ОРИГИНАЛЬНАЯ СТАТЬЯ

DOI: 10.26794/2226-7867-2023-13-2-42-55 УДК 32(045)

Вызовы и возможности обеспечения продовольственной безопасности в Центральной Азии в условиях российско-украинского конфликта: реалистичный анализ

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аннотация

В последние годы страны Центральной Азии столкнулись с серьезными проблемами в области продовольственной безопасности из-за частых экстремальных погодных явлений, влияния новой эпидемии, высоких цен на энергоносители и социальных волнений в некоторых регионах. Российско-украинский конфликт, вспыхнувший в феврале 2022 г., вызвал рост цен на продовольствие, нарушение цепочек его поставок и нехватку основных сельскохозяйственных ресурсов (таких как удобрения), а также усложнил вопрос продовольственной безопасности для стран Центральной Азии. Решение многочисленных проблем, возникших в результате данного конфликта, страны Центральной Азии рассматривают в краткосрочном, среднесрочном и долгосрочном периодах. Кроме того, они активное управляют рисками продовольственной безопасности в соответствии со стратегией «трех шагов», включая активное участие в международном продовольственной безопасности в соответствии сельского хозяйства путем внутреннего продовольственного снабжения. Для обеспечения собственной продовольственной безопасности Китай может опираться на партнерские отношения со странами Центральной Азии, изучать их опыт и продолжать углублять взаимное сотрудничество в этой области. Помимо этого, ему следует искать новые возможности для развития в условиях конфликта и совместно с партнерами решать потенциальные проблемы продовольственной безопасности.

Ключевые слова: российско-украинский конфликт; продовольственная безопасность; Центральная Азия; международное продовольственное сотрудничество

Для цитирования: Цуй Ч., Инь Ц. Вызовы и возможности обеспечения продовольственной безопасности в Центральной Азии в условиях российско-украинского конфликта: реалистичный анализ. *Гуманитарные науки. Вестник Финансового университета.* 2023;13(2):42-55. DOI: 10.26794/2226-7867-2023-13-2-42-55

ORIGINAL PAPER

A Realistic Analysis of the Challenges and Opportunities of Providing the Food Security in Central Asia from the Perspective of Russia-Ukraine Conflict

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ABSTRACT

In recent years, Central Asian countries have faced serious food security challenges due to the frequent occurrence of extreme weather events, the impact of the new epidemic, high energy prices and social unrest in some regions. The Russia-Ukraine conflict that broke out in February 2022 has caused the increase of food prices, the disruption of food supply chains, and the shortage of basic agricultural resources such as fertilizers. In general, the Russia-Ukraine conflict has increased the difficulty for Central Asian countries to cope with food security challenges. In response to the multiple challenges posed by the Russia-Ukraine conflict, Central Asian countries have responded respectively in three dimensions: short-term, mid-term, and long-term. Moreover, Central Asian countries manage proactively food security risks in accordance with the "three-steps" strategy, which includes active participating in international food cooperation, vigorous development of agricultural modernization and reforming based on securing domestic food supply. In order to improve its own domestic food security, China can build on the existing partnerships with Central Asian countries, learn from their experience and continue to deepen mutual agricultural cooperation. Furthermore, China should also seek new

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development opportunities arising from the Russia-Ukraine conflict, and jointly address potential food security problems with Central Asian partners.

Keywords: Russia-Ukraine conflict; food security; Central Asia; international food cooperation

For citation: Cui Zh., Yin J. A Realistic analysis of the challenges and opportunities of food security in Central Asia from the perspective of Russia-Ukraine conflict. *Gumanitarnye Nauki. Vestnik Finasovogo Universiteta = Humanities and Social Sciences. Bulletin of the Financial University.* 2023;13(2):42-55. DOI: 10.26794/2226-7867-2023-13-2-42-55

1. INTRODUCTION

Russia and Ukraine are important global producers and exporters of food, energy, fertilizers, and other commodities, and are critical to the global food supply and the stability of international food prices. The outbreak of the 2022 Russia-Ukraine conflict led to severe volatility in international food markets and a precarious global food security situation due to the disruptions in the food supply chain and soaring fertilizer prices. In this international environment, as President Tokaev of Kazakhstan stressed in his State of the Nation Address in March 2022, we should be "vigilant to the negative effects of the Russia-Ukraine conflict on food security, such as soaring food prices".¹ The challenge of food security for all countries cannot be ignored.

After the Russia-Ukraine conflict broke out, the food security crisis in Central Asia has become more severe. Firstly, Central Asian countries have a gap in food supply security compared to other food-secured countries, and the five Central Asian countries have varying capacities to ensure their own food security. Traditionally, Central Asian countries are considered to have limited water resources; the food production is limited by natural factors, and food failure is common. Coupled with the spread of the new coronavirus pneumonia epidemic, the Central Asian countries have challenges posed by multiple labor shortages. Secondly, Central Asian countries are deeply dependent on Russia and Ukraine within the issue of food exports. After the outbreak of the Russia-Ukraine conflict some countries introduced food embargo policies, which led to blocking the food supply chains and the rise of price of basic agricultural materials such as fertilizers. The global food security risks caused by the Russia-Ukraine conflict have been continuously amplified in Central Asia, leaving many negative impacts on local food supply, price levels, and social stability. Therefore, this paper analyzes the following aspects. Firstly, this paper focuses on the impact of the current Russia-Ukraine conflict on food security in Central Asia from four perspectives: exacerbating food security contradictions, generating systemic food crises, high inflation and traditional security threats associated with food security. Secondly, the paper analyzes the short-term, mid-term, and long-term responses of the Central Asian countries to the food security problems from three perspectives: enacting policies to ensure food security, deepening global food cooperation, and accelerating agricultural modernization and reforms. Thirdly, this paper considers the impact of the Russia-Ukraine conflict on the food security of Central Asian countries from China's perspective and proposes a feasible path for China and Central Asia to jointly address the food problem.

2. IMPACT OF RUSSIA-UKRAINE CONFLICT ON FOOD SECURITY IN CENTRAL ASIAN COUNTRIES

In the short term, Central Asian countries need to overcome many challenges in ensuring food security after the outbreak of the Russia-Ukraine conflict, accompanied by a sharp spike in food prices. However, in the long run, Central Asian countries can seize the opportunity to achieve results such as increasing their influence in the international food market, accelerating the process of national agricultural innovation and shaping the image of an independent Central Asia.

(i) The rise in food prices worthens the existing food problem in Central Asia

In the Global Food Security Index 2021 places Kazakhstan in 41st place, Uzbekistan 78th place, Tajikistan 83rd place, Kyrgyzstan and Turkmenistan both ranked outside of 110th place.² The Central Asian countries differ from food-secured countries in terms of security of food supply and access to food. Although the level of hunger in Central Asia is lower

¹ State of the Nation Address by President of the Republic of Kazakhstan Kassym-Jomart Tokayev. URL: https://www. akorda.kz/en/state-of-the-nation-addressby-president-ofthe-republic-of-kazakhstan-kassym-jomart-tokayev-38126

² Global Food Security Index. URL: https://impact.economist. com

than the global one on average, the pace of hunger reduction has slowed in recent years, which makes it more difficult to meet the UN's goal of zero hunger by 2020. The impact of the COVID-19 epidemic has led to a significant reduction of food access in the Central Asian countries. According to World Bank, the number of poor people in Central Asia increased by 1.408 million in 2020. The unemployment rate in 2021 was 4.9% in Kazakhstan, 7.2% in Uzbekistan respectively.³ Moreover, 700,000 people will be temporarily unemployed in Kyrgyzstan.⁴ The poor macroeconomic situation has caused a decline in the purchasing power of Central Asian people, who are forced to spend a large portion of their disposable income on food and are therefore under severe pressure for food security.

The outbreak of the Russia-Ukraine conflict has further increased the difficulty for Central Asian countries to ensure food security. According to a study by the UN Food Program, as of June 2022, some 345 million people in 82 countries already faced severe food insecurity. And about 50 million people are directly threatened by famine. In the first half of 2022, the global agricultural price index was 26% higher compared to the 2021 average. The international meat index was up 18%, the international grains price index was up over 20%, and the sunflower oil price index was at an all-time high in April 2022.⁵ In an environment of high global food prices, Central Asia is hardly alone in focusing on the Central Asian countries, with wheat prices rising 20.1% year-on-year in Kazakhstan in the first half of 2022 and 21.8% for exports to the CIS countries.⁶ Flour prices in Tajikistan are also showing an upward trend. The increase in the price of core agricultural products, represented by wheat, sharply increases the cost of food access for the people of Central Asia, thus putting Central Asian countries population in the position of food insecurity.

Multiple reasons have contributed to the rise in global food prices. First of all, the grain production chain is not functioning properly. Spring wheat acreage in Russia and Ukraine decreased at the same time, with Ukraine even decreasing by about 30%. In addition to the decline in production, global wheat stocks, storage and sales ratio is at the lowest level in the past three years. In sum, the overall global food supply and demand is in a tight state. Furthermore, the price of fertilizers and other basic agricultural materials has been soaring for a period of time. The Green Markets North America Fertilizer Price Index (which tracks price changes for urea, potash and diammonium phosphate) rose by 42%, Nitrogen fertilizer prices soared up to 3 times compared to the average price in 2021. Last but not least, food transportation routes hve been blocked. Disruptions in sea transport routes and inadequate rail infrastructure in Eurasia have led to a significant increase in food transportation costs, which ultimately turns into high food prices.⁷

(ii) Dependence on Russia and Ukraine food imports will cause a systemic food crisis

The heavy food dependence of Central Asian countries on Russia and Ukraine could trigger a systemic food crisis. Systemic food risk refers to a resonant, systemic, and comprehensive food security risk compared to the food security risk of individual countries. Systemic food security risks are much more shocking and disruptive than individual country food security risks. As food security risks are highly spillover, correlated and contagious; if a food crisis that breaks out in a single country cannot be effectively managed to form an effective firewall, then food security problems in a single country or region will spread to other countries, regions and areas of the world, which would cause systemic food security risks.

The Central Asian region has the dual attributes of external and internal dependence on food. On one hand, the five Central Asian countries import large amounts of grain from Russia and Ukraine. Taking wheat as an example, in terms of imports volume, the five Central Asian countries' wheat imports climbed year by year during the five-year period of 2016–2020, with an average annual growth rate of 14.5%, and the overall external wheat dependence of the Central Asian region increased, making Russia and Ukraine the most important wheat importers to the Central Asian countries. Among the five Central Asian countries Uzbekistan is the most dependent on wheat imports. The country abolished VAT on wheat imports in 2018 to encourage wheat imports from

³ World bank Data. URL: https://data.worldbank.org./country

⁴ Cooperation between Central Asian countries and international organizations in the fight against the epidemic(in Chinese), CIIS report. URL: https://m.ciis.org.cn/ yjcg/yjcg_xslw/202109/t20210918_8145.html

⁵ FAO food price index. URL: https://www.fao.org/ worldfoodsituation/foodpricesindex/en/

 $^{^6}$ Wheat prices in Kazakhstan was up 1.5% in March. URL: https://www.inform.kz/cn/3–1–5_a3920263

⁷ Green Markets North America Fertilizer Price Index. URL: https://fertilizerpricing.com

Та	ble	1

Year Countries	2016	2017	2018	2019	2020
Kazakhstan	29921	35 887	86663	337123	634154
Uzbekistan	1686094	1476037	2 2 5 0 3 2 1	2185969	2799621
Tajikistan	1034111	1014484	1018909	1 090 208	999167
Kyrgyzstan	184950	269643	154350	202808	134604
Turkmenistan	65	540	263256	243704	70278

2016-2020 Food imports of Central Asian countries (Wheat, Ton)

Sourse: Food and Agriculture Organization. URL: http://faostat.fao.org

overseas and aims to actively develop its domestic grain processing industry. Its wheat import in 2020 was 2.8 million tons, the highest among the five Central Asian countries. The high dependence of Central Asian countries' food systems on Russia and Ukraine means that the potential ripple effects of food security risks resulting from the Russia-Ukraine conflict are evident. The transmission of food risks from Russia and Ukraine to the Central Asian region is layered on top of each other, and when materialized in a particular country in Central Asia, it may be concentrated and thus seriously undermine local socio-political and economic stability (*Table 1*).

On the other hand, Kazakhstan is the most important node of the Central Asian food network and has the pivotal role in ensuring food security in Central Asia. As the "breadbasket" of Central Asia and both as a grain importer and exporter, Kazakhstan absorbs large number of grain from Russia and Ukraine and then exports to other four Central Asian countries. In fact, the Central Asian region has formed a three-tier system of food dependence between Russia and Ukraine -Kazakhstan – other Central Asian countries; and the food security of other Central Asian countries is deeply dependent on the food security of Kazakhstan itself. In terms of wheat export volume, only Kazakhstan and Uzbekistan among the Central Asian countries achieve wheat exports on a large scale, with Kazakhstan accounting for more than 97% of the total wheat exports in Central Asia during the fiveyear period of 2016–2020. In terms of wheat export value, Kazakhstan exported wheat worth of \$ 1.13 billion in 2020, becoming the twelfth largest wheat exporter in the world. Uzbekistan and Tajikistan are top two wheat exporters from Kazakhstan with

\$ 593 million and \$ 235 million respectively.⁸ In addition, 94% of Tajikistan's grain imports comes from Kazakhstan, on which it is heavily dependent in terms of food security. After the outbreak of the Russia-Ukraine conflict, with the high prices of food and fertilizers, the embargo on food trade issued by various countries, and the extreme uncertainty of food supply from Russia and Ukraine, Kazakhstan is under great pressure in terms of food supply. And due to the of food security uncertainty in the country, Kazakhstan's ability to "blood grain" to other Central Asian countries is weakened. Thus, the ability of Kazakhstan to transport food to other Central Asian countries is weakened. The existing Central Asian food dependency system is undermined and the structure of the Central Asian food security network is gradually loosening. Therefore, the other four Central Asian countries suffer the most negative impact of the systemic food crisis (Table 2).

(iii) High inflation further reduces the ability of Central Asian people to access food

Following the outbreak of the Russia-Ukraine conflict, inflation rates in the major economies of Central Asia have shown varying degrees of upward trends. According to the data collected by The World Bank, Kazakhstan experienced the most significant increase in inflation, which was 12% in March 2022, up almost one-third from 8.7% in February, and remained high thereafter, reaching 14.5% in June 2022, up by 67 percent compared to February of the same year. Uzbekistan's inflation rate increase is equally significant. The country's inflation rate was 12.2% in June 2022, up by nearly 30 percent

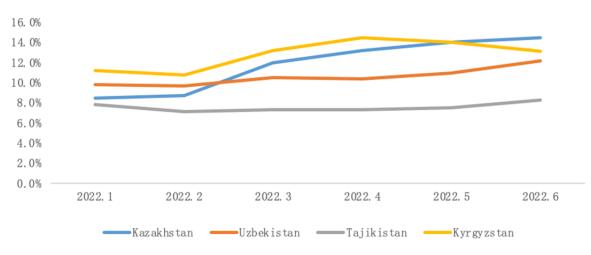
⁸ URL: http://oec.world/en/profile/hs/wheat

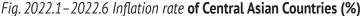
Table 2

Countries	2016	2017	2018	2019	2020
Kazakhstan	4448039	4256341	6198354	5 375 940	5 1 9 8 9 4 3
Uzbekistan	200 000	277899	1070039	104314	48212

2016–2020 Food Exports of Central Asian Countries (Wheat, Ton)

Sourse: Food and Agriculture Organization. URL: http://faostat.fao.org





Sourse: Word Bank. URL: http://data.worldbank.org/country

from the the time before the Russia-Ukraine conflict. The monthly inflation rate for Turkmenistan is not transparent compared to other Central Asian countries, but according to Trading Economics' global macro model analysis and forecasts, Turkmenistan's inflation rate is expected to reach 20%, up by more than fifty percent from 12.5% in 2021.⁹ Rising inflation, accompanied by soaring food prices has seriously threatened the ability of people in Central Asia to access food (*Figure*).

High inflation has had a huge impact on food security for low and middle income households. Firstly, low-income households are more sensitive to "black swan events". Food insecurity combined with the climate change is the greatest threat to developing countries and the poor [1]. In addition, the cost of trade multiplies the final food price, making it much higher than what low-income households can afford. Secondly, low-income households lack emergency savings to cope with inflationary shocks. A survey of more than 300,000 households in low and middle income countries shows that poor households

spend a quarter of their income on staple foods such as wheat, rice, or maize. The same parameter is 14% for non-poor households [2]. Higher food expenditures imply lower levels of savings, and therefore low-income households cannot tolerate sharp increases in food prices. Lacking the means and capacity to cope with shocks, eventually they will face hunger during economic downturns due to reduced incomes. Finally, high inflation can aggravate and worsen the problem of poverty [3]. A sharp rise in food prices can lead to an increase in overall poverty levels in low-income countries. Because low-income households typically lack financial assets which could help to withstand the effects of high inflation, they suffer higher inflation rates more than middle and upper-income households, and thus become poorer, without ability to obtain adequate food.

(iv) Food security issues catalyze institutional security risks

With the combination of high food prices, disruptions in the supply chain of fertilizers and basic agricultural materials, and uncontrollable inflation, food security in Central Asia faces the risk

⁹ URL: https://tradingeconomics.com

of spillovers that could breach the framework of food security and cause the emergence of regional conflicts. Experience from other regions of the world indicates that food insecurity is a catalyst for the outbreak of regional conflicts and unrest. For example, between 2006–2008, international wheat prices nearly doubled and rice prices tripled, and the associated spike in domestic food prices triggered strikes, protests, and unrest in more than 60 countries [4]. Another example is the droughtinduced food failure in Syria in 2007–2010, which forced about 1.5 million people out of farming areas and brought the potential for armed conflict, wich started in 2011. In addition to the direct impact on food prices, the emergence of large numbers of refugees and displaced people as a result of the conflict has exacerbated the food problem in the affected areas. As refugees and displaced people are in desperate need of temporary food assistance until they can return home or find a means of livelihood; meeting the food needs of refugees can expose the communities severe food shortages and even outbreaks of crisis. For example, refugees fleeing fighting in northern Chad fled to western Darfur during the 1983–85 drought, disrupted local food markets, exacerbated food shortages into famine, and seriously jeopardized regional peace and stability [5].

3. PATHWAYS FOR CENTRAL ASIAN COUN-TRIES TO COPE WITH CURRENT SHOCKS

In response to the multiple challenges posed by the Russia-Ukraine conflict to the food security, Central Asian countries have proposed multiple pathways in three dimensions: short-term, mid-term and long-term respectively, and have taken the initiative to manage food security risks according to the "three-step" strategy. In the short term, the Central Asian countries enacted food security policies to build a firewall to prevent and control food security risks in the first place. In the medium term, Central Asian countries will deepen international food cooperation and seek support from the international community through "food diplomacy," international mechanisms and national aid. In the long term, the Central Asian countries will not slow down the pace of developing scientific and technological agriculture due to the short-lived disadvantage caused by the Russia-Ukraine conflict.

(i) Enacting a food security guarantee policy is a priority to address food security challenges After the outbreak of the Russia-Ukraine conflict

After the outbreak of the Russia-Ukraine conflict, Central Asian countries were keenly aware of the potential food security problems that could be caused by the conflict and promptly introduced a series of policies to ensure food security in their countries. In March 2022, President Mirziyoyev of Uzbekistan emphasized the policy of addressing the Russia-Ukraine conflict and solving the problem of logistical difficulties and increasing food supply and reserves on the domestic market during a meeting aimed at analysing the economic performance situation.¹⁰At the same time, the Uzbekistan government is increasing food imports to maintain a stable domestic food supply. We saw 40% of Uzbekistan's food imports increased from January to October 2022 compared to the same period, with imports from Kazakhstan accounting for more than 36% in order to reduce food shortages caused by the Russia-Ukraine conflict by strengthening food cooperation in the Central Asian region.¹¹ In May 2022, Uzbek President Mirziyoyev announced the extension of the exemption from customs duties on 22 food products, including meat, fish and dairy products, until January 1, 2023. Kazakhstan also held a "crisis response seminar" in the immediate aftermath of the Russia-Ukraine conflict, where ensuring the security of food shipments was one of the priorities. On March 31, Kazakhstan signed a declaration with Georgia and Azerbaijan on the Trans-Caspian International Transport Route, which aimed at ensuring the smooth flow of trade between countries along the route and developing the potential for the flow of goods from Central Asian countries to the EU countries in response to the disruption of the supply chain caused by the Russia-Ukraine conflict.¹² On this basis the three countries together with Turkey signed an agreement in November 2022 on the "Development of the Intermediate Corridor 2022-2027", which aims to increase transport capacity along the corridor to 10 million tons per year by 2025. In terms of grain exports, Kazakhstan issued an export restriction on wheat and flour on April 18, 2022, which provides

¹⁰ President Mirziyoyev held a meeting to analyze the economic performance situation. URL: http://uz.mofcom.gov.cn/article/ jmxw/202203/20220303284823.shtml

¹¹ Uzbekistan increases food product imports by 40%. URL: https://kun.uz/en/news/2022/12/03/uzbekistan-increases-foodproduct-imports-by-40#:~: text=In%20January%2DOctober%20 2022%2C%20Uzbekistan, food%20products%20from%20106%20 countries

¹² Kazakhstan, Azerbaijan and Georgia To Establish 'Eurasian Rail Alliance' Joint Venture". URL: https:// www.silkroadbriefing.com/news/2022/03/10/kazakhstanazerbaijan-and-georgia-to-establish-eurasian-rail-alliancejoint-venture/

for a reduction of wheat and flour export quotas by 1 million tons and 300,000 tons, respectively, until June 15, 2022. This decision has an aim to prioritize the protection of domestic grain demand.¹³ At the same time, Kazakhstan has increased its investment in the agro-industrial complex, and has invested a total number of \$ 900 million in 2022 to expand international food production and ease the pressure of rising food prices.¹⁴ In February 2022, the Government of Kyrgyzstan decided to temporarily ban the export of wheat, flour, sugar and other food crops to other countries outside the Eurasian Economic Union from February 15, 2022 to August 15, 2022, in order to ensure national food security and prevent food shortages.¹⁵ As seen in the examples provided above, enacting short-term emergency policies is a priority for Central Asian countries as a respose to the food security shocks resulting from the Russia-Ukraine conflict.

The Central Asian countries enacted food security safeguard policies as an emergency response to food shortages caused by stagnant food exports, uncertainty in food production, and unstable food transportation in Russia and Ukraine. The safeguard policies cover food imports and exports, food transportation, and agricultural investments, and reflect the importance which Central Asian countries attach to the potential food insecurity caused by the Russia-Ukraine conflict. At the supply-demand level, the Central Asian countries ensure a stable overall food supply for the Central Asian countries by increasing food imports and exports within the region while reducing food exports outside the region to achieve a balance between supply and demand as much as possible. At the single risk-composite challenge level, the Central Asian countries are fully aware of the possible ripple effects of food security problems on social security and people's livelihoods. By enacting food security policies to keep the risk of food problems within tolerable limits, a solid firewall is built to avoid compound social security problems. At the short-term and long-term level, Central Asian countries can keep their domestic

food markets stable in the short term by increasing food imports and reducing food exports. In contrast, increasing cargo transportation capacity, solving the problem of a single source of supply, and increasing agricultural investment are the long-term solutions for Central Asian countries to cope with their food security problems.

(ii) Deepening international food cooperation is an inevitable choice to meet the challenge of food security

Because of the different capacities of Central Asian countries for ensuring their own food security, the means and paths of their participation in international food cooperation also differ, and there are three specific ways. Firstly, Central Asian countries have taken the initiative to engage in "food diplomacy" and expand their international food influence. Kazakhstan's President Tokayev visited Saudi Arabia on July 23, 2022, and the countries agreed on food exports, agricultural investments, and cooperation in emerging agricultural technologies. The meeting resulted in signing of 13 cooperation agreements, expanding Kazakhstan's influence in the global food system [6]. In September of the same year, Tokayev attended the 22nd session of the Shanghai Cooperation Organization (SCO) in Samarkand, Uzbekistan, where he actively consulted and cooperated with the leaders of SCO members and observer states on food security issues, and highlighted Kazakhstan's mission and role in maintaining global food security. A week after the closing of the SCO summit, Tokayev participated in the "Global Food Security Summit" in New York, USA, where he emphasized that Kazakhstan would continue to be a reliable supplier of grains and other basic foodstuffs and pledged to play a more important role in the regional food transportation chain in the future.¹⁶

Kazakhstan's initiative in "food diplomacy" after the outbreak of the Russia-Ukraine conflict has two characteristics. Firstly, the timing of the "food diplomacy" was concentrated. Within a few months, Tokayev visited several countries to consult their leaders on food security issues, which on one hand reflects the urgency of the global food crisis caused by the Russia-Ukraine conflict and the need to find international solutions in the shortest time possible.

¹³ Kazakhstan imposes restrictions on grain and flour exports. URL: https://www.ccpit.org/kazakhstan/a/20220418/20220418py2x. html

¹⁴ The investment environment for agro-industrial complexes continues to improve, and domestic food security measures are effective and efficient. URL: https://www.inform.kz/cn/ article a3993001

¹⁵ Price Monitoring for Food Security in the Kyrgyz Republic. URL: https://docs.wfp.org/api/documents/WFP-0000144069/ download/

¹⁶ The President of Kazakhstan took part in he Global Summit of Food Security. URL: https://www.akorda.kz/en/thepresident-of-kazakhstan-took-part-in-the-global-summiton-food-security-2181846

On the other hand, it also reflects the positive attitude of Kazakhstan to "smell" the opportunity to expand its influence on global food governance during the crisis and quickly engage in international food cooperation. Secondly, the scope of "food diplomacy" is broad. From the Middle East to Central Asia to North America, Kazakhstan's "food diplomacy" covers a wide range of countries and regions, but it is also highly targeted. For Saudi Arabia and other Middle Eastern countries, Kazakhstan is an ideal trade partner to supplement the food gap. For the U.S., Kazakhstan is a springboard to engage in Central Asia with food aid. For SCO member states, Kazakhstan is a quality partner. Through "food diplomacy," Kazakhstan presents a diverse and flexible national image to the world, and the positive effects of successful international food security cooperation may eventually spill over and even help Kazakhstan improve its position in the international political landscape. Beyond Kazakhstan, Uzbekistan is an active voice at the 2022 Second Antalya Diplomacy Forum. Foreign Minister of Uzbekistan Abdulaziz Kamilov stated that "Uzbekistan is eager to become a bridge between Central Asia and South Asia, to contribute to the development of regional integration in the areas of food cooperation, transport logistics, etc." [7].

Secondly, relying on international mechanisms is important. At the Ministerial Conference "Global Food Security: A Call to Action" held at the UN Headquarters on May 18, 2022, Kazakhstan's Deputy Prime Minister and Minister of Foreign Affairs Mukhtar Tileuberdi expressed Kazakhstan's determination to work with the UN to ensure global food security. The head of the Ministry of Agriculture of Kazakhstan also expressed his country's readiness to cooperate with international organizations to increase grain exports to China, the South Caucasus, Pakistan, Turkey and Iran, as well as opening European and Middle Eastern grain markets to ensure the stability of global food supply, despite the restrictions on wheat and flour exports. Kyrgyzstan, Tajikistan, and Uzbekistan, along with China, Russia, and Pakistan, issued the Statement of the Council of Heads of State of the Shanghai Cooperation Organization on Maintaining International Food Security. The statement called on the international community to practice multilateralism and support the central role of the United Nations in maintaining global food security. Together with the UN Food and Agriculture Organization, the International Fund for Agricultural Development, and the World Food Program, collectively work to ensure regional and global food security.¹⁷ In early October 2022, organized by the United Nations World Food Program, the heads of Tajikistan's state agencies and state wheat flour mills learned about the implementation of the enhanced regulatory framework for wheat flour in Uzbekistan, and the two sides worked together to address the pressure of wheat flour shortages in Central Asia caused by the Russia-Ukraine conflict.¹⁸

Thirdly, receiving international food aid can alleviate pressure on food security. In September 2022 it was agreed in a meeting between Tajikistan Foreign Minister Sirojidin Muhriddin and USAID Administrator Samantha Power that Tajikistan would receive an additional \$ 13 million in food aid from USAID to alleviate Tajikistan's severe domestic food shortages in the wake of the Russia-Ukraine conflict.¹⁹In December 2022 the World Bank provided Tajikistan with an additional \$ 50 million grant financing to support Tajikistan in mitigating the risk of food insecurity.²⁰ In October 2022 the Asian Development Bank approved \$ 50 million funding for Tajikistan to provide support to expand social support to poor and vulnerable groups and to stabilize domestic food production.²¹

(iii) Adhering to the reform of agricultural modernization is the fundamental way to meet the challenge of food security

The main reason why Central Asian countries rely heavily on food imports from Russia and Ukraine is that their own food industries are not as developed as those in the food secured countries and have

¹⁷ Statement of the Council of Heads of State of the Shanghai Cooperation Organization on Maintaining International Food Security. URL: http://www.gov.cn/xinwen/2022-09/17/ content_5710380.htm

¹⁸ WFP fosters experience sharing on wheat flour fortification between Tajikistan and Uzbekistan. URL: https://tajikistan. un.org/en/202209-wfp-fosters-experience-sharing-wheatflour-fortification-between-tajikistan-and-uzbekistan

¹⁹ Administrator Samantha Power's Meeting with Tajikistan Foreign Minister Sirojidin Muhriddin. URL: https://www. usaid.gov/news-information/press-releases/sep-27-2022administrator-power-meeting-tajikistan-foreign-ministersirojidin-muhriddin

²⁰ Tajikistan to Address Food and Nutrition Insecurity with World Bank Support. URL: https://www.worldbank.org/en/ news/press-release/2022/12/22/tajikistan-to-address-foodand-nutrition-insecurity-with-world-bank-support

²¹ \$ 50 Million ADB Grant to Support Food Security, Social Protection, and Business in Tajikistan. URL: https://www.adb. org/news/50-million-adb-grant-support-food-security-socialprotection-and-business-tajikistan

insufficient production capacity to achieve selfsufficiency in food. Nevertheless, Central Asian countries can hedge against the outbreak of food crisis by increasing government subsidies and setting up emergency committees due to the disruption of global food supply chains caused by the Russia-Ukraine conflict. In the long run, the fundamental way for Central Asian countries to ensure food security under extreme contingencies is to respond to the uneven layout of agricultural production by diversifying their food crop supply through agricultural innovation.

In 2010 State of the Nation Address and in 2012 Strategy for Kazakhstan 2050, then President of Kazakhstan Nursultan Nazarbayev repeatedly stressed the importance of agricultural modernization and reform as the key engine of Kazakhstan's economy. The first document Tokayev signed after becoming the President of Kazakhstan was a decree on rural development, and in his 2022 State of the Nation Address he presented a road-map for modernization and reforming of Kazakhstan, in which modernization of agriculture is an important tool for solving socio-economic conflicts and ensuring national and public security. The basic idea of the food modernization is to increase investments in agricultural infrastructure and technologies, to increase food exports to Central Asia and other countries of the world in addition to meeting the basic food needs of the population, to make a partial breakthrough in the development of Kazakhstan in the field of agriculture, and to present to the world the "New Kazakhstan" with comprehensive overall modernization. In terms of domestic agricultural production organization, Kazakhstan will invest \$ 2.2 billion in rural cooperatives before 2025.²² Establishing the Akdara Agricultural Demonstration Zone in Almaty Oblast can help study and promote under-membrane drip cultivation of rice and biodegradable mulch technology to save resources while increasing yields and meeting the country's need for self-sufficiency in food.²³ In addition to Kazakhstan, other Central Asian countries also attach great importance to agricultural modernization reforms. In his State of the Nation Address in 2021

President Rahmon of Tajikistan pointed out that "accelerating the industrialization of the country, getting rid of the national transport impasse, and ensuring food security" are important for Tajikistan to accomplish its national strategic goals. The Strategy for Agricultural Development 2020–2030 published by Uzbekistan points out that Uzbekistan will make every effort to expand the application of scientific and technological achievements and digital technologies in agriculture, among which the realization of water-saving irrigation technology to fully cover the main wheat producing areas to alleviate water shortage is a key reform task.24 Relying on SCO Uzbekistan and China established the China-Uzbekistan Water Conservation Overseas Demonstration Park in Tashkent Oblast in August 2022 to jointly develop and apply sensible water and fertilizer integration irrigation equipment, and to closely follow the country's modern agricultural development strategy.²⁵

The Russia-Ukraine conflict is taking place in the midst of the Central Asian countries' vigorous efforts to modernize their agriculture, and it could become a catalyst for accelerating the agricultural modernization of the Central Asian countries if they can carefully and properly respond and safely transit the high-risk period of the food crisis.

On one hand, the pressure on food security caused by the Russia-Ukraine conflict on Central Asian countries has made them more aware of the urgency of developing modern agriculture and achieving food self-sufficiency. Although the Russia-Ukraine conflict has caused certain damage to the food security of Central Asian countries, Central Asian countries have taken this opportunity to increase investment in agricultural modernization, make up for the shortcomings in agricultural development and actively attract international investors, with a view to creating regional advantages in agricultural development in Central Asia and ultimately achieving the goal of ensuring food security.

On the other hand, food security is a global issue brought about by the Russia-Ukraine conflict, and the pursuit of modern agriculture has become a consensus among countries to deal with the long-

²² President Tokayev Visits Zhambyl Region, Emphasizes Its Enormous, Yet Untapped Agricultural Potential. URL: https:// astanatimes.com/2023/02/president-tokayev-visits-zhambylregion-emphasizes-its-enormous-yet-untapped-agriculturalpotential/

²³ Agricultural cooperation between China and Central Asia continues to deepen. URL: http://m.xinhuanet.com/2020– 11/09/c_1126716043.htm

²⁴ The Strategy for the Development of Agriculture in Uzbekistan 2020–2030 proposes to increase the coverage of water-saving technologies from 5% to 40% by 2030. URL: http://uz.mofcom.gov.cn/article/jmxw/201909/20190902900900.shtml

²⁵ Helping to modernize agriculture in SCO countries. URL: https://baijiahao.baidu.com/s?id=1744344419452466213&wfr =spider&for=pc

term uncertainty of food security. If Central Asian countries can gain an advantage and become a demonstration zone for agricultural modernization, it will help them open up overseas markets for innovative agricultural products and serve as a good propaganda to expand the status and influence of Central Asia in the global food system.

Summing up, Central Asian countries have made great efforts to solve the problem of food security caused by the Russia-Ukraine conflict, but at the same time there are many limitations. Firstly, food security policies have further constrained budgetary space. While Central Asian countries have briefly secured their food supplies through short-term, wide-scale stimulus programs, the large government funding will increase government indebtedness and pose a potential risk to future national development. Secondly, the degree of proactive food diplomacy is insufficient. Except for Kazakhstan and Uzbekistan the other three Central Asian countries are not involved in the international food market, and they rely on international aid and have little control over food discourse, so it is difficult to establish longterm and mutually beneficial food cooperation mechanisms with international organizations. Finally, there are uncertainties in the development of agricultural modernization. The development of modernized agriculture takes a long time and requires a large amount of investment, which needs a stable domestic political situation as the foundation. If the domestic political instability or economic conditions in Central Asian countries continue to be unsatisfactory, there will be insufficient incentive for follow-up investment, and the development of agricultural modernization will be difficult and long.

4. "CHINA + CENTRAL ASIAN COUNTRIES" COOPERATION TO ADDRESS FOOD SECURITY CHALLENGES

Central Asia is a key node in China's "Belt and Road" initiative, China and Central Asia are partners with intertwined interests. The history of cooperation between the two sides over the past three decades shows that agricultural cooperation has played an irreplaceable role in building a community of shared destiny between China and Central Asia. However, Central Asian countries have demonstrated their determination to develop long-term agricultural modernization through many means, including food diplomacy, accelerating agricultural science and technology reform, and participation in global food governance. China, for its part, can continue to deepen its agricultural cooperation with Central Asia on the basis of existing partnerships, and work with the five Central Asian countries to seize new development opportunities arising from the Russia-Ukraine conflict to address potential food security issues.

(i) Building a solid political foundation and creating a China-Central Asia agricultural community of destiny

Mutual political trust between China and Central Asian countries is a fundamental guarantee for joint maintenance of food security. After the independence of Central Asian countries, China was the first to recognize the independent status of Central Asian countries and establish diplomatic relations. From 2002 to 2007, China signed treaties of good neighborliness, friendship and cooperation with Kyrgyzstan, Kazakhstan, Uzbekistan and Tajikistan. In August 2007, China signed the Treaty on Long-term Good-Neighborliness, Friendship and Cooperation among SCO Member States with Russia, Kazakhstan, Kyrgyzstan, Tajikistan and Uzbekistan. The signing layered a solid legal and institutional foundation for the development of cooperation between China and Central Asian countries. In 2013 during his visit to Kazakhstan President Xi Jinping proposed for the first time the "Silk Road Economic Belt" initiative, which provides a top-level design framework for China-Central Asia synergistic development. At the 2022 China-Central Asia Forum, State Councilor and then Foreign Minister Wang Yi proposed to upgrade the China-Central Asia cooperation mechanism and adopted four outcome documents. In addition, it is important to enhance the importance of Central Asia in promoting the smooth flow of trade routes between Asia and Europe. At the same time, it is also necessary to expand the scale of China-Central Asia mutual trade, create a network of commodity circulation systems, deepen cooperation in e-commerce, and promote the construction of the Belt and Road in the direction of a green economy, a digital silk road, and a safe silk road with high quality. The solid political foundation between China and the five Central Asian countries is both a prerequisite for building a China-Central Asia community of destiny and a political support for deepening China-Central Asia cooperation in the field of food security. After the outbreak of the Russia-Ukraine conflict, uncertainty in the global political landscape has increased, and the international community is lacking in addressing

the global governance deficit. During this turbulent period in the world landscape, consolidating China-Central Asia political trust not only makes an outstanding contribution to ensuring food security, but also has a positive effect on maintaining peace and stability in the international community.

(ii) Proactive layout of "going out" and "bringing in" agricultural resources from Central Asia

China-Central Asia agricultural cooperation not only needs to "go out", but also to "come in". On one hand, Central Asian countries can gain access to China's advantageous agricultural resources. On the other hand, China can also open up the agricultural market in Central Asia, which is a win-win situation for both sides and is of great significance to alleviate the heavy dependence of Central Asia on agricultural products from Russia and Ukraine and develop diversified international agricultural cooperation. Central Asia is a region with concentrated land resources and rich crop resources, but at the same time, agricultural production efficiency is not high and production methods are under-developed, which, however, means a significant development potential and is an ideal market for Chinese grain enterprises to "go global". In addition, the agricultural science and technology level in Central Asia is generally low, so it is easier for China to take advantage of industrial advantages and carry out investment in infrastructure construction along the Silk Road Economic Belt. Among the five countries in Central Asia, Kazakhstan is the most important investment country for China. China Fortune Investment Group invested in the establishment of a rapeseed oil processing plant worth more than \$ 1.2 billion. Moreover, COFCO invested \$ 80 million in the construction of a tomato processing plant. Furthermore, Rifa Holdings Group has invested \$ 200 million in the construction of a meat processing plant in Kazakhstan. Moreover, China Aigoo and Kazakhstan Total Impex jointly invested \$ 58 million in the construction of a deep grain processing center [8]. By establishing a complete agro-industrial base in Central Asia for grain production, processing, cold chain storage and transportation, China has created an overseas agricultural supply base, enriched grain import options, enhanced agricultural transportation security and ultimately strengthened its ability to withstand food crises. The success of the strategy of "going out" and "bringing in" in agriculture is also evidend when taking into consideration the steady growth of agricultural trade between China and

Kazakhstan, which in the first seven months of 2022 grew by 46.7% year-on-year to \$ 413 million. The volume of agricultural exports from Kazakhstan to China grew by 62.2% to \$ 280 million, imports from China grew by 22.2% to \$ 132.1 million.²⁶

The Department of International Cooperation of the Ministry of Agriculture in rural areas has made "expanding diversified import channels for agricultural products" and "supporting enterprises going abroad to integrate into the global agricultural supply chain" as important directions in the work highlights of international cooperation in agriculture in 2020. In Uzbekistan, China Luoyang Wanbang Logistics and the local government have established the Luobu Agricultural Demonstration Zone, which aims to transport high-quality and inexpensive Central Asian agricultural products directly to Chinese consumers through the China-Europe (Central Asia) train, which is a model of Chinese agriculture "going out" and "bring in". In addition, the Chinese government actively encourages Central Asian agricultural enterprises to participate in the China International Import Expo and introduce Central Asian agricultural products. Kazakhstan selected 35 enterprises and Uzbekistan brought 15 enterprises to participate in the 3rd Import Expo was held in Shanghai in 2020. This move is likely to promote the image of Central Asian food products with high quality and low price.

(iii) Vigorously developing green agriculture and modernizing agriculture together with Central Asia

Improving agricultural science and technology and developing green agriculture are the growth points of China-Central Asia agricultural cooperation and an important means to ensure China's food security. After the outbreak of the Russia-Ukraine conflict, Central Asia, which depends on Russia and Ukraine for food exports, is facing the problem of insufficient food supply. The development of modern agriculture in order to achieve food self-sufficiency is the most fundamental way to ensure food security. Central Asian countries are strengthening regional integration cooperation in national innovation and technology aimed at achieving sustainable, innovation-led agricultural economic development. In the food production process, advanced

²⁶ Kazakhstan to expand potential for supply of agricultural products to China. URL: https://el.kz/en/news/news/ kazakhstan_to_expand_potential_for_supply_of_agricultural_ products_to_china/

technologies such as artificial intelligence and big data are used to build risk prediction models to provide early warning of potential production risks. Central Asian countries are ensuring sustainable agricultural development in Central Asia through improved natural resource management and better water utilization. Moreover, Central Asian countries are cooperating with China's Sinochem Group to promote hybrid wheat. The Northwest Institute of Ecological and Environmental Resources of the Chinese Academy of Sciences is cooperating in agricultural technology. And Tajikistan is citing Chinese drip technology and dry-crop rice to deal with water shortages. Last but not least, Uzbekistan has achieved good results in agricultural science and technology cooperation projects such as the promotion of Chinese salt-tolerant wheat in highly saline lands.

China-Central Asia agriculture also has the potential to deepen scientific and technological cooperation in the future. Firstly, Central Asian countries can introduce advanced Chinese seed technologies to breed food species with high survival rates and high yields to ensure food security. ChemChina acquired Swiss agri-tech company Syngenta for \$ 43 billion in 2017. The prurchase will help ChemChina gain access to its climate-friendly agricultural technology solutions that increase crop yields while reducing fertilizer use.²⁷ It meets the requirements of China's green agricultural development and helps China master the core technology of grain seeds. China can promote it in the main grain producing areas in Central Asia to meet the requirements of diversified grain sources. Secondly, relying on the SCO platform to enhance China-Central Asia agricultural technology exchange. The SCO will establish a SCO agricultural technology exchange training teacher model base in Shanxi Province, and focus on four major platforms: (1) agricultural science and technology innovation, (2) international agricultural science and technology and management personnel cultivation, (3) agricultural practical technology promotion to foreign countries (4) agricultural economic and trade and production capacity cooperation promotion. These four platforms will promote agriculture as an important growth point for economic cooperation among SCO countries.

(iv) Deepening China-Central Asia agricultural trade based on the "The Belt and Road" initiative China-Central Asia agricultural trade is highly complementary and should be encouraged to increase trade on the basis of "The Belt and Road" initiative. As the key region of "The Belt and Road" Initiative Central Asia has great potential in the food production chain and can form a synergy effect if combined with China's agricultural development. At the video summit on the 30th anniversary of the establishment of diplomatic relations between China and the five Central Asian countries, President Xi Jinping stated that "China is willing to open its mega market to Central Asian countries, will import more high-quality goods and agricultural products from Central Asian countries, continue to hold the China-Central Asia Economic and Trade Cooperation Forum, and strive to increase China's international trade with Central Asia to \$ 70 billion by 2030". In September 2022 President Xi Jinping pledged at the SCO Summit in Samarkand that China will provide 1.5 billion yuan worth of emergency humanitarian aid, including food, to developing countries in need, and encourage the strengthening of "The Belt and Road" Initiative and the docking of development strategies of various countries. It also encouraged strengthening the dovetailing of "The Belt and Road" Initiative with the development strategies of other countries, and continued to support China's agricultural cooperation with Central Asian countries.

Under the new development pattern of mutual promotion of domestic and international double cycles, China agriculture also needs to make full use of the combined advantages of two markets and two resources at home and abroad to make up for the shortcomings of agricultural development and overcome the problems of agricultural development, pursuing on the current goal of food security. By taking full advantage of "The Belt and Road" initiative, China can further expand its supply chain in global food production areas and maximize the overseas guarantee of Chinese food security. Because Central Asia is an important region in "The Belt and Road Initiative", China can consider the Central Asian market as an important springboard to open up European business routes, create a grain procurement base for countries along the initiative, and establish the China-Central Asia cooperation model as a model for international cooperation. In addition to expanding direct trade, it is also crucial to popularize trade knowledge and learn trade guidelines. Yangling Agricultural High-Tech Industry

²⁷ China gives go-ahead for ChemChina buyout of Syngenta as last approval awaited from India. URL: https://www.scmp. com/business/companies/article/2087202/china-gives-goahead-chemchina-buyout-syngenta-last-approval

Demonstration Zone in Shaanxi Province has held more than 20 agricultural technology workshops for SCO member countries, and provided training on trade rules for agricultural officials and technicians from Central Asian countries. This agriculture zone contributes great value to ensuring smooth China-Central Asia trade exchanges.

(v) Taking advantage of Xinjiang's geographical location to create a core area for China-Central Asia exchanges

Xinjiang plays a pivotal role in China-Central Asia agricultural development. First of all, Xinjiang is one of the starting points of China-Europe (Central Asia) trains. In the first eight months of 2022, the number of China-Europe (Central Asia) trains was 8,701, up 6.5% year-to-year, setting a record for railroad ports.²⁸ Under the dual impact of the new COVID-19 epidemic and the Russia-Ukraine conflict, the China-EU (Central Asia) liner has made a great contribution to the stability of the global supply chain, bringing benefits to countries and regions along "The Belt and Road" initiative and promoting the sustainable development of the global economy under difficult conditions. Secondly, Xinjiang is the most important open port for Central Asian countries. At present, Xinjiang has 7 out of 16 open ports facing Central Asian countries (6 China-Harbin border ports and 1 China-Jijiang border port), which is an important pivot point for trade, economic and cultural exchanges between China and Central Asian countries. Xinjiang should fully use its geographical advantages, it unites China's inland regions internally, collaborates with them; it interconnects Central Asian countries externally as well, and hosts the Urumqi Foreign Economic and Trade Fair every year to create a regular exchange platform with Central Asian countries. These actions play an active and important role in increasing national and local tax revenues, drive the development of neighboring industries and promote social prosperity. Finally, Xinjiang is the center of scientific and technological exchanges for China-Central Asia agricultural cooperation. China and Central Asian countries have established the Common Central Asian Regional Economic Cooperation Institute (CAREC Institute) in Urumqi, Xinjiang, with the aim of promoting knowledge sharing among Central

Asian regions and promoting regional connectivity, economic and trade cooperation. The Central Asian Crop Germplasm Resources Database established in Xinjiang will also be put into operation in 2022–2023. On one hand, the construction of the database has enriched the resource types of Chinese germplasm and provided valuable scientific research information. On the other hand, the database improves the ability of China's modern agriculture to develop key solutions and meet the rigid requirements of biotechnology research. Therefore, playing a good role as a bridgehead Xinjiang is of multi-layered significance for the development of China-Central Asia agricultural economic and trade exchanges, agricultural products supply chain construction and agricultural science and technology exchanges.

5. CONCLUSION

As a necessity of human life, food is a matter of national prosperity and livelihood, and one of the biggest issues of international discussion after the outbreak of the Russia-Ukraine conflict in 2022. The food security shock caused by the Russia-Ukraine conflict directly exacerbates food security conflicts in Central Asia, thus increasing the risk of a systemic food crisis. In addition, the combination of high inflation and social instability may indirectly intensify social conflicts in Central Asian countries and eventually lead to a new round of unrest. Therefore, in the context of the Russia-Ukraine conflict, the food security problems of Central Asian countries are highly complex and difficult to solve. Besides, specific threats are prominent. Despite the difficulties, the Central Asian countries have chosen a cleare three-step strategy in facing the food security challenges posed by the Russia-Ukraine conflict. In the short term, Central Asian countries enact food security policies to maintain social stability. In the medium term, five countries strengthen international food cooperation to expand their own food security margins. In the long term, the region continues to deepen agricultural modernization and reform to improve established structural food deficiencies. Overall, while over-reliance on Russia and Ukraine food imports and unpromising macroeconomic performance have made it more difficult for Central Asian countries to ensure food security, Central Asian countries actually take the opportunities for agricultural transformation and can use them to increase their international food influence. As a solid partner of Central Asian countries in the past

²⁸ In the first eight months of Xinjiang dual ports of passage liner year-on-year increase of 6.5%. URL: http://www.gov.cn/ xinwen/2022-09/02/content_5708041.htm

three decades, China should calmly and objectively analyze the situation, appropriately learn from the experience of Central Asian countries in dealing with the food security problems brought about by the Russia-Ukraine conflict, and consolidate to develop the agricultural cooperation relations established with Central Asian countries before the outbreak. Together, China-Central Asia seek opportunities to deepen agricultural cooperation on the basis of existing good mutual political trust, and work with the international community. A solid relation with Central Asian countries will not only help ensure China's own food security, but also fulfill its sense of mission and responsibility to "build a community of agricultural destiny" and make a contribution to the stability of international food supply and global food governance within its capacity.

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Конфликт интересов: авторы заявляют об отсутствии конфликта интересов. Conflicts of Interest Statement: The authors have no conflicts of interest to declare

Статья поступила 20.01.2023; принята к публикации 25.02.2023. Авторы прочитали и одобрили окончательный вариант рукописи. The article was received on 20.01.2023; accepted for publication on 25.02.2023. The authors read and approved the final version of the manuscript.