

8. Transport

Transport is one of the most important indicators of economic and social development of any country. However, it consumes a significant amount of energy and natural resources. At all stages of operation and subsequent disposal operations have an impact on the environment, which manifests itself in air pollution (emissions from mobile sources account more 70% of the total emissions of pollutants), vehicle noise and vibration, electromagnetic missions, sewage pollution, violation of landscapes with road maintenance, pollution of ground waste transport companies and services.

The territory of Belarus is covered by sufficiently dense network of railways and roads, due to its position at the intersection of major trans-European communication axes (*Figure 8.1*). Across the country there are the shortest transport routes linking Western and Eastern Europe to Central and Eastern regions of Russia, on the one hand, the Baltic and Black Seas – on the other.

Among the sectors of transport complex of most dangerous are vehicles. The main types of its negative impact on the environment and humans are:

- air pollution;
- water pollution from sewage;
- solid waste;
- accidents with injury and death;
- removal of large areas for construction of transportation facilities.

In the last decade the car park of Belarus is growing. Thus, according to the Ministry of Transport and Communications of Belarus as on 01.01.2010 it has 3433.0 thousand vehicles (ATM), the share of which 83.6% were cars. Dynamics of ATM for the period 2005-2009 is shown in *Figure 8.2*.

As shown in *Figure 8.2* in 2005-2009 a steady upward trend in the total number of growth of quantity of ATM continued, mainly due to increase in the number of cars. Thus, for the period under review the number of its had risen to 2,269.5 to 2,870.7 thousand units or



Figure 8.1 – Scheme of the main railways and roads in Belarus

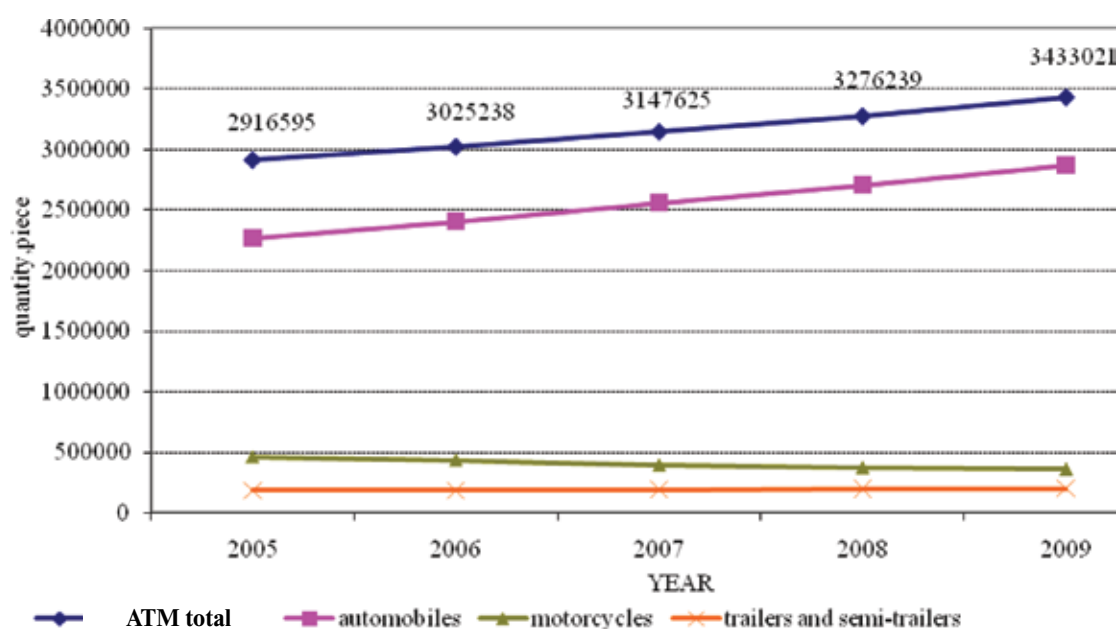


Figure 8.2 – Dynamics of ATM for the period 2005-2009

it was over 21%. The number of motorcycles fell by 28% (from 461.5 thousand to 360.4 thousand units). Over the past 5 years, the motorization of the population of Belarus has increased from 280 to 340 vehicles per one thousand of the population.

It is worth to note the natural tendency to upgrade the car park of the country. So, as on 01.01.2010 the share of motor vehicles engaged in international transport and related to environmental standards Euro-3 standard was 32.5%, Euro-4 – 6 %, and Euro-5 – 12.6% (Table 8.1).

According to 01.01.2010 from the administrative regions of Belarus, the largest number of vehicles was accounted for Minsk region and Minsk – its amount is 36,7% (Figure 8.3). The second place is occupied by Brest region – 15,4%. The remaining areas are between 9.9 (Mogilev) to 12,9% (Grodno).

The basic environmental indicators approved in the country to assess the impact of transport on the environment are of passenger and cargo handling. These figures reflect the volume of transport services for passengers and cargo handlings, which provides to assess

Table 8.1

Number of cars registered to engage in international transport and related environmental requirements, «Euro» for the period 2005-2009

Standard	2005	2006	2007	2008	2009
Euro-5	0	0	0	757	1119
Euro-4	0	0	262	666	533
Euro-3	1049	1966	2692	3003	2885
Euro-2	1621	1593	1429	1125	950
Others	5795	4614	4150	3719	3392
Total	8465	8173	8533	9270	8879

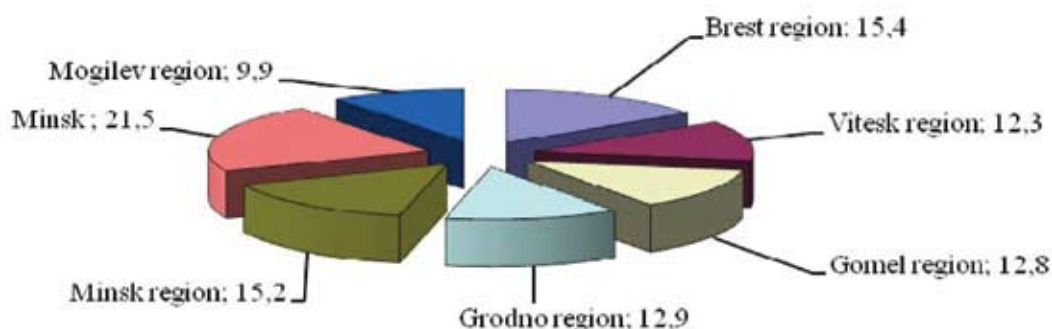


Figure 8.3 – Distribution of vehicles by administrative areas on 01.01.2010 in per cent of total

a measure of its impact on the environment (fuel consumption, pollutant emissions, noise emissions, etc.). Value for passenger and freight by kind of transportation helps to evaluate the effectiveness of measures aimed at protecting the environment from pollution.

Means of convenience are an important component of economic and social life. The continued growth in demand for transport, especially in road transport contributes to the sharpening of environmental and health problems. The importance of policy of the split of passenger transport in terms of its impact on the environment is caused by unequal «ecology» of different modes of transport (resource consumption, pollutant emissions, noise emissions, accidents, etc.). So, electric modes of transport are more environmentally

«clean» in comparison with other species. Thus the country's policy in this area should contribute to a reduction of travel requirements, and to shift towards more environmentally «clean» means of transport.

Data analysis of passenger public transport during the last five years showed a steady trend towards reducing it from 24.354 million passenger per km in 2005 to 19.824 million passenger per km in 2009 or 18.6% (Table 8.2).

The passenger rail transport degree decreased from 10.351 million passenger per km in 2005 to 7.401 million passenger per km in 2009, or 28,5%. The same trend is also typical for road transport: over the period 2005-2009 passenger numbers fell from 9.231 to 7.247 million passenger per km or 21,5%. The increase in passenger air transport should

Table 8.2

Passenger traffic by type of public transport for the period 2005-2009, thousand passenger per km

Transport type	2005	2006	2007	2008	2009
In total, of which	24 354 000	24 108 000	23 906 000	21 619 000	19 824 000
Railway	10 351 000	9 968 000	9 366 000	8 188 000	7 401 000
Car (bus)	9 231 000	9 343 000	9 353 000	8 184 000	7 247 000
Air	684 000	754 000	975 000	1 280 000	1 284 000
Interior water	2000	2000	3000	3000	3000



be noted. Thus, in the analyzed 5 years it has grown in 1,9 times from 684 to 1.284 billion passenger per km. Passenger turnover of water transport is at the level of 2-3 million passenger per km.

The proportion of each type of transport in total passenger numbers, as at 01.01.2010 its volume (about 74%) is in approximately equal proportions accounted for rail and road (bus) transportation (*Figure 8.4*). The share of air transport is about 7% of the total passenger traffic.

Analysis of the data share mode of transport in total passenger traffic has shown that over the period 2005-2009 the contribution of rail transport has decreased from 42.5 to 37.3%, road (bus) – from 37.9 to 36.6%, and air, in contrast, increased from 2,8 to 6,5%.

Analysis of data freight transport over the period 2005-2009 showed that prior to 2008 there was a steady tendency to increase with

53.059 million ton-kilometers in 2005 to 62.924 million ton-kilometers in 2008, or by 15,7%. In 2009, turnover fell to 56.418 million ton-kilometers, or 10,3% compared with 2008. The same trend is typical for rail, road and inland waterway transport, the maximum value of turnover which, recorded in 2008 – respectively 48.994 million ton-kilometers, 13,742 and 132 million ton-kilometers (*Table 8.3*). In 2009 the fall in turnover was 12,7% for rail, road and 1.5 to 37.1% for interior waterway transport. The maximum throughput of air transport was recorded in 2006 (92 million ton-km). In the period 2007-2009 there is a tendency to its decrease to 50 million ton-km.

An important strategic element of transport policy in the sphere of freight traffic is a shift from road to more ecological water and rail transport.

On 01.01.2010 unlike passenger turnover the main contribution to the turnover (75,8%)

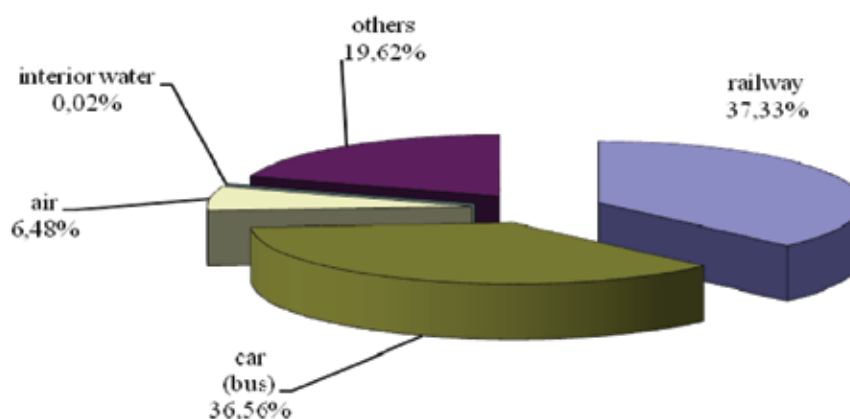


Figure 8.4 – The proportion of each type of transport in total passenger numbers, % (as at 01.01.2010)

Table 8.3

Freight turnover by types of transport for the period 2005-2009., ths t/km

Transport type	2005	2006	2007	2008	2009
In total (without pipeline) including the following:	53 059 000	54 863 000	60 033 000	62 924 000	56 418 000
railway	43 559 000	45 723 000	47 933 000	48 994 000	42 742 000
car (bus)	9 351 000	8 939 000	11 941 000	13 742 000	13 543 000
interior water	90 000	109 000	93 000	132 000	83 000
air	59 000	92 000	66 000	56 000	50 000

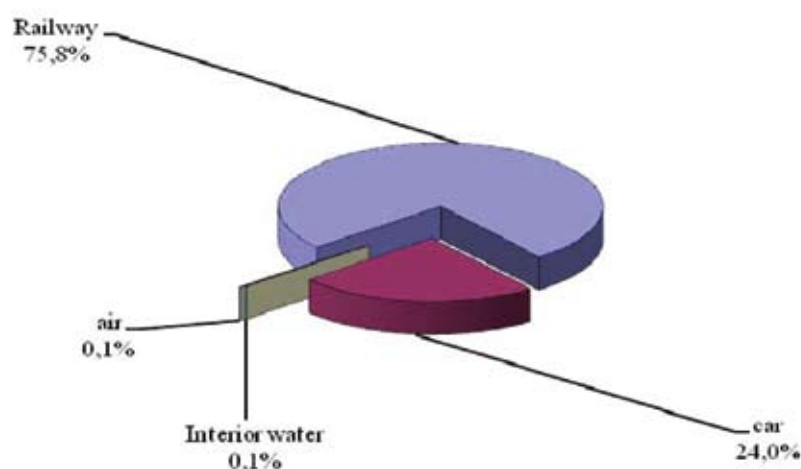


Figure 8.5 – Percentage of types of transport in total freight turnover, %
(as on 01.01.2010)

makes rail transport (*Figure 9.5*). The second place is occupied by road transport, its share is 24%. Air and water transport accounts for only 0,1% of total turnover.

Analysis of data over a five year period showed that the proportion of rail transport in total freight traffic is gradually decreased from 82.1 % (2005) to 75,8% (2009). Meanwhile the share of road transport, in contrast, increased from 17.6 % (2005) to 24.0% (2009), which is not entirely corresponds to the goals of sustainable development.

In general, for the period 2005-2009. the following trends are characteristic for transport:

- increase of the number of vehicles;

- update of the car park of the country;
- reduction of passenger public transport;
- the main passenger almost equally accounted for rail and road (bus) transportation;
- reduction of the share of rail and road transport in total passenger traffic and increasing of air transport;
- the growth of freight transport by 2008 and its reduction in 2009;
- main cargo turnover falls on the railway transport;
- reduction of the share of rail transport in total freight turnover and increase of the share of road transport.