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STRATEGIES FOR ATTRACTING FOREIGN INVESTMENTS IN POST-WAR GREEN RECOVERY OF UKRAINE'S ECONOMY

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СТРАТЕГІЇ ЗАЛУЧЕННЯ ІНОЗЕМНИХ ІНВЕСТИЦІЙ У ПОВОЄННЕ ЗЕЛЕНЕ ВІДНОВЛЕННЯ ЕКОНОМІКИ УКРАЇНИ

Russia's military aggression has inflicted colossal economic losses on Ukraine, estimated at $9.6 billion as of December 2023. Additionally, the aggressor country may have caused up to 150 million tons of additional greenhouse gas emissions into the atmosphere, which can be regarded as climate damage. These emissions are typically not accounted for during wartime, but they have global consequences. Therefore, the crisis period the country is experiencing should open up new opportunities for economic transformation. In particular, the priority should be green recovery (or low-carbon rebuilding), which is based on the principles of sustainable development and can become a powerful catalyst for economic growth. This article aims to define the fundamental principles for developing a strategy to attract foreign investments in post-war green recovery. The research concludes that attracting foreign investments in green recovery is strategically important for Ukraine. This will help to rebuild the destroyed infrastructure, ensure sustainable economic development, enhance energy security, and improve the environmental situation. Key strategies for attracting foreign investments in Ukraine's post-war green recovery include creating an attractive investment climate, developing and promoting investment projects, engaging international financial institutions, and collaborating with the private sector. It has been proven that rebuilding the destroyed infrastructure and transitioning to a "green" economy requires significant financial resources, which can be secured through attracting foreign investments. It has been proven that foreign investors can bring modern technologies and expertise to Ukraine, enabling the modernization of the national economy and enhancing its competitiveness. It has been proven that foreign investments in green recovery will create new jobs in promising sectors such as renewable energy, energy efficiency, and environmentally friendly manufacturing. Attracting foreign investments in green recovery will enable Ukraine to transition to a sustainable development model that integrates economic growth, social development, and environmental protection. Considering the above points, future research should focus on studying countries' experiences that have successfully implemented green recovery programs and developed strategies for attracting foreign investments.

Військова агресія Російської Федерації завдала Україні колосальних економічних збитків, які станом на грудень 2023 року оцінювалися у 9,6 мільярда доларів. Крім того, країна-агресор могла спричинити до 150 мільйонів тонн додаткових викидів парникових газів в атмосферу, що можна розглядати як кліматичні збитки. Зазвичай їх не враховують під час війни, однак ці викиди мають глобальні наслідки. Відтак, кризовий період, який переживає країна, повинен відкрити нові можливості для трансформації економіки. Зокрема, пріоритетом має стати зелене відновлення (або низьковуглецева відбудова), яке базується на принципах сталого розвитку та може стати потужним каталіза-

тором економічного зростання. Метою статті є визначення основних засад формування стратегії залучення іноземних інвестицій у повоєнне зелене відновлення економіки України. У межах дослідження встановлено, що залучення іноземних інвестицій у зелене відновлення є стратегічно важливим завданням для України. Це дозволить не лише відновити зруйновану інфраструктуру, але й забезпечити стійкий розвиток економіки, підвищити енергетичну безпеку та поліпшити екологічну ситуацію. Серед ключових стратегій залучення іноземних інвестицій у повоєнне зелене відновлення економіки України можна виділити такі напрями: створення привабливого інвестиційного клімату, розробка та просування інвестиційних проєктів, залучення міжнародних фінансових інституцій, а також співпраця з приватним сектором. Доведено, що відновлення зруйнованої інфраструктури та перехід до "зеленої" економіки потребують значних фінансових ресурсів, які можуть бути забезпечені через залучення іноземних інвестицій. Іноземні інвестори здатні привнести в Україну сучасні технології та знання, що сприятиме модернізації національної економіки та підвищенню її конкурентоспроможності. Доведено, що іноземні інвестиції в зелене відновлення сприятимуть створенню нових робочих місць у перспективних галузях, таких як відновлювана енергетика, енергоефективність та екологічно чисте виробництво. Фактично, залучення іноземних інвестицій у зелене відновлення дозволить Україні перейти до моделі сталого розвитку, що поєднує економічне зростання, соціальний розвиток та охорону довкілля. Перспективи подальших досліджень полягають у вивченні досвіду країн, які успішно реалізували програми зеленого відновлення, та їхньої стратегії залучення іноземних інвестицій.

Key words: "green" economy; climate damages; economic losses; strategy; low-carbon recovery; large-scale projects.

Ключові слова: "зелена" економіка; кліматичні збитки; економічні збитки; стратегія; низько-вуглецева відбудова, масштабні проекти.

PROBLEM STATEMENT

The military aggression by the Russian Federation has inflicted not only colossal economic damage on Ukraine (estimated at $9.6 billion as of December 2023) [7]. The aggressor country has also caused up to 150 million tons of additional greenhouse gas emissions into the atmosphere, which can be considered as a climate damage (typically not accounted for during wartime, yet they have global consequences) [7]. Emissions from combat activities, including fuel consumption, are estimated at 37 million tons of CO2e. Additionally, 22.2 million tons of emissions were caused by fires (notably, the number of fires increased 36 times during the first year of the full-scale war compared to the 12 months before the invasion) [2; 7]. However, the largest source of war-related emissions is the potential emissions from the post-war reconstruction of damaged and destroyed infrastructure. These are projected to amount to 57 million tons of CO2e.

At the same time, these damages can be minimized through green recovery efforts. Thus, the crisis period that the country is enduring should open up new opportunities for transforming the economy. In particular, the priority should be green recovery (or low-carbon reconstruction), which is based on the principles of sustainable development and has the potential to become a powerful catalyst for economic growth. Through such a recovery, total emissions could be reduced by 30% or even 50% with proper incentives.

Therefore, attracting foreign investment in this sector is crucial for modernizing Ukrainian industry, creating new jobs, and enhancing the country's energy security.

The analysis of recent researches and publications. At the beginning of Russia's full-scale invasion, some Ukrainian experts expressed optimistic forecasts regarding the duration of the war and the pace of the country's recovery. However, with a year of Russian aggression ongoing and the continued destruction of Ukrainian territories, it means that economic and climate costs are rising. Ukrainian scientists are actively researching various aspects of the country's recovery.

Specifically, O. Bulyk has developed a detailed recovery plan that includes the following priority areas: restoration and modernization of housing and infrastructure, energy independence and transition to a "green economy," expansion of logistical connections with the EU, and macro-financial stability. Similar issues were addressed in the research by Becker T. B., Eichengreen Y., Gorodnichenko S., Goryev S., Johnson T., Milovano K., Rogoff, and B. Veder di Mauro.

One of the key elements of post-war recovery is attracting foreign investment. Post-war green recovery involves not only the restoration of damaged infrastructure but also a transition to more environmentally friendly technologies and energy sources. However, it is crucial to create a favorable investment climate, ensure trans-

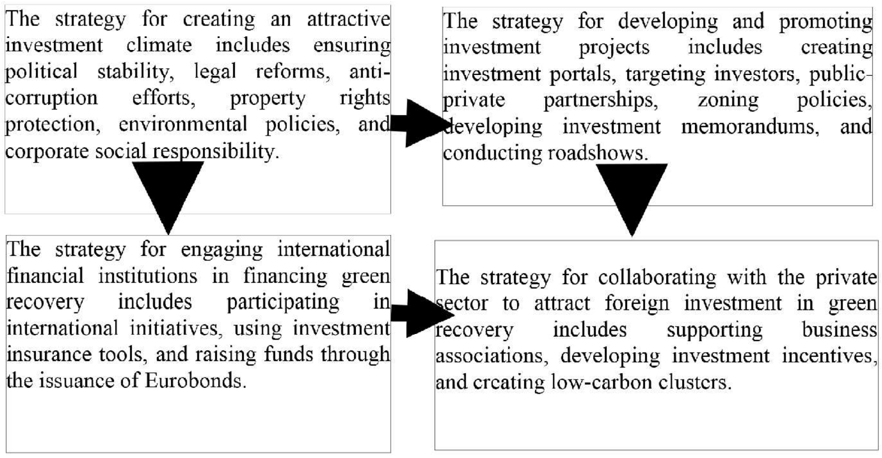

Figure 1. List and format of strategies for attracting foreign investment in the post-war green recovery of Ukraine's economy

Source: formulated by the author based on [1-2; 7].

parency, and uphold the rule of law to attract investment successfully.

Despite the extensive research on post-war recovery issues, there is still no unified and agreed-upon strategy. Most studies by researchers such as Tymoshenko N., Vyshnevskaya A., Pavlenko O.H., Nikolchuk Y.M., and Lopatovska O.O. focus on the potential for attracting foreign investment but rarely provide a detailed analysis of the specific mechanisms and tools for its implementation.

PURPOSE OF THE ARTICLE

The article aims to identify the fundamental principles for developing a strategy to attract foreign investment in the post-war green recovery of Ukraine's economy.

THE PAPER MAIN BODY WITH FULL REASONING OF ACADEMIC RESULTS

Post-war recovery in Ukraine involves not just rebuilding infrastructure, but also offers a unique opportunity to transition to a "green" economy. Green recovery is particularly relevant for Ukraine given the economic damage caused by military aggression, as well as the fact that the impact of the war on the climate is worsening each month due to combat activities, fires, infrastructure destruction, and other direct and indirect effects.

According to the European Climate Foundation (ECF), of the 150 million tons of additional greenhouse gas emissions released into the atmosphere, 12% were produced by civil aviation; 36% resulted from the reconstruction of damaged and destroyed infrastructure; 10% came from the operation of Nord Stream 1 and 2; 2% were due to the mass flow of refugees; 15% were caused by large-scale fires and explosions; and 25% were the result of active combat operations [7]. The most pressing issue is that large-scale attacks on Ukraine's electrical grid have resulted in significant uncontrolled leaks of SF_6 (sulfur hexafluoride) — a potent greenhouse gas that is more powerful than carbon dioxide, methane, and nitrous oxide [7].

On one side, Russia should compensate Ukraine for all damages (including climate damages) as reparations for the emissions caused by the war. However, neither international climate policy nor international humanitarian law provides a mechanism to compel such compensation. Currently, Ukraine, along with international allies, is developing an International Compensation Mechanism to fund reconstruction. At the same time, building a green economy in Ukraine is a cornerstone of the Association Agreement with the EU. Therefore, the fastest and most effective way to achieve green recovery is through the active attraction of foreign investment into Ukraine's economy.

It should be noted that the project "Support for Green Recovery in Ukraine" has already been launched, aiming specifically at post-war green recovery by attracting foreign investment, driven by the following advantages of foreign investors:

1. Foreign investors have access to substantial financial resources, enabling the mobilization of necessary funds for large-scale projects [4; 6].
2. Foreign companies are often leaders in developing and implementing innovative technologies in green energy, energy efficiency, and sustainable production [4].
3. Foreign companies have extensive experience executing large-scale projects in green recovery [5].
4. Investments in green recovery create new jobs in sectors such as renewable energy, energy

efficiency, eco-friendly transportation, and others [4].

Attracting foreign investment in green recovery is a strategically important task for Ukraine. It will help restore the damaged infrastructure, ensure sustainable economic development, enhance energy security, and improve the environmental situation.

Core strategies for attracting foreign investment in the post-war green recovery of Ukraine's economy include [1—3; 7]:

— Creating an attractive investment climate.

— Developing and promoting investment projects.

— Engaging international financial institutions.

— Collaborating with the private sector.

Each strategy is a set of measures that have a combinatorial nature and are implemented in high-carbon sectors or areas, as illustrated by the data in Figure 1.

The strategy for creating an attractive investment climate is a set of measures aimed at establishing conditions in the country that encourage foreign investors to invest their capital in economic development. This is an important tool for economic growth, creating new jobs, and improving the living standard in high-carbon sectors. The core components of such a strategy are outlined in Table 1.

Table 1. Core components of the strategy for creating an attractive investment climate

Core measures forming the action plan	Features of implementing measures that form the action plan	Example of implementing a measure
Political stability	Demonstrating resilience to external threats and ensuring transparent rules for investors.	Organizing regular international economic forums to showcase political stability and openness to investment
Legal reform	Further modernization of legislation regulating investment activities and reduction of bureaucracy.	Creating an online platform for business registration and permit acquisition, and streamlining procedures..
Combating corruption	Creating transparent decision-making mechanisms and strengthening accountability for corruption crimes	Implementing e-government in the investment sector and establishing independent anti-corruption bodies
Protection of property rights	Guaranteeing investment protection and providing an effective dispute resolution system.	Developing an effective investment protection system and ensuring judicial independence.
Environmenta l policy	Establishing favorable conditions for the development of eco-friendly technologies and implementing strict environmental standards.	Implementing a carbon emissions tax system and stimulating investment in clean technologies.
Corporate social responsibility	Encouraging companies to adopt environmental standards and social programs.	Establishing public-private partnerships to implement social projects.

Source: formulated by the author based on [2; 4—5].

The table of strategy components creating an attractive investment climate is fundamental and can be expanded and detailed according to the country-specific needs. The expected effects of implementing the outlined measures include:

1. Increased investor confidence and attraction of new partners.

2. Reduced time and costs of doing business and engagement of small and medium-sized enterprises.

3. Enhanced transparency, reduced corruption levels, and increased investor trust.

4. Reduced investment risks and attraction of long-term investments.

5. Decreased greenhouse gas emissions and development of a green economy.

6. Improved national image and attraction of social investments.

The strategy for creating and promoting investment projects involves a comprehensive action plan to develop, evaluate, and present investment proposals to potential investors. This plan covers all stages, from project idea formation to successful implementation in high-carbon sectors or areas. The core components of this strategy are detailed in Table 2.

The table of strategy components for developing and promoting investment projects in high-carbon sectors can be expanded and detailed according to the country-specific needs. In Ukraine, this strategy is still in the formative stage, but the DREAM investment portal has already been implemented [2; 7]. The platform at the London Recovery Conference was initially introduced, and beta testing of its functionality began in November 2023. By November 2023, the platform became accessible via an API, significantly easing its use for investors [7]. However, this is not enough, as the effects of implementing the outlined measures must be comprehensive and focus on decarbonization (i.e., reducing carbon dioxide and other greenhouse gas emissions into the atmosphere).

All projects should have a clear plan for transitioning to low-carbon technologies. Under these conditions, it is possible to create an economy where most processes incorporate "green" and climate elements, especially at the

Table 2. Core components of the strategy for developing and promoting investment projects in high-carbon sectors

Core measures forming the action plan	Features of implementing measures that form the action plan	Example of implementing a measure
Creation of investment portals	Convenient online platforms for finding investment opportunities	Creating an online platform where investors can find information about projects in the energy sector, including detailed technical-economic justifications and financial models *
Targeting investors	Identifying key countries and sectors for attracting investments.	Collaboration with international financial institutions (such as the IMF and World Bank) that specialize in financing green projects.
Public-private partnerships	Joint implementation of infrastructure and other projects.	Establishing a joint venture with a foreign company to build a new gas processing plant using carbon capture and storage technologies.
Zoning policy	Establishing research zones and clusters with simplified investment procedures.	Establishing research and development zones for green energy, where companies involved in renewable energy equipment manufacturing can collaborate with scientists, engineers, and businesses and benefit from simplified business registration procedures.
Development of investment memorandums	Creating detailed documents outlining the investment project, its market, financial metrics, and potential risks.	Developing an investment memorandum for biofuel production plant construction, including a detailed market analysis, cost and revenue estimates, and a project implementation plan.
Conducting roadshows	Organizing project presentations for potential investors in key financial centers.	Conducting a roadshow in European cities to attract investment for solar power plant construction.

Note
* Currently in the testing phase, the DREAM platform is a government electronic platform that collects, organizes, and publishes open data on all stages of recovery projects in real time.

Source: formulated by the author based on [1—2; 5].

local level. It is often related to the requirements or priorities of international partners, the search for alternative, decentralized energy sources, and the need to restore basic ecological infrastructure [7].

The strategy for attracting international financial institutions (IFIs) to finance green economic recovery is a set of measures aimed at securing financial resources from international organizations to implement projects focused on economic recovery and transitioning to a more sustainable and environmentally friendly development model. Currently, green projects are funded by organizations such as the World Bank, the European Bank for Reconstruction and Development (EBRD), the Asian Development Bank (ADB), and the Green Climate Fund [1—2]. During the military invasion, these organizations have increasingly begun to work with local communities and local non-governmental organizations. As a result, such collaboration has the potential to become multi-tiered. The strengthening of such collaboration is driven by the demands of communities needing to rebuild damaged or destroyed critical infrastructure or enhance resilience (e.g., preparing for winter without electricity or heating) [7].

Additionally, community organizations and international partners in local initiatives can immediately see the tangible results of their collaboration. The core components of such a strategy are outlined in Table 3.

It is important to note that engaging international financial institutions in financing green economic recovery is a complex and multi-layered process that requires a systematic approach and active involvement from various stakeholders [2]. Therefore, the proposed measures can only serve as a foundation for developing a more detailed and effective strategy tailored to each country. It may involve creating a national green investment agency, establishing a national taxonomy for green finance, promoting mechanisms such as "green auctions" for carbon emission permit sales, and establishing national green finance funds, among other initiatives [1].

The strategy for collaborating with the private sector to attract investment in green recovery is a set of measures aimed at leveraging financial resources and expertise from private companies to implement projects focused on economic recovery and transition to a more sustainable and environmentally friendly development model. Since we are discussing "cooperation with the private sector," it can involve domestic and international businesses. At the same time, we have provided the main components of such a strategy in Table 4. The best example of collaboration with the private sector was its involvement in 2023 in discussions on the new Regional Development Strategy, aimed at further attracting investments at the local level [7].

Attracting financial resources and know-how from private companies can accelerate the implementation of economic recovery projects and transition to a more sustainable and environmentally friendly development model.

Table 3. Core components of the strategy for attracting international financial institutions

Key measures forming the action plan	Features of implementing measures that form the action plan	Example of implementing a measure
Participation in international initiatives	Active participation in global initiatives such as the Paris Agreement and the UN Sustainable Development Goals. Collaboration with international organizations focused on climate change and green development.	Joining the "Belt and Road" initiative with a focus on green projects, and participating in COP conferences**.
Utilization of investment insurance tools	Securing government guarantees and investment insurance from international insurance agencies to reduce risks for investors	Collaborating with government export-credit agencies to insure investments in renewable energy projects
Raising funds through the issuance of euro bonds	Issuing green euro bonds to finance specific projects in the field of green development.	Issuing green euro bonds to finance the construction of a network of electric vehicle charging stations

Note

*The global infrastructure initiative proposed by China, which involves building transportation, energy, and other infrastructure projects connecting Asia with Europe and Africa.

**The Conference of the Parties (COP) to the UN Framework Convention on Climate Change (UNFCCC) is an annual meeting of government representatives, international organizations, businesses, and civil society to discuss global climate change issues.

Source: formulated by the author based on [1; 5; 6; 7].

Stakeholders-including the government, partners, the public, businesses, and local authorities — have yet to develop a green recovery understanding. Besides general statements about green recovery and the need to address climate and environmental issues, the public discourse in 2023 lacked a structured, substantive discussion on green recovery concept [7]. While strategies for attracting foreign investments in post-war green recovery have various focuses, the Ukrainian government should adhere to the principle of building back better and greener regardless of the specific approach or format.

The strategy chosen should be the one that most effectively accelerates the achievement of sustainable development goals, strengthens the country's energy security, creates new jobs in green sectors, enhances the competitiveness of the national economy, and minimizes the climate damage caused by the Russian invasion of Ukraine.

CONCLUSIONS FROM THIS STUDY AND PROSPECTS FOR FURTHER EXPLORATION IN THIS DIRECTION

The study confirms that attracting foreign investment for green recovery is strategically important for Ukraine. It will help restore the damaged infrastructure, ensure sustainable economic development, enhance energy security, and improve the environmental situation. Among the core strategies to attract foreign investments into Ukraine's post-war green recovery are: creating an appealing investment environment;

Table 4. The core components of a strategy for cooperation with the private sector to attract foreign investments in green recovery

Key measures forming the action plan	Features of implementing measures that form the action plan	Example of implementing a measure
Support for business associations	Establishing a platform for dialogue between the government, business, and international organizations. Involving associations in policy development and joint initiatives.	Establishing a Green Development Council that brings together government representatives, business associations, and experts.
Development of investment incentives	Creating favorable conditions for investing in green projects through tax incentives, government guarantees, direct investments, and special economic zones.	Introducing tax incentives for companies investing in renewable energy
Creation of low-carbon clusters	Concentrating efforts, resources, and expertise in specific geographic areas to develop green technologies. Collaborating among companies, research institutions, and universities.	Creating an electric vehicle manufacturing cluster in a specific region.

Source: formulated by the author based on [4—5; 7].

developing and promoting investment ventures; involving international financial organizations; and partnering with the private sector. Here are the conclusions drawn by the author:

1. Restoring the destroyed infrastructure and transitioning to a "green" economy requires significant financial resources, which can be provided by attracting foreign investments.

2. Foreign investors can bring advanced technologies and knowledge to Ukraine, enabling the modernization of the national economy and enhancing its competitiveness.

3 Foreign investments in green recovery will create new jobs in promising sectors such as renewable energy, energy efficiency, and environmentally friendly production.

Attracting foreign investment in green recovery will enable Ukraine to transition to a model of sustainable development that integrates economic growth, social development, and environmental protection. Given the above points, the prospects for further research lie in studying the experiences of countries that have successfully implemented green recovery programs and developed strategies for attracting foreign investment.

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