

## Fostering Economic Diversification in Algeria through Advancements in the Agricultural Sector

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### Abstract:

This research paper aims to investigate the current state of the Algerian economy, which exhibits fragility and instability due to its heavy reliance on oil revenue. This dependence has compelled the government to embrace an economic diversification strategy aimed at reducing its reliance on fluctuating oil income and fostering sustainable economic growth. This strategy involves promoting the role of various sectors in the national economy, with a particular focus on the agricultural sector. This sector is seen as a cornerstone for building a robust economic foundation that is less reliant on oil. Additionally, it plays a crucial role in establishing food security. This paper assesses the current status of the agricultural sector in Algeria, examining its components and the challenges it faces, analyzing its contributions to the national economy, and highlighting key measures implemented to promote its growth.

**Keywords:** oil dependency; economic diversification; sustainable economic growth; agriculture; food security.

**JEL Classification Codes :** O2-L25-Q01.

ملخص:

تهدف هذه الورقة البحثية إلى دراسة واقع الاقتصاد الجزائري، والذي يتميز بالشاشة و عدم الاستقرار نتيجة اعتماده كلياً على إيرادات النفط، ما حتم على الدولة التوجه نحو تبني استراتيجية التنوع الاقتصادي للتخلص من التبعية المطلقة للنفط لتحقيق نمو اقتصادي مستدام، من خلال ترقية مساهمة مختلف القطاعات في هيكل الاقتصاد الوطني على غرار القطاع الفلاحي الذي يعد ركيزة لبناء قاعدة اقتصادية متينة ومستقلة عن الريع، كما يساهم في تحقيق الأمن الغذائي. ومن خلال هذه الورقة تم تشخيص واقع قطاع الفلاحة في الجزائر بالتطرق لمقوماته والمشاكل التي يعاني منها وتحليل مساهمته في الاقتصاد الوطني وأهم الإجراءات المتخذة للنهوض به.

كلمات مفتاحية: التبعية النفطية-التنوع الاقتصادي-نمو اقتصادي مستدام، الفلاحة-الأمن الغذائي.

تصنيف JEL : O2-L25-Q01

## 1. Introduction

The Algerian government has long been working towards the strategic objective of economic diversification. This has become increasingly important due to the risks associated with fluctuations in global oil prices, which have been influenced by various global developments and crises. Historically, Algeria's exports have been heavily reliant on energy products, particularly oil and gas, which have served as the primary source of foreign exchange and financial support. The reliance on these energy exports has had a significant impact on the stability of Algeria's economy. In response to this challenge, the government introduced an alternative and sustainable development model in 2016. This model aimed to shift the economic structure by giving more prominence to productive sectors, especially those with a competitive advantage. Notably, the agricultural sector has been highlighted for its contribution to food security and support for national services.

Algeria possesses significant agricultural potential and capabilities that position it as a prime agricultural hub. However, despite various reforms and financial investments aimed at revitalizing this sector in the early 2000s, the outcomes have fallen short of expectations due to numerous challenges and obstacles. It is imperative to address the shortcomings and imbalances within these programs to enhance agricultural production, encompassing both crops and livestock and reduce the nation's reliance on both food and oil imports.

**Statement of the problem:** Based on the above, the following questions can be raised:

- Can the agricultural sector be a strategic alternative to the hydrocarbons sector in Algeria in light of the economic diversification policy?
- If so, what are the steps or methods employed for its advancement?

### **Significance of the study:**

The significance of this study lies in its focus on a development hypothesis that underscores the necessity of progressing the agricultural sector in Algeria. This progress is seen as essential for two key objectives: firstly, as a driving force for realizing economic diversification due to its inherent potential, and secondly, for attaining food security.

### **Objectives of the study:**

The study aims to accomplish the following objectives:

1. Presenting the key concepts associated with economic diversification.
2. Analyzing the current status of economic diversification within Algeria.
3. Examining the elements and criteria that define the agricultural sector in Algeria.

### **Methodology of the study:**

Given the study's nature and its intended objectives, a two-fold approach was adopted. The descriptive approach was employed to build a foundational understanding of the theoretical framework related to the study's subject. Simultaneously, an analytical approach was used to scrutinize the pertinent data and statistics. To fulfill the study's intended objectives, it was structured around three fundamental aspects:

1. The initial axis delved into the theoretical framework of economic diversification.
2. The second axis centered on assessing the actual state of economic diversification within Algeria.

The third axis revolved around examining the constituent elements and indicators of Algeria's agricultural sector.

## **2. The theoretical framework for economic diversification:**

### **2.1 Definition of economic diversification:**

Diversification takes on various meanings depending on its context of application. In the realm of political economy, diversification can manifest in two primary forms:

#### **2.1.1. Horizontal diversification :**

This involves exploring new avenues and opportunities for products or services within the same sector. For example, this could entail expanding offerings in sectors like mining, energy, or agriculture.

#### **2.1.2. Vertical diversification:**

This strategy entails incorporating additional stages of processing, whether using locally sourced or imported inputs. It promotes the development of forward and backward linkages within the economy, where the output of one economic activity serves as an input for another. This interconnectedness enhances the overall value generated within the local economy. (Hvidt, 2013, p. 4)

Economic diversification is a strategic approach involving the broadening of economic activities in the production and distribution of goods and services. It doesn't necessarily mean producing more but rather expanding the range of economic endeavors. The primary aim is to bolster economic stability by widening the foundation of economic activities. It's essential to consider economic diversification within the framework of sustainable development to guarantee economic stability. In the long run, this approach fortifies the economy's capacity to adapt to challenges such as the depletion of vital natural resources and economic fluctuations, especially in the face of competitive forces stemming from globalization. (Churgozie & Anthony, 2015, p. 98)

Economic diversification is commonly understood as a process where a wider variety of goods and services are produced within an economy. It can also encompass

expanding the markets for exports or broadening the sources of income beyond domestic economic activities. This can involve earning income from external investments or sources. The latter aspect is particularly pertinent for countries that rely heavily on oil exports and have surplus capital to invest externally. (Zhang, 2003, p. 6)

Economic diversification is the procedure of diminishing reliance on a single resource and advancing toward fortifying the industrial and agricultural economic foundations. The objective is to establish a robust and focused local economy, with the aim of achieving self-sufficiency across various sectors rather than being overly dependent on a single industry. (Medjoub, 2022, p. 187)

In conclusion, economic diversification is a process aimed at incorporating as many economic sectors as possible into the country's national income composition. The primary objective is to diminish excessive reliance on the income generated from a single dominant sector, which often experiences fluctuations due to external changes. This approach not only contributes to improving overall economic metrics but also fosters access to sustainable economic growth.

## **2.2. The basic determinants of economic diversification:**

Economic diversification is a development approach that enhances the economy's resilience to external variables, leading to sustainable economic growth. This can only be achieved if a set of conditions are met, the following are the explained factors: (Maré, 2011, pp. 15-23)

- **Good governance (governance):** This involves the formulation and execution of policies designed to support emerging sectors and create an environment conducive to their growth and substantial contributions to the national economy.
- **Role of the private sector:** The private sector can play a role in promoting diversification by driving innovation and economic activity in underutilized sectors;
- **Natural Resources:** The nation's natural resources play a pivotal role in promoting economic diversification, as they can be harnessed to expand the range of exports and domestically produced goods. Leveraging these resources enables countries to bolster economic activities and take advantage of their income and resources to broaden their economic capabilities.
- **Regional factors:** Regional integration is a strategy to facilitate trade exchange, including customs administration reform, spatial development initiatives, and spatial development programs;
- **The broader international framework:** Economic partnerships with major economic powers in the world are operational environmental horizons that help

achieve economic diversification, as they take several forms such as joint commercial projects, investment and trade agreements, technology transfer;

- **Institutional Capacity and Human Resources:** Human and institutional capabilities act as enablers to facilitate supply chains, promoting economic innovation in the economy through research and development of management skills that lead to better economic products and processes.

### **2.3. Characteristics of economic diversification:**

Economic diversification is characterized by a set of characteristics, which are as follows (Dharghman & Fadhil, 2022, p. 592):

- Economic diversification can be anchored on a primary commodity,
- Economic diversity is essentially an ongoing process aimed at boosting the participation of various economic sectors in production and productivity.
- This expansion of sustainable development endeavors encompasses economic diversification.
- It involves the public in supporting the development process, with many recognizing that diversifying income sources and reducing dependence on a single economic resource is a strategic development direction.
- From a sustainable development standpoint, diversification is also seen as a safeguard for long-term economic stability. It involves broadening the spectrum of economic activities through the production and distribution of goods and services.

### **2.4. Policies followed to promote economic diversification:**

Economic diversification poses a significant challenge for oil-producing nations heavily reliant on rentier revenues as their primary income source. Successfully achieving diversification entails implementing a series of reforms tailored to each country's unique capabilities and characteristics. The table below outlines the key policies pursued in this context:

Macroeconomic preconditions
Develop a strong fiscal framework, based on a tax base, to help achieve short- and long-term goals
Ensure that the use of oil funds is governed by clear and transparent rules
Improving liquidity management, including liquidity forecasting and interbank market operations
Establishing strong regulatory, supervisory and precautionary frameworks to enhance the flexibility of the financial sector in the face of oil price fluctuations
Promoting a real exchange rate with fair value
The regulatory and institutional framework conducive to the growth of the private sector
Simplify government bureaucracy

Reducing regulatory barriers to competition by reviewing competition policy laws and ensuring their implementation
Promote greater trade integration
Review labor regulations to enhance labor market flexibility where needed (simplify regulations, facilitate settlement of labor disputes, establish incentives to increase women's participation in the labor force) while promoting better working conditions
Reducing targeted lending and developing local securities markets to increase access to financing
Improving creditor assessment tools, infrastructure and creditor rights to enhance access to credit, especially for small and medium enterprises.
<b>A public sector that stimulates private sector growth</b>
Reducing the size of the workforce in the public sector and increasing public sector wages compared to private sector wages for comparison employees. Implementing a civil service review.
Increase public spending on education if it is low
Improving the quality of education, including directing education and vocational training towards the skills needed by the private sector
Improving unemployment insurance plans to ensure that the unemployed receive a minimum income but maintain appropriate incentives to search for work.
Investing in infrastructure while increasing the efficiency of public investment
Promote purchases through auction offers
<b>The path to a more diversified economy</b>
Improving the climate for foreign investment, including in the non-oil industry, by reducing entry requirements, creating investment promotion intermediaries, and simplifying tax structures.
Promoting deeper integration into global value chains by enhancing efficiency in production, enhancing managerial quality, improving technological capacity, and ensuring wage competitiveness
Supporting horizontal diversification by enhancing the allocation of government oil revenues in a way that reduces production costs in new sectors and increases their efficiency while encouraging the entry of new investors.
Promoting vertical diversification in current sectors by focusing on moving to higher value-added products in the metal and chemical industries.
Enhancing labor market competitiveness through greater focus on wage growth in line with productivity.

**Source:** IMF, STAFF, "Economic diversification in Oil – Exporting countries", Annual Meeting of Arab Ministers of Finance, Manama, Bahrain, April 2016, p-05

## 2.5. Indicators of economic diversification:

Among the most important indicators of economic diversification are the following (Daami, 2022, p. 19)

### **2.5.1. The rate and degree of structural change:**

It is considered one of the most important indicators of economic diversification. In the case of the percentage, contribution of the various productive sectors to the gross domestic product is equal and there is no significant variation, this indicates economic diversification;

### **2.5.2. The connection between instability in the gross domestic product outcome after the stabilization of oil prices:**

In the case of the gross domestic product outcome is linked to oil prices, this indicates that the economy is monolithic;

### **2.5.3. The development of petroleum revenues relative to total revenues:**

When the proportion of petroleum earnings in relation to overall revenues is significantly high, it signifies that the economy is homogeneous and lacks diversification.

### **2.5.4. The ratio of petroleum exports and regular (non-oil) exports to total exports:**

Increasing and sustained growth in the share of non-oil exports relative to petroleum exports signifies a move towards economic diversification.

### **2.5.5. The development of the sectoral distribution of the level of employment:**

Economic diversification is indicated when the contributions of different productive sectors to overall employment levels are relatively balanced, with minimal significant variations over time.

### **2.5.6. The contribution of the public and private sectors to the gross domestic product:**

The greater the contribution of the private sector to economic activity compared to the public sector, the stronger the indication of economic diversification.

## **3. Analysis of the reality of economic diversification in Algeria during the period 2000-2021**

Undoubtedly, the Algerian economy's heavy reliance on a sole revenue source poses significant risks. Price fluctuations in this source can have a profound impact on the state's public finances, financial stability, and economic growth. The remedy lies in the development of a robust domestic economy that strives for self-sufficiency across multiple sectors.

### **3.1. Structure of the gross domestic product:**

The analysis focuses on the diversification of the Gross Domestic Product (GDP), which is segmented into seven sectors, as presented in the table below:

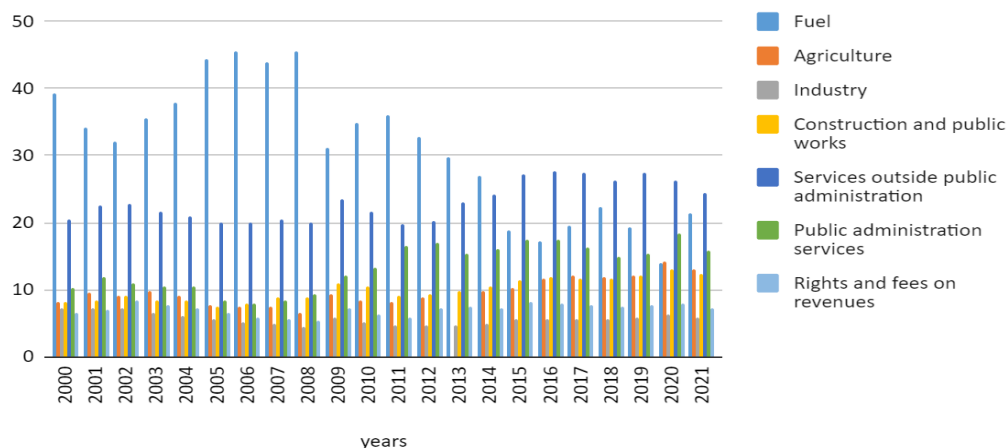
**Table 01: Evolution of the structure of the gross domestic product in Algeria in the period (2000- 2021) Unit ( percentage )**

the years	Fuel	Agriculture	Industry	Construction and public works	Services outside public administration	Public administration services	Rights and duties on imports
2000	39.4	8.41	07.2	08.12	20.44	10.30	06.49
2001	34.18	9.67	07.34	08.42	22.49	11.80	07.11
2002	32.08	09.19	07.18	09.03	22.72	11.00	08.32
2003	35.58	09.69	06.55	08.48	21.53	10.51	07.66
2004	37.94	09.18	06.05	08.29	20.97	10.39	07.19
2005	44.33	07.69	05.55	07.46	20.08	08.35	06.53
2006	45.56	07.53	05.22	07.91	20.05	7.96	05.78
2007	43.94	07.57	04.98	08.87	20.53	08.41	05.70
2008	45.48	06.57	04.39	08.80	19.91	09.41	05.43
2009	31.19	09.34	05.73	10.98	23.57	12.01	07.18
2010	34.86	08.47	05.15	10.49	21.57	13.24	06.24
2011	36.10	08.15	04.57	09.18	19.67	16.44	05.89
2012	32.88	08.97	04.60	09.34	20.14	16.93	07.14
2013	29.84	09.85	04.64	09.78	23.12	15.32	07.45
2014	27.04	10.29	04.86	10.41	24.30	15.89	07.21
2015	18.8	11.6	05.50	11.50	27.20	17.40	08.10
2016	17.3	12.2	05.60	11.80	27.60	17.50	08.00
2017	19.6	11.8	05.50	11.70	27.40	16.30	07.80
2018	22.4	12.00	05.60	11.60	26.20	14.80	7.400
2019	19.3	12.00	05.90	12.20	27.50	15.40	07.70
2020	14	14.1	6.3	13	26.2	18.3	08.00
2021*	21.5	13	5.8	12.3	24.4	15.8	7.2
Average	31.05	9.88	5.65	9.98	23.07	13.33	7.04

**Source:** The tripartite statistical bulletins of the Bank of Algeria 2014, 2016, 2018, and 2022

Through the data in the table above, the data results are clear to us according to the following sectoral levels:

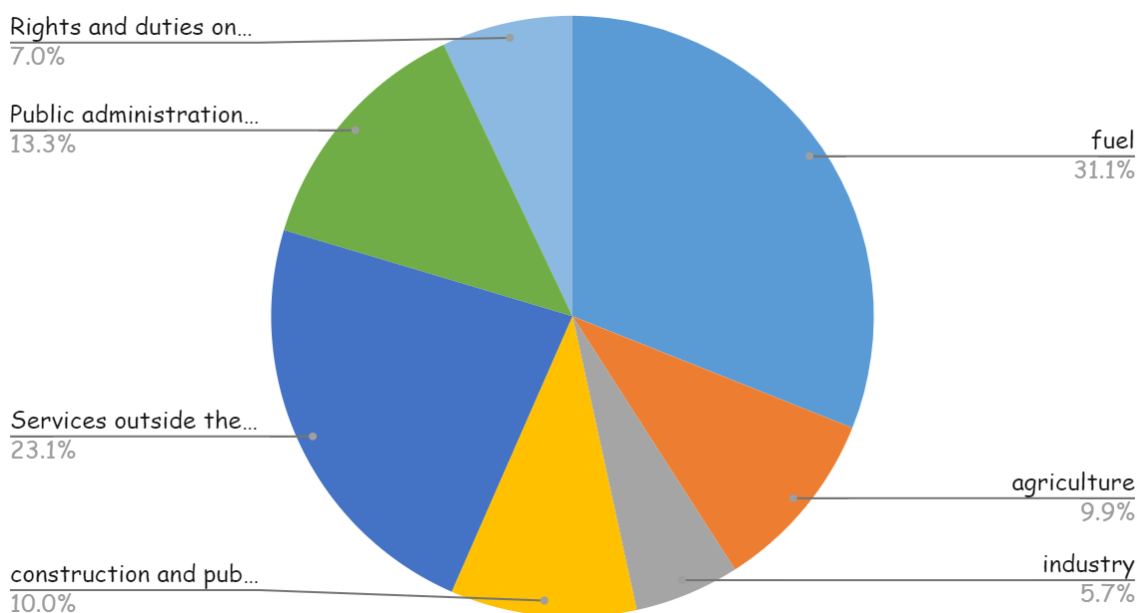
**Fig.01: Fuel, Agriculture, Industry, Construction and public works, Services outside public administration**





**Gross Domestic Product:** The fuel sector has consistently held the highest contribution percentage among all sectors, averaging 31.05%. It peaked at 45.56% in 2006, which was the highest point but began to decline annually due to the financial crisis in 2008 and the subsequent drop in oil prices. In 2014, it reached its lowest value during the study period, hitting 14% in 2020 amid the COVID-19 epidemic, which reduced the demand for oil and caused a global market price collapse. In contrast, the agricultural sector witnessed a steady increase year by year, with its highest contribution rate occurring in 2020, estimated at 14%, marking a significant growth of 64.7%.

**Fig.02: Sales**



### 3.2. Diversification of Algerian exports:

The significance of economic diversification lies in reducing the overreliance on oil exports as the sole source of foreign exchange earnings.

**Table 02 : Contribution to total merchandise exports (percentage)**

The years	Fuel exports	Exports outside of hydrocarbons	Total exports
2000	97.27	2.73	100
2001	97.07	2.93	100
2002	96.74	3.26	100
2003	98.08	1.92	100
2004	97.92	2.08	100
2005	98.40	1.60	100
2006	97.94	2.06	100
2007	98.38	1.62	100
2008	98.22	1.78	100
2009	98.29	1.71	100
2010	97.20	2.80	100
2011	97.10	2.80	100
2012	97.18	2.82	100

The years	Fuel exports	Exports outside of hydrocarbons	Total exports
2013	96.70	3.30	100
2014	95.41	4.59	100
2015	94.15	5.85	100
2016	94.00	6.08	100
2017	96.05	3.95	100
2018	94.61	5.39	100
2019	94.14	5.86	100
2020	91.29	8.71	100
2021 *	88.34	11.66	100
Average	94.68	5.32	100

**Source:** Designed by researchers based on Statistical bulletins of the Bank of Algeria 2014, 2016, 2018, 2022 \*Finance Law of 2021

From the previous table, it is evident that the fuel sector dominates the composition of national exports, contributing a significant 94.68%. In the average period from 2000 to 2021, non-oil exports accounted for only 5.32% during the same timeframe. The primary exported products include foodstuffs, semi-manufactured materials, and raw materials.

### 3.3. Petroleum revenues relative to total revenues:

This indicator is particularly relevant to oil-exporting nations, as economic diversification entails broadening the revenue base beyond petroleum earnings and establishing new sources of income. The following table and figure illustrate the respective contributions of petroleum and non-petroleum revenues to public revenues in the case of Algeria:

**Table 03: Contribution of petroleum revenues and regular revenues to public revenues during the period 2000-2021 (%)**

The years	Petroleum revenues	Revenues outside fuel	Total revenue
2000	76.9	23.1	100 %
2001	66.5	33.5	100 %
2002	62.9	37.1	100 %
2003	68.6	31.9	100 %
2004	70.6	29.4	100 %
2005	76.3	23.7	100 %
2006	77.1	22.9	100 %
2007	75.8	24.2	100 %
2008	78.8	21.2	100 %
2009	65.6	34.4	100 %
2010	66.1	33.9	100 %
2011	68.7	31.3	100 %
2012	66	34	100 %
2013	61.9	38.1	100 %
2014	59	41	100 %
2015	46.5	53.5	100 %
2016	34.9	65.1	100 %

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The years	Petroleum revenues	Revenues outside fuel	Total revenue
2017	36	64	100 %
2018	42.34	57.7	100 %
2019	40.4	59.6	100 %
2020	34.1	65.9	100 %
2021	36.02	63.98	100 %
*Average	59.59	41.21	100 %

**Source:** Prepared by researchers based on statistics from the Bank of Algeria for the years 2004-2008-2012-2017-2021 (Finance Law of 2021)

In summary, based on the data from the table above, it's observed that the percentage of petroleum revenues' contribution to public revenues for the period 2000-2021 stood at 59.59%, while the contribution of regular revenues to total revenues was 41.21%. It's noteworthy that in recent years, starting from 2015, the percentage of petroleum revenue contribution has been on a declining trend. This suggests that Algeria is taking steps to move away from overdependence on a single economic sector and is actively exploring alternative sources of revenue.

#### **4. The reality of the agricultural sector in Algeria and the policies adopted to foster it**

The agricultural sector holds a significant position within the national economy, primarily because of its substantial contribution to the gross domestic product (GDP) and its role in providing employment opportunities for the workforce.

##### **4.1 Components of the agricultural sector in Algeria:**

The growth and progress of any economic sector rely heavily on the utilization of the available resources and capabilities. When these resources are effectively harnessed, the sector can become a leading force driving development. Similar to Algeria, the agricultural sector in the country possesses several crucial components, including

##### **4.1.1 Natural resources:**

Land serves as the fundamental foundation for agricultural production. Algeria stands out for its diverse land resources that are conducive to agriculture, with a total land area estimated at 2,381,471 square kilometers. The overall agricultural area covers approximately 42.4 million hectares, accounting for 18% of the country's total land area. Of this agricultural area, around 8,458 million hectares are actively used, constituting 28% of the total agricultural area. (Algeria cop)

Agricultural land serves as the fundamental foundation for agricultural production, making it a strategic asset that demands protection and enhancement through various available means. This involves improving and expanding it by providing organic amendments, land reclamation, and mitigating challenges such as

urban expansion, erosion, and desertification. The objective of agricultural activities on such land is to boost production through three main approaches:

- 1) Horizontal Expansion: This involves increasing production by expanding the cultivated land area.
- 2) Crop Intensification: This approach aims to increase production by intensifying the cultivation on existing land, maximizing crop yields.
- 3) Vertical Expansion: Enhancing production by increasing productivity per unit area, essentially achieving more with the same amount of land. (Merbah, 2020, pp. 255-256)

#### 4.1.2 Water resources:

Water indeed holds a crucial role in agricultural production, serving as one of the primary factors that determine both its quantity and quality. This significance becomes particularly evident in the cultivation of modern and advanced crops, which often rely on diverse irrigation and watering techniques. The appreciation of water resources in Algeria becomes paramount in this context, emphasizing the importance of sustainable water management for agricultural development and food security. (Ben Muwafak, 2018-2019, p. 252) The water resources in Algeria can be divided in the following table:

**Table 04: Distribution of water resources in Algeria**

Region	Size (billion m <sup>3</sup> ) _	Water resource
North and South	11	Renewable surface water
North	2.5	Renewable groundwater
the South	6.1	Non-renewable groundwater

**Source:** (<https://water.fanack.com/algeria/water-resources/> / 2020)

#### 4.1.3 Human Resources:

Algeria heavily relies on its human resources for agricultural production, particularly because of the limited availability and utilization of necessary equipment in some operations. However, when compared to other sectors, the agricultural workforce remains relatively low. In 2012, the agricultural workforce numbered approximately 247,650 workers, a slight increase from 235,834 workers in 2000, representing a 5.01% rise. Nonetheless, this increase is relatively modest, as the proportion of agricultural labor compared to total employment has consistently decreased in recent years. This decline is attributed to Algerian youth shifting away from pursuing careers in the agricultural sector and opting for opportunities in other industries (Bogto & Mostafawi, 2020, p. 26).

#### 4.2 Policies adopted to promote the Algerian agricultural sector during the period (2000-2024):

Since the beginning of the third millennium, the agricultural sector in Algeria has undergone significant and comprehensive reforms, marking a departure from the policies in place since independence. These reforms have targeted various aspects, including human resources, material resources, and financial resources, and they were initiated under several headings with the aim of rectifying past policies. Notable areas of reform include

#### **4.2.1 The National Agricultural Development Plan (PNDA) (2000-2004):**

This plan seeks to attain a level of food security that enables the population to access food in accordance with globally recognized standards. It aims to enhance consumption coverage through domestic production, enhance agricultural output through the efficient use of seeds and seedlings, and promote the sustainable utilization of natural resources for long-term development. Within this framework, the National Agricultural Development Plan (PANDA) centers its efforts on encouraging and assisting agricultural investors. (Hamrit, 2014, pp. 41-42)

This plan encompasses nine distinct agricultural development programs, focusing on enhancing and modernizing agricultural investments and livestock breeding. These five specific programs within the plan are :

- 1) Rehabilitation and Modernization of Agricultural Investments Program.
- 2) Rural Employment Program.
- 3) Production Intensification and Systems Program.
- 4) Agricultural Production Enhancement Program (covering aspects like air conditioning, transportation, storage, and marketing).
- 5) Investment Support Program for Agricultural Investors.

These programs collectively aim to drive progress and innovation in Algeria's agricultural sector.

The National Agricultural Development Plan underwent expansion in 2002 to include support for rural areas, resulting in its transformation into the National Program for Agricultural and Rural Development. This marked a significant shift towards broader objectives, including:

- 1) Enhancing contributions to food security.
- 2) Proper utilization of all available resources with a focus on environmental protection.
- 3) Improving agricultural services in rural regions.
- 4) Providing support to the most economically vulnerable rural residents to enhance their living conditions.
- 5) The national agricultural development plan operates on four fundamental pillars:

- 6) Enhancing production and productivity across various agricultural sectors, with support from the National Fund for Agricultural Control and Development.
- 7) Promoting the intensification of agricultural systems.
- 8) Supporting land reclamation efforts, including land concessions and reclamation initiatives in southern regions.
- 9) Expanding afforestation activities to increase the forest cover percentage in the northern part of the country from 11% to 14%. (Jafari & Al Ajal, 2018, pp. 105-106)

#### **4.2.2 The supplementary program to support economic growth 2005-2009:**

(Ati & Ghanem, 2019, p. 243) Under this program, approximately 300 billion dinars have been allocated for the agricultural and rural renewal policy, building upon the objectives of previous programs. The overarching objective of successive agricultural policies since 1962 has been to continually strengthen national food security, emphasizing the transformation of agriculture into a driving force for comprehensive economic growth. This goal is realized through the intensification of production in strategic agricultural and food sectors, accompanied by substantial structural changes in the sector over the medium term, with active participation from both public and private actors.

The key objectives of this program include:

- 1) Promoting, safeguarding, and diversifying agricultural exports, with a focus on essential local agricultural products.
- 2) Giving due attention to the rural sector alongside the agricultural sector.
- 3) Achieving sustainable food security and implementing new governance approaches for the agricultural sector.
- 4) Advancing internal economic growth with external support.

#### **4.2.3 Reforming the agricultural sector through the five-year program 2010-2014:**

This program aims to boost aggregate demand, promote value-added activities, and generate employment opportunities. It achieves this by increasing utilization within the agricultural sector and small to medium-sized local production enterprises. Additionally, it focuses on creating and implementing essential infrastructure to revitalize economic activities and meet the population's human resource development needs.

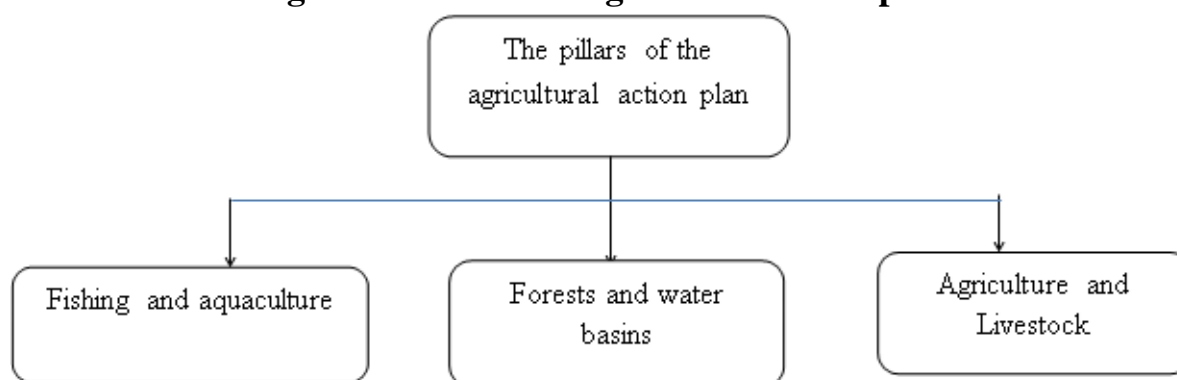
To support these efforts, the Public Investment Program has allocated approximately 40% of its resources for the continued development of fundamental infrastructure and enhancement of public services. More than 1,500 billion DZD have been dedicated to supporting the development of the national economy, with a

significant portion, over 1,000 billion DZD, earmarked for agricultural and rural development.

Furthermore, the reactivation of the National Agricultural Land Office through the Agricultural Concession Law has been a crucial step in addressing agricultural real estate issues. This law, known as Law No. 10-03 of August 15, 2010, outlines the conditions and methods for utilizing agricultural lands owned by the state's private property, providing a legal framework for agricultural development initiatives. (Abdeli & Jaafari, 2017, p. 33)

plan (2015-2019): The plan is based on three basic pillars that can be presented in the following figure:

**Fig.03: Pillars of the agricultural work plan**



**Source:** Jamal Jaafari, Al-Ajal Adala, initiatives to reform the agricultural sector in Algeria and their impact on agricultural output, an analytical and econometric study for the period (2000-2015), Journal of Economic Notebooks, Volume No. 10, Issue 02, 2018, p. 108

The 2019 Agriculture Action Plan is built upon three key pillars: 1. Agriculture and Livestock: The first pillar focuses on the modification, modernization, and development of the agricultural sector. It emphasizes the empowerment of agricultural competencies, as well as the monitoring and support of agricultural project owners. 2. Forest Production and Eco-Tourism: The second pillar places significant importance on forest production and promotes eco-tourism. This includes efforts to enhance and make sustainable use of forest resources while encouraging tourism activities in these areas. 3. Fishing and Aquaculture: The third pillar is centered around monitoring and supporting investment programs in the fishing and aquaculture sectors. It seeks to boost fish exports and ensure the preservation and protection of fishing areas and resources. (Jafari & Al Ajal, 2018, pp. 105-106)

#### **4.2.4 Economic recovery plan 2020-2024: Under the slogan of modern agriculture and fishing for optimal food security:**

**Regarding agriculture:**

The government is actively pursuing a sustainable agricultural policy aimed at achieving multiple critical objectives. It seeks to fortify the nation's food security, ensuring a stable and ample food supply while also striving to reduce the trade imbalance, particularly for essential agricultural food products, by boosting domestic production. Additionally, this policy is strategically designed to play a pivotal role in diversifying the national economy, with agriculture serving as a catalyst for economic growth beyond its traditional role. Simultaneously, the government is dedicated to the development of rural areas, including those in desert and mountain regions, and will implement structured initiatives to harmonize rural territory development with the sustainable use of natural resources.

Encouraging private sector involvement is another cornerstone of this policy, as it aims to stimulate wealth creation and generate employment opportunities, ultimately fostering economic development and job creation. This holistic approach underscores the government's strong commitment to agricultural and rural development, aligning with broader economic and sustainability objectives.

The sustainable protection and valorization of natural spaces Generally Forest properties and allied areas in particular, would allow the development of the production of goods and services for the benefit of the local population and the national economy.

### **Regarding marine fishing and fishing resources:**

In the realm of sustainable development for marine fishing and aquaculture, the primary objectives are centered around expanding the national supply of fishing products. This expansion is to be achieved through the substantial promotion and development of large-scale aquaculture activities, as well as the growth of marine fishing activities in high-seas regions. Simultaneously, there is a strong emphasis on the responsible and sustainable management of existing marine fishing activities, with a focus on improving the social and economic conditions of those engaged in marine fishing and aquaculture. These goals underscore the commitment to both the growth and the ethical and environmental considerations in the marine fishing and aquaculture sectors. (First Ministry portail, 2021, July)

## **4.3. Indicators of the agricultural sector in the Algerian economy:**

### **4.3.1 Te contribution of the agricultural sector to foreign trade during the period (2000-2020):**

The contribution of the agricultural sector to foreign trade can be measured through several indicators, most important of which is the growth of both agricultural exports and imports, The ratio of coverage of agricultural imports to agricultural exports, and the contribution of agricultural exports to total exports, in addition to the



ratio of agricultural imports to total imports, Finally, the contribution of agricultural trade to total foreign trade.

**Table 05: The development of agricultural foreign trade in Algeria during the period (01/20/2020)**

The year	Agricultural exports million dollars	Agricultural imports million dollars	Agricultural trade balance, million dollars	Ratio of agricultural exports to total exports	Ratio of agricultural imports to total imports
2010	316.00	6399.00	6083-	% 0.6	16 %
2011	355.00	10237.00	9882-	% 0.5	22 %
2012	316.00	9352.00	9036-	% 0.4	19 %
2013	402.00	10088.00	9686-	% 0.6	18 %
2014	325.00	11663.00	11338-	% 0.5	20 %
2015	236.00	9980.00	9744-	% 0.7	19 %
2016	327.00	8726.00	8399-	% 1.1	19 %
2017	349.00	9049.00	8700-	% 1.2	20 %
2018	374.00	8574.00	8200-	% 0.9	18.5 %
2019	408.00	8072.00	7664-	% 1.14	19.25 %
2020	442.00	8094.00	7652-	% 1.86	23.54 %
Average	217.59	6800	-6582	%0.54	19.15%

**Source:** designed by researchers based on the Direction Generale des Douanes, “Evolution of commerce in Algeria by group use”, Algérie, period: 2000-2020 (direction general des Douanes, 2000-2020)

The data from the preceding table reveal a consistent upward trajectory in both agricultural exports and imports over the study period. Import volumes surpassed export volumes, with the latter being relatively small. In fact, average agricultural exports during the period from 2010 to 2020 accounted for no more than 0.6% of total exports. Conversely, agricultural imports represented an average of around 20% of total imports. This persistent trade imbalance in agriculture resulted in a continuous deficit in the agricultural trade balance throughout the study years.

#### **4.3.2. Contribution of the agricultural sector to the gross domestic product:**

The agricultural sector's significance within productive activities ranged between 8.40% and 14.23%. Table No. 05 displays the development of the Gross Domestic Product (GDP) and the added value of the agricultural sector. It's evident that the contribution of the agricultural sector to the GDP during the period from 2000 to 2020 hit its lowest point in 2008, standing at 6.56%. However, it has shown an upward trend in recent years, reaching its highest percentage in 2020, estimated at 14.1%. This positive development is a result of the programs and policies implemented by the Algerian government to enhance the sector's performance.

Nevertheless, due to limited rainfall, this percentage dropped to 13.1%, resulting in reduced production of grains and legumes.

**Table 06: Development of agricultural value added in gross domestic product for the period (2000-2021)**

years	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Added value	8.40	9.70	9.20	9.80	9.40	7.70	7.50	7.60	6.60	9.30	8.50
The years	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Added value	8.10	8.80	9.90	10.30	11.60	12.20	11.80	11.90	12.30	14.1_	13.1

**Source:** Designed by researchers based on: World Bank statistics, quoted from the link: [www.albankaldawli.org](http://www.albankaldawli.org) (World Bank, 2021)

#### 4.3.3. The agricultural sector's contribution to employment:

The data from the table highlights a noticeable decrease in the agricultural sector's contribution to overall employment. This decline can be attributed to several factors, including workforce migration from the agricultural sector to other economic sectors. One primary reason for this migration is the income disparity between agriculture and other sectors, with many seeking higher-paying opportunities elsewhere. Additionally, the lack of financial resources and support for farmers has contributed to rural-to-urban migration, as individuals from rural areas move to cities in pursuit of improved social conditions and higher income prospects. (Merbah, 2020, p. 259) In addition, there is no support for the farmers from previous governments to encourage them to practice this activity instead of heading to work in other sectors.

**Table 07: Development of the agricultural sector's contribution to employment**

years	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
The ratio	22.00	22.00	22.00	22.00	21.00	19.00	18.00	16.00	15.00	13.00	12.00
years	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
The ratio	11.00	11.00	11.00	9.00	10.00	10.00	10.00	10.00	10.00	11.00	10.00

**Source:** Designed by researchers based on: World Bank statistics, quoted from the link: [www.albankaldawli.org](http://www.albankaldawli.org), (World Bank, 2023)

#### 4.3.4. Obstacles and difficulties in the agricultural sector:

There are many difficulties that led to the poor performance of the sector despite all the efforts made, the most important of which are:

**A- Natural obstacles:** The constraints in the realm of natural resources, such as agricultural land and water availability, are crucial factors for agricultural development. Both land and water resources serve as the fundamental bedrock for the growth of agriculture. However, certain irrational human practices, often associated with agricultural and other human-made activities, have resulted in the deterioration

of both the quantity and quality of these vital resources. (Bouakl & Mbarki, 2017, p. 96)

**B - Technological obstacles:** The role of technology in agriculture is pivotal in influencing both production levels and productivity rates. In Algeria, the decrease in productivity can be attributed to the continued reliance on basic and traditional methods, such as manual labor involving humans and animals. Despite the agricultural sector's access to various modern inputs like tractors, harvesters, machines, and fertilizers, this alone has not been sufficient to drive significant productivity growth. To address this issue, it is imperative for public authorities to provide support for the sector by investing in mechanization and introducing other modern production inputs to enhance agricultural efficiency and output. (Boudjetou & Mustafa, 2020, p. 26)

## **5. Challenges and Hurdles Associated with Human Resources, Physical Assets, and Organizational Aspects:**

These issues pertain to various aspects involving the actions and behavior of both individual workers and organizations within the agricultural sector. These aspects encompass their performance skills and the resources they utilize to operate within this domain. We can summarize these challenges as follows: (Gharbi, 2008, pp. 284-291)

### **5.1. Problems and obstacles related to human and institutional resources:**

This refers to the attributes and needs of the agricultural workforce, and the agricultural sector faces a challenge characterized by an imbalance between the labor force available and the demand in the agricultural job market. This situation often results in hidden or disguised unemployment.

### **5.2. Problems and Regulatory obstacles:**

These issues also extend to organizational processes, including management and marketing aspects, particularly concerning marketing challenges in the agricultural sector. Marketing problems involve the transfer of agricultural products from producers to consumers and their exchange. Several hurdles hinder reaching the desired efficiency level in this process. These include a decrease in the quality of agricultural products available in the markets and issues related to exports. Algerian agricultural exports exhibit irregularity, exacerbated by production fluctuations due to the heavy reliance on rainfall, causing the quantity of agricultural goods exported to vary from year to year. Furthermore, administrative management in agriculture poses challenges. While Algeria possesses significant human and technical capabilities in agriculture, these resources are not fully tapped and leveraged to stimulate various developmental activities.

## **6. Conclusion:**

In this comprehensive study, which centered on the agricultural sector as a viable economic alternative for fostering economic diversification, we conducted an in-depth analysis of the current state of the agricultural sector in Algeria. This examination encompassed various components of the sector, as well as the policies and programs implemented by the Algerian government to bolster its development. The study highlighted the agricultural sector's impact on key economic indicators, leading to several key findings:

**Economic Structure Distortion:** The study affirmed the distortion and imbalance within Algeria's economic structure, primarily due to its heavy reliance on petroleum revenues, which renders the economy vulnerable to external market fluctuations.

**Improved Agricultural Production:** There has been notable progress in agricultural production, enabling Algeria to attain self-sufficiency in several agricultural products. This achievement was reflected in its high ranking on the Global Food Security Index, where it stood at the forefront among African countries and 54th out of 113 countries in 2021.

**Challenges to Being an Oil Alternative:** Despite the government's efforts to develop the agricultural sector, it has yet to emerge as a full-fledged alternative to oil due to certain deficiencies and imbalances. **Lack of Scientific Research:** The agricultural sector in Algeria has a shortage of scientific studies and research support. Additionally, there is a shift towards commercial agriculture, particularly in vegetables and fruits, rather than focusing on strategic agricultural initiatives.

These findings underscore the potential and challenges associated with developing the agricultural sector in Algeria, with room for further growth and diversification, as well as the need for more comprehensive research and planning to harness its full potential.

## **Recommendations:**

The study has highlighted the absence of a well-defined strategy for economic diversification in Algeria. In light of this, several recommendations can be proposed to achieve economic diversification and reduce reliance on oil revenues:

- **Prioritizing Agriculture:** Develop a comprehensive and long-term strategy for the agricultural sector. Encourage agricultural investments, with a particular focus on the southern regions, which have shown potential for successful agricultural development models.
- **Modernization:** Modernize agriculture by integrating knowledge-based practices and digitalization to boost productivity. Expand agricultural areas, develop strategic crops, and invest in agricultural research.

- Financial Support: Provide various forms of financing for farmers, including Islamic financing options. Consider offering insurance and reducing or exempting farmers from various taxes.
- Establishing Manufacturing: Establish manufacturing facilities near farms to absorb surplus agricultural production.
- Encouraging Investment: Foster partnerships and investments, particularly in strategic sectors within agriculture.
- Regional Specialization: Create an agricultural map that designates specific types of crops or products for each region, considering the unique characteristics of each area.
- Land Management: Address agricultural land-related issues by reclaiming unused land and regularizing land ownership documentation.
- Enhancing Productivity: Increase land productivity through the adoption of advanced machinery, intensified farming techniques, and the responsible use of fertilizers and pesticides.
- Supporting Startups: Encourage the establishment of startup companies that offer innovative solutions to advance the agricultural sector. Provide necessary support and facilities to entrepreneurs in this field.
- Market Organization: Organize markets to facilitate the sale of surplus agricultural produce by farmers. Focus on improving and reducing transportation, marketing, and storage costs while eliminating monopolistic practices.

Implementing these recommendations could help Algeria diversify its economy, reduce its dependence on oil revenues, and promote sustainable agricultural development.

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