits and minimizing the risks of using water resources; refusing projects and activities associated with critical risks; accepting risks that do not cause significant damage to the region's economy and ecosystem.

5. Resolution of disputes and conflict situations arising in the processes of distribution and use of water resources between all participants of the mechanism – authorities, population, business, as well as in relations with adjacent regions when using water from standard basins. This is especially important in the context of limited water resources in the Southern areas, following the destruction of the Kakhovka hydroelectric power station.

6. Compliance with the requirements of sustainable use of water resources and preservation of the ecosystem.

The formation of an organizational and managerial mechanism for the implementation of the strategy for the development of water management can be carried out in two ways:

- "top-down" (vector of centralization) – when the initiative to create organizational mechanisms and relevant structures comes from the governing bodies of the national level, which determine the policy of the development of the industry, the levers and tools for its implementation, the composition and structure of regulatory, consulting, and executive bodies;

- "bottom-up" (decentralization vector) – when the priority of local authorities is ensured in determining the policy and mechanisms for the development of water management, which allows covering the interests of a broader range of users, considering the fundamental needs for water resources, and coordinating them with the potential of the industry.

In our opinion, the functioning of the water management of the regions in accordance with the demand for water resources and the satisfaction of the maximum number of users requires the transfer of the center of gravity from the vector of centralization to the vector of decentralization, i.e. strengthening the role of regions in water management, while maintaining the overall strategic management at the national level. Enhancing the role of areas involves the formation of new organizational structures to manage and develop regional and interregional water supply and sewerage systems, and to regulate the efficient use of water resources. At the same time, decentralization does not imply abandoning central regulation; these two levels of governance must be optimally balanced to achieve maximum effect. The distribution of water management functions between the national and regional levels is presented in Fig. 1.

In our opinion, the organizational and managerial mechanism for developing water management should coordinate and integrate the advantages of the territorial and basin approaches to water resources management and water use. The source of the conflict between these two approaches is that water resources are not localized within the administrative boundaries of the regions. To manage water use, ensure balance, and protect ecosystems, the basin approach is the most logical. As world experience shows [1], the advantages of the basin approach are:

- consciousness of employees who ensure effective planning of water resources use, collection of fees for the supply of water resources and pollution, information support, investment planning, etc.;

- availability of information and involvement of all users in solving key issues and decision-making through water councils. These structures provide users with control over management decisions and the structure's budget. National bodies also

have contact with the council, which allows coordination of basin structures' activities with national strategies.

- linking the budget of the basin structure to revenues for water use and emissions, which provides the necessary resources for the implementation of investment projects for the development of water infrastructure. Thus, a direct connection is established between prices and tariffs and the investment potential for developing water management within the basin.

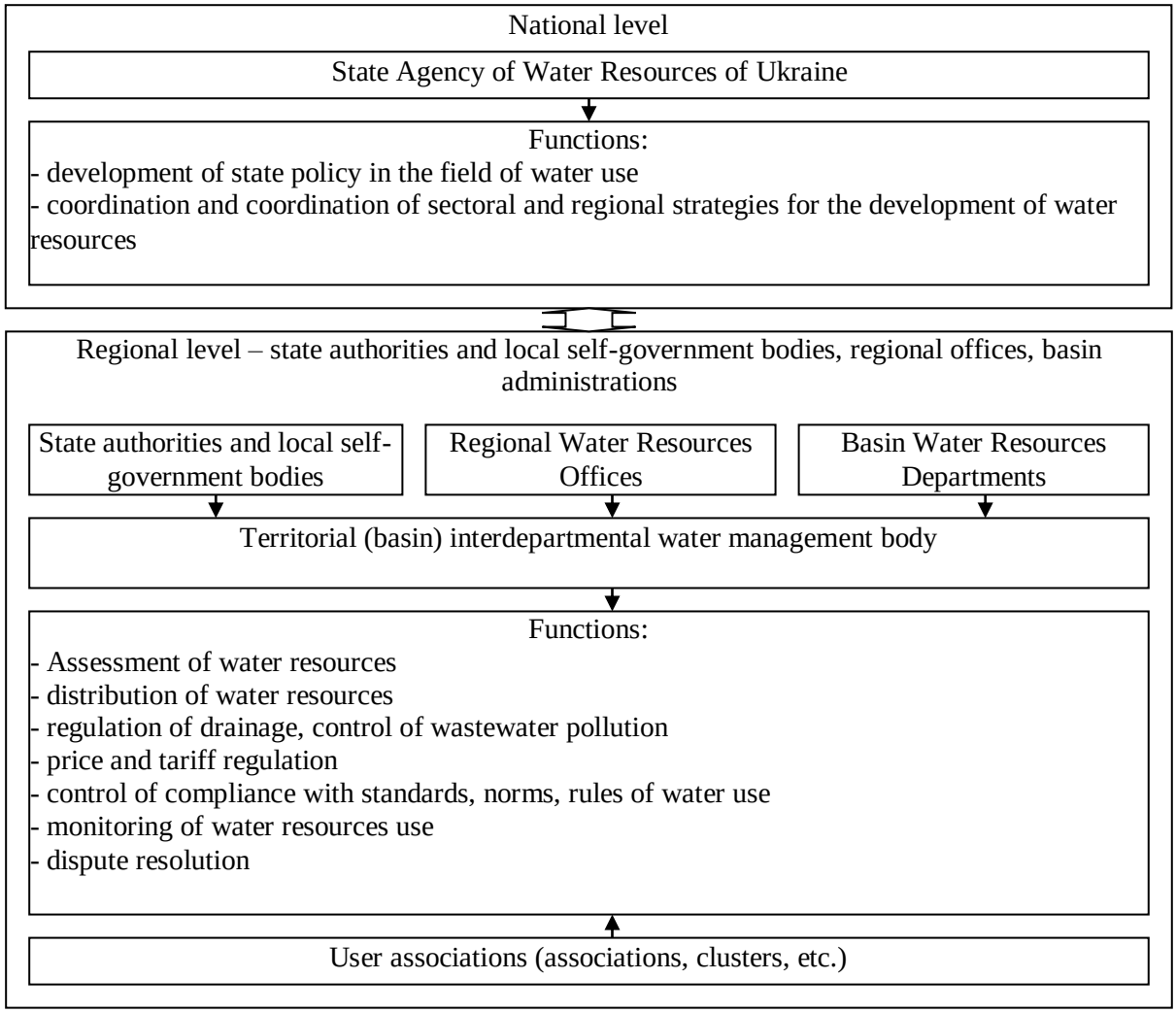

Figure 1 – Distribution of water management functions between levels (author's development)

However, the management of user demand (population and sectors of the economy) and its controllability are linked to regional administrative units. Local authorities have a larger arsenal of tools and levers for interacting with the end consumer; they are as aware as possible of the preferences and priorities of water users

in the subordinate territory. Therefore, water management organizations should closely coordinate with local authorities and be under their control to ensure the most efficient use of water resources in the region's economy. The establishment of control over water supply organizations by regional authorities is associated with specific difficulties:

- levelling the influence of political factors and regional elites on the activities of water management organizations;

- ensuring the financial independence of water management organizations from local authorities;

- the threat of corruption, conspiracies, and administrative pressure on water management organizations and users;

- the need to establish interregional cooperation, if the basin is located on the territory of several regions, which complicates the processes of water resources management, and causes conflicts of interest;

- coordination of water management development plans with regional plans for the development of economic sectors, development and land use plans, social development plans, environmental measures, investment and innovative development, etc.

Therefore, basin administrations cannot guarantee the development of water management, as they lack the necessary administrative and economic resources, and authorities and local governments lack the competencies to manage water resources themselves.

Another crucial organizational issue is the need to involve society and local communities in the management of water resources, including their distribution, consumption, and restoration. This requires creating structures that can bring users together, represent their interests, and even directly manage specific processes. Thus, irrigation systems can be managed by associations of agricultural producers that are direct users. They can become not only users but also take responsibility for the maintenance and functioning of irrigation systems, which, in fact, makes them subjects of water management. This allows integrating users into the industry, increasing control over their activities, and, most importantly, fostering economic interests, social

responsibility, and a conscious attitude toward the use of water resources and infrastructure.

The ways to overcome these difficulties can be:

- delegation of certain functions of water management to national bodies, interdepartmental or independent structures;

- creation of user associations.

That is why we propose creating organizational structures that neutralize these shortcomings and ensure comprehensive water management at both the resource and economic levels. Such structures are:

1. Territorial (basin) interdepartmental water management body, which should concentrate the levers of influence and competence of national, sectoral, and regional authorities, balance their interests and benefits for the best use of water resources and infrastructure in terms of economic, social, and environmental efficiency. This body should integrate the functions of analysis and assessment, planning, implementation, and monitoring and control of the implementation of strategies, programs, and projects for the development of water resources in the region. It must act in close cooperation with the authorities and users.

2. Network of associations of water users in the form of cluster structures.

Let us consider forming a cluster of water users, based on the example of agricultural enterprises in the Southern region. Restoration of irrigation is a priority area that will ensure the sustainable development of the farming industry in the Southern region and the realization of the country's agricultural potential. In the context of war and climate change, the effective use of the region's irrigation potential directly affects food security both in Ukraine and around the world.

Over the past few decades, the idea of clustering to enhance regional economic competitiveness has been widely adopted. Today, the cluster model of the economy is implemented in almost all countries of the world, and clusters operate in many (including innovative) sectors of the economy. The positive impact of clusters on the economic development of countries and regions worldwide underscores the relevance of

studying the creation of clusters to improve water resources management in the irrigation zone.

The theoretical foundations of clusters were laid at the end of the nineteenth century. A. Marshall, and the term cluster was first used by Professor M. Porter of the Harvard School (USA) in the 1980s. According to him, the cluster is an organizational form for consolidating stakeholders' efforts to achieve competitive advantage in the context of the formation of a post-industrial economy. M. Porter believed that in the modern economy, the traditional sectoral division loses its relevance and clusters come to the fore as systems of socio-economic relationships [2, p. 10].

The cluster approach is used in the following circumstances:

- in the process of developing programs of national and local importance;
- as a basis for interaction between large and small businesses;
- in the development of the policy of innovative development;
- as a tool for attracting investments;
- in the process of analysing the competitiveness of a country, region, industry, or individual enterprise.

The cluster approach enables, first, greater efficiency in interactions among the private sector, the state, educational institutions, and research institutions in the innovation process.

According to Professor Parsiak V.N., the use of cluster technologies in industry does not pose a threat to the legal or economic independence of business entities. Under the conditions of careful coordination by the parties of the provisions of the constituent documents, the election of competent and authoritative persons to the governing bodies, and the introduction of careful control over their activities, clusters can contribute to the emergence of a synergistic effect, in which each of its participants is interested [3].

Economic clustering has also become an essential mechanism of development in Central and Eastern Europe – Hungary, Poland, the Czech Republic, and Slovakia. Clusters help optimize organizational contacts, establish practical cooperation, and coordinate business plans for organizations engaged in various economic activities. At the same time, clusters also serve as forums where business, government, and scientific

circles engage in dialogue on ways to develop competitive advantages at the regional and national levels. Thus, a cluster is a new form of organization that enables it to adapt its internal structures and external relationships to a rapidly changing environment. Clusters encompass a wide range of business structures that are important for competition, namely suppliers of specialized equipment, new technologies, services, infrastructure, raw materials, additional products, etc. [4].

The need to use clusters to restore irrigation stems from the fact that modernizing irrigation systems and addressing the issue of alternative water supplies to irrigation canals after the explosion of the Kakhovka hydroelectric power plant do not fall within the competence of agricultural enterprises and water user associations. This requires innovations and investments that the state cannot provide due to the war-torn economy.

To effectively implement international support for irrigation restoration and comprehensive hydromelioration reform, clusters should be created to support all subjects of integrated water resources management. The use of the cluster approach will also increase the efficiency of innovative economic development and competitiveness on the path to EU membership.

International experience shows the existence of clusters with different structures, industry affiliations, levels of innovation orientation, and degrees of integration among participants. From the whole variety of options for creating cluster structures in the field of water use, we distinguish three main models of clusters, which, in our opinion, are the most consistent with the realities and prospects for the development of water management and the agricultural sector of the South of Ukraine, in particular, the implementation of the tasks of restoring irrigation:

1. The cluster is aimed at creating a safe environment for agricultural activities - a form of public-private partnership that will allow the use of innovative technologies to protect employees of farming enterprises and machinery, irrigation systems, eliminate the consequences of hostilities, demine, and attract investments for the implementation of projects in this area.

2. Cluster aimed at developing the provision of irrigation systems with alternative water sources. Currently, this is the biggest problem for irrigation systems in the

Kherson, Zaporizhzhia, and Mykolaiv regions. Combining the efforts of associations of water users, research institutes, Ukrainian construction companies, and state institutions will enable a comprehensive study of this problem and the identification of ways to address it. It is necessary to develop a scientific and methodological approach to determine the procedure for estimating future costs associated with the introduction of seawater desalination or the use of groundwater reserves.

3. Cluster aimed at using green energy for irrigation needs. Regular missile attacks on Ukraine's energy infrastructure pose a significant threat to the functioning of the Ukrainian economy. Due to the obsolescence of pumping stations, which leads to inefficient electricity use, it is necessary to introduce alternative energy sources to power them, in particular solar or wind energy. As a result of such modernization, it is possible to gradually reduce the cost component of electricity in the price of irrigation water. Given the situation in which farmers in the South find themselves, it is necessary to use all possible tools to support and encourage their activities. A critical task in this regard is the creation of associations of water users that can independently attract investments and meet their needs for modernizing the on-farm network.

In our opinion, the cluster participants should include agricultural enterprises, associations of water users, scientific and educational institutions, regional state authorities, auxiliary financial structures, international organizations, and manufacturers of agricultural machinery and irrigation systems (Fig. 2).

The conditions for creating cluster structures in various sectors, including in the field of water use, are as follows:

1. Territorial localization of cluster members, i.e., their geographical proximity, is in the same territory. The requirement is fully satisfied both within the basin and within the regional approach to water management.

2. The presence of cooperative or integration ties between the cluster members. That is, there should be a certain proto-cluster in this territory – a network of connections between potential participants, based on which a cluster structure will be formed. In the field of water management, such a network of connections objectively

exists - the relations between participants in the process of supply, distribution, use, and reproduction of water resources form it.

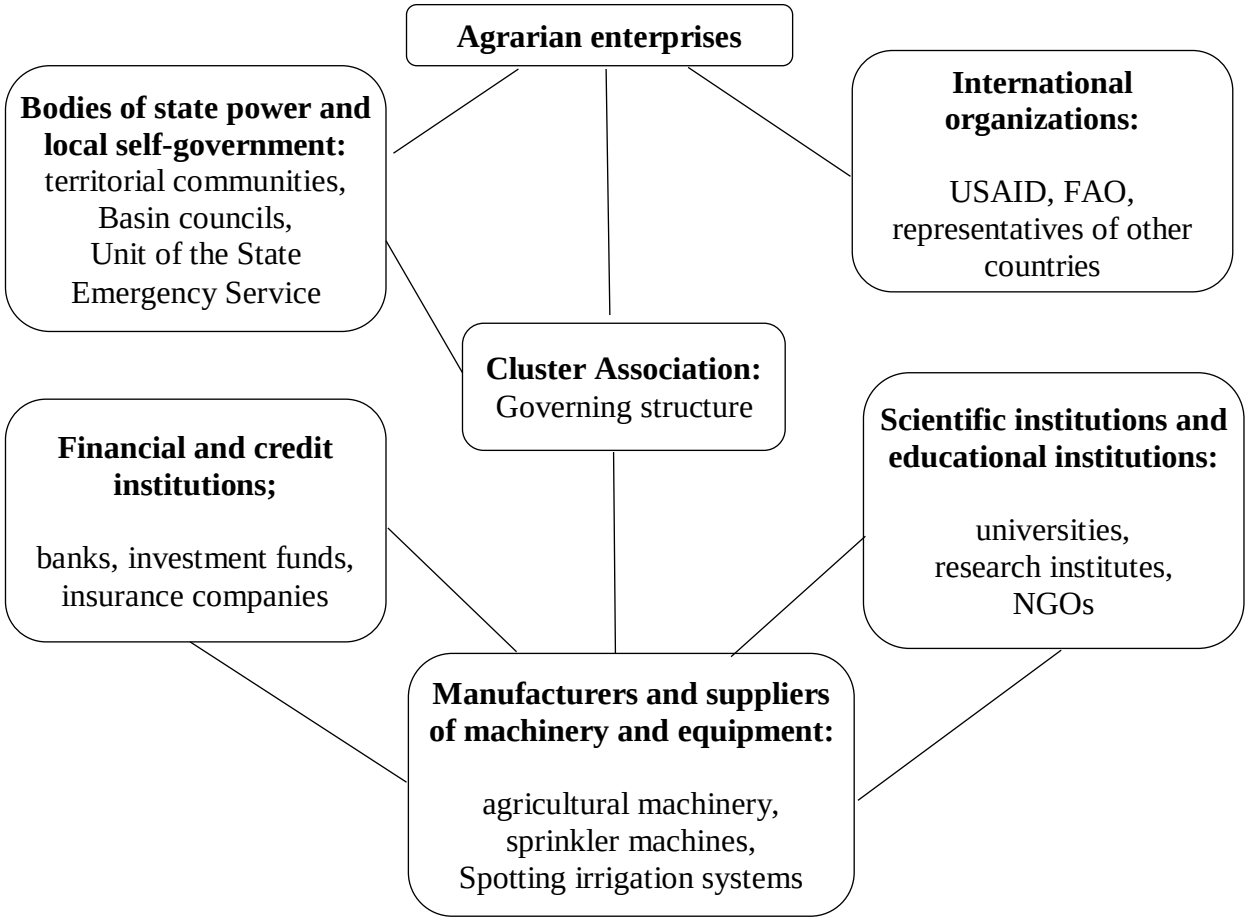

Figure 2 – Structural model of the water management cluster in the zone of irrigation agriculture (author's development)

3. Division of labor and roles between cluster members, depending on the functions and tasks performed. In a water cluster, roles and functions are clearly distributed – supplier, user, governing body, etc. The distribution also exists outside the cluster structure; it was created during the development of water management. The task of the cluster is to coordinate capacities and competencies and to streamline the functions and roles of participants to achieve maximum results.

4. The existence of a center of gravity, which will act as an integrator. In our opinion, the role of the integrator should be played by the proposed territorial (basin) interdepartmental water management body, or by the cluster management structure it specially creates.

5. High level of socio-economic efficiency of the cluster functioning. The possibility of obtaining a scale effect, or better, a synergistic effect, from cooperation and integration of cluster members. The accumulation of the impact from the creation of a water cluster is provided by:

- more productive use of water resources, obtaining an additional economic effect from reducing losses and optimizing water use;

- more equitable distribution of water resources, which provides an additional social effect;

- obtaining greater opportunities for control over the use and reproduction of water resources, management of this process, which provides an additional environmental effect;

- concentration of investment and financial resources of participants and from external sources, which makes it possible to implement large-scale investment projects for infrastructure development;

- intensification of innovative development due to the combination of competencies of business and science in a single structure.

6. Availability of scientific and educational potential. The proposed approach to the formation of the cluster structure provides for the possibility of independently staffing the cluster with personnel with the necessary competencies, due to the inclusion of educational institutions in its structure, as well as for scientific support of the cluster's activities by scientific institutions integrated into its structure.

The advantage of creating a water cluster is the joint solution of problems related to restoring irrigation, mutual assistance and consultations among participants, the possibility of attracting qualified personnel from different industries, and greater opportunities to introduce innovations and advanced technologies.

At the same time, the factors that hinder the effective functioning of the cluster include:

1. The complexity of the cluster structure, which is due to the belonging of its participants to different spheres and sectors, different organizational and legal forms, and different accountability and control of their activities. To overcome this obstacle,

the governing body must have sufficient authority and mechanisms to implement it, exerting a guiding influence on all participants regarding water use. In addition to the powers and levers of control, the governing body must be provided with complete, reliable, up-to-date, and timely information about the state of the system. This, in turn, requires the availability and reliable functioning of the cluster's information and analytical system, integrated into the information system of the organizational, managerial, organizational and economic mechanism for the development of water resources in the region, which will provide the cluster with the necessary amount of internal and external information, coordinate actions with other structural elements of the mechanism, with national and regional priorities and goals for the development of water management.

2. Difficulties in mutual coordination of actions between cluster members, which are associated with numerous conflicts between the goals of their activities and limited water resources. The governing body of the cluster must seek compromise solutions that most fully satisfy the requirements of the participants without harming others. To do this, the governing body must have tools for planning, forecasting, and supporting management decisions, which require integrating modern digital systems and management tools into the cluster management structure.

3. Inhibition of managerial decision-making due to a complicated system of decision coordination. The presence of several levels of management in the region's water management structure and the subordination of the water cluster to national and regional strategies require coordination with the highest-level structures. This makes the cluster less autonomous and dependent on higher-order bodies in key decision-making. This approach is natural, since water resources are of national importance. At the same time, to speed up decision-making, only major decisions should be coordinated with higher levels of management; operational and tactical actions should be carried out by the cluster independently, subject to restrictions to protect the ecosystem and replenish water resources.

4. Imperfection of the institutional and economic-legal environment. To overcome this obstacle, the regulatory framework and the administration of cluster initiatives should be brought up to European standards and practices.

The identified problems of the functioning of the water cluster indicate the complexity of combining a multi-level management system, limited water resources, and multidirectional interests of participants. Overcoming them requires improving organizational and managerial tools, developing digital systems to support managerial decisions, and harmonizing the institutional and legal environment. In this context, the cluster approach is essential not only as a coordination tool but also as a key component of implementing the regional strategy for water management development.

Conclusions: The practical implementation of the strategy for developing water management in the region involves establishing a comprehensive organizational and management mechanism that combines the advantages of basin and territorial management. Decentralization of managerial functions, provided that the strategic role of the state is preserved, increases the adaptability of the management system and takes into account regional features of water use. Basin bodies and the development of cluster structures of water users as tools for increasing the economic, social, and environmental performance of the region's water resources. The results of the study can be used in the practice of public administration and in the strategic planning of regional development.

БІБЛІОГРАФІЧНИЙ СПИСОК:

1. Water Resources Management URL: https://www.worldbank.org/en/topic/waterresourcesmanagement
2. Ямчук А. В. Деякі питання побудови інноваційно-інформаційних кластерів. *Проблеми науки*, 2012. № 4. С. 10–15.
3. Парсяк В. Н., Жукова О. Ю., Ващиленко А. М. Кластери в промисловості: етимологічні витоки та економічний зміст. URL: https://rep.nuos.edu.ua/server/api/core/bitstreams/02f4e4c3-6564-4189-a30b-4d72ad457454/content.
4. Жигірь А. А. Формування кластерів, як світова тенденція,пошуку шляхів підвищення ефективності підприємницької діяльності. *Інвестиції: практика та досвід*, 2015. № 22. С. 38–43.
5. Зацерковний В. І., Плічко Л. В. Аналіз системи управління водогосподарським комплексом України та пошук шляхів щодо її вдосконалення. *Наукоємні технології*, 2017. № 4(36). С. 358–367.
6. Судук О. Ю. Напрями вдосконалення механізмів державного регулювання водовикористання України. *Стратегічні пріоритети*, 2015. № 2(35). С. 164–169.

7. Скрипчук П. М. Сучасні підходи до формування водогосподарського менеджменту. *Економіка та держава*, 2012. № 11. С. 26–30.
8. Хвесик М. А., Левковська Л. В., Мандзик В. М. Економічні аспекти управління водокористуванням в умовах децентралізації влади в Україні. *Науковий вісник Мукачівського державного університету*, 2015. Випуск 2(4). Частина 2. С. 49–55

REFERENCES:

1. Water Resources Management URL: https://www.worldbank.org/en/topic/waterresourcesmanagement
2. Iamchuk A. V. Deiaki pytannia pobudovy innovatsiino-informatsiinykh klasteriv. *Problemy nauky*, 2012. № 4. S. 10–15.
3. Parsiak V. N., Zhukova O. Yu., Vashchylenko A. M. Klastery v promyslovosti: etymolohichni vytoky ta ekonomichnyi zmist. URL: https://rep.nuos.edu.ua/server/api/core/bitstreams/02f4e4c3-6564-4189-a30b-4d72ad457454/content.
4. Zhyhir A. A. Formuvannia klasteriv, yak svitova tendentsiia,poshuku shliakhiv pidvyshchennia efektyvnosti pidpryiemnytskoi diialnosti. *Investytsii: praktyka ta dosvid*, 2015. № 22. S. 38–43.
5. Zatserkovnyi V. I., Plichko L. V. Analiz systemy upravlinnia vodohospodarskym kompleksom Ukrainy ta poshuk shliakhiv shchodo yii vdoskonalennia. *Naukoiemni tekhnolohii*, 2017. № 4(36). S. 358–367.
6. Suduk O. Yu. Napriamy vdoskonalennia mekhanizmiv derzhavnoho rehuliuvannia vodovykorystannia Ukrainy. *Stratehichni priorytety*, 2015. № 2(35). S. 164–169.
7. Skrypchuk P. M. Cuchasni pidkhody do formuvannia vodohospodarskoho menedzhmentu. *Ekonomika ta derzhava*, 2012. № 11. S. 26–30.
8. Khvesyk M. A., Levkovska L. V., Mandzyk V. M. Ekonomichni aspekty upravlinnia vodokorystuvanniam v umovakh detsentralizatsii vlady v Ukraini. *Naukovyi visnyk Mukachivskoho derzhavnoho universytetu*, 2015. Vypusk 2(4). Chastyna 2. S. 49–55

Стаття надійшла до редакції: 22.09.2025; рецензування: 25.09.2025;
прийнята до публікації 08.10.2025. Автори прочитали и дали згоду рукопису.
The article was submitted on 22.09.2025; revised on 25.09.2025; and accepted for publication on 08.10.2025. The authors read and approved the final version of the manuscript.