



## WAYS AND TOOLS OF FLEXIBILITY OF THE IRAQI AGRICULTURAL SECTOR

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### ABSTRACT

In spite of the availability of the components of agriculture in Iraq, these elements face many obstacles, which makes the possibility of the advancement of this vital sector is very difficult, including the limited agricultural areas are exposed to environmental conditions inappropriate such as water shortage and desertification and the expansion of cities at the expense of agricultural land Which led to the growing deficit of this sector in the provision of food and the deterioration of the components of agriculture due to the cessation of government subsidies and high production costs and the reluctance of the private sector for agricultural investment, and thus the low rate of growth of this sector and weak contribution to the composition of GDP.

Keywords: Agricultural Sector, Agricultural GDP, Gross Domestic Product, Agricultural Sector Efficiency, Agricultural Problems.

### 1. Introduction

It is known that there is a major global crisis, facing most of the countries of the world, including Iraq, the food crisis, and that this crisis cannot be matched by any other crisis, because of its direct contact in human life and ensure the requirements of food security, and it is also certain that All countries seek to ensure the needs of their populations of food, in various ways and means available to them. The development of appropriate long-term strategies, where the agricultural sector in Iraq suffers from a miserable and dangerous situation that requires government agencies to pay attention to this and expedite its study scientifically and identify the reasons that led to this deterioration and the development of effective solutions that tries to extract and deliver it to safety.

Agriculture is an important element of the advancement of the Iraqi economy, which suffers from the recession, where the economy is currently dependent mainly on oil and other elements were neglected and not activated to be a strong case for the advancement of the economy, the agricultural reality entered the maze narrow due to complex conditions passed on Iraq made it Dark corner and turned on the impact of that country from agricultural to the importer of all agricultural products by disrupting agricultural resources or disrupted for various reasons contributed in one way or another distorting the structure of macroeconomic activities, which weighs the burden of the Iraqi economy and make the situation based on this framework and permanent. The government is providing capabilities that contribute to the advancement of agriculture. In this study, we will attempt to shed light on the reasons that led to the deterioration of agriculture on the one hand, and the means and solutions that can restore agriculture and improve and provide food to the people on the other hand, it is necessary to pay attention to all these things which will have an effective impact for the advancement of agricultural reality. The importance of research comes from the importance of the same subject because it is not related to the subjective factors of the agricultural sector, but also the objective factors such as policies, agricultural strategies and other economic policies that help in securing the requirements of the community of essential food commodities and other commodities Which is related to the food security of the community, especially as the components of the agricultural sector are available.

### 1. First sector: Methodology of Research and Previous Studies

#### 1.1 Methodology of Research

##### - Research Problem:

The problem of the study is that although the agricultural sector in Iraq has many elements and potentials, it suffers from the low level of investments directed to this sector, which reflects negatively on its response to the overall demand and thus the flexibility of this sector to stimulate economic growth positively. The question is whether the agricultural sector is a major

component of macroeconomic activities to meet the needs of society by providing different agricultural commodities to achieve food security for society.

- **Research Hypothesis:**

The research proceeds from the following main premise: "There is a relationship between the tools and means of developing the agricultural economy and its ability to respond to the components of aggregate demand in the Iraqi economy."

- **Research Objectives :**

The research aims to:

1. Highlighting the agricultural problems of the agricultural sector in Iraq represented by the problem of salinity of soil and lack of water, seeds and fertilizer.
2. Analysis of the percentages of good land and total land in Iraq.
3. Analysis of the efficiency of the agricultural sector for the period 2000-2017.
4. An attempt to address the deterioration situation and to measure the efficiency of investment in this vital sector, whose productive apparatus is inflexible.
5. Analyzing the tools of the agricultural sector to make it more flexible to meet the requirements of the community members of agricultural goods and services.

**Research Methodology**

The research is based on a descriptive-analytical approach to the reality of the agricultural sector in Iraq based on a number of specialized scientific references and some researches published in scientific journals and a collection of data, statistics, reports and official documents. The quantitative approach was used to measure the effect of some economic variables that affect the economic growth of the same sector and analyze them to reach some conclusions and recommendations.

- Temporal and spatial limits of research
- Time Limits: Data of Agricultural Sector Variables for the period 2000-2016.
- Spatial boundaries: the agricultural sector in Iraq.

**Research Structure:**

The first sector focused on the problems of agriculture in Iraq, and the second sector discussed tools to address the weakness or inflexibility of the productive apparatus of the agricultural sector in Iraq. The third sector dealt with the most important lessons learned from the reality of the agricultural sector in Iraq and concluded the research with some conclusions and recommendations.

**1.2 Previous Studies**

- A study by Chang (2009: 2-40), entitled "Reconsideration of agricultural policies, old and new". The study reviews the history of agricultural policy in 11 advanced countries from the late nineteenth to mid-20th centuries, (Such as research and extension), credit, physical inputs (irrigation, transportation, fertilizers and seeds), and farm and income stability, such as price fixing and insurance measures, and trade protection), marketing and study concludes by discussing some of the lessons in agricultural policy and lessons learned from historical experience.

- A study by Soe (2005), entitled "Myanmar in economic transformation: constraints and related issues affecting the agriculture sector". This paper is based on a broad assessment of Myanmar's economy and is handicapped by structural imbalances; the paper clearly identifies the overall situation in the agricultural sector and identifies the constraints that have hampered the development of agricultural growth, including the policies on land, production, procurement, prices, foreign exchange, and subsidies. As well as irregular implementation, which contributed to creating a general atmosphere of uncertainty and unpredictability in the economy and eroding the credibility of the Government and based on the negative impact of existing policies and on the need to enhance the competitiveness of the agricultural sector and thus contribute to the sustainable development of the country's economy . The paper recommends alternative policy options, the most important of which are the outsourcing of land use rights; the focus shifts towards maximizing farmers' income and profits, not just production; trade liberalization

and exchange rate consolidation. Reducing subsidization or privatization of state-run enterprises, and allowing private companies to compete freely with state-owned enterprises.

Another study by Chauvin (2012), "Trends in Food Production and Consumption in Sub-Saharan Africa: Prospects for Transformation in the Agricultural Sector". The aim of this study is to contribute to the role of agricultural transformation in the development process and as a driver for poverty reduction and improved public welfare through improved access to nutrients in Africa. The study reviewed trends in food production, consumption and trade in a large sample of sub-Saharan countries that combine both macroeconomic and microeconomic indices. The study selected 19 countries with household survey data: Benin, Burkina Faso, Burundi, Cameroon, Côte d'Ivoire, Ethiopia, Gambia, Ghana, Guinea Bissau, Kenya, Madagascar, Malawi, Mali, Nigeria, Rwanda, Senegal, South Africa, Tanzania and Uganda. Data indicate that dietary energy has increased but not consistently and insufficiently. Trends in food production and consumption highlight the importance of pursuing a deep shift in the agricultural sector in sub-Saharan Africa if incomes are increased and food security problems are mitigated.

- Another study by Curtis (2011), "Country Successes in Reducing Hunger," examines this short analysis and provides lessons for donors and governments in the South. This experiment has proved to be challenging many of the current agricultural policies. As well as literature on how countries have reduced hunger. Research has focused on four countries - Vietnam, China, Ghana and Bangladesh - all showing varying degrees of success in fighting hunger. These four countries are all in the top 6 of Action Aid's 2010 Hunger Scorecard. The remaining two countries - Brazil and Malawi - have received significant international attention to their success in reducing the number of hungry people: Brazil is driven by hunger by implementing social protection programs known as zero hunger; and Malawi, largely due to the input support program that provides fertilizer and low-cost seeds for farmers, which Action Aid has already analyzed.

Our study deals with the situation in which the agricultural economy in Iraq was relatively developed compared to the current period and the agricultural sector experienced a clear deterioration that had a significant impact on the food security of the community, With complex and cumulative problems to be addressed because the continuation of these problems will make matters worse and will endanger the food security in Iraq.

### **The second sector: Analysis of agricultural problems in Iraq.**

The agricultural sector in Iraq suffers from complex problems which are characterized by subjective and objective factors as follows:

#### **2. 1. Self-factors:**

##### 2. 1. 1. Soil problems.

The land is the basis on which agricultural production is based and is related to some extent to the soil and its fertility and how to exploit it, as well as the climate and the rate of rainfall.... The estimated percentage of arable land by 11.5% in 2017, as well as the dominance of grain crops on the total agricultural land and production in a primitive manner, with the scarcity of fertilizers, improved seeds and agricultural mechanization, all of which makes productivity low. Consequently, the production does not meet the local market need, forcing the country to import from abroad. The deepening of the crisis is the decrease in the cultivated area in quantity and quality due to the dredging and as well as the reliance on traditional methods of irrigation, deterioration of the drainage system and the high level of groundwater, which led to the accumulation of salt, and the expansion of the phenomenon of desertification, which widened in a frightening way, which led to the destruction of the earth's vital energy and the destruction of productive land capacity,. As indicated by the 2005 Arab Monetary Fund report, "The agricultural area in Iraq is estimated at 435 km<sup>2</sup>. The area planted is 167 km<sup>2</sup> with 38.4% and the area threatened by desertification is 138 km<sup>2</sup> and 54.7%. The following table shows the arable land area, Cultivated to arable land as in 2017.

The total area	Cultivated area	Cultivated	Area suitable for	cultivated / arable
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( Acres)		Land / Total (%)	agriculture (Acres)	land (%)
158191200	18142800	11,46	6432433	35,45

Table (1) Percentage of arable land cultivated for the total area of 2017

Source: Prepared by researchers based on the 2017 Statistical Yearbook.

❖ **The causes of this deterioration include:**

- a. Lack of rain, and then the occurrence of dust storms, leaving drought and desertification.
- b. Drying marshes
- c. The movement of military vehicles, making the soil moving and destruction of the surface layer, which helped to desertification.
- d. Lack of vegetation cover, planting and continuous cutting of trees.
- e. Lack of an environment for agricultural investment in Iraq.
- f. Lack of infrastructure and insufficient funding for farmers due to high cost of investment.
- j. Dumping policy due to the weakness of the customs tariff system or because of the imbalance of the policies followed in the agricultural sector.

**2. 1. 2. Soil salinity problem.**

The problem of salinity has led to the deterioration of the agricultural sector and low productivity, where some reports indicated that 30% of agricultural land was neglected because of the accumulation of salts due to: (Abdul Amir Aboud, 2007)

- Irrigation method is wrong, and the farmer's ignorance of the actual plant needs of water, and ways of drainage, especially that agricultural land is characterized by a low gradient, which makes the water stagnant, and leave behind a layer of salt after evaporation due to severe heat, especially in the summer.
- The lack of adequate water treatment facilities from agricultural land. The water problem is not related to water shortage in irrigation but to poor planning and management, but also to the quality of water.

**2. 1. 3. Farmers' problems.**

The agricultural sector is suffering from the imbalance between demand and supply in the agricultural labor market, as the problem of excess labor force arises, which generates a situation of disguised unemployment and its negative impact on productivity. Agriculture does not provide incentives for agricultural workers, and the emergence of the phenomenon of migration to the city and the abandonment of farmers land to get rid of harsh living conditions, as well as the underdevelopment of labor and lack of knowledge of methods of production and modern means and the absence of agricultural extension and the spread of illiteracy and traditional methods , where the agricultural sector suffers from a shortage of skilled labor and the lack of use of modern methods or cutting-edge technology, all these factors contributed to the low level of productivity.

**2. 1. 4. Low technical level.**

Iraqi agriculture suffers from the use of primitive methods, leading to higher production costs and lack of competitive advantage. The use of modern machines and equipment in agriculture remains marginal and low compared to developed countries. In developed countries there is one tractor per 50 dunums, for example, while in Iraq there is a tractor for every 151 acres in 2010, and one harvest per 500 dunums in developed countries, while in Iraq one harvester for every 2090 acres in 2010. (Al-Odeidi, 2009: 1-25), reflecting the technological gap and thus the low level of productivity and the inability of this sector to provide the requirements of the market of agricultural commodities which have an impact on food security, which has become one of the most important factors that control the dependence of countries to other countries possess tools, food security.

**2. 1. 5. Administrative obstacles.**

The administrative process will provide the optimal organizational and productive relations that achieve the desired goal and reach the highest possible profit (Dr. Bader Al-Anad,1984),

leaving the agricultural administration makes it difficult to achieve the goals and access to productivity. The management is characterized by the failure to direct the energies towards the mobilization of agricultural resources and their inability to contribute to improving the agricultural production process and the most important administrative problems:

- Weak agricultural field extension.
- Lack of financial allocations that would support the agricultural sector.
- Lack of laws that fit the requirements of the advancement of agricultural reality.
- Lack of services in most villages and rural areas ... which encouraged migration to cities, which had a negative impact on the development of the agricultural sector.

### **2. 1. 6. High cost of agricultural production**

There is a characteristic of agricultural production in Iraq, which is the high cost of agricultural production, which is the increase in agricultural capital costs on the one hand, and the high cost of agricultural investment on the other. This has reduced the competitive advantage of agricultural commodities and thus reduced the capital accumulation process of the agricultural sector. The economic growth and deterioration of this sector has negatively impacted food security and the agricultural sector is dependent on external variables.

## **2. 2. Objective Factors:**

### **2. 2. 1. Dumping policies**

After 2003, the Iraqi market invaded agricultural commodities at low prices and poor quality because of the weakness of the tax system in Iraq, which led to the threat of agricultural products in Iraq. Local agricultural commodities in Iraq have become very expensive compared to goods imported from abroad. The deterioration of the production of local agricultural commodities so that the multiplier of expenditure in the agricultural sector works for non-residents on the one hand, and on the other hand, the decline in production and deterioration led to the migration of agricultural labor to the agricultural sector in search of another source of income and because of the inflexibility of the device. Which can be said to address the unjustified dumping policy which has weakened the ability of the agricultural production system to produce and the weakness of its positive contribution to increase economic growth, which requires reform of the tax system in Iraq and the use of flexible fiscal policies can Harmonization and coordination between the start of local agricultural production and the time of taxation so as not to affect the movement of prices for agricultural commodities and therefore increase rather than decrease due to the deterioration of agricultural production.

### **2. 2. 2. Finance**

Financing is one of the critical tools that help increase the flexibility of the productive apparatus not only for agricultural activity, but also for all economic activities, for the simple reason that increasing any economic growth of a sector requires the availability of cash to contribute to increasing spending in that sector. Financing plays an important role in increasing the level of economic growth of the sector in question to contribute as a final outcome in increasing the growth of the whole economy. The terms of the lending money should be easy and easy to obtain, as well as it requires that the costs are low so as not to affect the level of profits and To the level of capital formation, which reflected negatively on the level of investment and thus on the degree of flexibility of the agricultural sector and the degree of responsiveness to the requirements of society from agricultural production and reflected negatively on the food security community.

### **2. 2. 3. Political and legal circumstances**

The political and legal circumstances are a reason for the success or failure of economic projects in general and agricultural projects in particular because they represent a basic base from which to create the appropriate environment for the growth or decay of economic projects. The availability of political will and the identification of the economic system is essential for ensuring good planning for the implementation of promising economic strategies. To achieve backward and backward linkages between the agricultural sector and other productive sectors and to be able to change the structure and activities of the different economy so as not to achieve



sustained economic growth but a structural change to achieve sustainable development, As well as the design of an effective and efficient tax system that can determine the time to achieve coordination between the imposition of customs tariff and the start of agricultural production, which maintains an appropriate level of prices for the consumer and thus achieve the level of well-being of individuals, It will also be able to reduce the policy of dumping targeting the sector and other productive sectors and save them from deterioration not only to ensure that there is an agricultural sector capable of responding to all the requirements of the community in securing agricultural goods and services and achieving the level of food security.

**The Third sector: The Crisis of Agriculture in Iraq.**

Since the oil revenues in Iraq have become a major source of state funding, the agricultural sector has tended to rely on it in two ways: first, the import of the various tools needed for production, and the second is the import of ready-made foodstuffs for domestic consumption. The higher the revenues, the higher the ability to import production tools and consumables, On the contrary.

However, these returns are not earmarked for the rehabilitation and exploitation of lands even owned by the state. Only a small percentage of the total area is cultivated, with considerable financial capacity, labor, technical facilities and adequate water resources. The arable land does not exceed 11.5 million hectares, or 26% of the total area of the country. In the previous period, the level of food prices by the government led to the weakening of agricultural investments, and the increase in migration to cities as a result of the decline in services. In rural areas, the number of agricultural workers decreased significantly. The World Bank report indicated that the proportion of workers in agriculture decreased from 34% in 1991 to 19% in 2017, reflecting the extent of deterioration and departure or the abandonment of workers from agricultural work and mobility to service sectors. These factors for agricultural imports rose even became nutrition out almost entirely.

**3. 1. Efficiency of the Agricultural Sector:**

- Efficiency of the agricultural sector:

The degree of efficiency varies from country to country and from time to time depending on several factors. It is expressed in the following equation: Agricultural efficiency = Share of agricultural output (x) Gross domestic product / Share of agricultural labor in total employment.

The following table shows:

Table (2) : Development of agricultural efficiency of Iraq for the period 2000-2017.

Year	GDP Iraqi Dinar (Billion)	Agricultural Product Iraqi (Dinar Million)	The Relative Importance	Total Workers (Thousand )	Agriculture workers (Thousand)	The Relative Importance	Agriculture Efficiency
2010	162064.6	8154414.4	5.0	3551	1081	35.5	0.14
2011	223677.0	9692366.9	4.4	3657	1042	36.6	0.12
2012	251667.0	10193912.0	4.0	3214	987	32.1	0.12
2013	273587.5	12645355.1	4.6	3456	1508	34.5	0.13
2014	266420.4	12841925.8	4.8	2219	1684	22.2	0.21
2015	199715.7	80133748	3.9	2691	1508	26.9	0.14
2016	203869.8	7629377.9	3.7	3152	1584	31.5	0.12
2017	225995.2	7421573.2	3.3	2827	1608	28.3	0.12

Source: Central Statistical Organization, Agricultural Sector Statistics for the above years.

The contribution of agricultural output for 2010 amounted to 5.0% of GDP. The contribution of agricultural workers constituted 35.5% of total employment.  $5.0 / 35.5 = 0.14$ . This is a very low degree, which indicates the low productivity of agricultural workers and the non-adoption of economic policy in agricultural production, which constitutes only a small percentage of GDP.

In 2011, the contribution of agricultural output fell to 4.4% of GDP. Agricultural workers accounted for 36.6% of total employment, reflecting a low level of agricultural efficiency (0.12). In 2012, it continued at the same rate in 2011. Agricultural efficiency continued to decline for the rest of the years 2013-2017. , The first is the decline in the number of agricultural workers and the second is the increase in agricultural production. The decline in the number of agricultural workers as a result of increased rural unemployment and increased migration to cities. A higher degree of competence does not necessarily mean an improvement in the nutritional situation. However, agricultural production may decline, but efficiency will be reduced if the share of agricultural labor in total employment decreases by more than the proportion of agricultural production.

Table (3) GDP and Agricultural Domestic Product in Iraq (current prices & constant prices) for the years 2010-2017

Years	GDP at current prices			GDP at constant prices (2007)		
	GDP (billion dinars)	Agricultural GDP (million dinars)	Relative importance (%)	GDP (billion dinars)	Agricultural GDP (million dinars)	Relative importance (%)
2010	162061.6	8154414.4	5.0	1988 / 57.2	1988 3907.5	6.72
2011	223677.0	9692366.9	4.44	1988 / 64.2	1988 4592.8	7.16
2012	251667.0	10193912.0	4.03	1988 / 70.0	1988 4796.3	6.81
2013	273587.5	12645355.1	4.60	174990.2	7230181.0	4.12
2014	266420.4	12841925.8	4.80	175335.4	7149405.1	4.07
2015	199715.7	8013374.8	3.98	182051.4	4529889.7	2.48
2016	203869.8	7629377.9	3.71	199476.6	4479963.3	2.23
2017	225995.2	7421573.2	3.3	201528.2	4417366.6	2.2

Source: Central Organization for Statistics and Information Technology - Annual Statistical Abstract, miscellaneous numbers for different years.

From the table above we can note:

- The gross domestic product (GDP) at current prices in Iraq increased from about (16) billion dinars in 2010 to about (225995) billion dinars in 2017, the growth of the output of this rising increase reflects the rising inflation due to the increase in government spending oil.
- Agricultural GDP increased at current prices from 8.15 billion dinars in 2010 to 12.8 billion dinars in 2014, and decreased in 2015 to 8.01 and to 7.42 billion dinars due to the neglect of this sector and not giving it the necessary importance.

Accordingly, the relative importance of agriculture is reduced from 5.0% in 2010 to 3.3% in 2017. This also reflects the extent of neglect and deterioration witnessed in this sector, since the relative importance of agriculture during the period 1985-1995 and 1995-2005 , At current prices, (49.3%) and (8.5%), respectively.

The relative importance of agriculture during 1985-1995 and 1995-2005, at constant 1980 prices, was (11, 0%) and (13,0%), respectively. Table (4).

Table (4).The annual average of the total output and the agricultural domestic product in Iraq (at the cost of elements of production) for the two periods (1985-1995), (1995-2000) and the rate of change between them.(million dinars)

Time periods	at current prices			at constant prices for 1980		
	Gross	Agricultural	Relative	Gross	Agricultural	Relative

	Domestic Product (GDP)	GDP	importance (%)	Domestic Product (GDP)	GDP	importance (%)
1985-1990	19373	2941	15,3	13741	961	7,0
1990-1995	542276	272792	50 ,3	5307	1067	20 ,1
1985-1995	304136	149799	49 ,3	9130	1008	11 ,0
1995 - 2000	20259207	1756421	8 ,7	15972	1951	12 ,2
2000 - 2005	40372768	2923259	7 ,2	31209	3996	12 ,8
1995 - 2005	25877284	2186469	8 ,5	20211	2633	13 ,0
Rate of change	%8408	%1360	-	%121	%161	-

Source: From the researcher's data based on the data in Table (1).

Table (5) Gross domestic product at constant prices 2007 = 100 according to the seasons for the year 2017 (million dinars)

	Semester 1	Semester 2	Semester 3	Semester 4	Total
Agricultural Sector	706778.6	1546078.3	1192689.0	971820.7	4417366.6
GDP	47237032.4	49275168.5	51779118.5	53236896.2	201528215.6

Source: From the researcher's data based on the data in Table (1).

Table (6) Gross fixed capital formation of the agricultural sector at current and constant prices for the year 1998. (Theperiod 2000-2011).

Source: Ministry of Agriculture, Department of Planning and Follow-up / Department of

In Current Prices				In Constant Prices ( Base year 1998)		
Years	GFCF in Agricultural Sector	GFCF in Total Sectors	Relative Importance (%)	GFCF in Agricultural Sector	GFCF in Total Sectors	Relative Importance (%)
2000	97318.0	1465252.6	6.6	138.7	2820.8	4.9
2001	186146.5	2531440.9	7.3	287.3	4582.4	6.2
2002	193455.8	2199076.7	8.7	228.2	3318.2	6.8
2003	153029.7	4442671.7	3.4	119.1	3823.0	3.1
2004	18268.3	2857807.0	6.6	10.1	4327.9	0.2
2005	214248.2	10182362.2	2.1	71.0	8650.5	0.8
2006	115944	8856383.2	1.3	73.2	7153.8	1.02
2007	17639.0	7530404.4	0,2	75.4	5657.2	1.3
2008	54299.9	23239198.3	0.23	14.1	9948.6	0.14
2009	13034.8	13471242.2	0.09	4.6	5919.8	0.07
2010	22720.2	2477046.2	0.09	8.9	10155.4	0.08
2011	212118.4	37255269.4	0.56			

Agricultural Statistics.

Agricultural production, particularly in developing countries, is characterized by a lack of response to price increases due to various reasons, including inadequate water, land, mechanization and improved seeds. Therefore, the lack or lack of availability causes the decline of agricultural output and the low level of agricultural productivity.

- **Development of Agricultural Investments:**



Poor yields and low agricultural production result from the lack of reliance on scientific progress in agricultural methods, the scarcity of modern mechanization and the lack of provision of veterinary care and pesticides. These problems can only be addressed through investment development in three ways simultaneously.

**First:** Adopting an economic plan and financial programs set up by specialized scientific and technical frameworks that monitor funds for land reform and reconstruction of agricultural infrastructure.

**Second way:** Increase the capital of the Agricultural Bank to contribute to agricultural development through loans granted at low interest rates.

**The third means:** Changing the investment laws, these laws no longer fit with the global economy and became a handicap of national development rather than being an incentive, as foreigners are strictly forbidden to invest in private sector companies, and it is necessary to allow foreign capital to invest in the agricultural sector, according to specific foundations commensurate with the nature of this sector.

▪ **Optimal employment of agricultural resources in light of comparative and competitive advantages of agricultural commodities:**

A. Many of Iraq's agricultural resources and capacities are still underutilized and exploited still below optimal utilization. In general, the percentage of land suitable for agriculture is 26% of the total area of Iraq, equivalent to (44.5) million dunums, but the actual use of the average during the last three decades of the twentieth century amounted to about (12.5) million acres, (28%) of arable land, ie, about 72% of arable land can be converted (at least) to an important percentage of cultivated land. In addition to this possibility of horizontal expansion, agricultural production can be intensified by planting the land for more from one season, which is called vertical expansion.

B. The self-sufficiency ratios of many strategic food commodities are very low, and Iraq depends on imports to fill the deficit in domestic demand for food. (Yekin Agency - Agriculture Degradation in Iraq, 2017).

▪ **Development of necessary infrastructure and marketing services:**

It is well known that the marketing of agricultural products requires specialized technical expertise, extensive experience and knowledge of market needs, optimal methods of capturing marketing opportunities, and the ability to develop marketing plans, carry out external promotion activities and other activities that many exporters cannot Iraqis are now doing their job efficiently.

A. This requires the presence of the necessary marketing structures from refrigerated storage capacities; ordinary, sorting, packaging and processing stations, refrigerated transport media, etc., as well as specialized marketing associations and companies that play an effective role in increasing the competitiveness of Iraqi agricultural products in the Arab and international markets.

B. Iraq is suffering from lack of experience and capabilities and awareness in the various promotional areas at the regional and global levels, which requires the development of various promotional elements, especially in the areas of advertising, packaging and labeling, and the identification of goods using Branding and the definition of consumer goods.

That one of the important factors hindering the increase in investment in the agricultural sector in Iraq is due to insufficient infrastructure that paves the way for investment in this sector, and although the allocations of investment in the national development plans have reflected interest in the agricultural sector, but that attention was not enough to make the changes required in Agricultural Policy.(Agricultural Policy of the Republic of Iraq , 2007).

**4. The Fourth sector: Targeted Lessons:**

After reviewing the most important problems of the agricultural sector, we show the most important lessons targeted, which will increase the flexibility of the agricultural sector and strengthen its role as one of the activities that contribute to make the macroeconomic more balanced and developed:

#### **4.1 Develop a strategy to address desertification in Iraq.**

The purpose of which is through the enactment of the necessary laws and follow-up implementation to make this strategy more realistic, based on:

- a. Contribution of the private sector through the distribution of land in the form of small areas of 5-10 acres per person willing and have possibility of exploiting the desert land, extending from the west of Mosul to the area of Basra.
- b. Requiring farmers to export part of the strategic crops to be quantified according to the productivity of each dunum of these crops.
- c. Provide the farmers with facilities by the state with regard to the drilling of artesian wells, seeds and fertilizers and modification of the land.
- d. Cultivate the land with olive trees and in the form of regular lines as permitted by the terms of this cultivation and the use of aircraft C135 and benefit from the experiences of many countries, including the United States of America in that agriculture.

#### **4. 2. Strategy of using modern agricultural mechanization methods:**

It is possible to use the filters and other water distillation pipes in agriculture to conserve and economize water, as well as to preserve the soil from salinity and to ensure watering of all lands, thus reducing the cost of altering the uneven land, and using modern mechanization in planting seeds and harvesting seeds.

#### **4. 3. Use of solar panels in producing power:**

The means of producing renewable energy (solar panels) can be exploited with the sustainability of these means, especially in the desert and open areas, while ensuring that it is continuously maintained to reduce costs due to the use of other means that contribute to pollution of the environment and the use of high-cost fuel.

#### **4. 4. Legislation to improve climate and prevent pollution of the environment:**

In order to contribute to the prevention of bulldozing of orchards in the construction of real estate or the establishment of factories near cities, and ensure the success and sustainability of the green economy in Iraq.

#### **4. 5. Develop strategies to combat poverty, achieve food security and create jobs:**

The agricultural sector is one of the most important activities that contribute to creating jobs for the unemployed and those who want them, fighting poverty and achieving food security, creating jobs by benefiting from the establishment of small and medium enterprises in this sector and making it more responsive and flexible through structural change in the structure of this sector And expanding the circle of economic activity geographically in line with other economic activities in order to reduce the accumulation of population in cities, and food security can be provided by addressing poverty and accelerate growth and development and address climate change.

#### **4. 6 Construction of foundation structures:**

The agricultural sector requires the establishment of infrastructure and the completion of reclamation of soil, which did not have any reclamation of rivers and rivers and streams of the economy in the non-waste of water and increase the salinity of the earth to the high levels of water and the completion of irrigation systems and onions to increase the yield of one dunam, which decreased because of the great neglect suffered by the agricultural sector deteriorated during The past era.

#### **4. 7. Agricultural Extension:**

Agricultural extension should be activated because of its crucial role in increasing agricultural yields and increasing productivity per dunam and drawing on the expertise of developed countries in this field.

#### **4. 8. Agricultural pest control:**

The control of agricultural pests using agricultural aircraft and other modern means is crucial to increase the productivity of one dunum of agricultural products, thus increasing the flexibility of the agricultural sector and its impact on development in Iraq.

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