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DEVELOPMENT OF INFRASTRUCTURAL OBJECTS OF LOGISTICS PROVIDING IN THE SYSTEM OF PLANT CULTIVATION PRODUCTION STORING

Abstract. It has been suggested that term «logistical infrastructure of agribusiness» should be considered in the context of connection with institutional-object type (direction) in development of agrarian logistics as well as organizational, intra- and between organizational logistical formations. The reason for defining institutional and objective element in agrilogistical infrastructure has been grounded. Main features of objective development in logistics of storing grain and oil cultures in Ukraine nowadays have been found. Main factors which stimulate loading of elevator capacities have been identified and systematized and «weak spots» of activity in specialized agrilogistical 2 PL providers, as well as in storing grain in the system of internal logistics at agrarian enterprises have been identified and classified. The need and preconditions for development in Ukraine of private corporative model of infrastructural logistical provision of the system of export-oriented types of plant cultivation production storing have been defined.

Keywords: logistics; infrastructure; storing; capacities; plant cultivation, agribusiness.

JEL Classification: M21, O13, Q13

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РОЗВИТОК ІНФРАСТРУКТУРНИХ ОБ'ЄКТІВ ЗАБЕЗПЕЧУВАЛЬНОЇ ЛОГІСТИКИ В СИСТЕМІ ЗБЕРІГАННЯ ПРОДУКЦІЇ РОСЛИНИЦТВА

Анотація. Запропоновано розглядати поняття «логістична інфраструктура агробізнесу» в контексті зв'язку з інституційно-об'єктним видом (напрямом) розвитку аграрної логістики, а також організаційними, внутрішньо- і міжорганізаційними логістичними утвореннями. Обґрунтовано доцільність виокремлення у складі агрологістичної інфраструктури інституційних та об'єктних елементів. Встановлено основні особливості об'єктного розвитку логістики зберігання зернових і олійних культур в Україні на сучасному етапі. Ідентифіковано та систематизовано головні чинники, які стримують завантаження елеваторних потужностей, і «вузькі місця» діяльності спеціалізованих агрологістичних 2 PL провайдерів, а також слабкі сторони зберігання зерна в системі внутрішньої логістики аграрних підприємств. Окреслено необхідність та передумови розвитку в Україні альтернативи приватно-корпоративній моделі інфраструктурно-логістичного забезпечення системи зберігання експорто орієнтованих видів продукції рослинництва.

Ключові слова: логістика, інфраструктура, зберігання, потужності, рослинництво, агробізнес.

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РАЗВИТИЕ ИНФРАСТРУКТУРНЫХ ОБЪЕКТОВ ОБЕСПЕЧИВАЮЩЕЙ ЛОГИСТИКИ В СИСТЕМЕ ХРАНЕНИЯ ПРОДУКЦИИ РАСТЕНИЕВОДСТВА

Аннотация. Предложено рассматривать понятие «логистическая инфраструктура агробизнеса» в контексте связи с институционально-объектным видом (направлением) развития аграрной логистики, а также организационными, внутри- и межорганизационными логистическими образованиями. Обоснована целесообразность выделения в составе агрологистической инфраструктуры институциональных и объектных элементов. Установлены основные особенности объектного развития логистики хранения зерновых и масличных культур в Украине на современном этапе. Идентифицированы и систематизированы главные факторы, которые сдерживают загрузку элеваторных мощностей, и «узкие места» деятельности специализированных агрологистических 2 PL провайдеров, а также слабые стороны хранения зерна в системе внутренней логистики аграрных предприятий. Определены необходимость и предпосылки развития в Украине альтернативы частно-корпоративной модели инфраструктурно-логистического обеспечения системы хранения экспорто ориентированных видов продукции растениеводства.

Ключевые слова: логистика, инфраструктура, хранение, мощности, растениеводство, агробизнес.

Introduction. Nowadays necessary infrastructural provision of a commercial activity is one of the most significant factors of any successful business. Various infrastructural-logistics groups (providers, objects, chains, channels and so on) play an important role in the system of entrepreneurship.

At that the infrastructure itself is directly connected with institutional-object development and is an important component of the provisional logistics of an enterprise [1, p. 46-47].

Contemporary provisional logistics can be observed both inside the material flow and outside it. It enables scientists to distinguish such types of logistics as specialized and integrated. Specialized logistics is focused on separate logistical

processes; it is a link of logistical chain and directly connected with the part of the material flow [2, p. 58].

For example storing of agrarian produce is a part of the specialized logistics. Along with transportation, storing is one of the key logistical business processes and an important object of management in agribusiness.

Brief Literature Review. Separate issues of general or agrarian logistical infrastructure have been studied by such domestic scientists as Z. Herasymchuk (2008) [3], O. Hutorov (2013) [4], Y. Krykavskiy (2012) [5], T. Kosareva (2003) [6], Y. Podernia-Mosiuk (2008) [3], B. Savka (2012) [7], I. Smyrnov (2003) [6], N. Chomopyska (2012) [5] and others.

Among foreign scientists this direction has been studied by such agrarian economists as A. Biere (2001) [8], T. Bosona (2011) [9], D. Folinas (2011) [10], G. Gebresenbet (2011) [9], M.-A. Jouanjean (2013) [11], A. Kelemis (2011) [10], N. Key (2000) [12], M. Kubon (2008) [13], I. Manikas (2011) [10].

In contemporary economic studies the general term «infrastructure» is mainly identified with different types of organizational management.

Similar approach to defining essence of infrastructure can be found in works by Z. Gerasymchuk and Y. Podernia-Mosiuk (2008). According to them infrastructure is a complex of organizations, establishments, middlemen, which task is in serving any social-economical system for providing the appropriate functionality of that system [3, p. 7].

Profound study of this issue in logistics was carried out by Y. Krykavskiy and N. Chornopyska (2012). Besides scientists also consider logistical infrastructure as a set of enterprises of different organizational-commercial forms which create organizational-economic conditions for passing of material, informational, financial and labor resources by creating the potential in the corresponding logistical services [5, p. 109-111].

At the same time B. Savka (2012) defines logistical infrastructure as a complex of such elements as buildings, constructions, warehouses, means of transportation, means of transmitting and processing of information and so on [7, p. 294].

M.-A. Jouanjean (2013), N. Key (2000) and M. Kubon (2008) pay attention to the importance of investing into logistical infrastructure for enterprises of the agricultural sector and study its influence on the achieved economical indices in agribusiness [11; 12; 13].

G. Gebresenbet (2011) and T. Bosona (2011) consider development in the system of grain logistics as a key direction in the infrastructural provision of the field [9].

However, in most studies infrastructural elements of agrilogistics are considered in the general system of the producing infrastructure of the agrarian complex.

Along with that in the existing studies with infrastructural provision of the AIC (agro-industrial complex) it is not sufficiently considered the fact that logistical and manufacturing-technological business processes perform fundamentally different tasks. Besides, the term «infrastructure» is not considered within the context of the connection with institutional-objective type (direction) of development in the agrarian logistics as well as organizational, intra- and between organizational logistical establishments. At that inside the agrilogistical infrastructure there is no identification of its institutional and objective elements.

Also separate features of contemporary development in infrastructural objects of provisional logistic in agribusiness of Ukraine remain insufficiently studied. Among them are the following: extent of combination by agrarian enterprises of internal and external logistical provision of the system of storing main types of vegetation produce; factors which withhold loading of elevator capacities and «weak spots» in the activity of specialized agrilogistical providers as well as weak spots in storing grain in the system of internal logistics of agricultural enterprise.

The purpose of the article is the necessity to be more precise in classification of agrilogistical infrastructure as a component of institutional-object development of logistics and study the features of provisional agrilogistics of Ukraine functioning in the system of storing main types of vegetation production.

Results. In our view, the term logistical infrastructure in agribusiness should be connected with both organizational and intra- and between organizational establishments. It is reasonable to identify the following separate elements inside it which perform important logistical tasks and provide carrying out of logistical processes and display institutional-object direction of development in logistics in agricultural sector of economy (Figure 1).

In the process of research the main attention was focused on infrastructural objects in agricultural entrepreneurship in the business process of «storing the ready produce».

Nowadays logistical powers for storing grain cultures in Ukraine are approximately 40-45 million tons. Of them elevators

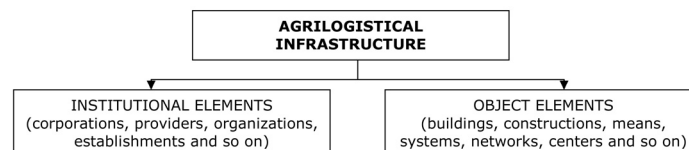


Fig. 1: Main elements of logistical infrastructure in agribusiness
Source: Author's development

and processing enterprises occupy about 30 million tons and the rest – own capacities of agrarian enterprises [14]. Hence, both internal and external storing grain logistics develop.

Logistics of storing of main types of produce in plant cultivation concerning internal and external provision in agribusiness at present is quite diverse. The main reasons of it are different requirements for storing agricultural raw materials and ready produced, different level of goods manufacturers and logistical operators, economical and momentary factors, type of government control over export and so on.

However, at that loading of the certified grain warehouses is quite small and reaches on average not more than 50%. It is caused by a number of reasons (Figure 2).

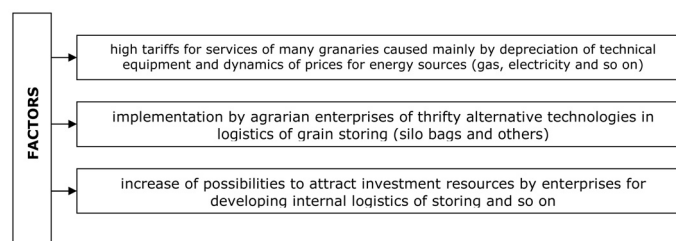


Fig. 2: Main factors which stimulate loading capacities for storing in the system of outside agrilogistics
Source: Author's development

High price of services for storing agricultural produce in the system of outside logistics is one of the determining reasons of a small demand for them from agrarian businesses. Construction of innovative objects of agrilogistics in the system of storing, modernization of the existing elevators and increase of the competitiveness level among logistical providers at the regional level creates condition for development of outside provision of storing operations in agricultural enterprises in the process of storing the ready produce.

Implementation by agrarian producers of such an alternative kind of technology as storing grain in multi-layer polyethylene sleeves (silo bags) allows users to significantly decrease expenses on this business process. The experience of using such flexible polyethylene hermetic pipes by many agricultural enterprises provides the double or triple decrease in costs compared with the usage of services 1-2 PL-providers. Storing food using this technology is quite long-term and reaches two years.

A very active storing of grain is silo bags is carried out by a Ukrainian company «HarvEast Holding» [15].

During the past years possibilities for agrarian enterprises to invest money in enhancing own logistical objects significantly increased. It mainly concerns major producers of agricultural produce with big volumes of using of land. The sources of such investment are preferably the funds received via emission or sales of shares and bonds at international stock exchanges, foreign and local bank credits and partly own resources. At that main investment in the agrarian sector of Ukrainian economy is carried out at the level of high-scale agricultural holdings.

Building agrarian logistics is investment number one nowadays. Therefore very many agricultural companies as well as organizations even not connected with agribusiness before invest the obtained money into providing logistics (elevators, grain terminals, transportation infrastructure and so on).

Serving through certain logistical objects in the system of storing in corresponding regions, which existed in the times of the USSR, is evident to a big extent even now. It is caused by the fact that during the construction favorable location of elevators to a certain circle of agrarian businesses and zones of

agricultural production was taken into account. Along with that contemporary geographical zones of influence in many logistical objects in the system of storing are significantly widened through additional provision in services of produce transportation, tariff competitive advantages, agritrading activity and so on.

With that old equipment of some elevators limits the possibilities of receiving big grain-carrying trucks and preference of floor capacities decreases the passing activity of such logistical objects (Figure 3).

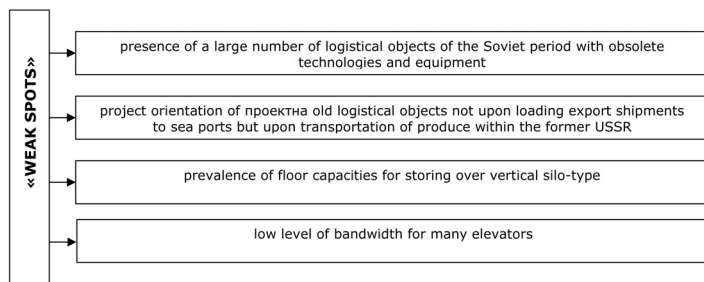


Fig. 3: Main «weak spots» of agrilogistic providers in the system of storing grain cultures
Source: Author's development

Nowadays the ratio between silo and floor capacities in grain storing in Ukraine is 46% to 54% [16].

With all positive trends in development of internal logistics in storing by agrarian enterprises there are some weak spots (Figure 4).

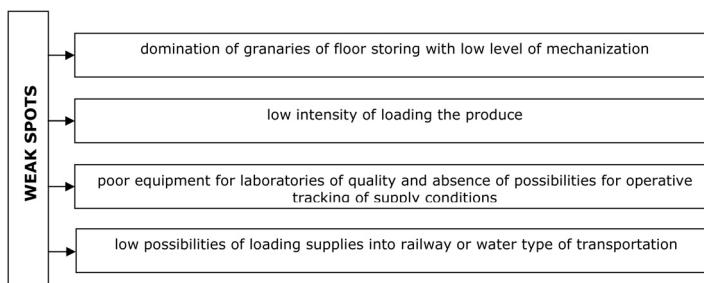


Fig. 4: Main weak spots of storing the grain in the system of internal logistics of agrarian enterprises
Source: Author's development

Thus, granaries in conditions of small-scale and middle-scale private corporative agriformations are mainly used for accumulating the grain without its appropriate preparation for storing. Besides, logistical objects are unable to properly control the quality of the storing supplies. At that small agricultural enterprises are least provided with conditions for laboratory analysis of grain quality.

Important index in estimation of logistical capacities of granaries is the ability to load different agricultural supplies on different types of transportations. At granaries of most agrarian enterprises such conditions are very restricted concerning railway and water types of transportation.

As for the structure of capacities of granaries of agrarian enterprises, in 90% cases these are the warehouses of floor storing with low level of mechanization and low intensity of loading. At that the most part of mechanical warehouses with silo capacities are owned by companies with the land bank over 10 thousand hectares. Thus about 15% of these enterprises own exclusively silo capacities for grain storing, and 23% – simultaneously silo capacities and floor warehouses. Among small agricultural companies only 1% own warehouses with silo capacity [16].

Active development of storing and silo-bag agrilogistics in Ukraine during the past few year provided balance between seasonal fluctuation of prices for grain and oil cultures.

In whole, the existing system B of logistical capacities for storing grain in conditions of agrarian enterprises and certified grain warehouses for today is nominally sufficient and at times even superfluous.

Along with that, taking into account moral and technical depreciation of many elevator objects, weak spots in the system of storing agrarian enterprises and the expected increase in production and export of plant cultivation in the near future there are reasons to speak about formation of the deficit in storing logistical capacities.

The expected growth in production and export of grain in the nearest prospect might really lead to the deficit of logistical capacities for grain storing.

According to the prognosis of the Centre of Transportation Strategies, it is expected at the level of 18-20 million tons [14]. In the amount of regions the biggest shortage might be felt in agricultural zones with contemporary high level in production of corn.

Taking into account the expected growth in production and export of grain and oil cultures in Ukraine, it is necessary to increase construction of new high-technological elevators.

Real solution of this problem is possible under conditions of using major funds of private-corporative agricultural formations and local and foreign agritraders.

Major involvement of cooperative formations into this process remains challenging though prospective in the field of developing infrastructural objects of providing logistics in the system of storing export-oriented types of plant cultivation.

Conclusions. Institutional-objective development of providing agrilogistics is connected with the term «infrastructure». Besides it is reasonable to distinguish institutional (corporations, providers, organizations, establishments and so on) and objective (constructions, buildings, means, systems, networks, centres and so on) elements in logistical infrastructure. Owing to that logistical infrastructure should be connected not only with organizational but also with intra- and between organizational logistical formations and vice versa.

In agrarian logistics important infrastructure object (buildings, constructions with necessary equipment for produce storing, distributional centres, transportation systems and networks and so on.) may achieve a status of independent organizational or between organizational forms, at the same time most often they are intra-organizational logistical formations. One of the essential consequences of management in development of providing logistics in agrarian enterprises is a change of material objects of logistical infrastructure.

The system of objects of management and private-corporative providing logistics of storing and transporting of main types of plant cultivation produce is sufficiently diversified and represented as contemporary innovative infrastructure, which grows dynamically, and different storehouse and terminals which were built during the Soviet period.

Providing logistic in the system of storing grain and oil cultures of agricultural enterprises during the marketing year to a different extent is internal (storehouses in conditions of agrarian producers – mainly non-certified grain warehouses), and external (storehouses of logistical providers and processors – mainly certified grain warehouses).

At present, elevator logistics is a key factor in the system of storing main types of plant cultivation production and most capacities of the certified grain warehouses are owned by agrarian corporations and local and foreign agritraders. The share of the state property in logistical capacities for storing has a trend to constant reducing due to intensive development of elevator logistics in the private-corporate sector of agrilogistics.

However, world experience confirms the need for development of the alternative, cooperatively based system of export logistics in main types of plant cultivation production. But the latter can happen only in the conditions of program-purposeful management over the development of the cooperative grain sector, as well as significant financial support based on the government and private sector partnership.

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- Promotion of building free, independent, democratic, European Ukraine
- Support of fundamental social, economical and political reforms in Ukraine
- Forming of national bourgeoisie and strong middle class of private owners
- Strengthening of local self-government system in Ukraine
- Establishment of partnership between authorities and business circles
- Forming of market ideology among wide society groups and national elite of Ukraine
- Development of innovative informational resources

Key activities:

- Organizing and holding of interactive workshops, roundtables, presentations
- Preparing of analytical materials, political and economical forecasts, commentaries and other intellectual products
- Organizing of study visits for state executives and business structures to states with stable democracy
- Realizing of public relations for organizations, companies, cities, regions
- Advisory work on current and strategic economical and political issues
- Publishing of research books (IST prepared and published 15 monographs)
- Publishing of The «Economical Annals-XXI» Journal
- Forming and supporting of IST's Internet holding (57 websites)
- Holding of on-line Internet conferences and polls etc.

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