

STAGES OF RECONSTRUCTION AND RENEWAL OF UKRAINE'S INFRASTRUCTURE IN THE WAR AND POST-WAR PERIOD, TAKING INTO ACCOUNT EXPERIENCE AND SECURITY

Evgeniya Ugnenko, Anna Shevchenko, Oleksander Shevchenko

annshevc@gmail.com, Department of search and design of communication routes, geodesy and land management, Ukrainian State University of Railway Transport, Ukraine

Introduction

The armed aggression of the Russian Federation fundamentally changed the transport system of Ukraine. Today, due to hostilities on the territory of Ukraine and the introduced martial law, the airspace of Ukraine is closed for civil aviation flights. The blockade of sea ports on the southern coast of Ukraine also began. Warships of the aggressor country block navigation in the Black and Azov Seas for ships heading to and from Ukrainian seaports. Due to the blockade of the sea ports of Ukraine, shippers and carriers are forced to change the logistics of export transportation, directing cargo to the western border crossings. Transporting goods during the war is a difficult task due to the low capacity of border crossings in western Ukraine. Therefore, the most important challenge at the moment is the creation of conditions for maintaining the transport infrastructure in proper functional condition in the territories controlled by Ukraine, maintaining and increasing the throughput capacity of checkpoints, reorientation of logistics transportation to fulfill the most important functions of the country.

Objectives

Analyze to assess the current state of the infrastructure and the possibility of maintaining it in good condition;

Definition of stages, documentation and regulations for the restoration of infrastructure;

Development of a recovery plan and calculation of the necessary funding.

The main stages of the research

In order to restore, rebuild, modernize transport infrastructure objects, and gradually integrate the transport network of Ukraine into the EU transport network, it is necessary to take appropriate measures and adopt a number of normative legal acts. The purpose of this plan is to ensure the harmonization of regulatory and legal acts and organizational activities of the transport industry of Ukraine with EU countries to meet the needs of the population in transportation and ensure the development of the country's economy by changing approaches to the formation of transport and logistics solutions and the development of modern transport infrastructure in accordance with EU standards (figure 1).

The infrastructure recovery and development plan is divided into spheres, each of which has its own list of tasks, according to which studies have been prepared:

- development of transportation of passengers, cargo, baggage, cargo baggage and mail in domestic and international connections, development of railway transport infrastructure, restoration and increase of capacity of railway border crossings on the western border of Ukraine, implementation of the requirements of the EU acquis in order to achieve organizational and technical compatibility of Ukrainian and European of railways, the development of competition and the formation of a developed market for railway transport services;

- establishment of sources of funding for the construction and operation of highways; development of urban electric transport, public road transport and improvement of the control system; restoration of functioning and development of safe infrastructure of the national highway network, taking into account inclusiveness; development of domestic and international transportation of passengers and cargo; formation of a modern service market; introduction of the latest technologies and harmonization of legislation on road construction with EU legislation; development of a network of high-speed electric charging stations;

- development of multimodal transportation, expansion of the network of transport corridors, attraction of investments to ensure the implementation of projects of development, construction, reconstruction and modernization of infrastructure, issues of tariff policy in transport, development of information systems, modernization and construction of new checkpoints across the state border.

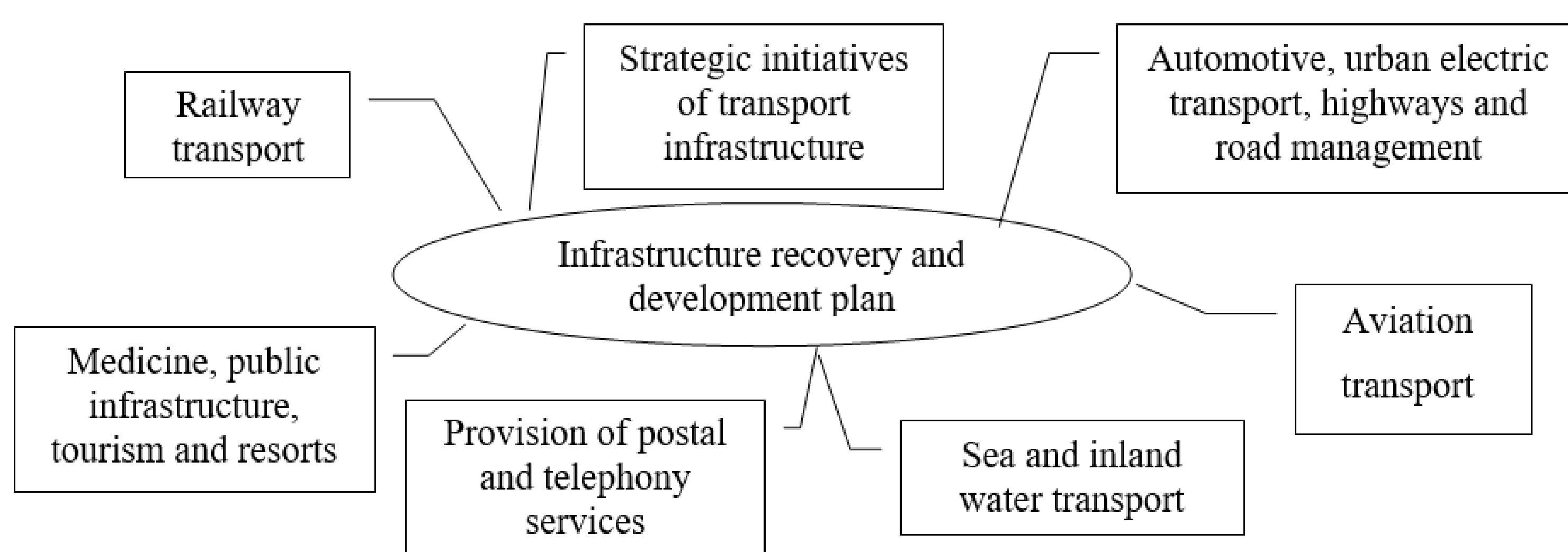


Figure 1. Areas of restoration of the country's infrastructure complex

Thanks to Vilnius Gediminas Technical University for your support! Special thanks to Chairman of the conference - Prof. Dr. Donatas Čygas, Chairman of Technologies of geodesy, cadastre and geographic information system section – Prof. Dr. Eimuntas Kazimieras Paršeliūnas and Secretary – Prof. Dr. Jūratė Sužedelytė-Visockienė, Environmental Protection and Water Engineering department - Prof. Dr. Rasa Ušpalytė-Vitkūnienė

Key capabilities and limitations

- Renovation of motor roads and piecemeal for speeding up the defense, civil and critical infrastructure, ensuring the well-being of settlements among themselves for the timely delivery of humanitarian aid and other interests;
- Renewal of air transportation and reaching the pre-war level of passenger traffic (16.2 million passengers in 2021) and transit potential across Ukraine;
- Increased throughput capacity, modernization and development of ports in the Danube region;
- Refurbishment and renovation of the dry warehouse for the provision of the general needs of the modern economy of Ukraine;
- Reconstruction and reconstruction of inbound cordon crossings, development of their throughput capacity and thorough procedures for control and registration of transport facilities (with the method of improved logistics, transportation of the cordon line for vintage and passenger transport);
- Insurance in the process of updating the infrastructure of modern standards (for example, for the passenger infrastructure - insurance could be provided for accessibility with disabilities);
- Improving the system of traffic flows (including development and implementation of the road traffic organization scheme for additional automated traffic management systems);
- Further digitalization of processes;
- Destruction of spivpratsi and thorough coordination with the borders of the EU to organize the transport and development of TEN-T.

Isnuyut and key facilitation in the implementation of the plan: continuous large-scale military aggression of Russia against Ukraine, actual operation of the industry under martial law conditions for an indefinite period; lack of objective information on the extent of destruction of transport infrastructure; significant folds in the future work on development, modernization, reconstruction of poor infrastructure facilities (financial deficit, security risks, the need to change the capital facilities and the designation of a real technical state); close the open space of Ukraine at the link with the introduction of the military camp. The same richly accompanying question.

THE GOAL OF THE STUDY – DEVELOPMENT OF STAGES AND SEQUENCE OF RESTORATION OF UKRAINE'S INFRASTRUCTURE.

Conclusions

The restoration of the state after the war can take place in several stages:

Immediate Relief Phase: In this phase, it is important to provide immediate relief to the people affected by the war. This can mean providing humanitarian aid (food, water, medical supplies), providing security and evacuating people from dangerous areas.

Infrastructure Recovery Phase: After providing immediate relief, it is time to rebuild the infrastructure. This can mean the rehabilitation of roads, bridges, buildings, electrical networks, water pipes and other necessary infrastructure systems.

Stage of economic recovery: After infrastructure recovery, it is necessary to start the recovery of the country's economy. It can be business recovery, attracting investments, providing jobs, supporting small businesses, etc.

Stage of social rehabilitation: At the last stage, it is necessary to ensure social rehabilitation of persons who suffered as a result of the war.

The authors of this work and the workers who participated in the calculations have faith and hope for a faster end to the war and the reconstruction of the country according to modern standards of life, values and health of humanity.

References

1. Shevchenko A.O., Shevchenko O.S., Ugnenko E.B. Sharyi G.I Research and modeling of the joint operation of materials of reinforced concrete round slabs // XIV International Scientific and Technical Conference - Poltava: NUPP named after Yuriy Kondratyuk, June 20-22, 2022. - pp. 55-58.
2. E. Ugnenko, A. Shevchenko, O. Matviienko, A. Maliavin, G. Viselga, V. Turla Analysis of existing train directions and international transport corridors of Ukraine. TRANSBALTICA XI: Transportation Science and Technology, XV, pp. 622-632, (2019).