

Entrepreneurship in Ecotourism: Assets and Challenges – The Case of Biskra Province



Sabah Adjlane^{1*}, Reguia Khiari², Mokhnane Tarek³

^{1*}Scientific and Technical Research Center on Arid Regions CRSTRA , Biskra , Algeria Email: sabah_economie@hotmail.fr

²Scientific and Technical Research Center on Arid Regions CRSTRA , Biskra , Algeria Email: khiari_rouka@yahoo.com

³Scientific and Technical Research Center on Arid Regions CRSTRA , Biskra , Algeria Email: tarekamin07@yahoo.com

Corresponding Author: Sabah Adjlane*

^{1*}Scientific and Technical Research Center on Arid Regions CRSTRA , Biskra , Algeria Email: sabah_economie@hotmail.fr

Abstract

This article explores the role of entrepreneurship in promoting ecotourism as a sustainable development strategy in Biskra Province, a region rich in natural and cultural resources. Despite its potential, the sector faces major challenges, including poor infrastructure, limited institutional support, and bureaucratic barriers. Using a descriptive-analytical approach and 2023 field data, the study reveals that 62% of youth cite lack of financing as the main obstacle, while 28% point to administrative hurdles. The research recommends adopting a local ecotourism strategy, supporting green business incubators, enhancing training, and fostering collaboration among local actors.

Keywords: *Entrepreneurship; Ecotourism; Sustainable Development; Biskra Province.*

1. Introduction

Ecotourism has emerged as a contemporary pathway toward achieving sustainable development, as it seeks to harmonize the preservation of natural ecosystems with the socioeconomic empowerment of local communities (Hambli, 2018). It transcends the traditional economic development models by offering a more holistic and integrated approach, one that values environmental sustainability alongside cultural authenticity and community participation (Boudjani, 2018). Increasingly, ecotourism is recognized globally as a viable alternative to mass tourism, especially in ecologically sensitive and culturally rich regions.

In Algeria—particularly in its arid and semi-arid southern territories such as the province of Biskra—ecotourism is considered a strategic development lever, not only for economic diversification but also for reducing youth unemployment, revitalizing marginalized areas, and valorizing both tangible and intangible heritage (Noureddine, 2022; Boumendjel et al., 2019). This approach aligns with national strategies aiming to stimulate local entrepreneurship and support sustainable territorial development.

The Biskra region boasts a rich natural and cultural landscape, including lush palm groves, geothermal hot springs, desertic caves, and vernacular architecture that reflects centuries-old traditions of oasis life (Chakour, 2015). These assets offer fertile ground for the development of ecotourism initiatives capable of attracting both domestic and international visitors seeking authentic experiences. However, the potential remains significantly underutilized due to multiple persistent constraints: insufficient infrastructure, fragmented governance, weak coordination among actors, and a lack of environmental awareness and training among local stakeholders (Ladjaimi & Kari, 2021; Abrika, 2019). Additionally, climate change pressures and ecosystem fragility pose considerable risks to long-term development goals (Abed & Ounoughi, 2021; Benyahia, 2021).

In this challenging context, entrepreneurship emerges as a catalyst for the activation of ecotourism, offering avenues for bottom-up innovation, economic resilience, and place-based development. By leveraging local knowledge, cultural capital, and environmental awareness, entrepreneurial actors can play a pivotal role in designing and operating sustainable tourism ventures. Women's cooperatives, youth-led start-ups, and community-based tourism associations have

already shown potential in several regions, suggesting possible replication in Biskra. Nonetheless, despite institutional discourse that promotes ecotourism and entrepreneurship, practical implementation remains patchy, uncoordinated, and often limited to isolated pilot initiatives. There is a notable lack of integrated support systems, including access to financing, capacity-building programs, and legal frameworks adapted to the specificities of ecotourism activities. While several academic contributions have explored ecotourism in Algeria from various angles—such as the socio-environmental dynamics of mountain tourism (Hambli, 2018), the integration of ecotourism in territorial planning (Boudjani, 2018), the role of vocational training (Boumendjel et al., 2019), or the planning policies in southern regions (Nouredine, 2022)—very few studies have explicitly analyzed the intersection between entrepreneurship and ecotourism in the particular socio-economic setting of Biskra. This theoretical and empirical gap forms the basis of the present research inquiry.

The study therefore addresses the following central questions:

- To what extent can entrepreneurship serve as a vector for activating ecotourism in Biskra Province?
- What are the available resources and opportunities for such development?
- What institutional, financial, or structural obstacles hinder its expansion?

By exploring these issues, this research aims to provide a critical and field-informed perspective on the dynamics of ecotourism in Biskra. The study will attempt to bridge conceptual insights with empirical findings, drawing on regional case studies, stakeholder interviews, and local experiences to formulate actionable recommendations. Ultimately, the goal is to contribute to the emergence of a resilient and inclusive ecotourism model, grounded in sustainable entrepreneurship and tailored to the unique identity and potential of the Biskra region (Bouzidi & Djerroud, 2016; Benkherouf, 2020; Djouhri, 2012; Chaoui, n.d.).

2. Previous and Similar Studies

Based on the comparative table below, it becomes evident that previous and similar studies converge on the importance of leveraging environmental and cultural resources for sustainable tourism development. They also reveal common constraints such as limited training opportunities, inadequate financing mechanisms, and poor marketing strategies. However, the case of Biskra stands out due to its relatively advanced tourism infrastructure—including oases, thermal springs, and mountainous landscapes—alongside rich ecological diversity, a dynamic civil society, and the growing involvement of youth in eco-entrepreneurial activities. Despite these strengths, persistent gaps remain, particularly the lack of a

unified strategic vision, insufficient coordination between key sectors (tourism, environment, entrepreneurship), and the notable absence of in-depth field studies tailored to the local context.

Theoretical and Conceptual Framework

Table 1. Comparative Summary of Previous Studies on Ecotourism and Entrepreneurship

Reference	Field of Study	Geographical Scope	Key Findings	Similarities with Biskra Case	Differences
Hamiani, M. (2021)	Ecotourism – Developmental Approach	Southern Algeria	Emphasized natural/cultural assets; weak infrastructure; lack of institutional support.	Highlights financing and institutional issues in the South.	No direct mention of entrepreneurship; not Biskra-specific.
Bouakkaz, A. (2022)	Tourism Entrepreneurship – ANADE & CNAC	Biskra Province	Financial aid alone is insufficient; need for strong institutional support; human potential.	Same region; similar issue of institutional weakness.	Focused on support mechanisms; current study adds environmental aspect.
Abdelali, N. (2020)	Entrepreneurship in Ecotourism	Djelfa Province	Youth initiatives face training gaps, weak marketing, poor infrastructure.	Shares challenges in training and marketing.	Djelfa differs in resources and tourism infrastructure.
Benzaid, S. (2019)	Ecotourism in Oasis Environments	Timimoun (SW Algeria)	Oasis culture attracts tourists; stressed protection of fragile ecosystems.	Biskra also has oasis landscape and traditional culture.	Timimoun's ecology is more fragile; entrepreneurship not emphasized.
Ben Aissa, K. (2021)	Entrepreneurship – Traditional Tourism	Ouargla and Warfala	Role of crafts in tourism; need for digital marketing.	Biskra shares craft traditions (e.g., palm products).	Differences in infrastructure and digital/human capacity.

Source: Created by the authors

3. Ecotourism and Entrepreneurship: A Strategic Nexus for Sustainable Local Development

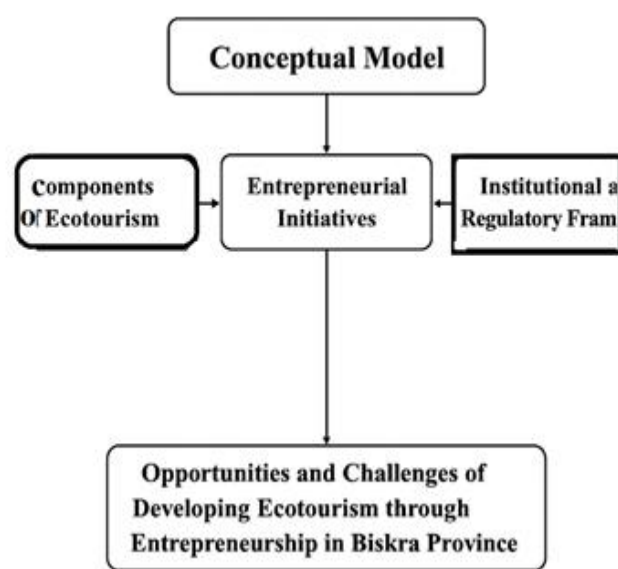
Ecotourism and tourism entrepreneurship converge as essential components of a sustainable development model that leverages local environmental and cultural assets. Ecotourism, as defined by the UNWTO, promotes responsible travel to natural areas while fostering conservation, cultural appreciation, and community well-being. It is built upon principles such as minimizing ecological and sociocultural harm, enhancing environmental protection, and generating educational and immersive experiences for visitors. Scholars such as Honey (2008) and Fennell (2021) underscore the transformative potential of ecotourism, particularly in rural contexts, where it can catalyze inclusive growth and environmental stewardship if anchored within robust institutional frameworks.

In parallel, tourism entrepreneurship represents

the proactive capacity of individuals—especially youth, women, and grassroots actors—to design innovative, locally grounded services that reflect the region's ecological and cultural identity. Rooted in the entrepreneurial theory of Shane and Venkataraman (2000), which emphasizes opportunity recognition under resource constraints, tourism entrepreneurship gives rise to ecopreneurship—initiatives that prioritize ecological and social goals alongside economic sustainability. In Algeria, however, such entrepreneurial pathways remain constrained by structural barriers, including limited financial access, weak institutional support, inadequate training in ecotourism, and administrative complexity (UNDP Algeria, 2020).

The intersection of these two domains—ecotourism and entrepreneurship—offers a strategic entry point for reshaping local economies, especially in environmentally rich but economically marginalized areas such as Biskra. Entrepreneurial actors play a pivotal role in transforming natural and cultural heritage into viable ecotourism products while promoting community participation in value creation processes. This study proposes a conceptual framework that examines the interaction between three interdependent components: the ecological and cultural potential of the region, emerging entrepreneurial dynamics, and the enabling or constraining role of institutional ecosystems. By doing so, it seeks to identify both opportunities and systemic challenges in advancing ecotourism-based entrepreneurship in Biskra province

Fig.1. Integrated Model of Ecotourism, Entrepreneurship, and Institutional Support



Source: Created by the authors

4. Methodology

This study adopts a descriptive-analytical methodology to explore the current state of ecotourism entrepreneurship in Biskra Province, focusing on its core assets and challenges. The methodological approach is informed by Ben Farhat's (2021) recommendations concerning sustainable tourism development in southern Algeria. To complement this approach, a qualitative fieldwork component was integrated to better understand local interactions and social representations related to ecotourism practices. This aligns with the participatory research orientation advocated by Bouchama et al. (2019) in their assessment of local stakeholders' roles in promoting desert tourism.

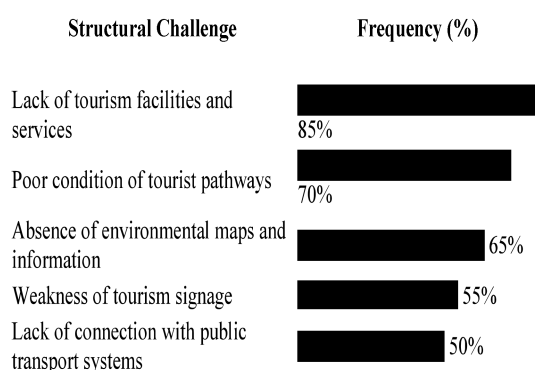
Data collection involved semi-structured interviews with a targeted sample of local entrepreneurs engaged in ecotourism, representatives from the Directorate of Tourism and Traditional Industries, and members of environmental associations active in areas such as Mchounech, Loutaya, and El Hadjeb. These interviews aimed to gather in-depth qualitative insights on local initiatives, governance practices, and challenges faced in the sector.

Additionally, the study analyzed official documents including Biskra's tourism development plans, reports from the local tourism directorate, and project records under national development programs. Quantitative data from the National Office of Tourism and provincial tourism statistics were also reviewed to enrich and cross-reference the qualitative findings. This triangulated methodology provided a robust foundation for evaluating ecotourism as a promising sector for entrepreneurship in Biskra, particularly in light of the region's significant natural and cultural assets, as highlighted by Derbal (2020).

5. RESULTS AND DISCUSSION

The development of ecotourism entrepreneurship in Biskra Province faces a complex array of structural, organizational, and financial challenges that collectively hinder its potential for sustainable growth. Structurally, the region suffers from inadequate tourism infrastructure, including a lack of eco-friendly accommodations, deteriorated tourist pathways—particularly in key sites such as Chetma and Hammam Salhine—and insufficient environmental signage. Furthermore, the absence of digital or printed environmental maps and weak integration with public transport systems significantly limit accessibility and the overall quality of the tourist experience. A local survey of 30 eco-entrepreneurs identified lack of tourism facilities (85%) and poor condition of tourist routes (70%) as the most pressing issues.

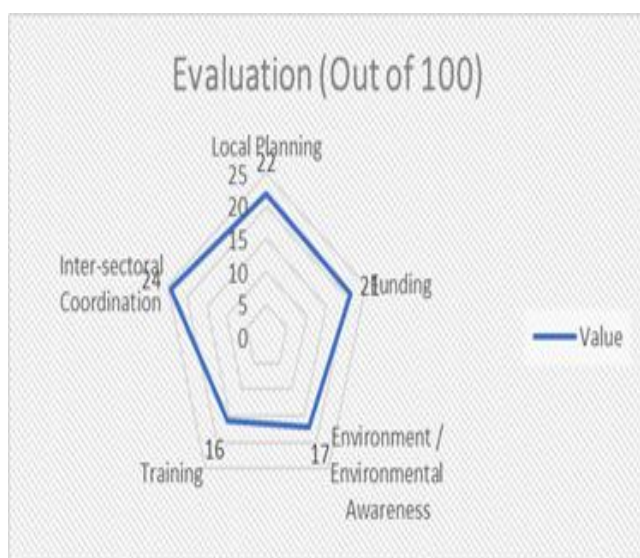
Fig.2 Most Impactful Structural Challenges to Ecotourism Entrepreneurship (Based on a local survey of 30 eco-entrepreneurs)



Source: Semi-structured interviews with local entrepreneurs (2024) and analysis of tourism sector reports from the Biskra Directorate of Tourism (2022–2023).

Organizationally, the sector is impeded by fragmented governance and weak inter-sectoral collaboration. The lack of an integrated local strategy that aligns tourism with agriculture, environment, and cultural sectors results in uncoordinated efforts. Interviews conducted in 2023 with local actors showed that 73% viewed the absence of a regulatory framework as a key obstacle, while 80% emphasized the need for permanent multi-sectoral coordination platforms to guide ecotourism initiatives.

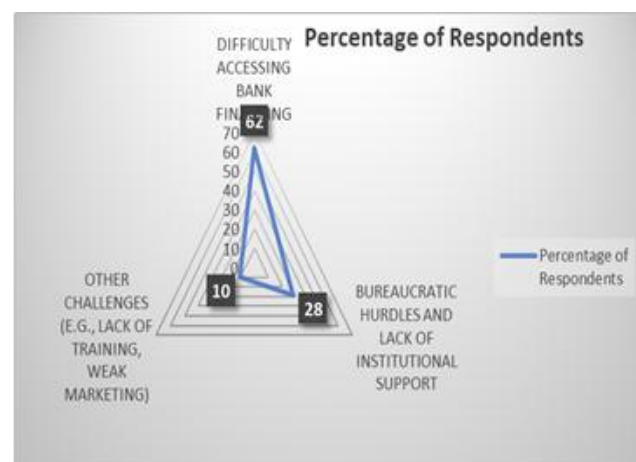
Fig 03. Evaluation of key organizational challenges to ecotourism entrepreneurship in Biskra, as perceived by local actors (n=100).



Source: Field interviews, 2023.

entrepreneurs, due to stringent lending conditions, lack of guarantees, and financial institutions' hesitance to invest in tourism ventures. Additionally, bureaucratic complexity in accessing national support programs like ANADE and CNAC discourages many from pursuing their projects. A field study revealed that 62% of respondents cited financing as the primary barrier, while 28% pointed to bureaucratic delays and lack of institutional support.

Fig 04. Distribution of financial challenges as perceived by youth entrepreneurs in Biskra (2023)



Together, these findings highlight the multidimensional barriers that must be addressed through coordinated institutional efforts and innovative policy interventions to unlock the ecotourism potential of Biskra.

6. Comparative Insights:

Ecotourism Entrepreneurship in Southern Algerian Contexts To better contextualize the challenges and opportunities of ecotourism entrepreneurship in Biskra, it is essential to compare its dynamics with those observed in other southern Algerian provinces such as El Oued, Ghardaïa, Timimoun, and Tamanrasset. These regions, despite sharing climatic and ecological similarities, exhibit distinct approaches and varying levels of institutional and entrepreneurial maturity in the domain of ecotourism.

In El Oued, recent efforts have focused on integrating eco-agriculture and tourism, particularly through palm-based organic farming and guided oasis tours. Supported by local cooperatives and partially backed by development agencies such as the UNDP, initiatives in El Oued have benefitted from better visibility and targeted marketing campaigns that promote the unique Saharan landscape as a tourism asset (UNDP Algeria, 2020). Unlike Biskra, El Oued

between the agricultural and tourism sectors, which has facilitated more consistent support for local ecopreneurs.

Ghardaïa, a UNESCO-listed cultural heritage site, offers another model where cultural tourism has evolved into a sustainable ecotourism experience. The local Mozabite community has played a central role in preserving traditional architecture and managing guided eco-tours through palm groves, caves, and hilltop villages. The region benefits from strong associative engagement and heritage-based entrepreneurship, leading to more mature ecotourism structures. Compared to Biskra, Ghardaïa demonstrates how cultural identity and institutional protection of heritage can drive ecotourism entrepreneurship.

Timimoun, globally recognized for its striking red architecture, expansive sand dunes, and deeply rooted cultural traditions, stands out as a flagship of Saharan ecotourism. This oasis town has successfully positioned itself as an ecotourism destination through the development of community-based tourism projects and eco-lodges that blend seamlessly with the local environment. Supported by both national initiatives and international partnerships—such as cultural tourism programs funded by UNESCO and bilateral cooperation—Timimoun exemplifies how place identity and natural aesthetics can be leveraged to build sustainable tourism models. The region's success lies in its ability to link local knowledge systems, traditional hospitality, and ecological awareness, creating immersive experiences for tourists while empowering local actors.

In contrast, Tamanrasset exemplifies ecotourism driven by natural wonders and nomadic cultures. The Hoggar Mountains and the Assekrem plateau attract a niche segment of adventure tourists. However, while Tamanrasset enjoys global appeal, it suffers from severe infrastructural constraints, security concerns, and a lack of skilled local guides. Despite this, NGOs and international partnerships have occasionally supported youth-led ecotourism startups focusing on trekking, storytelling, and cultural immersion.

These comparative examples suggest that Biskra possesses untapped potential, particularly due to its combination of desert landscapes, mountainous oases, and thermal springs. However, unlike Timimoun or Ghardaïa, Biskra still lacks a cohesive strategic vision and a platform for intersectoral coordination. Moreover, the entrepreneurial ecosystem remains fragmented, with insufficient access to finance, mentorship, and technical training.

Thus, lessons from neighboring provinces highlight the importance of four critical factors in fostering ecotourism entrepreneurship:

1. Institutional integration between tourism, environment, and economic development sectors.

2. Cultural valorization and community participation in managing natural and heritage assets.

3. Capacity-building programs for young entrepreneurs and local stakeholders.

4. International and national partnerships to provide technical, financial, and promotional support.

By adapting and localizing these best practices, Biskra could significantly strengthen its position as a leading ecotourism destination in Algeria's arid south.

7.CONCLUSION

The Wilaya of Biskra offers a rich mosaic of natural and cultural assets that position it as a potential leader in Algeria's ecotourism sector. From its mountainous oases and thermal springs to ksour architecture, palm groves, and intangible heritage—such as storytelling, artisanal crafts, and local gastronomy—the region presents exceptional opportunities for sustainable tourism. The growing interest among youth and civil society actors in green initiatives further signals an emerging grassroots momentum for ecotourism entrepreneurship and locally driven development.

However, translating these potentials into tangible, resilient, and impactful projects remains hindered by deep-rooted structural, institutional, and cultural barriers. Foremost among these is the absence of a holistic and integrated territorial development vision—one that frames ecotourism not as an isolated economic niche, but as a cross-cutting catalyst for local transformation. In contrast to more advanced experiences in regions such as Timimoun and Ghardaïa—where heritage valorization, associative networks, and public-private synergies are well-anchored—Biskra still suffers from fragmented governance, weak intersectoral coordination, and limited institutional support for ecopreneurs. In response, a multidimensional territorial strategy grounded in the principles of sustainability, equity, and place-based development becomes urgently needed. Such a strategy must prioritize the following interrelated pillars:

- Strengthening public-private partnerships, notably through investment incentives, support mechanisms, and simplified administrative procedures for local ecotourism initiatives.
- Fostering academic involvement and evidence-based planning that leverages research institutions to guide innovation and ensure context-sensitive interventions.
- Institutionalizing training and certification programs in ecotourism, environmental interpretation, and entrepreneurial skills to build a competent local workforce.
- Revitalizing eco-infrastructure, including the development of eco-lodges, interpretive centers, sustainable mobility solutions, and the digital

mapping of natural and cultural assets.

- Promoting participatory governance, where local communities are directly engaged in the design, management, and benefit-sharing of ecotourism projects.

Ultimately, ecotourism in Biskra should not be viewed merely as a promising economic sector, but rather as a territorial and societal project that redefines the relationship between people and their environment. It is a transformative framework that places local identity, environmental stewardship, and social innovation at the heart of inclusive development. The real challenge lies not only in articulating a vision but in translating that vision into strategy, strategy into policy, policy into action, and action into measurable and equitable impact. The stakes are both ecological and generational: ensuring that Biskra's landscapes, traditions, and youthful energies are preserved and mobilized for a future rooted in sustainability and territorial authenticity.

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