

Review Paper

# Problems and Prospects of the Development of the Agrarian Sphere in the Conditions of the Russian-Ukrainian War and the Post-War Economic Recovery

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## ABSTRACT

The full-scale invasion of the Russian Federation into the territory of independent and sovereign Ukraine has significantly affected the development of the country's agrarian sector and caused unpredictable negative changes in the system of global food security. Increased challenges and dangers of a military nature necessitate the search for effective ways out of crisis situations and the formation of a set of measures for the post-war recovery of not only the agricultural sector but also the entire economy of the country. The study aims to substantiate the theoretical and applied principles and identify the problems of development of the agricultural sector in the post-war economic recovery. The methodological basis of the study is the basic methods of economic analysis and fundamental research, in particular: method of analysis, synthesis, abstraction, comparison, analogy, system analysis, graphical and tabular, grouping and cluster analysis, generalization and systematization. The obtained research findings allowed establish that the development of the agrarian sector is under the influence of destabilizing factors of the external and internal environment. Moreover, the post-war period of economic recovery involves the intensification of agricultural production. It has been found that the war in Ukraine has had a destructive impact on the formation and development of the agrarian sector of the European Union, which has led to a significant reduction in food security. It has been proven that among the countries of the European Union there are three groups of countries characterized by common features of the development of the agricultural sector highly developed countries (Austria, Belgium, Denmark, Ireland, the Netherlands, Germany, Finland, France, Sweden, and Sweden), which achieve high indicators of development of the agricultural sphere; countries with a mediocre level of development (Greece, Spain, Italy, Poland, Portugal, Romania, Hungary, the Czech Republic, and Russia), which have minor problems in ensuring the development of the agrarian sphere; countries with a low level of development (Bulgaria, Slovakia and Ukraine), where there are significant problems in the development of the agrarian sphere.

## HIGHLIGHTS

- Increased challenges and dangers of a military nature necessitate the search for effective ways out of crisis situations and the formation of a set of measures for the post-war recovery of not only the agricultural sector but also the entire economy of the country.

**Keywords:** Agrarian sphere, agrarian market, agro-industrial products, sustainable economic development, agriculture

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The war in Ukraine has created unprecedented challenges for the entire world community to ensure an adequate level of food security. Significant obstacles to the functioning of the national agricultural sector affected the production and export of agricultural products. Significant destructive changes in the development of the agrarian sector were felt by the countries of the European Union and other foreign countries, as both sides of the armed military conflict are the largest exporters of agricultural food on a global scale. Obviously, the pre-war period of development of the agricultural sector was not characterized by perfection and high performance, as it was influenced by the factors of globalization and European integration. The intensification of geopoliticization processes required reformatting the existing state of the agricultural sector on the basis of innovation and transnationality. However, significant progress in this direction has been achieved, as evidenced by positive transformation processes, the formation of strategic priorities, and qualitative benchmarks for developing the agricultural sector. The events observed in modern conditions have significantly destabilized the state of the agricultural sector and require the search for effective methods of ensuring stable and sustainable development against the background of financial, economic, and socio-political crises of national and international scale. Given the above, the problem of studying the problematic aspects of the development of the agrarian sector in the conditions of post-war economic recovery becomes extremely relevant.

### Literature review

The agricultural sector of each country is one of the most significant stimulants of the national economy and competitiveness of the country. The existing changes, challenges, and dangers observed in the agricultural sector and have an impact on it indicate the inconsistency of the concept of sustainable development with global trends. Therefore, as noted by Kyrylov, the problem of forming an effective model of development of the agrarian sector by European parameters, standards, and norms becomes particularly acute (Kyrylov, 2015).

Matskiv argues that ensuring the effective development of the country's economy largely

depends on the functioning of the agricultural sector, as well as on its competitive and innovative development (Matskiv, 2020). It becomes obvious that in conditions of instability, financial problems of a financial nature, which depend on the rationalization of financial relations in the agricultural sector, become crucial, as proven by Antokhov *et al.*, (Antokhov *et al.* 2020). They emphasize the need for state financial support for the agricultural sector, the constant increase of financial resources, and the formation of measures to optimize funding sources.

A similar opinion is held by Kolesnyk *et al.* who found that the backbone of the country's economy is the agrarian sector, the potential of which significantly exceeds the needs of the domestic market and creates the prerequisites for effective integration into the world community (Kolesnyk *et al.* 2018). However, Ménard associates achieving the desired results with the need to introduce effective management methods in the agrarian sector because it is the management factors that determine the increase in agricultural production (Ménard, 2017). Among the most important Matt *et al.* Latysheva *et al.* and Lazebnyk and Voitenko, highlight the introduction of innovative digital technologies in the agricultural sector, which will not only increase production efficiency but also ensure the stabilization of its development (Matt *et al.* 2017; Latysheva *et al.* 2020 and Lazebnyk and Voitenko, 2020).

The relevance of the innovative development of the agrarian sector is emphasized by Bianco (Bianco, 2016). The scholar considers innovation and the introduction of certification of agricultural production as factors in increasing the competitiveness of the agrarian sector, especially in developing countries. At the same time, the scientist argues that in conditions of instability and crises, the development of the agricultural sector requires increased attention from the state, and also provides for the possibility of implementing additional financial and regulatory measures.

Burkitbayeva *et al.* believe that the achievement of sustainable development of the agrarian sector is interdependent with the indicators of ensuring a sufficient level of its economic security by protecting the interests of the country and agricultural producers (Burkitbayeva *et al.* 2021). It is evident that in the conditions of post-war economic

recovery, attention to the development of the agricultural sector will be highly intensified, since the currently existing challenges and dangers have created several threats to the spread of global hunger due to the large-scale destruction of crops as a result of active hostilities. Therefore, Sirenko *et al.* prudently suggest that considerable attention should be paid to protecting the relationships of participants in the agro-industrial sector and creating the right conditions for intensifying the reproductive processes of agricultural production, under which it will be possible to reduce the risks of the functioning of economic entities whose subject matter is produced in the agricultural sector (Sirenko *et al.* 2021). At the same time, Hubanova *et al.* emphasize the importance of counteracting and preventing illegal acts in the agricultural sector (Hubanova *et al.* 2021).

The problems of studying the development of the agrarian sphere are devoted to the work of Farber, who found that the development of the agrarian sphere depends on the performance indicators of its activities (Farber, 2018). These indicators enable meeting the needs of the domestic market and entering the international market. What is more, ensuring stable and dynamic development should take place in stable conditions of the national economy. In fact, it can be argued that the indicators of economic and agricultural development are correlated with each other.

Loiko *et al.* are convinced that the development of the agricultural sector significantly depends on the volume of investment in it, the conditions for providing credit resources to farmers, as well as on the variability of climatic conditions and stability in the country. In this context, Soundarya, 2017 brings the matter of achieving a high level of agrarian sustainability, which is designed to effectively counteract destabilizing factors and destructive changes taking place in the agricultural sector (Farber, 2018).

Ruben and Beekman propose to improve the development of the agrarian sector on the basis of competitiveness based on a specially formed model of agricultural development, in which a significant place belongs to innovation and investment strategy (Ruben and Beekman, 2019). As a result, it will adapt the development of the agrarian sector to the conditions of post-war economic recovery. At

the same time, Mohylnyi identifies a number of methods and tools to ensure such development of the agrarian sector, which include: (1) regulatory and legal; (2) financial and economic; (3) socio-economic; (4) administrative and regulatory and (5) soft power methods (Mohylnyi, 2022).

The process of post-war economic recovery will be difficult and problematic given the large-scale disruption and destruction. Therefore, it is crucial to start forming a set of measures to strengthen the agricultural sector.

### Research aims

The study aims to substantiate the theoretical and applied principles and identify the problems of agricultural development in the post-war economic recovery.

## MATERIALS AND METHODS

The methodological basis of the study is the basic methods of economic analysis and fundamental research. To determine the essence of the concept of the agrarian sphere and the peculiarities of its development, the method of analysis, synthesis and abstraction has been applied. Additionally, empirical studies of the main modern trends in the development of the agrarian sector in the context of military confrontation between Ukraine and the Russian Federation have been analyzed. The prospects of its development in the post-war period of economic recovery have been determined using the method of comparison, analogy, and system analysis. A visual display of the results of the study has been held using graphical and tabular methods. Grouping and the k-means clustering have been used to identify common features of developing the agricultural sector and food security in the EU and Ukraine. The formation of conclusions and proposals based on the results of the study has been carried out using the method of generalization and systematization.

The information base of the study is based on the reporting data of international organizations for 2019-2022: Regional Report: Europe 2019; Global Food Security Index 2020: Addressing structural inequalities to build strong and sustainable food system; Global Food Security Index 2021. Rankings and Trends; Global Food Security Q2 2022; Food

Security Index according to the Global Food Security Index.

## RESULTS

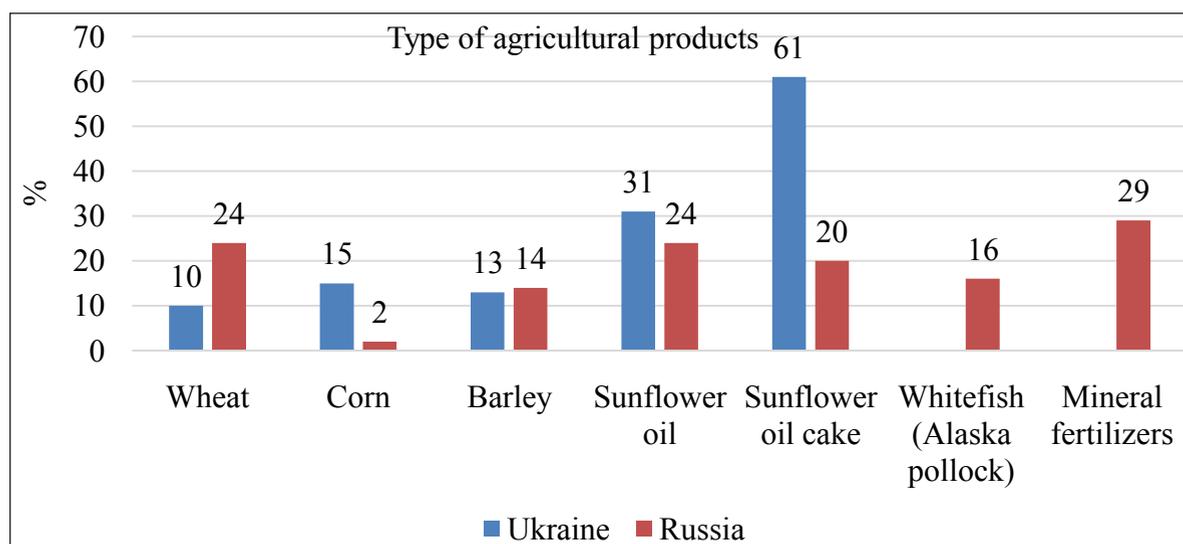
The current state and trends in the development of the agrarian sector are determined by the challenges and dangers of globalization, European integration, and geopoliticization and are complemented by the negative factors of the spread of the COVID-19 pandemic and Ukraine’s military confrontation with the armed aggression of the Russian Federation. Obviously, the escalation of the military conflict in Eastern Europe has especially destabilized the food supply of countries not only on the European continent but also in the whole world. Given that both parties to the conflict (Ukraine and Russia) are considered to be among the largest exporters of food, the threat of global hunger has become particularly acute and requires effective measures to prevent and counteract it.

The analysis of pre-war export volumes of certain types of agricultural products from Ukraine (Fig. 1) shows their rather high values. In particular, exports of sunflower oil cake reached 61% of world exports, and exports of sunflower oil were estimated at 31% of world exports. According to the indicators positioned by Ukraine, it was considered the second largest grain exporter to the European Union, as evidenced by its share in world exports, which is fixed at 14%. Obviously, the export of

agricultural products from the territory of Russia is also estimated at high rates; in particular, the export of mineral fertilizers amounted to 29%, and wheat and sunflower oil - 24%, respectively, for each type of agricultural product.

Russia’s full-scale military invasion of Ukraine has significantly changed the situation in the agricultural market. On the one hand, Ukraine is suffering from Russian aggression, which destroyed large areas of crops, and the harvested crops have not been harvested due to their destruction and restricted access to the Ukrainian side. At the same time, on the other hand, Russia has suffered significant restrictions on the export of agricultural products due to the imposition of sanctions and the creation of conditions that contradict the conclusion of export agreements. Moreover, the international community, in solidarity with Ukraine, partially refused to buy goods of Russian origin.

Undoubtedly, the Russian-Ukrainian war has created several destabilizing factors for the development of the agrarian sector not only in Ukraine, but the Ukrainian side has suffered the most significant destructive impact because it has become impossible to realize the export potential of raw materials, the production of agricultural products is carried out under martial law, and the existing supply chains of agricultural products to the countries of the world are limited and disrupted by Russia. Obviously, under such circumstances, it became impossible



Calculated according to: Caprile, 2022.

Fig. 1: Share of exports of agricultural products of Ukraine and Russia in world exports in 2020

for Ukraine to fulfill its obligations as a guarantor of food security in many foreign countries. As a result, the level of food security in 2022, even in the countries of the European Union, has significantly decreased (Fig. 2), indicating the presence of significant crisis phenomena in the development of the agricultural sector on a global scale.

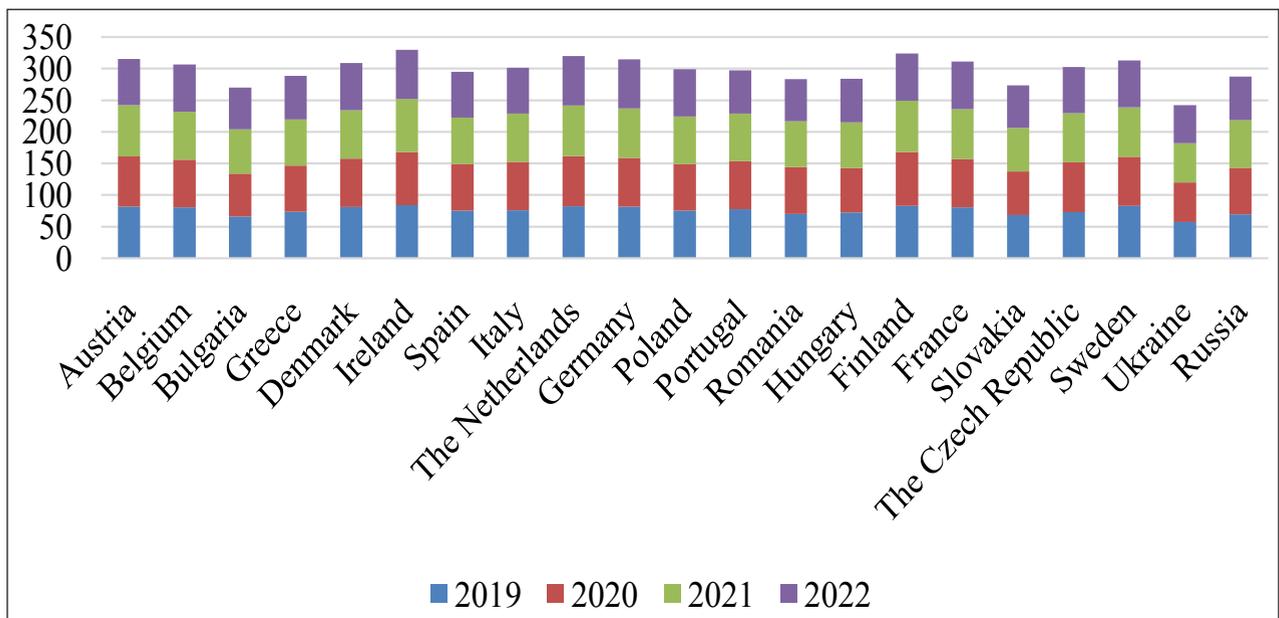
The assessments of the state and trends in the Global Food Security Index, which determines the level of economic and physical availability of food, quality and safety of agricultural products, environmental friendliness of their production, and availability for sale in individual European countries in 2019-2022, allow us to note the ambiguity of the situation throughout the analyzed period. The obvious fact is a significant decrease in the Global Food Security Index in 2022, which confirms the significant impact of Russia's war with Ukraine on the development of the agricultural sector of European countries. The primary reasons for the existing problems on the European continent are: (1) the impossibility of Ukraine's access to the sowing of significant areas allocated for the cultivation of agricultural products; (2) the destruction of a significant share of crops as a result of active hostilities; (3) the annexation of part of the eastern and southern regions, which made it impossible for the Ukrainian side to access them;

(4) blocking of significant volumes of agricultural products in the ports of the Black Sea; (5) the ban on the import of agricultural products of Russian origin into the territory of the European Union.

At the same time, the research by Shcheglova and Pishvanova, 2022, who analyzed the share of sunflower oil exports from Ukraine in 2021-2022, shows its growth to 47.2%, which is 30.6% of global exports of this type of agricultural products. Therefore, the problems that arose in connection with the impossibility of stable supplies of sunflower oil led to significant restrictions on its sale in such countries of the European Union as Belgium, Germany, Greece, and Spain, and the increase in prices for it occurred in the range from 1.7 thousand USD/ton to 2.3 thousand USD/ton. USA to 2.3 thousand dollars. US dollars per ton.

Similar trends in changes in pricing policy in the international agricultural market are observed for grain crops; in particular, a significant increase in prices was recorded for wheat and corn (up to 150 USD per ton).

In this context, it is quite reasonable to group the countries selected for the study according to the Global Food Security Index in the pre-war period of 2019-2021 and during the armed conflict in 2022. We suggest conducting such studies using the k-means



Calculated according to Regional Report: Europe 2019; Global Food Security Index 2020: Addressing structural inequalities to build strong and sustainable food system; Global Food Security Index 2021. Rankings and Trends; Global Food Security Q2 2022. Food Security Index.

**Fig. 2:** State and trends of the Global Food Security Index in selected European countries in 2019-2022

clustering. And The results are systematized in Table 1.

**Table 1:** Grouping of the European Union countries by the Global Food Security Index in 2019-2022

Global Food Security Index				
2019–2021			2022	
№	Country	Cluster number	№	Country
1	Austria	1	1	Austria
2	Belgium		2	Belgium
3	Denmark		3	Denmark
4	Ireland		4	Ireland
5	The Netherlands		5	Spain
6	Germany		6	Italy
7	Finland		7	The Netherlands
8	France		8	Germany
9	Sweden		9	Poland
10	Greece	2	10	Finland
11	Spain		11	France
12	Italy		12	The Czech Republic
13	Poland		13	Sweden
14	Portugal		14	Bulgaria
15	Romania		15	Greece
16	Hungary		16	Portugal
17	The Czech Republic		17	Romania
18	Russia		18	Hungary
19	Bulgaria	3	19	Slovakia
20	Slovakia		20	Russia
21	Ukraine		21	Ukraine

*Calculated according to: Regional Report: Europe 2019; Global Food Security Index 2020: Addressing structural inequalities to build strong and sustainable food system; Global Food Security Index 2021. Rankings and Trends; Global Food Security Q2 2022. Food Security Index.*

According to the results of the research conducted on the selected indicator in the pre-war period 2019-2021, the first group includes such countries as Austria, Belgium, Denmark, Ireland, the Netherlands, Germany, Finland, France, and Sweden, which have achieved high food security in all its parameters, and the basic needs for food products were fully satisfied at the expense of their own resources. The second group includes Greece, Spain, Italy, Poland, Portugal, Romania, Hungary, the Czech Republic, and Russia. These countries recorded mediocre values of the food security index and have certain problems with food supply within

the national agricultural market. It necessitates the supply of agricultural products from other countries. The third group consists of Bulgaria, Slovakia and Ukraine, where the level of food security is quite low, and the provision of agricultural products is carried out with the involvement of foreign partners. In addition, Russia managed to achieve a mediocre level of food security in the pre-war period due to the high share of exports of agricultural products, the production of which is limited to the territory of the European Union. At the same time, Ukraine, which is in different clusters from Russia, positions the lowest value of the Global Food Security Index among all the countries proposed for the study, which requires increased attention to the issues of food security strengthening.

In the wartime period of 2022, the countries of the analyzed group were also divided into three clusters. The first group includes Austria, Belgium, Denmark, Finland, France, Ireland, Italy, Spain, the Netherlands, Germany, Poland, Sweden, Finland, France, the Czech Republic, and Spain, which were less affected by the destabilizing impact of the armed military conflict in Ukraine, but were forced to impose restrictions on the sale of certain types of agricultural products supplied from Ukraine and other transit countries. In particular, it is worth noting significant restrictions on selling sunflower oil in Spain. Bulgaria, Greece, Portugal, Romania, Hungary, Slovakia, and Russia moved to the second cluster, which was more negatively affected by the factors of the humanitarian food crisis. It is worth noting that the lowest values of the Global Food Security Index were recorded in Ukraine due to the military confrontation and the impossibility of functioning of the national agricultural market.

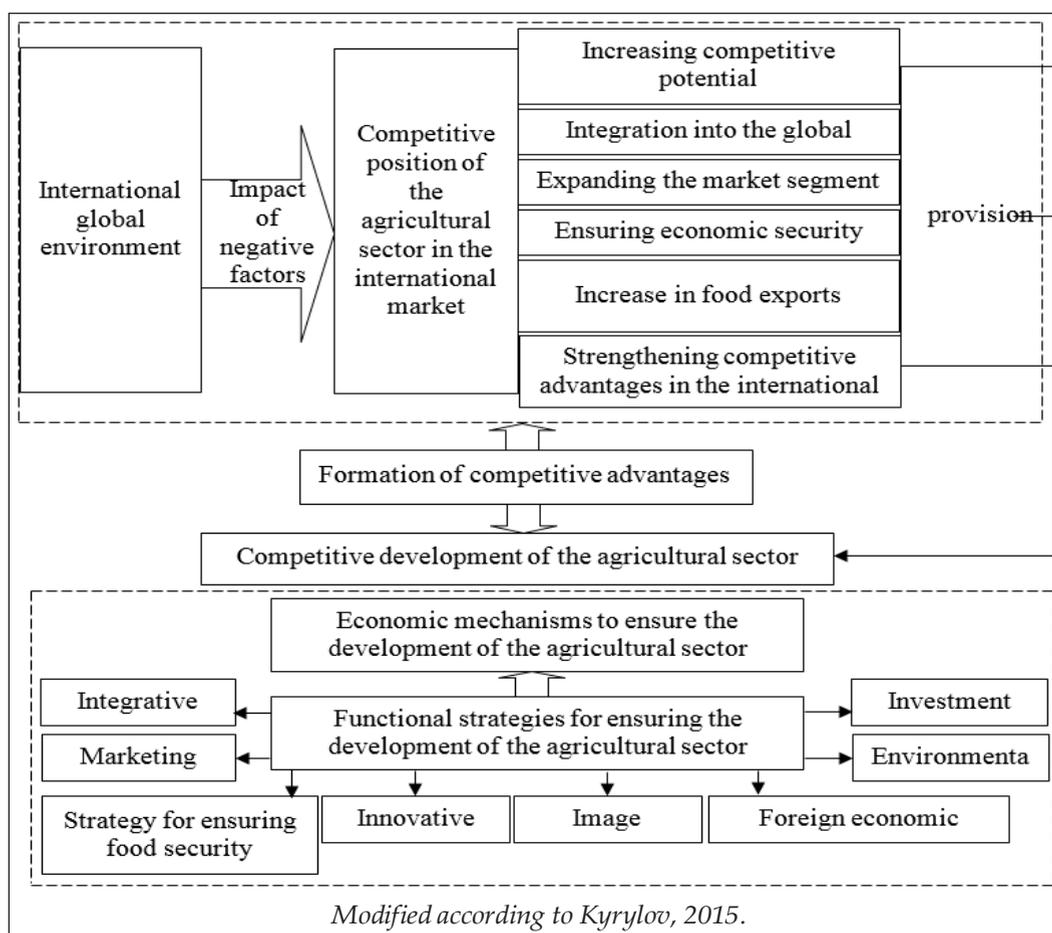
It is evident that the period of military confrontation between Ukraine and the Russian Federation is characterized as difficult for the Ukrainian economy and food security not only for Ukraine but also for the countries of the European Union. It requires the search for effective measures of rapid response and counteraction to the impact of destabilizing factors of the external and internal environment. Evidently, the post-war economic recovery involves deepening changes in the development of the agricultural sector. Moreover, already at the present stage, the planned indicators of export obligations need to be revised, as the restoration of pre-war

volumes will be possible only if the hostilities on the territory of Ukraine are completely stopped and the main logistics channels for exporting agricultural products are unblocked. Ensuring the safety of civilian navigation in the sea is also of prior significance.

Without any doubt, Ukraine, with its powerful raw material agro-industrial potential in the pre-war period, has been covering the significant needs of the European agricultural market. The European community is therefore interested in the rapid restoration of the agricultural sector of Ukraine and the realization of its existing agricultural potential through the most efficient use of sown areas. In this context, it is reasonable to form strategic priorities for the development of the agricultural sector, which we propose to carry out based on the development of a model of agricultural development in the post-war economic recovery, the main elements of which are systematized in Fig. 3.

It should be noted that the key point of the post-war economic recovery and development of the agrarian sector should be ensuring a significant level of competitiveness of the agrarian sector. It can be achieved through the formation of competitive advantages, economic mechanisms, and functional strategies for developing the agrarian sector.

It is equally important to strengthen the financing of the agrarian sector and form a set of measures to support the agricultural market. At the same time, effective strategic planning for attracting investment in the agricultural sector will reduce dependence on external partners, and emergency support programs for Ukraine will stimulate the development of the agricultural sector. All of the above will help to achieve the desired results and ensure sustainable development of the agricultural sector not only in Ukraine but also in the EU countries.



Modified according to Kyrylov, 2015.

**Fig. 3:** Model of agrarian sphere development in the conditions of post-war economic recovery

## DISCUSSION

The war in Ukraine has created significant destabilizing changes in the development of the agricultural sector, which affected the system of providing countries with agricultural products and achieving optimal food security. The identified problems in the development of the agricultural sector indicate a significant dependence of individual countries of the European Union on raw materials and agricultural products, the production of which is concentrated in Ukraine and Russia. The identified trends suggest that both countries involved in the armed conflict are among the largest exporters of grain crops, sunflower oil, and mineral fertilizers, which increases their importance.

Evidently, the period of post-war economic recovery cannot be implemented without improving the development of the agrarian sector, as the main problems that require balanced measures to ensure the development of the agrarian sector are as follows:

1. Establishing supply chains of agricultural products and restoring established mechanisms of trade in agricultural products;
2. Reduction of the deficit of stocks of products produced in the agricultural sector, in particular, sunflower oil and grain crops;
3. Stabilization of prices for agricultural products;
4. Formation of a set of measures to improve the efficiency of land resources use, which have undergone significant changes as a result of hostilities;
5. Unblocking seaports and ensuring the safety of civilian shipping that fulfills;
6. Obligations to export agricultural products;
7. Stimulating the development of healthy competition in the agricultural markets and preventing the replacement of Ukraine in the agricultural market of the European Union.

As a result of solving these problems, it will be possible to ensure sustainable development of the agricultural sector and achieve the desired results of strengthening food security both in Ukraine and the EU countries.

## CONCLUSION

Thus, the study of theoretical and applied principles and the identification of problems of development of the agrarian sphere in the conditions of post-war economic recovery allow us to assert that the development of the agrarian sphere is under the significant influence of destabilizing factors, among which the full-scale invasion of the Russian Federation into the territory of Ukraine is of particular importance. It is established that the current situation in the development of the agrarian sector of Ukraine has created significant problems in providing the European Union countries with agricultural products, resulting in a significant decrease in food security. It has been found that according to the Global Food Security Index in 2019-2022, three groups are distinguished among the countries of the European Union, characterized by common features of the development of the agricultural sector. The first group includes highly developed countries (Austria, Belgium, Denmark, Ireland, the Netherlands, Germany, Finland, France, Sweden, and the Netherlands), which achieve high food security indicators, and the supply of the agricultural market with products is mainly due to their own agricultural resources. The second group consists of countries with a mediocre level of development (Greece, Spain, Italy, Poland, Portugal, Romania, Hungary, the Czech Republic, and Russia), which have sufficiently high food security indicators, but there are significant problems in ensuring the development of the agricultural sector. The third group consists of countries with a low level of development (Bulgaria, Slovakia, and Ukraine), where there are significant problems in ensuring the optimal level of food security, and the development of the agricultural sector is under the influence of global destabilizing factors, including the war between Russia and Ukraine. To ensure stable development of the agrarian sector, the main efforts should be directed to the complete cessation of active hostilities on the territory of Ukraine, achievement of parity in the financing of the agrarian sector, and the formation of a common European agrarian policy of post-war recovery.

## REFERENCES

- Antokhov, A.A., Antochova, I.M., Byndiu, E. and Popel, L. 2020. Financial Security of Functioning of the Businesses in the Agricultural Sector of Economy in the Conditions of Changes. *Int. J. Innov. Technol. Econ.*, **2**: 27–32.
- Bianco, A. 2016. Green Jobs and Policy Measures for a Sustainable Agriculture. *Agric. Agric. Sci. Proc.*, **8**: 346–352.
- Burkitbayeva, S., Liefert, W. and Swinnen, J. 2021. Agricultural Development and Food Security in Eastern Europe and Central Asia. *Int. Food Policy Res. Institute*, **7**: 233–276.
- Caprile, A. 2022. Russia's War on Ukraine: Impact on Food Security and EU response. *European Parliament Research Service*. [https://www.europarl.europa.eu/RegData/etudes/ATAG/2022/729367/EPRS\\_ATA\(2022\)729367\\_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/ATAG/2022/729367/EPRS_ATA(2022)729367_EN.pdf) Last Accessed on 12<sup>th</sup> January, 2022
- Farber, V.A. 2018. Financial aspects of Economic Security. *Econ. Environ. Manag.*, **4**(35): 52–61.
- Global Food Security Index 2020: Addressing structural inequalities to build strong and sustainable food system. *Corteva Agrisci*. <https://nonews.co/wp-content/uploads/2021/03/GFSI2020.pdf>
- Global Food Security Index 2021. Rankings and Trends. *Corteva Agrisci*. <https://impact.economist.com/sustainability/project/food-security-index>
- Global Food Security Q2 2022. Food Security Index. *Deep Knowledge Analyt* <https://www.dka.global/global-food-security-q2-2022>
- Hubanova, T., Shchokin, R., Hubanov, O., Antonov, V., Slobodianiuk, P. and Podolyaka, S. 2021. Information technologies in improving crime prevention mechanisms in the border regions of southern Ukraine. *J. Inform. Technol. Manag.*, **13**: 75–90.
- Kolesnyk, T., Samborska, O., Talavyria, M. and Nikolenko, L. 2018. Ensuring Sustainable Development of the Ukrainian agrarian sector in conditions of globalization. *Probl. Perspect Manag.*, **16**(3): 245–258.
- Kyrylov, Yu.E. 2015. Model of Competitive Development of the Ukrainian Agricultural Sector under conditions of globalization. *Globalnat. Econ. Prob.*, **5**: 152–156.
- Latysheva, O., Rovenska, V., Smyrnova, I., Nitsenko, V., Balezentis, T. and Streimikiene, D. 2020. Management of the sustainable development of machine-building enterprises: A sustainable development space approach. *J. Enterp. Inform. Manag.*, **34**(1): 328 – 342.
- Lazebnyk, L. and Voitenko, V. 2020. The essence, features and parameters of the Digital Economy. *Economic Bulletin National Mining University*, **1**(69): 22–29.
- Loiko, V., Loiko, D. and Lekh, D. 2019. Ensuring of the financial Security of Agricultural Enterprise Enterprises. *Agrosvit.*, **24**: 28–34.
- Matskiv, V.V. 2020. Ways to improve the financial support of the Agricultural Sector in the conditions of Economic Transformation. *Innov. Econ.*, **5–6**: 133–141.
- Matt, C., Hess, T. and Benlian, A. 2017. Digital Transformation Strategies. *Business and Inform. Syst. Eng.*, **57**: 339–343.
- Ménard, C. 2017. Organization and governance in the Agrifood Sector: How can we capture their variety. *Agribus. Int. J.*, **34**(1): 142–160.
- Mohylnyi, O. 2022. Improvement of the organizational and economic mechanism of sustainable development of the agrarian sphere: theoretical and methodological foundations. *Economy and the State*, **5**: 19–27.
- Regional Report: Europe 2019. *Corteva Agriscience*. [https://www.corteva.com/content/dam/dpagco/corteva/global/corporate/files/GFSI-2019\\_Europe-regional-report.pdf](https://www.corteva.com/content/dam/dpagco/corteva/global/corporate/files/GFSI-2019_Europe-regional-report.pdf)
- Ruben, R. and Beekman, G. 2019. Agrarian Change and Inclusive Rural Development: Caps and Challenges. *Wageningen University and Research of Netherlands*. <https://www.un.org/development/desa/dspd/wp-content/uploads/sites/22/2019/03/Ruben-Beekman-Agrarian-Change-and-Inclusive-Rural-Development.pdf>
- Shcheglova, Yu. and Pishvanova, T. 2022. The Global Food Crisis as a consequence of the Russian–Ukrainian war: press Digest. II quarter of 2022. Zaporizhzhia: ZOUNB, 24. <https://zounb.zp.ua/wp-content/uploads/2022/08/Ukrainskij-vibir.-2-kv.-2022-r.pdf>
- Sirenko, N., Lunkina, T., Burkovskaya, A. and Mikulyak, K. 2021. A Assessment of the financial and economic security of the Agricultural Sector in Ukraine. *Financial and Credit Activity: Problems of Theory and Practice*, **4**(39): 241–250.
- Soundarya, I. 2017. Dynamics of Rural transformation in Karnataka a view from three Village. *Unpublished Doctoral Thesis. Manipal University India*. <http://eprints.nias.res.in/1341/>

