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The repercussions of the Russian Ukrainian war on Arabic Food security (An Analytical study of the Arabs in (2022-2025)

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Abstract:

The research objectives are to list faced problems of food security in the Arab region due to Russian-Ukrainian war and suggest solutions which, under the condition of the war and civil violence, will ensure an adequate food supply of populations of the countries under discussion and allow them to live healthy lives with disease and epidemics absent. The research issue was to do with the consequences and Repercussions of this war on the food security of the Arabs. The researchers concluded that the Arab nations can obtain food security and become self-sufficient since the region is rich in natural and human resources.

This is however, an achievement that will only be possible through strategy formulation and strong political will of the government agencies and also by working together with one another to counter the international pressures due to the war, which may strangle the noose and bring a dire crisis of foodstuff that may in turn cause internal problems, as well as internal conflicts in most Arab countries.

Keywords: food security, food gap, the Russian-Ukrainian war, self-sufficiency, the Arab region.

JEL Classification Codes: Q18; Q17; F51.

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Introduction:

Food security is a critical global issue, affecting both developed and developing nations, as food is essential for survival. In Arab countries, agriculture has been a key focus to address food shortages, but recent challenges like population growth and climate change have hindered progress. As a result, many Arab nations rely on food imports, particularly from Russia and Ukraine. However, the ongoing Russia-Ukraine war has worsened the food crisis in the Arab region, severely impacting efforts to ensure food security due to its wide-ranging national, economic, and cultural effects.

It is based on this that this study will be seeking to address the following research problem:

What are the Repercussions of the Russian-Ukrainian war on food security in Arab countries in terms of the supply, prices, and food policies?

Three hypotheses have been developed to answer this question:

- The Russian-Ukrainian war has caused disruption of food supply chains to Arab countries that rely on the imports of both sides of the conflict.
- The war has resulted in increased pricing of grains and basic food commodities in Arab markets worsening the rate of food inflation.
- The consequences of the war were differently experienced by Arab countries with regard to dependencies on Russian and Ukrainian imports and preparedness to react to external shocks.

The importance of the study:

It is seen in that on one side food security is closely linked with economic and political stability within the Arab world. Approximately 30 % of all world wheat trade is conducted by Russia and Ukraine and this means that any disturbance in supply or exportation in these countries directly impacts millions in the Arab world who already face high food prices and dwindling buying power.

Through the foregoing, and as a challenge to understand the different facets of the study, descriptive approach to analysis was explored to solve the problem in question. The research was separated into three parts. **The first section**is concerned with food security and certain concepts related to it. **The second section**is dedicated to the role of Russian and Ukrainian economy in the global food market and their influence in the supply chains and food prices. **The third section**refers to Arab food issues considering the war between Russia and Ukraine.

Section 1: **food security, and certain terms associated with it**.

Following the Second World War, the global community settled on the idea of creating a specialized institution to cover world food security, the Food and Agriculture Organization (FAO) to fulfill various aims, primarily to enhance nutrition, living conditions, and welfare of rural people. Nevertheless, later in 1972-1974 a food crisis was experienced globally causing the convening of a team meeting in 1974 called the world

food conference which underscored the need to intensify and stabilize food production. The 1983 idea incorporated into the concept of food security the fact that it may be made available to people, as well as to the notions of food availability and stability. then a new level was introduced to the concept with reference to the efficient use of food at the 1992 world food summit and at the human right system the human right to adequate food was instilled.

First: Food security (concept and dimensions)

1. **Concept of food security**: According to Food and Agriculture Organization (FAO), food security is referred to as: a condition whereby all humans, at all time, have access to adequate, secure, and nutritious food to serve their feeding requirements, and preference to do so to an active, healthy existence. (Harkati, 2017-2018, p. 24)

According to the definition of the Arab Organization of Agricultural Development it is as follows: the steady supply of food of the amounts and qualities required to sustain vital activity to each member of the nation, according to local production, considering the comparative

advantage of countries, and with prices that are relative to income and potential of citizens. (Boughich & Najah, October 24-25, 2023)

It also refers to the ability of the required minimum quantity of food to support survival and continue life normally which is the converse of insufficiency and food scarcity to people and communities. (Al-Sufiati, Rabi' al-Thani 1442 - December 2020, p. 1372)

The World Bank however sees food security as the condition whenby all individuals, with every fulfillment of their nutritional requirements and inclination, have exploited physical as well as economic courts of adequate, risk-free, and wholesome food that will endorse their lively and wholesome living. (World Bank)

2. **Terms related to Food security**: Mostly the terms used in respect to the subject of food security or can be used as an addition to the concept of this study. These are as follows:

Food insecurity- defined as an economic and social situation of a house hold level that can be discussed as insufficient or unpredictable access to good food. Food insecurity cannot guarantee that one is hungry but it is a potential outcome of food insecurity. The US Department of Agriculture (USDA) subcategories food insecurity into two categories as following: (Food insecurity)

- Low food security: "Reported decreased diet quality, variety or acceptability with no or minimal evidence of decreased food consumption.
- Severe food insecurity: Reports on different food-indicator of interrupted feeding behaviors and decreased food intake.

Food insecurity may beperiodic or permanent and can be subject to a great number of things, such as income, employment, disability... The possibility of food insecurity

also increases when there is less or no money to purchase food. According to the United Nations report **Regional Overview of Food Security and nutrition in the Near East and North Africa 2024,** the number of individuals globally, who were exposed to food insecurity in 2024, was about 186.5 million, which corresponded to 39.4% of the population, 72.7 million of whom had severe food insecurity. (News on United Nations)**Food gap:** It seems to be the food that country in question requires, yet it is unable to produce itself locally, thus importing it outside of the country. Such a shortage is projected to be in the form of the volume between the imported and exported volumes of food commodities. It also displays the shortfall in local production of foods and capacity to cover consumption demands of food commodities secured by imports. (Jazar, 2024, p. 94)

all of its food sourced locally, based purely on its local resources and capabilities. (Amal, 2022, p. 422)

3. **Dimensions of food security**: According to the foregoing definitions, the fundamental dimensions of the food security can be relatively viewed as combined with the following points, as will be indicated in the following table:

Table 1: Dimensions of food security

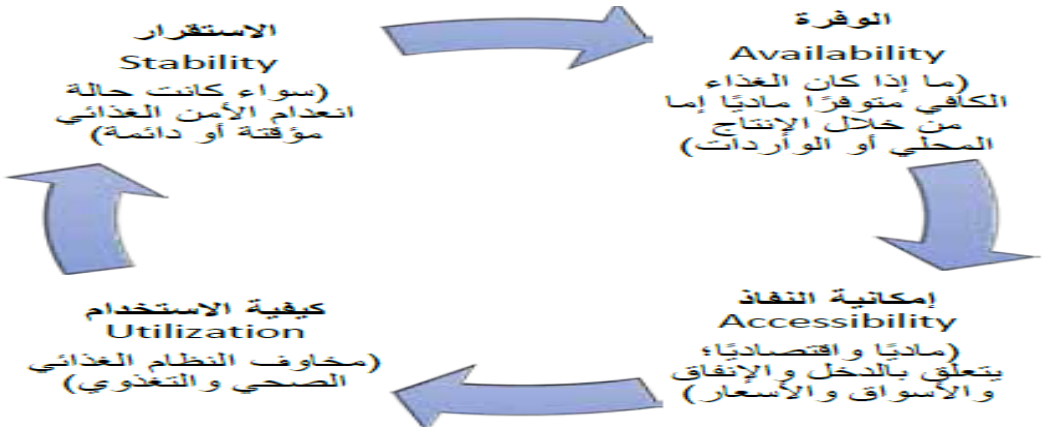
Dimension	Definition	Relevance to the Arab region
Availability	Ensuring sufficient quantities of food, either through local production or through imports and aid.	The lack of arable land in the region is a major challenge in Arab countries. Without an environment conducive to sustainable local food production, countries in the region are forced to rely on imports to maintain their food supplies. This dependence links food security in the region to the ability to access stable imports. The lack of adequate food supplies has exacerbated malnutrition in the region. In Jordan, for example, the rate of undernourishment rose from 6% between 2013 and 2015 to around 17% in 2021.
Access	The physical and economic ability to obtain food; food availability does not necessarily mean that everyone can afford to buy it.	. With many ongoing and emerging conflicts in the region, many groups face marginalization, meaning that access to food is not equal among all groups within a country. Due to food shortages in Syria, for example, President Bashar al-Assad's regime adopted a smart card system in 2021 to distribute food through rations. However, cardholders must first provide a social security number, which many do not have. The establishment of food distribution mechanisms based on preconditions, which are sometimes linked to legal and political situations, increases the marginalization of certain groups, affecting access to food in general.

Utilization	This refers to how the body utilizes the food consumed and is influenced by factors such as healthcare, nutritional practices, food preparation, and dietary diversity, i.e., the biological utilization of nutrients to determine the nutritional status of individuals.	Many Arab countries suffer from high rates of anemia, with about 70% of women of childbearing age suffering from this problem, in addition to high rates of obesity, which means that the region's performance is poor in terms of food utilization.
Stability	means the continuous ability to obtain food without interruption and to avoid the risks posed by economic, climatic, or political crises that could lead to food insecurity, whether periodic or sudden.	Some regions in the Arab world face different challenges at varying levels, and social, political, and economic instability in the region prevents the achievement of food security and exacerbates problems of access to, availability, and utilization of food. An example of this is what has been happening in Gaza, which has been under siege for nearly two years.

Source :1- (Shehaby., (FEBRUARY 2023))
2- (Nations, https://political-encyclopedia.org/dictionary/ (View date: 14-06-2025.))

These pillars may be explained as shown below:

Figure 1: Aspects and institutions of food security



Source: Talha Al-Waleed and Karim Ben Kandouz. (Issue 108, Arab Monetary Fund, 2022). Food Security in the Arab Countries: Economic Analysis and the Economic policies. Economic Studies, p. 9.

Thus, one can say that food security should ensure that everybody within a society can access food on-demand and continuously, to enjoy a healthy life that is vibrant and active. Food has to be safe and in good condition also and it must be in adequate supplies and affordable costs as well.

Second: The value of food security

The fact is in that the problem of food security has the crucial significance on the international, and regional levels, because there are several important reasons why the issue gets the priority, the most important of them being the following: (Rouabhia & Bahloul, April 2024)

Population growth: The population of the world is projected to grow to approximately 8.5 billion by 2030, and approximately 9.7 billion by 2050 before hitting the 10.4 billion mark by 2100 according to the latest figures published by the United Nations. The report on population of the world prospects 2022 also indicated that by the year 2023, India will be the most populous nation overtaking China. **External shocks**: there are lengthy climatic and economic shocks that hit most developing economies including some Arab countries and which have a rough impact on food stocks worsening the food crisis thus forcing the region to be hit by the threat of famine. Increasing unemployment coupled by a decreasing income is also a way of diminishing the ability of an economy to afford food.

Splintered international relations: Weakened international relations is also an added problem in the food and agricultural supply chains as it complicates the matter of food security condition, in particular, wars and conflicts (the war in Yemen and the Russian-Ukrainian war).

Pollutionand environmental imbalance: The quality and quantity of available food is influenced by environmental pollution, pollution by acid rains, pollution by the irrigation water, and overuse of pesticides and the cut food safety and quality.

The second Section:The influence and the role of Russia and Ukraine in the world food market and effects on the supply chains and food prices.

It is used in the context of the Russian invasion of Ukraine, it is worth mentioning that the independence of Ukraine on the part of Russia has its historical background since the Treaty of Brest-Litovski, signed by Germany in 1918,which gave Ukraine its freedom against Russia. However, this independencewas not long-lived, Ukraine was re-integrated into the Soviet Union in 1920. From thenuntil 1994 (when Ukraine renounced its nuclear weapons), when Russia acknowledged Ukraine as an independet state. Ukraine was still under Soviet influence, and its governments were under the Budapest Memorandum, mostly loyal to Moscow. The conditions, however, were shifted radically with the outbreak of the Euromaidan movement that toppled the pro-Russian government and replaced it with a new one.

new leadership was more inclined towards an alliance with the West. The new leaders wanted rapprochement with NATO,worsening past quarrels between Russia and

the Western alliance. AlthoughNATO and Warsaw Pact never had a head-on collision with each other, particularly in Europe.

The United States and the Soviet Union never ceased to be in the indirect conflict over international influence.by means of mutual containment policies. Following years of internal wrangles thatwas not to be overcome, and Ukraine made a movement toward the West, which resulted in the secession of the Crimean Peninsula and its annexation by Russia in 2014, the proclamation of the republics of Luhansk and in the eastern part of the country, which is mainly Russian speaking, Donetsk and Luhansk and cultural attachment, in which the inhabitants of the population would like to be closer to Moscow and reject the Western orientation of the Ukrainian government.

Russia invaded Ukraine on a large scale on February 24, 2022.in Ukraine, as Russia President Vladimir Putin made a speech announcing the start of a special military operation on the Ukrainian territory, since that time Ukraine has still continued to trengthening its relationship with the European Union and NATO, Russia has kept on its military actions, stating that it does not want to occupy Ukraine, but its national security and protect the Russian speaking community, which, as the Russian version of events, is being genocided due to its language in the east of the nation. (Al-Ikyabi, pp. 239-240)

First: The economic importance of Russia and Ukraine on the world food market:

The world has experienced dependence on global food supply chains over the last several decades, and Russia and Ukraine have a significant role in them, especially when it comes to grains and vegetable oils exports. Nonetheless, the eruption of war between both nations in February 2022 has disrupted the food market equilibrium and triggered basic enquiries into food security and food prices stability of the world and in nations that rely so much on imports.

Prior to the war, Russia and Ukraine were major exporters of grains, with the two nations contributing over 25 % of the world wheat exports, as per the food and agriculture organization (FAO data). This aspect rendered them a major source of wheat to most countries especially those in the Arab world like Egypt, Yemen, Lebanon, and Sudan who have high dependency on importation to satisfy their food demand.

The two countries contributed approximately 30 % of the total wheat exports, 20 % of the total corn exports, and almost 80 % of all the sunflower oil exports in the world between 2018 and 2021. This level of concentration has been a determining force in the market stability as the ripple effect or fall in the supplies caused by the war has resulted in increased price of the grain and oil, and this is a cause of apprehensions among the governments and the consumers. The crisis has not just affected grains and oils only but also fertilizers as the Russian Federation is among the largest exporters of fertilizers in the world and when the fertilizer imports are shaken, the agricultural output in the entire world is directly impacted and endangers food and agricultural stability in the developing countries especially. (Food and Agriculture Organization of the United Nations)

The table below indicates the value of food exports in Russia and Ukraine, in 2021:

Table 2: Russian and Ukraine food exports.

Commodity	Russia	Ukraine	Russia and Ukraine
Wheat	%24	%10	%34
Corn	%2	%15	%17
Barley	%14	%13	
Sunflower Oil	%24	%31	%27
Sunflower Vegetable Oils	%20	%61	%55
White fish (Alaska Pollock)	-	-	%81
Intermediate fertilizer mineral products (ammonia, phosphate rock, sulfur)	%16 %13	-	- -
Ready-made Fertilizers	%16	-	-
Food calories traded world over	%5,8	%6	%11,8

Source: (Caprile, April 2022.)

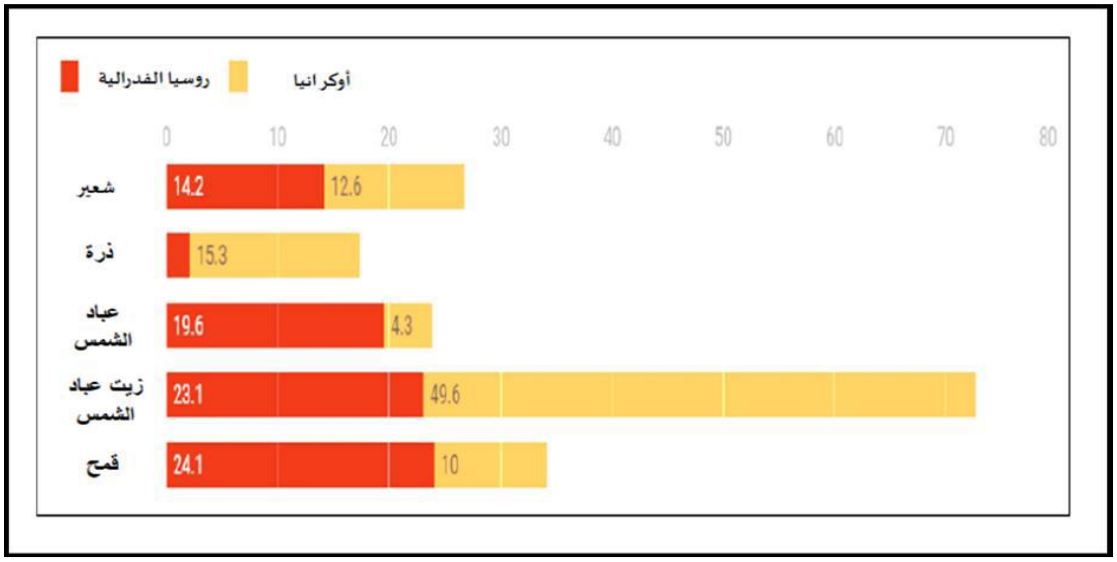
Russia and Ukraine are the major agricultural producers in the world and are commonly known as the breadbasket of the world because of their central contribution to the production and export of common and strategic crops including barley, wheat as well as sunflower seeds among numerous other agricultural products. International statistics indicate that the combined exports of the two countries comprised 28 % of the world wheat, 16 % of corn, 65 % of sunflower oil, 23% of sunflower seeds and 13 % rapeseed in 2020. (Caprile, April 2022.)

The importance of this role is mostly found in low-income nations in the Middle East and Africa, which are largely dependent on imports of the basic food products to satisfy the populace. Prices of bread and foodstuffs in these countries have drastically increased due to disruptions in the supply chains and increase in imports and due to the war. This has worsened the economic and living standards in these nations. Russia and Ukraine on the other hand are a major part of the source of grain requirement of North Africa and the Middle East with more than half of the imports of this region being provided by these countries.

In East Africa, the level of dependence is even higher since countries in the region are importing approximately 72 % of their grains requirement in Russia and 18 % in Ukraine, which means that they are will be very susceptible in the event of any supply disturbances in these two significant sources. (Caprile, April 2022.)

The total Russian Federation and Ukrainian production of barley, wheat, and corn represented about 19, 14, and 4 % of the world output respectively in 2021. In the case of sunflower oil, the two countries had over fifty % of the global output in the same year.The reports by the Food and Agriculture Organization of the United Nations (FAO) on the two countries indicate that Russia and Ukraine are in the top three positions as exporters of wheat, corn, rapeseed, and oilseed sunflower seeds. Russia is also among the top exporters of nitrogen fertilizers in the world, potash fertilizers, second-largest exporter and third-largest exporter of phosphate fertilizers respectively. (Al-Bah, 2023, p. 83)
This data can be described as in the following figure:

Figure 2: The comparison of Russia and Ukraine in regards to the most significant agricultural products



Source: (Al-Bah, 2023)

Moreover, Russia and Ukraine are key in the overall agricultural system because the two countries are the top exporters of agricultural products and foodstuffs to the foreign markets. In 2023-2024, Russia became the largest exporter of wheat in the world, supplying approximately 18 % of the global exports and Ukraine came in the sixth position with 10 %. The two nations have had almost 80 % of the total world exports of corn, barley, rapeseed and sunflower oil since 2018. These two countries are especially important to food security of African countries where the wheat imports are very high. Approximately 90 % of all wheat requirements in the continent are imported with the

greatest imports being registered in North Africa. This is the case with imports in Egypt where imports are more than 60 % of domestic requirements and 75 % in Algeria, 62 % in Tunisia and 38 % in Morocco. Libya and Mauritania also consume 50-70 % of their imports whereas Somalia consumes over 90 % of its wheat imports. (Al-Tamimi, 2023, p. 3)

Second: Price and supply chains effects of war

In 2022, Arab food security experienced a lot of turmoil due to the Russian-Ukrainian war that threw a cloud of darkness on some of these factors. The foreign trade in food commodities, particularly the grains and oil seeds, was influenced. Agricultural production sector was also directly affected by the war as shortage of production inputs in terms of fertilizers and energy sources. The Ukrainian war presented an immense threat to the food security in the nation and a bleak future to food supply chains around the world. Limitation of export licenses and port closures has disrupted the food market. Some of the critical food security issues that arose due to the war are lack of logistics and food supplies, agricultural inputs, abandonment of agricultural lands and diminished access to agricultural lands, destruction of food systems assets and infrastructure. Other Arab nations were also struggling with the problem of inability to access food commodities because of high shipping and transportation expenses. This resulted in loss of income levels and increase in the local food price, inflation and high global prices of imported foodstuffs. There have also been sharp changes in the prices of world oil and food commodities as a result of the war, which led to a drag in the global trade and the breakage of the supply chains and also to the rise in the prices of grains, fertilizers, and energy. In 2022, the world price of wheat, and this is calculated using the price of the US hard red winter wheat (FOB) and it has hit a high of around 430 per ton since 2014. (Arab Organization for Agriculture, 2023)

There has also been an evident increase in global food prices since the middle of 2020, which can be explained by a number of factors, the most prominent of which is the COVID-19 pandemic. These prices have shown an outstanding increase in March 2022, to unprecedented levels, in both the nominal and real terms. This was primarily caused by the consequences of the Russian-Ukrainian war with most groups of commodities increasing their prices in the month of March. Nevertheless, cereals and vegetable oils were the hardest hit taking into consideration the critical contribution of Ukraine and Russia to their production and export. Grain prices increased by 17.1 % with the vegetable oils increasing by 23.2 % over February of the same year. A small downward movement in prices was recorded in April. The price situation in this period is as follows as indicated in the following table:

Table 3: The results of a basket of food commodities (which are most frequently traded) in international prices in (2020-2022) on monthly basis.

Year 2020	Cereals	Oils	Dairy products	Food price index
January	100.7	108.73	103.8	102.5
February	99.6	97.55	102.9	100.1
March	98	85.42	101.5	95.2
April	99.6	81.18	95.8	92.5
May	98	77.77	94.4	91.1
June	97.3	86.61	98.3	93.3
July	97.3	101.8	101.8	94
August	99.2	98.7	102.1	98
September	104.3	104.6	102.3	98
October	112.1	106.45	104.5	101.4
November	114.8	121.9	105.4	105.6
December	116.4	131.2	109.2	108.6
Year 2021	Cereals	Oils	Dairy products	Food price index
January	125	138.87	111.2	113.5
February	126.1	147.46	113.1	116.6
March	123.9	159.3	117.5	119.2
April	126.2	162.19	119.1	122.1
May	133.7	174.88	121.1	128.1
June	130.3	157.68	119.9	125.3
July	126.3	155.5	116.7	124.6
August	130.4	165.86	116.2	128
September	132.8	168.57	118.1	129.2
October	137.1	184.84	121.5	133.2
November	114.8	184.56	105.4	105.6
December	116.4	178.51	109.2	108.6
Year 2022	Cereals	Oils	Dairy products	Food price index
January	140.6	185.93	132.6	135.6
February	145.3	201.72	141.5	141.1
March	170.1	251.83	145.8	159.7
April	169.5	237.53	147.1	158.5

Source: (FAO)

Conversely, the Food Price Index (FFPI) of Food and Agriculture Organization, in June 2025 was at 128.0 points which is a slight increase (0.5) of May, owing to an increase in prices of dairy products, meat, and vegetable oils, even though cereals and sugar prices declined. In an annualized basis, the index grew 5.8 % against June 2024, although it is still 20.1 % below its peak in March 2022. The cereal price index stood at 107.4 points which is 1.5 % decrease of price per month and a 6.8 % decrease per year. The prices of

corn dropped because of the presence of large amounts in Argentina and Brazil, and also sorghum and barley prices dropped. Prices of wheat increased as a result of climatic issues in the large production zones. The rice price index was also downed by 0.8, owing to low demand of Indica varieties (a category of the Asian rice). The vegetable oil index was at 155.7 points, an increase of 2.3 % over May and 18.2 % over June 2024, on account of higher prices of palm oil, soybean, and rapeseed cancelling a much small rise in the price of sunflower oil. The demand in the world market has been attributed to this growth, forecasts of supply shock, and biofuels support policies in the United States and Brazil. In the meantime, the FAO Dairy Price Index was slightly higher, 154.4 points in June 2025, a 0.5% increase compared to May, and 20.7% to the same index the year later. Butter price was the most substantial gain of 2.8 % per month to a record high (225 points) due to the shortage in supply in Oceania and the European Union and high Asian demand. In New Zealand milk production decreased because of a slowdown in production during the season and in the European Union because of a decline in livestock population caused by environmental regulations and outbreak of the bluetongue virus. In the United States, cheaper production of butter and inventories resulted in higher prices, and the cheese prices also increased during the three months straight, as it was supported by the strong demand in East Asia, whereas the prices of skim milk powder and whole milk powder also went down, but by 0.6 and 2.3 % respectively because of the low demand and substantial supplies. (FAO)

The Russia-Ukraine war has also led to reduced growth of the global economy and increased the rate of inflation due to increased prices of commodities like food and energy. This increasing inflation decreases the purchasing power of income and causes a drop in demand, as well as increases the disruptions in trade and supply chains and a reduction in remittances by the workers who are abroad, which may create new waves of refugees in the world. The inflation of domestic food prices (calculated as the change in the food component of the consumer price index annually) has increased comparatively steep, and the most recent available data of February to May 2025 show that inflation rates have increased in most low- and middle-income countries, with all of them surpassing 5% in: (The World Bank, 2025)

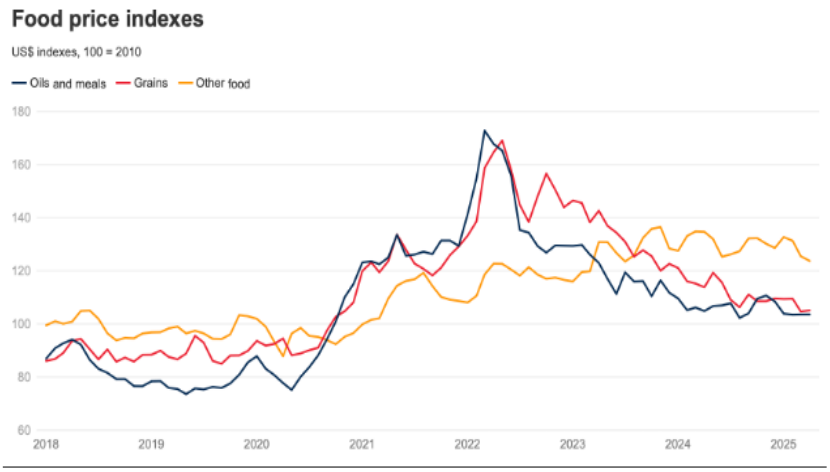
- 76.5 % of low-income countries, dropped 11 percentage point lower than it was on May 16, 2025.
- 54.5% of lower-middle-income countries, up 4.5 percentage point.
- 45.0 % of The upper-middle-income countries dropped 2 percentage point.
- 14.5% of high-income countries dropped 4 percentage point,.

Based on the real numbers, it becomes obvious that the inflation rate in food prices was higher in 6% of the 161 countries with data on the consumer price index of food and

the overall price index available [1], than is the overall rate of inflation (calculated on the basis of the annual change of the overall consumer price index). (The World Bank, 2025)

On the same line, as per the recent report issued by world bank, the world food prices are falling, encouraged by the high supply, but the national prices are still soaring. A minor decline in the Food Price Index published by Food and Agriculture Organization of the United Nations (FAO) decreased in the second month in a row (May-June) and this was largely caused by the declining prices of cereals and vegetable oils. The descent of the prices of wheat was attributed to the rampant production in the Black Sea area and also to the rise of exports by Russia. Prices of corn and rice also dropped, and they were backed by the increased production and the removal of export restrictions. These trends can be seen in detail in the following figure:

Figure 3: Index of food prices in the period (2018-2025)



Source: (The World Bank, 2025)

Due to the war, severe shortage of fertilizer was experienced in many countries leading to a drastic reduction in grain production. Attempts to safeguard domestic food security saw over 20 leading grain exporters put export bans. Also, food supplies and shipment of fertilizer to Russia were limited severely due to sanctions imposed on Russia, which deepened the crisis of food supply worldwide.

[1]An economic measure that tracks the average monthly variation in the prices of goods and services consumed by individuals and households.This index represents the cost of living and is considered a key indicator of inflation.

The third Section: The Arab food challenges in the light of the war between Russia and Ukraine.

One of the strategic objectives that countries aspire to attain is food security, as the countries associate it with their national security and territorial integrity. Even with the attempt to grow crops and food on the local level, a number of countries are still to a certain extent reliant on imports to satisfy their food demands. As the world has increasingly experienced crises, the issues of food security have been more complicated, especially when it comes to international wars and conflicts. A good example of these issues is the Russian-Ukrainian war, which has caused dramatic changes in grain and food supply chains by either halting or limiting agricultural exports of the two countries. The crisis has directly affected the global and Arab food security and has the potential at causing a rise in food shortages and economic and social instability in several Arab nations.

First: The situation of Arab food security amidst the Russian-Ukrainian war

Agriculture is ranked the most significant in all nations, including Arab nations because agriculture is among the crucial and efficient areas in the economic and social advancement of a nation. It is the main contributor of food and agriculture production and it has a huge percentage of the workforce. Agricultural sector is rated as one of the most significant activities in most Arab countries, as it is contributing significantly to gross domestic product.

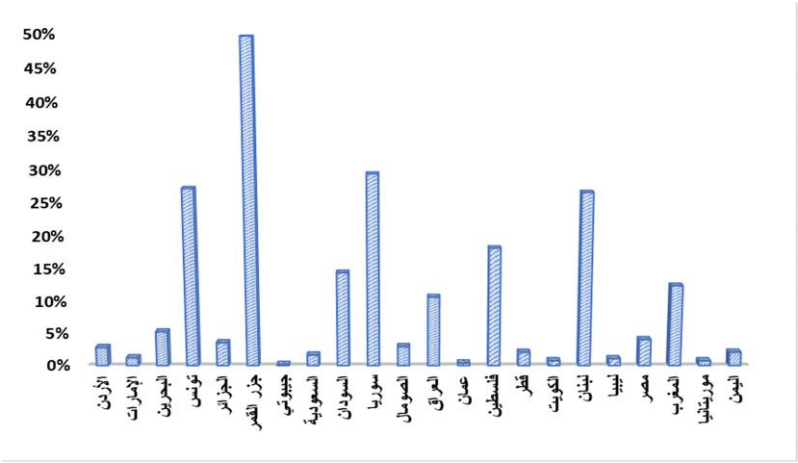
1. Reality analysis of the agricultural situation in the Arab world considering the environmental and climatic issues:

The Arab region is heterogeneous and uneven between its countries in terms of quality of soils, their access to water resources, natural resources and their economic and climatic conditions except the Gulf ones whose agricultural production is of great significance. It is however mostly deserted and lacks water resources which complicates farming. It fails to grow sufficient wheat, rice, vegetables, vegetable oils, and feed grains, consequently, importing them. Moreover, the Arab region falls under the list of regions in the world that experience water shortages and the impacts suggest that Middle East and North Africa will be some of the first states in the world to experience the effects of water shortages. A report released by the Carnegie Endowment on International Peace in the Middle East in early February of this year also noted that 80-90 million individuals in the region will experience the so-called water stress i.e. the demand on water was higher than the supply, and thus, by 2025, freshwater resources will be depleted. Repeat cases of environmental degradation are also being witnessed in many Arab nations and they are a consequence of depleting the availability of natural resources like water, air and soil, destruction of ecosystems, and extinction of wildlife. Climate change has been devastating to the agricultural output of some Arab nations in the recent years because of the repercussions of these changes. The resulting extreme heat and lack of rainfall as well

have contributed to poor production of certain major crops and also the proliferation of new agricultural pests.

Agricultural land use: The agricultural area covered by Arab world in 2022 was about 70.61 million hectares, or 5 % of the total geographical territory of Arab countries. The percentage of agricultural land in each Arab country differs according to the disparity in the natural resources, availability of infrastructures, the extent of investment in the agricultural sector, and agricultural policies. On the Arab level, it is estimated that 4.7 % of the total land is cultivated as compared to 10 % in the world with figures of 0.15 in Djibouti and 50 % in Comoros.

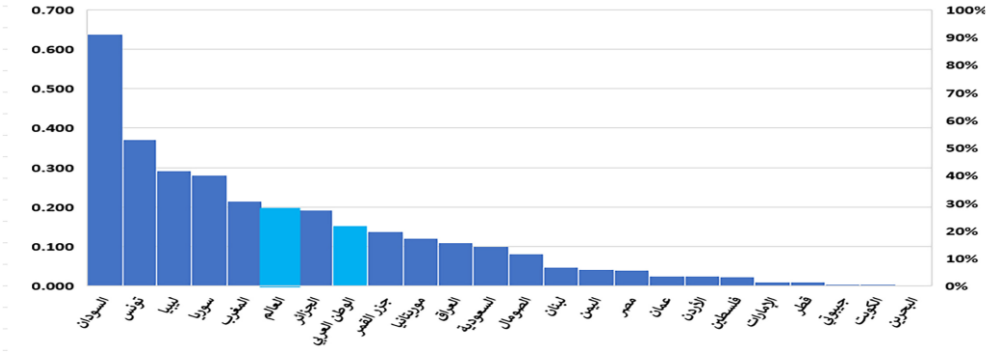
Figure 3: The rate of agricultural lands in the Arab countries.



Source: (Arab Organization for Agriculture, 2023)

With regard to the mean per capita share of arable land in the Arab world, it was approximately 0.15 hectares in 2022 less than the global average of 0.19 hectares per capita. The trends show that this average is deteriorating either at the Arab or global level due to increase in population which is relatively high in the Arab region. The share of farmland per capita between the Arab countries ranges in 2022 between 0.64 in Sudan and 0.28 in Syria, 0.37 in Tunisia and 0.21 in Morocco but fell in the rest of the Arab world between 0.19 and 0.00. These statistics point to the deterioration in the share of arable land per capita in the Arab countries in comparison with the world average which can be attributed in the following way:

Figure 4: Per capita percentage of arable land in Arab countries



Source: (The World Bank, 2025)

We observe that the average per capita share of cultivated land is different in the Arab countries with the highest rate being registered in Sudan (0.64 hectares per capita), which has the advantage of large area of cultivated and exploitable land than other nations and on top of this, it has the resources of water (Nile River) which is a permanent source of irrigation making the land more suitable to agricultural activities. Moreover, the Sudan population is not large and the number of inhabitants is not large in comparison with the area which is under cultivation. Those countries which have average rates (Syria, Tunisia, Morocco) are somewhat more concerned with the agricultural sector, particularly Tunisia and Morocco, and are typified by a somewhat good climate and repeated agricultural cycles, with averaged population in regard to the agricultural resources. The ratio of the Gulf countries (Qatar, Bahrain, Kuwait), of Palestine and Lebanon, the ratio is virtually nonexistent, being 0.08 to 0.00 under hectares per capita, since the total area is only a small fraction and there is a large population, i.e., the near absence of farmland in these countries and the necessity of importing food instead of producing it locally, and because urbanization is occurring at the cost of agriculture, whereas Algeria, Mauritania, Saudi Arabia, and Iraq had low values. Algeria, Saudi Arabia and Mauritania are defined by the desert like conditions and dearth of water and arable land. In the case of Iraq, although the country is rich in water, war, mismanagement, and degradation of agricultural facilities have affected it negatively and has made it impossible to exploit arable land. The growth in population of these countries in the absence of agriculture growth has caused a decline in per capita share all of which are negative signs that indicate that these countries are not in a position to cater to their food needs.

Alternatively, the per capita portion of the land actually under cultivation in 2023 in Arab countries was estimated at 0.14 hectares, and this is only 25-50 % of the amount of land required to supply their yearly food demands (0.2-0.4 hectares), one of the principal factors behind the food gap in the area. The only Arab nation in the top 20 nations of the world in terms of the percentage of total agricultural land per capita share is Sudan which is ranked 12 th with a share of 0.55 hectares. Conversely, the list of 20

lowest ranked countries in this indicator has nine Arab nations in it; Jordan, the United Arab Emirates, Bahrain, Djibouti, Oman, Palestine, Qatar, Kuwait, and Mauritania. The agricultural land in the Arab world is facing many obstacles to its growth including strenuous weather, scarcity of water, and lack of sufficient agricultural investments. Agricultural land is the other area that has numerous challenges, with the most significant ones being poor agricultural practices, poor land quality brought about by salinization, loss of land through urban sprawl, desertification, and erosion caused by winds and water. (Arab Monetary Fund, 2024, p. 81)

Water resources: The Arab world is characterized by acute water shortage and uses primarily the groundwater because of the desert features. This water is the major source of domestic, industrial and agricultural water, and approximately 90% of the population of Arab countries is living below the water poverty line (under 1,000 cubic meters per person per year). According to the ESCWA report, 13 countries are said to be under absolute scarcity (below 500 cubic meters), and by 2050 the majority of the population of the region will have difficulties using basic drinking water. The Arab countries are estimated to get about 260-265 billion cubic meters of renewable water every year which is almost half of it which came outside the region through shared rivers and reservoirs like Nile, Tigris, Euphrates. The per capita share is approximately 580 cubic meters per year, This is expected to drop to 500 cubic meters in 2025, and this will place over half of the population of the region in the water poverty line. In agriculture, renewable water has a relatively high percentage (84 %) compared with the world average (70 %) despite the fact that the agricultural sector only contributes up to 7 % to the GDP and 23 % in the less developed countries. The traditional irrigation systems cost the agricultural water a considerable percentage (25-30%). There are also wide gaps in the water usage of the region as some of the Gulf countries are extracting over 1 200 % of their renewable water sources and Mauritania has only extracted less than 10 % of its renewable water sources. Regional institutions accentuate the necessity to balance supply and demand management and use non-traditional water resources, including desalination and reuse, to provide water and agricultural security in the future. (Arab Organization for Agriculture, 2023) The table below indicates the rates of water resources overuse in Arab nations:

Table 5: Annual withdrawal ratio of water resources that are renewed annually.

Less than 10%	10-25%	26-70%	71-100%	101-200%	201-500%	1000-1200%	More than 1200%
Comoros Djibouti	Mauritania	Somalia. Lebanon Palestine Morocco	Algeria Iraq Sudan Tunisia	Oman Syria Jordan Egypt	Bahrain Yemen Qatar	Libya SaudiArabia	Kuwait United Arab Emirates

Source : (Arab Organization for Agriculture, 2023)

The amount of water, which is to be utilized in the key sectors, is allocated as in the table below:

Table 6: The water use in the major sectors.

Description	Agricultural use	Municipal use	Industrial use	Total
Annual sectoral use(billion m3)	205.1	35.7	14.5	255.3%
Sectoral use	80.3	14%	5.7%	100%

Source: Food and Agriculture Organization of the United Nations (View date: 14-06-2025) Food security, https://political-encyclopedia.org/dictionary/

There is also extreme natural water shortage in the Arab region, with the average annual rainfall less than 350 mm in the long run, which impacts harshly on the farmers who require enough water to farm, considering that the agricultural sector is the most significant source of water consumption in the region and water use efficiency in the Arab region is rated as poor. (Economic and Social Commission of Western Asia, 2019, p. 45)

The Unified Arab Report shows that the Arab countries use an average of 98 % of their renewable water resources, which makes them some of the nations experiencing extreme water stress (an influx of the ratio of the water consumed in one year relative to renewable water by more than 50 %). Moreover, the disparity between the renewable water availability and the increased use is also increasing in relation to the population that is projected to grow to 2 % annually and the shift in lifestyles due to rural to urban migration thus altering the water food consumption trends. There have been reported cases of water stress in the Arab countries, as indicated in the table below:

Table 7: Arab countries water stress

Percentage of water stress	Arab countries in question
Less than 50 % (mild stress)	Djibouti, Somalia, Mauritania, Comoros and Palestine
More than 50% (severe stress)	Tunisia, Lebanon, Iraq, Morocco.
More than 100 % (depletion or desalination)	Jordan, Algeria, Sudan, Syria, Libya, Egypt, Yemen, and the countries of the Gulf Cooperation Council.

Source: (Arab Monetary Fund, 2024)

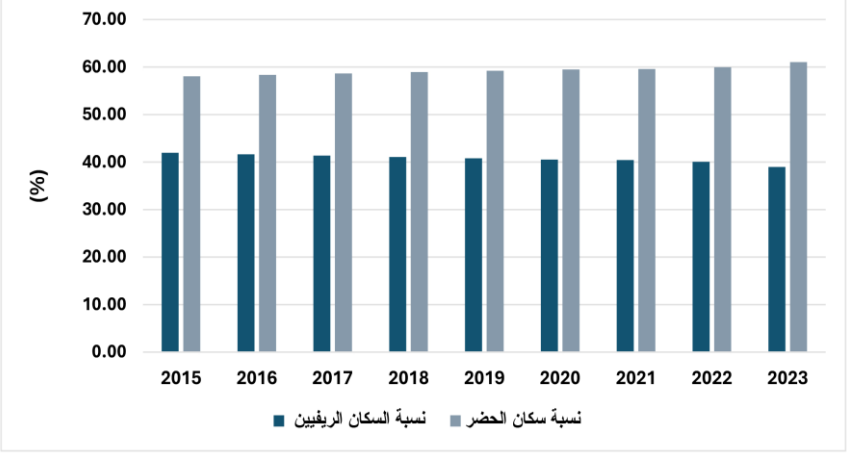
2.Population and labor force: The Arabpopulation in 2023, it is estimated that there are about 473.5 million people in the Arab world, which is a percentage of 5.6 towards the rest of the world. The relatively high population rates in the region are one of the key challenges to development endeavors and attaining food security with the population rate of growth averaging 2 per annum at the time 2023 - 2015 versus the world rate of 1.1 per annum at the time. In 2023, about 16.11 % of the total labor force in the Arab world was

agricultural, and statistics show that the variable has decreased steadily since 2015 to 2023, to 21.4 % to 16.11 % in the Arab world and to 28.83 % to 25.71 % worldwide. This is because of the heightened rural urban migration, and a migration of workers to other sectors of the economy. (Arab Monetary Fund, 2024)

A. **Rural population:** The rural population in the Arab countries increased to an approximate of 180.9 million in 2023 with 91.8 million of the population engaged in agriculture (approximately 50.7 % of the rural population) with an increase of 1 % per 2022. The statistics indicated that the rural population ratio in the Arab world was reducing at an average rate of 7.15 per annum during the period of 2015 to 2023 and the urban population increased at a rate of 5.17 per annum. Nevertheless, the rural and agricultural population growth was reduced than the general population growth in Arab nations that was 2.1%. Rural and agricultural growth has been stagnant owing to poor economic infrastructure and services in rural locations compared to urban ones causing them to keep migrating to urban areas. Moreover, the salaries of agricultural workers are lower than in other sectors and the demand to labor to be reduced due to the increase in the number of farms using agricultural technologies, which has led many not to want to work in the agricultural sector. It has been found that integrated rural development programs are able to restrict or slow down the migration rate to cities by alleviating the living standards (in terms of home, health, education, infrastructure) which help to make people stay and go back to farming, particularly the small farmers. (Arab Organization for Agriculture, 2023)

The percentage of rural and urban population in total population of the Arab world is as demonstrated in the following figure:

Figure 6: The proportion of rural and urban population to the overall population of Arab world in (2015-2023).



Source: (Arab Organization for Agriculture, 2023)

B. **Labor force in the agricultural sector:** Labor force in agricultural sector was 35.3 million people in 2023, or 17.5 % of all labor force, the lowest percentage of all developing countries. The Arab countries differ in percentage of their workers in the agricultural sector. This percentage is over a quarter in several Arab countries, namely Sudan, Comoros, Yemen, Morocco, Mauritania, and Somalia with percentages of around 34.9, 32.8, 29.3, 28.6, 26.2, and 40.2 in 2022 respectively. Countries with less than 5 % of the total workforce in other sectors are those where agricultural workforce is at the lowest i.e. in Jordan, Saudi Arabia, United Arab Emirates, Bahrain, Oman, Qatar and Kuwait.

The level can be explained compared to developing countries operating on agriculture on the global level as it is illustrated in the table below.

Table 8: the percentage of the labor force in the agricultural sector, in 2023, (millions of people)

Countries	Population	Agricultural population	Rural population	Agricultural labor force	Agricultural population as a percentage of total population (%)	Rural population as a percentage of total population (%)
Arab countries	455.9	91,8	180,9	25,4	20,1	39,7
Developing countries	1125.5	604,3	721.9	267.4	53,7	64,1
World	7975.1	2904.3	3416.8	1380.6	36,4	42,8

Source :Arab Monetary Fund, Unified Arab Report, adapted.

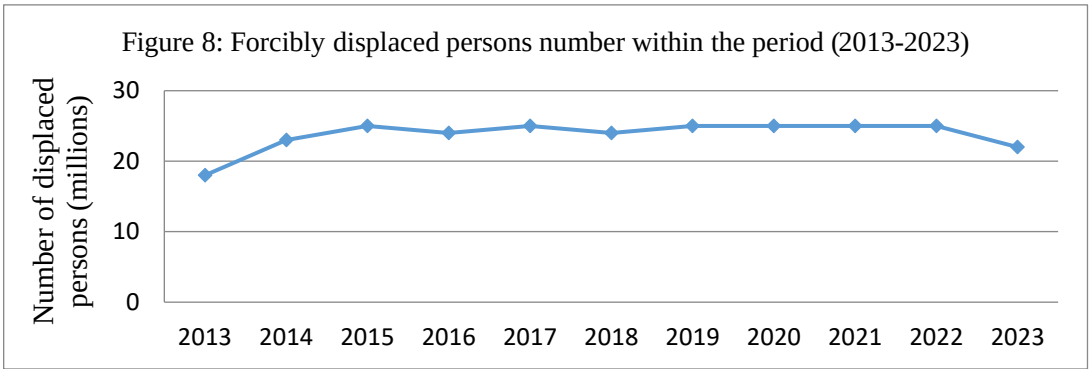
Second: Arab food security determinants

The Arab region is characterized by a lot of problems that have directly affected its food security and stability, besides the Russian-Ukrainian war that has worsened the situation, particularly to those countries that rely on these two countries to import its food. The key among these challenges are as follows: (Food Security Information Network, 2024 , p. 141)

1. **Food insecurity:** Syrians and Yemenis experienced the most severe food crisis in the world since 2016, and Yemen has the highest population of individuals with severe food insecurity. Over 10 years it had been at the third stage of the phased classification or worse because of conflict, natural calamities and economic crises, more than half of its population. Between 2018 and 2022, food insecurity (phase five) occurred catastrophically among some of the population in Yemen. Global reports show that 19 million people (60% of the population) will continue to experience severe food insecurity until June 2024 particularly following the World Food Programme halting

its aid in regions under Sana that are in control. The same crisis was experienced in Syria because of the war, COVID-19 and some climatic phenomena and economic crises, which worsened the food situation. Since 2020, more than a half of its population has been experiencing food insecurity. Following the financial crisis since 2019, Lebanon was recently added to the phased classification due to the extent of impact on food security of the population and the Syrian refugees who constitute about 6.7 million in neighboring countries, economic fragility and security concerns at the borders, and the decline in the basic services and the consequences of the 2023 earthquake and the regional conflicts. Palestine (Gaza), Lebanon, and Yemen were among the countries with the poorest outlook with 22.37 million of its population living in trouble in 2024. Due to the unfair siege, devastation of the entire territory, and inability to access services, there is a threat of famine in Gaza, and over 1.1 million individuals can be defined as the stage five category. Economic situation is concerning as there are expectations of a minor improvement in Lebanon.

2. **High population growth:** In Egypt and Iraq, 20 % of the population is employed in the production sector in agriculture and in Yemen, 28 % of the population is employed in agriculture. Conversely, the rising population growth in Arab nations with the highest population growth rate of 6.8 in Jordan is leading to demand rise in food further leading to dependency on imports. Juxtaposition of food and fuel supply in the region by the fragility of the supply chains and tensions in the Red Sea have exposed the supply chain to the global price fluctuation and other external shocks, a scenario that promises to raise the prices of commodities consumed by the consumers that are already experiencing rising poverty.
3. Rising conflicts and growing population of displaced individuals: 22.2 million people displaced by conflict and disasters incurred in 10 countries with food crisis, with 80 % internally displaced since 2013 and long-term refugees, place pressure on host countries. According to the report by the UN, 91 % of the internally displaced individuals in Palestine (Gaza) were severely impacted by food shortages at the end of 2023 and the situation is still worsening with the war still going on in its second year, residents were going days without food and there was an extreme lack of water, health care and sanitation and a high risk of disease outbreaks. Syria too has one of the largest numbers of internally displaced citizens (6.7 million) with most of them residing in the northwest part of the country with a population of 2.1 million living in overcrowded locations without services. A large amount of the Internally Displaced Persons (IDPs) both within and without the camps experienced acute food insecurity in 2023. They were further affected by the earthquakes in February, 2023 which displaced more people, 700, 000 of them, 90 % of whom had already been displaced by the war. Over 114,000 individuals were still in camps six months after the earthquake and minimal assistance was being rendered. As the next figure shows, the number of displaced persons can be estimated as follows during 2013-2023:



Source: (Network, Food Security Information, 2024)

4. **Weaknesses in food security support structures:** Countries like Yemen and Syria are characterized by a serious lack of capacity to react on disasters because of the high risks involved, institutional and social weaknesses and low indicators of human development. This is shown by the fact that there are poor health services, education and income, as well as the low income in the form of water that is scarce, having adverse impact on agriculture that is largely reliant on irrigation. There is a drop in agricultural output caused by poor water management and climate change, just as 11 counties in the region are in the list of the most water-scarce in the world, and droughts cover over 25 % of the region, with Egypt being the sole state which depends more on irrigated farming.

Table 9: Signs of structural weaknesses on food security.

Country	Annual population growth: United Nations Department of Economic and Social Affairs (UNDESA)	Reliance on imported grains weighted by caloric value	Employment in the agricultural industry, forestry and fisheries	Crop season due to drought	Risk index (010)	Global Human development Index ranking (1-192)
Algeria	**2,8**	**70,8**	**10,3**	**25,06**	**3,6**	**th91**
Egypt	**2,1**	**47**	**19,8**	**7,1**	**4,9**	**th97**
Iraq	**2,1**	**50,0**	**19,8**	**14,87**	**6,7**	**st12**
Jordan	**6,8**	**100,0**	**3,2**	**15,62**	**3,8**	**nd102**
Lebanon	**2,8**	**97**	**3,8**	**23,15**	**4,1**	**th112**
Palestine	**0,9**	**-**	**-**	**14,51**	**3,7**	**th106**
Syria	**2,1**	**29,2**	**12,5**	**13,52**	**7,2**	**th150**
Yemen	**1,4**	**9,8**	**28,1**	**14,75**	**7,5**	**rd183**

Source: (Network, Food Security Information, 2024)

Certain Arab nations have fared even worse due to the invasion of Ukraine by Russia and must step up efforts to identify ways to solve previous and other issues and minimize the adverse effects on their environment, social, and economies due to unregulated urban sprawl at the cost of agricultural land, as well as the development of new methods and approaches in agriculture and irrigation, which is defined by low costs and ease of implementation, which may become an ideal solution in the use of agricultural land and dependence on food imports.

Conclusion:

The economic shrinkage, burden of debts and rising poverty and inequality can not allow the countries to invest as much as they need to in food security and nutrition enhancement. This can be experienced to the Arab countries that are still miles to go to realise the Sustainable Development Goals by 2030 and namely to food systems and climate change. The extent of sensitivity of food systems in such countries to climatic changes has many roots. Average temperature in the year is projected to soar up to 5degC by the century though the level of rainfall will be lower and be more erratic hence resulting in higher number of droughts in certain places and floods others. It will affect more on the availability of water in 19 out of 22 countries. It already experiences water scarcity below that of 1,000 cubic meters per capita per year and has 13 countries that experience less than that of 500 cubic meters in absolute water scarcity. This decreasing state of affairs will have a great impact on the food systems causing decreased agricultural output and worsening health and sanitation. As many of their ecosystems will not be able to operate effectively, the countries themselves, who fail to grow enough food to satisfy their demand, will cling firmly to food imports, not least of all, commodities, a fact that can be aggravated by the Russian war against Ukraine since they are the two largest exporters of vital foodstuffs. Another cause behind the current record food prices in the global market occurred before the war came about as the world supply and demand faces began increasing prices alongside rising costs of production, international trade and supply chain problems brought by the COVID-19 outbreak and other issues. The success of these nations in the sphere of reaching self-sufficiency is defined by the ability of these countries to overcome some elements such as geographical position, size of arable land, irrigation, labor, modern agriculture systems, etc.

We have tried to examine the most significant outcomes of the Russian-Ukrainian conflict on the food security of the world and Arab food security, in particular, as it is reliant on obtaining its food in these two nations. The threat has been particularly heavy because of the invasion of Ukraine by Russia, among other adverse life factors that are triggered by the political and economic circumstances, wars, and civil unrest. These are our conclusions, to the following:

1. Arable land in Arab countries is also depleting because of the excessive use of fertilizers and pesticides and under their traditional irrigation systems besides the high temperatures, water waters as well as floods that occur as a result of the global

climatic change. According to a report done by the Food and Agriculture organization (FAO), over 46 million agricultural land is degraded particularly in the Arab region.

2. The food insecurity is looming in many Arab countries, particularly the countries which used to be the biggest importers of the Russian and Ukrainian wheat. This will lead to crisis in wheat imports which jeopardizes the security and stability of such countries. In the short term and the medium team, this war has halted the global trade of wheat as the Ukrainian government has prohibited the export of wheat, the Russian troops have bombed grain storing facility and the maritime infrastructure, and ports in Ukraine. It also has planted the mines in the black sea where just in excess of 80 % Ukrainian grain exports are sent out.
3. The further continuation of the war in Ukraine will only worsen the situation and its effects, which will extend to most corners of the world, reflecting in an increase in prices of commonly used foodstuffs, the costs of imports, and oil. It will reach further to the stage of acute food insecurity in nations where security is not stable like Sudan, Yemen and the Gaza strip of Palestine that is getting the most of famine and malnutrition as a result of the blockade.
4. Arab countries are among the most dependent on grain imports from Russia and Ukraine, such as Egypt, Lebanon, Sudan, and Tunisia. The decision to close the ports of these two countries to exports has deprived the populations of some countries suffering from food insecurity of the ability to produce bread and other daily necessities. They are also major producers of oil, wood, and sunflower oil, accounting for more than 14% of global wheat exports and a similar percentage of the global corn market.
5. Despite Arab initiatives to promote cooperation and achieve food security and self-sufficiency, their efforts remain below the required level. This is because they still rely on imports to meet their food needs, due to a population growth rate that is rising by 2% annually compared to the global rate of 1% in 2020, without any increase in agricultural yields or expansion in the use of arable land.
6. Arab countries are characterized by diversity and differences in terms of soil quality, available water resources, natural resources, economic conditions, and climate. Some of them attach great importance to agricultural production but do not produce enough wheat, rice, vegetables, vegetable oils, and feed grains, so they resort to importing them, with the exception of the Gulf countries, where agriculture is difficult because most of their land is desert and suffers from a lack of water resources.
7. Some Arab countries suffer from water shortages, and it is expected that 80 to 90 million people in these countries will suffer from water stress by 2025, which occurs when demand for water exceeds the amount available.
8. Arab countries do not pay sufficient attention to agricultural projects or support farmers, which has led to crop shortages and deterioration, the migration of farmers

to cities, and the exploitation of arable land for construction, thereby reducing green spaces and greatly affecting agricultural production.

9. The Gulf Cooperation Council countries import about 90% of their basic foodstuffs from Russia and Ukraine, but they have not been affected by the Russian invasion of Ukraine on agricultural markets because they have adopted a set of policies in this regard. They have diversified their sources of imports and invested in arid regions using modern production techniques. Some have also purchased agricultural land in foreign countries, which has helped to strengthen their food security. In addition, high oil prices have enabled them to absorb excessive food price increases and provide food for their citizens.

The following are some recommendations:

– The need to seek new ways to address global challenges related to food security, such as finding alternative solutions to the depletion of natural resources that Arab countries are rich in and trying to invest less land for more productive output, as well as making optimal use of human resources working in the agricultural sector.

– Attempt to diversify sources of food imports instead of relying almost entirely on Russia and Ukraine, thereby enhancing the ability to overcome food shortages or crises and providing financial aid to people with fixed incomes who have been affected by rising prices.

– Rely on modern agricultural techniques to improve production and make it more sustainable, such as using seeds that are adapted to climate fluctuations and resistant to drought, as well as irrigation methods that conserve water instead of wasting it.

– Establish Arab regional blocs and facilitate trade between Arab countries, thereby enhancing food security in the region.

–Economizing in the use of fertilizers and pesticides to preserve the natural properties of the soil on the one hand and avoid the excessive costs of importing these materials on the other, especially since Russia is one of the world's leading exporters of fertilizers.

– Expanding supply chains and addressing potential disruptions to reach areas most affected by food insecurity, especially those suffering from conflict and war, such as Gaza, Yemen, and South Sudan.

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