

# TRAINING OF SPECIALISTS OF VIETNAM RAILWAYS

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**ABSTRACT**  
The article is devoted to cooperation of the Russian Federation and the Socialist Republic of Vietnam in the field of railway transport and vocational education. Against the background of modern realities and the problems of the railways of Vietnam,

the prospects for their reconstruction and development, the task of training of qualified specialists by Russian University of Transport for construction and operation of new rail tracks in the country, including metro lines and high-speed highways, is considered.

**Keywords:** Vietnam, Russia, international cooperation, railways, high-speed main lines, metro, education, training of specialists.

**Background.** The railway network of Vietnam with a total length of 2367 km consists of lines of normal (1435 mm) and narrow (1000 mm) gauge. On a part of the sections there are simultaneously two types of gauge [1].

The main line is Hanoi–Ho Chi Minh City, which was named «Unity» in honor of the historical reunification of the North and South of the country in 1975. In the north, several branches of a normal gauge with a total length of 480 km adjoin it.

**Objective.** The objective of the authors is to consider different aspect of cooperation between Russia and Vietnam in the field of railway transport, in particular training of specialists of Vietnam railways.

**Methods.** The authors use general scientific methods, comparative analysis, scientific description, evaluation approach.

**Results.** Analysis of characteristics of railways (table 1) shows that to ensure sustainable economic growth and development of the country's logistics system, first of all, a radical reconstruction of the railways of Vietnam is necessary, taking into account world experience, which usually involves several stages:

1. *Justification of the choice of gauge* taking into account the standards of gauge of neighboring states, in order to avoid unnecessary costs when changing rolling stock bogies or changing width of wheel sets.

2. *Determination of permissible axial load per track.* It should be borne in mind that the costs of building a railway with a greater load from the axis of the wheel sets will be justified in the future and will be paid off compared with the gradual increase in axial loads on the track during operation. At the same time, the axial load of the reconstructed railway should be adjusted with loads on track in the neighboring countries.

3. *Choice of the type of locomotive.* It is advisable to plan introduction of electric traction (electric locomotives) as providing a higher turnover compared with diesel locomotives. However, the primary choice

of electric traction will not be effective due to the high costs of building the infrastructure for operating the rolling stock on the electric traction – traction substations, contact networks, etc.

Therefore, at the first stage of reconstruction, an emphasis is placed on introduction of diesel traction in cargo and passenger traffic and diesel trains in suburban traffic.

4. *Introduction of modern means of signaling systems.*

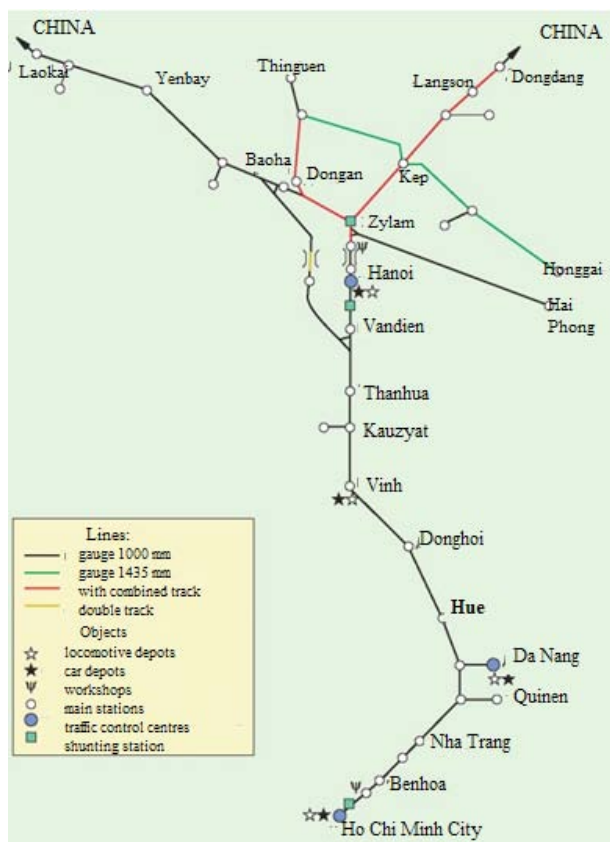
5. *Construction of double-track railway lines* on the most loaded sections with preparation of single-track sections of the road bed for the second track, in order to reduce costs when the rest of the road sections are completed in the future.

6. *Development of HSR.* The management of the Vietnamese railways is exploring the possibility of their construction: the cost of a double-track high-speed line with a length of 1545 km between Hanoi and Ho Chi Minh City, gauge of 1435 mm and with 23 stations is estimated at 58 billion US dollars. The first two sections (Hanoi–Vinh and Ho Chi Minh–Nha Trang) are planned for opening by 2032. Commercial use will be possible not earlier than in 2040. Nevertheless, the importance of this main line is high: it will allow in the future to shorten the travel time from Hanoi to Ho Chi Minh City from one day to eight hours, which will greatly simplify the logistic process. According to preliminary estimates, the share of rail transport in traffic between Hanoi and Ho Chi Minh City will be 14 %. A program of scientific research on the problems of construction of HSR is prepared [2].

7. *Development of tourism.* The tourism business has become an important source of income for the Vietnamese budget due to the unique nature of the country and its rich cultural and historical heritage. The experts of the Australian publisher Lonely Planet called the route The Reunification Express Line one of the most scenic rail in the world. It begins in the southern part of the country, Ho Chi Minh City, and ends in the north, in Hanoi. The total length of the

**Table 1**  
**Characteristics of the railways of Vietnam**

| Indicators                  | Lines          |                        |              |
|-----------------------------|----------------|------------------------|--------------|
|                             | Hanoi–Haiphong | Hanoi–Ho Chi Minh City | Hanoi–Laokai |
| Length, km                  | 102            | 1740                   | 300          |
| Gauge width, mm             | 1000           |                        |              |
| Limiting grades             | 6              | 25                     | 12           |
| Minimum radius of curves, m | 300            | 200                    | 100          |
| Permissible speed, km/h     | 80             | 60                     |              |
| Permissible axial load, t   | 15             | 15                     | 15           |



**Pic. 1. Map of railways of Vietnam.**

route is more than 1700 km [3, p. 8]. It is recommended to keep the existing steam locomotive fleet, as trains driven by locomotives are more popular with tourists than other types of traction.

#### 8. Development of cooperation in the field of railway transport.

In accordance with the order of the president V. V. Putin of October 3, 2018, in 2019 Russia will host the «Year of the Socialist Republic of Vietnam». In parallel, the partner country organizes the «Year of the Russian Federation». The cross program is a complex of activities in political, economic, scientific, cultural activities, in the field of education and other areas of bilateral relations [4, p. 1].

«The preservation of trusting relations and their further development between Russia and Vietnam in all areas is strategically important», Russian Ambassador K. V. Vnukov said on November 2, 2018 during a lecture at the Academy of Social Sciences of Vietnam. He noted that the preservation of such relations between countries is a rarity in world history.

Trade and economic cooperation of countries is constantly growing. In 2017, the turnover increased by one third, and for two quarters of 2018 – by 20 %.

On January 23, 2018, in accordance with the agreement on bilateral cooperation between JSC Russian Railways and SC Vietnam Railways, the first container from Russia arrived in Vietnam. It was a part of the container train following through China. The Russian-Chinese border was crossed at Manchuria–Zabaikalsk border crossing, and the Sino-Vietnamese border was crossed at Dongdang crossing. The transit time of the container by rail was 20 days, while sea transportation takes twice as long (Pic. 3) [5].



**Pic. 2. The Reunification Express runs along the coast of the South China Sea north of the Haiwan Pass, between the imperial capital of Vietnam, Hue and the picturesque city of Hoi An.**

The first container shipped via ITC Russia–Vietnam–Russia transported cosmetic products. Key Russian exports are machinery and equipment, minerals, metals and products from them, while imports are machinery and equipment, textiles, food and agricultural raw materials. The railway communication will stimulate the strengthening of trade and economic ties between Vietnam and Russia, as well as will contribute to implementation of the agreement on establishment of EEU–Vietnam free trade zone, which was signed in 2015.

An important milestone in development of Russian-Vietnamese technical and transport cooperation was signing of a partnership agreement for construction of

**Pic. 3. Meeting  
the first container  
from Russia  
in Vietnam.**



a light metro in Vietnam between the companies JSC RZD International and Lung Lo Construction in September 2018. Metro lines will be built in Ho Chi Minh City and Dong Nai province. The agreement defines the basic principles of cooperation and participation of the parties in its implementation. The project is of strategic importance for development of the transport infrastructure of Vietnam in accordance with generally accepted international standards [1].

During his visit to Russia in October 2018, the Deputy Prime Minister of SRV, Trinh Dinh Dung, held talks with the head of JSC Russian Railways, Oleg Belozеров, during which it was indicated that the parties welcome and support development of cooperation between JSC Russian Railways and Vietnamese companies, their participation in joint projects [6].

#### 9. Training of transport specialists.

Russian University of Transport (MIIT) has a positive experience in training personnel for the transport of the Republic of Vietnam. From 1959 to the present, 390 specialists with higher education have graduated from the university. 107 people defended their Ph.D. theses; 7 people – D.Sc. theses; 127 people passed internships.

In 2018, an agreement was signed between Russian University of Transport and Ho Chi Minh City University of Transport on cooperation and training of highly qualified specialists for the Ho Chi Minh Metro, the Vietnamese railways and the new road from Vung Tau under construction in Binhfok Province.

A lot of Vietnamese graduate students of MIIT, who received a scientific degree at a Russian university, continue research activities or occupy positions of responsibility in the republic. Graduates of MIIT successfully work at Ho Chi Minh City University of Transport and Vietnamese representations abroad.

The program of training of highly qualified specialists provides two years of study: a preparatory department + 1 course at the University of Transport and Communications (Vietnam, Hanoi) and four years of study at Russian University

of Transport. Now 10 citizens of Vietnam are studying in Moscow.

**Conclusion.** The implementation of plans for reconstruction of former tracks and creation of new railways in Vietnam (including HSR) poses great challenges for Russian University of Transport in training qualified specialists and engineers for construction and operation of the Vietnamese railways and future metro lines. From this point of view, the existing experience of cooperation is the key to further development of educational ties and mutual assistance between the two countries.

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