The methodology of research

In order to answer the study's questions, the analytical descriptive approach was used to cover gap in information by reaching the main actors in different ways. Participatory research tools were chosen that fit the descriptive approach. The participatory methodology played an important role in the preparation of the study due to its clear role in analyzing the positions of the actors and showing the contradiction between them in order to reach a common vision, and to find a meeting point that is agreed upon and approved. Thus, the study represented, in addition to the point of view of its author, a kind of agreement between actors in the agricultural sector in all its governmental, civil, international, and local agricultural forums. The methodology used different participatory research tools. The most important are structured interviews, workshops, and focus groups. A meeting was held with:

- Eng. Wael Thabet ...……. Palestinian Ministry of Agriculture
- Eng. Nabil Abu Shammala ……..…Researcher and specialist in the agricultural sector
- Mr. Saad Ziadeh …….……. Researcher and specialist in the agricultural sector
- Dr. Ahmed Abu Shaaban……. An Academic researcher specializing in agricultural economics
- Mr. Ahmed Sourani ……. Researcher and specialist in the agricultural sector
- Eng. Bilal Abu Saada…… Specialist and researcher in the agricultural sector - Palestinian Ministry of National Economy
- Eng. Yazan Kallab ……..Researcher in the agricultural sector and a specialist in agricultural marketing

Chapter One: Agriculture in Gaza Strip

1- The Reality of Agriculture in Gaza Strip and the Challenges Facing The Sector:

(1 -1) The Reality of the Infrastructure of the Agricultural Sector:

Infrastructure can be defined- according to the broad concept- as the sum of the services that the state undertakes to provide, the facilities that it undertakes to construct and operate, in addition to services that depend on intensive labor (such as waste collection and the provision of public transport services). Infrastructure consists of roads, airports, ports, railways, drinking water stations, and their networks. Power plants and their networks, natural gas networks, sewage, communications and utilities in addition to health services, housing and education (Dagher and Ali, 2010, p. 115).

Integrated and developed agricultural infrastructure has the potential to transform traditional farming or subsistence farming into a more modern, commercial, and dynamic farming system. According to Wharton [1967], agricultural infrastructure is classified into:

- Capital intensive, such as irrigation, roads and bridges
- Capital extensive, such as extension services
- Institutional infrastructure, such as formal and informal institutions.

Infrastructure -such as irrigation, watershed construction, rural and remote agricultural electrification, roads, and markets- are done in close coordination with the institutional infrastructure. The existence and development of credit institutions, agricultural research and extension, and rural literacy determine the nature and size of agricultural output. Adequate infrastructure increases farm productivity and reduces farming costs and its rapid expansion accelerates the rate of agricultural as well as economic growth. It is recognized that infrastructure plays a strategic role in producing larger multiplier effects in the economy as agriculture grows. It is estimated that a 1% increase in infrastructure stock is associated with a 1% increase in gross domestic product (GDP) in all countries. On the other hand, the level of physical and institutional infrastructure greatly affects the spread of agricultural technology that enhances crop yields. Essentially, agricultural infrastructure

includes a wide range of public services that facilitate production, procurement, processing, preservation, and trade. Agricultural infrastructure can be divided into broad groups following:

 Input-based infrastructure: seeds, fertilizers, pesticides, agricultural equipment and machinery, etc.

 Resource based infrastructure: water/irrigation, farm power/energy

 Physical infrastructure: agricultural roads and their interconnections and markets, transportation, storage, processing and preservation operations, etc.

 Institutional infrastructure: agricultural research, extension and education technology, information and communication services, financial services, marketing, etc.

Development economists recognize the increasing importance of agricultural infrastructure in its role, which is not limited to agricultural development, but its expansion to include the economic development of the country.

In another division, the researchers identified 11 infrastructure components:

1) Irrigation and farmers' access to its sources

2) Transportation

3) Storage services

4) Business infrastructure

5) Infrastructure for manufacturing and processing operations

6) Public services

7) Agricultural research and extension services

8) Communication and information services

9) Land conservation services

10) Credit and financial institutions

11) Health and educational services

Binswanger [1993] observed in a study of 13 states in India that when investing in rural infrastructure transport costs decrease, which increases farmers' access to markets and leads to significant agricultural expansion. Also, studies by the World Bank [1994] showed that agricultural productivity growth and non-agricultural rural employment are closely linked to the provision of infrastructure. This is of great importance because most poor families in developing economies live in rural areas.

When talking about Gaza Strip in terms of infrastructure, here is the following table that shows the size of Gaps and problems, their connection to the responsible party, and the proposed solutions for them:

Infrastructure groups	examples
Input based infrastructure	Seeds, fertilizers, pesticides, agricultural equipment and machinery
resource based infrastructure	Water/irrigation, farm power/energy
physical infrastructure	Agricultural roads and their connection, transportation, storage, processing and preservation operations
Institutional infrastructure	agricultural research, extension and education technology, information and communication services, financial services and marketing

 Input-based infrastructure: seeds, fertilizers, pesticides, agricultural equipment and machinery, etc.

Seeds, fertilizers, and pesticides: Seed problems are among the common problems in the Arab world and developing countries in general, due to the regulatory weakness and the willingness of many companies (Bir al-Salim companies) to cheat in various ways due to the large profits achieved by this popular trade. While major international companies such as Siemens and Rijk Zwaan are keen to deliver seeds to farmers according to the specifications and features mentioned in the label of each product, out of concern for the company's reputation and confidence, in addition to the strict restrictions imposed by the European Union and North America on operations. Seed production and trading. Adulteration of seeds or non-compliance with specifications costs farmers very large losses, which may cause them to withdraw from the labor market sometimes. Seed fraud may be when some traders offer varieties with lower productivity or are not resistant to diseases and do not tolerate climatic conditions at the time of their cultivation under the name of varieties known for their high productivity and desirable specifications, or offering

a variety that was not registered with the Ministry of Agriculture and did not follow the procedures and specifications required by Government. As for the spoiled seeds, they are seeds that have been spoiled for any reason, such as a defect in storage or the length of the storage period. Mostly, these seeds are authorized, but the planter of these seeds may face weakness in germination or non-germination in the first place. The most dangerous types of unauthorized seeds locally may be seeds that have been genetically treated to the detriment of their consumers. These seeds may produce abundant production and sizes larger than normal or smaller, or carry unnatural qualities and shapes to entice the consumer to buy them. Selling adulterated seeds or seeds is a crime under Palestinian law, so the regulatory authorities are required to tighten control over outlets and shops selling seeds, amend the laws for selling seeds and seeds, oblige the seller to write an invoice for the sold item, and not allow the sale of any item without recording its data on the packaging, and not to buy seeds or Seeds of unknown origin or purchase from unauthorized places.

As for fertilizers, we can divide their problems into four sections. The first section is related to preventing the importation of many fertilizers by the occupation, such as urea and nitrate fertilizers, which are the main element for farmers in the fertilization operations. We have previously discussed this in another section of the research, and the other section is related to the ill-conceived use of fertilizers. Which may cost farmers money without the desired interest or return, due to the weakness of the extension system or even its absence. The third section is related to the steady rise in the prices of chemical fertilizers due to the international crises, especially the war in Ukraine. As for the fourth section, it relates to fraudulent fertilizers or importing the cheapest and worst types of fertilizers and selling them to farmers. This requires the state to identify the sources of these fertilizers, chemical analysis, and check the percentage of purity, validity, and the percentage of the elements in the label of each fertilizer.

As for pesticides, they suffer from several problems, the first of which is the non-matching of the active substance as a percentage or weight inside the package. Farmers may also suffer from the absence of the active substance in the first place, as merchants replace it with other materials that may be stronger or weaker, but it is an effective substance that is restricted or prohibited from use, and this is nothing but a path. From the paths of fraud, add to this the expiration date of the pesticide and tampering with the label. There is another problem related to pesticides, which is the indiscriminate use of them by farmers, whether by using a non-specialized pesticide or using the wrong method or timing, and this is due to the weakness or absence of the extension system.

Finally, agricultural machinery and equipment. Farmers are good at purchasing the necessary equipment, knowing that the use of equipment and machinery is simple due to their small agricultural holdings, knowing that many Chinese-made equipment are notorious and require strict government control when imported.

 Resource based infrastructure: water/irrigation, farm power/energy

The problems of resources do not end, especially since the farmers of Gaza Strip suffer from a long-standing blockade, and the first thing that prolonged this blockade affected the energy sources, and the farmers did not leave their farms waiting for the arrival of energy and the application of irrigation operations. As a result of the continued blockade, farmers have resorted to alternative sources of energy, such as diesel generators or solar energy. Farmers' returns were greatly affected by the lack of cheap and continuous sources of energy, and this added a new burden for farmers that was not present 15 years ago. As for the water resource, it was previously discussed during the research as well.\

 Physical infrastructure: agricultural roads and their interconnections and markets, transportation, storage, processing and preservation operations, etc.

Gaza Strip is a small area and the condition of the roads is suitable for farmers and does not hinder their access to markets and transportation. Development institutions are still implementing the construction or rehabilitation of agricultural roads that have contributed to the improvement of this road network. As for transportation, merchants often reach the farmers' land, and when the farmer is forced to transport, they have simple and inexpensive means of transportation such as a tuktuk.

As for storage, there are major problems facing the sector of post-harvest technologies and storage of horticultural crops, including the inadequacy of these warehouses for horticultural crops or the high cost of storage due to the merchants resorting to using a method of storage by refrigeration or freezing, which requires the expenditure of a lot of energy, which is already high in price. Therefore, farmers seek to get rid of their crops and adopt the quick sale method for fear of crop damage.

Also, packing and processing stations are absent from the scene due to the adherence of the market system to the traditional circulation and sale of agricultural products, while many developing countries have begun to establish processing, packing and packaging stations for agricultural products for local sale or for export. This problem needs institutional and ministerial theorization and support for this type of work, which will certainly work to preserve agricultural products for the longest possible period and avoid post-harvest losses, in addition to avoiding microbial contamination of crops due to washing, drying and treatment processes that have become easy, developed and cheap in many countries.

 Institutional infrastructure: agricultural research, extension and education technology, information and communication services, financial services, marketing, etc.

Gaza Strip and the West Bank suffer from the absence of scientific research institutions and academic and governmental research centers, and if they are found, they

are weak in performance, and this is clearly reflected in the lack of extension services for farmers, as the varieties of seeds, fertilizers, methods of cultivation, irrigation, pruning, etc. agricultural operations are in constant need of research and experimentation.

As for communication services, they have become available, but the problem lies in the absence of the extension services themselves and the dependence of farmers on input traders to provide the extension service, and this is not enough and may sometimes mislead the farmer.

As for marketing services, they are still fluctuating in place, due to the control of some traders over the export market and misleading farmers with the prices and modalities of contractual farming, which ministries are supposed to install as an agency or department of the ministry in order to guarantee farmers' rights with brokers, traders and exporters.

(1-2) The reality of plant agricultural production in Gaza Strip:

The agricultural sector is considered the main sector that provides the food basket for the population and works to provide food security despite all the obstacles. The contribution of plant production constitutes 55% of the total agricultural production. The following table shows the value of vegetable production in Governorates of Gaza Strip at prices (USD) for the year 2019 .

Item	Area (dunum)	Production (Tons)	Value (USD)
vegetables	58432	303959	136503141
field crops	44120	99636	38438528
the fruit	66844	52827	52118639
citrus fruits	20760	36433	19843432
Aromatic plants	140	335	1195528
Total	190296	493191	248099267

The sector achieves self-sufficiency for 15 agricultural commodities, and this enables it to cover the local market of these basic items, with the possibility of exporting these commodities abroad as well, knowing that the occupation prevents or limits the quantities allowed to be exported, according to the security mood of the occupying state. Among these commodities are (tomatoes, cucumbers, peppers, onions, cabbage, cauliflower, strawberries, potatoes, zucchini, eggplant, some types of citrus fruits, grapes, and dates). In addition, 300 tons are exported to the West Bank, while the Strip consumes about 1,100 tons of various types of vegetables.

The area of agricultural lands is 170,000 dunums, but it exceeds 230,000 dunums, as one agricultural plot is cultivated several times a year. The occupation prohibits or restricts agriculture in an area of 30,000 dunums in the border areas by its procedures, as it prevents farmers from cultivating it freely, and if it allows them to cultivate, it controls the nature

of the crops they grow, which has made this region marginal and non-strategic. The occupation prohibits the cultivation of tall and perennial trees, and agriculture is limited to leafy varieties under pretexts of security and obscuring vision, and it bulldozes them immediately, in addition to its aerial spraying operations and the opening of dams.

For exports from Gaza Strip for the year 2020, for example, they were as follows:

The entity	Quantity (tons)	Value (USD)
West Bank governorates	38606	50432
Arab countries	3299	3187
the other side (occupation)	3353	2959
Total	45258	56578

Through the previous table, it is clear that Gaza Strip exports only 10% of the local production, knowing that if the crossings are opened, this percentage will increase to more than 30%, and this will improve the farmers' income, as the quantities consumed locally exceed the population's need for most vegetable commodities in particular. . The occupation is a major obstacle in this file. There are many procedures that are uncomfortable for us, and it sets many requirements that raise the costs of exporting abroad and constitute an obstacle for the farmer and trader wishing to export, in addition to not allowing the export of commodities that farmers want and specifying the quantities and markets that are allowed to be exported to.

As for the number of workers in the agricultural sector, 55,000 people work in this sector, including farmers, permanent workers, seasonal workers, transport brokers and other accompanying businesses. In light of the blockade, the agricultural sector is the only one that works at its full productive capacity, and there is an increase in the number of workers in it. Despite this abundant production of agricultural products, particularly fruit and leafy vegetable crops, the agricultural sector and farmers suffer a lot as a result of the problems that this sector is exposed to, especially the problems of salinity of irrigation water, problems of fragmentation of agricultural property, urban sprawl, prevention of export movement, and high prices of agricultural inputs. The weakness of the extension system and many other problems and challenges.

What makes Gazan farmer cling to his land is the lack of other options for him in light of the limited travel and siege. Any breakthrough to the labor market, and specifically work on the other side, will directly affect agricultural production, due to the limited returns from the agricultural profession in light of the ban or restriction of exports.

(1-3) The reality of animal agricultural production in Gaza Strip:

Animal production is the second pillar of total agricultural production, with a contribution of 43% of total agricultural production. The following table shows the value of animal production in Governorates of Gaza Strip at prices (USD) for 2019 :

Items	Units	Quantity	Unit price (USD)	Production value (USD)
Cow's milk	Liter	13572000	0.472	6405984
Sheep's milk	Liter	4747500	1.11	5275000
goat's milk	Liter	1387500	1.11	1541667
total milk	Liter	19707000		13225667
Beef and veal	kg	5292900	4.72	24994250
Sheep meat	kg	2848500	6.11	17407500
goat meat	kg	370000	5.55	2055556
Camel meat	head	710	833.33	591667
Chicken meat	number	23000000	4.16	95833333
Turkey meat	number	700000	30.55	21388858
meat total				162271164
Table eggs	egg	200000000	0.0833	16666667
Bee Honey	cell	14887		1240583
Total				193404081

It is clear from the results presented in the previous table that the value of milk amounted to 13.2 million US dollars, while the total value of meat amounted to 162.2 million dollars. Broiler chicken occupied the largest share of the value of livestock production, with a value of 95.8 million dollars, while honey was valued at 1.24 million dollars bringing the total value of livestock to $192.4 million dollars.

As for the cows, sheep and goats sector, the sector faces a problem in meeting the needs of the local market for milk and its derivatives, as what is produced meets the needs of 30% to 35%, and this is due to reasons, including the occupation and the blockade that prevents the import of good breeds and raises their cost to the breeder, along with Gaza Strip does not produce green fodder, but rather depends on imported fodder, and the occupation prevents the direct import of fodder except through it, which raises the cost as a result of exorbitant taxes and transportation costs and reduces the profit margin of the breeder. The figures received from the Ministry of Agriculture on the numbers of calves, sheep, goats, milk and its derivatives imported annually show the size of the deficit that Gaza Strip means in this important branch. As for the poultry industry, it is the most important branch of animal production, knowing that the self-sufficiency rate is almost 100%. There are opportunities for export if the occupation allows it. As for the challenges facing the animal production sector, they are very many, including the following:

- Challenges of fattening farms and milk production:

- High population growth rate
- Lack of natural resources (water, land)
- Epidemic diseases
- Lack of technical expertise in managing fattening farms and preparing appropriate fodder rations
- Absence of artificial insemination from high production breeds in order to raise Genetic value of breeding animals.

-Poultry challenges:

- High prices of imported production tools and equipment
- Importing broiler poultry from abroad in the form of sauce and not producing it locally
- Increase in gas and electricity prices
- High feed prices and transportation costs
- The existence of a long and unclear chain of brokers and intermediary dealers between producers and consumers that contribute to raising prices
- Random farms that do not comply with biosafety conditions.

in light of the imports that the Ministry of Agriculture is talking about, which indicated the existence of a nutritional gap in animal products, this gap can be addressed by increasing the local production of animal products, through the continued development of animal production through the expansion of breeding high-productivity animal breeds from both Meat and dairy, the expansion of immunization of livestock against diseases, and the need for the Agricultural Extension Agency to play an effective role in educating animal product producers to use the optimal diet for each type of animal according to the different age groups of the animal to obtain a higher food conversion factor and thus increase the local production of various animal products, It must also continue to provide serums, vaccines and immunizations for poultry on a regular basis to avoid the emergence of avian influenza and the decline in local production of chicken meat and eggs, and continue to encourage investment in the field of raising milk cows, calves, goats and sheep, and at the same time work to provide modern technologies in the production of green fodder and provide balanced diets and not Better than introducing green fodder tolerant to the salinity of irrigation water, such as Bonecam, Rhodes, and barley dormancy using advanced technological mechanisms for irrigation and serving green fodder crops.

(1-4) The reality of manufacturing industries based on agricultural production in Gaza Strip:

Manufacturing industries are defined as that activity that is based on a set of operations that depend on machines and energy and is carried out through an integrated system of

industrial work and services to convert one or more materials into new materials that differ in their formal or usable characteristics. Among the most important of these industries is:

- -The industry of processing and preserving fruits and vegetables, which includes dried, frozen and canned fruits and vegetables, jams, juices, salted vegetables, salted olives and potato slices.
- -Plants or units for the manufacture of vegetable and animal oils and fats, including olive, corn, sunflower, sesame, vegetable and animal fats.
- -Manufacture of dairy products, including pasteurized and concentrated milk, yogurt, labneh, cream, butter, cheese of all kinds, ice cream, and others.
- -Manufacture of grain mill products, including grinding wheat, barley, corn, semolina, bulgur, freekeh, beans, lentils, chickpeas and bran
- Manufacture of prepared animal feed, including poultry and livestock feed
- Manufacture of baking products, including all kinds of biscuits, pies and sweets
- Manufacture of chocolate and sugary sweets, including all kinds of chocolate, dressing, lokum, halva, frankincense, pasta and vermicelli
- - Manufacture of other food products, including roasted and ground coffee, tea, baby food, nuts, vinegar, honey, spices of all kinds, and distillation of spirits.
- - Manufacture of non-alcoholic beverages and mineral water, including soft drinks of all kinds and mineral water.

Studies indicate the importance of this industrial sector, as it is one of the fastest and most growing sectors, as the vitality of this sector lies in the main assortment of its products, in addition to the successive developments in the quality of those products to meet international standards and requirements, which in turn does not only enhance the importance of this sector in the local market. Rather, it works to increase the export capabilities of producers in Global market. On the other hand, various statistics indicate that 42% of the volume of Palestinian household spending goes on food of all kinds, and this serves as an indication of the importance of this vital sector, and the need for a competitive local industry, with the aim of providing the market with good quality goods, in addition to providing these goods To the final consumer at a price consistent with consumers' purchasing power (Mahdi Al-Aghbar, 2007, An-Najah University).

It is very clear that many inputs of raw materials (locally produced agricultural products) can be provided to those aforementioned transformational industries, instead of importing them from the other side or from outside Palestine. Therefore, the first recommendation is to encourage this important sector and to encourage the farmers of Gaza Strip and the West Bank as well. The Ministry of Economy, Industry and Agriculture To form a permanent operations room that studies extensively the agricultural commodities that can be provided locally by carrying out feasibility studies at the field level and at the factory level at the same time, taking into account the

specifications of the agricultural commodities required to be provided for these manufacturing industries. Also, those concerned must focus on the drying industry specifically, for many reasons, including the following:

1- Savings in transportation costs due to lower final weight and volume of the product
2- Saving the energy used in the operations of preserving commodities by freezing and refrigeration, so dried commodities are often not needed
3- Concentration of the nutritional value in a unit weight that is approximately ten times less than the original weight of the commodity, such as tomatoes, grapes, dates, parsley, and some types of dried fruits.
4- The ability to store large quantities of these dried commodities may be necessary for local markets in the event of wars and power cuts.

In order to provide a suitable environment for the promotion of these industries, the following is required:

- Attracting foreign expertise in the field of manufacturing, drying and storage of agricultural commodities
- Providing an appropriate investment climate and encouraging entrepreneurs and families in these industries
- Establishment of the Contract Agriculture Department in the Ministry of Agriculture to ensure the provision of agricultural commodities with certain specifications (special items) and to protect contractors, whether farms or manufacturers.

(1.5)The reality of water resources in Gaza Strip :

Gaza Strip is a small area with a total area of 365 Km^2(40 kilometers in length and 5-12 kilometers in width). Gaza Strip borders the Mediterranean Sea, Egypt and Israel (PA2013a). The coastal aquifer of Gaza Strip is part of the coastal aquifer basin that extends from the Sinai Peninsula to northern Israel with a total area of 18,368 km2 (PWA2013a). Gaza Strip consists of 5 governorates: Awareness, North Gaza, Deir El-Balah, Khan Yunis, and Rafah. Khan Yunis is the largest governorate with a total area of 108 Km^2, followed by Gaza with 74 Km^2, Rafah with 64 Km^2, North Gaza with 61 Km^2, and finally Deir al-Balah with 58 Km^2 (GEOHIVE 2015).

Gaza Strip depends on groundwater as the main and only source of fresh water, and this groundwater reserve depends on rainwater. The average rainfall ranges between 317-330 mm/year, and the rate varies according to Governorates. In Rafah, the average reaches 235 mm/year, while The North Governorate reaches 410 mm/year. 1.8 million people live in Gaza Strip and consume 190-200 million cubic meters annually, of which 60-90 million cubic meters go for agricultural uses, 90 million cubic meters for municipal purposes, and 20 million cubic meters for other purposes. In other words, Gaza Strip depends on what

92% of the fresh water in the aquifer, in addition to 6% of the water purchased from the Israeli side (13 million cubic meters), and desalinated water from the sea by 2% (4 million cubic meters), and this annual consumption of groundwater is twice the rate of supply from rainwater to the aquifer, where the rate of supply is estimated at 90 million cubic meters (Thaher 2006, Ismail 2003). As a result of the large deficit between the amount of consumption and the amount of sustainable feeding of the aquifer, a major imbalance occurred in the balance of the aquifer, which in turn led to a rapid decrease in the level of Groundwater level, and eventually this annual deficit (120 million cubic meters) will lead to the depletion of this main water source. Nutrition for the population of Gaza Strip (PWA2013a). Also, as a result of this rapid decline, the waters of the Mediterranean Sea leaked towards the aquifer, and this caused salinization of the water, knowing that the central and southeastern part of Gaza Strip, the water there is already salty due to natural reasons, and there are other reasons for the high salinity in some areas due to pollutants such as nitrates resulting from Wastewater and excessive use of agricultural fertilizers (PA 2013b). Currently, an estimated 90-95% of groundwater is not compliant with the standards of the World Health Organization (WHO) for drinking water (PWA 2013b).

The repercussions of the water deficit and the continuous decline in groundwater levels cause a continuous rise in water salinity, and the average salinity of the water extracted for municipal purposes is 1000 mg / liter, while the international standard is a maximum of 250 mg / liter, and this means that more than 97% of wells Municipal water The quality of its water does not comply with the standards of the World Health Organization for drinking water. On the other hand, the average per capita share of water for domestic purposes is estimated at about 85 liters per person per day, which is the minimum international standard of 100-150 liters per person per day. The high population density, which is estimated at 5,000 people per square kilometer, and in some areas such as Gaza City, reaches 15,000 people per square kilometer. And that the confiscation of the water of Gaza Valley and its confiscation behind the dams and opening them at any time suddenly caused damage to the water wells scattered along the borders, and prevented the flow of groundwater naturally, in addition to the fact that the separation wall erected by the occupation affected the flow of surface runoff of rainwater within the borders of Gaza Strip, and the confiscation of valley water, and depriving the Palestinians of their ground and surface water sources.

The solutions lie urgently on maximizing the utilization of rainwater by collecting, transporting and filtering it to ensure an increase in the quantities of feeding the aquifer and improving the quality of its water, and the development of wastewater treatment plants in the Rafah and Gaza regions in order to improve the quality of treated water in both stations with the aim of facilitating the process of reuse This water is in agriculture or feeding the aquifer and not pumping this water and contributing to polluting the marine environment, and developing a plan for the agricultural sector that takes into account the economics of farms and the abundance of water sources in quantity and quality. In addition

to encouraging farmers to adopt special and modern techniques for water harvesting, technical irrigation of crops according to water standards for each crop, reduce wastage rates as a result of leakage in irrigation networks, and adopt contour plowing, which works to retain a large amount of moisture in the soil.

Chapter Two: Commercial agriculture in Gaza Strip:

Legislative authorities and decision-making centers have issued a set of laws and policies that regulate the agricultural sector and agricultural trade. They can be summarized as follows:

- Agriculture Law No. 2 of 2003 AD with its amendments in 2005 AD.

- Law No. (14) of 2018 regarding the amendment of Agriculture Law No. (2) of 2003 AD.

- Law of Standards and Metrology No. (6) of 2000 AD, with its amendments in 2004 AD.

- Law No. (21) of 2005 AD Consumer Protection.

- Water Law No. (3) of 2002 AD.

- Law No. (2) of 2006 AD, General Federation of Palestinian Industries.

- Law No. (2) of 2011 AD, Industry Law.

- General Budget Law No. (7) of 1998 AD

In addition, there are a number of ministerial decisions in Gaza that cover Gap in those laws and aim to protect the national product. They stipulate preventing the entry of agricultural products from the Israeli side that have a local alternative from abroad in order to protect the national product. The most important of these decisions are:

- Decision No. 1/2012 of the Ministry of National Economy banning the entry of freezers across the border

- Ministerial Decision No. (2/2012) from the Ministry of Agriculture banning the entry of olive oil across the border

- Ministerial Resolution No. (3/2012) temporarily banning the entry of cows, calves and camels across the border due to foot and mouth disease in Egypt

- Issue No. (808/2011) prohibiting the entry of citrus fruits through tunnels

- Issue No. (720/2011) from the Ministry of Agriculture prohibiting the following cross-border products (onions - potatoes - potato seeds - palm seedlings - eggs and chicks - poultry meat - birds)

- A letter addressed to the Assistant Undersecretary of the Ministry of Agriculture dated (2/10/2012) banning the entry of locally produced fruits, including green olives - all kinds of citrus fruits - all kinds of dates - grapes - guava - all kinds of vegetables except garlic only.

- Decision (599/2017) prohibiting the import of onions.

- Decision (No. 567/2018) banning the import of grapes.

- Decision (566/2018) banning the import of watermelon.

Important decisions were also issued to regulate the entry of production inputs, including pesticides, fertilizers and veterinary medicines, the most important of which are:

- Banning the import of pesticides of all kinds unless they obtain prior permission from the Ministry of Agriculture before they reach the borders

- Banning veterinary medicines of all kinds, unless you obtain prior permission from the Ministry of Agriculture before entering the borders

- Banning seeds, seeds, seedlings of all kinds, and fertilizers, unless you obtain prior permission from the Ministry of Agriculture before entering the borders.

With regard to the poultry sector, although work to protect it began in the year 1996 AD by establishing hatcheries and then establishing mother farms that provided 50% of the number of eggs needed, as fertilized eggs were allowed to cover the deficit, but there are no decisions to prevent the import of fertilized eggs or Even broiler chicken, except in the year 2016 AD, when it was issued

- Decision (2585/2016) to stop importing meat chicken

- Decision (2352/2017) to stop the import of turkey and its parts .

With regard to the date palm and dates sector, in 2017, it was forbidden to enter Medjool and Degla Noor dates, and also on 10/1/2019, a decision was issued to stop the import of dates.

General policies pursued by the Ministry of Agriculture in leading the agricultural sector:

Returning to previous studies, the Ministry of Agriculture in Gaza has adopted two pivotal policies since 2010 and with the launch of its strategy and ten-year plan towards sustainable agriculture:

-Import substitution policy (eg: protection of vegetables such as carrots, garlic, melons, melons and onions)

- Export promotion policy (eg: increasing exports to more than 55,000 tons of tomatoes)

The Ministry of National Economy has adopted that the protection of agricultural products is linked to General policy of import substitution and export promotion. Thus, it has

adopted a set of policies aimed at supporting and protecting the local economy in general and the agricultural sector in particular, centered on:

- The policy of supporting the local national product.
- Quality control policy.
- Free market policy with the application of perfect competition.
- Import substitution policy.

Requirements and tools for achieving agricultural policies and laws**:**

To achieve these goals, the Agriculture Law necessitated the establishment of a set of applied supportive tools such as the Farmers Compensation Fund for Natural Disasters, Genetic Bank for Seeds and Seeds, the Palestinian Agricultural Credit Corporation, the National Research Center, central laboratories, water harvesting projects, plant and animal quarries, and an agricultural advisory council.

However, most of these institutions do not operate in Gaza Strip. According to the interview with the farmers, they did not receive compensation for their losses due to climate change, floods, or the destruction of agricultural lands by the occupation. In addition, there is no strategy to attract professional researchers in the agricultural sector to develop strains of tomatoes, potatoes, cucumbers, or any other animal products. Farmers also suffer from the absence of experimental fields, which forces them to buy unsecured seeds.

In the field of research, the meeting with the Ministry showed that there is a clear gap between the needs of the agricultural sector and the academic research institutions. As most of the research produced in the field of the agricultural sector is purely academic. This is due to the absence of infrastructure, laboratories, databases and research budgets.

Challenges Facing the Legal and Policy Environment of the Agricultural Sector in Gaza Strip:

1- - The Palestinian division and its effects on the legislative environment, as there are two sources for legislation and two sources for issuing executive regulations, and they may conflict with each other, with a complete absence of joint coordination between these two sources and their lack of recognition of each other, as the

Palestinian presidency issues laws in force in the West Bank under the name of "decision by law" in When the Legislative Council issues effective laws in Gaza Strip through the Legislative Council without the approval of the President of the Palestinian National Authority, while certified legal regulations are issued by the Council of Ministers and the competent ministries in the West Bank, while legal regulations are issued certified by the so-called Government Action Follow-up Committee And undersecretaries of the relevant ministries in Gaza Strip.

2- - The absence of a comprehensive strategy for the agricultural sector, and the pattern of response to crises prevailing over the legislative system and decision centers, and thus conflicting decisions and the absence of coordination between the specialized departments at the technical and administrative level

3- The Palestinian division also affected General agricultural policies. While the Council of Ministers issued a cluster development strategy, Governmental Action Committee in the sector did not adopt this policy. It adopted a policy that adopts the concepts of promoting the economy of resistance and sustainable agriculture. It was also not discussed or approved with the Council of Ministers.

Chapter Three: Challenges and problems facing the agricultural sector and agricultural trade.

First: The impact of the Israeli blockade on the movement of imports and exports of agricultural inputs and products:

The blockade played a negative role in affecting the development and production processes in Gaza Strip, including the agricultural sector, as the blockade made it difficult to enter production requirements, which contributed to the rise in their prices.

The blockade also reduced export operations to the lowest possible degree, as only limited quantities of strawberries and flowers were exported through the Israeli company Gresco, which became the Mihadrim company in 2009 after activists in solidarity with the Palestinian people in France sued Gresco for Its activities in the settlements on the lands occupied in 1967, in addition to exporting some crops on a seasonal and limited basis to Saudi Arabia and some Gulf countries.

The occupying state imposed a strict blockade on Gaza Strip in mid-June 2007, according to which 30 commodities were allowed out of the 3000 that were entering Gaza Strip, and the crossings were closed on the common borders between Gaza Strip and the occupying state, It kept only Keram Abu Salem crossing, with a limited capacity, as nearly 1,000 trucks of various materials used to enter the Strip every day, but after the blockade, the number of trucks entering did not exceed 150-250 trucks at best, and the occupying power canceled the commercial customs code for Gaza Strip.

The occupying power launched four aggressive military operations against Gaza Strip 2008,2012.2014.2021 At a time when these aggressive military operations led to the death and wounding of thousands, they led to the destruction of infrastructure, production facilities, water treatment plants, and the only power plant in the Strip. The agricultural sector was greatly affected by the military operations, as agricultural lands, whether open or plastic toilets, were targeted, in addition to livestock projects.

The occupying power has also worked to define a restricted area on the eastern and northern borders with an area of 300 square meters, which constitutes about 20% of the agricultural land area in Gaza Strip. About 18,000 farmers have been denied the right to access this rich land, which, if used appropriately, would constitute A complete food basket for the residents of the strip. The occupying power also specified an area not exceeding 6 nautical miles at best for fishermen, which contributes to reducing the quantities of production resulting from fishing, and the number of fishermen has decreased to 1,500.

The occupation state continued its siege policy despite many popular political, diplomatic and solidarity attempts, the most prominent of which was the Turkish Freedom Flotilla, which was targeted by the occupation navy with a heinous piracy operation that led to the death of 10 Turkish activists, and the fleet was taken to the port of Ashdod, and the activists were deported abroad after that, as an operation led Maritime piracy and occupation stirred up public opinion, but the Israeli policy, with the help of its allies, contributed effectively to aborting those attempts and official international voices that were calling for lifting the blockade on Gaza Strip. To prevent the entry of strategic

resources "such as iron, aggregate, cement, requirements for agricultural and industrial production, and materials necessary for various production processes in the field of infrastructure" and its continuation in the list of prohibited items, which means the continuation of the blockade policy and with legislation this time from the International Quartet Committee and its coordinator.]

The policy of siege and aggression practiced by the occupation has led to strengthening the productive and developmental alienation processes and transforming Gaza Strip into a humanitarian situation, where about 80% of it receives food aid from UNRWA and other international relief agencies, and the poverty rate reached about 48% and severe poverty 21%, and the state of Food insecurity has decreased to 57, and the role of workers in the agricultural sector as the main source of income has declined from 80,000 before the blockade to about 35,000 after it, all in light of the limited export opportunities and the lack of crystallization and availability of development policies by decision makers. “The Ministry, international non-governmental organizations, United Nations organizations and NGOs "which were unable to stop the state of deterioration and work to re-consider the agricultural sector as an important development sector that contributes to strengthening the elements of resilience and enhancing a decent level of food security, helps the process of self-reliance through production and development, and also works to generate opportunities Work to contribute to reducing the manifestations of poverty and unemployment "Towards a more resilient agricultural reality - The Arab Center for Agricultural Development".

Second: The impact of the Covid-19 pandemic on the supply chain for agricultural inputs in Gaza Strip and the movement of exports:

(2.1) The impact of the Corona pandemic on agricultural production inputs (plant and animal):

The Corona pandemic negatively affected the production cycle and chains in a large number of agricultural projects as a result of the difficulty of farmers, especially their small farmers, accessing production inputs such as fertilizers, seeds, seedlings, fodder and pesticides, especially from foreign markets, due to the closure measures imposed by

Government to prevent the spread of the epidemic, which accompanied many The political challenges created by the Israeli occupation, which led to an increase in the prices of these inputs in the local markets. All of this is accompanied by a decrease in the cash flow of farmers due to their inability to market their products and the low demand for these products, as a result of the economic crisis created by the pandemic, which led to major problems. In dealing with suppliers, especially those who prefer cash to sell on credit or checks. For example, a report issued by the Institute for Palestine Studies indicated that hundreds of farmers have suffered from a significant increase in the price of fertilizers; As the price of a ton of one type of fertilizer increased by more than double. That is, from 1,200 shekels before the spread of the epidemic to about 2,300 shekels afterwards, especially during the first closure period that followed the declaration of the state of emergency at the beginning of March of 2020.

Difficulty in accessing production inputs negatively affected the quality and quantity of final products. Livestock However, the lack of fodder in sufficient quantities at the beginning of the pandemic led to a nutritional deficiency in sheep, which forced a number of farmers to sell part of their livestock to cover production costs. The same applied to plant agricultural production, where high production costs led to a decrease in the quality of crops and an increase in their prices, which led to huge losses for farmers, and a number of them were forced to stop or reduce production, especially with the difficulty of export operations due to the closure of crossings and borders. The restrictions on the movement of workers during the period of comprehensive closure, in addition to the fear of infection, led to a shortage of manpower in the projects.

(2.2) The impact of the Corona pandemic on agricultural production and diversification in food chains:

In the case of production inputs, the Corona pandemic negatively affected agricultural production, both plant and animal, as the challenges associated with production inputs and the deterioration of the economic and social reality during the pandemic negatively affected the expected demand for agricultural products. For example, the almost complete closure of restaurants and hotels, especially during the first period of comprehensive closure, led to a significant decrease in the demand for some agricultural products that

were largely consumed in this sector. such as red cabbage, corn, and lettuce, where farmers had to destroy some of these crops before the harvest stage and replace them with other basic crops such as cucumbers and tomatoes

Strawberry farmers also suffered from stagnation in the market due to the decline in demand in the local market and the cessation of export operations to the West Bank due to the measures taken by the Palestinian government and Israel to limit the spread of the epidemic. A large number of flower producers also provided them to livestock as food due to the cessation of exports and the closure of wedding halls. Which caused them huge losses.

Poultry and livestock producers have faced a decline in demand since the beginning of the pandemic, which has led to lower prices, knowing that about 18,000 small farmers depend entirely for their income on raising livestock and poultry. The demand for sales of dairy products also faced a kind of stagnation as a result of a significant decline in demand and demand, in light of the decline in the purchasing power of a large segment of Palestinian families. Their prices, for example, decreased the price of municipal cheese from 24 shekels to 12 shekels during the first months of the closure.

(2.3) The impact of the Corona pandemic on the marketing chain

There are many marketing patterns that Palestinian farmers follow in marketing their agricultural production. The vast majority markets their products by selling them in the central market, or in the local markets, and a significant part of them is exported to Israel and foreign markets.

Prior to the Corona pandemic, Palestine suffers from many restrictions imposed by the Israeli occupation on the movement of people and goods, on the use of natural resources, as well as on access to markets. either local or global. Palestine also suffers from poor infrastructure for the agricultural marketing sector, especially with regard to transporting agricultural products and methods of selling and pricing them, in addition to weak post-production techniques, especially in the field of cooling, grading, packaging, transportation and cold storage. Local markets also suffer, in many periods, from a weak ability to absorb

local agricultural production as a result of randomness and lack of coordination of production according to a unified official agricultural calendar.

The Corona pandemic exacerbated the challenges related to the marketing of agricultural production as a result of the obstacles imposed by the pandemic in terms of transportation difficulties, and consumers' access to central and local markets. It was opened - partially - only in early June of 2020. The stoppage of the movement of Palestinian citizens from inside Green Line as a result of the closure of the crossings with Israel also affected the ability of farmers in the West Bank to market their products, especially since shoppers from within constitute a great marketing force. Especially in the northern cities of the West Bank. The closures, especially at the beginning of the pandemic, negatively affected farmers' ability to access markets to market their crops and products.

One of the measures of the comprehensive closure was the closure of central markets for the sale of agricultural products in cities, which had a greater negative impact on plant agricultural products compared to those of animals, due to farmers relying on marketing their agricultural products in central markets, while livestock breeders rely on marketing their products through shops. And altars, which are often equipped with means of preserving products.

Women's projects related to food production and processing have also been greatly affected, especially those that are produced and marketed through women's associations and cooperatives, and with the cessation of internal and external tourism activities, exhibitions and bazaars, and the closure of schools, which were an important marketing window for the products of women's projects.

In the same context, the Cooperative Work Authority indicated that the activity of cooperatives, including agricultural ones, was negatively affected by Government measures taken to confront the pandemic, due to the inability of a large number of members to pay their financial obligations to the cooperatives, as a result of the decline in their sales and the weakness of their marketing channels. Negatively affected the ability of these cooperatives to perform their basic tasks related to marketing members' products.

(2.4) The impact of the Corona pandemic on the purchasing power of the consumer, and increasing health awareness of the importance of consuming agricultural products:

A report issued by the Food and Agriculture Organization showed how the crises in the Palestinian agricultural food system were transmitted during the pandemic period, as the restrictions imposed by the Palestinian government and concerns about public health led to the transfer of a large part of General budget to finance health measures to limit the spread of the pandemic, and social protection programmers, Reducing subsidies directed at maintaining food security and supporting the agricultural sector

In the same context, the cessation of economic activities in a large number of sectors led to the loss of jobs and the erosion of household income (largely due to the financial crisis of the Palestinian government, and its inability to pay salaries to its employees).

This led to a decrease in the purchasing power of a large number of families, which led to weak demand for agricultural food products, and high levels of food insecurity, especially with a significant increase in the prices of a large number of food commodities.

Consumer prices in Palestine recorded a significant increase in March 2020 compared to February 2020 as a result of the increase in the prices of several agricultural products, including dried vegetables by 30.17%, fresh chicken by 10.48%, potatoes by 4.99%, fresh fruits by 3.85%, and others.

The report issued by the Food and Agriculture Organization also indicated that consumers in Palestine adopted negative accompanying strategies, such as reducing the number of meals consumed, or eating foods poor in nutrients, and cutting out foods of high nutritional value, such as fruits, meat and fish, especially since many of these foods are Like meat it is often considered unaffordable. Also, the consumption of sugar and fat increased frequently.

Third: The impact of the Ukrainian-Russian crisis on global supply chains and its impact on agricultural production in Gaza Strip:

A study entitled "The Impact of the Ukrainian-Russian Crisis on the Economy in the Palestinian Authority Regions" issued by the Zaytuna Center for Studies and Consultations - Beirut, prepared by Dr. Raed Helles, indicated that there are strong repercussions of the Ukrainian-Russian crisis on the Palestinian economy and summarized it through the following axes:

(3.1) The decline in foreign aid to the Palestinian Authority:

Foreign aid is often affected by the accompanying political developments that constitute the peace settlement. Thus, it is expected that the decrease in foreign aid will be one of the most prominent repercussions of the Russian-Ukrainian crisis. As a result of the entire world's preoccupation with this crisis, which will be at the expense of the Palestinian cause and the peaceful settlement, and the problem of the decrease in foreign aid lies in the dependence of the Palestinian economy on it, which was monitored as an entitlement to the peaceful settlement and to building the institutions and structures of the Palestinian state, and despite the institutional, material and human development that resulted from that aid However, it was emptied of the real rates of economic growth and the achievement of independence, as the Palestinian economy suffers from a deep shock as a result of the large and successive decline of this aid, whose volume began to decline after 2008, when it reached its maximum level at $1,978 million, and continued to Its decline until it reached $321 million in 2021.

(3.2)Rising prices and the emergence of the phenomenon of monopoly in the areas of the Palestinian Authority:

The continuation of the Russian-Ukrainian crisis would cause a real crisis in the basic supplies of flour, types of grains and oils, and this would threaten food security, and the Palestinian territories, especially Gaza, would have a share of this disaster. Whereas the cessation of Russian exports as a result of the sanctions imposed by the United States of America and the West will represent the worst global catastrophe and this step will deprive the world of basic supplies, including Palestine, which imports wheat from Russia and Ukraine. It is worth noting that the world has not yet recovered from the repercussions of the pandemic. Corona, which affected the movement of international trade, and led to a

sharp rise in the prices of basic commodities, indicating that the increase in the Russian-Ukrainian tension will also cause a sharp rise in prices and will lead to an unprecedented rise in basic commodities, and the emergence of the phenomenon of monopoly; As a result of some merchants monopolizing and storing commodities in order to raise their prices, which causes fear and panic among citizens. The Palestinian territories have already witnessed a state of popular anger due to the high prices of many goods. As a result of the exorbitant taxes imposed by Government and ironing the pockets of citizens, especially the poor and those with limited and middle incomes.

(3.3)High percentage of food insecurity in the Palestinian Authority areas:

As a result of the rise in prices due to the repercussions of the Russian-Ukrainian crisis on a global level, this rise is expected to lead to an increase in the rate of food insecurity in Palestine, as about 1.6 million Palestinians in the Palestinian Territory, with 31.5% of the households suffering from food insecurity, resulting from High unemployment rates, low household income, high cost of living as a result of the Israeli occupation and its repressive measures against the Palestinian people, continuous restrictions on freedom of movement, restricted productive capacities and limited economic opportunities. Although food is available, it is not affordable for many, as many families live in a state of destitution food security despite already receiving food and other assistance.

(3.4) Declining tax revenues for the Palestinian Authority:

To confront the rising price wave that hit the markets in the Palestinian Authority, from the first moment of the outbreak of the Russian-Ukrainian crisis, and to alleviate the additional burdens that will cast a shadow on the citizens; The Palestinian government formed a crisis cell consisting of the Ministry of Finance, the Ministry of National Economy, representatives from the private sector, the Chambers of Commerce and the Federation of Industries, and took a decision to exempt all sales of flour packaged in bags of 25 kg or more, as well as bakeries, from the value-added tax of 16%, for a period of three months.

Although the decision of the Crisis Cell that was taken aims not to raise the prices of basic commodities for the Palestinian citizen, this will be directly reflected in the decline in tax

revenues, and consequently, the decline in general revenues of the Palestinian government and the continuation of the financial crisis, as the Palestinian government suffers before the outbreak of The Russian-Ukrainian crisis and before the decision to exempt basic commodities from value-added tax from a difficult financial crisis; As a result, it led to the inability of the Palestinian government to pay the salaries of its 134,000 employees in the West Bank and Gaza Strip by 100%, as it has been paying 75% to 80% of their salaries since December of 2021, due to a decrease in Local tax revenues on the one hand, and because of the Israeli piracy of clearance revenues, which exacerbated the financial crisis of the Palestinian Authority's treasury by deducting "clearance revenues" from Palestinian tax funds, which amounted to more than 200 million shekels (about $65 million) per month.

Whereas, the clearing revenues collected by "Israel" for the Palestinian Authority per month amount to about 750 million shekels (about 243 million US dollars) in exchange for a 3% commission in exchange for collecting these revenues, and "Israel" deducts new money every month, whether for water, sewage, or electricity. On the other hand, the pressure exerted by countries friendly to "Israel" in the European Union to obstruct the signing of the agreement on financial support for the treasury of the Palestinian government on the third hand.

It is worth noting that Israel is trying to disrupt the agreement through its friends in the European Union. By setting insurmountable conditions on funding the Palestinian government treasury, and in return, the Palestinian government is trying to overcome this obstruction and to support Government budget; Through continuous contacts with European Union countries.

(3.5) High Consumption and Low Saving:

In addition to the negative impact of the rise in basic commodity prices, there is another impact that will put pressure on the disposable income of the Palestinian citizen. As a result of the expected increase in consumption and decrease in savings, which it has already suffered from in recent years and is considered one of the structural imbalances in the Palestinian economy. Studies indicate that 90.8% of the total disposable income in

Palestine goes to consumption, while an average of 9.2% goes to savings during the period (2018-2020).

Thus, one of the expected repercussions of the Russian-Ukrainian crisis is "a deepening of the domestic resource gap" through rising prices. This leads to an increase in consumption and a decrease in saving and investment as a result of consumption taking over the largest proportion of the total disposable income. Poverty indicators will also rise indirectly, bearing in mind that about 1.4 million people suffer from poverty with limited prospects for job opportunities and access to health services and security, due to living under the occupation authority.

It should be noted that the poverty rate in Palestine is still witnessing a noticeable increase in recent years, as the percentage of the poor reached more than half of the population in Gaza Strip, where there are about 163 thousand families, of which 110 thousand families receive cash assistance from the Palestinian Authority, registered With the Ministry of Social Development, it is distributed between 70,000 families in Gaza and about 40,000 in the West Bank. While the number of people receiving relief aid from the United Nations Relief and Works Agency for Palestine Refugees in the Near East (UNRWA) and international and Arab relief institutions has reached more than one million people, with a rate of more than 60% of the population of Gaza Strip, which is the percentage reached by food insecurity among the population. families in Gaza Strip. On the other hand, about 24% of individuals suffer from multidimensional poverty in Palestine, before the Corona pandemic. On the other hand, about 29% suffered from income poverty, which means that poverty in the State of Palestine is mainly linked to and driven by income poverty.

(3.6)Increasing circle of poverty in the Palestinian Authority:

As a result of the rise in prices in this way, the high rate of consumer food insecurity and its acquisition of the largest percentage of the income of Palestinian families, the decrease in saving and investment resulting from the consequences of the Russian-Ukrainian crisis and the consequences of the Israeli occupation and its continuous measures (siege, closures, repeated wars, and violations in all its forms), and the consequences of the pandemic Corona and the consequent heavy economic losses. It is expected that the circle

of poverty will widen in the areas of the Palestinian Authority, as well as the impact on the financial resilience of Palestinian families, which are already suffering from a rise in poverty rates, as some studies indicate that 29% of families in the areas of the Palestinian Authority classify their financial condition, they are poor families, distributed between 13.6% in the West Bank and 54.2% in Gaza Strip.

Fourth: The impact of Israeli violations on agricultural areas in Gaza Strip:

Despite the Israeli withdrawal from Gaza Strip in 2005, as a result of which ownership of the liberated lands returned to the Palestinian National Authority, the occupation still prevents farmers from reaching their lands in the eastern border areas of Gaza Strip. Where the occupation imposed the so-called buffer zone, which ranges from 150 meters to 1,000 meters in depth inside the Palestinian territories. This area was estimated at no less than 62 square kilometers, or 40% of the land used for agriculture. In general, the forms of violations vary throughout the life of the occupation. The violations are not limited to the actual occupation of lands, but there are many forms of violations, including the following:

 The inability of farmers to reach their lands in the eastern and northern regions of Gaza Strip due to the security risks that they may be exposed to. There are many incidents in which dozens of Palestinian farmers and workers were killed as a result of their work in those lands.

 Migration of agricultural lands by farmers as a result of the repeated losses resulting from either the decline in the economic return as a result of the decline in the prices of agricultural products in the local markets on the one hand, or the loss of soil fertility and weakness as a result of preventing the entry of many important agricultural fertilizers and soil sterilizers. Urea fertilizer, which consists of 46% nitrogen, is the best fertilizer in the world for crops, especially in the early ages of plants. This fertilizer was banned from entering Gaza Strip more than 20 years ago, in addition to nitrate fertilizers such as ammonium nitrate and calcium nitrate, and these two are no less important than urea fertilizer. The absence of these inputs from the farmers' purchase list causes a continuous loss as a result of lower production per unit area than before.

 Preventing the flow of Gaza Valley water and sequestering the water on the other side, or the sudden flow sometimes causes the destruction of the adjacent agricultural lands, either through drought and lack of benefit from the fresh water that the Strip was deprived of, or through torrential rains caused by the sudden flow and the resulting deterioration of lands and loss of crops.

 Control of export operations by the occupation and the determination of what crops are allowed to be exported and what is prohibited, in addition to restricting the exported quantities according to the situation and the Israeli security mood, caused a large number of people to move away from the agricultural profession as a result of their previous dependence and their limited experience on growing export crops only. There are many examples that I mention, for example, growers of roses, cloves, and other ornamental plants, which were grown with the intention of exporting only, and were sold to the European Union and entered into competition similar to the countries exporting this cultivation. Knowing that the price of one kilogram of one of the types of green onions that was exported to Europe reaches 7dollars, while its price when sold inside the sector does not exceed 0.3 dollars. The unjust control of the export system deprived Palestinian farmers of competition in international markets, especially European markets.

 The Israeli water policies, which caused the theft of the fresh water of Gaza Strip as a result of the establishment of settlements for several decades, as those settlements relied on agriculture and the export of their products to the Israeli interior and the external export. One of the most important evidences of this is the settlers' cultivation of the mango crop, which can only be cultivated in fresh water (less than 700 ppm). Looking at the sector after the Israeli withdrawal, you will find only very limited areas planted with the mango crop, due to the farmers' prior knowledge of the importance of the availability of fresh water. The first determinant for agriculture in Gaza Strip is the salinity of the irrigation water, as more than 90% of the wells now contain water unsuitable for agriculture.

Fifth: The impact of climate change and natural factors on agricultural lands and agricultural production:

What is climate change: Climate change refers to long-term shifts in temperatures and weather patterns. These shifts may be natural and occur, for example, through changes in the solar cycle. However, since the 19th century, human activities have become the main cause of climate change, mainly due to the burning of fossil fuels, such as coal, oil and gas. Burning fossil fuels emits greenhouse gases that act like a blanket wrap around Globe, trapping the sun's heat and raising temperatures. Examples of greenhouse gas emissions causing climate change include carbon dioxide and methane. These gases are produced, for example, by using gasoline to drive cars or coal to heat buildings. Clearing land of grasses and shrubs and cutting down forests can also release carbon dioxide. Landfills are a major source of methane emissions. Energy production and consumption, industry, transportation, buildings, agriculture and land use are among the main sources of emissions.

(5-1) The Impact of Climate Change on Agricultural Lands and Agricultural Production in Gaza Strip:

Climate change affects most sectors of the economy in the Occupied Palestinian Territory, especially the agriculture and water sectors, where surface and groundwater freshwater resources are expected to become scarcer in the coming years due to the decrease in rainfall rates, which will make it more difficult to replace groundwater due to high population growth. Coinciding with the intensification of competition for water between Palestinian agriculture, illegal Israeli settlements, and the industrial sector. In addition, high temperatures and excessive precipitation rates may threaten the quality of drinking water, given the limited treatment facilities, while climate change will lead to possibilities of increasing rainfall in abundance and for short periods compared to the extended rainy season, which will lead to unexpected flash floods and torrents that threaten the infrastructure. Existing oPt sanitation systems.

Many scientific studies confirm that the rise and fall in temperatures, decrease in water availability and expected precipitation as a result of climate changes will reduce the net productivity of agricultural crops, and will cause an increase in pests and plant diseases. The climate change that we are witnessing today is part of the natural cycles that the planet Earth is going through, some of which are natural causes and others due to human activity.

With Growing phenomenon of global warming and the accompanying rise in the planet's temperature, we are witnessing an expansion of desertification, an increase in soil salinity, disturbances at the beginning of the rainy seasons, and an irregularity in the amount of precipitation. He has torrential rain spells. In the past years, we have seen unexpected floods in countries that are not used to these phenomena in their modern history, which leaves devastating consequences, especially for farmers and the agricultural sector, which increases the challenges facing the simple farmer who relied on regular rains and fixed planting dates (Zeina Al-Agha Palestinian Policy Network.

The Food and Agriculture Organization (FAO) revealed that climate change threatens our ability to achieve global food security, eradicate poverty, and achieve sustainable development, and greenhouse gas emissions resulting from human activity are a major driver of these changes. According to its report issued in 2018, climate change has direct and indirect effects on agricultural productivity, including changing precipitation patterns, droughts, floods, and Geographical redistribution of pests and diseases.

The olive growers in the West Bank and Gaza Strip alike will not forget the past season 2021, which caused great losses to them due to the low quantities of production in that season, reaching less than 10% in some farms. Unusual is the first responsible for the low percentage of the contract and thus the decrease in the yield.

Vegetable growers have not escaped the consequences of climate changes that have occurred for several years, similar to the surrounding countries. The tomato crop, which is the main crop of vegetables produced in Gaza Strip, was affected by climatic changes, as the high temperature led to the spread of many fungal plant diseases, as well as various insect infestations, such as late blight for both tomatoes and potatoes. The productivity of the tomato growing season decreased compared to previous years, as the extreme heat conditions are a suitable climate for the breeding of insects such as the white fly, in addition to the spread of fungal diseases, considering that the climate is primarily responsible for the spread of insects and diseases.

The impact of climate change on agriculture and food sources is as follows:

- Deficiency in the productivity of agricultural crops in general

- Changing Geographical distribution map of agricultural crops

- Increasing rates of desertification and the impact of marginal crops

- Increased need for water due to high temperatures

- Negative effects on agriculture as a result of changing rates and times of heat waves

Proper planning of land uses is the first tool in confronting the effects of climate change, in addition to taking serious legislative measures to protect the remaining agricultural lands. On the other hand, the world depends today on the selection and use of plant varieties suitable for drought conditions, and this requires workers in the agricultural sector and decision-makers to acknowledge the importance of scientific research centers that simulate climate change issues and develop appropriate adaptation strategies, and cooperate with the international community to develop scenarios for monitoring and monitoring climate changes. The Ministry of Agriculture should also prepare methodologies for sustainable integrated land management, extension and awareness among farmers, and provide technical and extension support that motivates them to apply appropriate agricultural cycles.

Sixth: The impact of agricultural policies and practices on natural resources and agricultural production:

First of all, agricultural policy is defined as an integrated system of procedures, laws and legislation that the state adopts towards the agricultural sector. At the same time, it represents the state's management of the agricultural sector in order to achieve specific goals included in the agricultural plans

One of its objectives is to address the difficulties faced by rural groups in their efforts to adapt to the new conditions, which are sometimes represented by flexible interventions aimed only at directing development, and sometimes by sudden and adverse interventions that radically overturn the previous structures.

The Ministry of Agriculture and behind it successive governments and the Legislative Council have been formulating laws and legislation that try to protect farmers, protect agricultural products and preserve natural resources. Unfortunately, given the suffering of

the Palestinian people from the occupation decades ago, these legislations and policies are still flouted in the face of Israeli intransigence and arrogance. For example, the Palestinian laws tried to protect the Palestinian product, but the products of the settlements and the interior are still flooding the Palestinian market through smuggling, the power of the occupation, and bartering by imposing adverse decisions. In addition, the Palestinian-Palestinian conflict resulting from the division prevents the imposition of unified agricultural policies that protect agricultural lands, farmers, and agricultural products.

What threatens agricultural production most is the excessive randomness of production according to the whims and capabilities of farmers and not according to the need and within a well-studied agricultural cycle that meets the needs as well as our need for export and obtaining foreign currency. The absence of work mechanisms or the inability to implement these mechanisms sometimes limits or fails the implementation of many agricultural policies.

For example, there are laws and procedures that control the import of seeds and seeds from abroad, but despite the continuous efforts of the Ministry of Agriculture, the Palestinian farmer still suffers from adulteration of seeds, and this also applies to chemical fertilizers and pesticides. On the other hand, there are laws enacted and an agenda that emphasized the need to provide an appropriate investment environment, but this environment does not exist in reality, not through an effective tax policy, nor through lending policies, nor investment promotion policies, or even through the existence of an appropriate infrastructure related to markets, water and energy resources, or other requirements.

The foregoing indicates the absence of an integrated and effective agricultural policy, and this is due, as mentioned above, to the Israeli occupation first, to the Palestinian division second, and to the lack of funding necessary to implement agricultural strategies, as the agricultural sector is not considered a priority sector for Government’s agenda, and there is no greater evidence than the opposition of the Ministry of Finance. And stand in front of the tax refund.

The most important challenges facing the agricultural sector as a whole is confronting encroachments on agricultural lands, and the Ministry's strategy to support the contribution

of the private sector, in addition to using modern irrigation methods, organizing drilling and monitoring wells and groundwater in light of the limited water.

Seventh: The effect of population creep and ownership fragmentation on agricultural lands:

Agricultural land is considered one of the important natural resources of the state, and preserving it and reclaiming more of it is an important factor in economic stability or food security for peoples. In many developing countries, agricultural lands were exposed to many threats, the most important of which are: urban sprawl associated with increasing population growth, especially in regions with high population density. Where population growth affects the consumption of natural resources, the production of a lot of waste, and the impact on biodiversity (Khalid Zaman, et al, 2009, p80). Gaza Strip is one of the most densely populated areas in the world, as General density for the year 2017, according to the results of General population and housing census, was 52,034 people / km 2 (Palestinian Central Bureau of Statistics, 2018, p. 12).

Gaza Strip is one of the most geographical spots in Palestine that suffers from urban sprawl on agricultural land, which results in a decline in the agricultural area from one year to the next, as the area of Gaza Strip is estimated at 365 square kilometers, and the agricultural lands constituted the vast majority of this area, but with the passage of years The agricultural areas decreased, as the following table shows this decline in agricultural lands from 1975 to 2018:

A table showing the change in the area of agricultural lands in Gaza Strip during the period (1975-2018).

year	1975	1985	1995	2005	2015	2018
Gaza Strip / km 2	29.4	26	24.2	19.2	13.4	13.1

Local experts fear that this decline will continue if laws and strict oversight by the Ministry of Agriculture and the Palestinian Land Authority are not activated. The decline of

agricultural lands is offset by a threat to food security, especially in Gaza Strip, which relies on itself to secure its agricultural needs. The sector has succeeded in achieving self-sufficiency in many agricultural crops, especially vegetables.

When considering this problem, we must divide the problem into two parts:

-The first part: urban sprawl on agricultural and pastoral lands

- The second part: is the agricultural and environmental effects left by this urban sprawl

As for the first part, which is related to urban sprawl and its development in Gaza Strip, we can say that before the Oslo Accords, the occupation imposed a policy of land regulation by which encroachment on agricultural lands and digging wells was prohibited. Perhaps the reasons for the occupation were not reasons related to the health of the population or the organization of life within this area, but mostly for purely security reasons. But regardless, the post-Oslo period witnessed a massive urban sprawl, which caused a decline in the agricultural area of Gaza Strip. The housing projects have reached purely agricultural and forestry places, and in the event that the laws do not implement, we will be facing more urban sprawl, especially since the population is increasing steadily. Agricultural lands, especially agricultural lands adjacent to cities such as Gaza City and Khan Yunis, began to decline as a result of the fragmentation of ownership and the sale of shares at relatively attractive prices.

Activating laws that criminalize encroachment on agricultural lands, and stopping the so-called fragmentation of ownership of agricultural lands, as after the death of its owner, the heirs sell their shares of agricultural lands for residential and industrial purposes. On the other hand, there are about 25-30 thousand dunums of agricultural area that are difficult for farmers to reach due to its proximity to the eastern and northern borders of the Strip. Article (4) of the Council of Ministers Resolution No. (1) of 2016 regarding the system of buildings and organization of lands outside the master plans affirms that it is forbidden to license any building in high-value agricultural lands, according to the National Plan for the Protection of Natural Resources and Historical Monuments, and its use is limited to agricultural works. Represented by tree, flower and vegetable nurseries, tree planting, field

crops, protected agriculture with plastic and glass houses, livestock pens, and temporary poultry.

Among the creative solutions advocated by the Urban Agriculture Forum is the need to use urban agriculture in villages and cities, along with the reclamation of agricultural lands, the use of modern agricultural methods, and the adaptation of treated water for agricultural purposes.

Chapter Four: Suggestions and Recommendations:

1- Proposals and recommendations for the protection of the agricultural sector and workers in agriculture:

- Developing a system to reduce the risks of vulnerability of supply chains, studying the effects that will be reflected on farmers and agricultural workers, analyzing the most vulnerable groups in front of these risks, and ways to enhance their immunity.
- Developing a crop map to guide farmers about suitable varieties for cultivation according to geographical regions, soil nature and water quality
- Increasing the stock of agricultural inputs such as fertilizers and fodder by increasing the storage capacity of these materials in Gaza Strip and establishing modern warehouses to ensure an abundance of materials in the event of an exacerbation of global crises.
- Encouraging investment in the field of manufacturing industries, post-harvest transactions for agricultural crops, product storage and preservation systems, and packaging systems.
- Forming a lobbying and advocacy front to ensure the rights of Palestinian farmers to export their local products to international markets and the West Bank, and to provide logistical, legal and financial facilities to ensure the enhancement of their competitiveness with regard to other products.
- Developing the existing local market systems so that they are supportive of local products and confronting the phenomena of flooding the markets with imported

products from multiple sources that compete with the local product in price and quality.

- Improving agricultural and economic extension services for Palestinian farmers in a way that ensures easy access for farmers to these services and the accuracy of the information provided to them, and in a way that contributes to educating farmers and agricultural workers about the reality of the problems that the agricultural sector suffers from and the mechanisms to address them.
- Promoting investment in alternative energy sources, wind energy, wave energy, and others, and not relying on solar energy systems only, which have proven their effectiveness, but they have a very high incorporation and operational cost, which hinders small farmers from accessing them.
- Enhancing investment in pioneering projects based on logical and scientific analysis in solving problems that the agricultural sector suffers from, and in scientific and academic research projects.
- Imposing laws that limit the population expansion in agricultural lands and the exploitation of waste lands in areas that are not suitable for cultivation in the expansion of cities to preserve the agricultural area.
- Designing a system to monitor the effects of climate change on the agricultural environment in Gaza Strip and its biodiversity, and analyze its implications and proposed solutions
- stating laws to prevent encroachments on agricultural land and setting a clear and transparent policy involving all players to prevent the spread of this phenomenon and restore lands that have been encroached upon.
- Working on developing control and monitoring systems for agricultural practices carried out by farmers and traders in a way that controls agricultural inputs and prevents fraud and fraud, as well as the indiscriminate use of agricultural fertilizers and pesticides or the use of unauthorized chemicals.

2- Proposals and recommendations to enhance sovereignty over food and build a resistant agricultural economy:

- The food security methodologies on which agricultural policies were based were linked to the philosophy of globalization and one world, which relied

entirely on supply chains, which proved their fragility during the Covid-19 pandemic and the Russian-Ukrainian war, and with the rise in tension in other regions that are effective in the globalization system, such as (China-Taiwan). And (South Korea - North Korea), other threats may strike the existing global order and the supply chains used in it, and thus the high value of freight and the difficulty of accessing resources. Therefore, the presence of a political will to invest in local resources and the use of modern scientific methodologies in analyzing risks and creating alternatives to reduce dependence on Imported products, especially basic commodities, have become a strategic choice, not a theoretical or ideological choice.

- - Restoring interest in local seeds and effective agricultural patterns and imposing restrictions to conserve water resources based on the concepts of sustainable agriculture and the resistant green economy.
- Investing in the establishment of agricultural research centers and observation stations with a purely national philosophy that is designed with economic and technical consultations and pioneering thinking to solve the dilemmas and challenges facing the agricultural sector.
- Raising the levels of coordination between the components of the agricultural sector, including governmental and academic institutions, the private sector, civil society organizations and pioneer farmers, to reach a common understanding of the challenges facing agriculture and to set priorities in various sectors.
- Work on building a comprehensive and unified national strategy between the two parts of the country that rises to the level of threats and challenges facing the existing global system, involving all components of the agricultural sector and its institutions.
- Work to build effective institutions for the agricultural sector within a broad structure and interest in building cooperatives and unions to organize farmers in their various specializations.

3- Proposals and recommendations to enhance the steadfastness of farmers and agricultural workers.

- Work to influence decision makers to formulate and develop laws that encourage agricultural investment and support the local product in a way that achieves profitability and guarantees a decent and effective life for workers in the agricultural sector.
- Activating the risk prevention fund, the compensation fund, and the social security fund to enhance the steadfastness of farmers and enhance their resilience in facing crises, natural disasters, Israeli aggressions, and the repercussions of the Israeli blockade on Gaza Strip.
- Facilitating procedures for registering and approving representative bodies for farmers and workers in agriculture, such as cooperatives, charities, and unions, and working to raise awareness of the importance of these bodies and explaining their benefits to their groups.
- Intensify local and international efforts to break the Israeli blockade on Gaza Strip and introduce fodder and fertilizers commensurate with the needs of the local market.
- Facilitating farmers and their families' access to health insurance and providing facilities that are compatible with the nature of their needs and economic conditions
- Developing a plan to support local industries based on local crops to enhance investment in these industries in a way that allows the introduction of modern technology that invests in agricultural products and their waste.

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