REVIEW

of the thesis of Rakhmetulina Aigerim Abayevna

«Development of logistics infrastructure and supply chains of agri-food products in the Republic of Kazakhstan»

for the degree of Doctor of Philosophy (PhD) «8D04101 – Economy»

The relevance of the research topic is linked to the need to improve the efficiency of the logistics infrastructure and supply chains for food products. This need arises from the complexity of interregional logistics, the unsatisfactory state of logistics infrastructure (warehouses, storage facilities, refrigeration equipment, specialized transport, etc.), limited access for small-scale producers to utilize infrastructure, the increasing number of intermediaries in supply chains, and the low level of integration among all participants in the perishable goods market.

As a result, significant quantities of agricultural products are irretrievably lost within supply chains annually, and product prices increase. Losses could reach 30-50% of total production volumes, depending on the type of product, while prices could rise by 20-30%. These factors lead to agricultural producers being unable to receive fair income for their goods.

The primary goal of A.A. Rakhmetulina's dissertation is to develop recommendations and an organizational-economic mechanism for the development of logistics infrastructure and sustainable supply chains for agri-food products in Kazakhstan.

The dissertation provides a comprehensive study of the challenges related to the development of logistics infrastructure and supply chains for agri-food products in Kazakhstan. To achieve the objectives of the study, the author addressed the following tasks:

- Conducted a theoretical and methodological analysis of the formation of logistics infrastructure and supply chains;
- Analyzed the factors affecting the logistics infrastructure and supply chains of perishable products, as well as their current state;
- Identified issues and developed recommendations for the development of logistics infrastructure facilities in regions and agri-food supply chains;
- Proposed a model and organizational-economic mechanism for the functioning of logistics infrastructure and supply chains, using logistics WDCs as an example;
- Developed a methodological approach for the formation of logistics wholesale distribution centers for agri-food products.

The scientific novelty of the dissertation lies in the development of theoretical and methodological approaches to the formation and development of logistics infrastructure and supply chains, using logistics WDCs for storage, distribution, and trade as a prospective direction in the industry:

- Conceptualizing transport and logistics infrastructure as a socio-economic system and an interactive process between logistics and transport infrastructure providers, producers, and consumers, the author has proposed a structural, client-oriented digital model of transport and logistics infrastructure.
- Refined the components of logistics infrastructure based on an analysis of scientific literature and proposed a classification framework.

●Conducted an evaluation of the state of logistics infrastructure and agri-food supply chains in Kazakhstan's regions, as well as the factors constraining their development, using expert surveys, empirical evidence, and statistical data.

●Performed a criterion-based assessment of regional logistics infrastructure development indicators in Kazakhstan through cluster, factor, and correlation-regression analyses. Based on this, a methodological approach was proposed for planning and locating logistics WDCs focused on storage, distribution, and trade.

●Proposed a model and an organizational-economic mechanism for the functioning and development of logistics infrastructure and supply chains for agri-food products.

The results of the dissertation research, along with proposals for improving supply chains and developing logistics infrastructure in the agro-industrial complex, are being reviewed by the company LLP "New Silk Road" and LLP "SMART Trade Solutions" and have been acknowledged for potential practical application.

The applied findings of the dissertation research can be utilized by management bodies at various levels to develop strategies for the infrastructure of storage, distribution, and trade.

The main scientific propositions, conclusions, methodological recommendations, and results of the dissertation have been presented and discussed at international scientific and practical conferences.

During the implementation of applied research in state-priority areas, within the framework of the grant-funded project by the Ministry of Education and Science of the Republic of Kazakhstan, "AP19677634 Development of Logistics Infrastructure and Sustainable Supply Chains for Perishable Food Products in Kazakhstan (2023–2025)," A.A. Rakhmetulina demonstrated herself as a meticulous, independent, and proactive researcher capable of addressing set scientific objectives. The socio-economic impact and significance of this project have been widely covered in regional and national media.

A total of 17 scientific articles were published on the dissertation topic, including: 4 articles in journals indexed in the Scopus and Web of Science databases; 5 articles in scientific publications recommended by the Committee for Control in Education and Science of the Republic of Kazakhstan for publishing key research findings; 8 articles in international conference proceedings. Additionally, one copyright certificate was obtained.

The research presented by A.A. Rakhmetulina is a completed scientific and qualification work that addresses tasks significant for the development of the theory and practice of supply chain management, logistics centers, and logistics as a whole. The dissertation was independently authored, demonstrates internal coherence, and contributes to scientific novelty.

I believe that the dissertation titled "Development of logistics infrastructure and supply chains of agri-food products in the Republic of Kazakhstan" is a serious and detailed study that meets all the requirements for dissertations submitted for the degree of Doctor of Philosophy (PhD). Its author, Aigerim Abayevna Rakhmetulina, deserves to be awarded the degree of Doctor of Philosophy (PhD) in the educational program 8D04101 - Economy.

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