

**COLLECTION OF RESEARCH PAPERS**

of the 7th International Research and Practical Conference

**CHEMICAL TECHNOLOGY:  
SCIENCE, ECONOMY AND PRODUCTION**

**ЗБІРНИК НАУКОВИХ ПРАЦЬ**

VII Міжнародної науково-практичної конференції

**ХІМІЧНА ТЕХНОЛОГІЯ:  
НАУКА, ЕКОНОМІКА ТА ВИРОБНИЦТВО**



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Збірник містить наукові праці учасників VII Міжнародної науково-практичної конференції «Хімічна технологія: наука, економіка та виробництво», що складаються з узагальнених матеріалів науково-дослідних робіт науковців різних галузей виробництва та наукових закладів України.

У збірнику висвітлюються актуальні питання спеціальної хімічної технології і виробництва боєприпасів, утилізації відходів виробництв різних галузей, енергозбереження, моделювання технологічних процесів, соціально-економічні аспекти виробництва та природокористування в умовах війни.

Збірник корисний робітникам хімічної промисловості, науковим співробітникам, аспірантам і студентам спеціальностей хіміко-технологічного та соціально-економічного профілів, фахівцям інформаційних технологій виробництва.

Наукові праці учасників конференції подаються в авторській редакції.

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## UKRAINE'S RECOVERY FROM THE WAR CONSEQUENCES: ECONOMIC MANAGEMENT AND DEVELOPMENT SCENARIOS

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**Introduction.** Russia's aggressive invasion has united Ukrainian society, and at the same time, there is a need for a rapid response to the unprecedented challenges posed by the realities of today. The external threats did not meet the expectations of the aggressor country, which relied on the complete economic collapse of Ukraine and destabilization of the financial and economic system, but there were negative consequences. The key problems for Ukraine's economy today are a decline in production, an increase in the number of unemployed, weakening of public finances, and threats to currency stability. Ukraine's recovery from the war consequences is a topical issue for both technical experts and economists.

**Scientific analysis.** The Ukrainian Institute for the Future presented a forecast of Ukraine's economy for 2023-2024. Economists have prepared two detailed scenarios - positive and negative. The latter, according to experts, is the baseline, i.e. the most likely.

According to the most likely negative scenario, a full-scale war in Ukraine will continue. However, by the first half of 2024, the active phase of hostilities will end. However, the risks of blackouts during the heating season, i.e. missile attacks on critical infrastructure, will remain.

According to experts, internal contradictions will grow in society and the government, and there will be no consensus on the strategy and vector of Ukraine's further movement.

The country's population, according to the above scenario, will decline by about 1.5-2 million people. The abolition of martial law will lead to the departure of men, and the danger will deter most Ukrainian migrants from returning.

There will be a crisis in the labor market. It is predicted that those who were unable to find work abroad will return to Ukraine. Here, they will need social assistance, which is an additional burden on the budget.

In terms of the quality of human capital, we are suffering serious losses, economists say. After all, those who left Ukraine and did not return usually have the knowledge and skills necessary and important for survival in the modern world.

As a result, there will be a crisis in the labor market and a growing shortage of skilled labor. Experts emphasize that Ukraine has long had a problem of professional degradation and a shortage of skilled labor, and the need for quality specialists will only increase with migration. Employers will compete for individual employees, raise salaries, and increase costs on benefits and bonuses.

Business will not be able to grow rapidly. Production will be concentrated around the military-industrial complex. Most industrial sectors will enter a "depressed" phase. This does not mean that production volumes will fall, but there will be no business development. Access to capital will be extremely limited, there will be no sources of financing, no investments, no business confidence in the future, no government support or incentives.

Investment activity will be extremely low, and the country may face a shortage of investment resources. The share of capital investment will not exceed 10-15% of GDP. This is critically insufficient to launch economic growth. There will also be almost no foreign investment. There are no incentives for capital accumulation.

The logistics problem will not be solved quickly. The proximity of the front line to the Dnipro River will greatly complicate river logistics. The undermining of the Kakhovka hydroelectric dam will make river logistics in southern Ukraine virtually impossible, which will also negatively affect the volume of sea transportation, as goods will have to be delivered to ports by other means of transport.

Experts predict that part of the economy may be "in the shadows" due to the increased fiscal burden aimed at providing the defense sector with resources. A significant share of businesses may migrate abroad.

As for the positive scenario, the probability of which economists estimate as low, Ukraine's economy will grow by 10-15% per year. Although the probability of positive changes in Ukraine by the end of 2024 is low, experts have considered the factors and events that could lead to the realization of the positive scenario and their positive effects on the economy.

Thus, in case of de-occupation of the territories to the pre-war borders and establishment of logistics, +3-5% real GDP growth per year is predicted:

creation of additional GDP due to the return of territories;

increase in exports, in particular through the use of maritime transport.

According to this forecast, the country will continue to receive significant aid ( $\geq$  \$30 billion per year) to restore transport, energy, and social infrastructure, and demining of territories - +3-5% of GDP per year. Recovery projects will be the first impetus for economic growth in 2024, in particular through investment, production growth, job creation, increased household income, and consumption growth.

The government's migration policy, with the launch of a preferential mortgage program, will help bring 2-3 million emigrants back to Ukraine, which will result in +7-12% growth in the consumption market and, accordingly, growth in demand, business income, tax revenues, and the economy as a whole.

Civilian infrastructure will open at full capacity (offline schools, clubs, sports clubs, etc.), which will help increase parental productivity and create new jobs in education and services.

Launching a program for the rehabilitation and resocialization of combatants and social programs to restore the mental state of Ukrainians, including children, in order to improve the quality of human capital in Ukraine will help increase the productivity of Ukrainians and accelerate GDP growth.

Economists point out that the probability of all these factors materializing at once is negligible. But a combination of several of them is quite likely, especially since some of them depend on the political will of the country's decision-makers. The main motivation for them should be the fact that the probability that we will win the war but lose the reconstruction is now extremely high, experts say.

Despite the ongoing war, the Ukrainian government, experts and partners are already actively developing plans for Ukraine's post-war recovery.

As of today, the President of Ukraine has already signed a decree establishing the National Council for the recovery of Ukraine from the consequences of the war. This is an advisory body whose duty is to develop a plan for economic recovery.

According to this plan, first of all, before rebuilding, Ukraine is trying to minimize all kinds of damage from the war in every way possible.

This includes relocating businesses from the war zone to safer regions, housing for temporarily displaced persons, and generally all measures aimed at ensuring that people and businesses continue to live and work, and thus keep the economy going.

The second important step is to document the damage. On the one hand, it is necessary to bring Russia to justice for war crimes in international courts, and on the other hand, such documentation helps to collect information about all the destruction and damage.

Then they can be categorized and plans for reconstruction can be developed. To determine the extent of the damage, it is first necessary to collect information about the damage, analyze it, and determine further actions based on this analysis.

The joint project of the Kyiv School of Economics, the Office of the President and the Ministry of Economy "Russia will pay" and the Ministry of Digital Transformation are documenting the damage caused by Russia's military aggression through the Diia app.

Anyone can submit information about the damage caused to Ukraine and its citizens by Russian troops: the destruction of infrastructure, housing, schools, looting, environmental damage, and much more. It is important that this collected information is then combined into a single register, which will be used to plan reconstruction.

Critical infrastructure will need to be restored immediately after the end of hostilities. In particular, power grids, roads, railways, gas supply, water supply, and the Internet. We need to rebuild schools and hospitals, provide at least temporary housing for those who have lost it.

At this stage, a lot of humanitarian aid will still be needed. Part of this can be done even before the end of the war - to restore the most important things in the territories liberated from occupation.

In the future, all efforts will need to be directed to the recovery of the economy as a whole and its stable growth. Significant attention will be paid to job creation. It is also necessary to keep in mind the support and development of entrepreneurship, a prudent financial policy, and strengthening of the energy sector.

As part of the post-war recovery, Ukraine will have to rebuild some cities from scratch. This will provide an opportunity to apply the latest urban planning and architecture approaches and make Ukrainian cities more comfortable and inclusive for their residents.

At the same time, in order to move towards the EU, we will need to continue the reforms started before the war and harmonize our legislation with the European one. We need to introduce a European certification system, continue large-scale privatization, anti-corruption and judicial reforms.

The reconstruction process will require significant financial investments, which raises the question: "Where to get the money?".

Reconstruction will need to be financed from all possible sources. The Ukrainian government has already created a number of funds for this purpose:

- Small and Medium Business Support Fund;
- Army Support Fund;
- Fund for Economic Recovery and Transformation;
- Humanitarian Fund;
- Public Debt Service and Repayment Fund;

#### Fund for Restoration of Property and Destroyed Infrastructure.

In the future, it would be advisable to consolidate all these funds into one. After all, it will be much more difficult to monitor the use of funds from 6-7 funds, which will create confusion and corruption risks. Therefore, a common Recovery Fund for all funds would be a good solution.

Europe has already started thinking about accumulating funds for Ukraine's recovery. The Energy Community has created a Fund for Ukraine to restore the energy infrastructure destroyed by the Russian war, with donors mainly from EU member states.

In filling these funds, Ukraine hopes to receive assistance from partner countries and international institutions such as the World Bank, the International Monetary Fund, the European Investment Bank, and the European Bank for Reconstruction and Development.

A separate area is the assistance of large international companies and charitable foundations.

Finally, part of the restoration costs can be covered by seized Russian assets, both in Ukraine and around the world.

Another theoretically possible source of funding is reparations from Russia. But they can only be discussed after the war is won and Russia surrenders and has to compensate for the damage.

Considering the experience of previous wars of the 20th and 21st centuries, Ukraine thinks about recovery in advance. It is not only about creating plans and funds for the future.

Critical infrastructure is already being rebuilt in the territories liberated from occupation. This allows the residents of the liberated territories to return home sooner, start working again sooner, and restore the economy faster.

It is crucial that this recovery is carried out in a moderate and transparent manner. Therefore, it is necessary that competent experts are involved in these processes and that money is spent efficiently and for its intended purpose.

**Conclusions.** The article considers possible ways of Ukraine's development and its recovery from the consequences of Russian aggression. The existing economic and demographic problems are revealed, ways of developing the Ukrainian economy and possibilities of financing Ukrainian industry and construction are proposed. A scientific analysis of forecasts for the country's economic development is made and a number of funds and programs that can participate in financing the Ukrainian revival are proposed.

Together we will win!

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