

DEVELOPING TURKEY'S STRATEGIES AGAINST THE GLOBAL FOOD CRISIS¹

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Abstract

Although providing people's access to basic nutrients has always been important, increasing population, rapid migration from villages to cities, widening the gap in income distribution and increasing commodity costs have been effective in the emergence of the food crisis in the world. However, in recent years, factors such as climate change, the Covid-19 pandemic, the increase in fuel costs and the war between Ukraine and Russia have caused significant increases in food prices and increased acute food insecurity. According to the UN's "Global Food Crisis Report", it was pointed out that 139 million people in 24 countries/regions experienced acute food insecurity due to conflicts, more than 23 million people in 8 countries/regions due to extreme weather conditions, and more than 30 million people in 24 countries/regions due to economic shocks. The Food Price Index is 158.50 in April 2022 calculated by FAO. In the same period, Turkey's Food Price Index was calculated as 375. Also, annual food inflation is seen that it is 94.65% in Turkey. In the same period, the average food inflation in the world is 14.50%.

The aim of the study is to determine the reflections of the effects of the global food crisis in Turkey, and to develop strategies to eliminate the negative effects of the food crisis in Turkey. In the study, the strengths and weaknesses, opportunities and threats of the Turkish agricultural sector were determined by SWOT analysis and suggestions were developed to prevent Turkey from being affected by the global food crisis. In the study, it was concluded that the Turkish agricultural sector has the potential for self-sufficiency and that it will be affected by the global food crisis at the lowest level, with a macro-level optimization study in agricultural production and the elimination of structural problems in the economy.

¹ original research paper

Keywords: food crisis, food security, self-sufficiency, SWOT analysis

INTRODUCTION

Food supply has been the most important occupation of life since the creation of living forms. Sustainability of the life is not possible without water and food. People have struggled to meet their food needs as well as to protect themselves against the dangers that may come from the outside the World during their lifetime. The food supply and the amount of food per capita have started to decrease with the increasing population and the decrease in resources.

Due to the increase in food prices the decrease in food consumption and the increase in the number of hungry population are called the global food crisis. The reason why the increase in food prices is called the food crisis is the significant increase in the number of people who are undernourished in a short time. According to the definition of the Food and Agriculture Organization (FAO), undernourishment or chronic hunger is the situation in which the amount of food taken daily cannot provide the energy required for daily activity (Cengiz and İlhan, 2016).

The food crisis continues to affect the World day by day due to factors such as increasing population, climate changes, rapid migration from villages to cities, inequitable income distribution, and increase in commodity prices. The main reasons for the emergence of the food crisis are related to the change in the supply and demand balance. The excessive increase in demand and the inability to achieve the desired increases in supply are the reasons for the emergence of the global food crisis.

Turkey is able to maintain its self-sufficiency in many agricultural products, especially vegetables and fruits. However, there is a foreign dependency, especially in vegetable oils and pulses. Changes in agricultural input costs have been directly reflected in product prices in Turkey for many years. The most important reason for this is the inadequacy of agricultural support policies. Due to the high production costs of agricultural products, the chance of competition is decreases in the world markets.

The aim of the study is to determine the reflections of the effects of the global food crisis in Turkey and to develop strategies to eliminate the negative effects of the food crisis. In the study, the strengths and weaknesses, opportunities and threats of the Turkish agricultural sector were

revealed and determined by SWOT analysis and suggestions were developed to prevent Turkey from being affected by the global food crisis.

MATERIALS AND METHODS

The material of the study consists of sector reports, articles, meeting results and data obtained from statistical data sources. The macro data obtained in the study are summarized with Tables and Figures.

SWOT Analysis is a strategic technique used to identify the strengths and weaknesses of the institution, technique, process, situation or person, and to identify opportunities and threats arising from the internal and external environment. This technique requires setting the goals of the industry or business enterprise and identifying the internal and external factors, positive or negative, to achieve the goal. This method was developed in the 1960s by Harvard University professors Learned, Christensen, Andrews, and Guth.

SWOT analysis involves examining the environmental factors, determining the opportunities that are important for the future of the sector or the business, detecting the activities that may pose a threat to the business and taking precautions, revealing the strengths of the business and determining in which situations, conditions and environments they may need to be used, determining the weaknesses of the business and taking precautions. to be taken, to analyze the difficult situations where the weaknesses can bring down the business in the face of possible threats, etc. encompasses strategic and planning approaches.

The way SWOT analysis is applied and the questions to be answered can be summarized as follows;

- Strengths are identified. Situations that ensure the success of the companies and contribute to the current situation are determined. Strengths can also be thought of as things that are often done better than competitors. The company's strengths are revealed in line with the opinions of the people who participated in the analysis
- Weaknesses are analyzed. The factors that prevent the company from being more successful are determined. The sensitive points of the company are determined. Factors that reduce the impact of the company are determined. Taking into account the mistakes made by the company, the errors that cause this are determined.
- Opportunities are determined. Job blindness is very common in companies. Identification of opportunities is done with the aim of preventing the

company from getting caught in this situation. Opportunities are points that should be in front of the company's eyes and should not be missed. The issue of opportunities is critical. If this issue is neglected and a company's opportunity is realized by another competitor, the opportunity can turn into a threat.

- Threats It is the identification of threats in front of the company. Identifying threats is vital for companies to take action. However, these threats should be determined multi-faceted. Threats do not come only from competitors. Sometimes a company that is not your competitor may appear as a serious threat tomorrow. Threats section is a section that needs to be studied specifically and often cannot be duly extracted (Unakitan and Abdikoğlu, 2019)

RESEARCH FINDINGS

In the recent period, factors such as climate change, the Covid-19 pandemic, the increase in fuel costs and the war between Ukraine and Russia have been effective in the emergence of the food crisis in the world.

According to the UN's "Global Food Crisis Report" published in 2022, it was pointed out that 139 million people in 24 countries/regions experienced acute food insecurity due to conflicts, more than 23 million people in 8 countries/regions due to extreme weather conditions, and more than 30 million people in 24 countries/regions due to economic shocks.

According to the data announced by FAO, when the number of people suffering from chronic malnutrition in the last 20 years is examined, it is seen that the highest figure was 838 million people in 2002. This figure has been decreased to 570 million in 2013. However, the number of undernourished people in the world has been increased as of 2019 and reached 768 million people in 2021. While it is unacceptable that the rate of undernourished people is even 1%, the best rate was 7.6% in 2017. As can be seen in Table 1, the rate of undernourished people has been rose again to 9.8% in 2021.

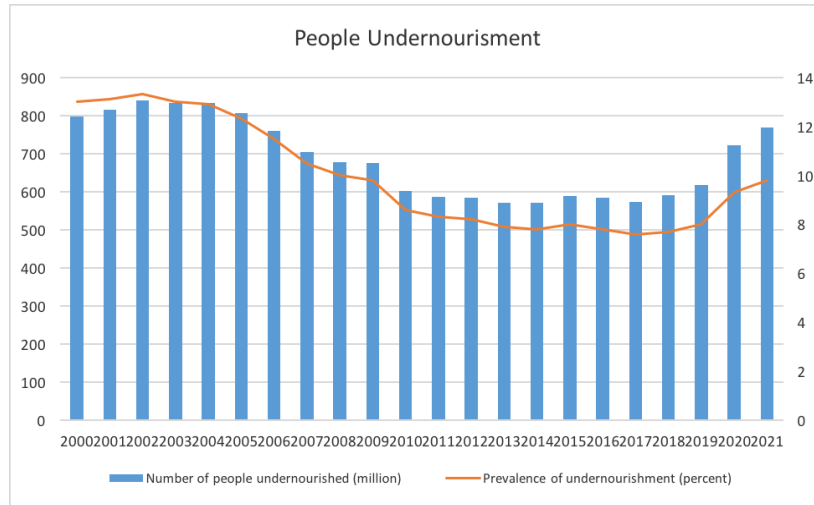


Figure 1. People undernourishment

Table 1 shows the results in which the rates of undernourished people in the world are grouped according to the size of the country's economies. As might be expected, the proportion of undernourished people in low-income countries has risen to over 30%. This rate is around 13.8% for lower middle income countries and 2.7% for upper middle income countries. The rate in Turkey is below 2.5%, as in high-income countries.

Table 1. Prevalence of undernourishment (%)

	World	Low income economies	Lower- middle- income economies	Upper- middle- income economies	High- income economies	Türkiye
2000	13.0	35.1	17.5	9.9	<2.5	<2.5
2005	12.3	30.6	18.8	6.8	<2.5	<2.5
2010	8.6	23.9	13.7	3.0	<2.5	<2.5
2015	8.0	24.9	12.1	<2.5	<2.5	<2.5
2021	7.8	25.7	11.4	<2.5	<2.5	<2.5

6						5
201	7.6	25.5	10.9	<2.5	<2.5	<2.5
7						5
201	7.7	26.5	10.9	<2.5	<2.5	<2.5
8						5
201	8.0	27.3	11.2	<2.5	<2.5	<2.5
9						5
202	9.3	30.0	13.1	2.6	<2.5	<2.5
0						5
202	9.8	31.4	13.8	2.7	<2.5	<2.5
1						5

Source: FAO, 2022b, 2022. Food Security Indicators

In the report prepared by IFPRI (International Food Policy Research Institute) in 2018, the consequences of the risk of hunger in the world for the years 2030 and 2050 are given. As seen in Table 2, with the effects of climate change, it has been estimated that 592 million people in the world in 2030 and 477 million people in 2050 will face the risk of hunger. It is noteworthy that these figures are mostly in developing countries. It has been estimated that 2.4 million people will face the risk of starvation in 2050 in Turkey.

Table 2. Prediction of the population at risk of hunger (million)

	Not including climate change		Including climate change	
	2030	2050	2030	2050
World	528.2	405.8	592.3	476.9
Developing countries	513.3	392.2	576.7	461.1
Developed countries	14.9	13.6	15.7	15.8
Türkiye	2.2	2.4	2.2	2.4

Source: IFPRI, 2020. 2018 Global Food Policy Report

The Food and Agriculture Organization (FAO) reported that global food prices reached an all-time high in the first months of 2022, mainly for vegetable oils and grain products, as the Ukraine-Russia war disrupted supply.

The Food Price Index is 158.50 in April 2022 calculated by FAO. It is seen that global food prices have increased by 29.8% In the same period, Turkey's Food Price Index was calculated as 375. As seen in Figure 2,

although the Food Price Index in Turkey was below the world prices until 2015, it started to increase after 2015 and reached record levels in 2021 due to the inadequate economic policies.

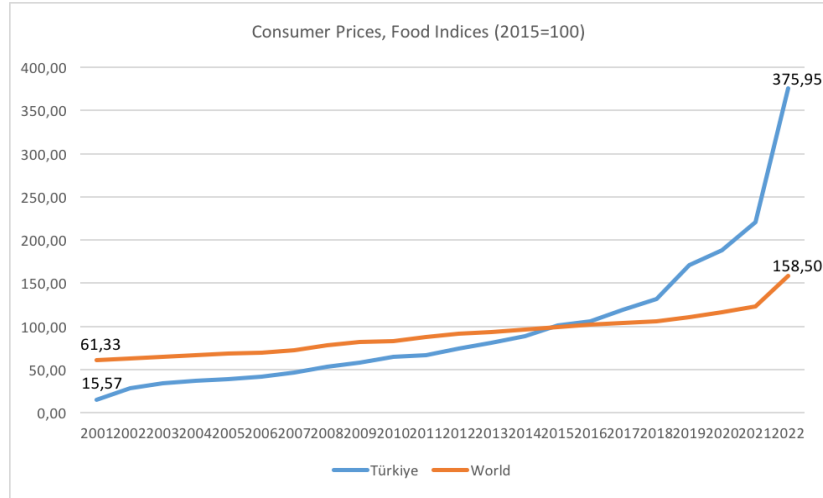


Figure 2. Food price indices

In Figure 3, price indexes are given on the basis of product groups. It is seen that the most effective product groups on the general food price index are vegetable oils, cereals and sugar. When the periods are examined, it is seen that the vegetable oil and grain indices increase the general index values in many years. It is observed that the sugar price index increased considerably in 2011. However, it is noteworthy that in 2022, the price index of vegetable oils rose to 213 points by being much higher than the general index. The most important reason for this is that Russia and Ukraine, the two largest vegetable oil exporters in the world, are at war with each other. This war has increased energy prices as well as the supply-related increase in agricultural product prices.

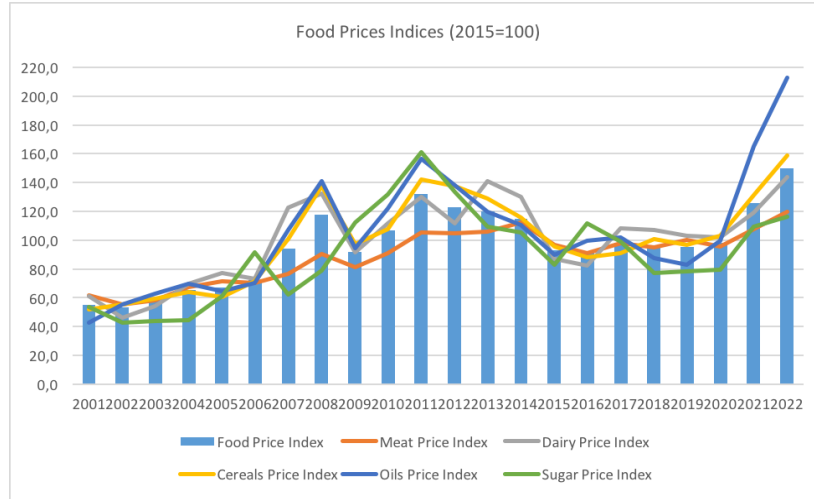


Figure 3. Food price indexes by product groups

When the annual food inflation in Turkey is analyzed, it is seen that it is 94.65%. In the same period, the average food inflation in the world is 14.50%. Accordingly, food prices in Turkey have increased 80% more than the world's food prices in the last year. The general inflation rate in Turkey is 79.60 as of July 2022 (TÜİK, 2022)

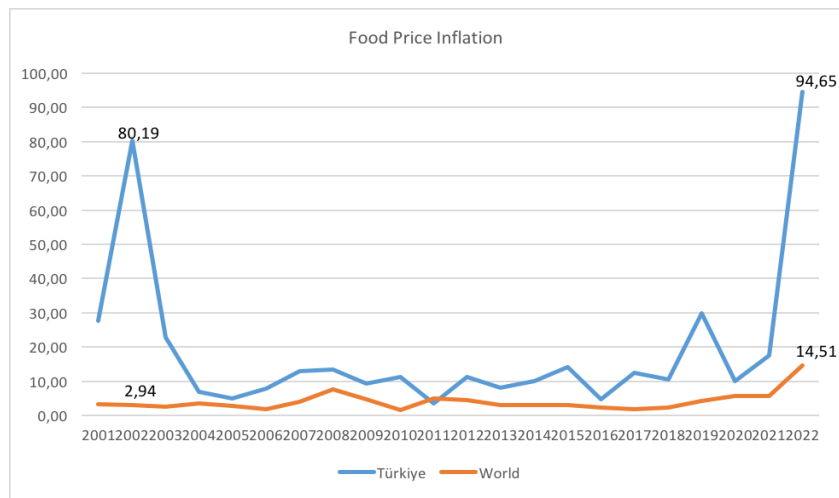


Figure 4. Food price inflation

When the changing of agricultural land in Turkey are examined, it is seen that the total land has shrunk by 3 million hectares after 2000. The most important reason for the shrinkage of agricultural land is the metropolitan law numbered 6360, which entered into force in 2012. With this law, 14 provinces have metropolitan status and all villages connected to cities have turn into neighborhood status. Agricultural lands close to the city centers turn into the residential land. In this context, the most important reason for the shrinkage is the opening of agricultural areas for construction due to the increasing population and rapid urbanization. In Table 3, it is seen that the cereals and other field crops land have shrunk by 2 million hectares and the vegetable land by 150 thousand decares. On the other hand, fruit land have increased by 900 thousand decares.

Table 3. Agricultural land in Türkiye (thousand hectares)

Years	Total utilized agricultural land	Cereals and other crops		Vegetable gardens	Fruits and spice crops	Meadows and pastures
		Sown area	Fallow land			
2002	41196	17935	5040	930	2674	14617
2010	39011	16333	4249	802	3011	14617
2011	38231	15692	4017	810	3091	14617
2012	38399	15463	4286	827	3201	14617
2013	38423	15613	4148	808	3232	14617
2014	38558	15782	4108	804	3243	14617
2015	38551	15723	4114	808	3284	14617
2016	38328	15575	3998	804	3329	14617
2017	37964	15498	3697	798	3348	14617
2018	37797	15421	3513	784	3457	14617
2019	37716	15398	3387	790	3519	14617
2020	37762	15628	3173	779	3559	14617
2021	38089	16062	3059	755	3591	14617

Source: TÜİK, 2022b.

<https://data.tuik.gov.tr/Kategori/GetKategori?p=tarim-111&dil=1>

Turkey has self-sufficiency in many agricultural products, especially vegetables and fruits. However, there is a foreign dependency, especially in vegetable oils and pulses. Sufficiency rate of selected crops are given in Figure 5 (TUIK, 2022b). Values above 100 percent indicate that sufficiency is achieved, and values below 100 percent indicate that sufficiency cannot be

achieved. It is seen that Turkey has sufficiency in wheat and sugar which have strategic importance. On the other hand, self-sufficiency cannot be achieved in products such as sunflower oil, rice, lentil and maize. Soybean has a serious foreign dependency of 95%.

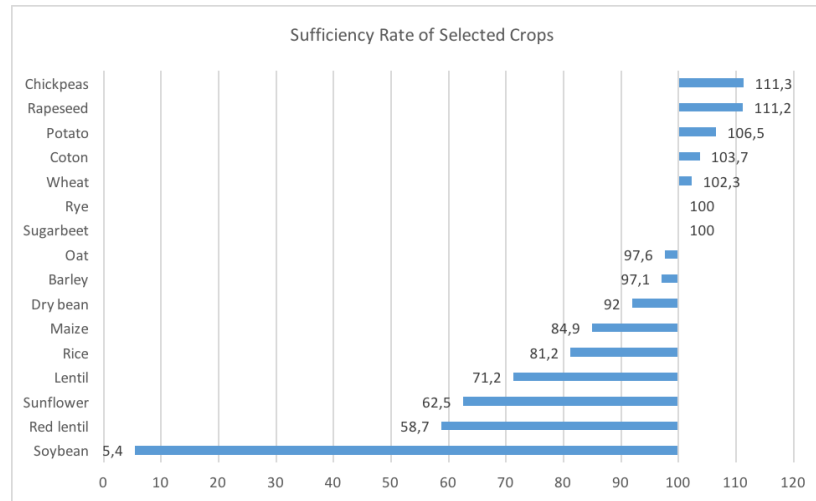


Figure 5. Sufficiency rate of selected crops

When the self-sufficiency rates of animal products are examined, it is seen that self-sufficiency is achieved in chicken meat, eggs and milk. On the other hand, there is a small rate of insufficiency in red meat, such as 3.5%. The milk sufficiency rate is seen at the exact limit. It is known that dairy animals are sent to slaughter due to the excessive increase in feed prices recently. It is estimated that the sufficiency rate in milk will decrease in the near future.

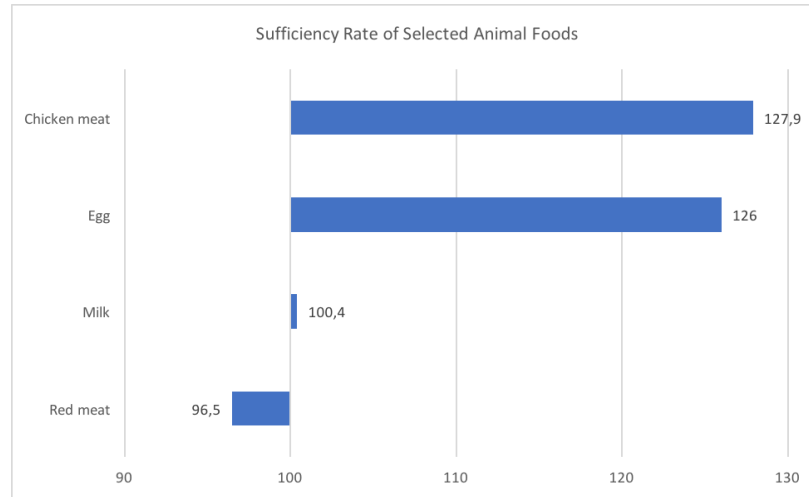


Figure 6. Sufficiency rate of selected animal foods

RESULTS

Until this part, the dimensions of food insufficiency and the rise in food prices in the World and in Turkey have been discussed. A comprehensive situation analysis should be made for the Turkish agricultural sector in order to prevent Turkey from facing food shortages and to prevent the increase in food prices. In this part of the study, strategies have been determined to prevent Turkey from being affected by the global food crisis with SWOT analysis.

As seen in Table 4, the strengths of Turkish agriculture can be counted as geographical location and climate advantages, having sufficient soil and water quality, rich biodiversity and preserving the importance of regional location.

The weakest element of Turkish agriculture is that the farms are small-scale (60 decares/enterprise) and the cultivated lands are multipart. In addition, factors such as lack of capital, lack of agricultural production plans, insufficient agricultural supports, foreign dependency on inputs such as seeds, pesticides, fertilizers and diesel, and insufficient R&D are other important weakness.

The most important factor that threatens production in the agricultural sector is the rapid increase in input costs. Increases in production costs cause the young population to leave from the agricultural sector. Due to external

conflicts, disruptions have been experienced in the supply of commodity. In addition, there are factors such as the misuse of agricultural lands that have been threatening the agricultural sector for a long time, the division of the lands into small pieces due to the inadequacy of the inheritance law, and the unconscious use of chemicals in agricultural production.

One of the leading opportunities in the future of the Turkish agricultural sector is the conscious ownership of the agricultural sector by the young population. International market opportunities have potential especially for vegetable and fruit marketing. Turkey's geopolitical position maintains its importance. It is an important opportunity to abandon the economic policies that are contrary to the traditional view and to return to the generally accepted (Orthodox) policies. In addition, the possibility of updating agricultural support policies is seen as an opportunity.

Table 4. SWOT analysis

Strengths	Weakness
Availability of sufficient agricultural land	Small and fragmented farms
Rich agricultural production potential	Lack of investment capital
Presence of uncontaminated soil and water	Lack of macro production plans
Geographical location and land structure	Insufficient agricultural support
Regional location and logistics advantages	Foreign dependency on agricultural inputs
	Insufficient R&D capability
	Insufficient marketing and storage infrastructure
Opportunities	Threats
Geopolitical location	Rising input costs
Availability of lands that can be economically irrigated	Drought and irregular rains
Increasing international market opportunities	Unconscious use of water resources
Increasing youth population	Misuse of agricultural lands
Employment potential of well-educated agricultural engineers	Migration of young people from village to city
Adoption of scientific approach in macroeconomic policies	Effects of the Covid 19 pandemic
Restructuring of agricultural support policies	Inability to supply foreign-dependent products
	Failure of the inheritance law to prevent land fragmentation
	Conflicts in the world

CONCLUSION

Turkey is a country where many agricultural products can be produced with its geographical location, climatic conditions and soil structure advantages. Although there has been an increase in the misuse of agricultural lands in recent years, production has been increased in some products thanks to newly developed seeds. However, there is a lack of production in some products such as wheat, vegetable oil seeds, corn, soybean and it is necessary to expand the production areas of these products with a good production planning. For this, new laws should be enacted that will not allow the shrinking of existing agricultural lands.

Recently, the problems experienced in the supply of foreign-dependent products have increased the domestic prices significantly. Due to the impact of the Covid-19 pandemic, there were interruptions in the labor supply, which negatively affected the production of fruits and vegetables. Due to the increase in input prices, small-scale producers had to save money on fertilizers and pesticides. Due to rising fuel prices, farmers in some regions gave up production and the lands remained empty. The young people, who could not obtain sufficient income from agricultural production, started to migrate from the villages to the cities. These factors are important factors that threaten the Turkish agricultural sector. The most important factor in the increase in foreign-dependent input costs is the devaluation of the Turkish Lira. It is necessary to abandon the economic policies that are contrary to the traditional view, and to return to the generally accepted (Orthodox) economic policies.

Micro-credits should be expanded in order to eliminate the capital insufficiency in small-scale agricultural enterprises. Although the current agricultural supports are implemented under various titles, the amount of support distributed to farmers does not even exceed 1% of the national income specified in the Agriculture Law No. 5488. Since 2006, the highest 0.6% share has been given as support. The realization of this support system will provide a significant improvement in agricultural production.

Structural problems that have been going on for a long time in the agricultural sector should be solved quickly. The first of these is to increase irrigation opportunities. It is observed that there is a decrease in the underground and surface water potential due to climate change. In addition, improvement studies should be carried out in order to reduce the salinity in the soils due to excessive irrigation in irrigable areas.

Another important problem in the agricultural sector is the inadequacy of R&D studies. Foreign dependency is quite high, especially for vegetable seeds. In order to develop R&D opportunities in the agricultural sector, the

budgets allocated to research institutions and universities should be increased and long-term and low-interest loan opportunities should be offered to the private sector.

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