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SUSTAINABLE MANAGEMENT OF THE RENI SEA COMMERCIAL PORT

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СТАЛИЙ МЕНЕДЖМЕНТ РЕНІЙСЬКОГО МОРСЬКОГО ТОРГОВОГО ПОРТУ

In modern conditions, the issue of developing economic entities without negative consequences for the future is gaining particular importance across all sectors of the economy, including transport infrastructure. The Reni Sea Commercial Port is no exception — located at the intersection of key transport corridors, it holds significant potential for development as a logistics hub in the southwest of Ukraine. Therefore, this article aims to explore the conceptual foundations of sustainable management in the operations of the Reni Sea Commercial Port by identifying the main directions for its implementation and developing practical recommendations for introducing an effective management model based on the principles of sustainable development. The study found that sustainable management in the operations of the Reni Sea Commercial Port should be based on a

set of key conceptual principles that shape a comprehensive model of its sustainable development. These conceptual principles include: a systems approach to port development management, ensuring the strategic coherence of managerial decisions; environmental responsibility, aimed at minimizing negative environmental impacts; the institutional capacity of the port administration to implement sustainability policies; management transparency, which fosters open dialogue with all stakeholders; economic efficiency, essential for maintaining financial stability; and social orientation, reflected in support for personnel and the local community. It has been established that the combination of these components enables the formation of a modern management model that integrates pragmatic economic interests with the port's long-term environmental and social commitments, and lays the groundwork for a transition to a sustainable development model for the Reni Sea Commercial Port. This model aligns with the port's functional specifics, considering its geographical location, existing infrastructure potential, and strategic prospects. The implementation of a conceptual model of sustainable management at the Reni Sea Commercial Port can provide a range of significant advantages: it contributes to more efficient resource management and ensures sustainable economic dynamics of the port under competitive conditions; it helps reduce the technogenic burden on the environment; and it increases trust from employees, the local community, and partners – a key factor in the stable functioning of the port.

У сучасних умовах особливого значення набуває розвиток суб'єктів економіки без створення негативних наслідків для майбутніх поколінь. Це стосується всіх сфер економіки, зокрема транспортної інфраструктури. Не є винятком і Ренійський морський торговельний порт, розташований на перетині важливих транспортних коридорів, який має значний потенціал для розвитку як логістичний вузол на південному заході України. Метою даної статті є дослідження концептуальних засад сталого менеджменту в діяльності Ренійського морського торговельного порту шляхом визначення основних напрямів його реалізації та формування практичних рекомендацій щодо впровадження ефективної моделі управління на засадах сталого розвитку. У ході дослідження встановлено, що сталий менеджмент у діяльності Ренійського морського торговельного порту має ґрунтуватися на низці ключових концептуальних засад, які формують цілісну модель його сталого розвитку. До таких засад віднесено: системний підхід до управління розвитком порту, який забезпечує стратегічну узгодженість управлінських рішень; екологічну відповідальність, що передбачає мінімізацію негативного впливу на довкілля; інституційну спроможність адміністрації порту до впровадження політик сталого розвитку; прозорість управління, яка сприяє відкритому діалогу з усіма зацікавленими сторонами; економічну ефективність як основу фінансової стабільності; а також соціальну орієнтованість, що проявляється у підтримці персоналу та місцевої громади. Констатовано, що сукупність зазначених складників дає змогу сформувати сучасну управлінську модель, яка не лише поєднує прагматичні економічні інтереси з довгостроковими екологічними та соціальними зобов'язаннями порту, а й створює підґрунтя для переходу до сталого розвитку Ренійського морського торговельного порту, що відповідає його функціональній специфіці, враховує географічне розташування, наявний інфраструктурний потенціал та стратегічні перспективи. Запровадження концептуальної моделі сталого менеджменту в Ренійському морському торговельному порту може забезпечити йому низку суттєвих переваг: сприяти підвищенню ефективності управління ресурсами та забезпеченню стабільної економічної динаміки в умовах конкуренції; зменшити техногенне навантаження на довкілля; а також підвищити довіру з боку працівників, громади та партнерів, що є запорукою стабільного функціонування порту.

Key words: transport infrastructure; port's environmental obligations; port's social obligations; seaports; staff support; local community support.

Ключові слова: транспортна інфраструктура; екологічні зобов'язання порту; соціальні зобов'язання порту; морські порти; підтримка персоналу; підтримка місцевої громади.

PROBLEM STATEMENT

In the modern context, the issue of developing economic entities without negative consequences for the future is gaining particular importance across all sectors of the economy, including transport infrastructure. Sea-

ports are no exception, as they serve as key elements of international logistics and play a critical role in ensuring the economic stability of regions and states. The Reni Sea Commercial Port, as it is located at the intersection of important transport corridors and has significant potential

Table 1. Features of the formation and adaptation of sustainable management principles to the development needs of the Reni Sea Commercial Port

Directions of adaptation	Specifics of forming sustainable management	Specifics of sustainable management adaptation
Specifics of operations	The Reni Port is a river-sea port, meaning it operates at the junction of inland waterways (the Danube) and maritime communications (the Black Sea), which leads to seasonal transportation, dependence on water levels, and the need for specialized vessels. The port handles mixed cargo types, which requires flexible logistics and diverse infrastructure. The shallow depth of the water area (compared to large seaports) limits the entry of large-tonnage vessels.	Flexible organization of logistics processes. Integration of multimodal transportation. Development of port infrastructure and deep-water approaches.
Specifics of geographical location	The port is located in the southwestern part of Ukraine, in the Danube delta, near the borders with Romania and Moldova, which creates a cross-border potential. It is part of the Danube Transport Corridor No. 7 (the Trans-European Transport Network – TEN-T), making it promising for international cargo transit. At the same time, its distance from the main industrial centers of Ukraine presents logistical challenges regarding cargo delivery.	Deepening international cooperation and developing infrastructure for cross-border transportation. Enhancing integration into the European transport network. Optimizing transportation logistics.
Specifics of infrastructure condition	Some equipment and berth infrastructure are outdated and worn out, requiring modernization and energy modernization. There is an insufficient number of modern handling complexes, especially for containerized cargo. The railway and road connections to the port need improvement to ensure uninterrupted logistics.	Modernization of infrastructure. Development of handling complexes. Improvement of transportation connections.
Specifics of strategic potential	The Reni Port has the potential to become a key hub for multimodal transportation, combining sea, river, road, and rail transport. There is an opportunity for the development of eco-oriented logistics (for example, based on transport along the Danube, a more environmentally friendly mode of transportation). It could become an international trade hub for countries in Central Asia, the Balkans, and the EU — provided there is strategic rethinking and investment.	Creation of a multimodal transport hub. Development of eco-oriented logistics. Development of an international trade hub.

Source: compiled based on [1—2; 5].

for development as a logistics hub in the southwest of Ukraine. It should be noted that the issue of its effective long-term functioning currently requires the integration of sustainability principles into its management.

First and foremost, the Reni Port, like many other Ukrainian ports, faces physical and technological obsolescence. Most of its berths were built during the Soviet era and no longer meet modern standards for depth, strength, and capacity. Cargo handling equipment, including cranes, conveyors, and loaders, is highly worn out, with wear levels sometimes exceeding 70%, resulting in frequent breakdowns. Many of these machines are outdated technologically, lack support for modern automation standards, and exhibit low energy efficiency. Additionally, there are issues with access routes: the railway and road approaches to the port have limited throughput capacity and require upgrades to ensure uninterrupted logistics. This, in turn, hampers the port's operational efficiency, increases cargo handling times, and raises the risk of accidents and equipment failures. Sustainable management calls for strategic investment planning and infrastructure modernization that prioritizes energy efficiency and durability.

In addition, the Reni Port has a significant environmental impact. Key issues include emissions of pollutants

into the atmosphere from diesel equipment and vessels, water pollution from petroleum products and runoff from the berths, as well as elevated noise levels from cargo operations. These factors pose risks to the aquatic flora and fauna of the Danube, as well as to the health and well-being of nearby populations. Implementing environmentally responsible practices — such as upgrading equipment to electric power, installing wastewater treatment facilities, organizing waste sorting and disposal, and introducing air and water quality monitoring systems — can substantially reduce the port's negative environmental impact. At the same time, these measures will help bring the port in line with international environmental standards (particularly EU requirements related to transport and the environment) and enhance its investment appeal.

It is worth noting that an additional factor highlighting the relevance of this study is Ukraine's integration into the global transport system, where sustainable development has become a mandatory condition for participation in international projects and attracting investment (for example, from the EU or international financial institutions). Retaining qualified personnel, improving working conditions, engaging with the local community,

and other similar measures are essential components of sustainable management that ensure operational stability and garner support from the local population.

Thus, the implementation of sustainable management is not only a response to current challenges but also a foundation for building a resilient development model for the port-one that will ensure its economic efficiency, environmental safety, and social responsibility in the future.

ANALYSIS OF RESEARCH AND PUBLICATIONS

The challenges of transitioning to sustainable management in the operation of seaports have received considerable attention in the scientific research of several Ukrainian scholars, among whom S. Rusanova, M. Perepichko, O. I. Platonov, V. V. Shemaiev, and L. M. Shemaieva are particularly noteworthy. Their works highlight key aspects of sustainable port infrastructure development, environmental risk management, social-economic responsibility, and improving energy efficiency in seaport operations.

However, despite the existence of general theoretical and applied works in the sustainable management of

The systems approach to port development management is focused on integrating all aspects of its operations into a unified and effective system.*

Institutional capacity is focused on ensuring the effective functioning of management structures, the ability to quickly adapt to changes, and maintaining operational stability.***

Economic efficiency is focused on innovative development, optimization of logistics processes, and diversification of revenue sources.*****

Екологічна відповідальність орієнтована на впровадження в порту технологій зменшення негативного впливу на довкілля**

The conceptual principles of sustainable management.

Transparency in sustainability management is focused on ensuring openness and accountability in all management processes, allowing stakeholders access to information about the port's activities, decisions made, and resource usage****

Social orientation is focused on ensuring decent working conditions, the development of human capital, and partnership with local communities.*****

Figure 1. Key conceptual principles of sustainable management of the Reni Sea Commercial Port

Note:

* involves long-term strategic planning, consideration of stakeholder needs, alignment with national and international standards, as well as resource and process optimization.

** involves the integration of environmentally clean and energy-efficient technologies, monitoring the state of the environment, optimizing the use of natural resources, and reducing water, air, and soil pollution.

*** involves the development of an organizational structure capable of making operational and strategic decisions, ensuring a proper level of management competence, clear distribution of duties and responsibilities, and the presence of effective mechanisms for control and performance evaluation.

**** involves the systematic and timely publication of information, creation of feedback mechanisms, as well as the involvement of the public and other stakeholders in decision-making processes.

***** involves the implementation of cutting-edge technologies, process automation, cost reduction, and productivity improvement.

***** involves creating favorable conditions for employees, ensuring their rights and safety, developing professional skills, and providing opportunities for career growth.

Source: compiled based on [1—2; 5—6].

maritime transport, it should be noted that the issue of implementing sustainable development principles in the operations of individual ports, particularly the Reni Sea Commercial Port, remains insufficiently explored. This creates a scientific gap that requires separate study, taking into account the port's operational specifics, strategic location, infrastructure potential, and impact on the environment and the local community.

FORMULATION OF THE ARTICLE'S OBJECTIVES

The article aims to study the conceptual foundations of sustainable management in the operations of the Reni Sea Commercial Port by identifying the main areas of its implementation and forming practical recommendations for the introduction of an effective management model based on sustainable development principles.

THE PAPER MAIN BODY

The study emphasizes that sustainable management, in the context of the operations of an individual seaport, means the balanced integration of economic, environmental, and social goals into the overall port management system. This promotes the creation of conditions where management decisions take into account not only economic efficiency but also the impact on the environment and the well-being of local communities. So, sustainable management is focused on [4—5]:

1. The economic component, specifically ensuring the overall profitability of the port, which is based on maximizing the flow of Hicks-Lindahl total income, enhancing

competitiveness, and attracting sustainable investments (specifically those that contribute to the preservation of total capital, which is used for this purpose).

2. The environmental component — reducing emissions of pollutants into the air and water, improving energy efficiency, and preventing the degradation of the marine ecosystem.

3. The social component — ensuring safe working conditions, creating jobs, developing infrastructure for the local population, and considering the interests of the community.

It should be noted that when considering the specifics of the transition to sustainable development of the Reni Sea Commercial Port, these principles must be adapted to the specifics of its operations, geographical location, infrastructure condition, and strategic potential [4], as systematically illustrated in Table 1.

It should be noted that the outlined adaptation defines not only the limitations of operations but also unique opportunities for implementing sustainable management, focused on adaptability, energy efficiency, cross-border cooperation, and environmental modernization. Considering the above, the key conceptual principles of sustainable management for the Reni Sea Commercial Port include (see Figure 1): a systems approach to port development management; environmental responsibility of the port; institutional capacity; transparency in sustainability management; economic efficiency, and social orientation.

Thus, a systems approach to development management involves long-term strategic planning that takes into account the needs of stakeholders (the state, businesses, and the community). The systems approach to the development management of the Reni Sea Commercial Port is presented in Table 2.

A systematic approach to development management is the foundation for ensuring the effective operation of the Reni Sea Commercial Port. This approach involves long-term strategic planning focused on progressive trends in international transportation, consideration of the needs of all stakeholders, and integration into global logistics chains.

Environmental responsibility is implemented through the introduction of technologies in the port that reduce negative environmental impact, as well as technologies for environmental monitoring and the rational use of natural resources. The fundamental principles for ensuring environmental responsibility in the development of the Reni Sea Commercial Port are presented in Table 3.

Environmental responsibility is one of the priorities of the sustainable development of the Reni Sea Commercial Port, which is of particular importance due to its location within the Danube Basin ecosystem. Environmental

Table 2. Systems approach to the development management of the Reni Sea Commercial Port

Direction	Key principles of implementation	Implementation specifics
Long-term strategic planning	The Reni Port must develop a detailed development plan, focusing on trends in international transportation and taking into account changes in transport corridors, particularly within the Danube Corridor.	Planning should include infrastructure modernization and the expansion of multimodal transportation (maritime, river, rail, and road).
Stakeholder engagement*	Establishing an open dialogue with key stakeholders: government bodies, local authorities, businesses, and civil society organizations.	It involves regular consultations, the establishment of advisory bodies, and the consideration of public social and environmental expectations.
Integration into national and international logistics chains	Aligning the port's development with the transport strategy of Ukraine and the EU involves integrating the facility into the overall transport network, as well as considering modern standards of safety, environmental sustainability, and innovative technologies that meet the requirements of the European Union.	It includes participation in international infrastructure projects and ensuring compatibility with European logistics standards.

Note

Stakeholders of the Reni Port include all interested parties that directly or indirectly influence its operations or have an interest in its development (government bodies, the private sector, internal users, international partners, and civil society).

Source: compiled based on [3; 5].

Table 3. Approach to ensuring environmental responsibility in the development of the Reni Sea Commercial Port

Direction	Key principles of implementation	Implementation specifics
Control of water pollution in the Danube Basin	Wastewater treatment, prevention of oil spills, and minimization of the impact of port operations on the aquatic environment.	Reni Port must organize wastewater treatment before discharging into the river, prevent oil spills, and implement zero-waste technologies in cargo handling operations.
Systematic environmental monitoring of water, soil, and air quality.	Continuous monitoring of environmental indicators in the port's impact zone.*	Creation of automated monitoring stations, regular reporting, and integration of data into national and European environmental monitoring systems.
Use of energy-efficient equipment.	Reduction of energy consumption, transition to modern resource-efficient technologies.**	Installation of energy-efficient lighting, modernization of cranes and other equipment, and the use of alternative energy sources, including solar panels.
Green landscaping of port areas.	Improvement of the microclimate and reduction of dust load.***	Planting greenery along the perimeter of the port, creating buffer eco-zones, and reducing the area of paved surfaces.
Implementation of waste management programs.	Separate collection, reduction of waste formation, and waste disposal.****	Implementation of a waste sorting system, construction of temporary storage areas, and establishing cooperation with licensed waste disposal operators.
Collaboration with research institutions.	Engagement of expert potential for environmental impact assessment and the search for innovative solutions.*****	Signing agreements with environmental laboratories and institutes, participation in joint research, and pilot projects on the ecological modernization of the port.

Note

* Continuous monitoring of environmental indicators in the port's impact zone includes the analysis of changes in air, water, and soil quality, allowing for the timely identification of environmental issues and implementation of necessary measures to address them.

** Reduction of energy consumption, transition to modern resource-efficient technologies includes energy-efficient systems introduction, the use of renewable energy sources, and the optimization of production processes to reduce the consumption of natural resources and minimize the negative impact on the environment.

*** Improvement of the microclimate and reduction of dust load includes the implementation of ventilation and air purification systems, landscaping, the use of modern dust control technologies, and the covering of soil with special materials to prevent its dispersion.

**** Separate collection, reduction of waste formation, and waste disposal include the introduction of waste sorting systems at the point of origin, the use of environmentally safe materials, and the development of recycling and resource reuse technologies to reduce the volume of waste sent to landfills.

***** Engagement of expert potential for environmental impact assessment and the search for innovative solutions involves collaboration with scientific institutions, environmental consultants, and specialists in sustainable development to develop effective methods for assessing, monitoring, and implementing new technologies that reduce the negative environmental impact.

Source: compiled based on [1—3; 5].

Table 4. Approach to ensuring economic efficiency in the development of the Reni Sea Commercial Port

Direction	Key principles of implementation	Implementation specifics
Innovative development	Implementation of digital technologies and automation of management and production processes	Creation of a «Smart Port»: automation of document flow, GPS tracking of cargo, online services for clients.
Optimization of logistics processes	Improvement of transport and warehouse operations efficiency, reduction of downtime and costs	Expansion of Multimodal Logistics Services: maritime, river, rail, and road connections with integrated management.
Diversification of revenue sources	Reduction of dependence on one type of cargo or type of activity	Development of logistics, warehousing, service, repair, and tourism services; activation of cooperation with private business.
Partnership with the private sector	Attraction of investments through the initiation of public-private partnership projects	Implementation of concession projects, rental of port facilities to private operators with clear environmental and social conditions.
Attraction of international funding	Participation in grant and loan programs for port infrastructure modernization	Attraction of funds from the EU, World Bank, EBRD for the development of environmental and transport infrastructure, including the Danube region.

Source: compiled based on [5—6].

preservation, the implementation of safe technologies, and continuous monitoring of the natural environment must become mandatory elements of port policy.

Economic efficiency, focused on innovative development, optimization of logistics processes, and diversification of revenue sources. The basic principles of ensuring economic efficiency in the development of the Reni Sea Commercial Port are presented in Table 4.

So, economic efficiency is a key factor in the sustainable development of the Reni Sea Commercial Port, based on innovative approaches that ensure not only the optimization of logistics processes but also the resilience of the financial model through the diversification of revenue sources. In other words, under current conditions, the port must not only maintain its competitiveness but also actively integrate into global and regional transport-economic systems.

The social orientation of the Reni Sea Commercial Port is manifested in ensuring decent working conditions, the development of human capital, and partnerships with local communities [1]. Given that institutional capacity is essentially the "foundation" on which ecological, economic, and social sustainable development initiatives are built, the

basic principles for ensuring the social orientation of the development of the Reni Sea Commercial Port are presented in Table 5.

Social orientation is an integral part of the sustainable development of the Reni Sea Commercial Port. It should be manifested through the creation of decent working conditions, the development of human capital, the establishment of partnerships with local communities, and ensuring social justice in the process of transforming port infrastructure.

Institutional capacity of the Reni Sea Commercial Port involves the ability of management structures, regulatory bodies, and partner institutions to effectively plan, coordinate, and implement strategic initiatives [4—5]. Given that this capacity encompasses the development of internal management processes, adaptation to changes in the external environment, ensuring stability, and increasing institutional effectiveness, we have identified the following basic principles for ensuring it for the Reni Sea Commercial Port, as presented in Table 6.

The outlined capacity includes the ability to respond quickly to challenges, integrate innovations, ensure effective communication between all stakeholders, as well

Table 5. Approach to ensuring social orientation in the development of the Reni Sea Commercial Port

Direction	Key principles of implementation	Implementation specifics
Organizational efficiency	Reforming internal management structures, strengthening managerial competence	Optimization of the port's management structure, implementation of a quality control system for management decisions, staff training with a focus on sustainable development.
Interagency and interregional coordination	Ensuring coordinated actions between the port, central government authorities, local communities, customs, and environmental services	Creation of a permanent coordination council, establishing fast information exchange procedures, integration of actions within the Danube region.
Regulatory and legal support	Updating regulations and standards according to European requirements	Harmonization of port regulations with EU directives, participation in shaping sustainable water transport policies at the national level.
Financial and project capacity	Ability to attract, administer, and effectively utilize funding	Formation of a separate unit for preparing investment and grant projects, training in managing international projects.
Public transparency and reporting	Ensuring transparency of port operations and reporting to stakeholders.	Public reporting on achievements, open access to key data (environmental, financial, logistical), and public involvement in strategic planning.

Source: compiled based on [1; 3; 5].

Table 6. Approach to ensuring institutional capacity of the Reni Sea Commercial Port

Direction	Key principles of implementation	Implementation specifics
Management efficiency	Development of a clear organizational structure, enhancement of managerial competencies.	Optimization of the port's management structure, improvement of internal processes, recruitment of qualified personnel with a focus on sustainable development.
Coordination between authorities and partners	Ensuring effective cooperation between various organizations and institutions.	Establishment of a coordination council between the port, government authorities, local authorities, environmental services, and businesses to address common issues.
Legal and regulatory support	Adapting internal standards and procedures to modern national and international requirements.	Harmonization of port regulations with European standards, creation of mechanisms for prompt response to changes.
Financial capacity	Ensuring effective use of financial resources and attracting investments	Formation of specialized units for investment search and management, active attraction of funding for infrastructure modernization.
Information transparency and reporting	Creating mechanisms for public transparency of operations	Regular public reporting on financial, environmental, and operational results, ensuring open access to important information for stakeholders.

Source: compiled based on [4—5].

as create conditions for sustainable development through a proper organizational structure, financial stability, and strategic planning.

Transparency in the management of sustainable development at the Reni Sea Commercial Port involves ensuring openness and accountability in all managerial processes [5]. This enables stakeholders, the public, and other interested parties to access important information about the organization's activities. Considering that this transparency includes the public disclosure of decisions, financial reports, plans, and operational results, we have

identified the following key principles for ensuring it at the Reni Sea Commercial Port, as presented in Table 7.

Transparency in sustainability governance should support sustainable development by maintaining trust in the port's institutions among the public, businesses, investors, authorities, and international partners.

CONCLUSIONS

The study has established that sustainable management in the operations of the Reni Sea Commercial Port should be based on a set of key conceptual principles that

Table 7. Approach to ensuring transparency in the management of sustainable development at the Reni Sea Commercial Port

Direction	Key principles of implementation	Implementation specifics
Public reporting	Regular public disclosure of financial, environmental, and operational performance	Publication of reports on the official port website, including access to annual financial reports, environmental outcomes, and strategic development plans
Access to information	Ensuring open access to essential information for the public, partners, and stakeholders	An information platform for stakeholders with downloadable documents, announcements, and port news.
Audit and evaluation	Organizing independent audits and evaluations to assess the port's operations	Conducting external audits and evaluating sustainable development strategies with the involvement of independent organizations.
Partnership and consultations	Consulting with the public and other interested parties	Organizing meetings and forums to discuss key decisions, and creating advisory bodies with participation from local communities.
Integration with international standards	Compliance with international standards of transparency and governance	Aligning reporting and standards with international requirements, particularly European norms for environmental and financial transparency.
Technological platforms for transparency	Using modern technologies to improve access to information	Creating interactive online tools for monitoring port activities, including open access to data on cargo flows, environmental conditions, and financial indicators.

Source: compiled based on [2; 5—6].

shape a comprehensive model of its sustainable development.

These conceptual principles include: a systemic approach to port development management that ensures the strategic coherence of decision-making; environmental responsibility, which involves minimizing the negative impact on the environment; the institutional capacity of the port administration to implement sustainability policies; governance transparency that promotes open dialogue with all stakeholders; economic efficiency necessary to ensure financial stability; and social orientation, reflected in support for both personnel and the local community.

It is established that the combination of these components allows for the formation of a modern management model, which not only integrates pragmatic economic interests with long-term environmental and social commitments of the port, but also creates the foundation for transitioning to a sustainable development of the Reni Seaport that aligns with its functional specificity, takes into account its geographical location, existing infrastructure potential, and strategic prospects.

The implementation of the conceptual model of sustainable management at the Reni Seaport is capable of providing several significant advantages. First, it contributes to improving resource management efficiency and ensuring sustainable economic dynamics for the port in a competitive environment. Second, focusing on environmental responsibility helps reduce anthropogenic pressure on the environment and improves the ecological situation in the port area. Third, transparent and socially oriented management increases trust among employees, the community, and partners, which is crucial for the stable operation of the port.

The prospects for further research lie in the development of practical mechanisms for implementing the principles of sustainable management in the context of a specific port's operations, particularly through the assessment of the effectiveness of already implemented measures and their impact on regional development.

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