PUBLIC MANAGEMENT OF THE POST-WAR RECONSTRUCTION OF UKRAINE ON THE BASIS OF GREEN ECONOMY

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Introduction/background: Russia's war against Ukraine forced to change the traditional orientation of public administration in Ukraine, to define new priorities and develop a strategy for comprehensive economic reform and post-war recovery of Ukraine. Therefore, an urgent task for the modern public administration system is the development of mechanisms for the formation and implementation of the state policy for the development of the "green economy", which would harmonize the interests of the state, business and community, comprehensively integrate the development of the "green economy" into the process of improving the state economic policy of the country, create conditions for acceleration of the country's development, improvement of the level and quality of life of the population.
Aim of the paper: The aim of the paper is to formulate the key features of state regulation of the "green economy" to determine the directions of development of this concept in Ukrainian realities.
Materials and methods: Research materials and methods are based on the analysis of open data, their processing and use, as well as on the methods of systematization and system-structural analysis, which will allow formulating the received data in a unified format.
Results and conclusions: The green recovery of Ukraine should be considered as one of the possible concepts of post-war reconstruction, which is based on a holistic vision of the development of society, the economy and the state as a whole. Ukraine can take advantage of such opportunities to lay the foundations for future green growth. This goal can be achieved if the post-war recovery vision is "green". The conducted studies show that it is necessary to develop a state strategy that would, first of all, provide the thorough scientific research and the development of "green" technologies. To achieve this goal, two models of green restoration can be proposed.
Keywords: economic reconstruction, green economy, public administration.

1. Introduction

The concept of green economy has relatively recently appeared in the focus of scientific research. The reason for interest in the green economy was the initiatives of global and regional organizations that are looking for a way out of the multidimensional economic and environmental crisis deepened by Russia's war against Ukraine, in which most of the world's countries are involved. This crisis shows that a return to the previous state is impossible and a new concept of economic and social growth adapted to the changing global economy is needed.

The new economic model, in which the use of new material goods does not harm the environment, is not associated with a lack of natural resources, and there are no significant differences in social status, is called the "green economy", the basis of which is economic and social, and which involves strengthened interaction of the state and private business. Under such conditions, the state is tasked with equalizing the rules for the functioning of "green" products through the refusal of subsidies, policy reform and the creation of incentives that can strengthen market infrastructure and mechanisms. Also, the state can direct public investments to green public procurement. At the same time, the challenges for the private sector are changing – to find and use hidden opportunities for the transition to a "green" economy in key sectors, to invest and increase certain financing. The European Union's Europe 2030 strategy emphasizes sustainable development and a green economy as drivers of future development. The green and social economy plays a significant role in the structural changes of European economies.

The aim of the paper is to show how the concept of green and social economy can become a tool for expanding the possibilities of sustainable development and for characterizing the green economy as a new, more radical direction of the post-war reconstruction of Ukraine's economy to create a harmonious, balanced social and ecological development of the country. To achieve the aim of the paper, the analysis and a methodology based on a system approach is used.

2. Ukraine's losses from Russia's direct aggression as a catalyst for change

The cost of damages and losses from Russian aggression in Ukraine has already reached record levels, and the drop in real GDP in Ukraine is deeper than in most countries that have experienced armed conflicts (Перун, 2023).

At the same time, Ukraine managed to maintain macro-financial stability and attract significant amounts of international aid, which will have a positive impact on the prospects of post-war recovery.

Russia's military aggression against Ukraine caused large-scale destruction of production capital and infrastructure, brought human casualties and social losses. The war led to a reduction in jobs and incomes, a decrease in purchasing power and the amount of accumulated assets. In 2022, the national economy lost 29.2% of real GDP, and 13.5 million people were forced to leave their homes. More than 7 million people were below the poverty line, and the poverty level reached 24% of the population. Experts from the World Bank and the European Commission estimate the damage from the war in Ukraine in the period from February 24, 2022 to February 24, 2023 in the amount of 134.7 billion dollars USA, and the need for reconstruction – 410.6 billion dollars USA (Богдан, 2023).

According to estimates of the World Bank and its partners, the housing sector (38% of total damage), transport (26%), energy (8%), industry and trade (8%), agriculture (7%) suffered the greatest losses.

In the total amount of recovery needs (410.6 billion dollars USA), the transport sector occupies 22%, the housing sector 17%, the energy sector 11%, the sphere of social protection and means of subsistence 10%, solving dangerous situations 9%, agriculture 7%.

In general, economic losses from war include not only the destruction and damage of infrastructure, production facilities, public institutions, but also the loss of human capital and the expenditure of resources on military confrontation (Корогодський, 2023).

Table 1.
The cost of losses from military actions and needs on 02/24/2023 in billion dollars USA

Sector	**Damages**	**Needs**
Housing of citizens	50.4	68.6
Education and science	4.4	10.7
Health care	2.5	16.4
Social protection and means of subsistence	0.2	41.8
Culture and tourism	2.6	6.9
Energy and mining industries	10.6	47.0
Transport	35.7	92.1
Telecommunications and digital technologies	1.6	4.5
Water supply and water treatment	2.2	7.1
Municipal services	2.4	5.7
Agriculture	8.7	29.7
Industry and trade	10.9	23.2
Irrigation, water resources management	0.4	8.9
Finance and banking	0.0	6.8
Environmental protection and forests	1.5	1.5
Governance	0.3	0.6
Demining	-	37.6
Others	0.3	1.5
Total	134.7	410.6

Source: The World Bank, the Government of Ukraine, the European Union, the United Nations. "Rapid Damage and Needs Assessment"

In 2022, national budget expenditures on defence amounted to 23% of GDP, and in 2023 they should amount to 20% of GDP. Demographic losses from military operations are also significant, which are still difficult to estimate. But according to the results of the EBRD study in the world, even 25 years after the end of the wars, the population of the affected countries remained significantly smaller than in comparable countries without armed conflicts. The main components of these losses are the victims of military operations, the outflow of refugees and the decrease in the birth rate.

According to the EBRD, on average, war events result in a drop in GDP per capita by 9% relative to the pre-war level (Албул, 2023).

However, the most destructive and large-scale wars ended with a drop in GDP per capita by 40-70%. (Transition Report 2022-23).

In Ukraine, it is still too early to talk about the total drop in GDP as a result of the current war, but in 2014-2015, after the first act of Russian aggression, Ukraine already lost 15.8% of GDP, and in 2022, real GDP decreased by 29.2%.

In addition to thousands of deaths and the destruction of critical infrastructure, another, more invisible crisis related to Russia's invasion could haunt Ukraine for years – environmental damage. From shelling of chemical plants to forests burned by rockets, the consequences will be felt not only by the ecosystems of Ukraine, but also by its people. The environmental danger Ukraine faces as a result of the armed conflict is also exacerbated by the country's industrial background. Heavy industry is a significant part of Ukraine's economy, especially in the east of the country. The largest nuclear power plant in Europe is located in Ukraine, in the city of Zaporizhia, and Ukraine's industry accounts for almost 29% of its gross domestic product. One of the high-risk threats is tailings, where liquid industrial waste is stored. In total, there are 465 of them in the country, which store more than 6 billion tons of waste, and 200 of them are located in the east of Ukraine, the region most affected by the war (Impact of Ukraine crisis, 2022).

According to the calculations of the government of Ukraine, environmental damage has already amounted to 54 billion dollars USA. A significant part of nature conservation areas is under occupation, which means that the country's biodiversity is under threat. Green areas can turn into deserts. About 700,000 hectares of forest are currently under occupation. Of them, about 500,000 hectares are on the mainland of Ukraine and 200,000 hectares of forest – on the territory of the Ukrainian Crimea. About nine hundred objects of the reserve fund are under occupation and shelling. This is almost a million hectares of land, that is, 20 percent of all nature conservation areas of Ukraine. About 600 species of animals and more than 750 plants and fungi are threatened with destruction or partial destruction. The total losses from the contamination of Ukrainian soils with chemical substances have already exceeded 15 billion hryvnias, and the losses from the contamination with war waste, according to preliminary estimates, have reached eight hundred and sixty billion hryvnias. We are talking, in particular, about the remains of equipment, ammunition and broken

infrastructure. Due to water pollution, Ukraine has already suffered losses of over 58 billion hryvnias (Екологічні наслідки, 2022).

The conducted research showed that the average level of cumulative losses of real GDP during the war was 40%. At the same time, the average drop in real GDP in the 1st year of the war was equal to 20%, and the drop in Ukraine's real GDP in 2022 reached 29.2%, the decline in industry – 38%. This speaks both to the brutality and massive destruction from the Russian aggressor, which Ukraine suffered, and to the low adaptive capacity of the Ukrainian economy to the conditions of martial law and the lack of broad state support.

Table 2.
The annual rate of decline in real GDP in the first year of military operations in the geographic territory in %

No.	Country and the first year of hostilities	The rate of change of real GDP in %
1.	Iraq (1991)	-60.2
2.	Austria (1945)	-58.7
3.	Ukraine (2022)	-29.2
4.	Germany (1945)	-28.9
5.	Bosnia and Herzegovina (1992)	-28.8
6.	Japan (1945)	-24.6
7.	Croatia (1991)	-22.0
8.	France (1940)	-17.5
9.	Iraq (2003)	-16.0
10.	the USSR (1941)	-13.9
11.	the Netherlands (1940)	-11.9
12.	Italy (1943)	-9.4
13.	Ukraine (2014)	-6.6
14.	Finland (1939)	-4.3
15.	Georgia (2009)	-3.7

Source: Maddison Project Database, State Statistics Service of Ukraine

The Great War dealt a significant blow to the economy of Ukraine. Only in the third month of the full-scale invasion, total losses reached 100 billion dollars USA, which is equal to 50% of the total amount of GDP in 2021 (У НБУ, 2022).

According to UN estimates, the war destroyed 35% of Ukraine's economy. Due to the Russian invasion, the monthly budget deficit of Ukraine is estimated at 5 billion dollars USA (Коваленко, 2023).

Ukraine's economy shrank by more than 35% in 2022 due to the massive destruction of infrastructure, including rail and other connections with neighboring countries, road networks and bridges. Production and trade activities are disrupted; there are large losses of labor force due to migration or conscription into the army.

3. "Green economy" as a way of future development of Ukraine

Scientists believe that the economy depends on the natural environment, of which it is a part and in which it exists. Such an economy is not only a new economic trend. It is also considered as a direction of sustainable development, which combines the following components: ecological, economic and social. Among these components, priority is given to environmental ones (Маковоз, Передерій, 2018).

Thus, in the studies of the international organization UNEP, it is noted that the concept of "green economy" "...can solve current tasks and provide opportunities for the strategy of economic development of all nations" (Key World Energy, 2012, p. 8).

The need to change the economic model of Ukraine's development is also caused by the fact that the traditional model predicted growth only with increasing costs of natural resources. There was a need to change approaches in the economic model, which would predict the dependence of growth not on the growing costs of resources. The "green economy" model envisages growth together with environmental sustainability, the transition to which requires an investment of 2% of global GDP by 2050. Green investments can ensure rational resource management. In the world, many countries have implemented the principles of green economy. Thus, Korea was the first to define the green economy as a national strategy. Many countries are increasing investment in renewable energy. In South Africa, a tax on polyethylene bags has been introduced, in Brazil 95% of aluminum cans are recycled, 55% of plastic bottles, 50% of glass and paper are reused («Зелена» економіка, 2019).

Despite the fact that the green economy is a global economic model, it involves the development of production at the local level, an emphasis on secondary use, and the restoration of natural self-regulation. Development that is ecologically oriented requires innovative approaches and changes in public interests. In the conditions of increased importance of socio-economic regional development and decentralization of management, there is a need to manage environmental protection, rational use of natural resources and ensuring the safety of human life (Галушкіна et al., 2017).

Reducing risks for the environment is associated with solving the problem of resource scarcity and minimizing the occurrence of negative consequences not only for enterprises, but also for vulnerable groups of the population («Зелена» економіка, 2019).

The transition to a "green economy" requires the joint efforts of different countries, because under the conditions of such coordinated, defined and predictable cooperation through market and political instruments, it becomes possible to achieve higher results. Both the state and the private sector must make voluntary commitments to the green economy, which may go beyond the national framework of individual states. The tasks that can be achieved through greening include the following: reducing the scarcity of resources and environmental risks, strengthening progress in the economic sphere, social justice, increasing well-being («Зелена» економіка, 2019).

Without radical changes in the structure of society, production and life in general, it is impossible to build a model of a green economy that would ensure sustainable growth. Ukraine must change its own institutions, introduce corporate responsibility. Solving socio-economic problems is related to income policy, financial and budgetary policy, which should stimulate economic growth, control financial flows, ensure investment and structural changes, and develop trade agreements at the international level. The state should develop ecological politics that would focus on natural and social justice, as well as the satisfaction of current important needs, taking into account the interests of the future (Гаврилюк, 2015).

4. Analysis of recent research and publications

Theoretical and practical aspects of the "green economy" concept are studied by such scientists as: E. Barbier, A. Cameron, A. Markandya, C. Stewart, and D. Pearce (Cameron, 2012; Barbier, 2010; Pearce, 1989).

Ukrainian scientists Y. Berezhna, O. Veklych, I. Bystryakov, T. Galushkina, B. Danylyshyn, A. Kachynskyi, L. Musina, V. Potapenko, A. Martyniuk, Y. Ogarenko, and N. Shlapak made a significant contribution to the study of theoretical and practical aspects of the "green economy" concept (Гаврилюк, 2015; Гарлицька, 2017; Гончаренко, 2020; Горянська, 2019; Гура, Гуцан, 2017).

That is, the "green" economy can be considered a type of economy that is oriented towards the coherence of economic development and the ecosystem, taking into account the capacity of the latter, the restoration of which is one of the primary permanent tasks of the state's development. The creation of a "green" economy means the inclusion in the production process of the natural component of consumption (use of resources), constant reproduction and preservation. The reproduction itself must take place on a permanent basis with the restoration of the natural environment, which does not allow it to be fragmented or episodic. The principles of the "green" economy include the following:

- Harmonization of "nature-production-human" relations with coordination of economic, ecological and social priorities;
- Protection from the destructive impact of production on both people and nature;
- Provision of life activities in the present and future periods;
- Ensuring economic and socio-cultural growth, taking into account environmental safety (Марчук, 2014).

The main principles of the functioning of the "green" economy include the use of alternative sources of energy, fuel, ecologically clean production, the use of technologies in economic activity that make possible to save resources, along with the implementation of programs for the purification of natural resources, processing and disposal of waste.

At the state level, such an economy will contribute to development and integration processes, in particular, European integration. It is believed that existing environmental challenges can be addressed using environmental finance through:

- Achieving a balance in the use of natural resources, including fuel and energy, which provides for the transition to the consumption of alternative energy, regional balanced use of energy resources;
- Forecasting the growth of the population and forecasting the need for energy consumption, which will make possible to choose an ecological way of obtaining energy and preserving resources to meet the needs of future generations (restoration of the biosphere, in particular, the Earth's biomass);
- Consideration of the economic system of human development as a part of the biosphere and the processes that take place in it. As a result, there is a need to reformat the theoretical basis of economic development (Гарлицька, 2017).

Examining the concept of "green economy", we can conclude that such an economic system, together with the reduction of environmental risks, contributes to the increase of public welfare and provides social guarantees. The task of the green economy is to create a political program that would be operational and promote the emergence of such sources of economic growth that would be compatible with ecosystems.

Green economy measures are divided into economic and non-economic, such as:

- Assessment of the value of natural resources in accordance with the requirements of sustainable development;
- The investment policy of the state, which is oriented towards green technologies, infrastructure, restoration and increase of natural capital;
- Lack of provision of environmental subsidies, which are ineffective and used in unsustainable activities (agriculture, fishing, forestry and water management, etc.);
- Implementation of public procurement in the field of production of ecological products;
- Tax reforms in terms of priority on taxation of pollution, not labor force;
- Removal or reduction of trade barriers for ecological goods;
- Maintaining research on the creation of environmentally friendly technologies (Горянська, 2019).

Thus, the domains of the green economy are:

- Resource management.
- Renewable energy sources.
- Energy and material saving.
- Clean technologies and clean production
- Biodiversity protection.
- Corporate social responsibility
- A sustainable model of consumption and production.

According to B. Ryszawska, key areas for a green economy include: renewable energy, clean technologies, energy-efficient (energy-saving) construction, public transport, waste management and recycling, sustainable use of land, water, forests and ecotourism (Ryszawska, 2013).

5. State management of the transition to green economy

The task of the state is to create the conditions for both business and society in general to transition to a green economy using green technologies. The main tasks to be performed in Ukraine include the following:

- To modify the system of national accounts to assess progress through integrated environmental, economic and social indicators;
- To change the tax policy, canceling "dirty" subsidies, supporting green sectors;
- To develop infrastructure, primarily public transport;
- To carry out territorial planning in accordance with the developed development models (Гончаренко et al., 2020).

Growth in the green economy involves both public and private investment aimed at increasing the efficiency of resource use, and investment requires government support and incentives. The state is also entrusted with the function of implementing a fair pricing and tax system that would stimulate resource conservation, maintaining environmental standards, technical regulations, and subsidizing energy resources. The effectiveness of actions should be evaluated through a system of indicators and used for making political decisions (Галушкіна et al., 2017).

As for Ukraine, the directions for the implementation of the green economy are as follows:

- Use of resource potential on a rational basis;
- Diversification of energy supply sources;
- Environmental protection;
- Production of agricultural products of organic origin;
- Modernization of the housing and communal sphere;
- Formation of environmental awareness and behavior of the population (Гура, Гуцан, 2017).

State regulation provides the implementation of such ecological principles of economic activity that would accelerate economic growth and contribute to the emergence of transformational changes. Such a policy should be established in programs, plans and strategies, discussed by various contact groups, and approved by authorities. Under such

conditions, an increased return on investments is possible. Individual states are developing strategies for mitigating the consequences of climate change, developing, first of all, organic production. In state regulation, several political directions are implemented, which require the development of separate blocks. The developed regulatory system with defined goals, principles and tasks should become the basis of the concepts of "green economy", which should be taken into account in development strategies. Specific regulatory instruments that will be used to achieve the set plans and fulfill the tasks should be developed. The effectiveness of state regulation should become an object of monitoring (Кумачова, 2015).

State policy should provide the assessment of the economic effect not only on the basis of GDP, but also through the use of other tools. The banking system should function in order to create greater public utility. State policy in the field of "green economy" is oriented towards long-term tasks, solving not only economic, but also social and environmental problems. This requires both state institutions and management mechanisms that emphasize ecological principles and processes. It is a mistake to think that the green economy is exclusively aimed at greening. Such a model primarily requires social changes. In the conditions of globalization, when the processes in one state are integrated and dependent on the processes in another, the problem of using limited resources intensifies, and the issue of solving the problems of society's existence within the limits of the entire planet arises. Accordingly, the theory of the "green" economy, according to most scientists, is the tool whose use will make possible to solve problems common to many countries, focus on the long term, find innovative ways to use existing resources sparingly, and thereby ensure economic growth (Ульянченко, Єфанов, 2019).

The "green" economy, as a type of economy, is closely related to environmental and social policies, aimed at satisfying the constitutional rights of citizens, which is regulated by the main law of the state – the Constitution of Ukraine. It was determined that the state has an obligation to its people to ensure environmental safety, to maintain ecological balance throughout the entire territory of the state. The main basis of the state's activity should be the preservation of the gene pool. The land cannot be harmed, the ecological situation can deteriorate (Конституція України від, 28.06.1996).

The Cabinet of Ministers of Ukraine, as the central body of executive power, is entrusted with the responsibilities of ensuring the economic independence of the state, which can be achieved through the implementation of tax policy, as well as investment, financial and price policy, simultaneously with the policy of environmental safety and nature management (Конституція України від, 28.06.1996).

To fulfill the constitutional tasks, the Cabinet of Ministers of Ukraine defines and approves the strategies of its activities. In accordance with the strategy defined for the period until 2030, several such directions are taken into account:

- The tax system – the implemented environmental tax needs to be reviewed, as there is a need to increase its effectiveness;
- Energy security – increasing independence through the activation of production of own energy carriers, diversification in the supply of energy resources taking into account different sources and routes; development of mainly renewable and low-carbon energy sources, availability of reliable and ecological energy for all consumers;
- Environmental policy – determination of quotas for greenhouse gas emissions, control of industrial pollution, implementation of a system of integrated permits for large polluters; carrying out reforms regarding the waste management system, increasing volumes of not only waste sorting and processing, but also reuse; reducing the degree of use of plastic products, including disposable ones; ensuring sustainable development of forestry; greening of the economy due to increased effective use of funds received from the actual volumes of emissions, discharges, placement of waste;
- Rational use of the subsoil – ensuring the development of natural resource potential on a sustainable basis; formation of a transparent, non-discriminatory, investment-attractive sphere of subsoil use; increasing critical and strategic reserves of the mineral and raw material base, in particular through the introduction of electronic bidding on the basis of competition, the digitization of geological data, the introduction of an economic passport for every Ukrainian citizen, on the basis of which it will be possible to receive a share of the exploited natural resources (Програма діяльності, 2020).

The Government of Ukraine defined the relevant priorities in its activities, which include the following:

1) Introduction of the principles of sustainable development into national legislation through consideration of greening, primarily in budget and tax legislation;
2) Constant institutional improvement of the management system in the sphere of resource use and environmental protection;
3) Involvement of a wide range of public participation in decision-making regarding environmental protection, ecological safety and the use of natural resources;
4) Ecological education and upbringing, which will provide an opportunity to form ecological consciousness;
5) Development of the economic mechanism in the field of nature management and its improvement;
6) Strengthening cooperation in the international environment, harmonization of legislation;
7) Creation of an effective system for monitoring the use of resources and the environment;
8) Strengthening of control over compliance with legislation in the field of environmental protection activities both by the state and the public (Розпорядження Кабінету Міністрів, 2021).

Determined priorities and strategic directions cause the need for legislative changes. Laying the foundations for environmental protection legislation requires the cooperation of all branches of government. Therefore, a number of codes were adopted in Ukraine (in various areas of natural resources: land, forest, water, subsoil), as well as laws on the environment, atmospheric air, animal life, environmental expertise, radiation safety (Галушкіна et al., 2017).

Increasing efficiency in environmental policy, compliance with international standards and requirements together with the use of economic tools will provide an opportunity to stimulate enterprises to implement various innovative environmental technologies, and accordingly contribute to "green" state development (Галушкіна et al., 2017).

"Green" economy primarily involves risk management in the field of ecology, which is associated with various economic areas of activity. Since Ukraine has ratified many international agreements, it has simultaneously undertaken to adhere to sustainable low-carbon development and to adapt to climate change, which has a negative impact on the environment. Environmental problems also create problems in the economic security of the state, since the resource potential is very high (availability of sources, the number of minerals), and state management is inefficient (outdated equipment, high wear and tear of funds, outflow of qualified personnel), then work in the field of subsoil use is very ineffective (Про Основні засади (стратегію), 2019).

Environmental principles are also taken into account in the priorities of innovative activities at the state level, namely: new technologies in energy transportation, the introduction of technologies that are not only energy-efficient, but also resource-saving, the preference for alternative energy sources, the development of new technologies in high-tech industries, in particular in relation to production, processing various materials and their connections, the development of robotics, information and communication technologies using the achievements of modern science (Галушкіна et al., 2017).

Ecological economy involves the implementation of such a tax reform strategy that would provide an opportunity to create jobs and preserve the environment. This becomes possible due to the transfer of the tax base from the income of the enterprise and the wage fund to the consumption of natural resources, the implementation of harmful emissions. Such a transfer contributes to the growth of wages, stimulation of investments in innovation, reduction of natural resource costs, which is achieved due to the reduction of the use of materials in production, reduction of energy costs, which also affects the reduction of harmful emissions (Галушкіна et al., 2017).

Sustainable development strategies are being developed in Europe, which are focused not only on the green economy, but also provide the creation of new jobs. At the same time, attention is focused not only on sustainable development, but also on the aging of the population and resource conservation. Growth in the green economy is considered together with innovation and competitiveness. A competitive, resource-saving, low-carbon, socially

oriented economy with high employment is defined as the goal. In accordance with the adopted unified European strategy, each state develops its own development strategies. Innovative state European programs in the field of "green" economy include:

- Road map of the transition to a competitive low-carbon economy;
- Energy efficiency plan;
- Road maps for the development of the electric power industry, the transition to resource efficiency;
- Programs for the development of research, regional development, competitiveness, and innovation (Галушкіна et al., 2017).

Mobility and efficiency are considered key features of resource utilization. "Green" economy is considered as a factor in opening up new opportunities in business, increasing employment, and in general – strengthening national strategies. International organizations are developing incentives (investment and fiscal), implementing political reforms to ensure the transition to a "green" economy. The implemented energy and climate packages should significantly reduce greenhouse gas emissions, first of all. Environmental sustainability in the economy should be achieved through:

- Protection, development and preservation of natural capital;
- Development of a resource-saving and competitive low-carbon economy;
- Protection from environmental risks and pressures;
- Increasing the efficiency of response and challenges in the field of ecology and climate;
- Compliance with the full responsibility of polluters with compensation for damages (Галушкіна et al., 2017).

Regulatory and legal support for the functioning of the "green" economy is formed at the national and supranational levels, since environmental problems and subsoil use, life and health of the population do not have exclusively local significance. The "green" economy of one state affects another, so cooperation between different countries and harmonization of legislation is important for the conservation of resources, development of technologies and creation of new jobs.

The plan for the economic recovery of Ukraine, presented by the Office of the President and developed jointly with the Cabinet of Ministers, includes the abandonment of the commodity economy and climate modernization. The plan is built on nine key principles and provides for full access to the markets of the EU and G7 countries.

The economic recovery plan of Ukraine provides:

- Acquisition of candidate status, and then full membership in the EU;
- Building the economy on the basis of deregulation and liberalization. A declarative principle for business has already been adopted for most licenses and permits;

- Creation of logistics routes in the western direction. The government is working on expanding their bandwidth. There are already the first results – a corresponding memorandum was signed between Ukraine and Poland;
- Transition from export of raw materials to processing in industries that provide the largest export earnings. In agriculture and metallurgy, thanks to processing, it will be possible to achieve the significant growth;
- Development of the domestic military industry. It is not only about the purchase of weapons, but also about production, in particular through the transfer of military technology;
- Self-sufficiency in energy will be achieved by increasing the production of own gas and the development of nuclear energy. It is quite possible to achieve energy independence in 3-5 years;
- Climatic modernization. The creation of new facilities in various industries must take into account the principles of the "green" economy;
- Localization of at least 60% of Ukrainian companies and manufacturers, which will be involved in the renewal of Ukraine. This will give an impetus to the economy, create new jobs, and revive entrepreneurial activity (План відновлення, 2022).

A successful solution for the recovery of the country will be the integration of the Ukrainian economy into the EU economic system. Various European logistics and infrastructure projects can help in this. For example, the inclusion of Ukrainian logistics routes (road, rail, air and water) in the European logistics networks under the TEN-T program (in July 2022, the European Commission included Ukrainian logistics routes in the indicative maps of the project), reconstruction of existing and opening of new checkpoints on borders with European states, transition of the railway to the European format track standard, etc. While hostilities continue, Ukraine and EU countries are negotiating the liberalization of freight transit from Ukraine to Europe, the creation of "Solidarity Roads" for the export of grain and import of necessary goods, support of Ukrainian export of goods through European ports, etc. All these developments will remain relevant even after the end of the war (План відновлення, 2023).

Localization of production can become an important condition for full-fledged post-war development for Ukraine – at least 60% of products must be produced within the country. This point is indicated in the plan for the recovery of Ukraine after the war, which was approved by the specialized committee of the Verkhovna Rada in May 2022 (План відновлення, 2022).

The plan is designed for 10 years and aims to strengthen European integration and support private initiatives (War-Torn Ukraine, 2022).

In the context of the concept of "green economy", whole economic systems should be taken into account, and not only individual sectors, since the system covers all processes and infrastructure related to a certain natural resource or activity.

Ukrainian officials and architects are already thinking about how to rebuild cities destroyed by the Russian invasion in a way that is also environmentally friendly and helps fight climate change. Reconstruction can be a good chance for Ukraine to move away from ineffective or morally outdated practices of both Soviet and modern planning of public space. Reconstruction should take into account the historical legacy and the modern context: real needs of people, landscape features.

The reconstruction of the country is not only the restoration of physical objects. Already now, Ukraine needs qualified and experienced workers, and after the victory, this issue will become even more urgent. Therefore, the government should do everything to ensure that Ukrainians can live with dignity in their country, and not abroad. According to various data, the number of Ukrainians in EU countries is approximately 5.5-7 million people. About 3 million were working or studying abroad even earlier, before the full-scale war. According to a survey by the sociological group "Rating", 90% of Ukrainian citizens do not plan to move abroad for permanent residence (П'ятнадцяте загальнонаціональне опитування, 2022).

However, only half of the surveyed Ukrainians see the future of their children in their native country, if the danger will remain in the future, according to a survey of the Kyiv International Institute of Sociology (Лише половина, 2022).

Since April 2022, the number of those returning to Ukraine is greater than those leaving it. Among the reasons: the desire to return to the family, the feeling that the region of residence has become safer, etc. Someone returns because they do not have permanent housing and work abroad. And some still remain in other countries. Sociologists tell different figures: from 5% to 10% of the total number of those who left. These people will probably remain abroad in the future (Будрін, 2022).

The Ukrainian government is working on ways to encourage citizens to return to their homeland: negotiations are underway with EU countries on the possibility of providing refugees with financial support for a certain period after returning to Ukraine. They are also discussing the provision of additional funding to hire Ukrainians for jobs that will help rebuild the state, as well as the creation of temporary basic income programs for those who will return home. In particular, some of these aspects are already foreseen in the project of the Recovery Plan of Ukraine (Охріменко, Попов, 2022).

Taking into account the failures and risks of other countries will help Ukraine to better cope with the challenges of reconstruction both during and after a major war. For example, the authorities should not repeat the mistakes of not creating a single platform for coordinating the organizations that helped in the reconstruction, so that significant investments – donor – did not come to Ukraine.

6. Conclusions

Thus, the current vision of the post-war reconstruction of Ukraine by the Government of Ukraine and international partners is only being formed. In particular, recovery will involve not only overcoming the direct consequences of the war, but also a comprehensive plan for the development of the state in the medium term. At the same time, it seems that the vision of such a recovery by the government of Ukraine and international partners does not contain sufficient and effective green elements, which may for a long period reduce the opportunities of individual sectors from modernization and sustainability.

Therefore, the green recovery of Ukraine should be considered as one of the possible concepts of post-war recovery, which is based on a holistic vision of the development of society, the economy and the state as a whole. Ukraine can take advantage of the opportunities created by post-war recovery to lay the foundations for future green growth. This goal can be achieved if the post-war recovery vision is "green".

To achieve the goal, two models of green recovery can be proposed: optimistic and pragmatic. Both models are quite rational and feasible, although they differ in their level of ambition. The optimistic model assumes that the main goals are green (climate-neutral or green economy, green growth, sustainable agriculture, etc.), as well as the processes for achieving them. The optimistic model of post-war recovery can be briefly described as the Green Course of Ukraine. Its vision is "Green Ukraine as part of a global climate-neutral economy".

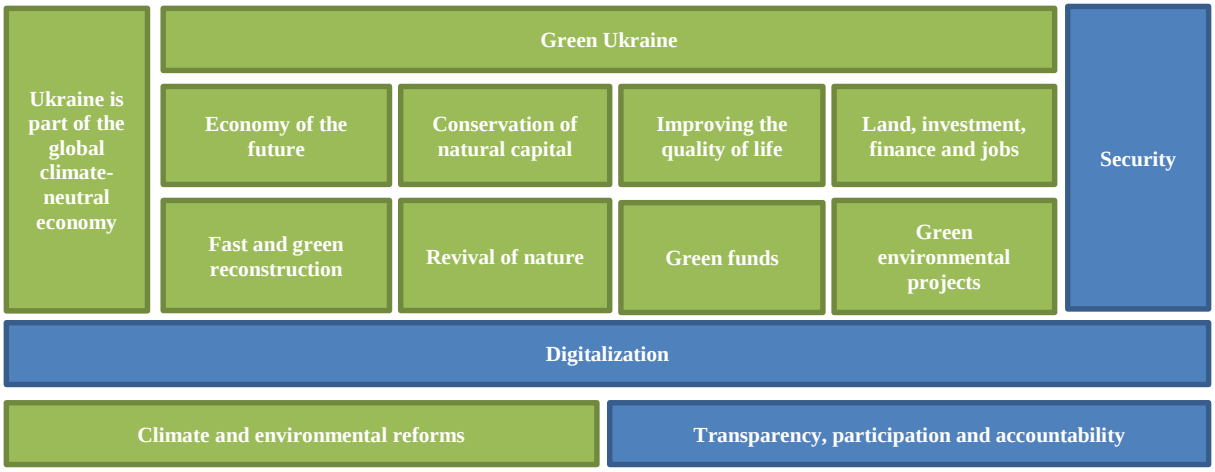

Figure 1. The architecture of an ambitious model of green recovery of Ukraine.

Source: Developed on the basis Зелене повоєнне відновлення України: візія та моделі. Аналітична записка. Серпень 2022 р.

General and sectorial principles of an optimistic green recovery model may include:

- Building the economy of the future: economic growth on the basis of decoupling, when macroeconomic indicators increase, and the pressure on natural capital decreases. In particular, this involves the growth of indicators of carbon productivity of the economy, water productivity, reduction of specific indicators of waste generation and water and air pollution, development of a circular economy;
- Preservation of natural capital, including management of water and land resources and preservation of biodiversity;
- Improving the quality of life, including the ecological quality of life of the population;
- Creation of conditions for green investments and innovations, state support of green sectors in priority areas, creation of green jobs.

Instead, the pragmatic model is a green tool for achieving goals that cannot always be classified as "green" (for example, energy independence, energy security, etc.). The key function of the pragmatic green model of Ukraine's recovery is to "green" the recovery process, prevent long-term negative consequences from the point of view of Ukraine's green growth and ensure the implementation of individual priority strategic initiatives in this area.

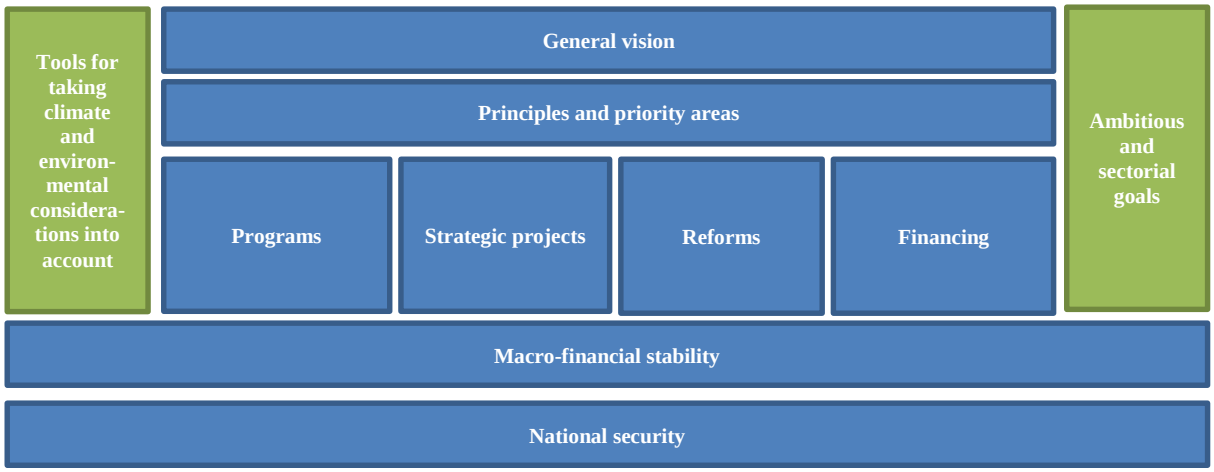

Figure 2. The architecture of a pragmatic model of green recovery of Ukraine.

Source: Developed on the basis Зелене повоєнне відновлення України: візія та моделі. Аналітична записка. Серпень 2022 р.

From the point of view of the elements of the pragmatic model of green recovery, they have the character of end-to-end integration of green issues in post-war recovery through the inclusion of relevant principles. The main tools of the pragmatic green model should be:

- Effective mechanisms for taking environmental considerations into account during decision-making, especially at the initial stages of recovery;
- Clear green financing conditions for selected objects or directions.

It is these elements that should create effective road signs to ensure the implementation of the principles of the green economy.

The conducted analysis of the modern Ukrainian economy confirmed the need for systematic "greening" of all industries in order to achieve long-term competitive advantages on a global scale. Such transformations will allow not only to improve the state of the environment, but also to increase the well-being of the population and the stability of the economy in the face of globalization challenges and recession. To fulfill this goal, a state strategy should be implemented, which should focus on all sectors of the economy and act systematically. The conducted research shows that the implementation of the "green economy" concept has begun at the global level, and all national economies are interested in it. It is the most influential tool for overcoming the recession. Ukraine should be actively involved in these processes, develop and implement such strategies, programs and plans that would meet not only the current international norms and standards, but also take into account prospective changes in the national economy.

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