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Towards the emergence of new competitive territory in southern algeria: The impact of the promising sustainable development of biskra

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Abstract:

The Algerian Sahara has undergone significant changes that have had an impact on sustainable development in various areas, including agriculture, industry, and tourism. The provinces in this region have shown substantial growth, which has contributed to the overall strengthening of the national economy, independent of the hydrocarbon industry.

Algeria has implemented several policies and strategies aimed at enhancing agricultural practices within the Sahara, including the recent policy on agricultural renewal. The region of Biskra was selected as a case study to analyze the impact of this policy, given its significance to the wider concerns under consideration. The results of the study suggest that agricultural development is progressing rapidly, with significant implications for all forms of crop production. It should be noted that Biskra represents a key spatial unit in Algeria, making the area studied important.

Keywords: *Sahara, territorial shifts, sustainable development, agricultural renewal*

Introduction

The Algerian Sahara is a region characterized by vast dunes, including ERG 1 ORIENTAL and ERG WESTERN, as well as stony plains that are intersected by oases. It spans over two million square kilometers, extending from the Saharan Atlas in the north to the borders of Mali, Nigeria, and Libya, covering a distance of more than two thousand kilometers from north to south. This vast territory comprises of 10 complete Wilayas and eight partial ones, bringing together a total of 264 municipalities with an estimated population of four million inhabitants.

The population is mainly concentrated in the capitals of the Wilayas, with some having more than 150,000 inhabitants. Out of the 35 largest cities in Algeria, 7 are located in the Sahara region, including Biskra, Ouargla, Béchar, Ghardaïa, Touggourt, El Oued, and Laghouat.

The Algerian Sahara is characterized by extensive areas of regs, ergs, and chotts, which are not conducive to agricultural activities. The Algerian Sahara is divided into several regions and natural units, including Chott Melghir, Northern Sahara, Hoggar and Tassili, Saoura, and Tindouf.

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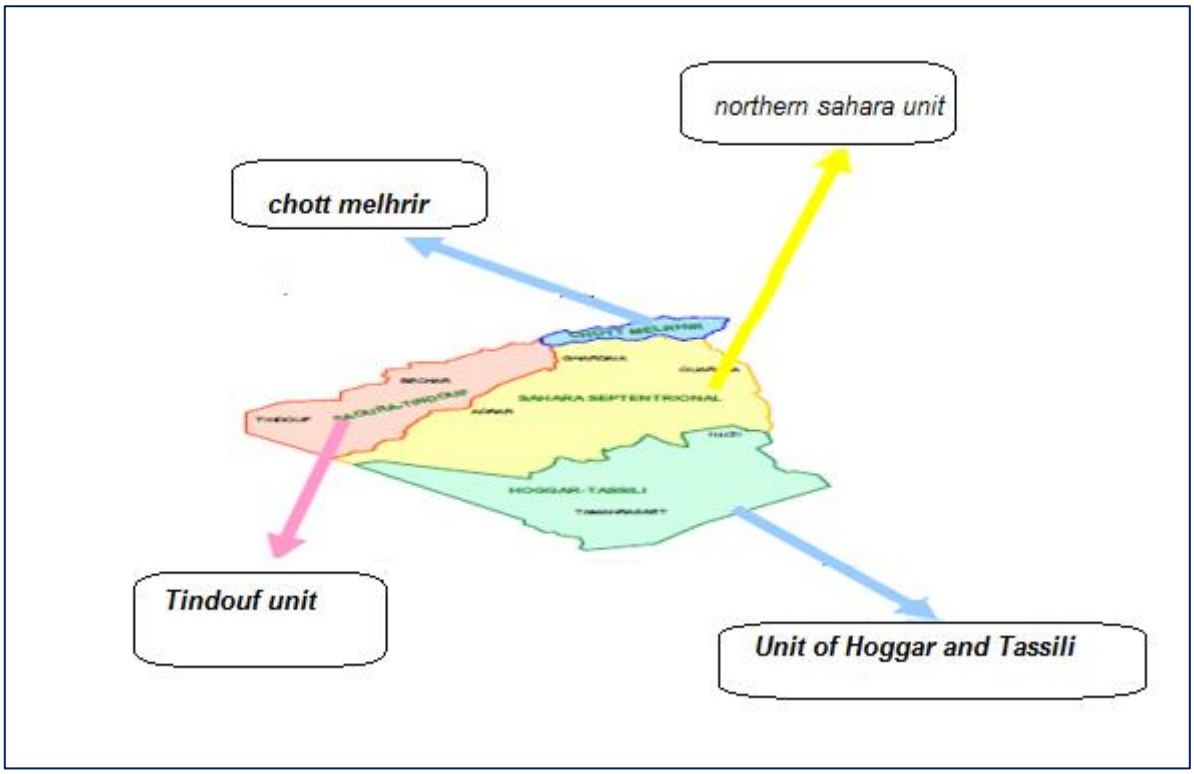

Map 1 : Schematization of the division of Saharan units

Source : ABSH (2015). Study of the hydraulic CADASTRE of the Chott Melghir watershed; mission 1: water and soil resources.

The study is an examination of the relationship between economic activity, population growth and their impact on the environment, and their impact on the environment, with a specific focus on the potential negative effects of fertilizer use on the natural environment in the Ziban region. It is important to strengthen the mechanisms of interaction with the environment to ensure sustainable economic growth and population development:

- This study aims to investigate the degradation of the environment in this area.
- The study aims to investigate how sustainable development can be achieved while conserving the natural resources that are being exploited.
- In addition, the study will examine the performance of agricultural activity in the national economy and the level of supply in the sector.

The objectives of any scientific or theoretical field study are specific.
In this research, our main objective is to change the perception that the region is solely focused on agro-energy and to highlight its capacity for sustainable economic development, as well as to diagnose the current status of the agricultural sector and its economic impact.

Methodology:

1. Province presentation:

1.1. Historically:

Biskra is a town located in northeastern Algeria, on the northern edge of the Sahara. It serves as the center of the Zab (Ziban) group of oases, located south of a wide, open depression between the Aurès Massif and the Tell Atlas Mountains.

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Biskra, a town in north-eastern Algeria on the northern edge of the Sahara, has been known as Beskra since 1981. The change was made by the local authorities to better reflect the town's cultural identity. The city has a rich history, having been the site of Vescera, a fortified Roman post, and having flourished after the Arab conquest in the 9th century. In the 1100s it served as the semi-autonomous capital of the Zab region before coming under the influence of the Ḥafṣids. It is clear that Biskra has played a significant role in the history of the region, and its cultural and historical importance cannot be overstated. The Turks occupied Biskra in 1552, and it was later garrisoned by the French in 1844. Fort Saint-Germain, which was garrisoned by the French in 1844, became the nucleus of modern Biskra between 1849 and 1851. Biskra is a popular winter resort due to its convenient location on the railway and road from Constantine to Touggourt, as well as its airport and temperate climate from November to April. The town's wide, tree-lined streets, hotels, shops, and public gardens make it an attractive destination for visitors. Overall, Biskra offers a range of amenities and attractions that make it a desirable location for tourists seeking relaxation and wellness.

In addition, 3 miles (5km) northwest of the town is Hammam Salahine, a well-known modern spa with hot sulfur springs. Known in Roman times as Ad Piscinam, it was used to treat rheumatism and skin diseases. The charming old Biskra consists of sun-baked brick villages beautifully scattered among thousands of date palms and fruit trees, During the winter season, fields of wheat and barley are irrigated with water collected in the Wadi Biskra Barrage (dam). In 1969 the area was hit by disastrous floods (Directorate of Tourism of the Province of Biskra , Monographic Province of Biskra , p10).

1.2. Geographically and administratively:

1.2.1. Geographical location:

In 1963, Biskra became a province, increasing the number of provinces in Algeria from 14 to 15. It had previously belonged to Banta.

The city is located at the intersection of the Atlantic Range and the Desert Range, resulting in the formation of a sedimentary basin that runs east-west (BENAZZOUZ Mohamed Tahar, 1992).

The region covers an estimated area of 21,510 km² and is located approximately 420 km from Algiers.

1.2.2: Administrative borders:

The province of Biskra is located in the northern Sahara, in the southern part of the country, bordering Batna to the north, Khenchela to the north-east, M'Sila to the north-west, Ouargla to the south, El-Oued to the south-east and Djelfa to the south-west (see map 2).

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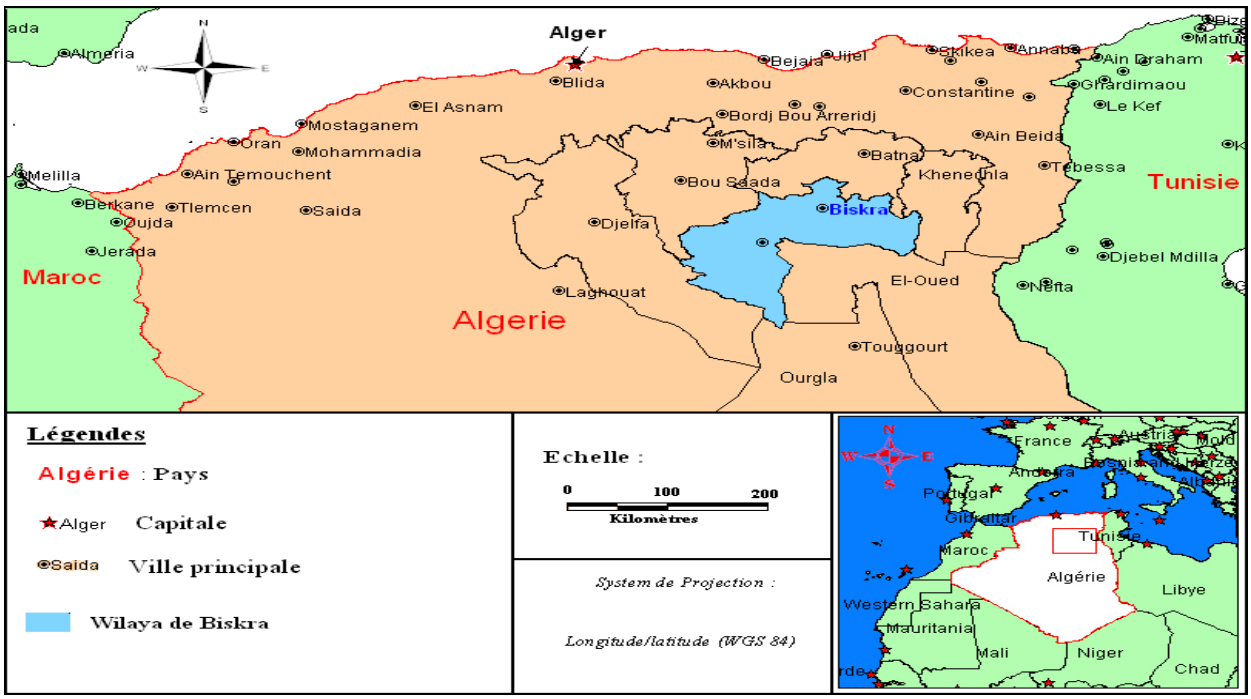

Map 2: Administrative borders the province of Biskra

***Source**: ANAAT "National Agency for Territorial Development and Attractiveness" (2014) Prospective study for the development of local assets in the Wilaya of Biskra, file 2 development of the hydraulic sector*

2. Analysis and discussion:

2.1. Rigorous climatic conditions; obstacle to agricultural development

The study area is characterized by an unfavorable climate which hampers sustainable development due to the climatic characteristics specified in the following points:

- Total annual precipitation did not exceed 120 mm (SELTZER, 1946) during our study period (1969-2010).
- A permanent rise in temperature,
- A reduction in the amount of precipitation,
- The intensity of evaporation, which affects the decrease in surface water resources
- The increase in salinity in the soil, all factors hindering continuity and development

The different elements of the climate interact with each other and affect the plants physically and in terms of their growth. The meteorological conditions of high temperatures, lower rainfall, and reduced humidity have been observed to increase evaporation rates. According to Dubost (2002), evaporation rates can range from 2500 mm to 5000 mm per year due to the combination of high temperatures and prevailing drying winds.

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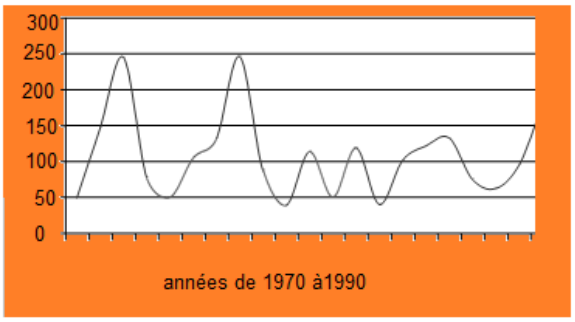

Fig 1: Inter-annual variations of rainfall in Biskra (1970-90).

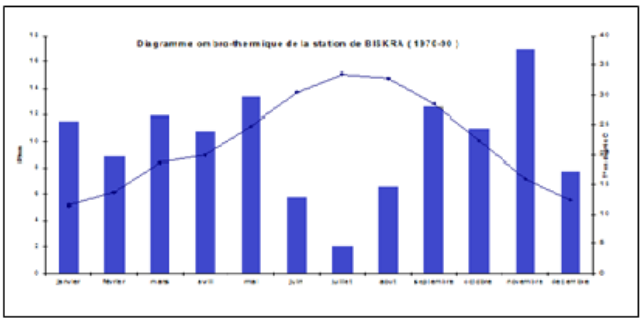

Fig2: Ombrothermal diagram in Biskra (1970-90).

2.2. Problem of salinity:

Salty soils are soils that have developed due to the excessive presence of soluble salts, which are more soluble than gypsum and/or a high level of exchangeable sodium. This can result in unfavorable physical, chemical, and biological properties (USSL.1954, CPCS. Their classification takes into account the degree of overall Stalinization and sodicity, as well as the level of degradation of the soil structure, and we generally recognize three (3) categories of saline soils:

- Salty soils with undegraded structure
- Saline to alkali soils or saline-sodium soils or solontchaks-solonetz
- Salty soils with degraded structure

This problem arises in certain irrigated regions where salt accumulation is affected by a variety of factors, such as soil resistance, water salinity, and water and wind erosion. The depth of the burn and its proximity to the surface allows for the continuous collection of salts, which facilitates the process. The situation is further complicated by limited water resources and increasing competition. Our field investigations have shown that the majority of irrigation methods used involve immersion in the watering process, which adds to the complexity. However, we are confident that by working together and exploring alternative methods, we can find a solution that benefits all parties involved.

Soil salinity reduces harvests and limits viable crops. Sodicity is one of how salinity deteriorates soil quality, rendering it unproductive. Soil salinity is subject to various changes due to anthropogenic factors such as soil management, crop selection, irrigation doses and schedules, design and maintenance of drainage networks, and water composition. Effective management of irrigation water, leaching and drainage of salts in the root zone of plants, and the use of adapted cultivation techniques and salt-tolerant species or varieties are crucial for successful crop production, even when faced with the challenge of using saline water and developing land. Effective management of irrigation water, leaching and drainage of salts in the root zone of plants, and the use of adapted cropping techniques and salt-tolerant species or varieties are crucial for successful crop production, even when faced with the challenge of saline water and land development. By implementing these strategies, farmers can achieve satisfactory production levels with confidence. It is important to recognize the potential difficulties and challenges that may arise, but with the right approach and expertise, these can be overcome in a diplomatic manner.

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ISSN: 0369-8963

Figure3: Soil salinization in Biskra

2.3.Impacts of desertification:

2.3.1.The scientific origins of the term “desertification”:

Aubreville (1949) was one of the pioneers in using the term 'desertification'. He associated the term with conditions that could be considered semi-arid or even sub-humid zones with annual precipitation ranging from 700 to 1500 mm.

Aubreville was alarmed to observe widespread land degradation in these regions as a result of human activities. It is important to note that his observations were made diplomatically and confidently. These are deserts that are forming in areas where 700 to over 1500 mm of rain fall annually. Our observations on the ground in the north of the former Oubangui-Chari, present-day Central African Republic, support this. The term 'desertification' was coined by the Working Group on Desertification in and around Arid Lands, a group within the Union Geographic International (UGI), in 1972. This term has been widely adopted by the international scientific community studying the degradation of arid areas and their margins, showcasing the confidence and authority of the scientific community in their use of this term. In 1977, the United Nations Conference on Desertification proposed an official definition of the term. Desertification is a serious issue that can have devastating effects on the biological potential of the earth, potentially leading to the emergence of desert conditions. However, with the right measures in place, we can work towards preventing and reversing this process, ensuring a sustainable future for our planet.. **(DREGNE H.E, 1983)**

The term desertification refers to the degradation of land in arid, semi-arid, and dry sub-humid ecosystems, essentially as a result of the impact of various human activities. It is important to acknowledge the impact of human activities on land degradation, which can lead to a decline in harvests, deterioration of plant cover, exacerbation of physical mechanisms at the land surface, and qualitative and quantitative regression of water resources. However, with proper management and conservation efforts, it is possible to mitigate the effects of desertification and restore degraded land. In July 1992, the official definition of desertification proposed by UNEP was adopted with an amendment by the Rio Earth Summit and remains unchanged to this day:*“Desertification is the degradation of land in arid, semi-arid, dry subhumid areas, resulting from various factors, including climatic variations and human activities.”*(The United Nations Environment Program (UNEP)

 https://doi.org/10.37896/pd93.1/93113

ISSN: 0369-8963

2.3.2.The direct effects of sensitivity and degradation of the environment

This research outlines the general causes of desertification, with a focus on the Algerian Sahara. The environmental impact of development in the Zab Mountains is also discussed.

It is important to note that desertification in the ZABAN has two distinct causes: the overexploitation of agricultural resources, either pastoral or forest, using traditional development methods, and the rapid growth of the rural population.

Table 1. The pastoral charge in the Zibans for the period 2000-2010.

Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Sidi Okba	0,71	0,50	0,72	0,95	1,99	1,75	1,69	1,92	1,89	1,86	1.90
El Outaya	0,95	0,95	1,06	106	0,75	0,84	1,05	0,91	0,97	1,09	1.11
Tolga	0,80	0,88	0,87	0,77	1,82	1,85	1,98	2,1	1,86	2	2.3

Source: Statistics of the Directorate of Agriculture – Biskra2010

2.4. Increased pressure on water:

According to the National Agency for Water Resources (ANRH), the reservoirs in the province of Biskra have supplied more than 47,194 million m³ of water, distributed in varying proportions among the various districts of Biskra. The increase in water abstraction is the result of growing competition between sectors for access to water resources, a situation exacerbated by a significant increase in population from 429,000 to over 652,000 inhabitants by 2002 (ANRH, 2010). The heightened demand for water affects both the domestic and agricultural sectors, putting immense pressure on the available water resources, especially considering the extensive irrigated areas and the decreasing flow rate. The water resources sector in the ZIBAN region is facing significant pressure due to these factors.

3. Results:

As a result of our analysis, our focus will be on the following aspects:

3.1. Diversified agricultural development:

Since the 1980s, the Saharan regions have undergone a significant shift from the oasis model to a more secure agricultural system. This transition was initiated by the agricultural revolution, particularly after the integration of pumps into the irrigation process, which necessitated the acquisition of extensive land areas. As a result, there was an increase in the acquisition of lands classified as de facto (beyond the perimeters) and the enactment of the August 13, 1983 law concerning the ownership of agricultural land (APFA). This led to a restructuring of the rural sphere and the dismantling of the prevailing socialist policy over the course of two decades. **(BISSON, 2003).**

The decision to switch from investing in traditional palm plantations to modern greenhouses in the desert is driven by the pursuit of immediate profits and benefits, despite the high costs involved. It is important to carefully consider the costs and benefits of both options before making a decision. While investing in palm production requires a long-term commitment with significant

 https://doi.org/10.37896/pd93.1/93113

ISSN: 0369-8963

costs incurred during this period, the potential benefits of such an investment cannot be ignored. While there are financial benefits to early greenhouse production, especially during periods of zero production in coastal and central areas, it is important to consider the potential costs and risks associated with greenhouse production. However, it is worth noting that greenhouses can yield up to 45 quintals of vegetables, generating profits of 250 thousand dinars, which is equivalent to the yield of 20 palm trees producing 150 kg of Deglet Nour dates per palm. (**Rated, 1999).**

3.1.1. Advancements in Contemporary Agriculture through the Expansion of Investments in Controlled Environment Agriculture.

"Prosperous Agricultural Endeavors and Encouraging Future Prospects":

The agricultural model, which is practiced within greenhouses, emerged in the 1980s and 1990s as an experimental endeavor by local farmers in the region. The approach primarily focuses on cultivating three crops: tomatoes, hot peppers, and bell peppers. It involves adopting advanced techniques and methods at a considerable cost. The modernization and enhancement of the agricultural sector are viewed as significant milestones and challenges. Two forms of controlled environment agriculture have been observed in the state. The 'quarterly' method involves cultivation starting from late February to early March, with production occurring between April and August. On the other hand, the 'early sowing' approach is limited to the planting season from early October to November, with yields in the winter and spring months. These methods have resulted in a consistent supply of produce, which is in contrast to the coastal and central regions. (**Ammar, Mohamed Tahar, 2016)**

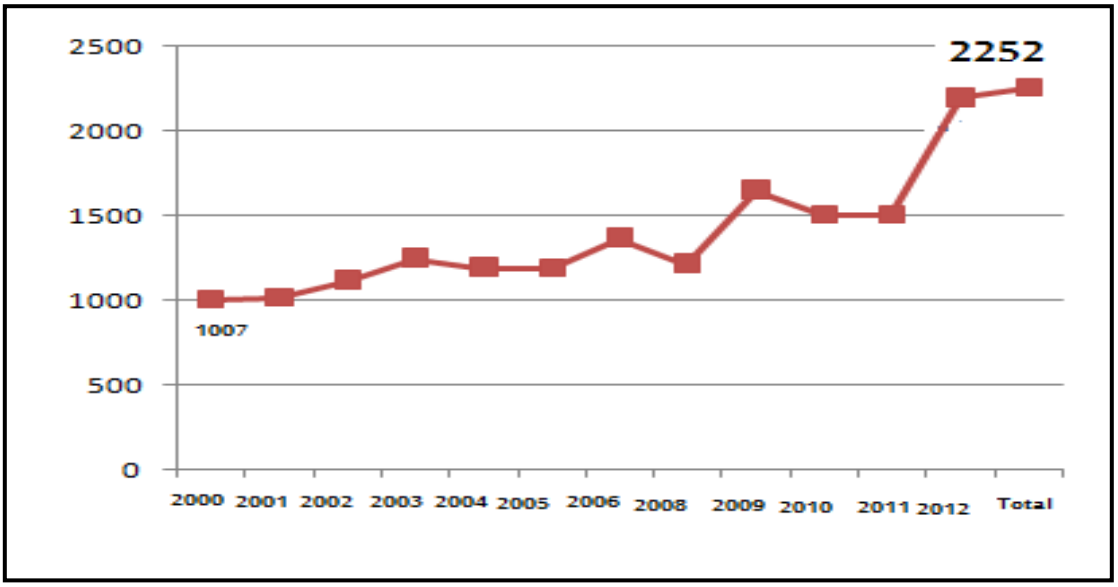

Figure2: Evolution of the area of protected crops in the study area (2000-2013).

The statistical figures indicate a noteworthy growth in protected agriculture areas, despite the considerable expenses involved. According to the data, the agricultural areas designated for protected agriculture expanded from around 1007 hectares in the 2000-2001 agricultural season to 2252 hectares in the 2012-2013 season.

 https://doi.org/10.37896/pd93.1/93113

ISSN: 0369-8963

3.1.2. The evolution of palm cultivation

The phoeniculture sector occupies a unique and important place in Saharan agriculture due to its designated areas, its role as a source of employment, and its significant production volume. The success of phoeniculture is a testament to Algeria's agricultural expertise and its commitment to sustainable development. It is significant not only for the financial yield it generates, particularly as a prominent agricultural export but also for the representation it provides for Algeria's identity. Moreover, phoeniciculture is a vital component in promoting sustainability in tree cultivation and its impact on the environment, (AISSAOUI (2009). The development program for this strategic sector is confident in achieving production of 12.6 million quintals by 2019, with an export quantity of 100,000 tons, valued at 100 million dollars. **(ONFAA, 2010).**

The region being analyzed is the primary marketer of the Deglet Nour and Degla Beida varieties. As per the DSA of Biskra, more than half of the Deglet Nour produced in the Biskra Wilaya was marketed during the 2015/2016 campaign, except in cases where there was a previously declared stock. The Wilaya of Ouargla holds the top position in the marketing of the Ghars (Date Paste) variety, with almost all dates of all varieties harvested in Ouargla being marketed, unless there was a declared stock. The total harvest of dates, including Deglet Nour, has significantly increased in the three Wilaya regions that have the potential for producing Deglet Nour when comparing the year 2015 to 2005. (Dubost, 2002).

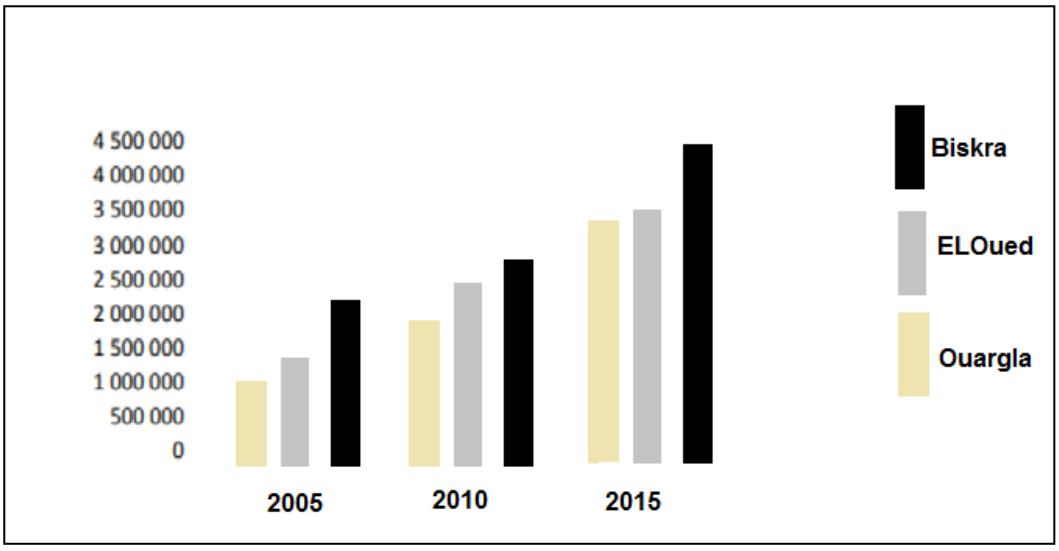

Figure 3: Evolution of date production

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3.2. Industrial sector.

Biskra has become a popular destination for industrial investors due to its advantageous location, ample land availability, and flexibility for project assessment and implementation. Ongoing educational support is provided to entrepreneurs and manufacturers to aid in information dissemination and facilitates their representation before various authorities and organizations. As per the director of the Chamber of Commerce and Industry in Biskra, there are approximately 20 industrial zones accessible to entrepreneurs from Biskra and other regions of the country. At present, 15 of these zones are operational, while the rest are under evaluation for future development. These efforts will undoubtedly contribute significantly to the ongoing development initiatives in various sectors. The establishment of a cement plant, a poultry complex, a tourist village, brickworks, gypsum, food processing industries, dairy farms and mills, industrial vehicle installations, data processing, and construction materials, among others, will all play a vital role in positioning Biskra as a leading economic hub in Algeria in the coming years. The establishment of a cement plant, a poultry complex, a tourist village, brickworks, gypsum, food processing industries, dairy farms and mills, industrial vehicle installations, data processing, and construction materials, among others, will all play a vital role in positioning Biskra as a leading economic hub in Algeria in the coming years. The establishment of a cement plant, a poultry complex, a tourist village, brickworks, gypsum, food processing industries, dairy farms and mills, industrial vehicle installations, data processing, and construction materials, among others, will all play a vital role in positioning Biskra as a leading economic hub in Algeria in the coming years.

Numerous investment projects have been successfully completed and are currently operational, with several more major ventures anticipated to commence operations in the near future, particularly from 2020 onwards. Among these upcoming projects is a significant initiative involving the transformation of dates, which is being undertaken by the investor Khbazi Abdel Majeed in collaboration with Italian stakeholders. The objective of this initiative is to develop a liquid sugar alternative made from dates, which possesses comparable qualities and attributes to traditional white sugar. Furthermore, the initiative seeks to create animal feed from low-quality dates.

The region has established itself as a knowledge hub for agriculture, leading to rapid development and exportation of various vegetables to European countries during the winter season to meet the demand. The Selina Wamucii platform confirms this trend.[1]

"Algeria exports about a million tons of dates annually, making it rank fourth globally in terms of output. The product was introduced at the end of the 14th century. The Biskra province of Algeria is one of the most substantial palm trees cultivation lands with more than half a million trees, producing high-quality fruits. Algeria is among the top ten date producers. It was placed third after Egypt and Iran in 2017 .Algeria has a market share of 20% for the production of Deglet Nour, making it a leading supplier to the European Union. This variety is the lead in terms of export value. Deglet Nour referred to as the "queen of all dates," is the most famous of the varieties and has a translucent golden color".

[1] https://www.selinawamucii.com/produce/fruits-and-vegetables/algeria-dates/

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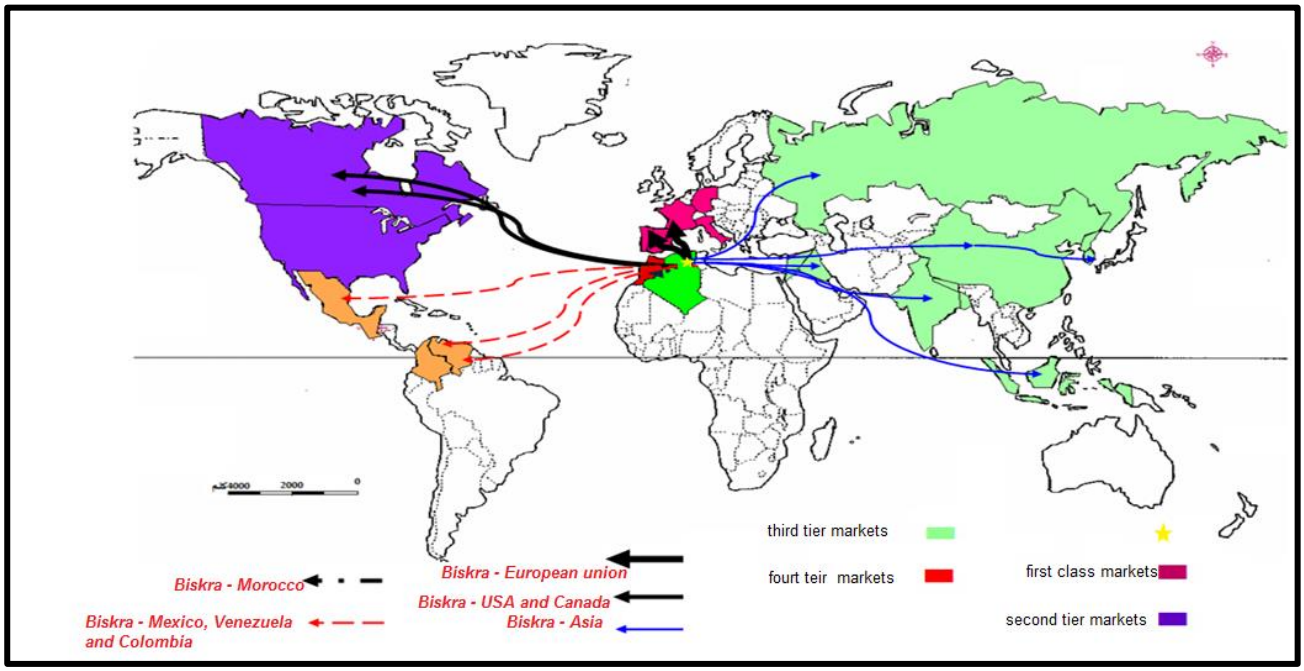

Map3: International markets for Algerian dates ***Source :*** *Researcher's achievement(CEMALI .A)*

3.3. Dominance of the Tourism Sector

The components of tourism encompass all aspects related to the sustainable development of tourism. These components serve as the foundation for attracting tourists and have been utilized to identify the region's strengths and weaknesses. It is worth noting that the Biskra area has been recognized as a cultural and tourist destination since ancient times, owing to its diverse range of tourist attractions. Moreover, it is a crucial passage from north to south through the grand El Kantara phage gate. The region also has a rich history, with a combination of natural and human-made tourist attractions that showcase its significant cultural and historical heritage (SDAT, The Tourist Development Master Plan).

The historical significance is intertwined with the region's lush and varied natural surroundings, which are full of diverse landscapes. The area is a notable tourist destination, attracting visitors from both national and international locations. The province of Biskra provides a diverse range of tourist routes that cater to various interests, including nature, religion, culture, and history. These routes effectively highlight the region's inherent attributes.

3.3.1. Prospects for Tourism Investment in the Region

Tourism investments are widely recognized as a key driver of economic and social progress, as they foster wealth creation and make a significant contribution to the domestic product. Regional investments are specifically targeted at addressing the gap in tourism services, which can often fall short of meeting the demands for tourism development due to a variety of constraints. The region's tourism investment outlook aligns with the national strategy to prepare the tourism sector for the 2025 agenda, which is part of the broader national development plan. Tourism investment plays a crucial role in the growth and development of the tourism industry, serving as the foundation for modernization of tourist services. With a range of tourist facilities, the sector is well-positioned to meet the demands of the future. These efforts are aimed at promoting reception structures that reflect the unique tourist profile of each region.

Although the Biskra province boasts rich and diverse tourist attractions, the tourism sector in the region is struggling with a significant deficiency in tourist infrastructure. Presently, the state capital only has 1245 available beds for accommodation. Efforts have been made to address the

 https://doi.org/10.37896/pd93.1/93113

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shortfall, with 24 initiatives launched as part of the Southern Regions Development Program and the Economic Growth Support Program in Kediri in 2008. The region of Biskra presents an opportune landscape for investment, given its numerous natural attributes that are ripe for the advancement of the tourism sector. With its potential for growth and development, Biskra is a promising destination for investment in the tourism sector. These development endeavors are expected to significantly promote and expand the local tourism industry (**Ammar, 2018).**

A. Tourism expansion site:

As per the publication in the official newspaper of the Algerian Democratic and People's Republic on February 19, 2003, it is imperative to safeguard the tourist expansion area known as '03-01' against any possible degradation resulting from natural or human factors. The preservation of the region's historical, artistic, and cultural significance is of utmost importance.

B. Tourist expansion zone:

It is important to consider the unique natural, cultural, human, and creative attributes of each region when developing tourist facilities and promoting tourism. By doing so, we can ensure that tourism development is sustainable and benefits the local communities. Designating specific sites and zones for tourism expansion can serve several purposes, including the preservation and integrated management of natural and cultural heritage, as well as the enhancement of the region's overall tourism potential. This approach also acknowledges the importance of balancing economic growth with environmental and cultural preservation.

The 'grand tourism plan' has identified five tourism expansion zones for agricultural property in the state. These zones have been carefully selected to ensure the sustainable growth of the tourism industry while also taking into account the needs and concerns of the agricultural sector:

- ✓ Ain Banoui tourist expansion zone, located in the El Hajeb municipality, covering an area of 51 hectares.
- ✓ Saqqa tourist expansion zone, spanning 24 hectares.
- ✓ Foum El Gharza tourist expansion zone, encompassing 71 hectares.
- ✓ Two tourist expansion zones in Tolga and Hammam Essalihine.
- ✓ Furthermore, there are additional areas slated for tourism expansion in Qantara, KhankeSidiNaji, L'Outaya, Sidi Khaled, M'Chouneche, FomZaqaa, Djemoura, M'zira, and AinZaatout.

3.3.2. Towards a Sustainable Tourism Policy by 2030

The Algerian government has developed a comprehensive reference framework to promote tourism, in accordance with the Guidelines for the Development of Tourism (SDAT) 2025. This framework serves as the basis for the development guidelines, which aim to bring together various stakeholders for the 2030 tourism project. A comparative analysis has been conducted, taking into account short-term developments in tourism in 2009, as well as long- and medium-term perspectives up to 2015, all of which fall under the umbrella of sustainable development.

The pursuit of quality is a top priority in the Algerian tourism development strategy for 2025. The government has implemented this strategy through meticulous studies, research, and extensive consultations involving all key players in the tourism sector.

 https://doi.org/10.37896/pd93.1/93113

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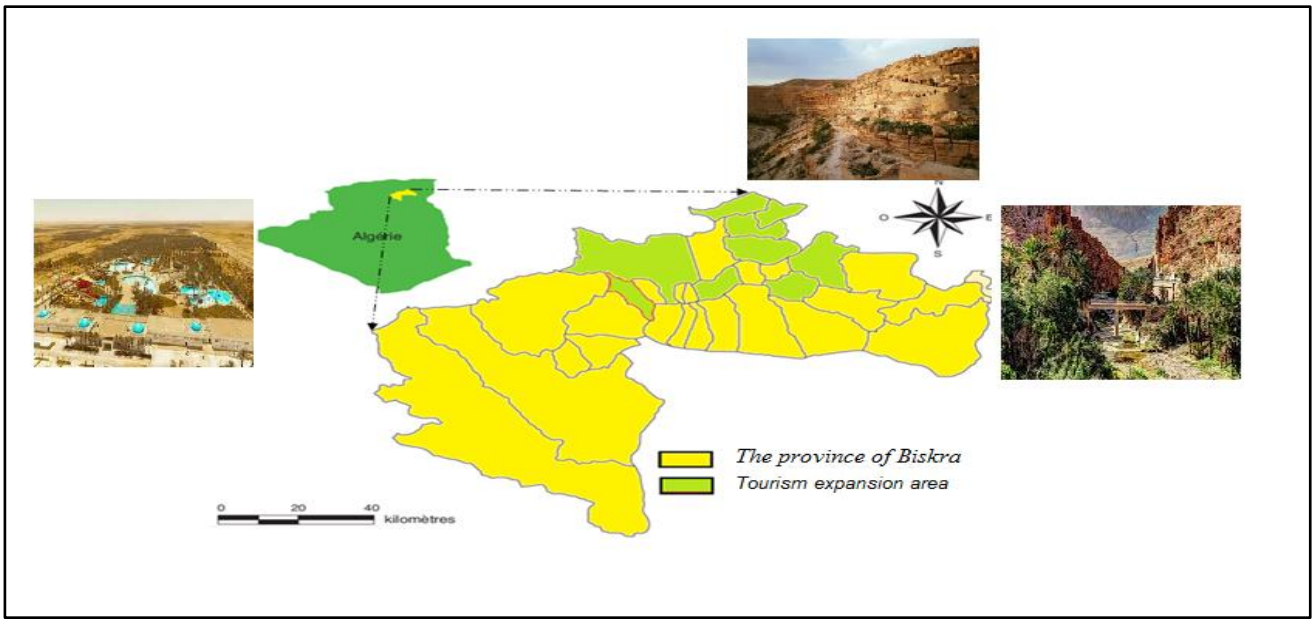
To enhance the organization and sustainability of the tourism sector, the government has implemented a number of measures. These initiatives have been carefully designed to address the sector's demands in a systematic manner, as outlined below:

- ✓ Development of tourist infrastructure: The establishment of tourist real estate serves as a legal framework for the execution of tourism initiatives, particularly through the establishment of designated tourist expansion zones.
- ✓ The future of the tourism sector in the Biskra province is intricately tied to the national strategy and vision for the tourism industry, which began to take shape in 2005. This was initially manifested through the Ministry of Tourism's program aimed at positioning Algeria as a prominent Euro-Mediterranean and international tourist destination. The national tourism development plan and state-led strategies for tourism development subsequently divided Algeria into distinct tourism hubs.



Map 4: Different tourist development centers

Source : *ANAAT "National Agency for Territorial Development and Attractiveness" (2014) Prospective study for the development of local assets in the Wilaya of Biskra, file 4 development of the tourism sector*

4. Reflection for synthesis elements

Achieving sustainable development in the study area requires responsible management of human activities that utilize desert resources. Given the natural fragility of these environments, it is essential to incorporate environmental factors into the data framework for sustainable development in these regions. The task involves assessing whether resources are renewable or non-renewable and evaluating the consequences of different methods of exploitation, including their short-term and long-term impacts. The goal of effective resource management is to achieve maximum benefits for current generations while safeguarding the well-being of future generations.

Efforts to strengthen activities in the region are urgently required to achieve economic integration, as it has been identified as a key agricultural production zone by policymakers. The development plan prioritizes enhancing desert areas and aims to formulate comprehensive development policies. Key strategies will be implemented to achieve this goal:

 https://doi.org/10.37896/pd93.1/93113

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- Relying on plant and animal resources, suitable soil, and available water resources for sustainable development in Ziban, necessitating regular updates of resource assessments on maps to accommodate various resource uses and future sustainability.
- Enhancing agricultural practices by evaluating rainwater utilization in semi-arid regions.
- Preserving and expanding agriculturally viable areas through diverse programs to effectively boost agricultural investments.
- State intervention to cover costs related to seed and plant acquisition and reproduction, thus increasing agricultural production and quality, as per the farmers' request.
- Providing public subsidies to stabilize fertilizer prices for all agricultural production types.
- Assisting farmers in procuring agricultural equipment for various production types, livestock, and water-saving irrigation equipment.
- Encouraging new investments in infrastructure and promoting agricultural research and extension to enhance farmers' efficiency in production and competition.
- Implementing water consumption rationalization in agriculture by imposing sanctions on those who do not adhere to modern watering methods.

5. Conclusion

In the 1970s, the Southern Development Law represented a significant shift in the country's approach to sustainable development. This change was not restricted to the more fertile regions but aimed to make the desert areas a major contributor to the national economy. The shift was driven by the need to provide incentives for land ownership and the government's focus on the industrial sector. The Ziban region has undergone a significant transformation towards becoming an industrial and service center, which has resulted in increased participation in the labor market, trade industry, and services. Despite this challenge, the region has made strides towards achieving sustainable development. As a result, it is important to acknowledge the region's progress while also recognizing the need to address the impact on traditional employment opportunities. The Ziban region has undergone a significant transformation towards becoming an industrial and service center, which has resulted in increased participation in the labor market, trade industry, and services. It is important to acknowledge that this transformation has led to a reduction in traditional employment opportunities, especially in the agricultural sector. However, it is also true that this shift has created new opportunities in other sectors, which should not be overlooked.

During the 2000s, many policies and interventions were implemented in the south of Algeria to encourage investment, and as a result, regions such as Ziban in Biskra have become national assets for agricultural production, supplying materials to the northern regions throughout the year. These efforts have paved the way for sustainable development and self-sufficiency, which have been priorities for the authorities since independence.

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