

## **Increase in Freight Vehicles Use Effectiveness in Agrarian and Industrial Complex**

F.M. Magomedov, I.M. Melikov, S.R. Habibov, M.A. Arslanov,  
S.V. Bedoyev and Z.I. Magomedov  
FGBOOU HEI, "Dagestan State Agricultural University,  
M. M. Dzhambulatov", M. Gadzhiyeva St., 180, Makhachkala, Russia

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**Abstract:** The current state of freight vehicles use in agrarian and industrial complex is considered, problems of their use are specified, actions for perfecting information support of searching paths to increase the effectiveness of the cargo motor transport use and the recommendation about perfecting development of transport and logistic infrastructure are offered.

**Key words:** Cargo motor transport, agro-industrial complex, transport and logistic system, effectiveness, perfecting development

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### **INTRODUCTION**

The agro-industrial policy in Russia is aimed at creating high performance and competitive agrarian sector allowing to ensure food security of the country. Freight vehicles play an important role in sustainable development of the enterprises of agro-industrial complex (agrarian and industrial complex) as these transport the main part of freights. About >90% of intra economic transportation volumes of agricultural production and its delivery to places of realization are made by freight vehicles. The structure of vehicle fleet in the agrarian and industrial complex enterprises is defined by variety of the transported agricultural production types and seasonality of production creates a problem of its optimum load and effective use. From efficiency of its use, cost of transportation and financial results of the enterprises activity depends. Therefore searching reserves of more effective freight vehicles use in each specific economy is of great importance. The organization of freight vehicles work requires development and deployment of efficient transportation technologies and transport and logistic processes which are directed to decrease in transportation expenses of freights and upgrading of transport services.

### **MATERIALS AND METHODS**

Increase in overall performance of freight vehicles of agrarian and industrial complex is possible during creation of the required conditions for manifestation of logistic activity that will allow to organize all complex of transport

and logistic operations on each served enterprise and in the whole agrarian and industrial complex. Only the full implementation of needs of clients for transportation of goods defines competitiveness of motor transportation divisions. Therefore increase in production efficiency of agricultural production on the basis of operational and commercial reliability of motor transport is urgent and is of great importance. The considerable decrease in cargo vehicle fleet of the agrarian and industrial complex enterprises which continued for the last decades led to increase in load of each of them that carried out to decrease in volumes of the performed works. Acquisition by consumers of agrarian and industrial complex of new cars was significantly reduced, and operated in agrarian sector developed the resource more than half that demands increase in costs of their repair.

Now most the agricultural enterprises agrarian and industrial complex has no sufficient financial opportunities for updating and strengthening of the material and technical resources, and without it not perhaps in due time and qualitatively to execute repair and maintenance of the available vehicle fleet. Need of updating of cargo vehicle fleet is bound not only to wear but also its discrepancy to consumer demand in the market of transport services. The whole system of quotients and the generalizing indexes is applied to evaluation of the freight vehicles work. Private technical and operational indexes allow to estimate the separate parties of operation of machines from the daughter of vision of use of their work, traveling speed, a run, load-carrying capacity, etc., what is a part of such

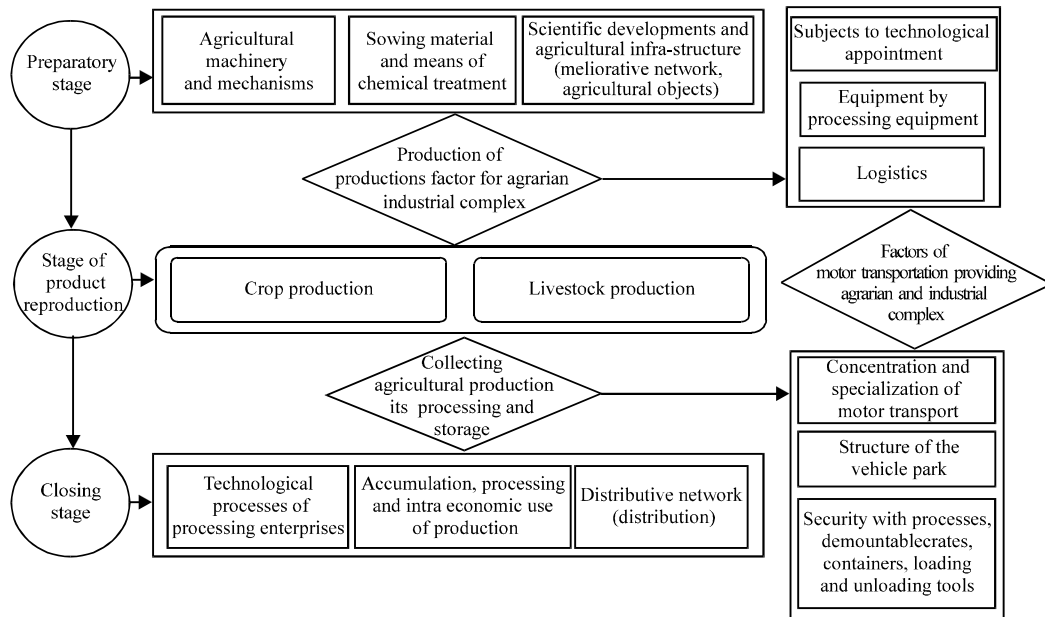


Fig. 1: Structure of agrarian and industrial complex production

generalizing indexes as efficiency of operation of machines and cost of transportation by means of which final outputs of work of motor transport (Savitskaya, 2006, 2014) are estimated.

For the purpose of providing actions it is necessary for increase in effectiveness of freight vehicles use: to study effectiveness of freight vehicles use from the theoretical point of view; to estimate a natural and economic external environment; to analyze the current state of development of freight vehicles; to plan actions for increase in effectiveness of use of trucks. In vehicle fleet of the agrarian and industrial complex enterprises middling tonnes cars and not enough heavy-load cars and road trains prevail, also the share of vehicle fleet using cheaper types of automobile fuel-obliterate the natural and liquefied oil gases is small. Now successful development of agrarian sector requires its transport and logistic providing. The logistic system of agrarian and industrial complex is characterized by mass character of freights seasonality, need of formation of stocks and reserves concentration of streams of agricultural production at its collecting from farms for processing and storage distribution of streams of finished goods. perfecting transport and logistic system is an important condition to increase in effectiveness of development of agrarian and industrial complex (Fig. 1).

Creating efficient transport and logistic system will allow (Petrov and Turygin, 2011): to reduce joint costs in a chain of deliveries to 12-25% and to increase transportation speed by 25-45%; to provide advancing the average Russian growth rates of freight traffics; to

provide the potential of body height of a turnover of wholesale and retail trade to 50% that will promote control of body height of consumer prices. The fact that the variety of the transported freights is specific is peculiar to agro-industrial production. The beginning, continuation and the end of process of preparation of production, immediately productions of any agricultural products, its processing and realization is inherent in freight road haulage.

During creating system of transport service of functioning of agrarian and industrial complex, the functional processes and their separate stages in its structure which are subjects to transport service are established and are specified models of structure of productions of the agrarian and industrial complex which are subjects to transport service (Fig. 1) (Naumenko, 2015).

## RESULTS AND DISCUSSION

Regional approaches of ensuring effectiveness of freight vehicle operation are based on the principles of systemic construction it in transport and logistic systems and transition from processes only of transportation of freights to processes of providing transport and logistic services that provides oncoming traffic of the parties of interaction: ensuring auto-services with the consumer for hauler of necessary conditions for the purpose of manifestation of efficient logistic activity by it; ability of hauler to efficiently apply conditions for manifestation of logistic activity and to provide the organization of all

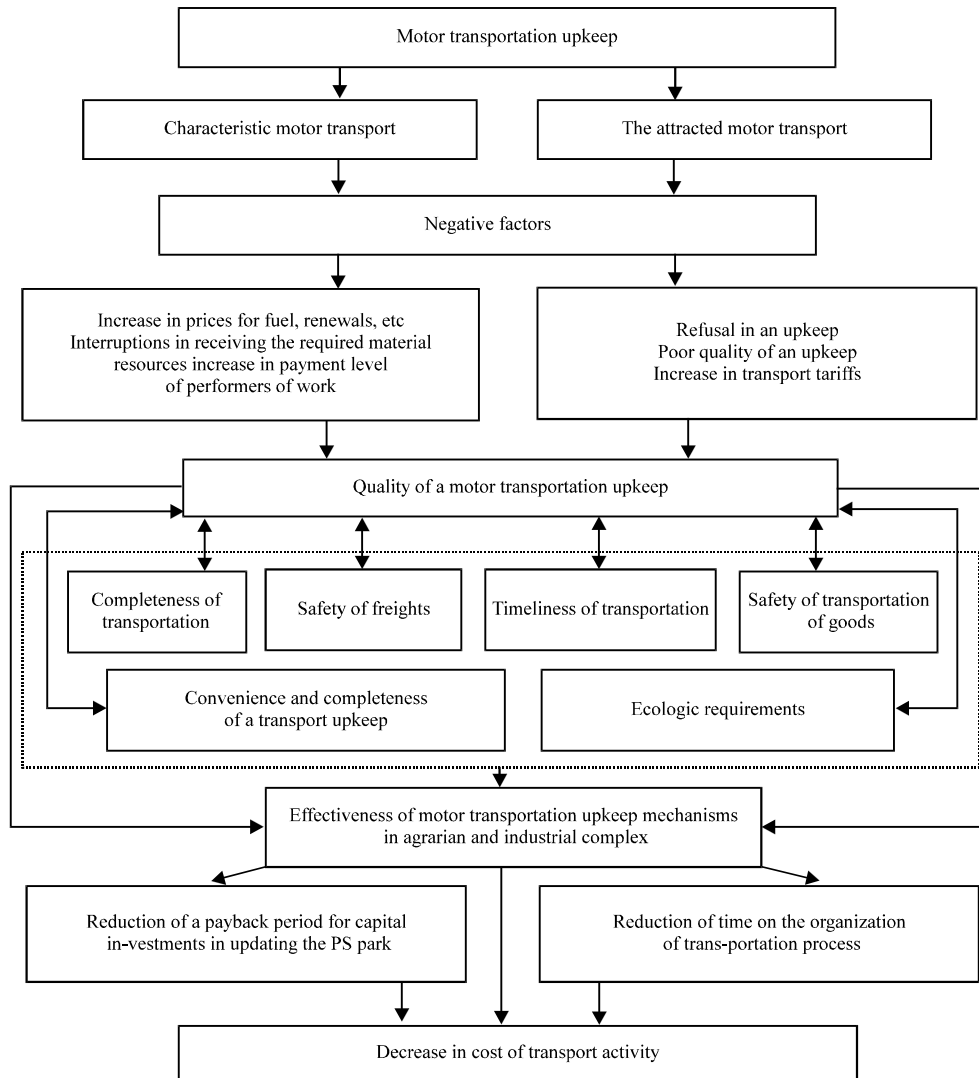


Fig. 2: The integrated scheme of transport upkeep basic processes

Table 1: Influence of negative factors and methods of their prevention at various schemes of a transport upkeep

Motor transport	Negative factors	Methods of prevention
Common motor transport	Change in price: on automobile fuel on renewals on materials, etc. Refusal of deliveries of the material resources Change of price level of labor. Stay the CU for other reasons (road accident, jams)	Diversification of deliveries of the material resources creating reserve funds Limitation of operational expenses Insurance of vehicles. Distribution of risk in time. Marketing in the market of the material resources
Hired motor transport	Refusal in an upkeep Poor quality Increase in transport tariffs	Refusal of cooperation unreliable clients. with Insurance of transport risks. The fissile marketing in the market of transport services

complex of transport and logistic processes for each served enterprise and in the whole agrarian and industrial complex. The main condition of ensuring overall performance of system, preservation of her process focused environment and self-regulating processes is the information support which is based taking into account actual opportunities of system and interrelation of basic processes of a transport upkeep (Fig. 2) (Naumenko, 2015; Lebedev, 2012).

The structural and logical model of synthesis of transport and logistic processes of agro-industrial production is presented in Fig. 3 (Naumenko, 2015; Lebedev, 2012). Influence of negative factors and methods of their prevention at various schemes of a transport upkeep are given in Table 1. It is established that the main reasons which are negatively influencing

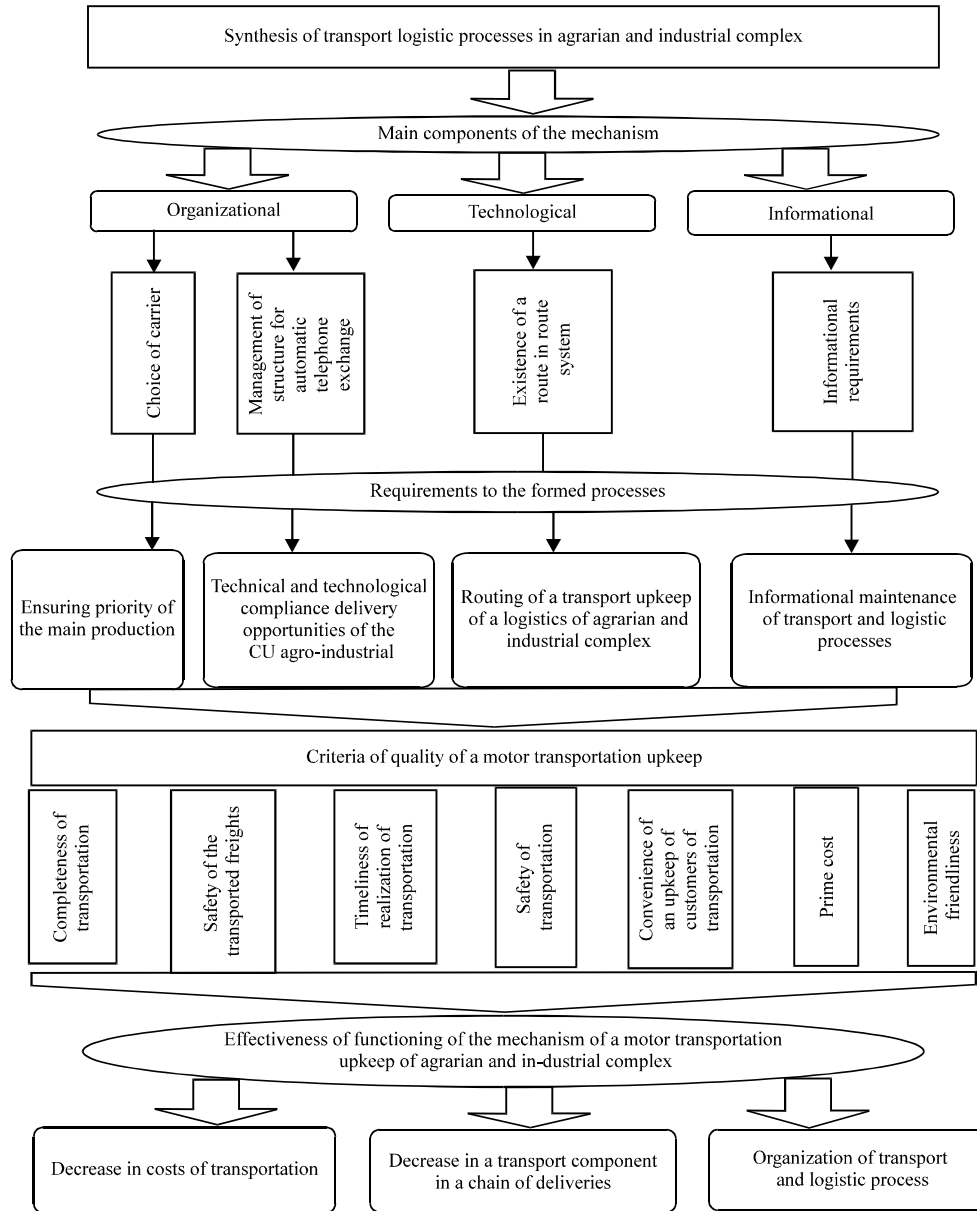


Fig. 3: Structural and logical model of synthesis transport-logistic processes of agro-industrial production

effectiveness of freight vehicles use of divisions of agrarian and industrial complex are: age vehicle fleet, the material and technical resources and qualification of experts which are not meeting the modern requirements. Creation uniform self-contained regional functionally-logistic is recommended-the transport centers providing realization of the functions aimed at the organization of transport service of a logistics of agrarian and industrial complex on a basis it is transport-logistic interaction. Work of the specified centers can be organized, applying original positions of the theory of

management and a queuing, the common theory of systems and a decision making. The concept of transition from only transportation to rendering transport and logistic services provides that haulers clearly understood the happening processes their interrelations and interdependence; conscious work both in the and for the benefit of all enterprises suppliers. It promotes increase in a significance of the organization of functioning of transport and logistic processes and their interactions on purpose: ensuring with hauler overall performance of profile production of the consumer of the provided

services; the organizations by the consumer of the provided services the main production taking into account a possibility of application by hauler of the most efficient for both parties of the transport schemes of work allowing to reduce cost of transportations and the size of transport tariffs. Such organization of driving in system promotes achievement of systemic effect, decrease in transport capacity of production of agrarian and industrial complex, increasing these its competitiveness and price availability to buyers.

### **CONCLUSION**

Aiming of agrarian and industrial complex to increase in number of characteristic specialized and expensive freight vehicles it is directed to more complete and self contained transport upkeep of profile activity, the enterprises which are its part that does not provide perfecting existing and development of new organizational flow diagrams of a transport upkeep of the main production of agrarian and industrial complex. The analysis of a condition of the organization of freight vehicles work allowed to establish that process of a transport upkeep of the agrarian and industrial complex enterprises is for them the non-core but

necessary element of their production activity influencing stability of the main production and the extent of prime cost of products.

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