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THE STATE AND DYNAMICS OF INVESTMENTS IN ENVIRONMENTALLY ORIENTED PROJECTS OF UKRAINE'S AGRO-INDUSTRIAL COMPLEX

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The transition to an environmentally oriented AIC requires significant investments aimed at implementing innovative solutions, modernizing production processes, developing organic farming, implementing bioenergy projects, rational water use systems, and effective waste management. The article investigates the current state and dynamics of investments in environmentally oriented projects within Ukraine's agro-industrial complex (hereafter – AIC). It analyzes the volume of investments from 2019 to 2024, the structure of funding sources, and trends in the attraction of both private and institutional capital. Investment activity trends are visualized through dynamic graphs, and key factors influencing investor decisions in the field of sustainable agriculture are outlined. Particular attention is paid to the impact of government support programs, international technical assistance, and donor funds on the development of organic farming, rational agriculture technologies, bioenergy, greenhouse gas reduction, and climate change adaptation.

A comparative analysis of investment activity by types of economic activity was conducted, which made it possible to identify industries with the highest and lowest levels of capital attraction. The main factors influencing the investment attractiveness of individual economic sectors were identified, including institutional conditions, profitability levels, government support, and infrastructure availability. Trends in the development of investment flows were examined in the context of current economic challenges. The impact of macroeconomic factors on the dynamics of investment activity across various industries was analyzed. Recommendations are provided to stimulate green investment, including improving the legislative framework, developing public-private partnership mechanisms, encouraging the involvement of financial institutions in sustainable projects, and expanding access to the preferential lending. The research results can be used to shape an effective national and regional policies in the field of sustainable agricultural production in the context of European integration transformations.

Key words: ecological investments, agro-industrial complex, sustainable development, organic farming, green economy, state support, climate adaptation.

Tabl.: 3. Fig.: 4. Ref.: 17.

СТАН І ДИНАМІКА ІНВЕСТИЦІЙ У ЕКОЛОГІЧНО ОРІЄНТОВАНІ ПРОЄКТИ АПК УКРАЇНИ

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Перехід до екологічно орієнтованого АПК вимагає значних інвестицій, спрямованих на впровадження інноваційних рішень, модернізацію виробничих процесів, розвиток органічного землеробства, упровадження біоенергетичних проєктів, систем раціонального використання водних ресурсів й ефективного поводження з відходами. У статті досліджено сучасний стан і динаміку інвестування в екологічно орієнтовані проєкти агропромислового комплексу (далі – АПК) України. Проаналізовано обсяги інвестицій за 2019–2024 роки, структуру джерел фінансування, а також тенденції залучення приватного й інституційного капіталу. Побудовано графіки динаміки інвестиційної активності, а також окреслено ключові чинники, що впливають на рішення інвесторів щодо екологічних ініціатив у сільському господарстві. Особливу увагу приділено впливу державних програм підтримки, міжнародної технічної допомоги й донорських фондів на розвиток органічного землеробства, упровадження технологій раціонального землекористування, біоенергетики, зниження викидів парникових газів й адаптації до змін клімату.

Проведено порівняльний аналіз інвестиційної активності за видами економічної діяльності, що дозволило виокремити галузі з найвищим і найнижчим рівнем залучення капіталу. Визначено основні фактори, які впливають на інвестиційну привабливість окремих секторів економіки, зокрема інституційні умови, рівень прибутковості, державну підтримку й інфраструктурну забезпеченість. Розглянуто тенденції розвитку інвестиційних потоків у контексті сучасних економічних викликів. Проаналізовано вплив макроекономічних чинників на динаміку інвестиційної активності в різних галузях. Запропоновано рекомендації щодо підвищення ефективності інвестиційної політики для стимулювання економічного зростання. Результати дослідження можуть бути використані для формування ефективної національної та регіональної політики у сфері сталого агровиробництва в умовах євроінтеграційних трансформацій.

Ключові слова: екологічні інвестиції, агропромисловий комплекс, сталий розвиток, органічне землеробство, зелена економіка, державна підтримка, кліматична адаптація.

Табл.: 3. Рис.: 4. Літ.: 17.

Formulation of the problem. In the current context of global climate change, depletion of natural resources, and the deepening of environmental issues in the agricultural sector, there is an urgent need to redirect investment activities toward supporting environmentally sustainable technologies and practices. AIC, as one of the key sectors of the economy, possesses significant potential for the implementation of environmentally oriented projects that will contribute to food security, environmental protection, and the development of rural areas.

However, the level of investment in «green» initiatives remains insufficient, which is due to a number of factors, including limited access to financial resources, imperfections in regulatory frameworks, and a lack of awareness among agricultural producers about the benefits of ecological farming and innovative technologies. The absence of systematic monitoring of the dynamics of environmental investments in the AIC complicates the formation of an effective public policy in this area.

Therefore, it is relevant to conduct a study on the state and dynamics of investment in environmentally oriented projects in Ukraine's agricultural sector, with the aim of identifying key trends, problematic aspects, and developing recommendations for enhancing ecological investment activities.

Analysis of recent research and publications. The issue of greening investment activities in AIC is receiving increasing attention from scholars, policymakers, and international organizations in the context of the transition to a sustainable development model. Numerous scientific studies emphasize the importance of directing capital toward supporting environmentally safe technologies,

organic farming, soil fertility restoration, and the implementation of the climate-adaptive practices.

Researchers have highlighted the current aspects of the impact of foreign investment on Ukraine's economic development under globalization [1]; key aspects of investment activity and proposals for its revitalization across Ukraine's regions are also being considered [2].

In particular, the studies by M.V. Volosiuk, T.O. Stepanenko, and I.I. Maksymova examine the conceptual foundations and economic mechanisms for stimulating «green» investments in the agricultural sector» [3]. The works of I.O. Tarasenko and O.S. Tarasenko emphasize the importance of institutional support for environmental investments and the development of public-private partnerships in the context of implementing state environmental policy [4]. L.P. Kulish explores the institutional foundations for the development of competitive organic production as a direction of ecological investment [5].

Researchers from Vinnytsia National Agrarian University have made a significant contribution to the study of investment support for the development of Ukraine's agricultural sector. In particular, H.M. Kaletnik and N.O. Koziar identify the main factors that negatively affect the intensification of investment activity in Ukraine's agricultural sector [6]. O.P. Khaietska defines the key components of investment support for the competitive development of agricultural industries [7]. R.V. Lohosha and others focus on the directions for intensifying investment activity in agriculture under martial law and during post-war recovery [8].

The publications of O.Yu. Budiakova and D.S. Dervysh reveal the mechanisms for attracting foreign investments in the bioeconomy sector and the prospects for its development as part of Ukraine's post-war reconstruction [9].

An analysis of international experience (FAO, OECD, UNEP) demonstrates the effectiveness of integrating environmental criteria into national agricultural support programs, particularly through the subsidies for organic farming, compensation for ecosystem services, and funding for energy-efficient technologies.

However, the most existing studies primarily focus on general economic aspects or regional case studies of individual countries, while a comprehensive assessment of the state and dynamics of environmental investments in Ukraine's AIC remains insufficiently explored. This underscores the need for further scientific analysis, taking into account current challenges such as climate risks, land reform, and integration processes with the EU.

Formulation of the goals of the article. The aim of the study is to assess the current state and identify the main trends of investment in environmental projects within Ukraine's agro-industrial complex.

Presentation of the main research material. A comprehensive set of economic analysis methods, statistical generalization, and comparative analysis was employed in the research process. The source base included official statistical data from the State Statistics Service of Ukraine, reports from the Ministry of Agrarian Policy and Food of Ukraine, and analytical reviews from international organizations (FAO, OECD) for the period 2019–2024. In order to assess the volume and dynamics of investments, methods of time series analysis, average growth rates, and variation

coefficients were applied. The investment balance was calculated using the formula:

$$S_{FDI} = FDI_{in} - FDI_{out} \quad (1)$$

where:

$FDIi_n$ – foreign direct investment (hereafter – FDI) into Ukraine,

FDI_{out} – foreign direct investment from Ukraine.

The FDI growth index was calculated using the following formula:

$$GI_{FDI} \frac{(FDI_{current\ year} - FDI_{previous\ year})}{FDI_{previous\ year}} \times 100\% \quad (2)$$

Microsoft Excel and statistical data processing tools were used to systematize the data and visualize the results.

Under the conditions of the full-scale invasion by the russian federation, AIC underwent deep systemic transformations, which significantly affected its investment attractiveness and environmental orientation. The military actions led to a deterioration in the security situation, a reduction in sown areas, a decrease in production profitability, and nearly a 30% reduction in agricultural exports. In such conditions, an urgent need arose to develop new approaches to financing agricultural production, focused on long-term sustainability, innovation, and ecological compatibility [10].

The Government of Ukraine and international partners promptly implemented a number of anti-crisis financial stimulation measures, including [11]:

- the preferential loan program «5-7-9%», adapted to wartime conditions;
- provision of non-repayable investment grants to micro and small agricultural producers, particularly in the western regions of the country;
- EU subsidies for small farming households;
- support for horticulture, berry growing, and greenhouse farming, with an emphasis on job creation and food security.

Despite their positive impact, these measures primarily have a short-term effect. From a strategic perspective, a structural transformation of agrarian policy is necessary, with a focus on environmentally responsible investing to support the recovery and modernization of the AIC based on sustainable development principles [12].

The relevance of the study lies in the fact that environmentally oriented investments not only enable adaptation to climate change and promote biodiversity but also become a critical factor for the survival of the agricultural sector in prolonged crisis conditions. In fact, the positive developments in 2021, caused by increased enterprise income and renewed investment activity, served as a basis for the partial preservation of agricultural production in 2022 [13]. However, a general 21% decrease in sown areas and limited opportunities for innovation confirm the need to rethink the country's investment policy.

At present, the key challenge is integrating the environmental factor into the investment strategy of the agricultural sector, which should be based on [14]:

- promotion of green technologies;

- development of environmentally oriented credit programs;
- strengthening transparency and accountability in the use of financial resources;
- attracting international donors to finance ecologically focused programs.

In this context, the research aims to analyze the current state, dynamics, and effectiveness of investments in environmentally oriented AIC projects in Ukraine, as well as to formulate recommendations for improving investment support mechanisms under wartime and post-war recovery conditions.

The development of investment-environmental projects in Ukraine's AIC is a dynamic process requiring effective regulatory mechanisms and economic levers from the state to stimulate sustainable development. A clearly formulated investment-ecological policy enables the creation of an agrarian sector structure that ensures the rational use of existing resources and contributes to the sustainable development of the economy.

Within the framework of investment activity, AIC enterprises face the need to make investment decisions that take into account various factors: type of investment, project cost, financial constraints, risk level, and desired profitability. The decision-making process requires in-depth analysis and evaluation using appropriate economic methods, particularly the determination of the discount rate, which affects project potential assessment.

The urgency of investing in environmentally oriented activities in Ukraine stems from the fact that investment processes are often viewed separately from innovation, whereas their interconnection is critically important for the further development of the agricultural investment market. A retrospective analysis of the development of investment-ecological projects indicates that sustainable development of the agro-sector is a key prerequisite for the economic growth, and effective investment management is a major task for the development of agro-industrial enterprises [15].

During the analysis of the dynamics of FDI in and from Ukraine for the years 2019–2024, the investment flow balance and the FDI growth index compared to the previous year were calculated (Table 1).

Table 1

Analysis of FDI in Ukraine for 2019–2024, USD million

Year	FDI into Ukraine (USD million)	FDI from Ukraine (USD million)	FDI Balance (USD million)	FDI Growth Index (%)
2019	5,860	648	5,212	–
2020	-868	82	-950	-114.8
2021	6,687	-198	6,885	870.5
2022	1,152	529	623	-82.8
2023	4,247	42	4,205	268.7
2024	3,329	-162	3,491	-21.6

Source: Calculated by the author based on [16]

The dynamics of FDI in Ukraine from 2019 to 2024 indicate significant instability in investment flows, driven by both internal economic conditions and external factors. In 2019, a substantial increase in FDI was observed, reaching USD 5,860 million. However, in 2020, there was a sharp decline in investment inflows,

resulting in a negative value of USD -868 million, which led to a negative investment balance and a significant drop in the FDI growth index (-114.8%).

In 2021, investment activity recovered, with the volume of FDI amounting to USD 6,687 million and a growth index of 870.5%. In 2022, due to escalating geopolitical risks, FDI volumes declined again to USD 1,152 million, with a negative growth index of -82.8%.

Nevertheless, 2023 showed some improvement in investment dynamics: the FDI volume reached USD 4,247 million, and the growth index returned to a positive value (268.7%). In 2024, although the growth rate decreased (growth index of -21.6%), the volume of FDI remained at an acceptable level of USD 3,329 million.

Overall, the analysis indicates that Ukraine's investment attractiveness remains highly sensitive to the changes in the external economic and political environment. This underlines the need for a coherent and systemic public policy aimed at fostering stable foreign investment inflows.

Figure 1 illustrates the fluctuations in the FDI growth index in Ukraine during 2019–2024. The graph shows sharp changes in investment activity: from a significant drop in 2020 (-114.8%) to substantial growth in 2021 (870.5%). In subsequent years, volatility persisted: a decline in 2022 (-82.8%), recovery in 2023 (268.7%), and another drop in 2024 (-21.6%). These trends confirm the high sensitivity of Ukraine's investment climate to internal and external challenges.

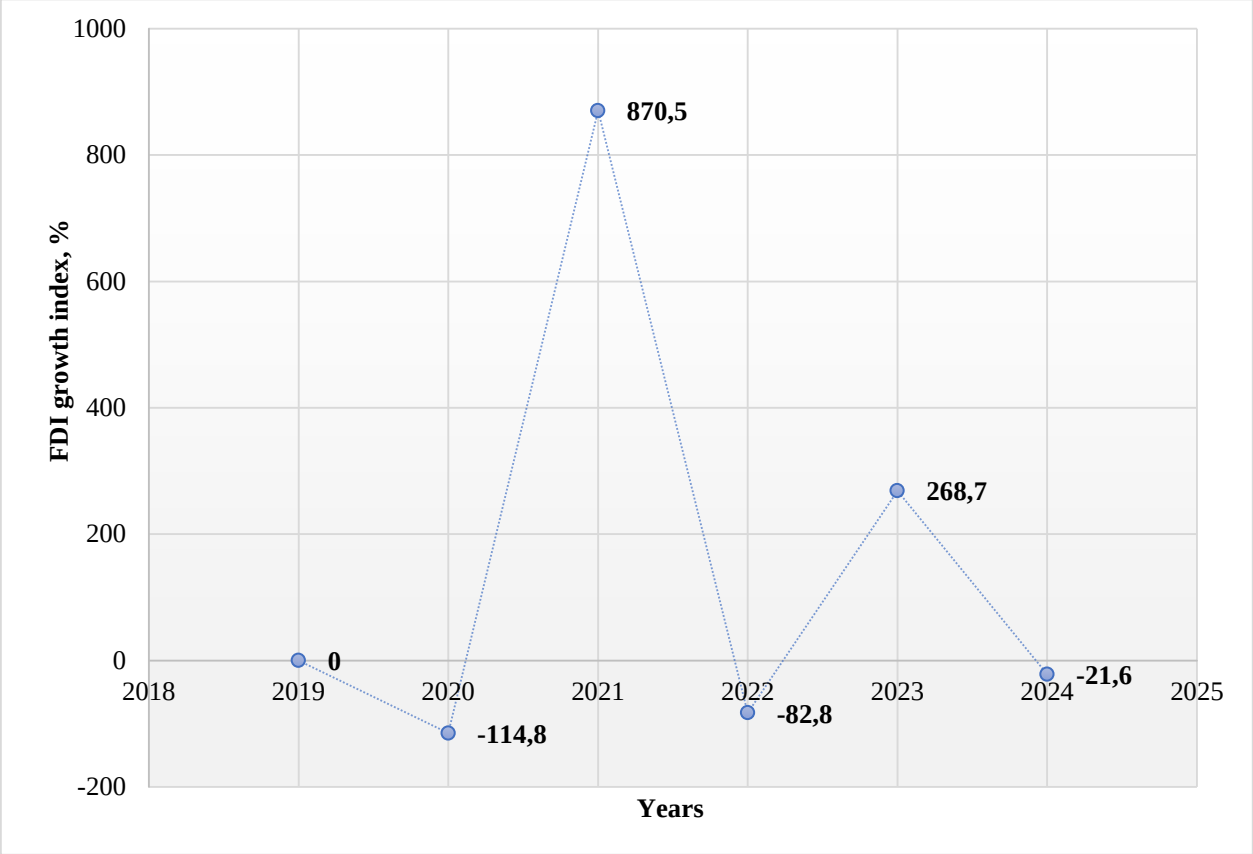


Fig. 1. **Dynamics of FDI growth index in Ukraine, 2019–2024, %**
Source: compiled by the author

In conditions of acute shortage of investment resources and the urgent need to bring the country to a level of accelerated development, the efficiency of using

limited investment resources becomes particularly important, which is determined by the directions of their allocation and the effects obtained from their involvement.

The conducted analysis of the dynamics of foreign direct investment in Ukraine during 2019–2024 indicates the absence of stable growth in investment activity and the presence of significant fluctuations caused by both internal economic problems and external political challenges. In particular, in 2020, there was a sharp decline in investments, whereas in 2021, a rapid recovery of FDI growth was observed (growth index amounted to 870.5%). However, in the following years, the situation remained unstable: a decline in 2022, growth in 2023, and another decrease in the growth of investment flows in 2024.

The analysis results point to the lack of an effective state regulatory mechanism for investment activity that would ensure targeted distribution of investment resources across various economic sectors. Under current conditions, the main criterion for attracting investments remains the rapid receipt of economic benefits while minimizing risks and costs.

The implementation of investment projects aimed at achieving social effects requires significant capital investments in the fields of education, healthcare, culture, and environmental protection, with financial results often deferred over time. Such projects are not always attractive to private investors; therefore, the state must act as an active participant and stimulator of their realization through the creation of special support and incentive programs. In particular, special attention should be given to investments in environmental projects, as environmental problems in Ukraine tend to worsen, directly affecting the quality of life of the population and the country's competitiveness in the international arena [11].

The global experience of developed countries shows that substantial investments in environmental protection are an integral part of successful socio-economic policy. In Ukraine, however, investments in social and environmental spheres remain insufficient due to the lack of effective state incentives and the higher attractiveness of sectors that provide quick economic returns.

The analysis of capital investments by types of economic activity in 2024 shows that the largest volumes of capital investments were directed to the following economic sectors (Table 2).

The analysis of the provided data indicates a steady growth in activity volumes across most types of economic activity throughout the year – from January to December. The largest contribution to the total volumes comes from the industrial sector, where the volume increased from UAH 38.96 billion in the first quarter to UAH 209.14 billion by the end of the year. Significant dynamics were also shown in public administration and defense, as well as wholesale and retail trade. Agriculture demonstrates moderate but stable growth.

It is worth noting that in some sectors, such as forestry and fishing, data were missing for the first half of the year. In certain sectors, for example, air transport and postal and courier activities, there is uneven dynamics, which may indicate seasonal fluctuations or specific accounting practices.

Table 2

Capital Investments by Types of Economic Activity in 2024, billion UAH

Type of Economic Activity	January–March	January–June	January–September	January–December
Total	93,421,744	214,502,434	343,425,762	534,417,067
Agriculture, Forestry, and Fishing	9,245,734	20,160,415	31,821,736	42,885,079
- Agriculture, Hunting, and Related Services	8,960,459	19,322,645	30,652,740	41,703,164
- Forestry and Logging	278,630	c.s.	c.s.	1,157,144
- Fishing and Aquaculture	6,645	c.s.	c.s.	24,771
Industry	38,961,270	83,639,911	133,672,218	209,139,029
Construction	9,210,381	18,897,671	29,330,614	41,723,503
Wholesale and Retail Trade; Repair of Motor Vehicles and Motorcycles	7,228,866	18,894,404	32,105,384	44,158,742
- Sale and Repair of Motor Vehicles and Motorcycles	680,118	1,429,261	2,081,323	3,133,344
- Wholesale Trade (excluding Motor Vehicles and Motorcycles)	3,041,805	6,568,709	10,902,728	14,689,975
- Retail Trade (excluding Motor Vehicles and Motorcycles)	3,506,943	10,896,434	19,121,333	26,335,423
Transport, Storage, Postal, and Courier Activities	6,508,876	14,875,866	26,939,811	46,824,821
- Land and Pipeline Transport	4,107,122	8,842,843	17,956,424	32,299,765
- Water Transport	86,048	c.s.	230,153	371,281
- Air Transport	c.s.	c.s.	904,714	1,409,917
- Warehousing and Support Activities for Transport	2,013,954	5,018,999	7,435,320	11,954,630
- Postal and Courier Activities	c.s.	237,456	413,200	789,228
Accommodation and Food Service Activities	305,912	617,676	1,078,709	1,841,796
- Accommodation Activities	108,657	169,500	260,756	363,186
- Food Service Activities	197,255	448,176	817,953	1,478,610
Information and Communication	3,901,474	9,191,368	14,402,833	25,849,426
- Publishing Activities; Film, Video Production, Broadcasting	305,954	499,921	745,026	1,154,870
- Telecommunications	3,366,847	8,251,051	12,881,735	23,308,517
- Computer Programming, Consultancy, and Other IT Services	228,673	440,396	776,072	1,386,039
Financial and Insurance Activities	2,502,301	6,261,285	10,751,305	16,450,320
Real Estate Activities	1,562,346	3,123,021	5,717,904	9,296,633
Professional, Scientific, and Technical Activities	956,616	2,638,784	5,772,827	11,369,670
- Legal and Accounting Activities; Head Offices; Management Consultancy; Architectural and Engineering Activities; Technical Testing and Analysis	313,793	1,606,533	4,120,882	8,156,342
- Scientific Research and Development	597,953	919,064	1,453,418	2,919,549
- Advertising, Market Research, Other Professional Activities, Veterinary Services	44,870	113,187	198,527	293,779
Administrative and Support Service Activities	1,080,892	2,430,081	3,407,971	5,422,232
Public Administration and Defence; Compulsory Social Security	8,864,428	27,150,331	37,924,660	60,980,940
Education	161,873	423,316	946,133	2,425,306
Healthcare and Social Assistance	1,691,751	4,532,137	7,437,690	13,482,562
Arts, Entertainment, and Recreation	1,121,467	1,489,293	1,820,463	2,122,842
Other Service Activities	117,557	176,875	295,504	444,166

c.s. – confidential statistical

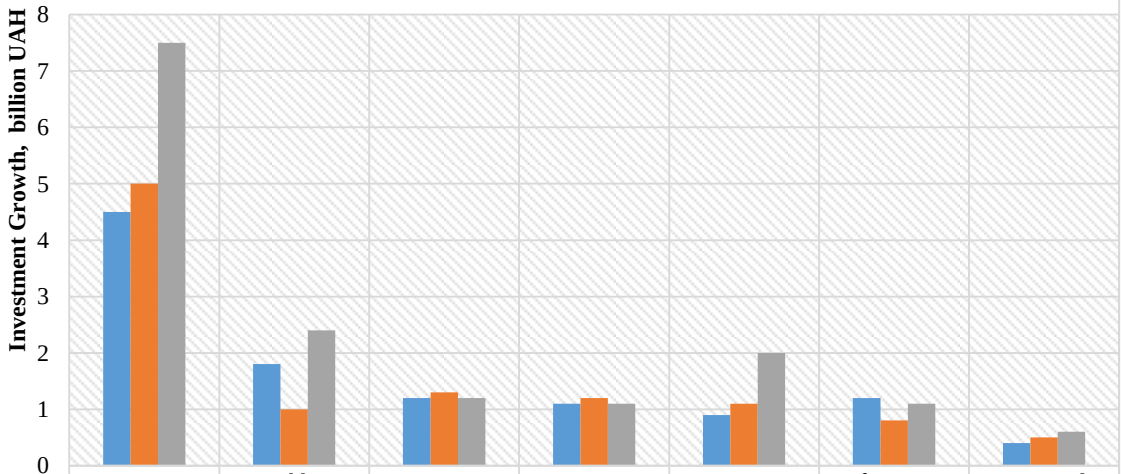
Source: [16]

Growth in the information technology and telecommunications sectors is a positive sign, as this area more than doubled its volumes during the year. Attention should also be paid to the steady growth in education, healthcare, and social assistance sectors, highlighting the socially oriented development of the economy.

Overall, by the end of the year, the total volume amounted to over UAH 534

billion, indicating positive economic trends during the analyzed period.

According to the data presented in the chart (Fig. 2), the highest investment growth was recorded in the industry and public administration and defense sectors – these areas consistently demonstrated high rates of capital inflow throughout the year. Significant increases were also observed in the transport sector, wholesale and retail trade, as well as in information and telecommunications.



	Industry	Public Administration and Defence	Wholesale and Retail Trade	Agriculture	Transport and Storage	Information and Communication	Financial and Insurance Activities.
January–March	4,5	1,8	1,2	1,1	0,9	1,2	0,4
January–June	5,0	1,0	1,3	1,2	1,1	0,8	0,5
January–September	7,5	2,4	1,2	1,1	2,0	1,1	0,6

Types of Economic Activity

Fig. 2. **Growth (decline) of investments in major types of economic activity in Ukraine during 2024, billion UAH**

Source: compiled by the author

No sector under consideration experienced a reduction in investments, indicating an overall positive economic trend in 2024.

At the current stage of development of Ukraine's AIC, the activation of the investments in environmentally oriented projects has become particularly urgent. These projects focus on forming sustainable production systems, rational use of natural resources, reducing anthropogenic environmental impact, and adapting to climate change. The greening of agricultural production is not only a timely demand but also an integral part of Ukraine's European integration course, which envisages the incorporation of green economy principles into all sectors of the economy.

In the context of significant structural and technological changes accompanying the transition to sustainable agricultural models, there is a need for substantial investment resources. However, given limited financial capacity, it is especially important to prioritize ecological investment directions based on their potential to achieve both economic and environmental effects. This approach enables more efficient allocation of capital investments to sectors forming the basis of sustainable agricultural development.

Investment activity management in the agro-industrial complex, with an emphasis on environmental components, is carried out with the involvement of both public and private institutions, utilizing mechanisms to stimulate ecological innovations, support organic farming projects, modernize irrigation and drainage systems, implement energy-saving technologies, develop alternative energy sources, and process agricultural waste. An essential condition for the effective functioning of the investment ecosystem in the agricultural sector is the establishment of an institutional environment that includes legal and regulatory support, infrastructure for ecological financing, and a system for monitoring the sustainability of agricultural production [5, p. 29].

Investment activities in the AIC, focusing on ecological aspects, are conducted by both governmental and private entities using mechanisms such as:

- support for ecological innovations,
- promotion of organic farming projects,
- modernization of irrigation and drainage systems,
- implementation of energy-efficient technologies,
- development of alternative energy sources,
- processing and recycling of agricultural waste.

In order to study the state and dynamics of investments in ecologically oriented AIC directions, it is advisable to use a grouping method by distinguishing the main areas of ecological investment [9, p. 11]:

- organic agriculture (including certified production with minimal chemical load);
- energy-saving technologies (from introduction of energy-efficient equipment to alternative energy sources such as biogas plants and solar panels);
- environmentally safe plant protection methods (biopreparations, integrated protection systems);
- agroecological land reclamation (including reclamation of degraded lands and modernization of irrigation systems);
- restoration and preservation of agro-landscapes, including shelterbelts, wetlands, and buffer zones.

Investments in these areas can be directed toward both economic growth (through increased resource-use efficiency, export potential of organic products) and environmental sustainability (reduction of emissions, biodiversity preservation, improvement of soil and water resources).

Further analysis should investigate the volume, structure, and dynamics of investments in the indicated ecological directions of the AIC, which will allow identifying key trends and revealing imbalances between financing of traditional and green agricultural production. This will enable the formulation of substantiated proposals for improving investment policy in the field of ecological agricultural development.

Table 3 summarizes the dynamics of investments in key environmentally oriented agro-industrial projects in Ukraine over recent years, allowing an assessment of the effectiveness of existing strategies and identifying potential for their further improvement.

Table 3

Assessment of investments in environmentally oriented agro-industrial projects in Ukraine, 2020–2024, million UAH

Investment Direction	2020	2021	2022	2023	2024*	Growth, 2024/2020, %
Organic agriculture (certified low-chemical farming)	320	370	420	510	580	81.3
Bioenergy (biogas, biofuels, agricultural waste)	250	290	340	400	470	88.0
Energy-efficient agro-technologies and production modernization	610	690	780	890	990	62.3
Environmentally safe plant protection products (biological agents)	180	210	240	280	330	83.3
Soil and agro-landscape restoration	140	170	200	230	260	85.7
Water-saving and environmentally clean irrigation technologies	310	350	400	450	520	67.7
Waste management and processing systems of agricultural by-products	90	110	130	160	200	122.2
Total	1900	2190	2510	2920	3350	76.3

* - Data for 2024 are based on the latest available estimates as of mid-2025 and may be revised as official statistics are updated

Source: compiled by the author based on [16]

The study of investment dynamics in environmentally focused sectors of Ukraine's agro-industrial complex over the period 2020–2024 demonstrates a consistent positive trend in increased financing across all key areas. Particularly significant are investments in the implementation of energy-efficient agricultural technologies, organic farming, and bioenergy development. For instance, investments in energy-efficient technologies increased from UAH 610 million in 2020 to UAH 990 million in 2024, reflecting a growing interest among agricultural enterprises in adopting energy-saving solutions.

At the same time, notable growth is observed in sectors directly impacting the improvement of the ecological condition of agro-landscapes, specifically in soil restoration (from UAH 140 million to UAH 260 million) and in systems for the management and processing of agricultural waste (from UAH 90 million to UAH 200 million). This indicates a gradual recognition of the necessity for the ecological modernization of agricultural production.

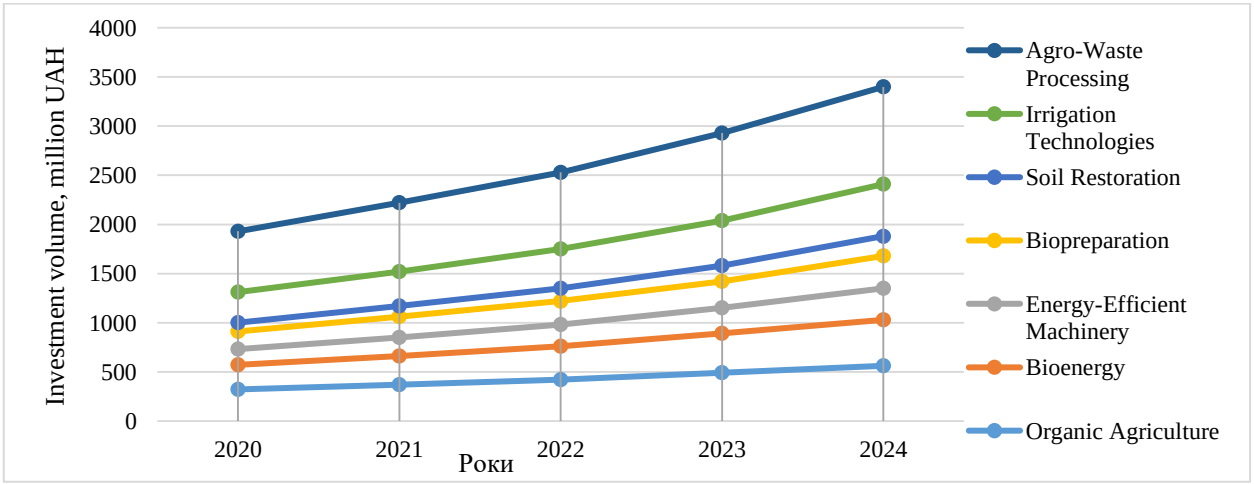


Fig. 3. **Dynamics of investments in environmentally oriented projects in the agro-industrial complex of Ukraine, 2020–2024,** million UAH

Source: compiled by the author

As the conducted research shows, in 2024, amid the ongoing challenges of wartime conditions and structural economic restructuring in Ukraine, investment activity in the field of natural resource use and greening of the agro-industrial complex remains limited in volume and insufficiently effective in outcomes. Although the volume of investments directed toward environmentally oriented projects in the agro-industrial complex demonstrates a growth trend, it still does not meet the current needs for sustainable development and restoration of the natural potential of rural areas.

In particular, the share of investments aimed at the rational use of natural resources and environmental protection in the agricultural sector amounts to less than 0.5% of Ukraine's GDP, which is an extremely low indicator in the context of environmental challenges and sustainable development needs. Considering the scale of soil degradation, the low level of resource efficiency in agriculture, the lack of modern biotechnologies, and the insufficient development of agro-waste processing infrastructure, such a share does not allow achieving a critical mass of changes in the agro-sector's environmental policy [3].

The sphere of natural resource use and greening of Ukraine's agro-industrial complex requires significant expansion of financing both from the state budget and through attracting private capital, international technical assistance, and concessional investments. Only with a strategic approach to forming environmental policy in agriculture can effective use of natural resource potential be ensured and a transition to sustainable production models be achieved.

At the current stage of the agro-industrial complex development in Ukraine, the low effectiveness of investment mechanisms for environmentally oriented projects is explained by a number of systemic problems. Key factors hindering the effective attraction of investments into environmental protection initiatives in the agricultural sector include: imperfect legal and regulatory support for state assistance to eco-oriented measures in agriculture; lack of proper control over compliance with environmental legislation; limited budget financing of environmental needs in agriculture; imbalance in mechanisms for the formation and use of investment resources.

Among current problems, it is also important to highlight the insufficient consideration of priority environmental directions in funding allocation, fragmentation of resources among numerous low-efficiency measures, and lack of a clear correlation between financing volumes and achieved environmental results. There is also a deficit of effective indicators for evaluating the efficiency of environmental programs within the agro-industrial complex, complicating monitoring and control over the targeted use of the resources.

Special attention should be paid to the limited use of market-based financing instruments for environmental activities, including green lending mechanisms, environmental insurance, and targeted ecological funds. The low attractiveness of the agricultural sector for foreign eco-investors is explained not only by political instability but also by the underdeveloped institutional environment, inflationary pressure, and the lack of preferential conditions for environmental investments [5, p. 29].

Despite the instability of the current situation in Ukraine, there are grounds for forecasting a gradual increase in the country's investment attractiveness in the medium and long term. This conclusion is based on the potential for post-war recovery, activation of European integration processes, the presence of significant agricultural potential, and support from international partners. However, realizing this potential requires creating a favorable institutional environment capable of ensuring investment efficiency and safety, especially in environmentally oriented agro-industrial projects.

A key condition for forming such an environment is the presence of an effective and predictable legal and regulatory framework. The Law of Ukraine «On the Regime of Foreign Investment» [18] defines the main guarantees for investor protection and regulates mechanisms for attracting foreign capital. However, in the context of current challenges, there is a need to adapt it to the norms and standards of the European Union, particularly concerning transparency, property rights protection, access to justice, and simplification of administrative procedures.

Besides legal aspects, the security context remains a decisive factor. Military aggression has created threats to the physical integrity of investment assets, especially in the territorially dispersed agricultural sector. Therefore, issues of infrastructure restoration, risk insurance guarantees, an independent judiciary system, and transparent dispute resolution mechanisms must be priorities in forming investment policy.

Thus, the research on improving the investment climate in Ukraine should be based on a comprehensive approach that includes [17]:

- updating legislation in line with European standards;
- implementing mechanisms to protect investor rights;
- creating risk management and investment insurance systems;
- strengthening anti-corruption measures and transparency in public administration;
- stimulating environmentally oriented projects through tax and credit instruments.

The conditions for improving the investment climate are illustrated in Fig. 4.

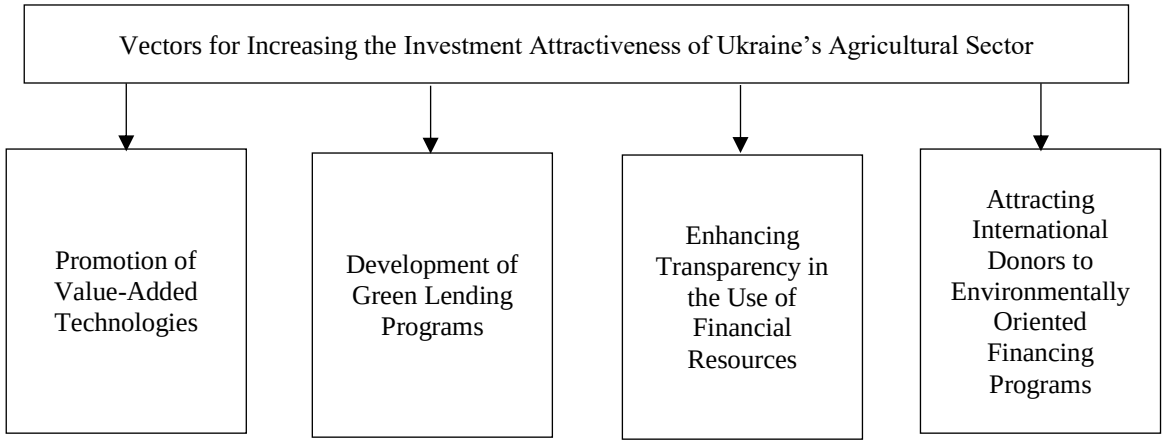


Fig. 4. **Vectors for Enhancing the Investment Attractiveness of Ukraine's Agricultural Sector Economy**

Source: compiled by the author

The implementation of these measures will lay the foundation for restoring trust in the Ukrainian economy, promote capital inflows, and enable attracting investments into strategic sectors, including the agricultural sector, which has high potential in the context of global food security.

Thus, to stimulate investment activity in the ecological direction of the agricultural sector, a comprehensive improvement of legislation is necessary, including the introduction of accelerated depreciation of environmental fixed assets, the creation of sectoral depreciation funds, and the encouragement of targeted investment through tax and credit incentives. The introduction of clear criteria for the effectiveness of investments in environmental projects will allow not only the rational distribution of resources but also ensure the achievement of real ecological impact at the regional and national levels.

Conclusions. In the current conditions of strategic economic recovery in Ukraine, the agricultural sector emerges as one of the key areas for attracting investments. The development of the digital economy and the virtual assets market, particularly the implementation of asset tokenization tools in accordance with the Law «On Virtual Assets», opens new opportunities to enhance resource liquidity and attract investment capital. At the same time, effective investment in the agricultural sector requires a solid resource base, increased trust in Ukraine as a reliable partner, and the creation of safe operating conditions for both foreign and domestic investors.

In order to achieve sustainable development of the agricultural sector, it is necessary to implement a comprehensive set of personnel, organizational, and technological measures. These include attracting qualified specialists, developing rural infrastructure, deregulation, supporting small-scale farming, harmonizing production standards with European norms, and digital transformation. All these actions should be aimed at forming a favorable investment climate, which will ultimately ensure increased investment attractiveness of Ukraine's agricultural sector of economy.

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