State policy of Ukraine in the field of overcoming food crisis at global and national level

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Abstract. The paper considers the main challenges faced by the food security system of Ukraine under conditions of a full-scale war, including production, logistics, price, energy and trade challenges. It is emphasized that the war in Ukraine caused a significant reduction in Ukraine’s agricultural production capacity and made it difficult to access resources and territories that were previously the key ones for agricultural activity. The paper analyzes the regulations of the Government of Ukraine and the EU, data from official statistics and reports of the central executive authorities of Ukraine, which prove the effectiveness and adaptability of state measures aimed at preventing the food crisis, maintaining a stable level of agricultural production despite limited resources and logistical complications due to military actions. As a result of the research, mechanisms were systematized and unique characteristics of the state policy of Ukraine, simultaneously solving two priority goals, were identified based on the criteria proposed: restoration and stabilization of agricultural production capacities during the war and ensuring the population’s access to food. The systematization of state policy mechanisms made it possible to identify the most effective strategies and tools for managing the national and global food crisis during wartime.

1 Introduction

No country in the world is free from the problem of food crisis, regardless of the level of political and socio-economic development. For the first time, the problem of overcoming the global food crisis caused by the drought that hit the largest grain exporters in the early 1970s, and was accompanied by a rapid increase in world food prices and the depletion of world food reserves, was discussed at the UN World Food Conference in 1974. At this forum the concept of “food security” appeared meaning “the availability at any time of the necessary world food reserves of basic food products, sufficient to support sustainable and expanded consumption, and to compensate for fluctuations in production and prices” [1].

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Later, the concept was modified and clarified. At present, the generally accepted definition of food security, formulated by the Food and Agriculture Organization (FAO) in 2017 is “a situation that exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life” [2, p. 107].

For a long time, due to the attention of the international community to the problem of global food security, the so-called “dual approach” to the prevention of food crisis and hunger was developed, aimed at the simultaneous development of agricultural production capacities and ensuring access to food for needy segments of the population. An important milestone in the formation of this approach to the prevention of the crisis of poverty and hunger was the work of Amartya Sen – the winner of the Nobel Prize in Economics in 1998 “Poverty and Famines: An Essay on Entitlement and Deprivation” [3] (1981). This work had a significant impact on the recognition by the world community of the importance of addressing food security not only at the national and global level, but also at the level of households and individuals.

UN institutions such as the Food and Agriculture Organization (FAO), The World Food Program (WFP) and the International Fund for Agricultural Development (IFAD) monitor, analyze and respond to food insecurity situations. They work with national governments to develop aid programs to ensure access to food, support agricultural systems and food production, and promote the sustainable development of rural communities. In 2016, the global community established the Global Network Against Food Crises. It brings together the European Union, FAO, UNICEF, the United States of America, the World Food Program and the World Bank in a unique partnership to improve analysis, evidence and consensus on the prevalence and severity of food crises, strengthen collective action to prevent and respond to crises, and improve understanding of the root causes and interrelationships between the food crisis and other food-related shocks.

The Food and Agriculture Organization of the United Nations (FAO) developed an integrated classification of the food insecurity phases, distinguishing: minimal danger, stress, crisis, emergency and disaster. Each phase is characterized by the degree and nature of households’ access to food, the nature of strategies to overcome food shortages through the use of household assets, and the directions of action that national governments and international institutions should apply to overcome the corresponding phase of danger and prevent it from worsening to the next critical state.

According to FAO classification, a food crisis is a situation where the population has limited access to sufficient quantities of safe and nutritious food to meet their nutritional needs.

According to the Global Food Crisis Report of the Global Food Crisis Network, at least 258 million people in 58 countries and territories faced a food crisis in 2022, compared to 193 million people in 53 countries and territories in 2021. This is the highest indicator in seven years of the report preparation. In addition, according to the results of the analysis, more than 35 million children under the age of five suffered from exhaustion or acute malnutrition. 9.2 million of them suffered from an acute form of exhaustion, which is a significant factor for increasing child mortality (Fig.1) [4].
The concentration and distribution of food insecurity by severity differ greatly across the regions of the world [4].

Food crisis can occur due to various reasons such as natural disasters, wars, economic crises, climate change, low agricultural productivity, political conflicts, etc. Having carefully analyzed the state of global food security, the FAO in the 2023 report (based on the results of 2022) highlights the following factors that most affected its indicators [5]:

1) Economic crises (including the socio-economic consequences of the COVID-19 pandemic and the impact of the Russian-Ukrainian war) are the main factor in 27 countries in 2022, where 83.9 million people are in a food crisis phase, compared to 30.2 million in 21 countries in 2021. Over the past three years, the economic stability of poor countries has declined sharply. Now they face a long period of recovery, and will be less able to withstand future shocks, so they need comprehensive support from the world community.

2) Conflict was a major factor in 19 countries where 117 million people were in a phase of food crisis, emergency and disaster. In 2021, conflict was considered the main factor in 24 countries for 139 million people who were severely food insecure. This decrease is explained by the fact that in three countries: Afghanistan, the Syrian Arab Republic and South Sudan, the lack of food security in 2022 began to be determined by another factor – the economic crisis.

3) Extreme weather (climate) conditions are the main factor in the lack of food security in 12 countries for 56.8 million people, which is twice the number of the population being in a state of food crisis in 2021 – 23.5 million people (in 8 countries). These extreme events include a prolonged drought in the Horn of Africa, devastating floods in Pakistan, and tropical storms, cyclones and drought in southern Africa. In 2023, the impact of these factors will continue: climate change-induced extreme weather events are expected to occur, the outlook for global and national economies is quite bleak, and conflicts are likely to continue. According to forecasts for 2023, up to 153 million people will be in the phase of a food crisis.

The degree of food security for any country depends on both the basic agricultural potential and the definition of the mentioned concept in the official doctrine of the state. Each state itself chooses the optimal level of ensuring food security and ways of achieving it, based on existing opportunities.

2 Material and method

The study of state policy on food security at the national and global level requires a comprehensive approach and the use of various methods and materials.
2.1 Materials

In order to analyze the state policy in the field of food crisis prevention, official documents of the Government of Ukraine and the EU were used: laws, strategic plans, budgets, decisions and resolutions related to the agricultural sector and food security; statistical data of the State Statistics Service of Ukraine, the State Emergency Service, FAO project office in Ukraine, international organizations, which include information on food exports and the level of food security; scientific and analytical publications: studies in professional journals, FAO analytical reports, articles analyzing and evaluating the impact of risks and challenges on the state policy of Ukraine in the field of food security.

2.2 Methods

For deep understanding of the context and mechanisms for implementation of state policy in the field of national security, the method of qualitative analysis of documents was used. In order to assess the impact of the risks of the Russian-Ukrainian war on the dynamics of food products export, the time series method was used. A graphic method was used to visualize information about the time and geography of shelling by the Russian side of the Ukrainian port infrastructure. The comparative analysis was used to study and compare the state policy of the Government of Ukraine in terms of the development of agricultural production capacities in the conditions of war and ensuring the population’s access to food in order to identify the unique characteristics of such policies.

3 Result and discussion

Conflicts, national and global economic upheavals and extreme weather conditions are increasingly influencing each other, mutually reinforcing each other and forming a closed chain of negative consequences, contributing to the deepening of the problem of food insecurity and malnutrition.

The Russian-Ukrainian war has worsened the global food situation, as the warring parties are two countries – the largest producers and net exporters of agricultural products. Most of Africa’s food-insecure countries are dependent on agricultural imports from these two countries. In addition, Russia’s influence on global food security is determined by its leading position in the markets of fertilizers and energy resources. Consequently, the Russian-Ukrainian war exacerbated food security risks, including production, logistics, price, energy and trade risks.

Ukraine, a country-guarantor of global food security and a leading supplier of agricultural products to the world market, faced a serious food security crisis in wartime conditions. The conflict in the east of the country has led to a significant reduction in production volumes, as well as restrictions in access to resources and territories that were once the basis for agricultural activity. In this regard, the government of Ukraine and international food organizations are working on large-scale measures to restore agricultural capacities and ensure global and national food security.

Active hostilities on the territory of Ukraine, Russia’s occupation of a part of the territory and mine contamination of agricultural lands led to a reduction in cultivated areas. For example, in 2023, compared to the pre-war period, the area of winter wheat crops decreased by 20%. According to the State Emergency Service, up to 25,000 km² of agricultural land were contaminated with explosives. Such a significant reduction in crops encourages other countries to increase the production of grain crops, in order to stop the reduction of world food reserves and the rise of world prices [6].
Russian troops purposefully destroyed the agricultural infrastructure and material and technical capabilities of Ukraine. Due to Russia’s attack on Ukraine, transport networks, seaports, facilities for storage and processing of agricultural raw materials were significantly affected. Pre-war grain storage capacity in Ukraine amounted to 86 million tons. Currently, they have decreased by 20%, or by 17.2 million tons and amount to 69 million tons. The estimated cost of restoring damaged objects is about USD 1.1 billion [7, p. 3].

Shipping from Ukraine faces additional challenges due to elevated insurance costs. This situation arises because some insurers have excluded the Black Sea region from their coverage. Furthermore, banks are reluctant to finance transactions originating from the Black Sea area, owing to the heightened risks and concerns about potential sanctions [8, p. 7].

One of the important steps not only to improve the conditions for the export of agricultural products, but also to maintain food security was the signing of the Agreement between the Government of Ukraine and the Food and Agricultural Organization of the United Nations (FAO) on the establishment of the FAO Project Office and the provision of technical and humanitarian assistance to Ukraine [9]. With the financial support of Japan, Canada and the Minderoo Foundation, FAO, together with the Cabinet of Ministers of Ukraine, implements the Strategy for supporting grain storage, the purpose of which is to help farmers with temporary means for storing crops and maintaining Ukraine’s export potential at a high level. The strategy involves supplying Ukrainian farmers with sleeves for storing grain, equipment for loading and unloading, as well as modular grain warehouses.

In order to strengthen the national food situation, the Law of Ukraine “On State Reserves” entered into force at the end of 2023 [10]. The law proposes to radically change approaches to the work of the state reserve of Ukraine, dividing it into material and mobilization parts. The formation of the state reserve will take place in the following directions: food, medical, raw materials, energy and technical. The law clearly spells out the powers of the body that implements state policy in the field of the state reserve, tasks and powers of other responsible bodies of state power; institutes of reservation and responsible storage (including storage outside the country), mandatory insurance of material values that are reserved or placed for responsible storage in Ukraine are introduced, international bank guarantees are provided for storage abroad; mechanisms are implemented ensuring timely refreshment of material assets in case of the need for their write-off with further processing or disposal, clear terms of storage and refreshment of material reserves are established; a unified register of state reserves is introduced, control over state reserves and responsibility for violations of legislation and the terms of the conservation agreement are strengthened.

The war significantly affected the logistics of maritime trade, disrupting the operation of key seaports in the world grain trade. Russian troops began to strike the seaports of Ukraine at the beginning of the full-scale invasion. In February and March 2022, the ports in Berdiansk and Mykolaiv were attacked, as well as “Olvia” (the territory of this port was taken by the Qatar company as a concession for 35 years). At the beginning of June 2022, Russia launched a missile attack on the Sea Specialized Port “Nika-Tera” in Mykolaiv having a grain terminal on its territory. At the beginning of July 2022, the Russians attacked the sea trading port in Bilhorod-Dnistrovskyi. On July 23, 2022, Russia hit by Kalibr missiles the seaport in Odesa, where there was grain for export (Fig. 2.) [11].
Fig. 2. Timing and geography of Russian shelling of Ukrainian port infrastructure [11].

The Black Sea Grain Initiative, an agreement between the UN, Turkey, Ukraine and the Russian Federation on sea corridors for the export of Ukrainian grain, signed on July 22, 2022 in Istanbul, played an important role in mitigating the problems of grain storage and export from Ukraine through the Black Sea [12]. After Russia withdrew from the agreement on July 17, 2023, the escalation of hostilities on the Black Sea increased, as a result of which Ukraine unilaterally announced the creation of a new Black Sea grain corridor. The Black Sea Grain Initiative and other international programs, although they played an important role in improving food supply chains to import-dependent countries and stabilized world food prices, still did not allow restoring the pre-war pace of food exports from Ukraine (Fig.3).

Fig. 3. Dynamics of food exports by Ukraine in 2022-2023, million dollars [13].
The geographical structure of food exports shows that in 2023, as in the same period of the previous year, Ukraine exported the most grain to the countries of Asia, Africa and the European Union.

In 2023, the main importer of agricultural products was Romania, whose share during this period was 28% of the deliveries values. Romania purchased Ukrainian grain worth USD 5058.86 million.

Romania takes a leading place in the implementation of the EU action plan “Paths of Solidarity”, which was developed by EU member states to reduce the risks of Ukraine’s foreign trade. Romania received 126 million euros from the EU for investments in ports, which faced the problem of increasing the flow of goods after the beginning of the Russian invasion. Funds were provided in the form of grants of up to 10 million euros to logistics companies that worked in the Romanian ports of Constanța, Galati, Giurgiu and others. In 2023, Constanța became the largest alternative export route for Kyiv, where Ukrainian grain is delivered by road, rail, or barges via the Danube [14].

![Image of import volumes of Ukrainian agricultural products](image.png)

**Fig. 4.** Import volumes of Ukrainian agricultural products, million dollars (calculated according to [13])

Turkey (21.6%), Poland (19.7%), and China (17.9%) have significant shares in Ukrainian food exports. Collectively, these countries bring 87.2% of revenues from all exports of products of this group. According to official statistics, in January-November 2023, Ukraine exported agro-food products worth 18,082.52 million USD, which is 9% (by 1,683.7 million USD) less than in the same period of the previous year [13].

The weather in 2023 favored agriculture, and farmers were able to break yield records. The level of grain yield increased to 54.7 t/ha – this indicator broke the previous record of 2021, when the yield was 53.6 t/ha. The yield of other crops was also good. This made it possible to collect high harvests despite the loss to agriculture of a large part of the territories, which are either under occupation or are dangerous for work. In these conditions, it is important to maintain logistical capabilities for food export [15].

The Regulation of the European Parliament and the Council No. 2022/870 on temporary measures to liberalize trade, which entered into force on June 4, 2022, became progressive in the development of Ukrainian exports.
The terms of this document ensure the expansion of opportunities provided for by the Association Agreement between Ukraine and the EU for Ukrainian exporters. For example, the following are temporarily suspended: duty for industrial products; system of input prices for vegetables and fruits; tariff quotas for agricultural products; anti-dumping duties on the import of goods originating in Ukraine; global protective measures directed against the export of goods from Ukraine [16].

On March 27, 2023, the ambassadors of the EU member states agreed on a new compromise on extending the period of trade liberalization with Ukraine. The reached compromise ensures a balanced approach between supporting Ukraine and protecting EU agricultural markets. The temporary suspension of import duties and quotas for the export of Ukrainian agricultural products to the EU will be extended for another year, until June 5, 2025, albeit with certain new restrictions. In particular, the European Commission can take emergency measures and apply any levers it deems necessary if significant disruptions occur in the markets of individual countries or the entire European Union due to Ukrainian imports. The regulation provides for “emergency braking” for particularly “vulnerable” agricultural products, namely poultry, eggs, sugar, oats, corn, cereals and honey. The European Commission also undertook to take measures in the event of a sharp increase in the import of Ukrainian wheat. If import of these products exceeds average volumes for 2021, duties will be imposed again. The deadline for launching emergency measures by the European Commission is 14 days. As calculated in Brussels, these measures may cost Ukraine about 330 million euros compared to the current income [17].

In the conditions of martial law, a number of regulatory and legal acts were adopted for additional support of export-import activities. The Government of Ukraine began to use the instrument of quotas and licensing for the export of strategically important goods, which, in particular, included the majority of agricultural products. The procedure for obtaining such licenses by business entities is established by the Order of the Ministry of Economy No. 991 of September 9, 2009 “On the procedure for licensing the export of goods”. The list of goods, the export and import of which are subject to licensing and quotas for 2024, is established by Resolution of the Cabinet of Ministers of Ukraine dated December 27, 2023 No. 1402 [18]. This list changes depending on the situation in the country.

Another important innovation during martial law for agrarians was the experimental project on verification of subjects of the agro-industrial complex under martial law, approved by Resolution No. 1132 of the Cabinet of Ministers of Ukraine dated October 31, 2023. This project was designed to simplify the normative regulation of exports for companies that were already working before the war or carried out export operations in the amount of more than 40 million UAH after February 24, 2022 [19].

The Government provides state financial support to agricultural producers in accordance with the provisions of the Resolution of the Cabinet of Ministers of Ukraine “Some issues of providing state guarantees on a portfolio basis” dated July 14, 2021 No. 723 [20]. A loan within the guarantee portfolio can be granted for the purchase of agricultural land plots; sowing of agricultural crops, purchase of fertilizers, plant protection products, pesticides and agrochemicals, fuels and lubricants, spare parts, fixed assets and intangible assets, wages, lease of immovable and movable property, other goods (works, services) purchased by agricultural producers under time of operational activity. Under the war conditions, a number of changes were made to this Regulation regarding the criteria that the borrower must meet.

Therefore, the Government of Ukraine implements the state policy of ensuring food security in crisis conditions, applying mechanisms that harmoniously combine national interests and needs at the global level (Table 1).
Table 1. State policy of Ukraine in the sphere of overcoming food crisis.

<table>
<thead>
<tr>
<th>State policy characteristics</th>
<th>Restoration and stabilization of agricultural production capacity</th>
<th>Ensuring population access to food</th>
</tr>
</thead>
<tbody>
<tr>
<td>Objectives</td>
<td>Ensuring sustainability of agrarian sector, producing a sufficient amount of high-quality food for domestic consumption and export</td>
<td>Ensuring access to sufficient, safe and nutritious food for all segments of the population, especially for socially vulnerable groups</td>
</tr>
<tr>
<td>Subjects</td>
<td>Government, Ministry of Agrarian Policy and Food of Ukraine, state procurement grain companies, local councils, agricultural enterprises, research institutes, farmers</td>
<td>Government, Ministry of Social Policy of Ukraine, public organizations, charitable organizations, local councils, commercial banks, international partners</td>
</tr>
<tr>
<td>Objects</td>
<td>Agricultural lands, agrotechnical complexes, laboratories, educational agrarian institutions, state reserve, export and import operations</td>
<td>Social stores, food warehouses, schools (school canteens), logistics centers, social kitchens</td>
</tr>
<tr>
<td>Strategic priorities</td>
<td>Support of sustainable agriculture, innovations in agricultural technologies, development of agricultural education, preservation of biodiversity, ensuring sustainability of food systems, international trade, foreign economic activity</td>
<td>Improvement of food logistics chains, reduction of food waste, improvement of product quality and safety, development of food technologies, change of food systems</td>
</tr>
<tr>
<td>Mechanisms</td>
<td>State guarantees to banking and credit institutions, subsidies, state purchases and state interventions (commodity and financial), licensing and quotas, research programs, tax benefits for agro-technological innovations, crop insurance, relocation of agricultural enterprises</td>
<td>Social assistance programs, state support for low-income families, direct state food interventions, price regulation, subsidization of basic consumption products for vulnerable population groups, information systems, agricultural markets</td>
</tr>
<tr>
<td>Risks and challenges</td>
<td>War, epidemics, epizootics, epiphytotics, mine contamination of agricultural land, climate change, loss of biodiversity, land degradation</td>
<td>Economic instability leading to rising prices and reduced availability of food; active hostilities that interfere with the distribution of food; decrease in incomes of the population</td>
</tr>
<tr>
<td>Evaluation and monitoring</td>
<td>Monitoring of yields and soil conditions, regular audits and evaluation of the effectiveness of government programs; assessment of export-import positions of goods; analysis of the impact of trade restrictions, customs tariffs and quotas; analysis of the country’s participation in international trade agreements</td>
<td>Analysis of food consumption data, measurement of malnutrition levels, use of reporting from non-profit organizations and international agencies, regular updating of social assistance databases</td>
</tr>
<tr>
<td>International support</td>
<td>Assistance in conducting negotiations at the international level to resolve export issues in wartime, restoration of international supply chains, removal of trade barriers</td>
<td>International charitable assistance; exchange of experience between international and local experts in the field of food security, training of social service staff, courses on food program management</td>
</tr>
</tbody>
</table>
Using legal, organizational, economic, administrative and other mechanisms of state policy, the Government of Ukraine, together with international organizations, promotes the restoration and stabilization of agricultural production capacities and ensuring access to food for needy groups of the population. These components of state policy in both directions are designed to solve critical problems in the food sector, contributing to the sustainability of the agricultural sector and ensuring access to food. An important aspect is the integration of these directions to create conditions under which the development of production and access to food mutually support each other, providing a comprehensive state approach to preventing food crises.

4 Conclusions

The research made it possible to conduct an analysis of the current state of food security in Ukraine, systematize the mechanisms of state policy aimed at preventing the food crisis, as well as identify the most effective strategies and tools of crisis management. In the future, it will contribute to the optimization of legislative initiatives and the improvement of administrative practices in the field of food safety at the national and international levels.

As a result of the conducted research, based on the criteria proposed by the authors, the key features of the state policy of Ukraine in the field of food security were revealed. First of all, it should be noted that during the conflict, the state pays considerable attention to supporting the agricultural sector, which is strategically important for ensuring internal stability and independence. In particular, this is manifested in the formation of specialized programs for financing farmers, the creation of protective mechanisms for farms in the front-line zones, and the adaptation of legislation to the wartime needs.

The second key feature is the effective management of logistics chains, which allows maintaining the stability of food resources even in the most difficult conditions. The government, with the assistance of international support, is implementing innovative solutions to establish transport routes for the export of Ukrainian grain.

The third important feature is the emphasis on the sustainability and recovery of the agricultural sector after the end of the conflict. Ukraine is developing long-term strategies that include not only the restoration of damaged infrastructure, but also rethinking agricultural production models taking into account climate change and global economic trends. These measures reflect the government's deep understanding of the importance of the agricultural sector to national security and food independence, as well as its ability to adapt to unpredictable war challenges, ensuring stability and predictability in crisis management approaches.

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