The contribution of sustainable agricultural development to rationalizing resources the Kingdom of Jordan as a model

SAADI Tarek *

University Centre Morsli Abdellah of Tipaza, Algeria

tarek.inc@hotmail.com

ZEBOUCHI Mohamed abderraouf

The School of Higher Commercial Studies, Kolea, Algeria

ma.zebouchi@hec.dz

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Abstract:

The present research paper seeks to shed light on the importance of sustainable development, particularly, sustainable agricultural development, which has become a key factor in economic development in order to follow the requirements of sustainable agricultural development, which contributes to the conservation of renewable resources. The study revealed that the solution to sustainable agricultural development has become an urgent necessity in order to obtain an environmental economy that contributes to increasing the loyalty of individuals towards their institutions that lead the wheel of the economy, ensuring the desired transition to the adoption of entrepreneurial projects in the private sector that use high agricultural technology, and the study also concluded that Jordan With limited natural resources, it must strengthen its efforts in the fields of sustainable development and resource conservation.

Keywords: sustainable development; economic development; environmental economy; entrepreneurial projects; kingdom of Jordan

Jel Classification Codes: Q01, F36, Q5, M130.

* Corresponding author.

1. Introduction :

The agricultural sector is vital to both strong and global economies, as it provides a major supply of food and, as a result, food security, while also making significant contributions to lowering unemployment and propelling the locomotive of economic expansion. The Arab countries are racing against the clock to attain food sufficiency, which would allow them to compete in terms of food security and economic independence with the rest of the world. Food security is a fluid issue that is influenced by global political and economic factors. It is a form of natural capital whose stock must be kept and means to enhance it must be devised. It appears in this stock because it is a direct threat to the sustainability of food, its production, and the preservation of resource biodiversity in the form of the so-called green revolution, which was the reason for defeating the intensive use of agricultural chemicals that led to the reduction of biodiversity (M, 2019 p133).

❖ Statement of the problem/research questions

In the present research paper, we investigated the most fundamental elements related to sustainable agricultural development and determined the reality of sustainable agricultural development, its prospects, and challenges in the Kingdom of Jordan, as well as presented the most significant effects of the Corona pandemic on the organization's plans to achieve sustainable agricultural development, in an attempt to answer the following question: **What are the Kingdom of Jordan's agricultural resources like? How far does it go in terms of achieving sustainable agricultural development?.**

❖ Sub-questions:

The following sub-questions are related to the main question.

- What are the most significant agricultural components of Jordan's Hashemite Kingdom, and how do you intend to maintain them, whether renewable or nonrenewable?.
- Why should sustainable agricultural development methods be implemented in the Kingdom, and what impact did the Corona crisis have on their implementation?.
- How can the kingdom transition from old agricultural processes to new procedures and tactics that are in sync with the times?.

❖ Research hypotheses:

Jordan's Hashemite Kingdom owns a huge quantity of natural resources that contribute to the growth of the agricultural sector and is seeking to conserve them through methods of sustainable development and environmental economics. Natural global crises (due to a scarcity of resources and the effects of global warming) compel the Kingdom to implement all sustainable development methods in order to preserve the stock of those

resources, and the Corona crisis aided in its implementation due to a lack of consumption and a lack of human influence on the climate and nature.

It aims to apply the modern-traditional transition by encouraging individuals to pioneer creative agricultural initiatives as well as technology innovation in this sector.

❖ **Importance of the research:**

The significance of this study stems from the world's struggle with climatic crises, scarcity, and depletion of natural resources, as well as the necessity to conserve them and use sustainable development approaches to do so.

❖ **Previous studies:**

- **The Study of (**J loyet, 2007)**:** The study sought to ascertain the significance of agriculture in meeting the needs of sustainable development. The researcher emphasized the need to design new models of appropriate nutrition systems for healthy and sustainable nutrition, as well as the need to create added value from natural sectors and to respect the principles of sustainable development, as well as the need to frame these food systems by the state's public policies in the development cover sustainable. The researcher also stressed the need to manage water in sustainable ways that contribute to preserving the stock for future generations, as well as rationalizing it.
- **The study of (gharbi, 2009)** the study focused on Algeria's food security issue and its relevance to long-term agricultural growth. Traditional agricultural strategies resulted in a significant increase in productivity, but this increase came at the price of the environment and agricultural lands, as the soil lost its components and fertilizer usage intensified, resulting in soil contamination and a loss of biological variety. The researcher also emphasized the importance of activating the function of environmental collaboration and integration, as well as introducing the bioenvironmental concept in natural resource preservation within national programs.
- **The Study of** (AL AKIDI RH, 2020) In this study, the researcher raised the issue of Iraq's lack of agricultural production and its failure to meet the needs of local demand, as well as the high food import bill, which resulted in the loss and deterioration of natural resources in a difficult-to-repair manner, as well as the loss of a vital sector that could extend the country's life. The researcher attributed all of this to the lack of a strategic approach to achieve sustainability and integration in agricultural development, and the study concluded after taking a sample of 130 respondents and analyzing the indicators presented in the study to results indicating weak sustainability and integration in agricultural development, and the researcher suggested an organization of a special regulation for complete sustainable agricultural development, and another organization for agricultural industrialization.

2. An overview for sustainable agricultural development as a concept:

2.1. Agricultural development definition:

The FAO's definition of sustainable agriculture is as follows: "The sustainable agriculture approach aspires to promote sustainable development in the agricultural, fisheries and forestry sectors that aspire to conserve water, land, natural genetic and animal resources" (Bill Vorley et, 2011 p13). As for sustainable agricultural development, it is defined as a set of policies and procedures followed in order to change the structure of the agricultural sector, in order to ensure the best possible use of the available agricultural resources, in a manner that ensures the achievement of an increase in productivity and an increase in the quantity produced, which is reflected in the achievement of economic development and raising the standard of living of individuals (مراد، ج. 2014/2015 ص57).

Agricultural development may also be described as the process of increasing agricultural output in quantity and quality in order to attain food security and minimize import (رزن، ع. 2011 ص 62) and agricultural development was characterized as long-term planning that involves attaining strategic goals based on two key points: the first is to achieve food self-sufficiency, and the second is to make optimal use of available resources in a way that entitles to maximize the return (سلمى 2016 ص214) ،

2.2. The elements of agricultural development:

It's represented in the following points (بويهي م، 2012 ص 198)

A. Natural Resources: The agricultural natural resources on which agricultural activity is based are divided into:

Land: It is the basic basis for agricultural production, whether in its quantitative or qualitative dimension.

Water resources: They are a very important factor in the development of agricultural production, due to their limitations and scarcity, and the low efficiency and use of them in developing countries.

Livestock: It is one of the most important branches of the agricultural sector, and its availability changes the elements of agricultural development, so it is necessary to raise the efficiency of investing in it and developing its ability to give.

Forests: They are also considered one of the most important resources that work to develop the agricultural sector, due to their role in combating desertification and soil stabilization, and they are the most important source of wood.

B. Human Resources: Human resources are considered one of the most important goals and challenges faced by the development process, as the employment policy in agriculture is related to the efficient use of available resources, and the policy of income equity for resources.

c. Capital resources: They represent all the material means of production that are used directly or indirectly in the development of the sector. They include irrigation networks, roads, buildings, machinery, and means of

transportation, seeds, fertilizers and pesticides. All these production means are included in the capital resources produced in the agricultural sector.

2.3. The sustainable agricultural development concept:

Agriculture is dependent on natural assets such as climate, soil, water, and biodiversity, all of which contribute to fundamental human requirements, and this agriculture may be a source of environmental degradation due to excessive resource consumption, global climate change, or technical and health dangers (J, 2007 p186), which is why it must be practiced in sustainable ways that preserve the environment.

The Food and Agriculture Organization of the United Nations in 1988 defined sustainable agricultural development as: the management and maintenance of basic natural resources so that institutions and technologies ensure current and future human requirements *(الأشرم، 2007 ص 49)* it is also defined as the successful management of agricultural resources to meet the changing needs of humans while maintaining or improving the quality of the environment and the preservation of natural resources *(السلام، 1998)*

Others consider sustainable agricultural development to be a set of policies and procedures that provide for changing the structure and structure of the agricultural sector, resulting in optimal use of agricultural resources and an increase in production and productivity, with the goal of increasing the rate of increase in national income and achieving a high standard of living for members of society across generations without harming the environment, which means acclimating to climate change *(فوزية، 2010 ص60)*

2.4. Sustainable agricultural development goals:

Agriculture in Africa is not sustainable as the average yield has continued to stagnate for decades due to lack of investment, especially in developing agricultural markets, improving crops and sustainable management of agriculture (Marco ferroni, 2011 p1065).

Almost especially Arab countries the main sustainable agricultural development goals are represented in the following points *(كروش، 2019)*:

- Increasing the national income, by increasing agricultural production, which allows raising the level of real per capita income, and it should improve the welfare of individuals.
- Providing food and eliminating famine and malnutrition, by directing the increase in agricultural production to meet the basic needs of the local people, who are constantly increasing.
- Work to reduce the bill for imports of foodstuffs and increase exports, which enhances the country's food security and improves the position of its trade balance in particular and its balance of payments in general.
- Reducing the generally high rates of unemployment in rural areas, by working to create new jobs for members of society.
- Achieving economic stability by working to produce the largest amount of material production, and achieving the highest levels of optimal allocation of available resources (labor, natural resources...)

- Providing the requirements for the advancement of the local industry by providing the basic raw materials for the transformation process.

2.5.The importance of sustainable agricultural development:

Half a century ago, the earth's population was at least half that of today, and people were not as rich as they are now. As a result, we may conclude that the environmental strain they put on the environment was less. At the time, it was commonly assumed that global growth required increasing exploitation of natural resources, particularly land and water. Since then, population growth has increased, causing a shift in diet and a rise in demand for food and other agricultural goods. (palmer, 2008 p92) and in the next fifty years, global demand for food and fodder crops is expected to double, and this has greatly affected the sustainability of Resources and explain their importance in facing a range of threats *(سليمة ص5، 2018)*

***A-Environmental threats**: are:*

- Water scarcity: For example, water in the Arab countries is estimated at about 277 billion m3 annually, of which 43% are from internal sources and 75% are external sources, which exposes Arab countries to great risks in the next stage, and this reality has prompted some to deplete groundwater resources.
- Climate changes: especially global warming, and the emission of carbon dioxide (CO2), which have severe effects on the ecological balance.
- Degradation of unsustainable agricultural land The reasons for this degradation are exacerbated by farmers' determination to maximize productivity, which includes crops grown in areas with high drought risk, shorter crop cycles and reduced land rest periods, insufficient use of post-harvest fertilizers, and lack of rotation Crops, overbreeding and overgrazing as livestock put pressure on the soil and vegetation.
- High rate of air, land and marine pollution.
- Various natural disasters such as earthquakes, floods, desertification and their impact on agricultural products and disasters resulting from political conflicts.

***B. Social threats**:* They are as follows:

- Population pressures that lead to shrinkage of agricultural land.
- Population migration from the countryside to the city.
- Poor distribution and lack of social justice.
- Continuity of weak institutional structures and shortcomings of human development.
- High level and rates of unemployment.

C. External threats: They are:

- Variables caused by globalization and internationalization of economic activity.
- Modern and advanced technologies and technologies in the agricultural field.

- Foreign investments, especially multinational companies, cause them to loot resources and pollute at various levels.
- The World Trade Organization and the licenses and exceptions it offers in various negotiation rounds, such as the United States of America, for most agricultural commodities.

2.6.The contribution of agriculture to Jordan's GDP:

Based on the most recent national data from the Kingdom of Jordan, agriculture accounts for just 5.6 percent of Jordan's GDP, whereas the agricultural food value chain accounts for 15-20 percent of GDP and employs more than 15 percent of Jordan's people. In addition, the agricultural sector comprises 52 percent of the rural female component. In the current situation, however, the sector suffers from a poor performance due to the limited water resources used in irrigating low-value crops, and the water-consuming ones that do not achieve their full value in international markets due to poor post-harvest operations and logistics. It is estimated that Jordan achieves only 50-60 percent of its export potential for fruits and vegetables and has an untapped export potential of more than $1 billion annually. Overall, the agriculture and food sector significantly affects the Jordanian economy. Studies have estimated the return on investment of one dollar in agriculture is 3.8 dollars compared to the economy, compared to 1.3 in industry and 0.5 in the service sectors (IFC, 2013). Moreover, agriculture includes a significant proportion of employment compared to other sectors, and provides large numbers of job opportunities at the level of the food production chain, and the renewal of the agribusiness sector in Jordan could double the number of jobs by 2025, as well as increase value added by an average of 15-20%. Annually (ministere agriculture, 2018 p 08)

3. Analysis of the reality of the agricultural sector in the Kingdom of Jordan:

3.1. Agricultural exploitation compared to natural resources:

From 1989 to the present, Jordan's agricultural sector has undergone a metamorphosis from one that relies on government interference in the sector's production mechanism, to one in which the government has removed its hand, save to a limited level in the process of monitoring and regulation. These developments included issues that have a direct impact on farmers' livelihoods and labor, as well as the agricultural sector's overall production. The agricultural sector in Jordan represents (8.9) million dunums of rain-fed agricultural lands, of which about (2.47) million dunams (and a dunam contains 1,000 square meters), lands within cities for residential uses, and about (1.049) million dunums of state forest lands. For the year 2018, the area of cultivated lands reached about (2.12 million dunums), equivalent to 23.6% of the area of rain lands and 2.4% of the total area of Jordan. There are three main geographic and climatic areas in Jordan that include:

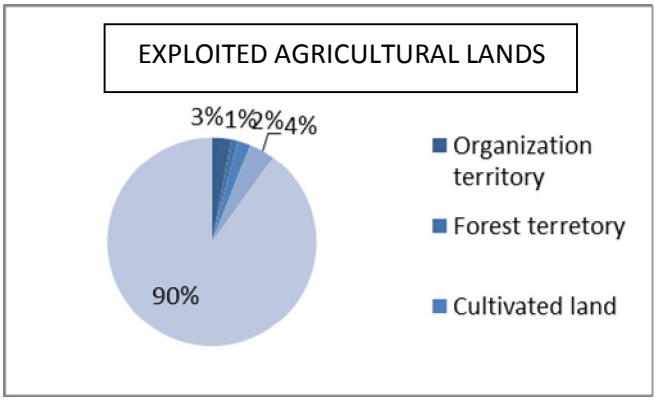
The Jordan Valley, the highlands, and the Badia, which represent around 88 percent of Jordan's total territory, and average rainfall does not exceed 100 mm per year. The Jordan Valley is Jordan's most productive region, distinguished by its warmth in the winter season and the benefit of early vegetable agricultural output.

The fruits are compared to the rest of the Kingdom and adjacent nations. The high plains spanning from north to south in western Jordan, separating the Jordan Valley from the Badia area, with a height ranging from 600-1,500 meters above sea level, where it gets the most rain in Jordan and has the most cover. It is a natural plant, and about 90% of Jordan's population resides in it. The area planted with field crops reached about (963.7) thousand dunums, vegetables (374.4) thousand dunums, and fruit trees (784.2) thousand dunums, according to the data of the Department of Statistics for 2018.

The following figure encapsulates what resources were identified, but they remain limited in comparison to other countries, placing Jordan in the category of countries with limited resources that must apply sustainable development principles in order to obtain new resources and preserve those already available. We observe the Badia's tyranny over the farming area.

Figure n°01

Exploited agricultural lands in the Kingdom of Jordan 2018.



Source: The National Agricultural Development Strategy Report, opcit, p. 9.

3.2. Agricultural production:

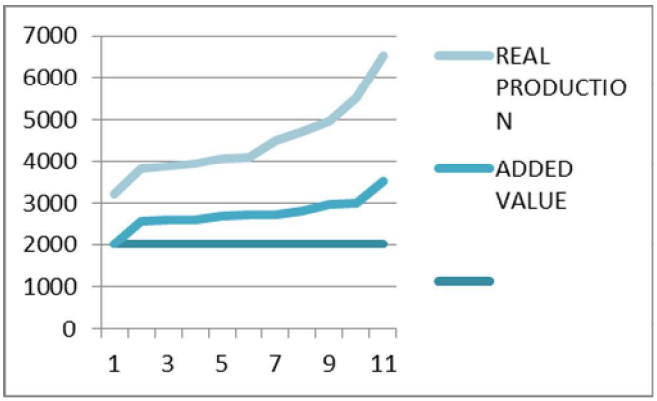
According to the data published by the Jordanian Ministry of Agriculture in the form of the National Agricultural Development Strategy Report, agricultural production amounted to approximately (1311) million dinars, which is considered a low percentage, in 2008; however, it increased to (2691) million dinars in 2018, but it remains a low indicator. In comparison to the number of years that this indicator has been increasing, the state remains compelled to utilize effective professional skills with high efficiency in order to raise this indicator. On the other hand, the added value of agricultural production for the year 2008 achieved about (529) million dinars at current prices, and the value of this output increased to (1688)) million dinars in 2018, and the value-added growth rate ranged between 32.8% in 2008 and 5.4% in 2018, and the contribution of the agricultural sector to the GDP at current market prices was about 2.4% in 2008 and rose to 5.6% in 2018.

Notwithstanding the agricultural sector's small contribution to GDP, it plays a major role in economic activity through the value chain. The sector's contribution to economic activity is estimated between 15-20%,

through back-and-forth links with other economic sectors such as industry, transport and services tourism and others. The agricultural sector has also achieved self-sufficiency in a number of vegetables, fruits, poultry meat, olive oil and table eggs. However, many agricultural products such as wheat, barley and red meat are still dependent on imports. To avoid this, a political environment must be provided that goes hand in hand with the agricultural sector through regulatory reforms, various incentives, as well as new technologies. The following figure shows the value of agricultural production over 10 years

Figure 02

The value of agricultural production in the Kingdom of Jordan 2018.



Source: National Agricultural Development Strategy 2020-2025, previous reference, p. 10.

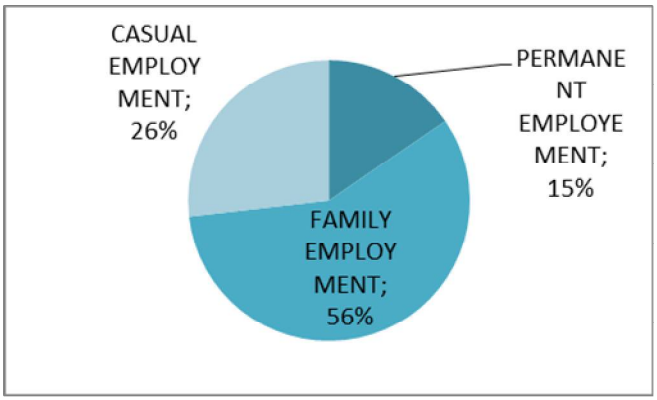
3.3. Agricultural labor:

Jordan has long attempted to give residents with work possibilities, particularly in the agriculture sector. Returning to the numbers mentioned earlier, we see that the majority of Jordanian lands are desert and have competent agricultural labor. They offer me 210 thousand employment and focus on 118 thousand people's sources of income, particularly in the rural.

What constitutes the term family employment in agriculture, which constitutes 56% of the total employment in the sector. On the other hand, there is what is called rented employment in all its permanent, seasonal and occasional forms. It has reached (91) thousand job opportunities and distributed among permanent employment about (31) thousand job opportunities and formed 15%, and seasonal employment is about (6.6) thousand job opportunities, which constituted 3%, and casual employment is (53.4) thousand job opportunities and constituted 26% of the total hired labor, and it also depends on the foreign labor it receives from other countries such as Palestine, Syria and others, and Which are often qualified and transfer new experiences that benefit the sector in Jordan through the contact of these foreign workers with national workers.

Figure 03

Agricultural labor in the Kingdom of Jordan 2018.



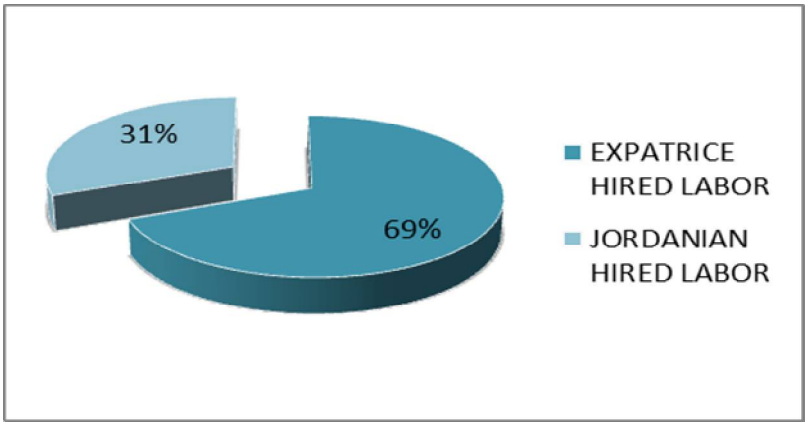
Source: The National Strategy for Agricultural Development, same reference, p. 10.

This graph depicts the distribution of leased agricultural labor among Jordanians and ex-pats. According to Department of Statistics data for 2017, the total number of job opportunities for Jordanians from hired labor amounted to (28.7) thousand jobs, constituting 31 % of the hired labor, while the number of expatriate workers was approximately (62.7) expatriate workers, constituting 69 % of the total hired labor, indicating that the agricultural sector is not appealing to Jordanian labor due to the harsh nature of the work. In 2018, the proportion of agricultural employees above the age of 15 reached 3.8 % of total workers at the national level.. The agricultural sector is of great importance, as many women work in the sector, as the number of rented job opportunities occupied by women reached about (18,5) thousand. The work and the work of women constituted about 20.2% of the total hired labor in the agricultural sector.

Going back to the previous figures translated into Jordanian employment statistics, we find that they are insufficient to cover the sector's shortage, which necessitates a shift toward modern agricultural technologies and attracting foreign investors to reclaim agricultural land and provide major agricultural poles to the state.

Figure 04

Hired labor in the agricultural sector in the Kingdom of Jordan 2018.



Source: National Agricultural Development Strategy 2020-2025, op.cit, p. 10.

3.4. Environmental economics and agriculture in Jordan:

As most of the causes of environmental degradation that destabilize the principles of sustainable development are leaving natural resources from lands without cultivation and investment, and it is known that developing countries frequently leave these lands unexploited and tend to import its requirements from other countries, global economies derive their importance from agriculture, which in turn derives its importance from natural resources. This abandonment, of course, results in a lack of environmental plant cover and the rotation of economic resources.

A.Environmental challenges and prospects for the Kingdom of Jordan:

The transition to sustainable agriculture is the most appropriate structure for addressing agriculture's current difficulties. To be sustainable, there is an urgent need to fulfill present and future demand for agricultural goods and services while guaranteeing environmental health and social and economic fairness. In addition to that, good management and effective strategies development by agricultural resource management bodies is one of the most important aspects of sustainable agricultural production. The main challenge in this regard is how to manage resources efficiently and thus protect and sustain agricultural productivity. The main resources and services of interest to us are the agricultural production factors (i.e. land, labor and other agricultural inputs). In this context, agricultural productivity depends on the quantity and quality of inputs to the extent that natural and human resources are used efficiently

B. Analysis of the internal and external factors affecting the agricultural sector:

According to the Jordan Investment Committee, Jordan lacks several agricultural goods, including certain vegetables, tomatoes, goat meat, olive oil, and eggs. It has not been exploited, and the development of the national strategy for agricultural development would diagnose this weakness and devise new strategies to contribute to the sector's survival by stimulating investment in this field and encouraging investors to establish mini-enterprises to develop it, in addition to the need to encourage universities to find solutions to the sector's problems And supervising students in the field of agricultural entrepreneurship.

It has become clear that the agricultural sector had become very modest at the global level, entering a cycle of weak growth and the inability to escape the danger zone, which caused it to face a number of challenges, most notably the sector's limited ability to increase growth rates, as well as a lack of resources, particularly water, the world's top ten countries with scarce water resources.

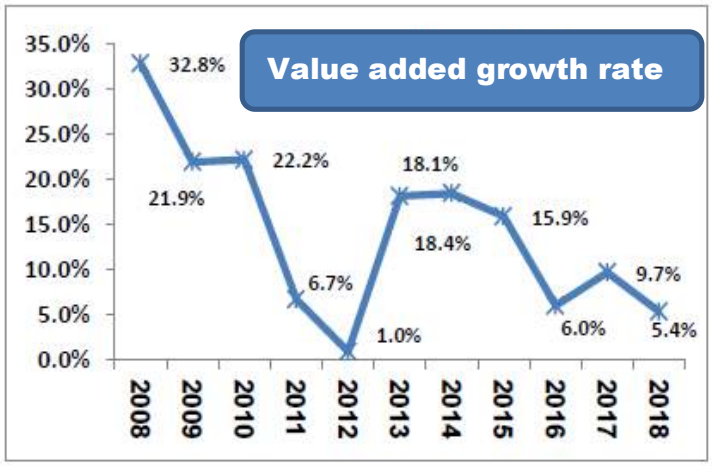
All of these factors have an influence on the citizen's way of life, particularly in the rural, making work prospects non-existent, while the Jordanian countryside remains devoid of growing goats and poultry, for example External factors such as regional divisions and instability along the Jordanian border, for example, contribute to obtaining that increase and losing it to the Syrian, Palestinian, and Iraqi markets. This also prevents exports from reaching Turkey or the European Union and vice versa. On the other hand, the Gulf crisis

contributed The latter closed the Qatari markets to agricultural products. Internally, many factors contributed to keeping the sector weak in growth and the impossibility of achieving a qualitative leap in it, such as the high cost of production, energy and agricultural labor, and the Jordanian individual's refusal to work in the sector because it is not a motivator. The new Corona pandemic also led to the closure of local markets for some periods and the restriction of work in agricultural activities the rise in the prices of production and transportation requirements, in addition to the decline in purchasing power.

All of these factors negatively affect any plan aimed at promoting the agricultural sector unless it is taken into consideration and programs and procedures are developed to address them, improve the work environment in the sector, and ensure the success of development plans in achieving their goals. (agriculture, 2020 p11).

Figure 05

Effects of internal and external factors on the agricultural sector in the Kingdom of Jordan 2018.



Source: National Agricultural Development Strategy 2020-2025, previous reference, p. 11.

C.Analysis of the strengths and threats affecting the sustainable agriculture sector:

The sector has slowed due to all of the threats and weaknesses that we discussed, such as a lack of resources, a lack of employment, and regional instability, which posed a major concern for the government and International organizations that sounded the alarm and called for solutions before the country experienced a food crisis. Despite this, no immediate answers to the situation were developed, nor were the tactics that were supposedly included in the plan executed. The most important factors of weakness and threats facing the agricultural sector can be listed according to (agriculture, 2020 p12) as follows:

International and regional political and economic changes and the increase in agricultural risks resulting from climate change, fluctuations in rainfall and succession of drought years, made Jordan at risk in terms of water resources.

- The continuous decline in the area of agricultural holdings as a result of urban sprawl and fragmentation of property loses the character of sustainability in agriculture.
- Continuing encroachment on the state's forested and agricultural lands and the lack of green spaces.
- The absence of the use of digital technology and the absence of universities' contribution to finding direct solutions, and the absence of agricultural entrepreneurship and pioneering projects in the universities as the researchers said that "There is a narrow understanding and sometimes a miss use of the term entrepreneurial university from people in general and some researchers" (BOUHEDJEUR, 2022) and all these researchers think that entrepreneurial field cannot solve problems related to agriculture, even we cannot innovate and create in agriculture.
- Inadequate agricultural industries are dependent on local inputs and lack of agricultural-industrial preservation of resources.
- Poor marketing infrastructure and market closures for health and political reasons.
- Insufficient funding for the sector's programs and projects makes it difficult to reach sustainable agriculture.
- The quantitative and qualitative shortage of qualified agricultural labor and the lack of awareness among the individual of the importance of resources and the necessity of preserving them for future generations.
- The decline in foreign aid, the weakness of government financial resources directed to the agricultural sector, and the lack of interest in requesting assistance to implement the principles of environmental economics.

Internal factors:

- Unorganized sector, weak farmers' organizations and weak culture about the ecological economy.
- Weak databases and the structure of the national agricultural information system.
- The low productivity in rain-fed agriculture and depletion of insufficient water resources.
- Deterioration of vegetation cover due to overgrazing, which affects the state's resources.
- Weak participation of forest and rangeland users in decision-making.
- High production costs resulting from small agricultural holdings.
- Weak vertical integration in plant and animal production.
- Weak veterinary services and the lack of qualified personnel in the field.
- Absence of prior contract cultivations with exporters or manufacturers.
- The high percentage of loss and damage in the different stages of marketing.
- Weak monitoring and evaluation mechanisms.

3.5.Strengths and opportunities in sustainable agricultural development in the Kingdom of Jordan:

Given the preceding challenges, it is necessary to reconsider existing agricultural policies, ensuring that internal and external obstacles are addressed, and focusing on the priorities of the next stage, particularly in the modernization of the agricultural sector by focusing on the introduction of modern agricultural technology and increasing production, productivity, and employment by leveraging the agricultural sector's strengths and opportunities (agriculture, 2020 p13) .

External factors:

- The government considers the agricultural sector a priority sector, especially after the Corona pandemic, and implements sustainable development mechanisms in it.
- It provides a legislative environment that regulates the work of the sector and criminalizes the encroachment on agricultural areas and the destruction of vegetation cover.
- The climate tends to result in year-round production.
- Adequate infrastructure in roads, transportation and communications.
- The appropriate business environment and incentives to encourage investment and encourage innovative projects that apply the principles of sustainable development.
- Availability of subsidized funding sources.
- Existence of wholesale markets.
- The average geographical location in the region.
- Markets and export opportunities are open to the agricultural sector.
- Existence of free trade agreements at the international, regional and bilateral levels that provide markets for exports.
- The growing demand for agricultural sector products.

Internal factors:

- The presence of some pilot projects in the private sector that use high agricultural technology, but at an insufficient rate.
- The presence of 8205 agricultural companies in 2018.
- The presence of highly trained and qualified technical personnel, scientifically and practically.
- The success of good crop management methods, which include integrated and biological control and organic cultivation.
- Presence of plant and animal laboratories.
- Existence of a specialized institution for agricultural financing
- The existence of an institution for the registration of agricultural cooperative societies.

- Existence of an agricultural research center.

3.6.The repercussions of the Corona crisis on food security and agriculture and ways to confront it:

During crises, the economy changes its features, and agriculture lost its sustainability during the Corona crisis. What the globe experienced during this crisis generated a vast imbalance in the application of the concepts of sustainability and resource conservation, and drove individuals to openly attack the various components of the state and its resources, demonstrating the gravity of the situation. All facets of life for all countries have destabilized major economies and halted all sorts of exporting and importing. The lands were left unexploited and control was absent from the random farmers and the destroyers of natural resources, especially the underground water reserves, which are exploited by illegal methods. A number of potential effects of this situation on food security in its various axes were monitored, among which we can mention:

- The difficulty of accessing wholesale and retail markets and markets for production inputs as a result of the closure policies followed by Arab and international countries, which were imposed by the necessity of dealing with the phenomenon.
- Labor shortage as a result of movement restrictions and the negative effects that this shortage will have on the cultivated areas, production and harvest for the current and upcoming seasons locally and globally, which has resulted in a shortage of supply and an increase in demand, and consequently higher prices locally and globally, and the effect of this increases if the exporting countries adopt the policies of closure and isolation.
- Low energy costs and their prospective impacts on Arab oil-producing nations' capacity to secure their consumption demands with the needed efficiency, especially if food prices increase to high levels.
- Decreased strategic stocks of countries, as a result of excessive withdrawal without compensation. (ministere agriculture, 2018 p01)

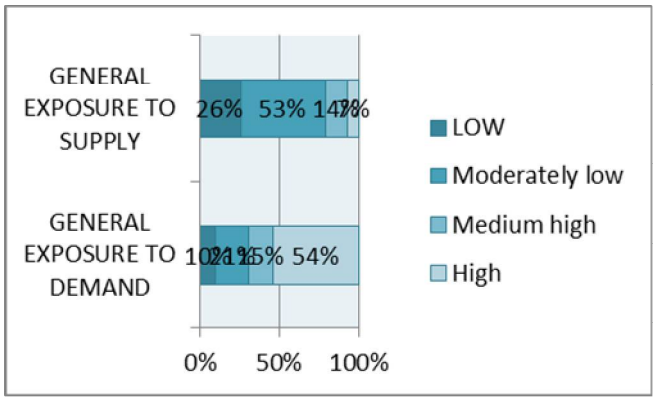
How is the COVID-19 pandemic affecting agricultural sustainability and food security?

There is no straightforward response to this issue since the pandemic's impacts on food supply chains might be both direct and indirect due to the influence of other economic sectors. The extent of the impact will also be determined by the intensity of the epidemic in the region as well as the quality of government response to the problem. Overall, preliminary assessments indicate a decline in demand and supply for both food and agricultural products due to the sudden stagnation of logistics and trade.

On the demand and supply, the outbreak is a severe threat to food and agricultural product production. The disruption of production components such as intermediate inputs (fertilizer, etc.), and fixed capital has a negative influence on agriculture and food production (machines, etc.). This shock may also be a result of stringent government measures to restrict the spread of the coronavirus, as well as the direct impacts of the coronavirus's propagation. The populace is infected to varying degrees.

Figure 06

Exposure of demand and supply to the effects of the epidemic



Source: Agriculture and Food Security Report in the Member Countries of the Organization of Islamic Cooperation 2020, Organization of Islamic Cooperation, Center for Statistical, Economic and Social Research and Training for Islamic Countries, October 2020, pg. 69

Countries have sought to adopt measures to address the worldwide market imbalance in supply and demand, as seen in the preceding figure, where fluctuations in demand fell by 26 %, with an average rise of 10 %, while supply increased by 7 %. All of this had a severe impact on the world's food supply chain, causing the supply and logistical movement of food to become a crisis for residents who could not locate local markets to satisfy their demands.

5. Conclusion

Researchers discussed the nature of sustainable agricultural development, its importance, and reviewed the most important elements of Jordan's agricultural Kingdom and its most significant challenges in achieving sustainable agricultural development in this research paper, and from this, we were able to derive the following:

- The concept of sustainable agricultural development is based on not harming the interests of future generations while maximizing the outputs of agricultural production, which is what all institutions, whether governmental or private in Jordan, must work on to achieve, and attention must be paid to the field of modern agricultural management, which is based on the principles of sustainable development and total quality.
- The limited resources in the Kingdom of Jordan, which made it suffer from a great shortage of many agricultural products such as vegetables and animal products.
- The Kingdom of Jordan is still unable to meet the food needs of the population, as food security still poses its greatest challenges, as the Kingdom is considered one of the countries with limited resources, which made it the subject of our study, and in turn, this scarcity requires it to use the principles of resource conservation and sustainability.

- Joint action based on the principles of sustainable agricultural development among the countries of the Organization to achieve sustainable agricultural development.
- The Kingdom of Jordan must provide adequate infrastructure, institutions, and management to preserve and manage natural agricultural resources.

Suggestions:

- Continuing to create and monitor sufficient food inventories of critical commodities, especially in light of what these nations have learned about the devastation inflicted by the Corona epidemic.
- Given the Kingdom's huge pastoral region, there is an interest in grazing for the production of animal goods.
- Seeking to develop special programs to support the agricultural sector and encourage investment in it by small investors and producers, especially after the emergence of the Corona pandemic.
- Concluding agreements with the university and training centers in order to build competencies that adopt modern technologies in agriculture that conserve resources and include alternative techniques used in the place of those resources.
- Seeking to achieve food self-sufficiency, especially after the obstacles and obstacles that the international food trade has known with the emergence of the Corona pandemic.

Concentrating on agricultural entrepreneurship and building pioneering programs that rely on agricultural innovation, recycling, and environmental protection.

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