

ORTHODOX-INNOVATIVE EXPOSITION OF FINANCIAL MECHANISMS OF THE POST-WAR RECONSTRUCTION OF THE ECONOMY OF UKRAINE

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Abstract. The article is devoted to the study of modern financial mechanisms, which in the medium term can be effectively applied to rebuild the economy of Ukraine after the end of the war. The authors emphasize that the orthodox-innovative exposition of financial mechanisms represents a flexible and adaptive approach capable of effectively responding to current challenges, threats and needs of the country in the process of its reconstruction. The main focus of the article is on the study of such aspects as: outlines of the main challenges faced by the Ukrainian economy in the conditions of the war period, including the destruction of infrastructure, loss of production capacity and a decrease in the standard of living of the population; disclosure of traditional financial approaches, such as international loans and grants, that can be applied to the reconstruction of the economy; identification of modern innovative financial instruments, including "green" bonds, blockchain, crowdfunding and other financial instruments in order to provide additional sources of financing and increase trust on the part of international partners and donors; determining the role of international financial organizations, institutions and donors in the process of reconstruction of our state. An analysis of the assessment of the damage caused in Ukraine by the Russian Federation was carried out, which is based on the reports of the project "Russia Will Pay" KSE Institute with the support of international partners and organizations and the report on the updated joint assessment of damages and needs that arose as a result of the invasion of the Russian Federation in Ukraine (Rapid Damage and Needs Assessment, RDNA3, developed by the Government together with the World Bank Group, the UN and the European Commission). The authors carried out a SWOT analysis, which made it possible to assess the strengths and weaknesses, opportunities and threats (risks) associated with the integration of orthodox and innovative financial mechanisms in the recovery process economy of Ukraine after the war. The article focuses on the Matrix of reforms – a huge plan of changes that systematizes and integrates reforms, includes officially approved recommendations and conditions under macro-financial support programs, in particular: "structural beacons" of the IMF, Plan of Ukraine under the Ukraine Facility program, documents of the European Commission, conditions of the World Bank (Development Policy Loan, DPL). Also, within the framework of the study, an analysis of the consensus forecast of the Ministry of Economy of Ukraine "Ukraine: Scenarios of Restorative Growth" was carried out to provide and assess risks for 2024–2027.

Keywords: post-war reconstruction of the economy, financial mechanism, reform matrix, Ukraine Facility, international financial organizations, international partners, infrastructure damage, damage register, consensus forecast, "green" bonds, state finances.

JEL Classification: E51; F35; F53

Formulas: 0, **fig.:** 4, **tabl.:** 4, **bibl.:** 28

Introduction. Ukraine is in the midst of “dramatic” transformations caused by the armed conflict in the country. A large-scale war with the Russian Federation led to large-scale destruction of infrastructure, significant economic losses and a humanitarian crisis, which have far-reaching consequences for the entire country. In these conditions, the issue of post-war reconstruction and restoration of the economy becomes critical and crucial.

Orthodox-innovative exposition of financial mechanisms for the reconstruction of Ukraine is a complex, synergistic approach that combines traditional (orthodox) and modern (innovative) methods and approaches to public finance management, financial planning and project implementation. Such a conceptual model, which combines these mechanisms, should consider the specifics of post-conflict recovery and global economic trends in the world as a whole.

Literature Review. Given the urgency and scale of the challenges and threats facing Ukraine in the process of post-war reconstruction, let's proceed directly to a detailed analysis of the integration of orthodox and innovative financial mechanisms. This study aims to identify effective approaches to attracting resources and ensuring transparent management of finances necessary for economic recovery.

In modern scientific literature, there are no practical studies devoted to similar problems under similar conditions. Questions related to the study of the assessment of the state of the economy during the war in Ukraine and the consequences of the armed conflict, possible ways of recovery, are reflected in the works of such scientists as Iefymenko T. (2023), Kudrjashov V. (2022), Savostianenko M. (2022), Deineko L. (2024), Kushnirenko O. (2024), Tsyplitska O. (2024), Gakhovych N. (2024), Didukh Y. (2022), Ivanenko D. (2024), Shubalyi O. (2023), Ryzhakova G. (2022), Akselrod R. (2022), Melnikov O. (2021) and other.

Aims. The purpose of this article is to research and substantiate effective financial mechanisms that combine orthodox and innovative approaches to support and accelerate the post-war reconstruction of Ukraine's economy.

Methodology. Within the scope of the study of the orthodox and innovative exposition of financial mechanisms for the reconstruction of Ukraine, a variety of scientific and special methods were used for the analysis, evaluation and generalization of information. The use of analytical methods, in particular the consensus forecast “Ukraine: Scenarios of Restorative Growth” to assess risks in the country for 2024–2027. The SWOT analysis method made it possible to assess the strengths and weaknesses, opportunities and threats (risks) associated with the integration of orthodox and innovative financial mechanisms in the process of restoring Ukraine's economy after the war. The method of grouping, analysis and synthesis of information made it possible to systematize and gain a deeper understanding of the complex financial processes taking place in the conditions of post-conflict economic recovery, and to provide an understanding of their impact on the general economic indicators of Ukraine. The application of methods of induction, deduction, comparison, observation and measurement in the development of scientific hypotheses made it possible to expand the understanding and analyze the relationships between traditional (orthodox) and modern (innovative) methods and approaches to financial management and their impact on the recovery of the economy after the war. Scientific abstraction and

grouping helped to identify threats and challenges to the financial and economic security of the country and to generalize and systematize information about the orthodox and innovative exposition of financial mechanisms for rebuilding the economy. The application of a systemic approach in the analysis and design of the orthodox-innovative exposition of financial mechanisms for rebuilding the economy of Ukraine allowed a deeper understanding of the relationships between various elements of the system, providing a comprehensive view of all important aspects of this process. Summarizing, the used scientific and special methods not only contributed to a deeper understanding of the problems, but also allowed to carry out a reasonable analysis and draw informative conclusions regarding the development of an orthodox and innovative exposition of financial mechanisms for rebuilding the economy of Ukraine in the conditions of a complex geopolitical and economic situation.

Results. Modern challenges caused by full-scale russian aggression against Ukraine require a comprehensive study of various approaches to assessing its consequences and the loss of the country's economic potential. This aggression caused significant destruction of infrastructure, including critical, residential facilities, industrial enterprises, and also affected the social and economic stability of Ukraine. Given the magnitude of these losses, there is a need for in-depth analysis and assessment of the current and future challenges facing our country.

First, the study of existing approaches to assessing the economic and social consequences of aggression is critically important for determining the extent of destruction and losses, which will allow for the development of effective recovery strategies. These approaches should cover both direct damages, such as infrastructure destruction and loss of assets, as well as indirect effects, including reduced productive capacity, job losses, and economic downturns.

Secondly, special emphasis should be placed on the study of the loss of the economic potential of our country. This includes not only physical destruction, but also impacts on human capital, reduced opportunities for innovation and entrepreneurship, and impacts on macroeconomic stability. The evaluation of these aspects will help to understand the long-term consequences of russian aggression and create a basis for building a more stable (resilient) economy in the future.

It is also important to examine plans for post-war recovery and reconstruction, both at the national level and considering the role of international partners. Ukraine needs integrated approaches to recovery that include financial support, technical assistance, as well as political and diplomatic support from the international community. Recovery plans should consider the principles of sustainable development, innovative financial instruments and approaches that allow effective management of resources.

Therefore, the study of available approaches to the assessment of the consequences of the full-scale aggression of the russian federation, the loss of economic potential and post-war recovery plans is critically important for ensuring the sustainable recovery and development of Ukraine. This requires a systematic and comprehensive approach that considers both national and international aspects, ensures effective coordination and integration of resources, and supports the principles of innovation and sustainability in the process of reconstruction and recovery.

We will conduct a SWOT analysis of the orthodox-innovative exposition of financial mechanisms for the post-war reconstruction of the economy of Ukraine within the scope of the study. SWOT analysis allows to assess the strengths and weaknesses, opportunities and threats (risks) associated with the integration of orthodox and innovative financial mechanisms in the process of restoring Ukraine's economy after the war (Table 1).

The integration of orthodox and innovative financial mechanisms in the post-war reconstruction and recovery of the economy of Ukraine creates significant opportunities for sustainable development and recovery. To successfully realize these opportunities, it is necessary to consider both potential weaknesses and risks associated with economic, political and technological turbulence. A careful approach to the management of these aspects will ensure the effective use of financial resources and contribute to the long-term growth and prosperity of the country.

One of the most urgent problems facing Ukraine after the war is the restoration and modernization of the destroyed infrastructure. According to estimates by international organizations, hundreds of billions of dollars must be allocated for this process. The destruction of cities, critical industrial and energy facilities and infrastructure requires not only repair, but also systemic modernization, which considers modern requirements for environmental sustainability and efficiency, which are also laid down in the Sustainable Development Goals (hereinafter referred to as the SDGs). This process will require large financial investments as well as comprehensive planning to ensure not only recovery but also sustainable economic growth and development. The implementation of such ambitious tasks will require cooperation between the government, the private sector, civil society organizations, the population and international partners to ensure a successful recovery and transition to sustainable development.

Let's proceed directly to the statistical assessment of the destruction in Ukraine. In January 2024, the direct damage caused to the infrastructure of our country during the war reached almost USD 155 billion. This estimate also includes losses caused by the explosion of the Kakhovskaya HPP on June 6, 2023, which was carried out by the Russian Federation. This assessment of direct physical damage was conducted by an analytical team of experts from the Kyiv School of Economics (KSE). The «Russia will pay» project of KSE carried out this assessment jointly with the Ministry of Community Development, Territories and Infrastructure, the Ministry of Health, the Ministry of Economy and in cooperation with other relevant ministries and the National Bank of Ukraine.

The increase in the total amount of damages by 85% is due to the growth of damaged and destroyed housing stock, energy, infrastructure facilities, education, industry and health care. In January 2024, residential buildings suffered the most damage from hostilities and regular shelling. The number of damaged and destroyed objects is more than 250,000, of which 222,000 are private houses, more than 27,000 are apartment buildings and 526 dormitories. Total direct damage from this destruction is estimated at USD 58.9 billion. Compared to the end of 2023, this amount showed an increase of USD 4.8 billion. In addition, such an increase is due to the transition to another source of information for some regions (Register of damaged and destroyed

property). Among such regions with the most damage are Kyiv, Donetsk, Kharkiv, Chernihiv, Luhansk and Kherson regions.

Table 1. SWOT analysis of the orthodox-innovative exposition of financial mechanisms for the post-war reconstruction of the economy of Ukraine

<i>Strengths</i>	<i>Weaknesses</i>
<p>1. Diversification of funding sources:</p> <ul style="list-style-type: none"> – the combination of traditional and modern financial instruments provides a wide base of resources for financing various projects; – the use of both public and private, as well as international sources allows to ensure the stability of financing. <p>2. Increasing transparency and trust:</p> <ul style="list-style-type: none"> – innovative mechanisms, such as blockchain technologies, ensure a high level of transparency and reduce fraud risks; – social and “green” bonds promote investor confidence through reporting on social and environmental performance. <p>3. Flexibility and adaptability:</p> <ul style="list-style-type: none"> – innovative financial instruments, such as crowdfunding, allow you to quickly respond to the needs of specific projects and attract funds in a short time; – fintech and digital platforms contribute to the acceleration of financial transactions and the reduction of bureaucratic obstacles. <p>4. Stimulation of sustainable development:</p> <ul style="list-style-type: none"> – »green« bonds and projects with an ecological orientation contribute to sustainable development and modernization of infrastructure considering environmental standards 	<p>1. Complexity of coordination:</p> <ul style="list-style-type: none"> – the integration of various financial mechanisms requires a high level of coordination between government bodies, the private sector and international partners; – the possibility of administrative and organizational problems due to different approaches and regulatory requirements. <p>2. Technological and regulatory barriers:</p> <ul style="list-style-type: none"> – the adoption of emerging technologies such as blockchain may face adoption and implementation challenges due to lack of regulatory norms or resistance from traditional institutions; – insufficient digital literacy of the population can become an obstacle to the widespread use of fintech solutions. <p>3. The risk of social inequality:</p> <ul style="list-style-type: none"> – innovative financial mechanisms may not be accessible to less developed regions or socially vulnerable population groups; – the need for special knowledge and access to technology may limit the participation of some segments of the population in the use of these financial mechanisms. <p>4. Financial instability:</p> <ul style="list-style-type: none"> – dependence on international loans and aid can increase the risk of financial instability in case of changes in the global economic situation; – a high level of debt burden may limit the government’s capacity in the future
<i>Opportunities</i>	<i>Threats</i>
<p>1. Attraction of international capital:</p> <ul style="list-style-type: none"> – the possibility of using innovative financial mechanisms to attract foreign investments and support international partners; – international donors may be interested in financing projects with high transparency and social or environmental impact. <p>2. Development of the digital economy:</p> <ul style="list-style-type: none"> – the use of blockchain and fintech can stimulate the development of the digital economy and the creation of new jobs in the technological sectors; – supporting start-ups and innovative enterprises can contribute to rapid economic growth. <p>3. Ecological modernization:</p> <ul style="list-style-type: none"> – investments in green bonds and renewable energy projects can accelerate the transition to a more sustainable economy; – the use of environmentally friendly technologies in the restoration of infrastructure can reduce the negative impact on the environment. <p>4. Strengthening the participation of the population in the latest financial instruments:</p> <ul style="list-style-type: none"> – crowdfunding and social bonds allow communities to be actively involved in the recovery process, which contributes to increasing social cohesion. – increasing the financial literacy of the population can stimulate wider public involvement in economic development 	<p>1. Economic instability:</p> <ul style="list-style-type: none"> – instability in the international economy, fluctuations in exchange rates or changes in the policies of international donors may negatively affect access to financing; – deterioration of the economic situation in Ukraine may reduce the confidence of investors and their desire to invest. <p>2. Political and social tensions:</p> <ul style="list-style-type: none"> – political instability or conflicts may prevent the implementation of long-term projects and the introduction of new financial mechanisms; – social upheaval or inequality can create resistance to innovative approaches and worsen the overall situation. <p>3. Technological risks:</p> <ul style="list-style-type: none"> – vulnerability to cyber-attacks and disruptions in digital platforms can jeopardize the effectiveness of innovative financial mechanisms; – rapid technological progress can create a gap between the ability to implement new technologies and the ability of regulatory bodies to ensure their safety. <p>4. Failure to meet environmental and social goals:</p> <ul style="list-style-type: none"> – non-compliance with environmental standards or unsuccessful implementation of social projects can lead to a loss of trust from international partners and investors; – misuse of funds can undermine the efficiency and transparency of financial mechanisms, lead to corruption risks

Source: compiled by the authors.

By the beginning of 2024, infrastructure losses amounted to USD 36.8 billion, while industry and enterprises have already lost USD 13.1 billion. According to the latest data, 78 small, medium and large private enterprises, as well as 348 state enterprises, were damaged or destroyed.

As a result of the hostilities of the Russian Federation against Ukraine, the total amount of direct losses from the destroyed infrastructure of the energy sector is growing further – up to USD 9 billion, the agricultural sector – USD 8.7 billion. In addition, as of the beginning of the reporting year, an increase in total losses in the field of housing and communal services was demonstrated – USD 4.5 billion, and in health care – by USD 1.4 billion to USD 3.1 billion. The general estimate of infrastructure damage by industry in monetary terms as of January 2024 is presented in Figure 1.

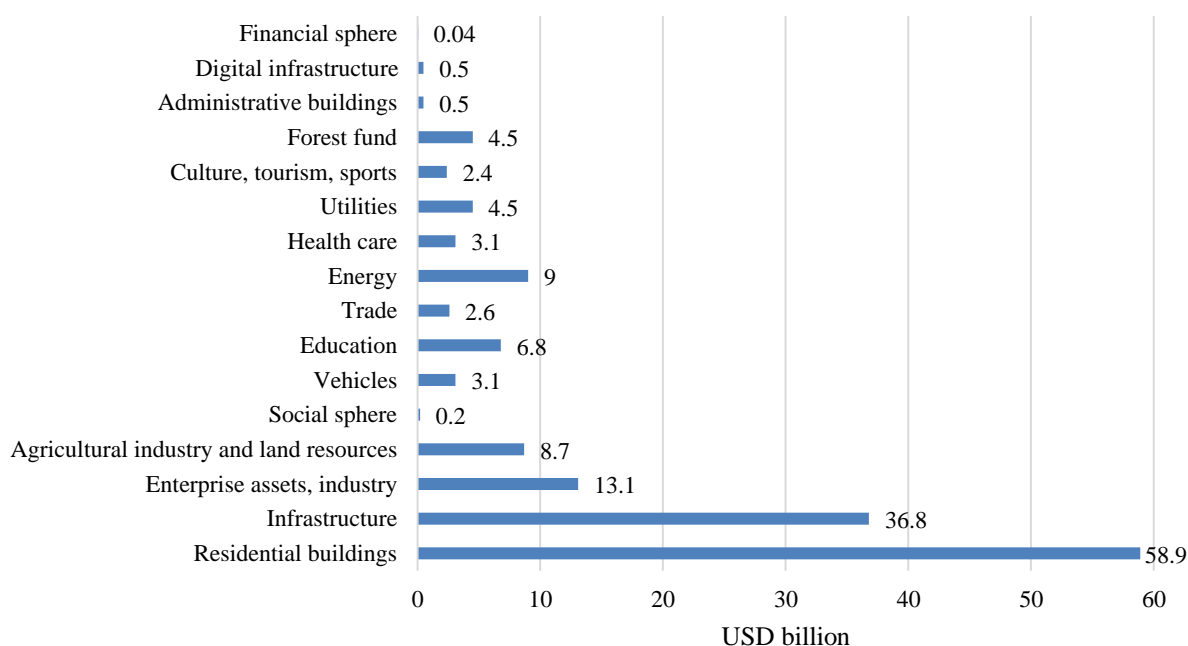


Figure 1. Total assessment of infrastructure damage by industry in monetary terms as of January 2024, USD billion

Source: built on KSE (2024)

Since the beginning of the large-scale invasion of the Russian Federation in Ukraine, at least 160,000 units of agricultural machinery, 3,800 educational institutions, 16,000 units of communal transport, 580 administrative buildings of state and local administration, 1,800 cultural institutions, 348 religious institutions have already been damaged, destroyed/captured. 50 medical centers, 426 hospitals, 48 social centers, 31 boarding schools, 31 shopping centers, etc. (KSE, 2024).

It should be noted that on April 16, 2024, at the 10th meeting of the Parliamentary Assembly of the Council of Europe, Resolution 2539 (2024) was adopted, which concerns the restoration of Ukraine. This Resolution expresses deep concern about the large-scale destruction caused by the illegal war of the Russian Federation, which began in 2014 and turned into a large-scale invasion in February 2022 and continues to this day. These events led to serious human and material losses, human rights violations and numerous war crimes.

It should be noted that the Council of Europe shows unwavering solidarity with Ukraine and its people and has already taken the first steps in creating a system of responsibility for the illegal actions of the Russian Federation. This includes the exclusion of the Russian Federation from the membership of the Council of Europe and leadership in the creation of the Register of Damages and the Compensation Fund. The main goal of this initiative is to use the assets of the Russian Federation to compensate for the damage caused by the war in Ukraine (biz.ligazakon, 2024). According to the data reflected in the mentioned Resolution, the documented damages caused to the infrastructure and economy of Ukraine caused by the aggression of the Russian Federation amounted to USD 416 billion, as of June 2023. Also, approximately 17.6 million people in Ukraine needed humanitarian assistance in 2023, and 5.1 million people were IDPs. According to the Assembly, Russian frozen assets are located in several countries, totaling about USD 300 billion.

In order to direct these assets to the benefit of Ukraine, the Assembly, with the help of the mentioned Resolution, practically called on the member states, including those that hold the relevant assets, to take the measures shown in figure 2.

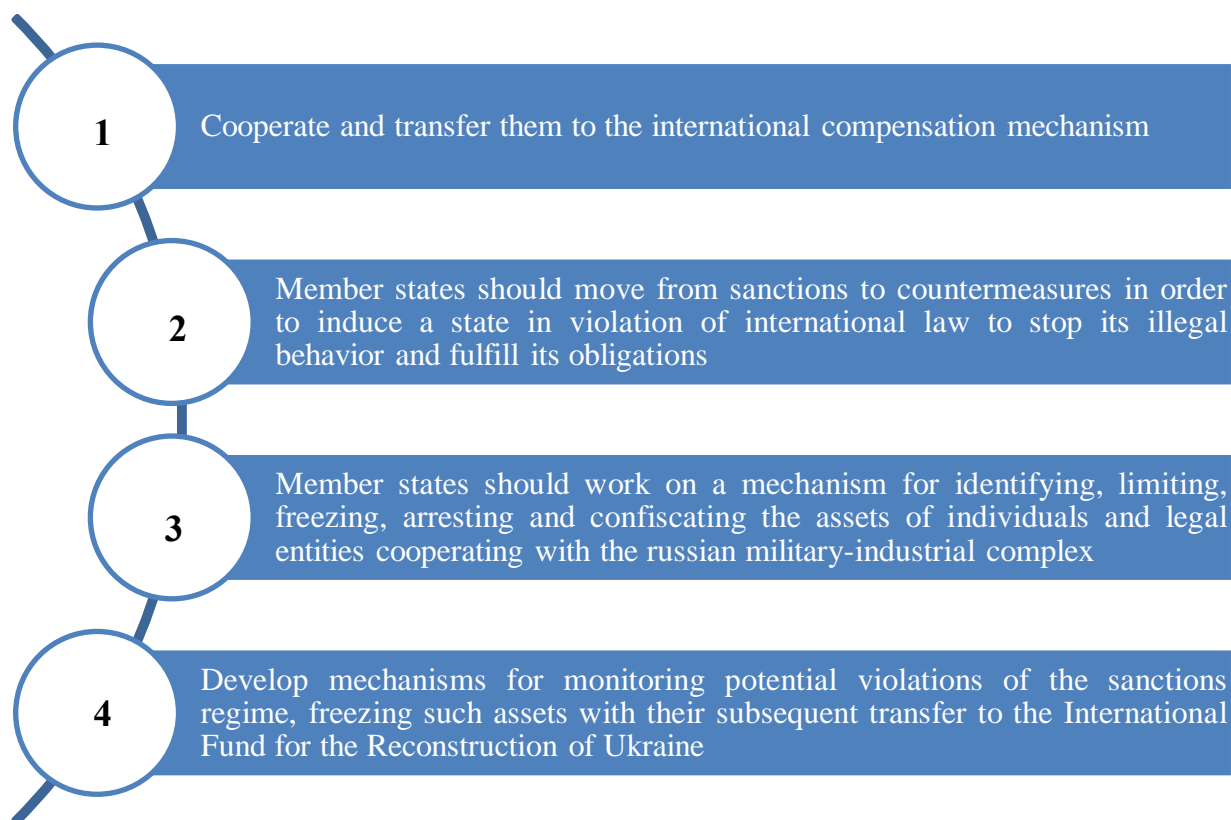


Figure 2. The measures were approved by the Assembly of the Council of Europe in Resolution 2539

Source: compiled by the authors

The international compensation fund created under the auspices of the Council of Europe is a key mechanism for compensating the damage caused to the Russian Federation in connection with the illegal invasion of Ukraine. This fund should provide a structured approach to the assessment and compensation of various damages, which include infrastructure damage, environmental impact, economic losses of companies

and investors, as well as costs associated with supporting displaced persons both in Ukraine and abroad. The above-mentioned mechanism, according to its mandate, will consider claims and pay compensation, directing resources to the rehabilitation and support of victims.

Since the established Damage Register is a complex process of recording Ukrainian losses for international claims, countries that have frozen russian assets must transfer these assets to an international compensation fund. For effective consideration of claims, it is necessary to create an International Commission for consideration of claims for losses registered in the register.

Successful reconstruction of Ukraine is impossible without effective involvement and coordination of international aid, including loans, grants and investments. For this, it is important to integrate modern financial management tools and ensure transparent reporting mechanisms that meet international standards.

The World Bank Group, the Government of Ukraine, the European Commission and the UN presented a report on the updated joint assessment of damages and needs that arose as a result of the russian invasion of our country (Rapid Damage and Needs Assessment, RDNA3) (World Bank Group, 2024).

The Ministry of Infrastructure of Ukraine led the government team to assess the damage and determine priorities for 2024. According to the Report, the total costs for the reconstruction and restoration of Ukraine over the next ten years will amount to USD 486 billion, which is almost three times higher than the country's nominal GDP for 2023. This year's indicator also exceeds the previous estimate of RDNA2 by 18%, which amounted to USD 411 billion as of 24.02.2023 (World Bank Group, 2024).

The results of the assessment will be the basis for the development of planning documents and prioritization methods. For example, the priorities presented in the RDNA3 report will be implemented in the action plan of the State Regional Development Strategy (SRDS). In addition, DREAM – the State Digital Ecosystem of Recovery Management – will provide labeling of projects that meet the needs of the RDNA, which will allow better prioritization of critical recovery projects and provide them with priority support (World Bank Group, 2024).

The RDNA3 assessment considers the damage caused during almost two years, from the beginning of the full-scale russian invasion of Ukraine on February 24, 2022, until the end of 2023 (World Bank Group, 2024). According to the report, direct losses in Ukraine currently amount to almost USD 152 billion. The most affected sectors were housing, transport, trade and industry, as well as energy and agriculture. Similar to last year's report, Kharkiv, Luhansk, Donetsk, Kherson, Zaporizhzhia and Kyiv regions were recognized as the most affected regions.

10% of the housing stock was damaged (destroyed) throughout the territory of our state. The destruction of the Kakhovka hydroelectric dam in June 2023 led to catastrophic consequences for the environment and exacerbated the problems already faced by Ukrainians struggling for access to housing, water, food, medical services, etc.

For 2024, Ukraine's highway needs include restoration in such areas as: transport and logistics – USD 2.3 billion; housing and communal services – USD 3.1 billion;

social infrastructure – USD 2.4 billion; energy – USD 2.7 billion; cross-sectoral priorities – USD 1.2 billion; industry and services – USD 3.6 billion.

In 2024 alone, according to the updated assessment, Ukraine will need USD 15.3 billion for critical recovery projects, with an emphasis on supporting the recovery of social infrastructure, the private sector and utilities, transportation, energy, and housing. About USD 5.5 billion of this financing was provided at the expense of the support of Ukraine's international partners and at the expense of its own resources. About USD 10.5 billion are currently unfunded. Implementation of recovery measures involves carrying out structural and strategic reforms that are consistent with EU policies and standards and support the principles of “rebuilding better than before”. The priorities established in RDNA3 will be integrated into the medium-term budget planning process. Accordingly, this will ensure predictable and timely financing, as well as strengthening the capacity of the public sector (Ministry for Communities, Territories and Infrastructure Development of Ukraine, 2024). Since the Russian invasion of Ukraine, it has received USD 85.4 billion from international partners to finance state budget expenditures. Thus, since the beginning of 2024, USD 11.8 billion have come from international partners.

The largest foreign donors in the current year are: EU – USD 6.48 billion; Canada – USD 1.47 billion; Japan – USD 2.13 billion; Great Britain – USD 0.52 billion; IMF – USD 0.88 billion; Norway – USD 0.3 billion. Considering the proceeds from the placement of OVDP bonds on the domestic market, as of May 28, USD 16.9 billion was raised to finance the state budget of Ukraine in 2024 (Ministry of Finance of Ukraine, 2024). During the International Recovery Conference in Berlin on June 11–12, 2024 (Ukraine Recovery Conference – 2024), international agreements and aid worth more than EUR 16 billion were announced and signed (Ministry of Economy of Ukraine, 2024). The total volume of potential investments can amount to EUR 500–700 million. Currently, Ukraine needs more generating and trunk capacities. However, it will provide a significant impetus to increase aid during the next phase. The results of the URC show the great potential that the energy sector has for attracting investment.

In addition, the first guarantee and grant agreements for EUR 1.4 billion were signed as part of the investment component of the Ukraine Facility program, and the announcement of a support package for Ukrainian energy from the United States for more than USD 800 million, and the Alliance for the Sustainability of Small and Medium Businesses for EUR 7 billion was also created and Skills Alliance for more than EUR 700 million.

The investment tool Ukraine Investment Framework was launched as part of the Ukraine Facility program. The European Commission has signed 14 financing and guarantee agreements with various IFIs. These agreements include EUR 1 billion in loan guarantees and EUR 400 million in blended grants.

Was launched the “SME Sustainability Alliance” together with more than 30 international partners to support the development of Ukrainian small and medium-sized enterprises. The alliance will include programs worth more than EUR 7 billion for current and new initiatives, of which EUR 3.9 billion are earmarked for new projects.

Domestic companies signed 14 business agreements with German and international partners for a total amount of more than EUR 560 million. The

agreements cover sectors such as heavy industry, agricultural machinery and renewable energy.

There are even more opportunities for insurance. Now insurance from the U.S. International Development Finance Corporation will be available not only to investors, but also to small and medium-sized businesses through local insurance companies in Ukraine. USD 50 million will be allocated for this purpose. In addition, DFC announced two new war risk insurance deals totaling USD 300 million for an agricultural company and a manufacturing company.

The Create Ukraine project is also being launched together with Lithuanian partners Central Project Management Agency and the Kyiv School of Economics Charitable Fund. It creates conditions for the return of Ukrainian specialists from abroad to work in the public sector and strengthen our governance (Sivershchyna, 2024).

In addition, during the conference, the Ministry of Economy presented the Investment Guide (Ukraine Recovery Conference, 2024), which included 95 investment projects that require about USD 27 billion in financing. Also, European integration documents, in particular, the Small and Medium Business Development Strategy and the National Energy and Climate Plan. The Business Advisory Council, which will help improve the investment climate in Ukraine, has also become operational.

It should also be emphasized that the Cabinet of Ministers of Ukraine introduced the Reform Matrix – a new analytical tool for effective decision-making and management of the reform implementation process. The matrix is a huge change plan that integrates and systematizes reforms and includes officially approved recommendations and conditions under macro-financial support programs, namely: documents of the European Commission, structural beacons of the IMF, Plan of Ukraine under the Ukraine Facility program, conditions of the World Bank (Development Policy Loan, DPL). The Reform Matrix is a key and general analytical tool for effective implementation and monitoring of planned measures. The Reform Matrix includes more than 200 reforms (with more than 400 indicators) and has an expert assessment of the impact of these reforms on economic growth and recovery, conducted by the Commission on Economic Development and Social Policy in consultation with the Harvard University Growth Center and with the support of the World Bank. It systematizes the conditions and recommendations of Ukraine's international partners. In 2024, the implementation of 410 indicators, which are officially presented in the documents, is planned. The Reform Matrix helps to prioritize and sequence reform measures. At present, the cardinal attention should be focused on the steps that will ensure the maximum effect in terms of improving macroeconomic indicators and restoring the economy without significant fiscal costs. Internal transformations should take place systematically and consistently, while supporting the improvement of external conditions with the assistance of partners (Communications Department of the Secretariat of the CMU, 2024). At the conference in Berlin, it was outlined that in order to maximize the effect of reforms in Ukraine, together with international partners, it is necessary to focus efforts on 3 areas:

- Reduce macroeconomic risks with the help of partners within the framework of the Multilateral Coordination Platform of Donors and ensure long-term external financing and in-kind support until 2027;
- Accelerate recovery through the elimination of barriers to development. It is worth ensuring energy stability, air defense, overcoming labor shortages, stable access to foreign markets, and restoring logistics (SEAL+);
- Increase potential growth by complementing reforms with time- and volume-specific investments and technology transfer agreements from partners that will enhance productivity and capital.

At the G7 summit, the President of Ukraine called on the G7 member states to draw up a recovery plan for Ukraine, similar to the “Marshall Plan” after the Second World War, and to confirm it with a joint G7+ declaration – a recovery declaration (President of Ukraine, 2024). On June 6, 2024, the Verkhovna Rada of Ukraine ratified the Ukraine Facility Plan – a comprehensive recovery and reform plan for the period 2024–2027. The plan includes investments in infrastructure, economy, social sphere and governance. This includes building modern roads, bridges, schools and hospitals, supporting small and medium-sized businesses, ensuring access to quality education and health care, as well as fighting corruption and improving governance transparency. These measures will help not only to restore the country, but also to make it better than it was before the war. The Ukraine Facility Plan defines Ukraine’s obligations to implement reforms until 2027, which is a condition for receiving the next tranches of macro-financial assistance from the EU in the total amount of EUR 50 billion. The approximate schedule of payments by year is as follows: in 2024 – EUR 16 billion, in 2025 – EUR 12.5 billion, in 2026 – EUR 7.25 billion, in 2027 – the beginning of 2028 – EUR 2.5 billion (Decentralization, 2024). The timeline of bills for the fulfillment of international obligations is presented in figure 3.

Traditional approaches to rebuilding the economy that may be effective in peacetime may not work in the post-conflict era. Therefore, it is necessary to introduce innovative financial instruments and methods that consider the specifics of modern global challenges, such as climate change, digitalization and globalization. In the context of the post-war reconstruction of Ukraine’s economy, modern financial engineering offers a number of innovative approaches that can significantly accelerate and increase the efficiency of the country’s recovery. These tools, including “green” bonds, crowdfunding, blockchain technologies and other modern financial products, open opportunities to attract new sources of financing, increase transparency and ensure sustainable development.

1. “Green” bonds are debt instruments, the proceeds of which are issued to finance environmentally sustainable projects. In the post-war reconstruction of Ukraine, these bonds are a powerful tool for attracting the capital needed to support environmental initiatives and the country’s environmental modernization. Green bonds can be aimed at restoring and modernizing infrastructure to meet environmental standards, developing renewable energy sources such as solar, wind and bioenergy projects, as well as implementing energy efficiency measures in buildings and industry (Klymenko, Petrukha, Petrukha, 2024). These instruments promote sustainable development by attracting investors interested in financing environmentally

responsible projects and ensure high transparency of the use of funds through reporting requirements. Examples of green bond applications include projects to restore energy in conflict-affected regions and finance the construction of green buildings and the modernization of transport systems that reduce CO2 emissions, in line with the SDGs.

II quarter of 2024	III quarter of 2024	IV quarter of 2024	I quarter of 2025
<u>Until the end of April</u>	<u>Until the end of July</u>	<u>Until the end of December</u>	<u>Until the end of March</u>
#11130 – partial individual consideration of cases by the VAKS judge	#New court to replace OASK	#11063 – the law on the State Agrarian Register	#Increasing the VAX staff
<u>Until the end of June</u>	<u>Until the end of September</u>	#10228 – improvement of the bankruptcy procedure	#APMA reform
#10439 – reboot BES	#6004-d – reduction and control of industrial pollution	#Auctions for renewable energy	#Strengthening of state cyber security
#5593-d – corporate management of state-owned enterprises	#Changes to the CCP and the CCU regarding the procedure of the agreement with the investigation	#Independence NKRECP	#Law on basic principles of climate policy
	#10060 – increasing the SAP staff	#6227 – Changes to the mineral resource base development	
	#6490-d – customs reform		
	#10143 – implementation of Directive 2019/1023 on bankruptcy		
	#5819 – the law on ratings		
	#Railway reform		
	#Amendments to Law No. 4524-VI for the privatization of state banks		
	#11063 – Access to the State Agricultural Register for mortgage loans		

Figure 3. Timeline of bills for the fulfillment of international obligations

Source: built on Decentralization (2024)

2. *Crowdfunding* is a method of raising funds for the implementation of projects due to the contributions of a large number of people, usually through Internet platforms. In the context of the reconstruction of the economy of Ukraine, this approach allows to mobilize the resources of the population and businesses to support local initiatives and reconstruction projects. Crowdfunding is extremely useful for financing small and medium-sized enterprises that are rebuilding after conflict, as well as for supporting social initiatives such as rebuilding schools, hospitals and other public institutions (Petrukha, Petrukha, Alekseenko, Kushneruk, Mazur, 2023). It provides access to financing for projects that may not be available through traditional channels, encourages active participation of the population in reconstruction and development processes, and provides flexibility and speed of fundraising. In particular, crowdfunding can be used to support local entrepreneurs who are rebuilding their businesses after destruction, or to raise funds for the reconstruction of socially significant objects, such as schools or kindergartens.

3. *Blockchain technologies* that use distributed ledgers to ensure the transparency and security of financial transactions can significantly improve the management of reconstruction projects and increase trust in the reconstruction process. In the post-war

reconstruction of Ukraine, blockchain can be used to manage and track financial flows in reconstruction projects, ensure transparency and accountability of the use of international aid and investments, as well as to create decentralized financial platforms that support the development of small and medium-sized enterprises. All transactions on the blockchain are public and immutable, which significantly reduces the risks of fraud and corruption, increasing the confidence of investors and donors. In addition, blockchain simplifies control and management processes, reducing operational costs. Examples of the application of blockchain technologies can be projects to track the use of charitable contributions or the creation of platforms for microfinancing and crediting of small businesses.

4. *Other innovative financial instruments* also play a general role in the process of reconstruction of the Ukrainian economy. Structured financial products combine traditional financial instruments with innovative approaches to create new sources of financing. They can be used to create specialized funds that finance large infrastructure projects or introduce hybrid instruments that combine grants and loans to reduce risks. Stabilization funds, combining contributions from the government, international donors and private investors, can be key to stabilizing the economy.

Social Impact Bonds are also an effective tool for attracting funds for the implementation of social projects that provide financial returns depending on the achievement of certain social results. They can be used to finance social development programs, such as education, health care and integration of immigrants, or to support projects aimed at reducing unemployment and improving the welfare of the population. Investors receive a return only in the case of the achievement of established social outcomes, which encourages the implementation of new solutions to social problems.

The integration of modern financial instruments, such as “green” bonds, crowdfunding, blockchain technologies and others, in the strategy of post-war reconstruction of Ukraine can significantly accelerate this process and ensure more efficient and sustainable use of available resources. These tools make it possible to attract new sources of financing, increase transparency and trust in reconstruction processes, and also ensure sustainable development of the economy in the long term. Using these innovative approaches will help Ukraine not only to recover from the destruction, but also to create a basis for sustainable economic growth in the future.

The integration of orthodox and innovative financial mechanisms into the process of post-war reconstruction of Ukraine’s economy is accompanied by a number of risks and challenges that require comprehensive assessment and management. First of all, traditional financial mechanisms may face problems of insufficient flexibility and the ability to quickly respond to rapid changes in the economic environment. Conversely, innovative tools such as blockchain and crowdfunding, while offering high levels of transparency and efficiency, may be subject to technological and regulatory risks. In addition, new financial technologies may arouse suspicion or resistance from the public and traditional financial institutions, which can inhibit their adoption.

There are also social risks associated with uneven access to financial resources in different regions and population groups, which can increase social inequality. International risks, such as exchange rate fluctuations, political instability and changes in global economic conditions, which may affect the availability of international

investment and aid, are also an important aspect. An integral assessment of these risks is critical for the development of a strategy that ensures a sustainable and even recovery of the Ukrainian economy, considering all possible challenges and dangers.

In its April consensus forecast, the Ministry of Economy provided an assessment of risks for 2024–2027. The consensus forecast “Ukraine: Scenarios of Restorative Growth” was prepared with the aim of highlighting the consensus vision of probable scenarios for the development of the domestic economy in the conditions of the ongoing brutal unprovoked large-scale war of the Russian Federation against Ukraine, which changed the living conditions of Ukrainians, and the temporary occupation of part of the territory of Ukraine by the Russian Federation, the destruction of production facilities and infrastructure, the disruption of supply and export chains have changed the functioning conditions of the domestic economy.

The assessment was carried out according to two criteria: the probability of a specific risk and its impact on the economy of Ukraine. The maximum consensus score for internal and external risks is 16 points. The highest risk for 2024 and beyond is the risk of “Continuation of the war on the territory of Ukraine” with an almost maximum rating (15). For 2025–2026, the integrated estimates of this risk gradually decrease to 13 and 9, respectively, but compared to previous surveys, the estimates of this risk have increased, indicating that most experts expect the war to continue during the forecast period. Only in 2027, the integrated risk assessment drops to slightly below the average – 6. During 2024–2025, experts also predict a “Large-scale wave of mobilization” (Table 2–4) (Ministry of Economy of Ukraine, 2024).

Table 2. Martial terms (April 2024)

Martial terms	2024 year			2025 year			2026 year			2027 year		
	Integral evaluation	Assessment of the probability of realization	Assessment of the impact of the phenomenon on the	Integral evaluation	Assessment of the probability of realization	Assessment of the impact of the phenomenon on the	Integral evaluation	Assessment of the probability of realization	Assessment of the impact of the phenomenon on the	Integral evaluation	Assessment of the probability of realization	Assessment of the impact of the phenomenon on the
Continuation of the war on the territory of Ukraine	15	4	4	13	3	4	9	2	4	6	2	3
The impossibility, for various reasons, of the full economic use of a significant part of the territory that has undergone occupation and the destructive consequences of active hostilities, in particular due to the need for massive demining	13	4	3	12	4	3	9	3	3	8	3	3
A massive wave of mobilization	12	3	3	10	3	3	4	2	3	4	2	3
Unblocking the seaports of Ukraine and their free use	8	2	4	9	3	3	10	3	3	11	3	3
Signing of the peace agreement	5	2	3	8	2	3	9	3	3	9	3	3

Source: built on Ministry of Economy of Ukraine (2024).

Table 3. External phenomena (April 2024)

External phenomena	2024 year			2025 year			2026 year			2027 year		
	Integral evaluation	Assessment of the probability of realization of the phenomenon	Assessment of the impact of the phenomenon on the economy of Ukraine	Integral evaluation	Assessment of the probability of realization of the phenomenon	Assessment of the impact of the phenomenon on the economy of Ukraine	Integral evaluation	Assessment of the probability of realization of the phenomenon	Assessment of the impact of the phenomenon on the economy of Ukraine	Integral evaluation	Assessment of the probability of realization of the phenomenon	Assessment of the impact of the phenomenon on the economy of Ukraine
Weakening, delay or suspension of financial support for Ukraine from international partners, in particular, a reduction in the amount of funding from the EU and the USA (including as a result of the internal political situation in the partner countries)	13	3	4	13	3	4	11	3	4	11	3	3
Deep socialization of a significant part of refugees abroad with a minimal probability of their return in the future, the continuation of the outflow of the population from Ukraine (men will go to their families) after the end of the war	12	4	3	12	4	3	12	3	3	10	3	3
Introduction of new customs tariffs and restrictions, blocking of logistics by partner countries	10	3	3	9	3	3	6	2	3	6	2	3
Slow processes of Ukraine's integration into the EU	7	3	2	7	3	2	6	2	3	6	2	3
A new world crisis	6	2	3	7	2	3	7	2	3	6	2	3
A significant increase in world food prices	6	2	3	6	2	3	6	2	3	6	2	3
A significant increase in prices on global energy markets	5	2	3	6	2	3	6	2	3	6	2	3

Source: built on Ministry of Economy of Ukraine (2024)

Table 4. Internal risks/phenomena (April 2024)

Internal risks / phenomena	2024 year			2025 year			2026 year			2027 year		
	Integral evaluation	Assessment of the probability of realization of the phenomenon	Assessment of the impact of the phenomenon on the economy of Ukraine	Integral evaluation	Assessment of the probability of realization of the phenomenon	Assessment of the impact of the phenomenon on the economy of Ukraine	Integral evaluation	Assessment of the probability of realization of the phenomenon	Assessment of the impact of the phenomenon on the economy of Ukraine	Integral evaluation	Assessment of the probability of realization of the phenomenon	Assessment of the impact of the phenomenon on the economy of Ukraine
Preservation of the existing level of corruption	11	4	3	11	3	3	10	3	3	9	3	3
Demographic crisis: shortage of labor resources – an extremely large percentage of the population in need of social support (pensioners, children, disabled) – gender shift	10	3	3	10	3	3	12	3	4	11	3	3
Preservation of low credit activity of commercial banks in the real sector	10	4	3	9	3	3	8	3	3	7	3	3
Low level of implementation of reforms	9	3	3	9	3	3	8	3	3	8	3	3
Additional issuance of funds to finance expenditures of the state budget or the Pension Fund, other social insurance funds	9	3	3	9	3	3	8	3	3	8	2	3
Increasing insolvency of subjects of economic activity	9	3	3	9	3	3	8	2	3	8	2	3
Impoverishment of the majority of the population	9	3	3	9	3	3	8	3	3	8	2	3
Obtaining a low yield of grain crops	8	3	3	7	2	3	7	2	3	6	2	3
A significant power deficit in the electric power industry (energy terror)	8	2	3	6	2	3	5	2	3	4	1	3
Rapid increase in labor migration abroad	7	2	3	7	2	3	8	2	3	8	2	3
Introduction of a new tax system	5	2	3	6	2	3	6	2	3	7	2	3

Source: built on Ministry of Economy of Ukraine (2024)

Discussion. This conceptual model should become a framework for an integrative approach to the reconstruction of the economy of Ukraine, which combines the advantages of orthodox and innovative financial mechanisms. This approach will contribute not only to the reconstruction of the destroyed infrastructure and the economy, but also to the creation of a basis for sustainable development and improvement of the population's well-being in the long term. This approach integrates orthodox and innovative financial mechanisms and is extremely important for the post-conflict recovery of Ukraine's economy for several key reasons. First, it allows to effectively combine traditional financial instruments that ensure stability and reliability with innovative approaches that open up new opportunities for attracting resources and increasing transparency. This is especially critical in conditions of limited access to financial resources and high levels of mistrust that often accompany post-conflict situations. Second, the model considers current global economic trends, such as sustainable development, digitalization of financial services and the growing importance of socially responsible investments. This allows Ukraine not only to restore the destroyed economy, but also to lay the foundation for its long-term and sustainable growth in the conditions of a rapidly changing global economic environment. Thirdly, the flexibility of the model allows it to be adapted to the specific needs of different regions and sectors of the economy, which is critical for ensuring inclusive and equal development throughout the country. As a result, the proposed model creates conditions for integrating the efforts of the government, the private sector, the population and international partners, which provides a comprehensive and coordinated approach to the recovery of Ukraine's economy.

In addition to the already mentioned advantages, the proposed approach has several additional aspects that emphasize its importance for the effective recovery of Ukraine's economy after the conflict, which are visualized below in figure 4.

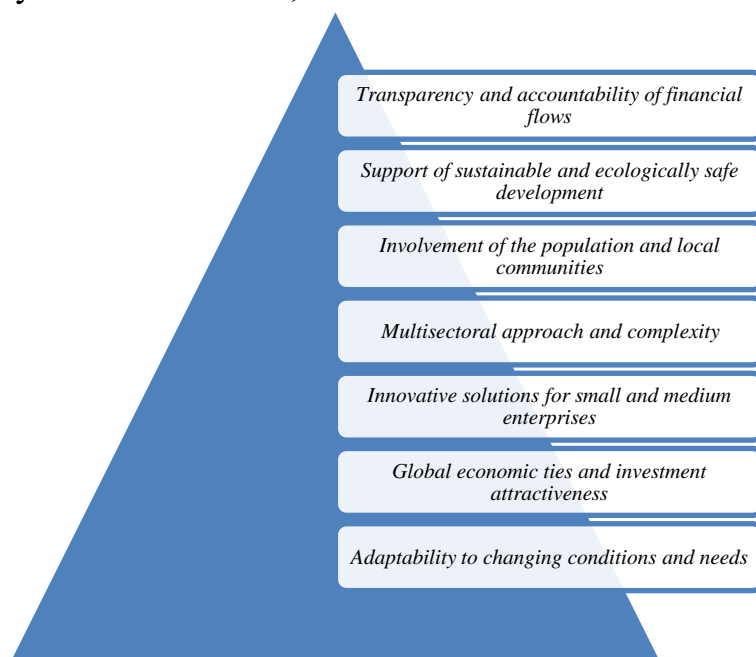


Figure 4. Additional aspects that are important for the effective recovery of Ukraine's economy

Source: compiled by the authors

1. Transparency and accountability of financial flows:

For the new Ukrainian economy, the emphasis on economic freedom and improving the conditions for doing business, attracting investments and digitization will be decisive. This approach will also require legislative regulation in order to ensure proper, effective, targeted and controlled use of the financial resources involved through improved mechanisms. The integration of blockchain technologies provides an unprecedented level of transparency in the management of financial resources. This is critical to increase the trust of international donors, investors and the public, because they can be sure that the funds will be used honestly and effectively. In a post-conflict context, where the problem of corruption can be particularly acute, such transparency is fundamental to successful recovery. One of the main components that must be strengthened now is the protection of critical infrastructure. This will create the basis for transparent public administration, which will help overcome the challenges and threats facing Ukraine, ensure long-term economic growth, general economic security, and promote integration into the European economic space. Strengthening the institutional capacity of the state is also of key importance. This includes strengthening the independence of the judiciary, fighting corruption and increasing transparency in all areas of public administration. Only under the conditions of a fair and predictable legal environment can we expect sustainable economic growth and investors' confidence in the safety of their investments.

2. Support of sustainable and ecologically safe development:

"Green" bonds and other sustainable financing instruments promote investments in projects that minimize environmental risks and support environmental modernization. This not only helps Ukraine to rebuild its infrastructure considering modern environmental standards, but also prepares it for future challenges related to climate change and the transition to a green economy. Finally, environmental sustainability must be integrated into all aspects of economic development. Adopting green technologies, supporting renewable energy and reducing our carbon footprint are critical to ensuring long-term growth and preserving natural resources for future generations.

3. Involvement of the population and local communities:

Equally important is the development of human capital. Investments in education, science and technology should become a priority, because knowledge and innovation are the driving force of the modern economy. Upskilling the workforce, developing digital skills and supporting high-tech start-ups will contribute to the formation of a competitive economy in the global market. The use of crowdfunding platforms mobilizes the resources of the population and local communities, which not only provides additional financial resources, but also increases the level of social cohesion and involvement of the population in the reconstruction process. This contributes to the creation of a more sustainable and strong society, where everyone can contribute to recovery and development.

4. Multisectoral approach and complexity:

The model provides synergies between different sectors of the economy, including government, the private sector, non-governmental organizations and international partners. This approach makes it possible to use the strengths of each of

the sectors, ensuring better coordination and more efficient use of resources. This is especially important for large-scale reconstruction projects that require coordinated actions at different levels.

5. Innovative solutions for small and medium-sized enterprises (SMEs):

The introduction of innovative financial instruments, such as decentralized financial platforms and micro-financing through blockchain, contributes to the support of small and medium-sized businesses. SMEs are key to economic growth and job creation, especially in conflict-affected regions. These tools facilitate access to finance for SMEs, contributing to their recovery and development. This will require simplification of procedures for entrepreneurs, reduction of administrative pressure and improvement of access to financial resources. This approach will contribute to the creation of new jobs, increasing the welfare of citizens and reducing the level of unemployment.

6. Global economic ties and investment attractiveness:

Thanks to the integration of modern financial instruments, Ukraine can become more attractive to international investors and partners. This will help the country attract new investments, stimulate economic growth and provide a more stable financial environment. Rebuilding the economy with a focus on global standards and innovative approaches will help Ukraine better integrate into the world economy.

7. Adaptability to changing conditions and needs:

The proposed model is flexible and can be adapted to rapidly changing conditions and needs of different regions of Ukraine. This is especially important in post-conflict settings, where recovery priorities may change depending on the current situation. The model allows you to quickly respond to these changes and provide adequate support on the ground.

Conclusion. Taking into account all the above aspects, the proposed conceptual model is critically important for the successful post-conflict recovery of Ukraine's economy. It provides a balanced approach that combines the stability and reliability of traditional financial instruments with the possibilities and advantages of innovative technologies. This allows not only to restore the economy, but also to create a basis for its inclusive and sustainable growth in the long term. Thus, a comprehensive approach combining economic freedom, transparent public administration, development of entrepreneurship, strengthening of institutions and investment in human capital and environmental sustainability is the key to the success of the new Ukrainian economy.

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References:

1. Akselrod, R., Trach, R., Chernyshev, D., Ryzhakov, D., Petrukha, S., & Homenko, O. (2021). Innovative directions of updating the operating systems of construction companies in an unstable business environment of the project. *Management of Development of Complex Systems*, 48, 102–113. <https://doi.org/10.32347/2412-9933.2021.48.102-113>.
2. Cabinet of Ministers of Ukraine. (2024). *2024 Ukraine's reforms matrix*. <https://reformmatrix.mof.gov.ua/en/index/>.
3. Communications Department of the Secretariat of the CMU. (2024). *Government launches interactive Reforms Matrix website containing all the indicators, reforms content and their implementation schedule*. <https://www.kmu.gov.ua/en/news/uriad-zapustyv-interaktyvnyi-sait-matrytsi-reform-de-zibrani-vsi-indykatory-zmist-reform-ta-hrafik-ikh-vykonannia>.
4. Deineko, L., Kushnirenko, O., Tsyplitska, O., & Gakhovych, N. (2024). Consequences of full-scale military aggression of the Russian Federation for Ukrainian industry. *Economy of Ukraine*, 5 (726), 3–25. <https://doi.org/10.15407/economyukr.2022.05.003>.

5. Didukh, Y. (2022). Ecosystem approach to assessing the impact of threats and losses caused by military actions. *Visnyk of the National Academy of Sciences of Ukraine*, 6, 16–25. <https://doi.org/10.15407/visn2022.06.016>.
6. Iefymenko, T. (2023). Public Financial Management in martial time and post-war reconstruction of Ukraine: scientific support of transformations. *Finance of Ukraine*, 1, 7–25. <https://doi.org/10.33763/finukr2023.01.007>.
7. Ivanenko, D. (2024). International compensation mechanism of compensation for damages caused by the aggression of the russian federation. *Law Journal of Donbass*, 1, 116–120. <https://doi.org/10.32782/2523-4269-2024-86-116-120>.
8. Klymenko, K., Petrukha, N., & Petrukha, S. (2024). The Marshall's "green" plan for Ukraine: the financial, economic and regulatory context. *RFI scientific papers*, 1, 20–49. <https://doi.org/10.33763/npndfi2024.01.020>.
9. Klymenko, K., & Savostianenko, M. (2022). Approaches to assessing the consequences of russian military aggression and priorities for financial security of post-war reconstruction in Ukraine. *Finance of Ukraine*, 9, 53–78. <https://doi.org/10.33763/finukr2022.09.053>.
10. Kudrjashov, V. (2022). Infrastructure financing in the course of overcoming wartime consequences. *Finance of Ukraine*, 4, 46–66. <https://doi.org/10.33763/finukr2022.04.046>.
11. Melnikov, O., Petrukha, S., & Petrukha, N. (2021). Economic rural recovery: ratio of fundamental and applied aspects of scientific research. *Scientific Notes of «KROK» University*, 1 (61), 176–193. <https://doi.org/10.31732/2663-2209-2021-61-176-193>.
12. Ministry for Communities, Territories and Infrastructure Development of Ukraine. (2024). *Ukraine's recovery needs estimated at USD 486 billion: Updated RDNA3*. <https://www.kmu.gov.ua/en/news/potreby-ukrainy-u-vidnovlenni-otsiniuiut-u-486-miliardiv-dolariv-onovlenyi-zvit-rdna3>.
13. Ministry of Economy of Ukraine. (2024). *Issue «Ukraine: scenarios of restorative growth. Consensus forecast» (April 2024)*. <https://www.me.gov.ua/Documents/Detail?lang=uk-UA&id=731f83d7-6436-4d4c-8d8e-fbb241015362&title=Vipuskukraina-StsenariiVidnovliuvalnogoZrostannia-Konsensusprognoz-kviten2024->
14. Ministry of Finance of Ukraine. (2024). *Ukraine's State Budget Financing Since the Beginning of the Full-scale War*. https://mof.gov.ua/en/news/ukraines_state_budget_financing_since_the_beginning_of_the_full-scale_war-3435.
15. Petrukha, N., Petrukha, S., Alekseenko, N., Kushneruk, O., & Mazur, A. (2023). Social imperatives of public finance: war adaptation and principles of post-war recovery. *Financial and Credit Activity Problems of Theory and Practice*, 3(50), 358–371. <https://doi.org/10.55643/fcaptp.3.50.2023.4031>.
16. President of Ukraine. (2024). *This Is a Really Special Format of the G7, a Global Meeting That Brings Together Different Parts of the World – Speech by the President of Ukraine at the G7 Summit*. <https://www.president.gov.ua/en/news/ce-spravdi-osoblivij-format-g7-globalna-zustrich-yaka-obyedn-91489>.
17. Ryzhakova, G., Petrukha, S., & Kunytskyi, K. (2019). Institutional foundations and regulatory levers for the development of agricultural construction under conditions of systemic economic transformation. *Management of Development of Complex Systems*, 40, 147–155. <https://doi.org/10.6084/m9.figshare.11969082>.
18. Ryzhakova, G., Petrukha, S., Petrukha, N., Krupelnyska, O., & Hudenko, O. (2022). Agro-food value added chains: methodology, technique and architecture. *Financial and Credit Activity Problems of Theory and Practice*, 4(45), 385–395. <https://doi.org/10.55643/fcaptp.4.45.2022.3809>.
19. Shubalyi, O., Petrukha, S., & Kosinskyi, P. (2022). Financial and economic stimulation of the sustainable development of processing enterprises in wartime and postwar conditions. *Finance of Ukraine*, 12, 74–86. <https://doi.org/10.33763/finukr2022.12.074>.
20. Shubalyi, O., Petrukha, S., Kosinskyi, P., & Petrukha, N. (2023). Financial and economic stimulation of the development of the processing industry on the basis of the natural resource potential of the regions in the post-war period. *Finance of Ukraine*, 3, 55–74. <https://doi.org/10.33763/finukr2023.03.055>.
21. Shubalyi, O., Petrukha, S., Kosinskyi, P., & Petrukha, N. (2023). Formation of the information and analytical support system for the development of biofuel industries on the base of agricultural sector enterprises. *RFI scientific papers*, 3, 133–147. <https://doi.org/10.33763/npndfi2023.03.133>.
22. Ukraine Recovery Conference. (2024). *Conference Results*. <https://www.urc-international.com/conference-materials-urc-2024>.
23. World Bank Group. (2024). *Ukraine – Third Rapid Damage and Needs Assessment (RDNA3): February 2022 – December 2023*. https://documents.worldbank.org/en/publication/documents-reports/documentdetail/099021324115085807/p1801741bea12c012189ca16d95d8c2556a?fbclid=IwAR2-Ue7n92kGB8aQNoZ_-0Lu_reQXnBKbVPt2Uc__otzfxLu-vP_C89V2pA.
24. Берлінські плани відновлення України [Berlin plans to restore Ukraine]. (2024, June 13). Sivershchyna. https://siver.com.ua/news/berlinski_plani_vidnovlennja_ukrajini/2024-06-13-35827.
25. Верховна Рада ратифікувала Ukraine Facility Plan – план комплексного відновлення та змін на період 2024–2027 років [The Verkhovna Rada ratified the Ukraine Facility Plan – a comprehensive recovery and change plan for the period 2024–2027]. (2024, June 6). Decentralization. <https://decentralization.ua/news/18190>.
26. Загальна сума збитків, завдана інфраструктурі України, зросла до майже \$155 млрд – оцінка KSE Institute станом на січень 2024 року [The total amount of damage caused to the infrastructure of Ukraine has increased to almost USD 155 billion – KSE Institute estimate as of January 2024]. (2024, February 12). KSE. <https://kse.ua/ua/about-the-school/news/zagalna-suma-zbitkiv-zavdana-infrastrukturi-ukrayini-zroslo-do-mayzhe-155-mlrd-otsinka-kse-institute-standom-na-sichen-2024-roku>.
27. Міжнародний механізм компенсації збитків та контр-заходи держав-членів в рамках прийнятої Резолюції ПАРС [International mechanism for compensation of losses and counter-measures of member states within the framework

of the adopted PACE Resolution]. (2024, April 29). biz.ligazakon. https://biz.ligazakon.net/analytys/227343_mzhnarodniy-mekhanzm-kompensats-zbitkv-ta-kontr-zakhodi-derzhav-chlenv-v-ramkakh-priynyato-rezolyuts-par.

28. *Результати Ukraine Recovery Conference-2024: підписано та анонсовано міжнародної допомоги та угод на понад 16 млрд євро* [Results of the Ukraine Recovery Conference-2024: international aid and agreements worth more than EUR 16 billion were signed and announced]. (2024, June 12). Ministry of Economy of Ukraine. <https://www.me.gov.ua/News/Detail?lang=uk-UA&id=93cc36ca-2ede-4b7b-9548-4f1dcfca69df&title=RezultatiURC2024>.