

LOGISTICS OPTIMIZATION OF THE TRANSPORT DEPARTMENT WORKING OF INDUSTRIAL ENTERPRISE

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In the article the main problems of the transport department functioning are considered on the example of the enterprise of the building materials industry.

According to the logistic concept of the production organization, its main principles are the following:

- refusal to keep a large number of stocks;
- the maximum reduction in the time required to perform basic and transport-warehouse operations;
- avoidance of downtime of equipment;
- obligatory and immediate removal of rejects;
- removal of non-rational intra-factory transportations, optimization of transport movement within the enterprise;
- turn suppliers in partners in a macrologistic system.

The traditional concept of the production organization corresponds to the seller's market, while the logistics concept is to the buyer's market [1].

The main goal set by the transport department of an industrial enterprise is the timely and uninterrupted giving of vehicles for the movement of goods during the production process.

The production of other non-metallic mineral products in 2016 amounted to 8.8% of the total industrial production in Belarus. In 2015 in Belarus, in this branch of industry, products worth 31.59 billion rubles were produced.

One of the main drivers of growth in the building materials industry in Belarus is housing construction. An additional source of growth for the branch of industry is exports. However, at the enterprises, inefficient approaches to the promotion of products persist. This inhibits exports in the face of increased competition in foreign markets.

By the end of 2015, the volume of production of other non-metallic mineral products decreased by 18% against the level of the previous year against the background of a general decline in industrial production in Belarus in 2015.

The branch of production of building materials can be conditionally represented by two levels:

- Production of basic building materials (cement, gypsum, lime, rubble);
- Production of derivative building materials (brick, slate, glass, reinforced concrete products, cellular concrete blocks, ceramic tiles, dry building mixtures, etc.).

In the period from 2005 to 2010, the branch of production of prefabricated reinforced concrete products and structures in Belarus developed steadily and dynamically. During these five years, the output of concrete products has doubled and reached almost 4 million m³.

But as the production of reinforced concrete products is very sensitive to the rapidly declining housing construction volumes since 2011, the volume of housing construction in the country for the last 3 years have fallen to the level of 2008 and are estimated at about 2.73 million m³ in 2015. One third of the reinforced concrete products produced in Belarus are panels and structures for large-panel housing construction. A significant proportion (17%) in the structure of production of reinforced concrete products is occupied by wall panels. At the same time, 40% of the produced reinforced concrete products are other products and structures (Table 1).

The main factor in the growth of the production of construction materials is the state policy aimed at stimulating investment in fixed assets, and in particular, in construction. However, in connection with the revision of the state policy to support the construction sector (reduction in the issuance of loans to state programs) in 2013 there was a trend of slowing the growth rate of production of basic building materials. At the end of 2014, the growth rate was minus 3.6% [2].

The vehicles of Novopolotskzhelezobeton (a branch of Krichevtsementnoshifer) are designed to transport raw materials, materials, semi-finished products, finished products, waste and other goods on the territory of

the enterprise and beyond. Most of the transportation is just the movement of goods inside the enterprise between its shops, warehouses and landfills.

Table 1 – The main indicators of the industry by type of economic activity "Production of other non-metallic mineral products"

	2011	2012	2013	2014	2015
Number of organizations, pieces	935	938	979	962	893
Number of organizations by forms of ownership, as a percentage of the total:	100	100	100	100	100
State:	3,7	2,8	2,1	1,7	1,6
republican	1,1	0,6	0,4	0,3	0,3
communal	2,7	2,1	1,7	1,4	1,3
Private:	93,5	94,3	95,3	95,7	95,9
with a share of state	9,0	9,6	9,0	9,0	8,7
Foreign	2,8	2,9	2,6	2,6	2,5
The volume of industrial production, billion rubles	14 699	27 205	33 415	37 426	31 590
Average number of employees, thousand people	70,7	66,8	65,5	62,7	56,0
Average monthly salary of workers, thousand rubles	1 967,9	3 931,0	5 562,6	6 426,2	6 322,4
Average monthly salary of workers in the industry as a whole, thousand rubles	2 093,4	4 056,5	5 483,2	6 372,5	6 883,7
Profit from sales, million rubles	125,5	166,71	174,46	118,97	62,82
Profitability of sales,%	9,0	6,9	6,1	4,4	2,6

It was decided to establish the classification of hoisting and transport means for the enterprises for manufacture of building materials.

There is a need to share vehicles and mechanisms into 2 main groups (Fig. 1):

1. The lifting and conveying machinery (lifting and transport means).
2. Vehicles.

A common mistake is to identify vehicles and transporting machines. In this connection it is necessary to draw attention to the fact that the vehicles are mainly used for cargo delivery to the construction or production site, and often – over long distances, and transporting the machine perform the movement of goods within the construction or production site at short distances [3].

According to the principle of action "The lifting and conveying machinery" is proposed to be divided into machines and mechanisms:

- of continuous operation;
- of periodic action;
- combined.

In connection with the specifics of each mode of transport, the group "Transportation" was divided into 3 subgroups:

1. Rolling road transport;
2. The rolling stock of railway transport;
3. Rolling waterway.

When organizing the work of the transport department, the following issues are solved at the enterprise:

- the turnover of goods and goods traffic is defined;
- the organization of cargo transportation, the choice of the type of transport and the calculation of the need for transport;
- the organization of loading and unloading operations [4].

It was carried out the analysis of cargo flows to the enterprises of Novopolotskzhelezobeton. Reinforced concrete products and concrete for their manufacture are the main products produced in the enterprise.

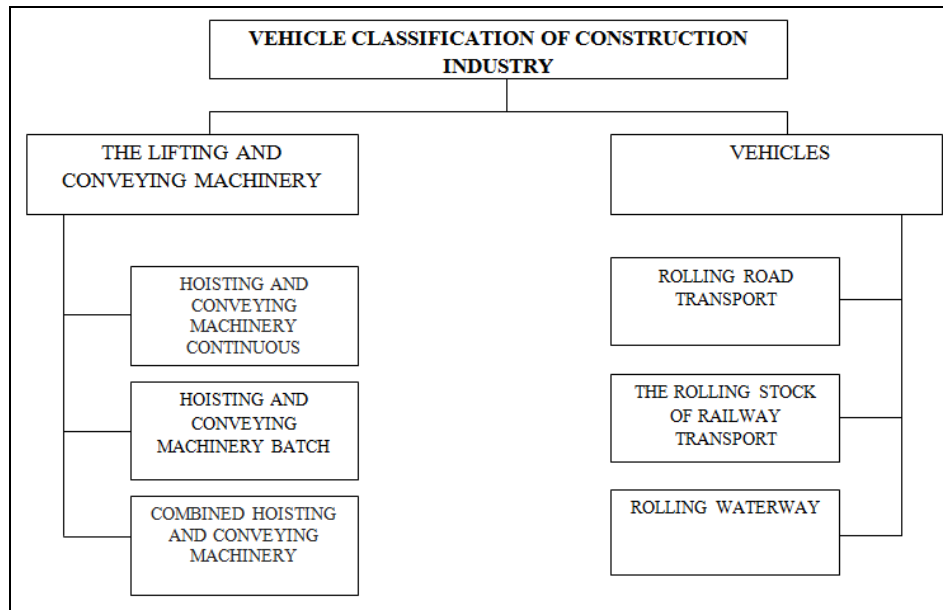


Fig. 1. Vehicle classification of construction industry

It were identified the following problems:

1. Inefficient use of mileage and carrying capacity.
 - the work on the organization of ring routes is not carried out;
 - the work on the organization of the back loading of the car is not carried out.
2. Ineffective distribution of transportation (orders) between cars.
3. Uneven distribution of traffic by day.

The diagram in figure 2 shows that the volume of traffic decreases sharply on weekends. Also, you can see a general trend of reducing the number of traffic since the beginning of the month.

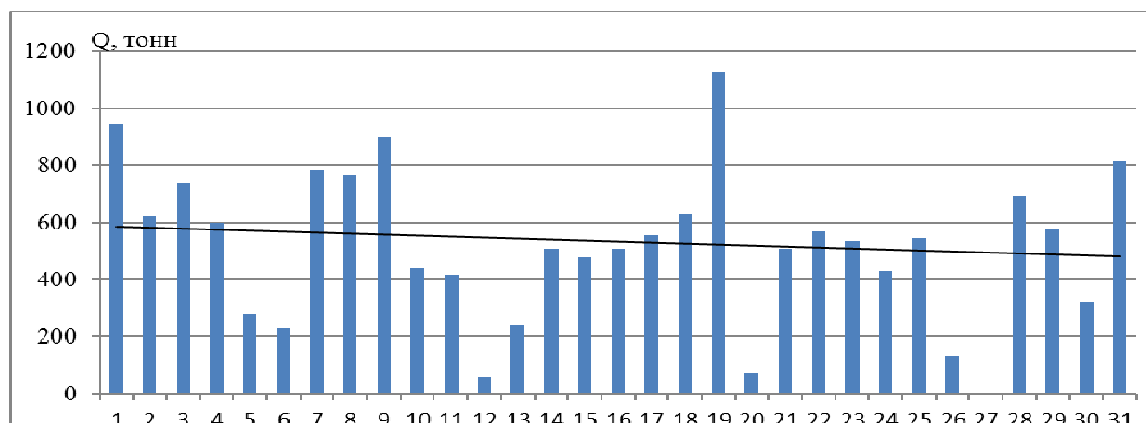


Fig. 2. The volume of transportation for august 2017

4. Lack of application of modern technologies and special programs.
5. Use of obsolete vehicles with a high resource intensity.

Transport departments of industrial, construction and other enterprises belong to the units that serve the main production. They are not connected technologically with other units, that is why the separation of transport departments and sites and the creation of independent (legally and economically) transport enterprises on their basis does not cause any difficulties in organizing production at the main enterprise. Moreover, the main enterprise gets rid of functions that are not characteristic of own purpose, and it can satisfy the transportation needs by agreement with the transport company that has separated from it [5].

Based on the results of the analysis, it can be concluded that optimization of the work of the transport department can be effective, but the results may not be as significant as when the department is assigned to a separately functioning organization.

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