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Valuing Oasis Territorial Resources Between Tourism Aspirations and Environmental Constraints: A Case Study of Ain: Meski "In the Middle Ziz Basin"

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ABSTRACT

The study area is located in the foothills of the Eastern High Atlas, which constitutes a diverse geographical landscape. It is characterized by significant terrestrial resources and natural landscapes, such as the Ouled Chaker Oasis and the Ain El Ati Fountain, which were depleted in 2018, and Ain Meski, which was also the study area, before being depleted in 2021. However, these resources are not being utilized and are not being rationally valued for sustainable tourism development. Winning the challenge of achieving tourism development in the study area depends on changing the current development approaches, focusing on leveraging the available territorial resources in the territorial communities and presenting an integrated tourism model to achieve added value for the territorial area.

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Theoretical Framework

The topic of land resources has become a central theme in scientific fields, development plans and programs, and local development. Development is based on programs, projects, and plans within the framework of public policy. These programs, in turn, conduct a diagnostic study of the land's potential to identify available opportunities and capabilities, with the goal of developing effective projects to make the best use of land resources within a competitive local and regional context. Joseph Lajouni (1964) and Joseph Labasse (1988) are among the most prominent theorists of territorial planning during the 1960s. The most important outcome of this territorial planning phase in relation to the development process was the shift away from the center and public authorities, and their new powers regarding territorial management. Local development emerged in the 1980s, replacing development within the framework of public programs and policies. Territorial development emerged in the mid1990s. To emphasize the conceptual extension, Bernard Pecqueur, who authored a book on local development in 1989, wrote a book on territorial development in 2005, just 15 years later. He justified this by the influence of the local level on the development imperative and the need to enhance territorial competitiveness. The topic of territorial resources and local development represents a new approach to reducing imbalances and marginalization, and thus, the importance of the geographer's contribution to the process of monitoring, analysis, and providing practical proposals. This approach is based on local specificities and focuses on broad consultation among all stakeholders. The importance of local development lies in its comprehensive nature, aiming to develop appropriate strategies based on a precise territorial diagnosis with the goal of achieving national development. The concept of territorial planning first emerged in Morocco through the Higher Council for National Territory Planning, which produced the National Territory Planning Plan in 2003 and established the Ministry of Territorial Planning, Water, and Environment. The term local development crystallized with the launch of the National Initiative for Human Development in 2005, followed by the Local Development Plans in 2015.

Previous Studies

There are a number of previous studies that have addressed the topic of land resources, including "Land Resources and Local Development in the Tafilalt (Ziz) Oases: Towards Building the Land Project for the Ziz Oases," a doctoral dissertation by researcher Hassan Amherzi (2019). This study aims to value resources and give special importance to the components of local identity, including customs, traditions, norms, and skills, and their role in achieving developmental takeoff and revitalizing the local economy. It also aims to explore how these resources can be utilized to serve local development. The study also aims to fertilize the Meski Boudnib aquifer within the framework of a partnership between the Ministry of Agriculture and Maritime Fisheries and the Ministry of Equipment, Transport, and Water (2023). This partnership aims to complete a series of boreholes to replenish the groundwater aquifer, install remote sensors to monitor groundwater levels, and develop scenarios for groundwater management by 2050. A research paper titled "Employing Renewable Energy Technology for the Sustainability of Traditional Water Systems: The Ain Meski Model in the Middle Ziz Basin," by researcher Mohamed Bahou (2025). This study aims to shed light on the use of renewable energy. On the sustainability of natural resources,

represented by Ain Meski water, instead of investing in depleting the region's groundwater, then a research paper titled "Tourism in the Tafilalt Oases and the Challenge of Local Development" by Professor Abdelghani Abdelaoui 2025, which seeks to highlight the position and role the tourism sector will play in economic and social development. What is the extent of tourism's contribution to job creation? What are the limits of the local population's benefit from tourism revenues, whether national or international?

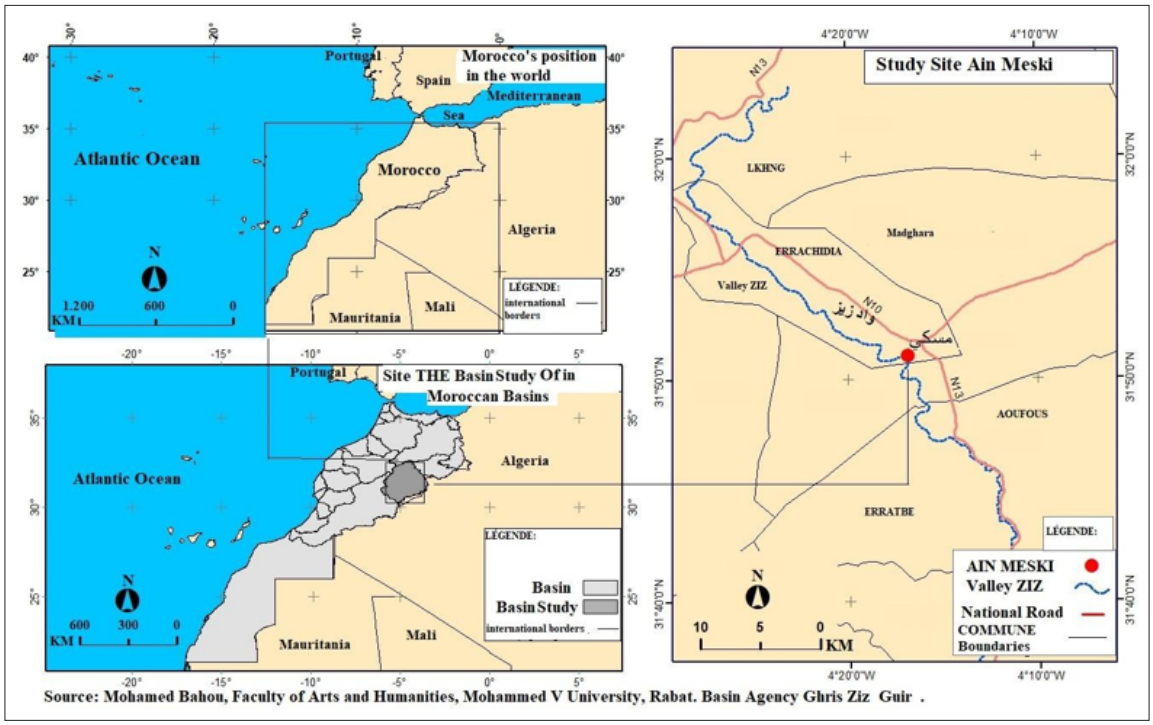
The study's problem: The extent of the tourism sector's contribution to achieving economic and social development as a territorial resource through its contribution to the local economic fabric, the provision of job opportunities, and the local population's benefit from tourism revenues, whether national or international?

Study Methodology

Regarding the methodological aspect adopted in completing this study, I focused on collecting data from relevant administrative departments, taking photographs, using the computer mapping support program "ArcGIS", using remote sensing programs such as Google Earth and Microsoft Excel to represent tables and data, and reviewing sources, research, and studies that addressed territorial resources and activity. Tourism and projects related to groundwater in oasis areas, as well as field research through field visits and interviews with stakeholders in the sector, in addition to investing the results of field questionnaires (Local residents - farmers - traditional craftsmen - elected officials - investors - tourist visitors - associations - cooperatives - hotel owners).

Introduction

The topic of land resources and local development in oases is a major concern for many researchers in various fields of knowledge, particularly in geography. Recently, this has become a fertile ground for expanding geographical research based on a territorial approach, seeking to build a comprehensive vision of development as an effective method for correcting imbalances and restoring the prestige of such areas. This approach will contribute to the construction of territorial projects that are compatible with the needs of the 21st century, enabling oases to adapt positively to the conditions of globalization, on the one hand, and strengthening national territorial cohesion, strengthening social solidarity, and ensuring the integration of their territorial units, on the other.



Map 1: Study Area

Administratively and territorially, the study area falls within the DrâaTafilalet region of Errachidia Province, in the Errachidia commune. Naturally, it falls within the Ziz Basin,

Irrigation System in the Ain Miski Region

The first known water spring in the Qasr Miski region dates back to 1934, when six springs burst beneath the Miski caves during the Protectorate. The exploitation of water resources for agricultural purposes and the production of subsistence agricultural products began at that time. The use of spring water was not limited to agriculture, but also included the supply of livestock, drinking water, cleaning, and other daily uses for the residents of the palace and neighboring palaces, according to local treaties and customs that evolved with the development of security conditions and climatic conditions between periods of abundance and periods of scarcity. The number of palaces benefiting from this water supply also varied, with each palace constructing its own irrigation canal to irrigate its agricultural lands and water its palm and olive trees. The table below illustrates the distribution.



Imgae 1: Aerial Photo of Ain Miski taken by Google Earth Satellites

Table 1: Irrigation Water Distribution Shares in Ain Meski According to the Palaces

Distribution of Ain Meski water shares according to the palaces				
Name of the waterwheel	**Number of beneficiary palaces**	**Number of days and flow is high**	**The number of days and the flow is weak**	**Area in hectares**
Al-Zuraiqat	1	7	7	196
Al-Ratibiyya	1	7	7	140
Al-Zuraiqat Al-Jadidah	2	14	7	196
Phratical	2	18	9	206
Combat	3	14	7	196
Mazuzian	2	15	15	184
Tired	3	40	12	78
Total	14	115	64	1196
Source: Study on Improving the Operation of Irrigation and Drainage Systems. L'ORMVAT PH1 1995 P: 23-24				

The irrigation cycle at Ain Meski is estimated based on the flow rate, whether high or low. When the flow rate is high, the cycle ranges between 7 and 14 days, while when it is low, it ranges between 8 and 7 days. This division, if anything, demonstrates the wisdom in distributing the water acquired by oasis dwellers over time in their response to the problem of scarcity and limited water resources. As is well known, flow rate is an expression of the volume of water flow over time. Since water distribution is based on the eighth, quarter, and half hours, and the shift, which is estimated to be one hour and 30 minutes for the eighth, three hours for the quarter, six hours for the half, and 12 hours for the shift, in an effort to preserve the largest green area, the phases of this cycle are altered by changing the flow rate to keep the plants alive. This is documented in Table 1, where all irrigation cycles change with the exception of the Ratbiyya, Zriqat, and Mazouziyya streams, which maintain a constant irrigation cycle.

Here, farmers rely on well water. To enable irrigation, while others experience fluctuations in flow. The short cycle allows all beneficiaries to obtain water, even if in small quantities, within a short period of time, which they manage according to the area and type of crops. The regular cycle, on the other hand, allows for a large quantity, but over a long period of time. The changing conditions in the cycle of each irrigation canal are determined by the number of palaces, which, as the number increases, leads to an increase in the number of beneficiaries and, consequently, an increase in water quotas. Then, the irrigated area determines the volume of water needed.

Tourism Qualities in the Ain Meski Region

Administratively, the study area belongs to the Errachidia region, specifically the Errachidia and Medghra communities. Therefore, the region's tourism qualifications will be determined based on the region's specific administrative data

A Large and Diverse Tourism Infrastructure

The tourism infrastructure of each region is reflected in the size of the tourism facilities and infrastructure available, not in terms of quantity or quality. This diversifies the tourism offerings provided to tourists, who are provided with tourism offerings that meet the needs of the largest segment of visitors.

Table 2: Establishments Tourism Classified & Unclassified in the Errachidia Region in 2020

	Tourism Establishment	Number of units	Number of rooms	Number of beds	Number of suites
Classified	Hotels	20	1064	2150	136
	Maui Youth Shelter	32	663	1417	24
	Tourist Lodge	17	95	206	-
	Guest Houses	6	48	152	22
	Camp	5	-	34	25
	Restaurant	2	8	-	22
Total		82	1878	3959	204
Unclassified	Hotels	7	93	164	
	Maui Youth Shelter	73	533	12	
	Tourist Lodge	1	4	41	
	Guest Houses			8	
	Restaurants	2		600	
Total			83	630	
Source: Errachidia Tourism Delegation 2020					

Diversity of Geographical Scenes



Image 2: Division of Exploitation in Ain Meski

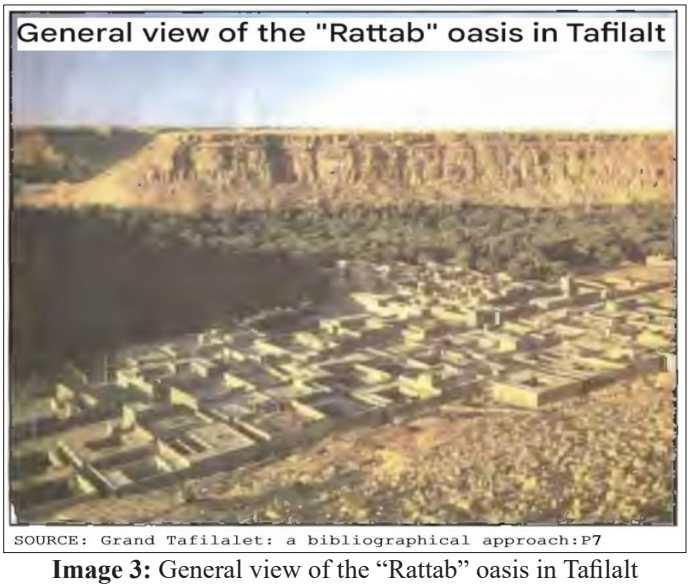


Image 3: General view of the "Rattab" oasis in Tafilalt



Image 4: Landscape views from the balcony of Ouled Chaker

Lack of External Marketing

Tourism activity is linked to media marketing that promotes this location, particularly to foreign markets. Morocco aims to reach 26 million tourists by 2030. However, this goal focuses on well-known tourist destinations such as Marrakesh, Agadir, Ouarzazate, Tangier, Fez, and other major cities, while other regions remain marginalized, such as Ifrane, Meknes, Erfoud, Errachidia, etc. This is the case in the Ain Meski region, which is classified as a transit area from Zagora to Merzouga.

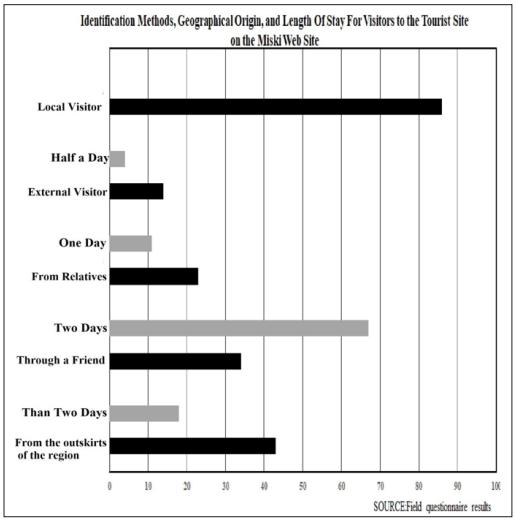


Figure 1: Identification Methods, Geographical Origin, and Length of Stay for Visitors to the Tourist Site on the Miski Web Site

Figure 1 shows the distribution of visitors to the Ain Miski site. All visitors are from within Morocco, indicating a lack of foreign tourism to the region. Domestic tourism, particularly from within the region, dominates, accounting for 86% of visitors, compared to 14% for other national visitors. This indicates that the region still suffers from weak external tourism marketing. In contrast, there is local marketing by local residents and social media. 43% of visitors are from the region's outskirts, 34% are friends of local residents, and 23% are relatives of local residents. Further more the average visitor stay in the Ain Miski area does not exceed one day at best. This is due firstly to the nature of the visitors who are locals meaning proximity is a factor, and secondly, to the lack of entertainment facilities that allow for a longer stay. Furthermore, the site is neglected and poorly organized, especially during the summer months, when visitors flock to the area seeking coolness during the hottest months and to enjoy their summer vacation.

Short Tourism Stay

The length of stay in tourist facilities reflects the attractiveness of each region in the tourism market. This is something that the region lacks, as the length of stay in tourist facilities is very short, often not exceeding one day. This poses a significant challenge. It reflects the weakness of tourist attraction and marketing and the extent of the tourist's desire to stay in the region for a longer period, thus benefiting from its financial resources more effectively.

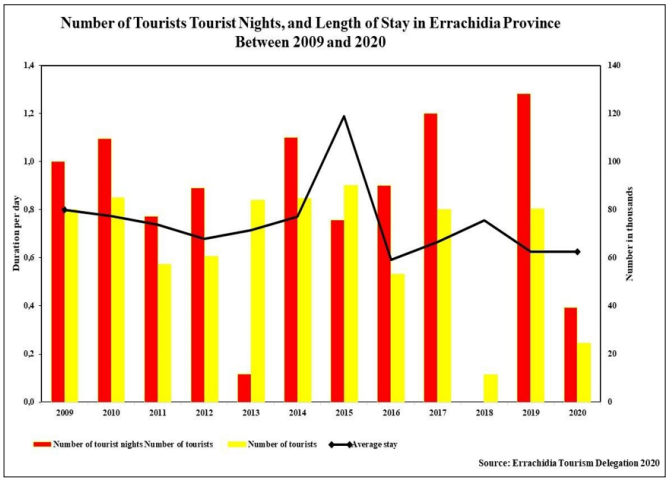


Figure 2: Number of Tourists Tourist Nights, and Length of Stay in Errachidia Province Between 2009 and 2020

Despite the large number of tourists who flock to the region, the duration of their stay does not exceed one day at best. This means that the amount of benefit from what tourists spend will not extend to other sectors, as is the case in major tourist cities, such as traditional industries, local products, and others.

Weak Tourism Revenues and The Region's Earnings

The financial return of any sector reflects its impact on the local economic cycle and regional development. This is what the tourism sector lacks in the study area. Despite the abundant tourism talent in the region, the financial return and contribution of the tourism sector to the local economy are extremely weak. This makes it a low priority for local residents, given the marginalization of this sector in public policies, as well as by local actors, the Ministry of Tourism, and travel agencies in the region. A local strategy to promote the sector, prevent the migration of local talent, and enhance the value of regional tourism resources is needed.

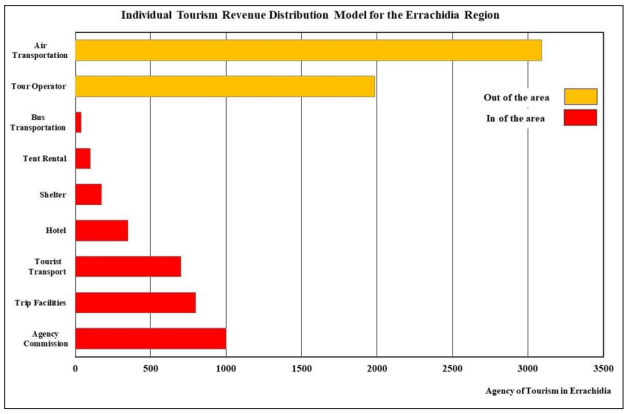


Figure 3: Individual Tourism Revenue Distribution Model for the Errachidia Region

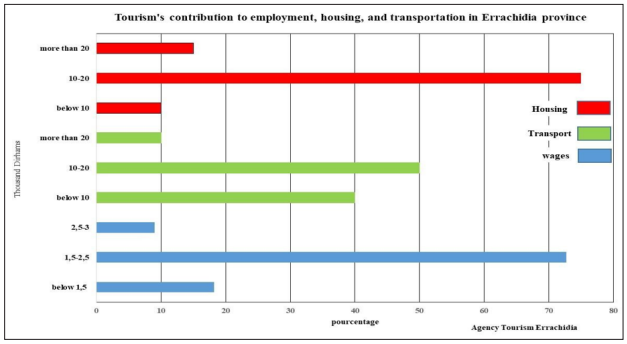


Figure 4: Tourism's contribution to employment, housing, and transportation in Errachidia province

The graph Figure 4 shows that the average wages of tourism workers in the region are below the minimum wage, making the sector unattractive to local workers and not contributing to the region's development. In contrast, the accommodation and tourism transportation sectors continue to benefit the most from tourism revenues.

Signs of a Water Crisis in Ain Miski



Image No. 5: Shows the hills of the study area before and after the crisis, where the pool from which water flows to the irrigation

ditches to irrigate the fields in the various neighboring palaces has dried up.

Environmental Impacts of the Ain Meski Drying Up

The drying up of the Ain Meski (Blue Spring) area has led to serious environmental impacts, the most prominent of which are:

Increased Groundwater Depth

- A decrease of 1 to 1.7 meters per year in the western part of the region (Ziz Valley - Meski - Errachidia sector).
- A decrease of 1 meter per year in the Wadi Kebir area (Boudnib - Sahli).
- A decrease of 0.5 to 0.8 meters per year in other areas.) Suleimani, et al., p. 194)
- The number of wells is increasing while the irrigated agricultural area is shrinking.

The increasing number of wells and the shrinking of irrigated agricultural land

Deterioration of the Oasis Ecosystem

- The Meski oasis depends entirely on the spring water to irrigate thousands of palm trees; it's drying up leads to the withering of trees and the death of the vegetation that protects the area from sand encroachment.
- This increases the risk of desertification due to water scarcity, which facilitates soil erosion, expands desertification, and leads to the loss of biodiversity. The spring once formed an integrated ecosystem that sheltered various types of fish, aquatic organisms, and migratory birds; its drying up has caused the disappearance of these organisms and the migration of birds.

Impact Socio-Economic

- The economic returns of farmers on modern farms have declined due to restrictions on the amount of water they are allowed to consume.
- The water basin authority revenues have decreased due to restrictions on drilling permits and groundwater exploitation.
- The number of tourist nights has decreased due to the drying up of the spring, a major tourist destination.
- Shops in Ain Meski are closing due to the lack of visitors, prompting residents to seek employment elsewhere and exacerbating the migration of the workforce
- Drought forces farmers and residents to rely excessively on unregulated wells, exacerbating the groundwater crisis and reducing the chances of the spring returning to its natural flow in the future [1-8].
- Increased migration rates due to declining agricultural and tourism revenues in Qasr Meski.

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