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*Fedanov N.S.*

*graduate student*

*Ural State University of Railway Transport*

*Russia, Yekaterinburg*

***DEVELOPMENT OF HIGH SPEED RAILWAY TRANSPORT***

*Abstract: the article describes the development of high-speed railway transport in Russia and in foreign countries. Describes the positive side with the introduction of high-speed Railways.*

*Key words: rail transport, high speed railway, speed, aviation, transport infrastructure.*

The implementation of high-speed and high-speed train traffic is of extremely important strategic importance for Russia. Developed transport serves as an impetus for achieving many positive socio-economic effects. This is the development of regions connected by high-speed and high-speed rail lines; and increasing mobility, employment and living standards of the population; and development of related industries and industries related to rail transport.

High-speed rail is a dedicated dedicated rail line that allows trains to travel at speeds over 250 km / h.

For the first time, such a highway for public use appeared in Japan. In connection with the increase in passenger traffic between Osaka and Tokyo in the middle of the 20th century, it became necessary to build a high-speed highway on this section.

The construction of the high-speed rail began in 1959, and in the fall of 1964 it was put into operation. The length of the route was 515.4 km, and the maximum permissible train speed was 210 km / h. This site was very popular with the local population.

Already three years after commissioning, the road began to bring profit, and by 1971 it had fully recouped the construction costs.

Currently, Japanese high-speed lines are the third longest in the world (2,770 km). The operating speed in this section is up to 320 km / h.

Today, the leader in the length of high-speed lines in the world is China - 22,000 km, which is almost 2/3 of the length of all high-speed lines.

On the Chinese railway, there is a high-speed line with an operating speed of 430 km / h, operating from Shanghai to Pudong airport. The length of this section is 30 km. This high speed was achieved through the use of a new technology, namely a train on magnetic suspension.

Such a train, unlike traditional trains, does not touch the rail surface during movement. Since there is a gap between the train and the surface of the track, friction between them is eliminated, and the only braking force is aerodynamic drag.

But China does not stop at what has been achieved and the further plan for the development of China's railway network for the long term is the construction of a network of high-speed highways of 8 vertical (from north to south) passenger lines and 8 horizontal (from east to west), which should finally to form by 2025 a network of high-speed highways in China with a length of about 38,000 km and connect more than 80% of cities with a population of more than 500 thousand people.

Spain ranks second in terms of the length of high-speed routes (3,100 km). The first high-speed line in Spain was opened in 1992 for the Expo 92, which was held in Seville, and connected Castile with Andalusia.

Currently, transport is carried out on specially built lines of the European standard gauge of 1435 mm at speeds of up to 330 km / h, while the standard Spanish railway network uses the Iberian gauge (1668 mm).

European countries such as France, Germany and Italy are also on the list of countries with the longest high-speed lines, with the United States ranking seventh on that list.

Acela Express is practically the only high-speed train on the American continent. Its maximum operating speed is 240 km / h.

Table 1. Length of high-speed lines

Country	Length of high-speed lines
China	22000 km
Spain	3100 km
Japan	2770 km
France	2000 km
Germany	1300 km
Italy	1000 km
USA	730 km
In other countries	2100 km
Total in the world	35000 km

As for Russia, today the high-speed railways are only at the stage of their development. As part of the implementation of the Program for the organization of high-speed and high-speed railway communication in the Russian Federation until 2030, 20 projects are envisaged, which will allow organizing more than 50 high-speed routes with a total length of more than 7 thousand km.

The pilot project of a high-speed railway in Russia is the construction of a highway on the Moscow-Kazan route with an extension to Yekaterinburg.

The length of the route will be 770 km, the maximum speed is up to 400 km / h. The construction of the Moscow-Kazan highway will unite the territories of seven constituent entities of the Russian Federation: Moscow, the Moscow

region, the Vladimir region, the Nizhny Novgorod region, the Chuvash Republic, the Republic of Mari El and the Republic of Tatarstan.

What will the introduction of high-speed railways give Russia? First, the growing congestion of the automotive infrastructure requires the consideration of alternative means of transportation. Secondly, the organization of high-speed communication between the regions will bring the constituent entities of the Russian Federation closer together and unite agglomerations and regional centers into a single agglomerate. Also, the high-speed rail will increase the socio-economic potential of the country, since high-speed transport is one of the indicators of economically developed countries. On the positive side, in connection with the construction and operation of high-speed lines, it is worth noting an increase in employment of the population, as well as an increase in the qualifications of specialists in this area.

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