

Post-War Recovery and Sustainable Development Strategies of Ukraine in the Context of the Armed Aggression by Russia

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Abstract. In the modern conditions of Ukraine's post-war recovery, achieving sustainable development goals is extremely important, and these goals were significantly affected by the war. The study aims to determine priorities, tasks and measures related to the post-war recovery of Ukraine, particularly in the context of sustainable development, and to explore the possibilities of adapting successful global cases to Ukrainian realities.

The study uses the method of comparative analysis of global cases of recovery from military conflicts and their adaptation to the conditions of Ukraine. In addition, analytical methods were used to assess financial instruments and the legal framework governing the recovery process. The materials were searched in scientific databases like Scopus and Web of Science. Ukraine's national legislative and financial resources were also used to analyse the legal framework and financial instruments. All articles in the database were reviewed from 1950 (the earliest year available in the field) to 2023. The search yielded 1154 articles from 2014 to 2023. The final focus was research on the role of post-war recovery strategy development, resulting in a final sample of 264 articles.

The study found that innovative approaches to recovery can significantly speed up the process of reconstructing Ukraine's economy and infrastructure. The scientific novelty consists in the development of recommendations for implementing international experience in the restoration of Ukraine, taking into account its specific conditions.

Keywords: aid, economy, investments, partner countries, plan.

INTRODUCTION

The Russian Federation declared war on Ukraine in 2022, although the military conflict against Ukrainian sovereignty with the participation of Russia has been ongoing since 2014. Despite the officially stated goal of the war, namely the destruction of Ukraine's military potential and the suppression of the armed forces, the Russian Federation is also occupying territories.

Due to the resistance of the Ukrainian Defense Forces, the occupation of the territory is accompanied by combat operations with the use of heavy weapons. Shelling by artillery, mines, guided aerial bombs, cruise and ballistic missiles damage or destroy infrastructure objects: residential buildings, energy and logistics infrastructure, railways, medical and educational institutions, roads and bridges in the front-line and border areas.

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In addition, missile attacks with long-range weapons are aimed at destroying the energy, logistics and social infrastructure in the rear regions of Ukraine. Considering the low accuracy of some types of weapons, as well as the terrorist nature of the actions of the military leadership of the Russian Federation, not only military facilities suffer damage and destruction.

The Institute of the Kyiv School of Economics is calculating the damage caused to Ukraine's infrastructure by Russian aggression. As of September 1, 2023, the total direct documented damage to Ukraine's infrastructure due to a full-scale Russian invasion was \$151.2 billion (at replacement cost) (Kyiv School of Economics, 2023).

In the total volume of direct losses, the largest share remains the losses of the housing fund - 55.9 billion dollars. In total, 167,200 housing stock objects were destroyed or damaged due to hostilities. The spheres of infrastructure and industry occupy second and third place in terms of losses - 36.6 billion dollars and 11.4 billion dollars, respectively. Since the beginning of hostilities in Ukraine, 18 airports, civilian airfields, at least 344 bridges and overpasses, and more than 25 thousand kilometres of state and local highways and communal roads have been damaged (Kyiv School of Economics, 2023).

The scale of such destruction is estimated to be the largest since World War II. According to the World Bank, the recovery of Ukraine's economy after the end of the war unleashed by Russia will cost at least 411 billion dollars (World Bank, 2023).

The reconstruction of the Ukrainian economy, industry, housing, and infrastructure is in the interests of the Ukrainian people and the democratic bloc of countries in general. An unreconstructed and impoverished Ukraine will create instability in the Central and Eastern European region with long-term humanitarian, political and security consequences for neighbouring countries. With this in mind, free

and democratic countries should join efforts to revive Ukraine's economy in the long term.

Research Problem

Scientific gaps relate to the insufficient study of the adaptation of international practices of post-war recovery to Ukraine's specific conditions and the lack of a systematic analysis of the impact of innovative factors on this process. In this article, we plan to close these gaps by proposing specific mechanisms for the integration of successful global cases of reconstruction and developing recommendations for improving legal regulation and financing of Ukraine's post-war reconstruction.

Research Focus

This study focuses on using strategies in Ukraine's post-war recovery process and providing public services during this process. It analyses how different strategies can be applied to improve efficiency, transparency, and sustainability in the management of infrastructure recovery, urban regeneration, and other areas of public administration. The study is aimed at assessing the potential advantages and problems of implementing strategies in Ukraine's recovery after armed aggression.

Research Aim

The article aims to study the current economic state of Ukraine and identify ways of support from partner countries in developing a strategy for restoring sustainable development in the post-war period. To achieve this aim, the following objectives are addressed:

- Assess the losses to Ukraine's economy and identify the main challenges and problems related to reconstruction.
- Analyze the state's role in restoring industry, agriculture, infrastructure and the social sphere.
- Identify opportunities for Ukraine's cooperation with European countries and international organisations.

LITERATURE REVIEW

This study used 50 sources to analyse Ukraine's post-war recovery and sustainable urban development. All works are complex; let's look at some of them. From the first months of the war, there were talks about its quick end and

the gradual restoration of infrastructure and the economy. However, a year has passed since the beginning of the Russian aggression, and the territories of Ukraine continue to be destroyed, which leads to an increase in reconstruction

costs. This topical problem is discussed in many domestic and foreign publications.

In particular, scientists like Gorodnichenko et al. (2022) studied the restoration plan in their works. Gorodnichenko (2022) emphasises the importance of planning and preparation before the end of military operations.

Zheleznyak (2022) analyses the recovery of Europe after the Second World War according to the "Marshall Plan" and gives examples of the successful use of donor aid. Bohdan (2023) examines not only the positive aspects of the recovery plan but also its weaknesses. Thus, the list of studies is constantly expanding because the topic is multifaceted and highly relevant today. The laws of Ukraine contain an overview and analysis of the legislation on regulatory mechanisms and the implementation of recovery stages and strategies.

In the context of economic strategies, Krugman (2023) emphasises the importance of supporting local businesses and attracting foreign investors, while Smith et al. (2022) emphasise the use of sustainable technologies in urban regeneration. They emphasise the importance of ecological approaches to ensure long-term sustainability. Cohen's (2022) research analysed international organisations such as the World Bank and the IMF and their importance in financial and technical support to Ukraine. It justified the importance of transparent use of resources. Williams (2022) focuses on the importance of foreign investment attraction strategies, emphasizing the need for stable legislation to encourage investors.

Aspects of legal regulation of post-war reconstruction occupy a special place in research. For example, the work of Lefevre et al. (2023) indicates the importance of adapting legislation to the modern realities of infrastructure reconstruction. At the same time, Walker (2022) highlights innovative technologies in construction, such as 3D printing and modular buildings, which can accelerate reconstruction. Johnson (2023) examines resource management for sustainable development, particularly water resources and renewable energy, as key elements of long-term sustainability.

In the social sciences, Turner and Hill (2022) consider community involvement in the restoration process and emphasise its importance for the successful implementation of

restoration projects. Miller (2023), in turn, emphasises introducing a "green" economy, which can become an important element in restoring Ukraine's infrastructure. Martinez (2023) analyzes international efforts to finance reconstruction projects, and Hansen and Petersen (2023) focus on urban planning issues that arise after military conflicts.

In addition, Browne (2023) conducts a comparative analysis of post-war reconstruction in Iraq and Afghanistan, drawing attention to the need for inclusive economic strategies. Zhang (2023) highlights the importance of using the latest information technology to monitor construction work, and Clark (2023) examines the role of civil society in maintaining political stability during recovery.

Security challenges during reconstruction have been separately studied, particularly in the work of Anderson and Murphy (2023), analysing the threats of terrorism and sabotage. Wilson (2023) examines the legal aspects of land management and points to the need for land law reform to effectively restore infrastructure. In the study of Collins (2023), the analysis of the impact of migration processes on the post-war reconstruction of Ukraine is highlighted, and the necessity and importance of the return of refugees as an increase in the labour force is emphasised. Therefore, scientific studies confirm that the post-war reconstruction of Ukraine requires a comprehensive approach that takes into account economic, social, legal and environmental factors.

However, significant challenges remain related to the integration of modern technologies, legal restrictions, and security concerns. The identified research gaps actualise the need for further research into these aspects and the development of new approaches for successfully implementing Ukraine's post-war reconstruction.

According to the latest data from the World Bank, the total cost of rebuilding Ukraine is estimated at more than 411 billion dollars, covering infrastructural, social and economic spheres. These data highlight the scale of the problem and the need for international assistance to effectively implement the reconstruction plan. In addition, according to the estimates of the United Nations Development Programme (2022), about 25% of the housing stock of Ukraine was destroyed due to the war, which further complicates the recovery process.

Information from the European Bank for Reconstruction and Development (2023) indicates a significant decline in industrial production and agriculture, which reduced Ukraine's economy by 30% compared to the indicators of 2021. Also, according to the International Monetary Fund, Ukraine's real GDP in 2022 decreased by 35%, which created additional challenges for financing reconstruction.

According to the Ukrainian government's official statistical reports, significant funds are needed to restore the destroyed infrastructure and build new facilities. The government has already developed several public programs aimed at attracting foreign investment and financial support, including through the

United24 (2023) platform, which has already accumulated more than \$500 million in foreign investment for recovery. This program is actively supported by international partners, in particular the European Union.

The peer-reviewed scientific articles confirm that developing strategies for post-war recovery has significant potential for implementation. However, significant challenges remain, such as technical limitations, integration issues, and the lack of a clear legal framework. Based on this analysis, the identified research gaps indicate the need for further study of postwar recovery issues and challenges to identify common key characteristics and explore new technological solutions.

RESEARCH METHODOLOGY

General Background

The research methods were a literature review of scientific sources related to sustainable development and the post-war reconstruction of Ukraine and a content analysis of institutional mechanisms for harmonizing reporting on sustainable development. In addition, the comparative method was used to analyze international normative acts on the reconstruction of countries after conflicts. The results of the research were presented using graphic and tabular materials.

Sample and Participants

The research process began with an initial review of the literature on the level of harm caused, legislative initiatives and international aid regulations. A brainstorming session was conducted to determine the most accurate combination of keywords representing the area of expertise in the field. One of the largest bibliometric databases containing high-quality peer-reviewed journals, Web of Science (WoS), was chosen as the research platform. This database contains comprehensive citations and most scientific articles relevant to the field. Keyword combinations used in the search included "post-war recovery", "international investment", and "partner countries". All articles in the database were considered for inclusion, covering the period from 1950 (the earliest year available in the field) to 2023. The search yielded 1154 papers from 2014 to 2023.

Instruments and Procedures

WoS filtering tools were used to refine the selection to include only articles published in English, focusing on research articles and review articles. This greatly ensured the scholarly quality of the final sample, as conference papers and book chapters may not be subject to rigorous peer review. Further refinement involved selecting articles from WoS categories such as wines, business, finance, economics, environmental sciences, and interdisciplinary sciences. A final focus was on research related to the role of developing post-war recovery strategies, resulting in a final sample of 264 articles.

Data Analysis

To evaluate the final sample of 264 articles, the study conducted a bibliometric analysis that included (i) performance analysis to describe sample characteristics and identify the most influential authors, journals, and papers; (ii) co-authorship analysis; (iii) co-citation analysis; and (iv) sharing analysis of partially used keywords. To further refine the scope of the study, the sample was narrowed down to articles in specific WoS categories such as business, finance, management, and economics. This approach allowed the systematic review to focus on studies discussing the economic and financial significance of Ukraine's post-war recovery strategies. After applying these filters and conducting a thorough review, a systematic literature review (SLR) was completed with a

sample of 32 papers.

RESULTS

Russia's military aggression has caused significant economic damage to Ukraine, including large-scale destruction in industry, infrastructure, agriculture, and the social sphere.

1. Industry. Significant damage to industrial facilities, especially in the east of Ukraine, led to the loss of production capacity and reduced production volumes, which, in turn, reduced the country's GDP. The cost of damages in this industry is 10.9 billion dollars, and it will be necessary to spend 23.2 billion dollars on restoration (Pylypenko, 2023).

2. Agriculture. The hostilities also seriously affected agriculture, destroying part of the land and livestock. This led to a decrease in productivity and output. Damages in this area are estimated at \$8.7 billion, and recovery costs are \$29.7 billion (Fedorenko, 2023).

3. Infrastructure. Key infrastructure such as roads, bridges, railways and energy facilities suffered extensive damage. This complicates economic activity and creates obstacles to recovery. Damages in this area are estimated at 36.2 billion dollars. For infrastructure and 8.1

billion dollars. for energy (Hryshko & Kyrychuk, 2022).

4. Unemployment. The destruction of production facilities caused an increase in unemployment in Ukraine. The number of people receiving unemployment benefits increased with the onset of the COVID-19 pandemic and increased significantly with the onset of full-scale war. By the end of the year, the number of unemployed is predicted to reach about 2.5 million people (Lipych et al., 2023).

5. Social tension. Military aggression and economic losses caused an increase in social tensions. The loss of life, the large number of internally displaced persons and the general deterioration of living standards caused discontent among the population. (Lucey et al., 2023)

6. Debt obligations. To cover the war's costs and restore the economy, Ukraine had to attract additional loans, which led to an increase in external and internal debt. By the end of 2022, Ukraine's gross external debt amounted to 132 billion dollars, increasing from 64.6% to 83% of GDP (Omelyanenko, 2022).

Table 1. Cost of Damages from Military Actions and Needs as of 24.02.2023 (in billion USD)

Sector	Damage	Needs
Housing	50,4	68,6
Education and Science	4,4	10,7
Healthcare	2,5	16,4
Social Protection	0,2	41,8
Culture and Tourism	2,6	6,9
Energy	10,6	47,0
Transport	35,7	92,1
Digital Technologies	1,6	4,5
Water Supply	2,2	7,1
Municipal Services	2,4	5,7
Agriculture	8,7	29,7
Industry	1,09	23,2
Finance and Banking	0,0	6,8
Environmental Protection	1,5	1,5
Public Administration	0,3	0,6
Mine Clearance	-	37,6
Other	0,3	1,5
Total	134,7	410,6

Source: Compiled by the authors based on analysis from the World Bank (2023).

As we can see in the Table 1, the most significant funds will be allocated for the restoration of housing and infrastructure, which

is quite logical, given the scale of the destruction of residential areas. Significant expenditures also aim to ensure energy independence and the

transition to a "green economy." This is important because Ukraine is almost entirely dependent on foreign countries and companies that import the main types of fuel – natural gas, oil, and, recently, coal. In addition, about 85% of Ukraine's hydrocarbons are purchased in Russia or transported through its territory. Therefore, energy independence, particularly from Russia, is no less important for Ukraine than territorial independence (Roshylo, 2023).

Another one of the most costly items is the expansion and integration of logistics links with the EU. This is expected because, since 2014, Ukraine has followed the European vector of development and integration (Vishchyk, 2022).

Funding for the restoration is provided at the expense of all possible sources. For this purpose, the Ukrainian authorities have created a number of funds:

- Army Support Fund;
- Humanitarian Fund;
- Fund for the restoration of property and destroyed infrastructure;
- Small and medium-sized business support fund;
- Fund for economic recovery and transformation;
- Fund for maintenance and repayment of the state debt (UNDP, 2022).

In addition, a separate Fund for the Restoration of Ukraine was created for reconstruction.

The end of the war in Ukraine, beyond achieving victory over the occupying forces, holding the guilty accountable, and dispelling anti-democratic expectations of a passive segment of the population, will necessitate the Ukrainian government proposing a strategy for revitalization and ensuring sustainable development. This will entail reviewing and adapting the current strategy for sustainable development to provide Ukrainians with a clear and understandable action plan for the joint reconstruction of damaged territorial communities. It is difficult to speak of recovery while Ukrainian cities and their residents continue to endure brutal attacks, critical infrastructure remains under constant bombardment, and communities have lost access to electricity and water.

Considering the critical problem of the destruction of a significant part of the infrastructure of Ukrainian cities and territorial communities from the perspective of the

modern stage of the intelligent construction of the European state, it should be noted that the public response to these disasters and the processes of inevitable recovery open up numerous perspectives for Ukraine.

The first step is to respond to the crisis. After Ukraine's liberation from the Russian occupation, it is critical to provide the population with clean water, restore electricity, and provide medical care. This phase includes the authorities' actions aimed at providing the population with everything necessary for restoring life in communities (Shapovalov, 2023).

The next stage is recovery. In this phase, measures are taken to return citizens to a normal standard of living, including restoring access to food, education and jobs. Given the scale of Russian attacks aimed at destroying infrastructure and reducing the country's population (Shapovalov, 2023), recovery will require significant investment and innovative solutions. However, in the conditions of advanced technologies, open markets and intergovernmental cooperation, this task becomes a matter of attracting the necessary financial resources, including sanction funds withheld from the aggressor country and its representatives.

The general concept of the recovery plan envisages the creation of new, smart and optimized infrastructures for the needs of communities at the site of the destroyed ones to meet the current and future needs of Ukrainians, based on the principles of sustainable economic development and progressive social transformations. Key components of sustainable management of such restoration or revitalisation include:

- Broad community participation and cooperation.
- Transparent and innovative management approaches.
- Globalization and glocalization of decisions and actions.
- Apply innovative approaches to planning and implementing measures to revitalise territorial communities.
- Wide use of the project approach to ensure community infrastructural, economic, social, institutional and ecological development.
- Focus on building sustainable, ultra-modern infrastructure of cities and settlements, as well as ensuring law and order, security in

communities and supporting education, science and health care (Davydov, 2023).

Europe is actively supporting the accumulation of funds for Ukraine's reconstruction. Specifically, the Energy Community has established a Fund for the Restoration of Ukraine's energy infrastructure damaged by the Russian war, with the primary donors being EU member states. Ukraine hopes to fill these funds mainly through the assistance of partner countries and international institutions, including the World Bank, the International Monetary Fund, the European Investment Bank, and the European Bank for Reconstruction and Development. Another significant source of aid is expected from large international companies and charitable foundations.

Since the beginning of Russia's aggressive war, the EU, its member states, and European financial institutions have provided up to 50 billion euros in financial, humanitarian, emergency, budgetary, and military support. This includes 37.8 billion euros aimed at bolstering Ukraine's overall economic, social, and financial resilience, along with an unprecedented financial assistance package of up to 18 billion euros for 2023. Additionally, approximately 12 billion euros in military aid has been delivered through

the European Peace Facility and directly by member states (Shatska, 2023).

On January 26, 2023, an Interagency Donor Coordination Platform was launched to support the repair, recovery, and reconstruction process in Ukraine. This platform enables close coordination among international donors and financial organizations, ensuring a cohesive, transparent, and accountable approach to support. Its goal is to enhance coordination among all key players, providing both short-term financial support and long-term assistance during the reconstruction phase (Bohdan, 2023).

Regarding assistance from the United States, between January 24, 2022, and January 15, 2023, the U.S. provided approximately 73.2 billion euros in bilateral financial, humanitarian, and military aid to Ukraine in response to Russia's invasion, which began in February 2022. Figure 5 illustrates the total amount of bilateral aid commitments to Ukraine during this period, categorized by type and by country or organisation (Khodakivska et al., 2023).

This list is not exhaustive, as many other countries have also contributed financial, humanitarian, and military support, reflecting their recognition of Russia as the aggressor against Ukraine.

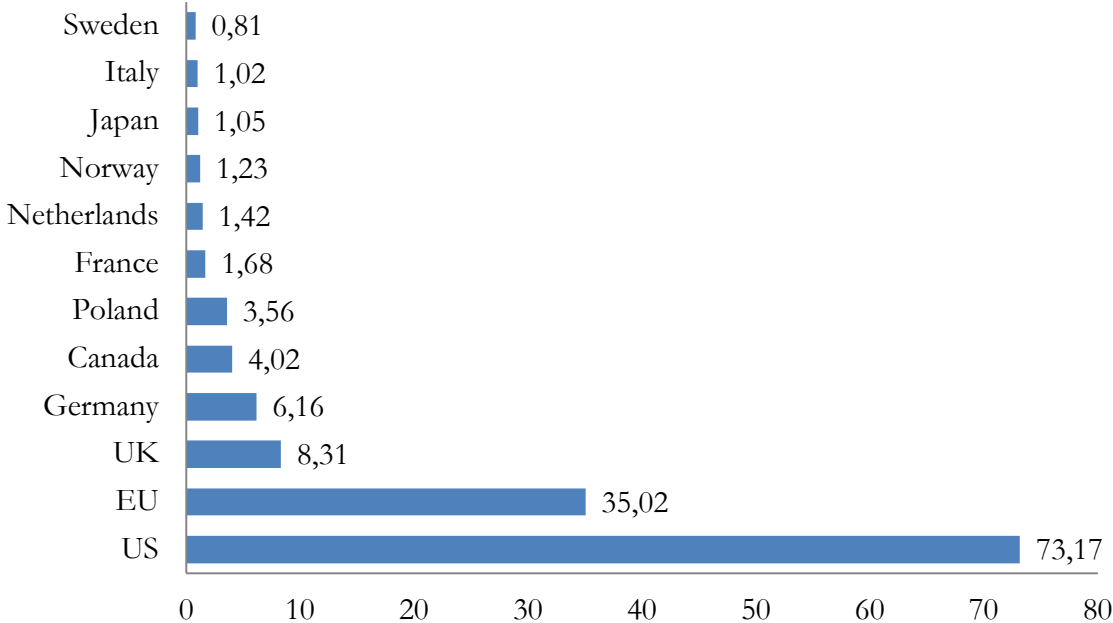


Fig. 1. Aid to Ukraine from the World, in Billions of Euros
Source: Statista (n.d.).

With the active support of international partners, Ukraine has undertaken several

significant initiatives to comprehensively assess the damage and develop recovery plans:

1. Ukraine Recovery Conference (URC) 2022: Held from July 4 to 5, 2022, this annual conference resulted in the adoption of the "Lugano Declaration." During the event, the Ukrainian government presented a 10-year "National Recovery Plan of Ukraine" with an estimated cost of \$750 billion (UNDP Ukraine, 2022).

2. International Expert Conference in Berlin 2022: On October 25, 2022, Berlin hosted the "International Expert Conference on the Recovery, Reconstruction, and Modernization of Ukraine," organized with the involvement of the German G7 presidency and the European Commission. (Federal Government of Germany, 2022).

3. International Conference in Support of the Ukrainian People in Paris 2022: On December 13, 2022, Paris hosted the "International Conference in Support of the Ukrainian People" (ReliefWeb, 2022).

4. Ukraine Recovery Conference 2023 in London: This event took place in London from June 21 to 22, 2023 (URC International, 2023).

These major events facilitated discussions and the development of recovery strategies and strengthened cooperation between Ukraine and its international partners. The goal was to assist Ukraine during the war and in the post-war period, focusing on restoring the country's infrastructure and economy.

As of today, UAH 17 billion is kept in a special account in the State Fund for Liquidation of the Consequences of Russian Aggression. The Deposit Guarantee Fund transferred these funds and confiscated them from subsidiaries of Russian banks, particularly Prominvestbank and MR Bank. Additionally, 35.5 billion hryvnias will be received as the National Bank's profit during this year, which will also replenish the fund (Directorate-General, 2023).

The USA has already agreed to provide 1.5 billion dollars (over 54.8 billion UAH), which will also be directed to this fund. 0.8 billion dollars (29.2 billion hryvnias) have been separately allocated for the restoration of the energy infrastructure. In this context, it is important to note that it is not only a question of cash receipts: for example, the United States provided a gas-fired generating plant worth about 18 million dollars, as well as several powerful generators (Government portal, 2023).

During the Ukraine-EU summit, the head of the European Commission, Ursula von der Leyen, promised to provide 1 billion euros (over 39 billion UAH) for the rapid recovery program (Government portal, 2023).

In general, Ukraine has resources worth more than UAH 150 billion, which the Ukrainian market can use to restore the housing stock and critical infrastructure. Within the framework of the rapid recovery program, the following priorities have been defined (Figure 2):

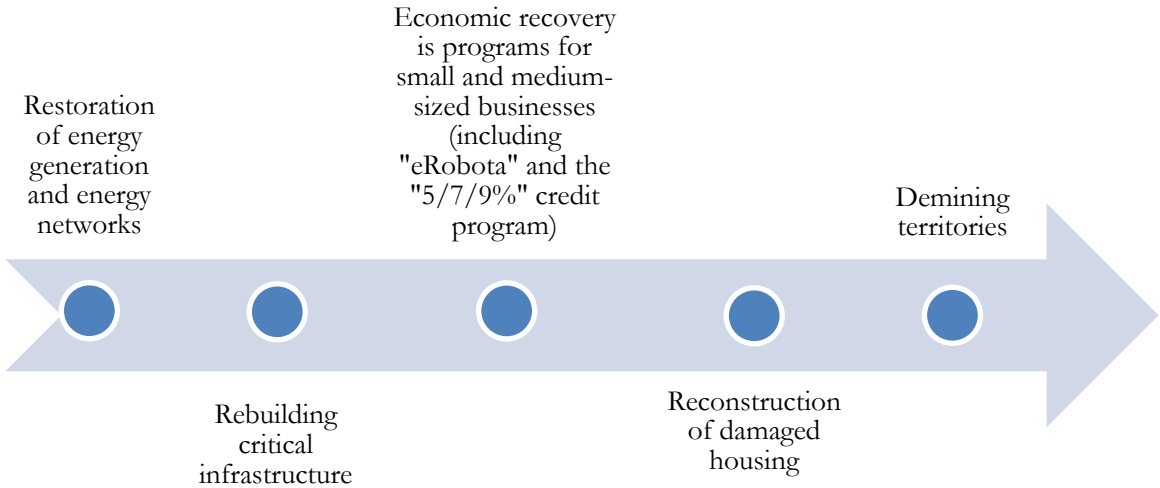


Fig. 2. Priority Areas of Recovery
Source: compiled by the authors based on IA Slovo i Dilo (2022).

Given the international aid and recovery experience, we understand that all reconstruction processes should be as effective

as possible and inspire public and international trust partners. This is especially true since we have partner countries on our way to joining the

EU, as well as opposing countries. Opposing countries see risks in the insufficient pace of reforms and harmonization of legislation, corruption, security risks, and others.

By understanding the challenges and weaknesses of previous recovery experiences, we

can improve and prepare public governance mechanisms for transparent, fast, and efficient country reconstruction processes. Relying on learned international experience and an imposing Ukrainian background, we will consider each block of risks (Table 2).

Table 5. Challenges and Problems of the Post-War Development of Ukraine:
Restoration of Trust in the State

Aspect	Description
International Cooperation and Integration	<ul style="list-style-type: none"> • Participation in International Organizations: Access resources and expertise through the UN, EU, and World Bank. • Bilateral and Multilateral Cooperation: Exchange technologies and joint projects for economic development. • Integration Processes: Strengthen ties through European integration and free trade zones. • Utilization of International Resources and Experience: Knowledge transfer and access to new markets and technologies.
Economic Growth and Social Stability	<ul style="list-style-type: none"> • Economic Reforms: Improve the regulatory environment, financial stability, and infrastructure development. • Employment and Equitable Distribution of Resources: Create jobs and ensure social protection. • Business-Friendly Environment: Improve business climate, reduce bureaucracy, and support SMEs. • Attract Investment and Support Domestic Producers: Create investment tools and support local manufacturers.
Protection of Citizens' Rights and Freedoms	<ul style="list-style-type: none"> • Judicial Independence: Remove influences on judges and ensure their competence. • Protection of Minority Rights: Legislation to protect ethnic, religious, and sexual minorities. • Freedom of Speech: Protect journalists and ensure press and internet freedom. • Political Pluralism: Guarantee political participation rights, favourable conditions for parties, and free elections. • Development of Democratic Institutions: Support NGOs and develop local self-government.
Transparency in Government	<ul style="list-style-type: none"> • Public Involvement in Decision-Making: Consultations, open meetings. • Guaranteed Access to Information: Financial reports, budget execution, public procurement. • Anti-Corruption Measures: Asset declarations, independent agencies, open procurement procedures. • Use of Technology: E-Government, blockchain to enhance transparency.
Effective Use of State Resources	<ul style="list-style-type: none"> • Optimization of Budget Expenditures: Reform expenditure and effective planning. • Rational Use of State Property: Inventory, privatization, leasing. • Control Over State Funds: Independent audits and internal control mechanisms. • Technology for Efficiency: Automate processes through electronic systems.

Source: Compiled by the authors based on analysis from IA Slovo i Dilo (2022).

The state plays a crucial role in recovering Ukraine's industry, agriculture, infrastructure, and social sectors. This involves developing and implementing comprehensive reconstruction programs, securing financing, stimulating private investment, supporting entrepreneurship, and creating a favourable investment climate.

1. Develop and implement adaptive programs for various sectors of the economy, focusing on results.

2. Provide the necessary financial resources through internal and external financing and cooperation with international economic organisations.

3. Create a favourable investment climate through tax incentives, credit guarantees, bureaucracy simplification, and innovation support.

4. Support the development of small and medium-sized businesses through training programs, consulting, access to credit and innovation.

5. Invest in repairing and developing transport, energy, communication and housing infrastructure to accelerate economic recovery.

6. Support land restoration, production intensification, and introduction of new technologies, as well as support farmers and exporters.

7. Restore education, health care, social protection and culture through rehabilitation

programs, modernization of medical facilities and development of cultural infrastructure.

8. Develop special economic development programs for the most affected regions, support local initiatives and cooperate with international partners.

9. Implement programs for cleanup and restoration of contaminated areas, implement environmental policy and support green initiatives.

10. Promote the development of local self-government and decentralization of power, giving more powers and resources to local bodies.

11. Actively cooperate with the UN, EU, World Bank, IMF and other donors to obtain financial, technical and consulting assistance(Gorodnichenko, 2022).

The successful restoration of industry, agriculture, infrastructure, and the social sphere in Ukraine requires the coordinated work of the state, the private sector, the public, and international partners. Together, they will be able to overcome the war's consequences and ensure the country's sustainable development.

Therefore, determining the scenarios for these risks will increase the likelihood of Ukraine's effective and transparent reconstruction. Implementing the above measures and continuous improvement processes is the key to success.

DISCUSSION

At the beginning of our study, three research questions were asked. The first was to assess the losses of the Ukrainian economy and identify the main challenges and problems associated with reconstruction. After analyzing the data for 2023 of government organizations and researchers such as Fedorenko (2023) and Gorodnichenko (2022), we can confidently say that the main consequences of the war for the economy of Ukraine are large-scale losses of infrastructure, the destruction of enterprises and a decrease in the level of GDP. Based on an analysis of available reports, an estimate of the economic losses found direct losses to exceed several hundred billion dollars. Based on this, the main challenges of post-war reconstruction are the lack of financial resources, legal uncertainty and the need to integrate innovative technologies.

Comparing these results with the works of other authors, namely, Gorodnichenko et al. (2022) and Bohdan (2023), in particular, they studied the recovery processes in countries after military conflicts (for example, Germany and Japan after the Second World War), found similar difficulties in rebuilding the economy and infrastructure, but innovative approaches, such as the use of digital technologies and green energy, can become a significant advantage for Ukraine. Our research confirms that adapting such approaches to Ukrainian conditions is the key to effective recovery. Interpreting our own results on this issue, we can confidently say that for successful reconstruction, Ukraine needs not only to attract international resources and investments but also to modernize management processes and introduce innovations. This will ensure long-term sustainable development and

make the country less vulnerable to similar crises in the future.

The study's second question was the state's role in the reconstruction of Ukraine after the war, particularly in the spheres of industry, agriculture, infrastructure, and the social sphere. For example, the works of Khmarska et al. (2022) and Cook (2022) emphasize the need for government regulation and stimulation of investments in key sectors of the economy. Important tasks include restoring production capacity, supporting farmers, reconstructing transport and energy infrastructure, as well as rebuilding social facilities such as schools and hospitals. A study by Chowdhury (2023) also emphasizes the importance of government support in the social sphere, especially in terms of rebuilding schools and health facilities. After World War II, comparisons with other countries, such as Germany and Japan, show the importance of innovation and technology in recovery. For Ukraine, the key is financing, optimising management processes, and implementing innovative solutions in all sectors. This will create a sustainable economic model and make the country less vulnerable to similar crises in the future.

The study results showed that Ukraine's cooperation with European countries and international organizations is aimed at financial

CONCLUSIONS

Post-war reconstruction is a complex process that includes rebuilding economic, social, political and physical infrastructure. It requires a balanced approach, flexibility, interaction with citizens and openness.

Applying fundamental theoretical methods and concepts of post-war reconstruction, principles and planning techniques, is essential for successfully implementing the reconstruction process. The state plays an important role in restoring the economy, establishing trust and ensuring stability. The international experience of post-war reconstruction is a useful source of ideas and solutions that can be adapted to the conditions of Ukraine. Losses of the Ukrainian economy as a result of the military aggression of the Russian Federation put the country face significant challenges in reconstruction. The importance of restoring trust in the state cannot be overestimated, as it is the basis for interaction between citizens and the government.

support, infrastructure reconstruction, development of agriculture and integration into European markets. The European Union provides significant assistance through recovery funds, supported by active support from international organizations such as the IMF and the World Bank. Other authors, in particular Pereira et al. (2022) and Gorodnichenko (2022), also note that international aid was key in the reconstruction of countries after conflicts, as was in the case of Germany and Japan. Our own interpretation of the results emphasizes that it is imperative for Ukraine to use these resources effectively, innovate, and modernise to ensure sustainable growth and reduce dependence on foreign aid in the future.

Limitations of the Study

Limitations in research and implementation of strategies are largely associated with active military actions, which significantly limit Ukraine's development. These circumstances lead to increased capital costs, increased risks, reduced investment, and limited government support, increasing uncertainty about the future. Despite these challenges, it is important to recognize the strategic directions of recovery and take all possible measures to support their developers even under martial law.

Restoration of industry, agriculture, infrastructure, and social sphere are critical areas for the work of the state.

Ukraine's integration into the European community is an important element of reconstruction. It will help form a positive international reputation and provide access to new resources and opportunities.

In general, the successful reconstruction of Ukraine after the war requires a systemic approach, the active participation of all stakeholders, including citizens, government structures, international organisations, and the private sector, and flexibility and readiness to adapt to changing circumstances.

Suggestions for Future Research

Further research in the context of Ukraine's post-war reconstruction can focus on the identified new opportunities for optimising the state's role in this process. This can also become the basis for the development of

concrete recommendations on state policy in this direction. It would also be relevant to study the investment attractiveness of initiatives,

especially those that require infrastructure renewal and technological modernization.

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