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Investing in Agricultural Tourism for Sustainable Environmental Development in Biskra

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Abstract

Agritourism is one of the modern tourist trends that has emerged recently in most countries worldwide, including some Arab nations. It is considered a form of sustainable tourism, where agritourism farms with their diverse plant and animal products. are among the primary attractions. Visitors have the opportunity to stay at these agritourism farms and participate in various agricultural activities. Algeria, like other Arab countries, boasts numerous historical, natural, and religious assets that classify it among the world's top tourist regions, given its geographic location and the diversity of its natural features, including captivating coastlines stretching over 1200 kilometers, attractive beaches, and mountain ranges along the coastal strip. Algeria also possesses vast deserts that provide all the necessary components for the establishment of successful agritourism. Biskra Province is one of the southern regions of Algeria and serves as a gateway to the desert. It is home to a rich natural museum filled with historical artifacts, religious landmarks, and diverse cultural aspects resulting from the succession of civilizations. Moreover, it features various natural elements, including mountains, valleys, and the desert, with picturesque landscapes adorned with palm groves, fruit trees, and sand dunes, making it a fertile space for sustainable agritourism.

This study aims to introduce agritourism and its components in Biskra Province as a mechanism for achieving sustainable development. To achieve the study's objectives, we selected a sample of 10 exemplary farms that meet the criteria for agritourism, using a snowball sampling method. We utilized an interview questionnaire as a data collection tool, which included three main axes: the first axis covered general information about the farm owner, the second axis provided information about the agricultural activities, and the third axis addressed the environmental dimension of agritourism in Biskra Province. The study found that the majority of these agricultural investors engage in agritourism activities in alignment with the environmental dimension of sustainable development. They produce organic plant products, with a special focus on date products, which are transformed into food products such as date syrup and date honey. Additionally, they recycle date palm waste and utilize it within their farms. Furthermore, they employ water resources rationally and diversify their plant and animal production.

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Introduction

Tourism is one of the most important sources of national income for many countries. It even occupies a prominent position in stimulating income growth and employment across various economic sectors in countries such as France, Turkey, Malaysia, and others. The positive aspects of tourism development are diverse, attracting investments in tourism-related projects and other connected projects, increasing income sources, and boosting national economic growth. Additionally, tourism contributes to the creation of new job opportunities. It is considered the most labor-intensive activity compared to other productive and service sectors. The sector also boosts demand for various services and products such as transportation, accommodation, food, banking, and entertainment services, in addition to capital and consumer goods used in travel and tourism. It also plays a role in preserving the cultural and natural heritage of nations.

Therefore, many countries around the world, including Algeria, strive to diversify their economy and revenues beyond the oil sector by investing in tourism, which is one of the vital mechanisms contributing to the development of tourism activities that foster tourism development. Tourism has become the primary source of income for many countries, and a real wealth that can generate billions of dollars annually for the state treasury.

Thus, each province in Algeria can become a model of a tourist attraction area due to its tourism potential if it works towards developing its tourism investments, promoting the tourism sector, and providing facilities that encourage investment.

As Biskra province is one of the desert cities with significant tourism potential, it can become a tourist destination due to its geographical location and its tourism qualifications, including natural, historical, cultural, and religious landmarks, hot springs, archaeological sites, and traditional industries. It also has tourism routes through palm oases, which are a vital agricultural wealth in the province (about 3,803,623 palm trees, of which 3,718,851 are productive), most of which are located in the western Zab area (the districts of Tolga, Foughala, and Ourlal). These can be invested in for agricultural tourism activities.

In this context, the following main question is posed:

What are the key components of agricultural tourism in Biskra province, and how does tourism investment contribute to supporting sustainable environmental development in the region?

To answer the main question, the following sub-questions are posed:

-What are the components of agricultural tourism in Biskra province?

-How do the components of agricultural tourism in Biskra province contribute to promoting tourism investment?

-What is the willingness of local farmers to engage in agricultural tourism activities?

-How do local farmers practice agricultural tourism activities?

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Study Objectives:

Based on the main question and the sub-questions posed, the study aims to achieve the following objectives:

To introduce tourism investment and agricultural tourism, and highlight their importance.

To identify the components of agricultural tourism in Biskra province.

To raise awareness among farmers about the importance of agricultural tourism.

To explore the current state and willingness of local farmers to engage in agricultural tourism activities and the mechanism for practicing it.

***Study Methodology*:**

The study adopted the descriptive method as it is suitable for the nature of the research. This method focuses on describing the distinctive characteristics of the phenomenon and clarifying its dimensions to understand the extent to which investment in agricultural tourism contributes as a mechanism to support sustainable environmental development.

Data Collection and Analysis Tool:

An interview questionnaire was used as a tool for data collection. It included three main sections:

General information about the owner of the agricultural enterprise.

Information about the enterprise.

The environmental dimension of the agricultural enterprise in Biskra.

Research Population and Sample:

As part of the FNR research project "The Importance of Agricultural Tourism for Biskra Province... the Green Treasure" at the Scientific and Technical Research Center for Arid Regions (RSTRA), the study sample included 15 model farms that possess the components of agricultural tourism. These were selected using the snowball sampling technique.

To address the research problem and achieve the desired objectives of the study, it was divided into the following elements:

2. *Theoretical Framework of the Study:*

2.1 Subtitle Tourism Investment:

2.1.1. Definition of Tourism:

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Tourism is one of the fastest-growing industries worldwide and is highly labor-intensive. It is an important source of development and employment, especially for those with limited access to the labor market. It is a vital industry for women, youth, migrant workers, and rural populations1.

Tourism is also a human and social phenomenon that has been known to mankind since the beginning of time. The first definition of tourism was given by the German researcher John Baber Friedler in 1950, describing it as a phenomenon of our time that arises from the growing need for rest, a change of scenery, appreciation of natural beauty, and the desire for joy and pleasure from staying in areas with distinctive features. It also stems from the growth of communication, particularly between different human communities, which resulted from the expansion of trade and industry2.

Tourism is a significant activity from a cultural, economic, and social perspective, involving the movement of individuals or tourists from their usual places of residence to other areas within or outside the country for relaxation, recreation, or to learn about historical, religious, or cultural landmarks3.

Socially, tourism is defined as a dynamic movement linked to the cultural and civilizational aspects of humanity, meaning it serves as a cultural message and a bridge of communication between the cultures and knowledge of different nations and peoples. It is also a natural point of progress for tourist societies and the improvement of individuals' living standards4.

Environmentally, tourism is an attraction for tourists and satisfies their desire to visit different natural places, learn about their terrains, flora, and wildlife, and interact with local communities to understand their customs and traditions5.

2.1.2. *Definition of Tourism Investment:*

The concept of investment, as understood by those studying tourism economics, encompasses project segmentation or feasibility studies. Tourism investment is no different from other types of investments. Just as investment aims at developing and enhancing physical and human capital to increase national production in both quantity and quality, tourism investment focuses on developing and enhancing physical and human capital, which is a part of the productive and service processes in tourism activities6.

The concept of tourism investment has been addressed in various tourism studies and international conferences concerned with tourism development and improvement. Below are some of the most significant definitions:

Pierre Mass defined tourism investment as: “The funds that tourism establishments are willing to spend now in exchange for future profits generated from these funds7.”

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Al-Dabbagh defined it as: "That part of current productive capacity directed towards forming capital in the tourism sector to increase and improve its productive and operational capacity and to provide better tourism services by building hotels, tourist cities, restaurants, entertainment venues, parks, etc., in addition to preparing a specialized and efficient tourism workforce8."

Keynes defined tourism investment as: "The increase in fixed or circulating capital equipment, or it is the sacrifice of satisfying a current consumer desire in the hope of obtaining greater satisfaction in the future. It can be considered as tangible or intangible assets, movable or immovable, acquired or produced for the purpose of sale or transformation, where the tourism establishment uses it throughout its existence as production tools9."

Ash sees the concept of tourism investment as investment in one of the areas covered by the tourism sector. The areas of investment in the tourism sector are diverse and varied, and they include investment in the main components and potential of the tourism industry10, which can be summarized into two main categories:

Investment in Tourism Facilities and Services: Commonly referred to as tourism services, this includes investment in the three main service sectors:

Accommodation, catering, and recreational facilities;

Transportation services;

Communication services.

Investment in Tourism Resources: This focuses mainly on sites and resources of tourist attraction, which are represented by:

Cultural heritage sites;

Natural heritage sites.

2.1.3. *Characteristics of Tourism Investment:*

Tourism investments have several characteristics, the most important of which are11:

Tourism investments are usually in fixed assets and have a long duration, ranging from 20 to 25 years, which involves various political and social risks of differing degrees.

The return on tourism investments is not rapid due to the long duration of these investments.

Tourism investments cannot change their products like other projects can.

Tourism investments require a high level of operation and a well-trained and qualified workforce.

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Tourism investments contribute to supporting the economy of any country by providing new job opportunities that enhance tourism income.

2.1.4. *Importance of Tourism Investment:*

The importance of tourism investment includes the following12:

The primary goal is to increase the profits of investors in this sector, especially large companies.

Developing the tourism sector, as an increase in investments in this sector leads to an increase in the number of tourists, thereby increasing tourism revenues.

Investing in infrastructure and public services has dual benefits: it develops the tourism sector and improves the living conditions of residents in tourist attraction areas.

Promoting economic activity by benefiting other economic sectors, such as traditional industries and the telecommunications sector, through tourism investment.

Tourism investment in the cultural field leads to the preservation and protection of cultural heritage, as well as the safeguarding of historical sites for future generations to learn about their history

2.2 *Agricultural Tourism*

2.2.1. *Concept of Agricultural Tourism:*

There are several terms used to describe agricultural tourism and its related concepts, such as eco-tourism, green tourism, and rural tourism. Although they may differ, they can overlap, with agricultural tourism being a component of all these concepts13.

Based on this, we present some definitions of agricultural tourism:

The term "agricultural tourism" has been widely used in the United States since the early 1990s. Despite the differences in definitions, the Small Farm Program suggests that agricultural tourism is an activity aimed at a farm or agricultural enterprise, focusing on horticulture or food products for educational, recreational, or active participation purposes14.

Agricultural tourism is defined as aiming to generate additional income through various tourism activities, often including the preparation of accommodation within the farm that is rented to visitors or the development of independent buildings into simple accommodation units. It also offers camping spaces, small restaurants, and the sale of farm products15.

Agricultural tourism is also described as tourism related to the farm, where tourists visit a private farm or a tourism project to enjoy various activities organized or carried out on the farm, which may include accommodation and other services.

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Agricultural tourism is one type of tourism that allows tourists to visit an active farm to enjoy activities related to agricultural and rural life. It helps develop farms and diversify income sources to ensure their sustainability16.

Agricultural tourism is an attractive blend of agriculture and tourism, offering visitors the opportunity to experience and participate in various agricultural activities. This type of tourism encompasses any agricultural activity that brings visitors to a farm, with the aim of entertainment, education, and generating income for the farm or business owner. Agricultural tourism includes a wide range of activities, the most prominent of which are:

Direct Sales to Consumers: Visitors can purchase products directly from the farm or participate in activities such as crop picking.

Agricultural Education: Activities such as school field trips to farms, guided tours, and educational sessions on various aspects of farming.

Hosting: Organized visits to farms where visitors can engage in activities such as camping, staying on the farm, or enjoying the scenic views and local products.

Recreation and Entertainment: Activities such as horseback riding or hunting17.

2.2.2. *Importance of Agricultural Tourism:*

Agricultural tourism not only contributes to the economic development of rural areas but also helps in preserving, nurturing, and sustainably developing natural resources. Its importance can be summarized as follows:

Economic Importance:

Agricultural tourism contributes to economic development and increases income levels by providing job opportunities for the unemployed. It also opens up a new market for rural products such as vegetables, fruits, and other goods produced by rural residents and farm owners. Moreover, agricultural tourism supports small and medium-sized enterprises, such as traditional craftsmen, traditional cooking businesses, and others.

Educational and Pedagogical Importance:

Agricultural tourism is not just a recreational activity; it is also a rich educational experience that immerses visitors in the field of agriculture. This unique form of tourism offers a hands-on learning approach, making it an invaluable educational tool. It allows visitors, including families, students, and individuals interested in sustainable living, to see firsthand how food is produced, from farm to table.

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They participate in activities such as farming, harvesting, and even animal husbandry, gaining insight into the daily life and challenges faced by farmers.

Additionally, agricultural tourism emphasizes the importance of environmental awareness, where participants gain experience in sustainable farming practices and learn how agriculture can coexist harmoniously with nature. Visitors are educated on soil health, water conservation, and biodiversity, gaining an understanding of the critical role agriculture plays in maintaining ecological balance.

The educational value of agricultural tourism goes beyond agricultural techniques, encompassing lessons in local history, culture, and the social and economic impact of agriculture on rural communities. Through direct interaction with food sources and the environment, visitors develop a deeper appreciation and respect for the food they consume and the land it comes from, fostering a more sustainable and environmentally conscious mindset.

Supporting Local Farmers:

Agricultural tourism provides an additional source of income for farmers, helping sustain their operations and preserve local agriculture. It allows farmers to maintain agricultural lands, create job opportunities, and establish small or medium-sized projects at lower costs, thereby contributing more significantly to the national economy.

Cultural Exchange:

Visitors can experience rural lifestyles, including local traditions, crafts, and cuisine, through agricultural tourism.

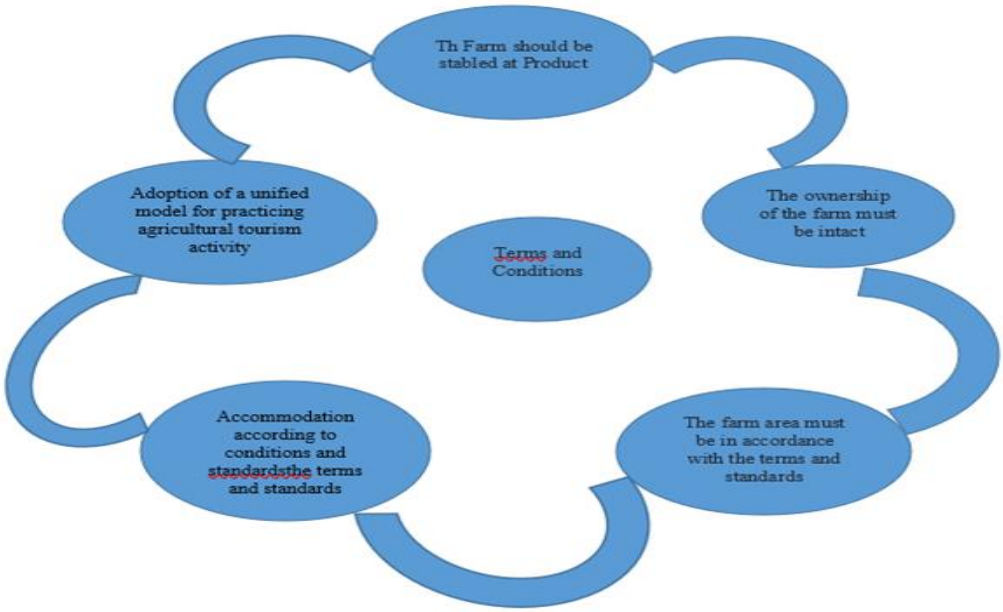
Environmental Awareness:

Many agricultural tourisms farms practice sustainable farming, offering insights into eco-friendly agricultural practices.

2.2.3. *Conditions and Standards for Tourist Farms:*

To be considered a tourist farm, the following conditions must be met, as illustrated in the following figure:

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2.3. *Sustainable Development:*

The concept of sustainable development, in its general framework, is an integrated approach characterized by a complete and interconnected linkage. It combines the economy, environment, and society in such a way that none of these components can be viewed separately. Economists focus more on economic goals, environmentalists emphasize the importance of protecting nature, and social scientists stress social justice principles and improving quality of life. Therefore, definitions of sustainability vary depending on the perspective18.

2.3.1. *Concept of Sustainable Development:*

The term sustainable development has undergone continuous evolution due to its inherent nature and the inevitable development of human thought concerning the focus, formulation, maturation, and application of sustainability. There are many definitions of this term in scientific literature, including:

The World Bank defines sustainable development as "development that ensures continuous equity by providing the same development opportunities for future generations as those available today, by ensuring the stability or continuous increase of total capital over time19."

The United Nations, in the third principle established at the United Nations Conference on Environment and Development held in Rio de Janeiro in 1991, defines sustainable development as “the necessity of achieving the right to development, where the developmental and environmental needs of present and future generations are met equally.” The conference also noted in its fourth principle that achieving sustainable development should not be isolated from environmental protection but should be an integral part of the development process20.

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The Food and Agriculture Organization of the United Nations (FAO) considers "sustainable development as the management and protection of the natural resource base and the direction of technical and institutional change in such a way as to ensure the continued satisfaction of human needs for present and future generations21."

The World Resources Institute categorizes the definitions of sustainable development into four groups:

Economically: For developed countries, it means reducing energy and resource consumption, while for developing countries, it refers to the optimal utilization of available resources to raise living standards and reduce poverty.

Socially: It involves striving to achieve stability in population growth and improving health and educational services, especially in rural areas.

Environmentally: It means protecting natural resources and the optimal use of agricultural land and water resources.

Technologically: It involves producing clean industries that use environmentally friendly technologies.

Among the definitions provided by researchers is that of the famous economist Robert Solow, who defined sustainability as "not h

arming the productive capacity of future generations and leaving it in the condition it was inherited by the current generation."

William Ruckelshaus, the director of the U.S. Environmental Protection Agency, defined sustainability as "the process that acknowledges the need to achieve economic growth that is compatible with environmental capacities22."

Ibrahim El-Eissawy sees sustainable development as "development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs. This is achieved not only by the wise use of current resources and their protection from pollution, depletion, and destruction but also by taking into account the rights of future generations and working on developing the current resource base23."

Despite the variations in definitions of sustainable development, it can generally be defined as balanced development based on the rational use of resources in a way that does not lead to their degradation or depletion and without causing harm to nature. This involves adopting the best means to achieve optimal investment of material and human resources in developmental processes, and

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adhering to principles of justice in production, consumption, and distribution of returns, to achieve the welfare of all members of society.

2.3.2. *Characteristics of Sustainable Development:*

The characteristics of sustainable development include24:

It differs from general development in being more complex and comprehensive, with a spiritual and cultural dimension that aims to preserve the cultural uniqueness of societies.

It primarily targets meeting the needs of the poorest segments of society and aims to reduce global poverty by balancing the ecological, economic, and social systems to achieve social well-being.

Its elements cannot be separated or measured due to the overlap of its quantitative and qualitative dimensions.

It is based on the principle of justice among individuals, generations, and nations, while also emphasizing the role of civil society and its organizations, as well as the participation of all social groups, particularly women and children, in developmental activities to raise the living standards of the community.

It focuses on resources, whether human, environmental, or social, and through its activities, it aims to raise awareness about preserving and investing in these resources, especially in relation to human development. The continuity of development depends on human decisions, so empowering, educating, and organizing people is essential.

The temporal dimension is a fundamental aspect as sustainable development is long-term, relying on the evaluation of present capabilities while considering the rights of future generations to the available and potential community resources. It also involves coordination and integration between resource use, investment directions, and institutional structures.

3. *Applied Framework of the Study:*

3.1. *Geographic Location of Biskra Province:*

Biskra Province is located in the southeastern region of Algeria, at the foothills of the Aurès mountain range, which serves as the natural boundary between the northern and southern regions, i.e., between the desert and the Tell Atlas. It covers an area of approximately 21,509.80 km². The province was established under the administrative division of 1974, in accordance with Executive Decree No. 74/130. It includes 12 districts, divided into 33 municipalities. According to Executive Decree No.

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21-128 dated March 29, 2021, it now comprises 10 districts and 27 municipalities, with an area of approximately 10,246 km²25.

It is bordered by:

The province of Batna to the north.

The province of M'sila to the northwest.

The province of Khenchela to the northeast.

The province of Ouled Djellal to the southwest.

The province of El M'Ghair to the south.

The region has been occupied by various peoples throughout history, including the Phoenicians, Greeks, Romans, Jews, Vandals, Byzantines, Arabs, Persians, Blacks, Normans, and other Europeans. During the Islamic conquest, the Ziban region became the third center of Islamic leadership. One of its villages is still named after the great conqueror Uqba ibn Nafi, known today as Sidi Okba. After this period, the region experienced the rule of the Rustamids, Zirids, Hammadids, Almoravids, Marinids, Zayyanids, Turks, and later the French colonial period26.

3.2. *Tourism Assets in Biskra Province:*

3.2.1. *Natural Assets:*

The harmony and integration between mountains, valleys, and the desert in Biskra Province offer visitors the opportunity to enjoy various stunning natural landscapes. These include the bends of M'chounech towards Ghoufi, the bends and gorge of El Kantara, the road from Jemoura to El Baranis, the gorge of Khenguet Sidi Naji, the gorges and village of Djimina, the gorges of Sidi Msmoudi, the Beni Souik pass, the forests and mountains of Ain Za'atout, in addition to the palm oases, most of which are located in the western Zab area.

3.2.2. *Historical Tourism Assets:*

The province is rich in historical landmarks spanning from prehistoric times through Roman and Islamic civilizations up to the colonial period. These historical sites are located in various areas including Badis, Zeribet El Oued, Ourlel, Mlili, Tahouda in Sidi Okba, Old Tolga, Lioua, El Houch, Biskra, El Kantara, Jemoura, El Faidh, Loutaya, El Baranis, and Lichana. There are also traces of popular uprisings against French colonial rule, such as the Zaatsha uprising in Lichana, the Amri uprising in El Ghriss, the detention camp in Bordj Ben Azzouz, and the battle of Seriana.

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3.2.3. *Cultural and Religious Tourism Assets:*

Religious establishments are a distinctive feature of Islamic cities, representing the spiritual identity that sets Muslims apart from other peoples. Religious buildings hold the highest status among Islamic architecture, both in terms of number and aesthetic value27. The most sacred of these are mosques, which are considered the houses of God. Over time, their role expanded beyond worship to include governance, administration, and consultation. These establishments also include zawiyas (Islamic schools), shrines, and other structures related to the religious life of Muslims.

3.3. *Current State of Tourism Investment in Biskra Province:*

The tourism sector plays an essential role in supporting economic activity as a vital sector that contributes to the growth and prosperity of the province's economy. This is due to the wide range of activities associated with it, which can lead to the development and advancement of this sensitive sector, thereby positively impacting the economy.

Biskra Province is rich in natural, historical, cultural, and religious tourism assets, including hot springs, archaeological sites, traditional industries, and tourism routes through the region's oases. Given its geographical location and the tourism potential it possesses, Biskra has been chosen as one of the tourism hubs in the Southeast region, alongside El Oued and Ghardaia.

To promote the tourism sector, which plays a crucial role in economic development, it is necessary to support investors in implementing their projects that can contribute to local development by increasing accommodation capacity, improving service quality, creating jobs, and generating wealth all factors that attract tourists and visitors, both Algerian and foreign.

These tourism assets are not limited to natural and historical resources but are complemented by additional facilities to enhance tourists' experience. These include hotel capacities of various classifications to suit different economic levels, as well as infrastructure such as roads, airports, and communication networks. These elements contribute to supporting all sectors, including tourism and traditional industries, leading to increased tourist attraction and longer stays in the province. Below, we present the development of hotel capacity (number of beds) and the number of tourist nights over the last ten years.

Hotel Capacity:

Hotel capacity refers to the accommodation capacity of hotel units and all establishments prepared to receive tourists in the province. It is one of the indicators used to measure the progress of the tourism sector in the province. The accommodation capacities in Biskra have shown significant developments, as illustrated in the following table:

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The data in the table indicates that the province's hotel infrastructure has experienced growth, although at a slow pace. This stability and stagnation can be attributed to the lack of increase in hotel infrastructure to the extent that would be considered a reliable investment by the state during this period. Consequently, we can conclude that there has been no significant development in tourism accommodation capacities over the mentioned years, and the existing facilities do not meet the local and foreign demand adequately28.

Table (01): Development of Hotel Accommodation Capacity (Number of Beds) in the Province

Year	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Total Number of Beds	1343	1343	1393	1433	1871	2012	2292	2391	2211	2635

Source: Directorate of Tourism and Traditional Industries, "Tourism Investment Opportunities in Biskra Province," February 2023.

Table (02): Distribution of the Number of Beds by Hotel Classification in Biskra Province

Year	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
5-Star	/	/	/	/	/	/	/	/	/	224
4-Star	/	/	/	/	/	/	/	190	190	390
3-Star	636	636	636	636	/	/	/	88	88	355
2-Star	/	/	/	/	/	/	/	90	50	82
1-Star	292	292	292	292	145	145	145	199	159	159
0-Star	47	47	97	137	/	/	/	/	/	/
Unclassified	/	/	/	/	1358	1499	1779	1456	1356	1057
Structures prepared for hotel use	368	368	368	368	368	368	368	368	368	368
Total	1343	1343	1393	1433	1871	2012	2292	2391	2211	2635

Source: Directorate of Tourism and Traditional Industries, "Tourism Investment Opportunities in Biskra Province," February 2023.

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It is evident from the table that the majority of the hotel capacity (beds) in the province is represented by unclassified hotels.

Hotel Nights:

The hotel nights represent the number of nights spent by incoming tourists (both Algerian and foreign) in the province throughout their tourist trips, as illustrated in the following table:

Table (03): Hotel Nights

2022	2021	2020	2019	2018	2017	2016	2015	2014	2013	السنوات
4033	386	1452	5911	102046	9785	11643	14268	12844	7793	الليالي للاجانب
47459	35301	46858	99436	8781	96546	165215	214322	129303	130785	الليالي الجزائريين
71492	**35687**	**48310**	**105347**	**110827**	**106331**	**176858**	**228590**	**142147**	**138578**	المجموع

Source: Directorate of Tourism and Traditional Industries, "Tourism Investment Opportunities in Biskra Province," February 2023.

The table shows a slow growth in the number of hotel nights in the province's hotels, for both foreign and Algerian tourists. This decline is attributed to low tourist influx and a decrease in the ***average length of stay.***

Tourist Inflow:

Biskra Province is an exceptional tourist destination, especially during the desert tourism season. It attracts tourists seeking therapeutic benefits from its hot springs and the enjoyment of its diverse natural landscapes, both desert and mountainous. It also offers the opportunity to explore its historical, religious, and cultural landmarks.

Contribution of the Tourism Sector to Employment in Hotel Institutions in the Province:

Tourism is one of the largest sectors providing employment opportunities. It is a labor-intensive industry, creating jobs both directly and indirectly through supporting sectors. The following table shows the number of permanent and temporary employees in hotel institutions:

Table (04): Development of the Number of Permanent and Temporary Employees in Hotel Institutions

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Year	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Number of Employees	369	369	381	348	419	419	497	532	517	737

Source: Directorate of Tourism and Traditional Industries, "Tourism Investment Opportunities in Biskra Province," February 2023.

Tourism and Travel Agencies:

There are sixty-four (64) active travel agencies across the province, providing 175 job positions, including 77 permanent and 98 temporary positions.

Thermal Activity:

The thermal activity in Biskra is an important economic tool. Hydrotherapy and treatment with mineral waters have been adopted by many medical communities. Biskra is a popular destination for thermal tourism due to its well-known thermal waters, exploited in stations that have gained national and international fame. The main thermal stations are Hammam Salihine (Biskra), Hammam al-Baraka (El Hadjeb), and Sidi Yahia thermal station. Additionally, several thermal tourism projects are currently under development.

Tourism Real Estate:

Biskra has five classified tourism expansion zones and four others in the process of classification. These zones will provide facilities that will serve the future of tourism and its economic and social roles by offering tourist and commercial accommodations, creating green spaces, and providing entertainment and leisure areas.

Tourism Routes:

There are six (06) main tourism routes in Biskra Province that deserve revitalization due to their well-known heritage and reputation. These include traditional cuisine, popular festivals, and local crafts. The routes are:

Oasis Route

Religious Route

Cultural and Historical Route

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Recreational and Relaxation Route

Thermal Route

Mountain Route

These routes intersect through the region's paths and roads, offering a true exploration experience of the province's historical heritage and natural landscapes, including agricultural views, forests, mountains, and desert.

Private Tourism Investment:

Number of Projects: 67

Accommodation Capacity: 13,961 beds

Number of Job Positions: 6,582 positions

3.4. *Agricultural Tourism as a Mechanism for Local Development in Biskra Province and Its Feasibility:*

Biskra Province is a significant tourist destination due to its geographical location and its rich tourism assets, including natural, historical, cultural, and religious sites, thermal springs, archaeological landmarks, traditional industries, and tourism routes through palm oases. The oases are a crucial agricultural resource in the province, with approximately 3,803,623 palm trees, of which 3,718,851 are productive. Most of these are located in the western Zab region (districts of Tolga, Foughala, and Ourlal), and they offer substantial potential for agricultural tourism.

To support this activity, the research team from the Economic, Social, and Environmental Development group at the CRSTRA center conducted a field study in the Laghouat municipality on 15 model farms oriented towards sustainable organic farming.

Based on the theoretical framework of the study, which defined the key variables—tourism investment, agricultural tourism, and sustainable development—we will explore in this field study, conducted in Laghouat municipality, Biskra Province, the extent to which tourism investment in agriculture contributes to supporting sustainable environmental development. The study focused on several variables, including:

4.3.1. *General Information About the Farm Owner:*

We relied on a set of variables, as detailed below:

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Table (05): General Information About the Farm Owner

Variable	Description	Number
Age	25 - 35	1
	36 - 45	2
	46 - 55	10
	Over 56	2
Educational Level	Illiterate	1
	Primary	3
	Intermediate	3
	Secondary	4
	University	1
	Other	3
Occupation	Farmer	15
	Other Activity	0
Origin	From the Area	15
	From Outside the Area	0

Source: Field Study

The field study and Table (05) indicate that the majority of farm owners fall within the age group of 46-56 years, with a total of 10 farmers. Their educational level ranges between secondary and intermediate, as shown in the table. They do not engage in any other professional activities besides farming and are all native residents of the area.

3.4.2. *Information About the Agricultural Enterprise:*

Table (06): Information About the Agricultural Enterprise

Variable	Description	Number
Area	1 - 5 hectares	13
	6 - 10 hectares	2
	More than 10 hectares	0
Plant Production	Date Palms	0
	Fruit Trees	0
	Date Palms and Fruit Trees	15
Animal Production	Sheep	10
	Cattle	4
	Ducks	7
	Aquaculture	8
	Horses	1
	Beekeeping	1

Source : Field Study

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From the data presented in Table (06), it is clear that most agricultural enterprises have areas ranging from 2 to 3 hectares, falling within the first category. Most of these enterprises are characterized by diverse plant and animal biodiversity.

3.4.3. *Agricultural Tourism Activity:*

Table (07): Agricultural Tourism Activity

Variable	Description	Percentage or Number
Membership in Agricultural Association:	Organic Farming	Yes
	No	3
Reasons for Engaging in Agricultural Tourism Activity:	Investment Activity	15
	Other	0
Visitors to the Agricultural Enterprise:	Domestic	80
	International	20
Agricultural Tourism Timing:	Year-round	0
	Seasonal	15
Recycling of Farm Waste:	Chairs and Tables	15
	Windbreaks	15
	Reception Areas	15
	Organic Fertilizer Production	15
Sale of Manufactured Food Products:	Yes	0
	No	15

Source: Field Study

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The data in Table (07) indicates that most farmers are affiliated with the agricultural association focusing on organic farming, which supports sustainable agricultural tourism as a mechanism for maintaining sustainable environmental development. Most farmers have turned to agricultural tourism as an investment activity, complementing organic farming.

According to the respondents, the majority of visitors to agricultural enterprises are domestic tourists seeking agricultural tourism experiences, mainly during the seasonal period from the date harvest season until late spring. This activity almost ceases during the summer due to the high temperatures in the region.

Regarding the recycling of farm waste, all respondents use farm residues, especially palm waste, for various crafts, as detailed in the table and shown in the following images:

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4. 4. *CONCLUSION and Recommendations:*

4.1. 4. *CONCLUSION*:

The study reached several conclusions, summarized as follows:

Biskra Province is an important tourist destination due to its geographical location and tourism assets, including natural, historical, cultural, and religious sites, thermal springs, archaeological landmarks, traditional industries, and tourism routes through palm oases. The oases are a significant agricultural resource in the province, with approximately 3,803,623 palm trees, of which 3,718,851 are productive, mostly located in the western Zab region (districts of Tolga, Foughala, and Ourlal). These can be leveraged for agricultural tourism activities.

Farmers are divided into two groups:

Group One: Farmers who practice agricultural tourism, characterized by the following:

Higher education levels compared to Group Two.

Transitioned to organic farming.

Received agricultural training from the PASA program (Support Program for Agriculture in Algeria), funded in partnership with the European Union, the German Federal Ministry for Economic Cooperation and Development (BMZ), and the French Agency for International Technical Expertise.

Their farms are characterized by biodiversity, including a variety of plants such as dates, citrus, and vines, and animal diversity such as livestock, beekeeping, and aquaculture.

They use a drip irrigation system.

Group Two: Farmers who do not engage in agricultural tourism, characterized by the following:

Lower education levels, mainly primary education.

Do not practice organic farming.

Exclusively produce dates due to the lack of biodiversity.

The study found that most farmers in the region have the potential and willingness to engage in agricultural tourism activities.

4.2. *Recommendations:*

Raise awareness among farmers about the importance of agricultural tourism.

Support agricultural tourism activities by organizing seminars, conferences, and various scientific events to highlight its importance as a mechanism for supporting local development in the region.

Implement regulations that allow farmers to engage in tourism activities alongside their agricultural work, under the condition that tourism activities are an additional element to their agricultural practices.

Develop a comprehensive and strategic plan, coordinated by stakeholders and social partners, to grow and develop the agricultural tourism sector.

Support farmers by providing guidance and all necessary facilities to promote and develop agricultural tourism.

Learn from the experiences of leading countries in agricultural tourism, especially Arab countries that share similar geographical and climatic characteristics.

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Activate the role of tourism associations in promoting agricultural tourism activities.

Revitalize traditional crafts and local cuisine on farms to preserve tangible heritage and local customs and traditions.

Establish policies to encourage and promote investment in agricultural tourism through integrated development programs for both public and private investments, offering all necessary facilities to investors.

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