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Theoretical foundations of logistic support for agriculture

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Abstract: *The establishment of market relations in the Republic of Uzbekistan implies a fundamentally new look at solving the problems of timely harvesting from fields and transportation to storage, as well as bringing products to the consumer with the least losses. The new principles of organization and management based on conceptual approaches and the method of thinking, united by the general concept of "logistics", are increasingly being applied in the practice of the most efficiently functioning enterprises, enterprises, firms and associations. In this regard, the article discloses issues related to transport and logistics support for agriculture.*

Key Words: *logistics, agriculture, material flow, information flow, financial flow, transportation, storage, warehousing, procurement, packaging, sales*

1. INTRODUCTION:

Logistics as a new scientific direction of management, covering the systemic management of stream processes in the economy, has its own characteristics in the agricultural sector. This is due, first of all, to the specifics of the functioning of the complex itself, to the dependence of economic results on a lot of unpredictable natural and climatic factors, land use conditions and seasonality of agricultural production. The development and implementation of the optimization of logistic processes in agricultural activities is a necessary process within the framework of the functioning of the enterprise and increasing its competitiveness in the market, as well as maximizing profit in cost optimization. The search for ways to reduce logistics costs is in the direction of improving the management of the supply, sale and storage of goods, improving marketing activities, deepening the interaction of suppliers, consumers and intermediaries, improving the technology of movement of material flows, etc. One of the important directions of state policy in the field of agriculture is the formation of a logistics system for the storage, transportation and sale of fruits and vegetables. In this regard, in the "On the Strategy for the Further Development of the Republic of Uzbekistan" approved by the Decree of the President of the Republic of Uzbekistan Shavkat Mirziyoyev, for the implementation of measures indicated in the third direction - "Development and liberalization of the economy", the development of transport and logistics infrastructure is provided , as well as "... stimulation and creation of favorable conditions for the development of farms, especially multidisciplinary ones, engaged in both agricultural production and processing "procurement, storage, marketing, construction work and the provision of services ..."(1).

2. LITERATURE REVIEW:

The logistic processes in agriculture are studied by the works of A.U. Albekov, B.A. Anikina, A.M. Gadzhinsky, V.S. Lukinsky, E. Mate., L.B. Mirotin, S.N. Naglovsky, V.E. Nikolaychuk, G.A.Samatov, A.Smekhov, V.I.Sergeev, V.F. Stukach, M.P. Ulitsky and other scientists (2-14). Despite the huge number of works devoted to logistics, most of these works did not study the issues of economics, organization and optimization of logistics processes in the agricultural sector of the economy. The need for further research in this area becomes apparent.

3. ANALYSIS AND RESULTS:

The element-wise creation of logistics systems allows, even before their final completion and obtaining a synergistic effect, to obtain a certain economic benefit and other benefits from improved management of individual processes and operations. From increasing the efficiency of economic structures (manageability, generating income and profit from production factors and sources, etc.). The main factors and sources of improving the efficiency of control systems are presented in table. 1.

Table 1

The main factors and sources of improving the efficiency of management systems through the use of logistics[1]

The impact of logistics on the main parameters of the control of flow processes (their degree of controllability)	Efficiency factors through improved key management parameters	Sources of efficiency through the identification and use of management reserves through logistics	Realization of the main goals of logistics at the objects of management that affect the final results of the system (income and profit)
Achieving a rational structural management organization. The efficiency of the control system is increased: a) improving performance discipline; b) improving the socio-economic formulation of management; c) the professional level of employees of managing and controlled systems is increasing; d) the scientific, methodological, technical, and information technology equipment of control and controlled systems is improved; e) a pairing of the economic interests of participants in the logistics chains (channels) of the movement of economic flows is achieved.	The goal-setting and formulation of general (strategic and global tactical) tasks is improved. The informal management structure is decreasing. The degree of deviation of actual executive decisions from those programmed according to normative management models is reduced. The completeness and accuracy of the tasks in their any formulation increases. Areas of mutual benefit for logistic systems participants and economic compromises are being established.	The approximation of the regulatory structural organization of management to the standard by solving strategic logistical tasks for the development of systems. The approximation of the real management model to the normative: a) income and profits mainly from production sources; b) by structuring and objectification of the informal management structure; c) improvement of control actions. The approximation of the results of information and optimization problems in any statement to the improved in these conditions or the best option.	The goal is to reduce total costs and losses on the formation, movement and transformation of material, commodity, cash and information flows due to: -realization of a rational scheme of material and goods distribution, as well as information and cash flows; -minimization and optimization of stocks in all channels of product circulation; -reducing the loss of material resources during delivery and storage; -decrease in management costs.

Logistics as a science and practice of managing material and related flows is becoming more and more in demand in the agribusiness sectors. The need to use logistics tools in the process of organizing and managing agricultural production with material and technical support and marketing of agricultural products under conditions of modernization of the economy of Uzbekistan and diversification of work and services is especially relevant. In fig. Figure 1 shows a diagram of the micro-logistics system of an agricultural enterprise, which shows the main functional areas of logistics, the types of flows passing inside the logistics system, as well as the main logistics functions that are performed in each of the logistics areas of the agricultural enterprise. The increase in agricultural production requires a corresponding development of industries and industries for the procurement, storage, transportation, processing and sale of the final product. Through material flow includes the following links in the supply chain (Fig. 2):

- material and technical support of agriculture (MTSA);

[1] Gadzhinsky, A.M. (2013). Logistics (420 p.). Moscow, Publishing and trading corporation "Dashkov and Co.".

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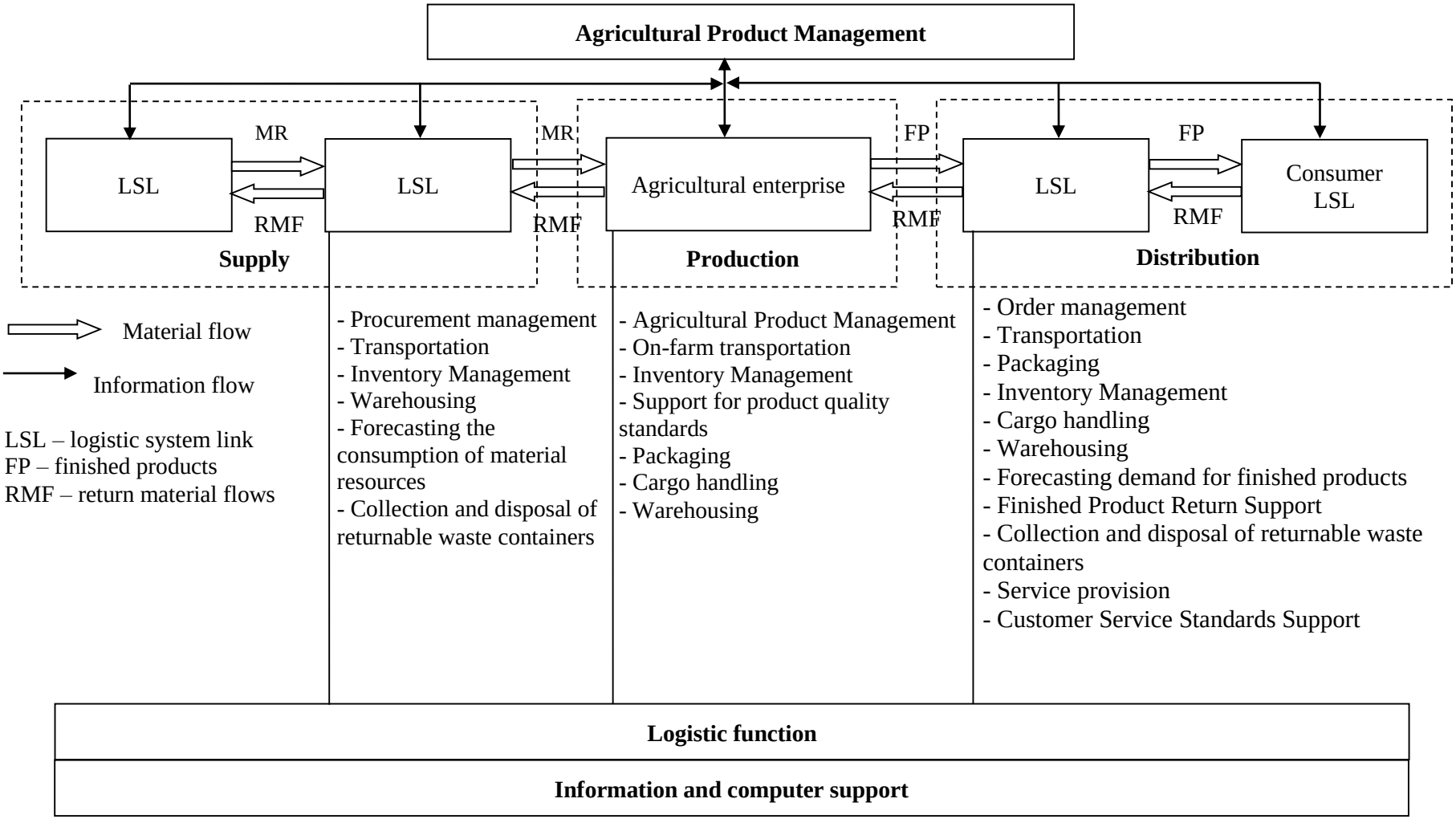

Fig. 1. Scheme of the micrologistic system of an agricultural enterprise

- procurement of agricultural raw materials (PAM), which are largely carried out by procurement and specialized procurement organizations for state needs;

- storage and processing of agricultural products, which require a network of specialized storage facilities (for example, an elevator) and specialized enterprises for primary processing;

- the supply of agricultural products (AP) to the open market and for state needs, which requires the organization of a procurement system, including the creation of a network of organizational markets for the sale of agricultural raw materials and products.

How optimally and rationally this system functions, how deeply and widely logistics is used in the agricultural sector and, accordingly, the effectiveness of agricultural development will depend on it. The specifics of the logistics of agricultural production, primarily, is determined by the specifics of the organization of economic flows, which in the agricultural sector are influenced by many factors associated with the location and specialization of agricultural producers.

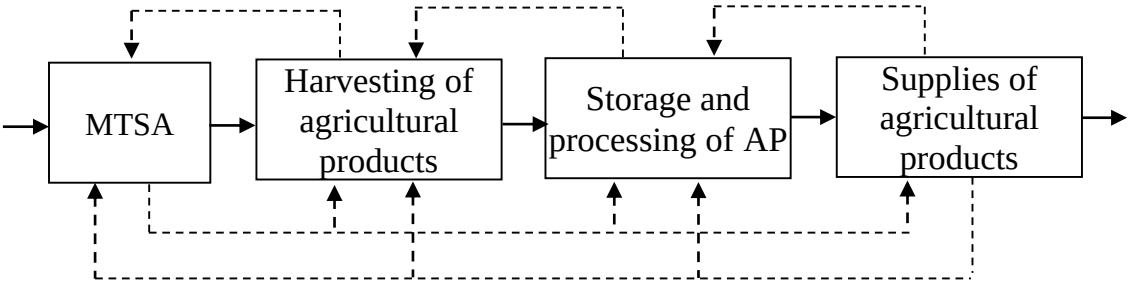

Figure 2. The fundamental model of material flows in the agricultural sector

Thus, agricultural logistics is the science and practice of managing economic flows in the production, distribution, exchange and consumption of agricultural products in order to most fully meet the needs and requirements of the population and sectors of the economy in agricultural raw materials and their processed products at the lowest cost. It is customary to highlight the functional areas of logistics, which, due to the characteristics of different aspects of the enterprise, combine logistics functions. The main functional areas of logistics are procurement, production support and distribution. Since the thesis is related to the optimization of transport and logistics processes, it is worth noting the purpose and objectives of the logistic function - transportation. The purpose of transportation is the combination of loading and unloading, forwarding and other logistics operations. The tasks include (11):

- ensuring the technical and technological connectivity of the participants in the transport process, coordination of their economic interests, as well as the use of unified storage systems;
- creation of transport systems (including transport routes and transport chains);
- ensuring technological unity of the transport and storage facilities;
- joint planning of production, transport and storage processes;
- selection of the type of vehicle;
- choice of vehicle type;
- determination of rational delivery routes;
- choice of carrier and forwarder.

Thanks to transport, the logistics process of goods distribution is transformed into a single technological chain, and transport becomes an integral part of a single transport and production process. In this chain, the main functions of transport are to move goods and store them. The main principle of transport logistics, as well as logistics in general, is cost optimization. In transport, it is achieved subject to savings due to the scale of cargo transportation and the range of routes. To clarify the system statement of the problem, we developed a logistic system in which the models and methods that can be used in managing material flows are specified when coordination of the implementation of the logistic functions of transportation and storage in agricultural production systems is required (Fig. 3). The dashed line with an arrow indicates that storage logistics tasks are less handled by carriers. Transportation tasks can correspond to any of the links in the logistics system, as the organizational problems of transportation can be solved on their own or with the assistance of intermediaries. A common task of transport logistics is also the choice of a vehicle for transportation. At the same time, automobile, rail, water, pipeline and air transport are evaluated in the context of the following factors affecting the choice of mode of transport: cost of transportation; time of delivery; frequency of shipment; reliability of adherence to the delivery schedule; ability to transport various goods; the ability to deliver goods anywhere in the territory.

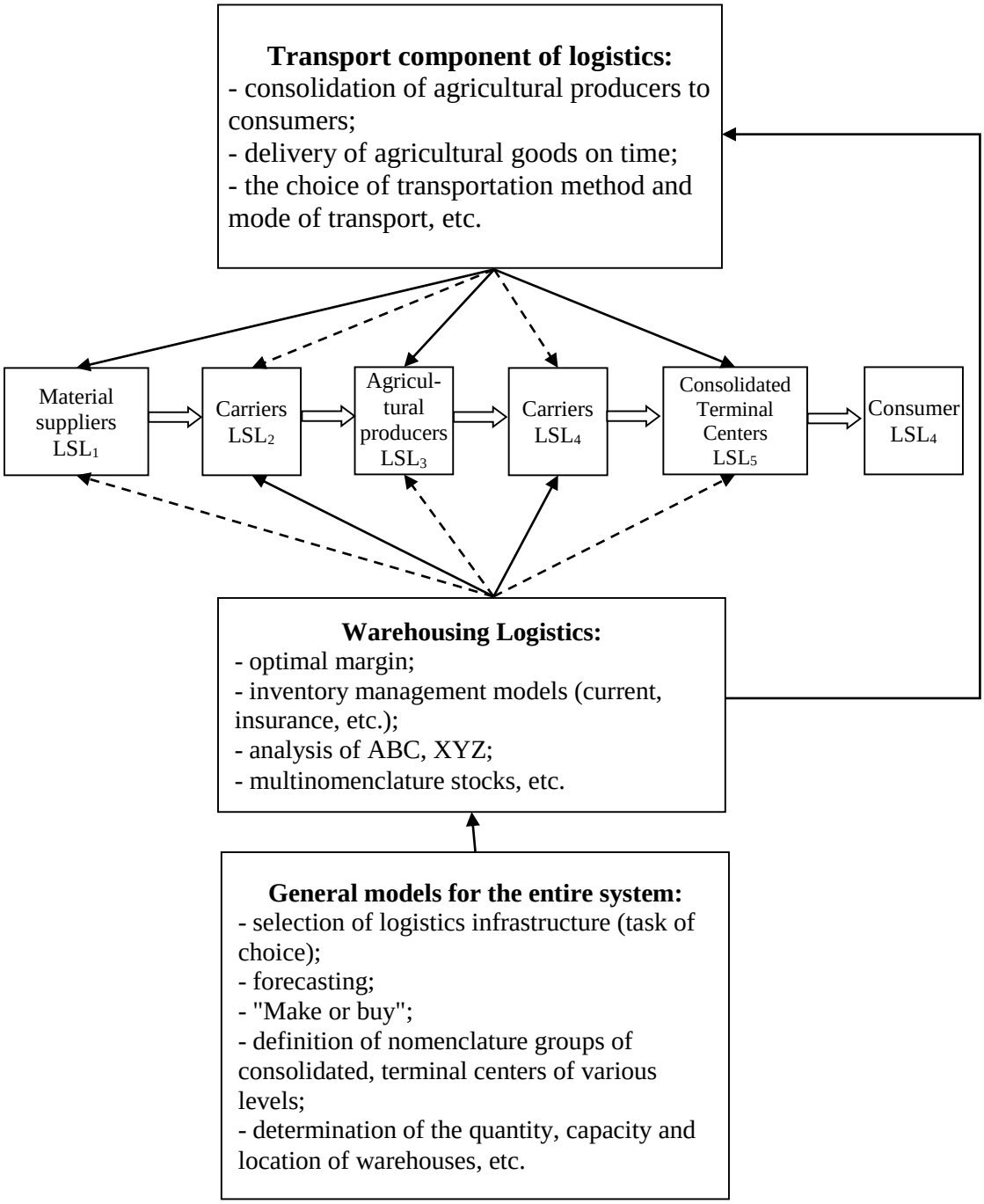

Figure 3. Models and methods used in managing material flows in the agricultural logistics system

The organization of the technology for the delivery of agricultural products can be represented as a hierarchical subordination of the following structural units: technological elements of the organization of road transport; technological operations; technological processes. A similar situation of organizing the technology of moving agricultural products allows us to better understand the construction of the goods distribution system and develop an effective methodological base for substantiating the level of technological preparation of road transport. With this in mind, it is necessary, firstly, to be guided by the adopted (taking into account the specifics of specific consumers) methodology for the formation of stocks of products and the choice of points of their location, and secondly, to ensure timely “on time” and effective achievement of the goals served by and from the standpoint of the chosen criterion own system and, accordingly, the timely completion of the material flow. The timely achievement of the goals of the serviced and our own system should be ensured not at any cost, but on the basis of minimizing the total logistic costs of the logistic processes of product delivery in an on-line mode of time and, of course, taking into account the limited nature of related technical and technological elements, primarily the most widely used container and transport funds. A number of related tasks to optimize the transportation of agricultural products should be carried out in a complex, based on the adoption of optimal solutions that ensure the organizational and economic reliability of the operational functional

processes of macro-logical systems. Today, about 50% of global logistics costs are for maintaining inventory and storage and about 50% for transportation and administration. Transport costs depend on the choice / combination of modes of transport, distance, traffic volumes, transport planning efficiency, etc. The location of the warehouse, the economies of scale as a result of centralization / decentralization of stocks also influence the level of costs for marketing products; transportation and transshipment. The cost of storage depends on the applicable storage system, the efficiency of the equipment and the process. The centralization of stocks in large distribution centers can create economies of scale because, in general, larger warehouses function more efficiently than small warehouses. The cost of maintaining inventory depends on the volume of stocks, the value of goods and interest rates that determine the corresponding capital costs. The costs of processing orders include general administrative processing of orders, loading at the warehouse, packaging and transportation of ordered goods. Administrative costs: depend on the level of automation, the use of information and communication technology systems, electronic data interchange, etc. Thus, the basic principles on which the logistics activities of enterprises are built can be used at any enterprise, including agricultural enterprises. The use of logistics in the agricultural economy will optimize the production, transportation, storage and marketing of products. A well-constructed logistics system will improve agricultural productivity indicators in the country.

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