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REVITALIZATION OF MOUNTAIN RURAL TOURISM AS A TOOL FOR SUSTAINABLE LOCAL DEVELOPMENT IN KABYLIE (ALGERIA). THE CASE OF YAKOUREN MUNICIPALITY

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Abstract: Our study focuses on the planning and revitalization of mountainous rural tourism to generate income for many rural communities. It targets a community of Great Kabylie in the heart of Djurdjura massif in the eastern part of Tizi-Ouzou province in Algeria. Tourism in these mountainous areas could contribute to rural development, given that it covers 80% of the region and records 13913 tourist overnight stays. Rural tourism can be a valuable tool for local development in the Yakouren municipality. This paper is based on a literature review, field surveys, descriptive and analytical approach to revitalizing mountainous rural tourism in Yakouren, and revealing its potential through various methods, including Butler's theory, SWOT analysis, and elaboration of an indicator grid, and calculation of tourist traffic. From the results, we identified eight segments that attract tourists and five segments that villagers request. Finally, in a conceptual approach, we discuss the impact of this market on rural areas structure and propose some ideas to overcome it. As a result, through constant promotion, Yakouren can benefit from an increase in tourist traffic. Rural tourism in this mountainous community can be an essential source of income, but it requires investment.

Key words: Yakouren, Great Kabylie, mountainous rural tourism, mountainous zones, local development, revitalization, tourist traffic, investment

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INTRODUCTION

Kabylie region features rich geographical landscapes shaped by its vast mountains. Within this context, mountainous rural tourism (MRT) can be seen as an opportunity to develop the natural and cultural resources of this region (Darbellay and Stock, 2012). Also, over 50 million people worldwide spend their vacations in the mountains every year (FAO, 2005). These tourists are attracted by landscapes, communities' lifestyles, fresh air, and the wide variety of leisure activities available away from their daily stress and challenges. Such mountain tourism generates increased economic benefits, improves the local community's life quality, and can support some disadvantaged and non-industrialized areas (Slusariuc and Bică, 2015). In developed countries, mountainous rural tourism is considered an excellent complement to the declining agricultural sector, incapable of sustaining rural residents' needs (Tazim and Robinson, 2009). From the 1970s onwards, rural tourism in mountain areas was integrated with developed countries' planning strategies and, since the 1990s, in developing countries. Algeria ranked 4th among African destinations and occupied the 111th position on the international tourism scene (Belkhiri, 2018). It accounts for nearly 1.5 million tourist arrivals every year. This represents only 1% of international tourist arrivals in the Mediterranean area (SDATW, 2015). Plus, according to the latest report on the Travel and Tourism Competitiveness Index (TTCI), Algeria is still lagging behind in the field of tourism, ranking 118 out of the 136 countries surveyed, forcing the country to assign a new dimension to the MRT, one of the leading tourism trends in the current market (PAW, 2012). Algeria is expected to exploit its potential and orient its tourism offer towards rural tourism in mountain areas. Its impact will be very positive and progressive for sustainable local development with a multiplier effect that will add value to the local economy (Sonko, 2013).

Tizi-Ouzou province holds nearly 1400 villages located in mountainous areas. Tourism in Kabylie and, more particularly in Yakouren, is today poorly exploited, despite all the region's potential. This is due to a lack of security a few years ago (black decade), preventing several festivals from being celebrated (Houanti et al., 2015), coupled with the absence of economic (reception and accommodation) and administrative infrastructures (Yesguer, 2009). However, these localities still attract many visitors every year and, in all seasons, either individually or as part of organized tours, fascinated by the variety of tourism potentialities. According to local authorities of the Tourism and Handicrafts Department (DTA, 2017), tourist sites in this province recorded 91 332 arrivals, of which 2632 were foreigners and 88 700 Algerians from other regions of the country. Tourist arrivals would be much higher if good reception facilities were provided. This work is based on an opportunity to change the image of Kabylie from seasonal mass-tourism to a permanent mountainous rural tourism destination. This paper empirically demonstrates the importance of synergies between rural and mountain tourism. It also determines the position of Yakouren's potential and examines the applicability of the life-cycle model. Finally, and for all these reasons, we wanted to draw attention to Yakouren to preserve its wealth and avoid disturbing its ecosystem and transform it into a high-quality tourist destination. These ideas, approaches, and conclusions apply to many fields, different forms of tourism, and local or regional scales.

LITERATURE REVIEW

Mountainous Rural Tourism: a model for Yakouren municipality

Rural tourism in the mountains is a domain exposed to many open questions in tourism research (Partalidou and Iakovidou, 2008). This research area focuses on strategy development and neglects its implementation and its impact on the inhabitants (Awasthi, 2018). In Algeria,

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mountainous rural areas rarely benefit from the country's tourism sector. However, rural tourism is a diversification strategy that can trigger local development in isolated communities (Wolfgang et al., 2014). Over the last few years, tourists have shown a growing interest in mountainous rural tourism, representing a type of integration between the attractions, accommodation, and facilities presented in a community life structure based on traditions and authenticity (Sudarmiatin et al., 2017). Rural tourism is considered a driver of economic and social development (Guzmán-Parra et al., 2015), increasing daily (Torres-Delgado and Palomeque, 2018), since it is acknowledged as a key approach to rural development and poverty reduction (Gao and Wu, 2017). This MRT has two main characteristics: it employs the inhabitants and involves the recycling and upgrading existing rural infrastructure and heritage resources (Lane and Kastenholz, 2015). According to previous studies, to properly plan and enhance communities' attractiveness, authorities must attach greater importance to the development phase of the destination (Lundberg, 2015) to avoid its stagnation, which leads to social, economic, cultural, and environmental problems (Agarwal, 2002). The studies of (Kotler and Keller, 2006) highlighted that in a mountainous rural environment, any planning process manages five resources: "Man" representing the human resource that manages the tourist sites, "Money" the financial resource that supports the functioning of mountainous rural tourism projects, "Methods" to guide the management of tourism and the "Material" through the natural, cultural and agricultural resources that will be transformed into a tourist attraction, to ensure and develop tourist villages of quality. For better cost-effectiveness and an excellent contribution to the public sector, rural tourism development in mountain areas requires additional expertise to understand why tourists are motivated to engage in distinct tourism market segments.

Demand segmentation

Several studies on rural tourism are available in the literature (Cho et al., 2014). According to (Pesonen, 2013), market segmentation is a strategic marketing tool capable of generating local development. Through its use, we can understand the diversity of tastes and preferences to identify different tourism products and services most suitable for our market. Regardless of the development approach used to revitalize mountainous rural tourism, local villagers' rights must be taken into account since they live there and influence the social environment (Grunwell and Ha, 2014). This requires an analysis of offers, service providers' governance systems, stakeholders' experience, and consumption dimensions regarding mobility, structures, and partners (tourism offices, transportation companies, and accommodation). These concepts ensure the implementation of a sustainable development approach (Marsac et al., 2012).

1. Resident segmentation

The attitude of residents reflects the mindset or disposition of residents towards a tourist destination. It typically refers to the effect of their thinking, feeling, and behavior (Solomon et al., 2013). According to the study of (Yves, 2011), three categories of residents are involved in destination hospitality: staff in contact with tourism organizations, non-tourism organizations in contact with tourists more or less frequently, and finally, the local population. Moreover, residents view territorial tourist hospitality as sharing their territory with foreign tourists (Cinotti, 2009). Hospitality constitutes an essential factor in the selection of destinations. To build the right hospitality image, a region must focus on the communication of its tourist offer and the development of its tourist and cultural activities, while addressing security, infrastructure, and logistics (Cottet et al., 2015). Also, resident attitude as a psychographic segmentation variable can be attributed to academics and tourism practitioners' growing interest in monitoring and managing the host community's perceptions and reactions regarding economic, social, and environmental impacts (Weaver and Lawton, 2013). Specifically, economic impact focuses on the extent to which tourism activities increase employment, host community living standards, infrastructure development, generate income for local communities, and attract new investment opportunities (Zuo et al., 2017). Socio-cultural impact examines a range of benefits related to cross-cultural understanding, increased cohesion and community spirit among residents, recreation and entertainment, and preservation of local culture.

On the other hand, environmental impact involves problems such as pollution, traffic, overcrowding, and noise (Ribeiro et al., 2017). Residents play an important role in market segmentation and the environmental conservation of tourist destinations. Thus, to facilitate this sustainable tourism development, it is crucial to identify how and when residents adopt pro-environmental behaviors (Shanyong et al., 2020).

2. Tourist segmentation

A better understanding of tourists' motivation and behavior is valuable for marketing experts when creating an offer (Papatheodorou, 2006) and for planners in the decision-making and proposals that meet tourists' needs. 21st-century research on tourists' motivations when visiting mountainous rural areas revealed that relaxation, fresh air, tranquility, health, and greenery are the countryside's main attractive factors (Countryside Commission, 1995). Other motivations have been added, including seeking authenticity and tradition, learning, engagement in social contacts, especially with residents, spending time with family (Park and Yoon, 2009). According to a study by (Kim, 2005), rural tourism market segments in mountain areas are divided into three categories: active tourists who engage in mountain-oriented activities, passive tourists who are more focused on visiting cultural sites and relaxing, and those whose main motive is to visit family and friends. On the other hand, (Devesa Fernández et al., 2010) distinguished four rural tourists. The first group seeks tranquility in nature, and the second group visits cultural sites, the third group prefers to consume local food and drink and spend time in natural parks. In contrast, the last group tends to visit friends and families or spend vacations in their own homes. These motivations influence tourists' behavior in the destination, but also their satisfaction with the provided services.

Attraction elements

The most popular tourism motivation classification is the push and pull model (Crompton, 1979), stating that the destination choice is influenced by two forces: 'push factors' push individuals to leave their homes and 'pull factors' pull individuals toward a destination. Seeking knowledge, relaxation, and family bonding are referred to as push factors, while natural and historical environment preferences, costs, facilities, safety, and accessibility are known as pull factors (Jang and Wu, 2006). According to (Heitmann, 2011), push factors are more identified as psychological motives, with the individual's motivation, while pull factors are specific destination's attributes that attract tourists. Despite the different motives, some authors (Frochot, 2005; Pesonen and Komppula, 2010) agree that mountainous rural tourists are attracted by the beautiful landscapes, outdoor activities, local community hospitality, and opportunities to be actively involved in their lives, experience good food, and connect with their families. Finally, tourism attractiveness is mainly influenced by attractions, tourism infrastructure, and transportation, which are components of tourism potential crucial to its development in a given area (Kaczmarek et al., 2010) as they enable good tourist traffic management.

Tourist traffic indicators

Tourist traffic is the temporary displacement of people away from their permanent residence (Kurek and Mika, 2008). It is a key component of tourism development strategy and planning (Hontuş, 2014). The analysis of tourist traffic is based on supply and demand while calculating the

most representative tourism indicators: the number of tourists per day, the number of overnight stays, average stays, tourist traffic density, and Coefficient of Use of Accommodation Capacity (Hontuş, 2013). However, intense tourist traffic and excessive exploration of sites (national parks, forests, nature reserves) lead to the degradation of natural and cultural resources (Uglis and Jęczynek, 2017). Indeed, this excessive concentration of tourist traffic causes overcrowding of attractive places, over-advertising, and aggressive marketing, which lowers the aesthetic quality of tourists' experiences and leads to higher service prices. To this end, the increase in traffic needs adequate legislation to preserve these places (Marek and Wieczorek, 2015) and avoid its social impact by changing residents' attitudes towards tourists (Szromek et al., 2019).

Opinions of tourists/residents

Numerous papers and research are available on residents' and tourists' attitudes, opinions, and perceptions. Although relevant studies are widely available, they are not commonly shared and conclusive (Gómez, 2019). According to (Kavitha and Durairaj, 2018), the structural equation model's results contribute significantly to understanding tourist and customer expectations leading to their satisfaction. In fact, tourists' satisfaction is based on the comparison of their pre-trip expectations and their post-trip experiences. It is the mental assessment and comparison between what customers expect and what they receive (Shavanddasht et al., 2017). According to the study (Servidio and Nicoletta, 2012) on emotional and motivational factors towards a tourist destination, when comparing two sets of images, tourists considered the first set of images as stereotypical, while the second set invoked more emotional and motivational attributes, which increased their interest in visiting the represented places. Opinions and perceptions of tourism impacts at the local level are varied and heterogeneous. However, it is essential to understand how residents perceive tourism development and how their demographic characteristics and socio-economic context influence their opinions (Gómez, 2019). These opinions are important in determining potential tourists' choices (Asghar et al., 2018). Moreover, there are currently many apps and systems that can automatically extract, classify, and present real-time opinions useful and easy to interpret for tourists (Facebook, TripAdvisor, Expedia, Booking, Airbnb). Based on some experts' opinions, a satisfied tourist communicates the information to other potential tourists, who will plan their vacation in that same place. However, a dissatisfied tourist negatively influences other tourists interested in that area (Hontuş and Tindeche, 2019).

Development projects

Cottage accommodations are most common in the mountains, ranging from one to three stars, and guest houses provide domestic and commercial hospitality. Plus, some authors identify ecovillages as rural businesses (Jackson and Svensson, 2002) that combine environmental sustainability, agricultural activities, and tourism services. They are designed around four pillars: ecological, social, cultural, and spiritual concepts. According to (Jackson, 2004), ecovillages are a significant tourism industry development aspect reflecting ecological features with intrinsic balance, leading to sustainable lifestyles. The importance of the forests in society is today evidenced by the numbers of its visitors. Moreover, forests play a multitude of functions, and their consideration leads to sustainable development that society truly adopted at the end of the 20th century (Colson et al., 2009). Sustainable tourism development requires durable mobility, ensured by enlightened planning and policies. According to (Tinet, 2019), cable cars are transportation means reflecting mountain populations' lifestyles. They provide valuable services to rural inhabitants and contribute significantly to the accessibility of mountain villages. Accordingly, the tourism code listed cable cars as an ecological means of transport to preserve the mountainous environment (Schneider and Clément-Werny, 2012).

TALC: Theory of tourism area life cycle (BUTLER)

Tourist attractions are often fragile and require careful management. Hence, many authors started investigating the loading capacity and sustainability of tourist sites over time. Professor Richard Butler, a Geographer and tourism professor, developed a model known as the Tourist Area Life Cycle Model (TALC), based on the product life cycle concept. The model is also a descriptive structure for analyzing, studying, and forecasting any destination (Butler, 2006). Moreover, the number of visitors and infrastructure availability are the key factors indicating a particular destination's development. In the TALC model, destination development is described in six stages, the exploration stage followed by the involvement, development, consolidation, stagnation and decline is shown in Figure 1. The last stage of decline is further divided into rejuvenation or stabilization. Each of these different stages is unique. During the exploration stage, the new tourism product is introduced to a limited number of tourists (Debbage, 1990), and word-of-mouth promotion is widely used. Visitors' numbers begin to increase during the involvement phase, a change in social life is noticed, and residents provide facilities and services.

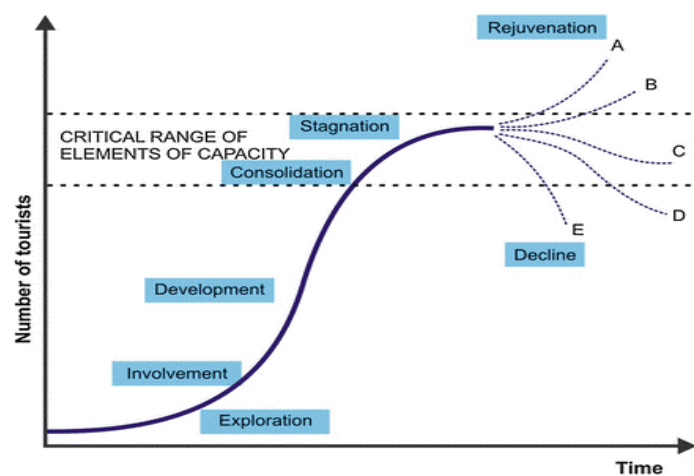


Figure 1. A destination life cycle stages (Source: BUTLER, 1980)

The development phase begins when tourist numbers increase rapidly. The local cultural and natural resources are well-developed and sophisticated facilities with advertising are implemented (Lee and Jan, 2019), and employment opportunities multiply. In the consolidation stage, the tourism industry becomes a major element of the local economy, visitor numbers increase significantly, and individual facilities and services become reduced with significant promotional actions (Lundtorp and Wanhill, 2001). The destination enters a stagnation phase, a critical point because visitor numbers are at their peak, and social, economic, and environmental problems are increasing.

From the stagnation point, two possibilities may arise (decline or rejuvenation). In the decline phase, visitors' numbers start falling, and the market is in decline. At this stage, additional advertising is required. During the rejuvenation, new attractions or natural resources must be found. According to Butler's (1980) model, tourist destinations exit the fifth stage, either declining or regenerating. Our study area is in its development phase, where the destination is transformed to accommodate a significant number of tourists (Sedmak and Mihalic, 2008). At this stage, local involvement is required to contribute to its planning and management program through the funding of the necessary facilities (Moore and Whitehall, 2005), to avoid the stagnation and decline phases and boost its image (Lundberg, 2015).

The synergy of mountainous rural tourism in Yakouren

Based on previous studies, rural tourism is compatible with various types of tourism, including cultural tourism (Matei, 2015), ecotourism (Sakhile and Urmilla, 2016), geotourism (Ateş and Ateş, 2018), and in our case, with mountain tourism. However, rural tourism requires support from mountain tourism to increase its synergy potential and needs long-term financial and technical assistance to effectively contribute to sustainable local development (Sharpley, 2002). Besides, the synergy needs to integrate six main sections: rational exploitation, development, design, rural economy, protection, and marketing (Ateş and Ateş, 2018). They must be taken into account in the planning process to promote the destination. To achieve this synergy, it is necessary to highlight the state's efforts, local communities, and tourism professionals and sponsors, while integrating local inhabitant in addressing issues that delayed tourism development (Sonko, 2013). It is also essential to control tourists' flow in these regions through the territorial organization, creation of tourism infrastructure, and the functional territorial zoning (Dunets et al., 2019). This will enhance these regions' natural and cultural heritage and preserve the practices and traditions of their inhabitants.

STUDY AREA

Yakouren municipality is located in the mountainous region of Tizi Ouzou province (Great Kabylie) at the foot of Djurdjura massif, 151 Km from the capital Algiers, 76 Km from Béjaïa province, and 46 Km from the coastal city of Azeffoun. Yakouren is limited to the North by Akerrou and Ait Chafaa and Zekri; to the South by the municipality of Ifigha and Idjeur; to the West by the municipality of Azazga; to the East by the municipality of Adekar is shown in the following Figure 2. It covers an area of 79.30 Km² and is accessible from the national road (R.N. 12) connecting the city of Tizi-Ouzou to the city of Béjaïa and represents a major vector of exchange. It accounts for 12,649 inhabitants (2017) distributed over 26 villages.

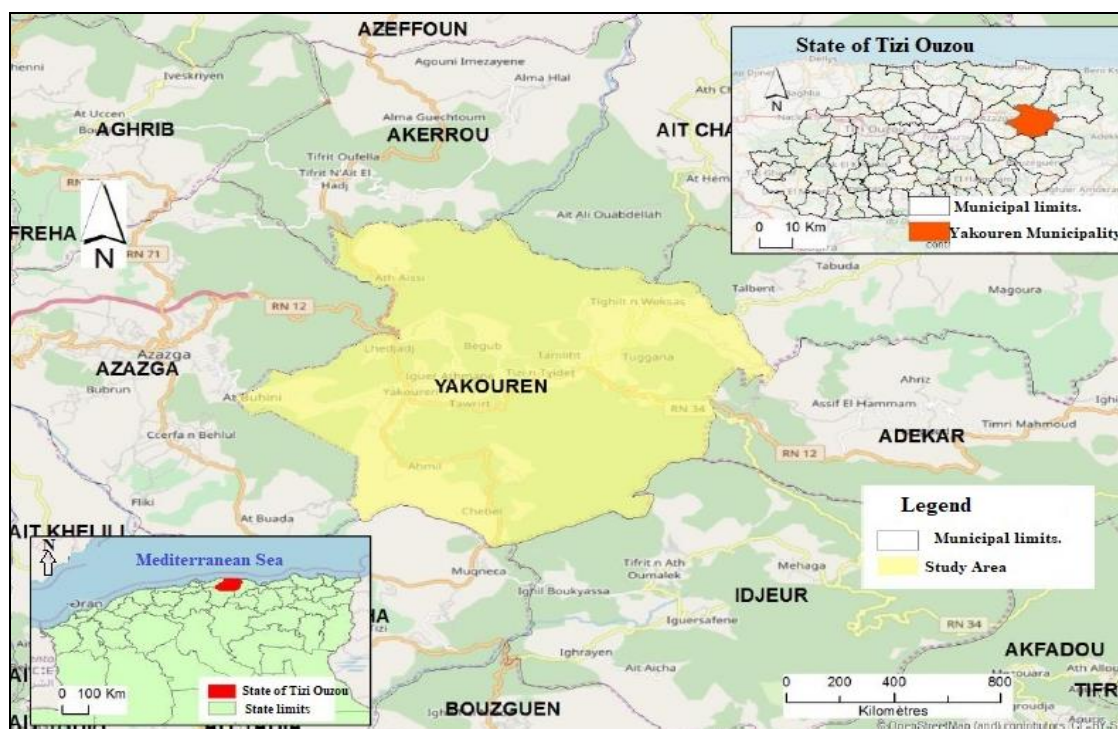


Figure 2. Location of Yakouren municipality in Tizi - Ouzou Province (Source: Prepared by the authors, 2020)

METHODOLOGY AND STUDY OBJECTIVE

Methods used to collect data include field surveys in Yakouren's tourist sites (589 valid surveys with an error margin of +/- 8.9% and 98% confidence level), interviews, and literature search (literature review, books). First, we quantitatively and qualitatively assessed our study area's potential using the SWOT analysis technique to evaluate its development potential. This technique is an analytical tool widely used by managers and strategic planning experts (Valentin, 2001), given its key role in enhancing and promoting rural tourism in mountain areas. Then, we investigated the feeling of belonging (Schmitz and Bruckmann, 2020) among the residents of Yakouren towards the various tourist sites in the region to identify their motivations to develop these assets. Finally, we examined the tourists' positions and motivations regarding recognizing tourism heritage while highlighting their opinions to determine the attraction and enhancement features. Some of the questions guiding our analysis include the following:

- How can rural mountain tourism be revitalized based on its touristic assets to reach sustainable local development?
- How does tourism planning promote Yakouren's local development?
- How can the tourist attractiveness of this small North African Switzerland be improved?
- What are adequate tourism projects to revitalize Rural Mountain Tourism?

To complete our sample, we adopted Butler's theory to elaborate a grid of indicators and then calculate the tourist traffic in the only existing reception infrastructure in the study area, the Tamgout Hotel, using only the most important indicators. Moreover, our methodology

aims at achieving a mutual synergy of rural and mountain tourism. Consequently, we determined and positioned the development phase of Yakouren according to the destination's life span (TALC). Our research also considers tourist traffic analysis as an essential aspect strongly influencing the revitalization and sustainability of tourism development in supply and demand (Hontuş, 2013). If this aspect is not addressed, it will be difficult to implement our planning program. Finally, seven tourism projects were chosen and mapped using the following software: Arc Gis, Auto CAD, Google Earth, and GIS (Geographic Information System). Based on the results of the survey analysis, we determined the most suitable design models for Yakouren's specific features while at the same time protecting its environment and authentic villages.

RESULTS AND DISCUSSIONS

This study examines Yakouren's tourism potential as a strategic zone in the Kabylie region since the colonial era, particularly its attractiveness, accessibility, facilities, and activities. Based on (Hadacha and Tebbaa, 2015) results, the factors leading to the failure of any sustainable form of tourism include lack of preliminary studies of tourist demand in line with sustainable tourism offers. For our case study, we chose the TALC approach to analyze and develop Yakouren's model to predict its long-term development. This current situation is due largely to the lack of promotion and investment incentives in this area, considered one of the drivers and pillars of any local development. To revitalize mountainous rural tourism, its integration is necessary for all planning and development tools like the Master Plan for Development and Urban Planning (PDAU), the Land Use Plan (POS), and the Master Plan for Tourism Development of Tizi-Ouzou province (SDATW). For this, a new approach must be implemented to guarantee a viable economy, provide income for the local population, and preserve nature and culture while improving tourists' service quality. Integrating sustainability into mountainous rural tourism's planning strategy is an essential element ensuring quality (Mutalib et al., 2018). The main tourist attractions in the municipality are the Beni Ghobri forests known as "Yakouren forest", the Akfadou forest, the sacred wood "Bois Sacré" (Figure 4) natural sites, fauna (the Barbary macaque) (Figure 5) and flora, cultural heritage and activities, handcraft products, quiet villages with only one tourist infrastructure which is the Tamgout hotel, known as a climatic station, an ideal site for tourists seeking a relaxing break. The results of our research indicate that the municipality holds the potential of a national strategic tourist area. Based on the life cycle model (TALC), Yakouren is in its development stage. In the next phase, it is crucial to intervene to change the lifespan of this destination. According to our field survey, many tourists visit Yakouren on weekends and during cultural events.

However, domestic tourist arrivals dominate this tourism growth with many non-resident Algerians (the Algerian expatriate) with a relatively low number of foreign tourists mainly marked by the various international office workers in Algiers (embassy staff, UNESCO, NGOs) interviewed during our surveys. The rest were completed in the villages to identify the tourists' socio-demographic profile, their motivations, accommodation capacity and level of comfort, the progress of their stay, and their expectations to measure their satisfaction with various services, and to define problems experienced during their stay and more particularly to better understand the demand by determining the market segments and categorizing them accordingly. Based on the results, eight distinct segments that attract tourists to Yakouren were identified, and five segments that the local population requires for its development. Data from the local tourism office indicate a lack of tourists visiting natural sites and villages. Many factors are believed to cause this deficiency, as poor marketing, need for cooperation with travel agencies, the low quality of community service managers, and the necessary intensive coordination of all tourism stakeholders, ranging from village chiefs. The field study results also show that the average number of visitors to the tourist village of Boumensour (Figure 3) on a type is less than 100 people/month. In high season, the average number of tourists is 300 (Local office, 2019).



Figure 3. Boumensour Village



Figure 4. The forest of the sacred wood "Bois Sacré"



Figure 5. Barbary macaque colonies (Source: Taken by the authors 2020)

The following figures illustrate the main results of our survey:

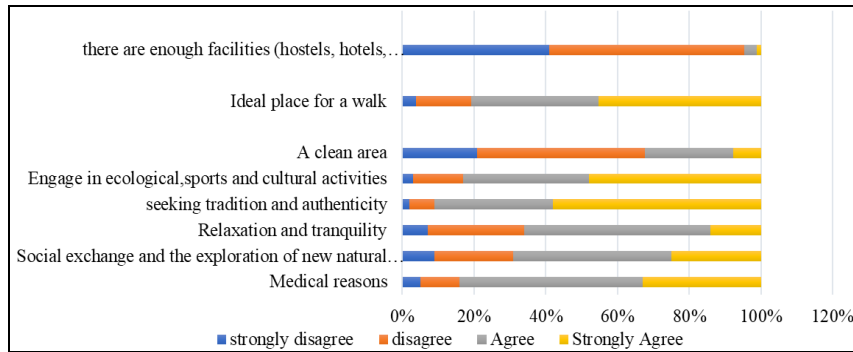


Figure 6. The main motivations of the Tourists

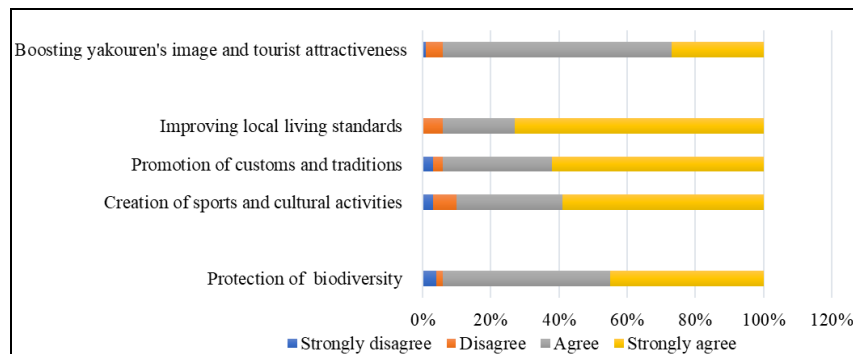


Figure 7. The main motivations of the residents

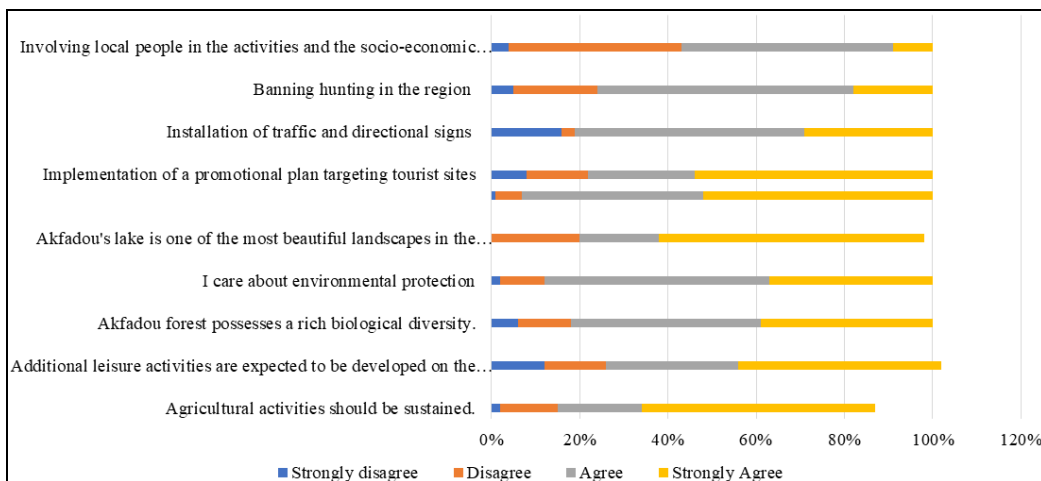


Figure 8. Opinions of tourists

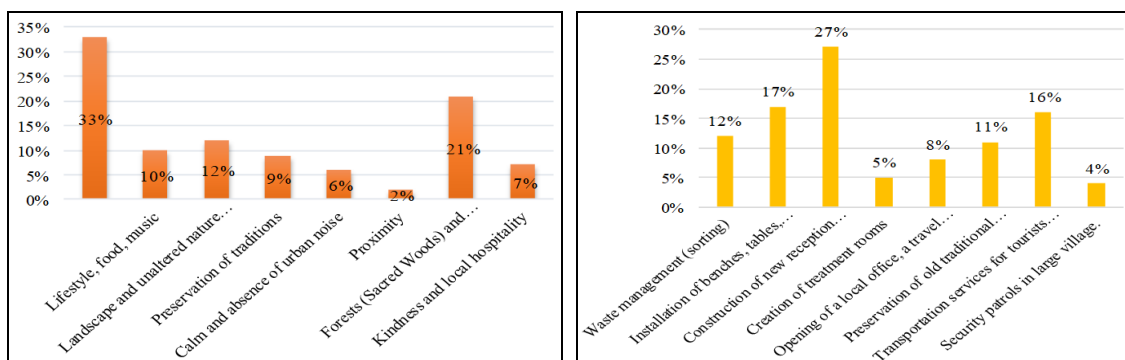


Figure 9. Attraction and enhancement features for Yakouren

Based on our survey results, most visitors come to Yakouren forests because of their peaceful environment and landscape. The forest provides a perfect vacation site, 50 minutes away from the city, ideal for walking far from the urban noise. Our analysis reveals that 33% of the tourists are interested in cultural sites and handicraft exhibitions (Figure 9), and 21% prefer forests and mountains (Figure 9). This suggests that landscape attractiveness is a fundamental criterion in evaluating tourist destinations (Schmitz and Vanderheyden, 2016). 12% of

tourists agree that landscape and unaltered nature are significant elements of attraction, and most of them (97%) confirm that this region's historical heritage is poorly preserved and severely degraded. They also expressed their concerns regarding waste management, with (12%) tourists being in favor of selective waste sorting. They were pleased to learn that part of the Akfadou forest was included in the Djurdjura National Park, classified as a Biosphere Reserve (Idir, 2013). However, 95.3% of visitors highlighted the scarcity of tourist infrastructure (hotels, restaurants, and cafes), and 72% supported the preservation of agricultural activities in the area (Figure 8). The surveys indicate that visitors who agree (58%) and those who agree (33%) are seeking tradition and authenticity (Figure 6), and 82% acknowledge the high biodiversity of Akfadou Forest and believe it is the most beautiful place in the region. 26% of interviewees rejected any development of leisure activities on the various tourist sites. 16% of the visitors expect the area to benefit from transportation services designed for tourists such as cable cars, horse-drawn carriages, and bicycles. About 10% of tourists choose these sites to discover local people's lifestyles, food, music, and customs to satisfy their cultural curiosity, an essential aspect of the tourist experience. Surveys reveal that 94% of residents want to improve the local lifestyle by integrating accommodation, food, entertainment, and transport infrastructures (Figure 7), and 94% (agree and agree) of the same residents wish to improve this region's tourism attractiveness to place it on the national market. 19 % of interviewees rejected the idea of installing road signs in the forests to protect it, and 88 % expressed environmental protection awareness.

Evaluation of Yakouren's tourism potential using SWOT analysis

In Table 1 below, We quantitatively and qualitatively assessed our study areas potential using the SWOT analysis to evaluate its development opportunities. SWOT analysis is a key tool in the assessment of any destination. This technique helps to develop an effective strategy to maximize strengths and opportunities and minimize weaknesses and threats.

Table 1. Evaluation of Yakouren's tourism potential using SWOT analysis

		Assets	Weaknesses	
NATURAL POTENTIAL	1	▪ A mountainous Mediterranean climate; the mountains collect therapeutic springs to treat kidney diseases; rich and diverse fauna, and home to the Barbary macaque	▪ Springs and fountains degraded; the monkeys at tourists' food and waste	
	2	▪ A dense forest, covering about 80% of its total area; an abundance of oaks: Zen, cork (considered as the 1st national production), are typical of this region; rich water resources like thermal springs, wells, and rivers; with waters well known for their multiple virtues	▪ A low rate of investment considering its rich forests; open sewage systems are running through the forests	
	3	▪ A tremendous floral variety, including many rare medicinal plants not found in other regions; scenic landscapes, open-air museums	▪ Absence of signs; No access roads to enjoy the wetland view; absence of professional services on-site like guides	
			Opportunities	Threats
	1	▪ Transform these landscapes into a dream destination by creating resorts for nature lovers and artists (poet, painter)	Numerous forest fires and deforestation events; pollution by human waste	
	2	▪ Create hiking trails in the mountains (summer, spring), ski resorts (winter), outings, expeditions, and camping; implement tourism projects while preserving the forest image: recreational forests, campsites...	Snow and other natural hazards (e.g., landslides) blocking roads leading to these mountains; loss of plant species	
	3	Invitation of national and international scientists and biologists to highlight the biodiversity and the medicinal plant species diversity; create spas from the thermal springs	▪ Pollution of some rivers originating from the surrounding mountains; the passage of water fountains across the discharge points that join the sewage system	
4	▪ Creation of "Barbary macaque village" to protect and control the species	Endangered colonies of Barbary macaques		
		Assets	Weaknesses	
TRIMONIAL POTENTIAL	1	Rock painting; archaeological sites	Some paintings were destroyed in the fires	
	2	Villages combine traditional and old buildings, a cultural mix between Berber and Islamic culture, local pottery, traditional jewelry, and textiles	A lack of activities, events, and cultural animations in the region (music festivals - theatrical activities); a lack of rehabilitation, protection, and classification of its sites; absence of signs and information	
			Opportunities	Threats
	1	Establish a proper tourist itinerary in the archaeological sites;	Complete loss of paints if site degradation continues	
	2	Funding, organizing fairs and exhibitions to promote local products and increase their markets and distribution scales; invite tourists to attend events introducing traditions of the region: wedding celebrations, touiza, timecheret and religious holidays, like Ashoura and nabawi maulid	Abandoned potential tourist sites Local pottery is threatened by Tunisian pottery that dominates the market	

Tourist traffic indicators

From the perspective of implementing proper planning in Yakouren, we chose to estimate the tourist traffic at the only existing infrastructure "Tamgout Hote". The most representative indicators are total accommodation capacity of hostels, tourist traffic density, tourist office indicator, employment indicator, the average length of stay, index of demand variation in time, evolution of tourist demand, index of tourist demand distribution, an indicator of demand variation in time, an indicator of the accommodation capacity development and index of customer evolution (Hontuş, 2013).

Tourist traffic indicators at Tamgout Hotel in Yakouren

The following indicators (Table 2) were analyzed and interpreted through (Hontuş, 2014):

Table 2. Tourist traffic indicators at Tamgout Hotel (Datasource: DTAT.O, 2019)

Indicators	2019	2018	2017	2016	2015
Number of nights	13913	9019	8849	4605	2073
Total Number of tourists	118761	104765	91332	47700	34358
Number of Algérien tourists	108798	98803	88700	46220	32546
Number of foreign tourists	9963	5962	2632	1280	1812
Accommodation	150	150	150	150	150
Accommodation capacity	5047	3827	3369	1523	1213

Tamgout hotel capacity:

$Scp = LP / LC$ (LP): Places in the Tamgout hotel. (LC): total hosting capacity

$Scp\ 2019 = (150/5047) * 100 = 2.97\%$.

$Scp\ 2015 = (150/1213) * 100 = 12.36\%$.

According to the pension rate at the Tamgout Hotel, the accommodation capacity of 150 places remained unchanged since the hotel's construction due to the lack of investment and the failure of public policies in the tourism sector. On the other hand, the pension accommodation capacity has continuously decreased since 2015, reaching a share of 2.97% in 2019.

1) Tourist Traffic Density:

12649 (population in 2017); 12203 (population in 2015). (Source: PDAU, 2017)

$Td = Arrivals (A) / inhabitants (P)$

$Td_{2017} = 91332 \text{ tourists} / 12649 \text{ inhabitants} = 7.22 \text{ tourists} / \text{inhabitants}$.

$Td_{2015} = 34358 \text{ tourists} / 12203 \text{ inhabitants} = 2.81 \text{ tourists} / \text{inhabitants}$.

$Td = Arrivals (A) / area (S)$

$Td_{2019} = 13913 \text{ tourists} / 79.30 \text{ km}^2 = 175.44 \text{ tourists} / \text{km}^2$.

$Td_{2015} = 34358 \text{ tourists} / 79.30 \text{ km}^2 = 433.26 \text{ tourists} / \text{km}^2$.

The tourist flow is higher than the population density, with an increasing rate from 2.81% (2015) to 7.22% (2017). As a result, there is a high tourist demand with strong pressure on the site's carrying capacity. This indicator measures one of the social and environmental issues associated with tourism traffic caused by tourism pressure on the population and the size of the study area.

2) Indicator "tourist office":

$Ft = L/POP * 100$ (L): number of places; (P): population

$Ft_{2017} = (150/12649) * 100 = 1.18 \%$.

$Ft_{2015} = (150/12203) * 100 = 1.22\%$.

The tourist office indicator depends on the population number. As the population increases, the tourist office indicator slightly decreases. In our case study, this indicator decreased by 0.04% between (2015-2017).

4) Employment indicator:

$G = (NP/LP * Z) * 100$ (G 0): occupancy rate; (NP): number of overnight stays; (LP): number of hotels; (Z): Number of accommodation days.

$G_{2018} = (9019 / (56 * 365)) * 100 = 44.12\%$.

$G_{2017} = (8849 / (45 * 365)) * 100 = 53.87\%$.

$G_{2016} = (4605 / (32 * 365)) * 100 = 39.42\%$.

It indicates the supply usage during a given period at the installed capacity. This indicator depends on the number of overnight stays and hotels. In 2017, we noted a significant evolution of the employment indicator pensions compared to 2016 to a value of 53.87%. This is due to a large number of valid nights, especially during the summer season, known by several festivals such as "the festival tells art," "festival of Kabyle jewelry," "festival of pottery" in 2018, the value has declined to 44.12%.

5) Average length of stay: $D = \text{number of overnight stays} / \text{number of arrivals}$

$D_{2019} = 13913 / 118761 = 0.11 \text{ overnight stays} / \text{tourists}$.

$D_{2015} = 2073 / 34358 = 0.06 \text{ overnight stays} / \text{tourists}$.

According to the calculated average length of stay, we note a constant rate with a few disturbances, and then in 2019, a strong evolution with 0.11 overnight stays/tourists.

6) Index time variation in demand: $ICE0-i = (CE0-i / CE0) * 100$; $ICE0-i = CI_i / CI_0$ (ICE 0-i): external demand variation index; (ICI 0-i): internal demand variation index; (CI): Domestic tourism demand

$ICI_{2019} = (108798 / 98803) * 100 = 110.1\%$.

$ICE_{2019} = (9963 / 5962) * 100 = 167.10\%$.

$ICI_{2016} = (46220 / 32546) * 100 = 142.01\%$.

$ICE_{2016} = (1280 / 1812) * 100 = 70.64 \%$.

The results indicate that most tourists are Algerian, with a low rate of foreigners rising significantly in 2019. Also, domestic tourism demand is much higher than foreign tourism demand. This is due to several factors, such as lack of infrastructure and promotion. It is important to note that in 2016, the demand started to grow and then decreased in 2019 with a share of 110.11%. However, foreign demand increased in 2016 and then decreased in 2019 with a rate of 167.10%.

7) The evolution of tourism demand:

$\Delta Ct = (CG_i / CG_0) * 100$ (CGi): International tourism demand in (i); (CG0): International tourism demand (0).

$\Delta Ct_{2019} = (13913 / 9019) * 100 = 154.26\%$.

$\Delta Ct_{2016} = (4605 / 2073) * 100 = 222.14\%$.

It shows that the demand for tourism in 2016 was very high. However, in 2019, the tourist demand in the Yakouren municipality decreased.

8) Global Tourism Demand Index Distribution: $Ii = CI / CG * 100$; $CE / CG * 100$.

(C.E.): External tourism demand. (CI): Internal tourism demand.

$Ii_{2019} = (108798 / 118761) * 100 = 91.61\%$.

$Ie_{2019} = (9963 / 118761) * 100 = 8.38\%$.

$Ii_{2015} = (32546 / 34358) * 100 = 94.72\%$.

$Ie_{2015} = (1812 / 34358) * 100 = 5.27\%$.

We can see that most tourists are Algerian tourists compared to the meager rates of foreigners. The domestic tourist demand is, therefore, much higher than the foreign tourist demand.

9) Indicator accommodation capacity development:

$\Delta Ct = (LC_i / LC_0) * 100$ $\Delta Ct_{2017} = (150 / 150) * 100 = 100 \%$. (LCi): annual places (i). (LC0): annual accommodation (0). There are 150 beds. This hosting capacity development indicator remained constant since its implementation.

10) Index of customer evolution "2016-2019":

$\Delta TP = (TP_i / TP_0) * 100$ (TP_i): tourists in hotels in (i); (TP₀): tourists in hotels in (0).

$\Delta TP 2019 = (118761 / 104765) * 100 = 113.35\%$.

$\Delta TP 2018 = (104765 / 91332) * 100 = 114.70\%$.

$\Delta TP 2017 = (91332 / 47700) * 100 = 191.4\%$.

$\Delta TP 2016 = (47700 / 34358) * 100 = 138.83\%$.

Between 2016-2017, customer numbers increased by 53%. In 2018, a 77% decrease in customers with an increase in tourists to 104.765 tourists was observed.

11) Evolution of overnight stays index:

$\Delta NP = (NP_i / NP_0) * 100$ (NP) : overnight stays.

$\Delta NP 2018 = (9019 / 13913) * 100 = 64.82\%$.

$\Delta NP 2015 = (2073 / 4605) * 100 = 45.01\%$.

The number of overnight stays increased, and as of 2018, it decreased significantly to 64.82%.

Development perspectives and proposals:

Yakouren is renowned as an excellent tourist and leisure destination. Every day, visitors from all regions come to its forests to enjoy the fresh air and get fresh water from the famous and popular "fresh fountain". Children enjoy taking pictures and having fun with the Barbary Macaques. Craft and commercial activity developed along the RN12 spontaneously and informally. The strong human pressure (poorly managed mass tourism) makes the environment vulnerable, and the population very poor (60% unemployment rate). This is due to limited resources, insufficient economic entities in mountainous areas, and various environmental and socio-economic challenges (Kherrou et al., 2018). Therefore, for better management and rational exploitation of resources, it is necessary to implement equitable tourism that preserves nature, respects society, and sustain traditions and cultures. The revitalization of this mountainous rural tourism requires integrating the Corporate Social Responsibility (CSR) approach, especially in ecologically vulnerable destinations (Paul and Séraphin, 2015) such as Yakouren, to ensure its sustainability. To define our development proposals, we have focused on regulatory laws, field surveys, and potential analysis to determine the development projects best suited to our study area's characteristics. We selected seven tourism projects that were mapped using Google Earth coordinates and GIS software (Figure 10). We considered residents' suggestions on our development proposals to ensure sustainable results and meet the tourism demand. We included a proposal for a cable car system, wilderness hiking trail (Figure 11), an ecological accommodation "Ecovillage" (Figure 12), a relaxation and wellness center, a picnic area, and a botanical park (Figure 13). Some examples that might fit the study area features are presented below:



Figure 10. Map of all proposed planning projects in the municipality (Source: author's elaboration)

The aim is to preserve and improve the environment and living conditions of Yakouren inhabitants and tourists, ensure its sustainable local development, involve the local population in the activities, and foster socio-economic benefits (employment opportunities). Developing rural mountain tourism by building a tourism dynamic supported and managed by the populations and all the actors and ensuring heritage preservation as a tourism resource. The proposed actions must be carefully distributed on the territory of yakouren, to ensure coherence between the actions and the identity and strengths of the region and to guarantee sustainable economic benefits for all the actors of tourism in the Tizi-Ouzou province.



Figure 11. Proposed itinerary for a hiking trail (Source: author's construct)



Figure 12. Ecological accommodation development plan Ecovillage (Source: author's elaboration)

CONCLUSION

This area's tourist offer shows a discrepancy between its touristic potential and its limited infrastructures, both quantitatively and qualitatively. To address Yakouren's tourism development challenges, it is necessary to promote socio-economic development based on its potential to generate dynamic tourism products in the future. Rural tourism in the mountains can contribute significantly to its economic prosperity by creating local vitality. It can also generate social benefits, highly favorable to its cultural and natural heritage recognition, and promote its local culture. This type of tourism's contributions improve the inhabitants' quality of life and increase their enthusiasm and respect for their culture and heritage, offering them opportunities to preserve it. If appropriate and effective measures are adopted and implemented, mountainous rural tourism could become a tool for reviving local development. This study can serve as a reference for a sustainable tourism development initiative in the municipality and inspire other municipalities in the country.

The necessary actions required to revive the mountain rural tourism sector

Mountain rural tourism development is crucial for the Yakouren region. Therefore, a sustainable development approach based on a synergy between mountain tourism and rural tourism must preserve its heritage and ecological, social, and economic stability. The guidelines of this new strategy are based on:

1. Creating a suitable climate for tourism development

It is necessary to adapt the site to the expectations of tourists and meet their needs. Roads must be improved and the existing road

network rehabilitated, construction of new hospitals to meet growing demand, public services quality must be improved, and tourism investment must be encouraged. Transport, an essential element of the tourism system, is part of this development process. It must be assigned an important place in development policies. Governments must focus on transport that provides access to neighboring destinations. The reduction in time-distance and cost-distance associated with inadequate transport will lead to a loss of potential customers. Yakouren municipality lacks infrastructure for accommodation. Therefore an increase in accommodation capacity, quantity, and quality of hotel facilities, hygiene, and cleaning of tourist services (sanitary facilities, restaurants, accommodation) is essential; it is necessary to build traditional hostels by renovating some of the old houses, reclassification of hotels to ensure a correlation between the number of stars and quality of provided services, price control of the different tourist services, the construction of rural cottages and guesthouses and guarantee the collaboration and coordination between the different direct or indirect actors of the tourist activity. To revitalize mountainous rural tourism, professionals involved in tourism need to operate in a complementary and close way; in other words, it is necessary to educate all stakeholders in the Tizi-Ouzou province, including the local office, to work in partnership around a common objective, namely the development of mountain rural tourism, as it represents the primary goal of the whole community including all the villages of Kabylie (Figure14).



Figure 13. Development plan proposal for a Botanical Park (Source: author's elaboration)



Figure 14. View from the village Boumensour (Source: Taken by the authors, 2020)

2. Heritage Valorization

To enhance the value of traditional villages, it is essential to revitalize and transform them into the region's active components. Cultural heritage tourism is a form of tourism designed to discover the cultural and architectural heritage. It should be seen as a tool to achieve sustainable

development and incorporate the fundamental values for project authenticity and heritage protection. Strengthening the planning of cultural events related to heritage since it is also a factor contributing to cultural vitalization of traditions and values through the ancestral heritage such as (the feast of the Kabyle jewel of Ath-Yenni, the pottery feast, the olive feast, the carpet feast, the feast of traditional burnous) can be seen in (Figure 15). Handicraft is one of the components of our cultural identity, both in the Yakouren municipality and on the national territory; This activity must be preserved and promoted as a cultural, economic, and social heritage, and above all, as an essential element of tourist attraction.

The measures for the preservation and development of this traditional art include: adopting a marketing approach to attract more tourists through various tools such as appropriate signs on sites along the main roads, detailed monographic guides, creating a cultural map identifying the villages and cultural events, restoring, preserving and maintaining the attractions with heritage potential, both tangible and intangible, and collecting all the traditional art elements and placing them in traditional art museums. Support cultural and craft activities, and multiply fairs, exhibitions, celebrations, and craft festivals. Ensure local products' permanent promotion to compete with foreign products invading the Algerian market due to globalization. Focus on training, particularly for those involved in the handicraft sector, which require an education focused on valorization, creation of labels, and promotion. Address the rural migration of youth by involving them in cultural and tourism activities, notably through fiscal incentives and facilitating credits intended for the modernization of existing workshops and the creation of new ones. Promote traditional cuisine closely linked to agricultural practices that local women are fond of.

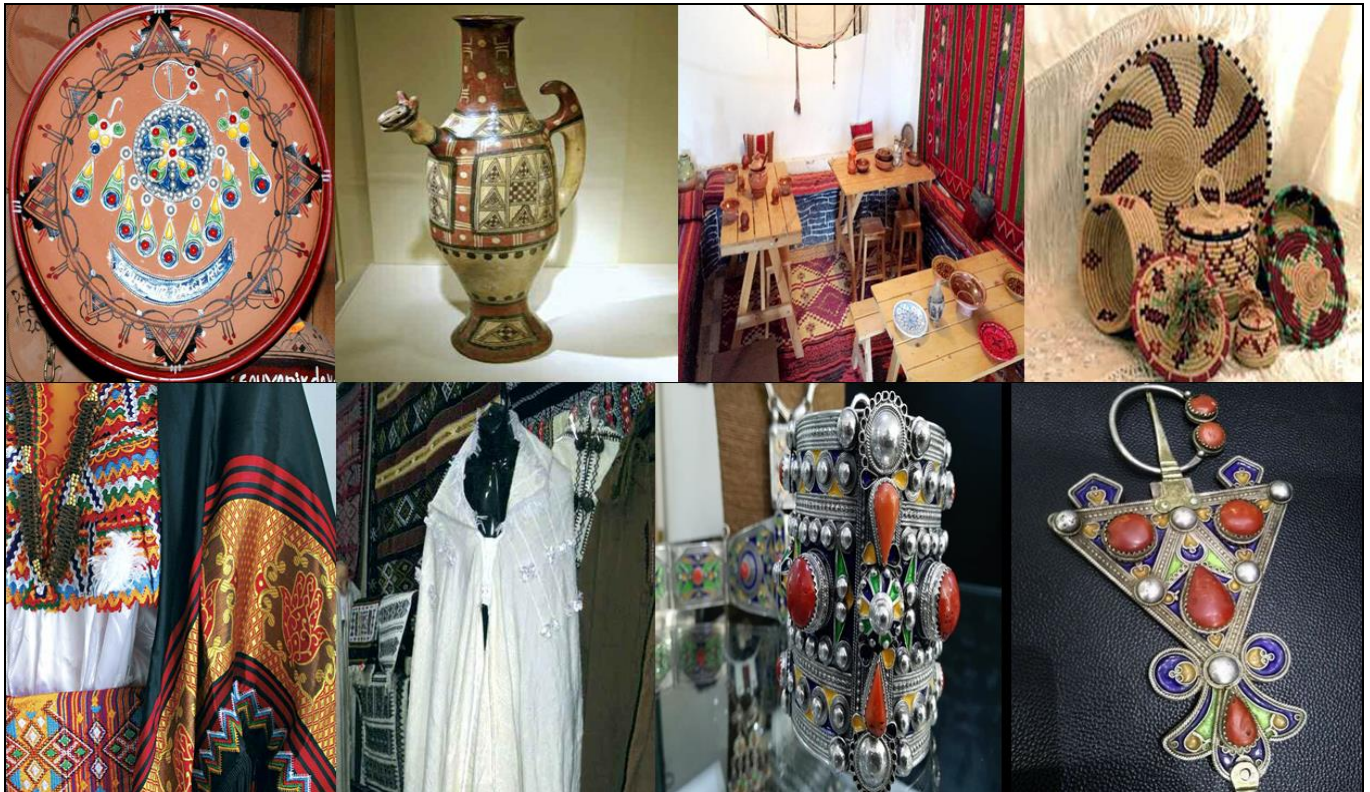


Figure 15. Kabyle handicrafts (pottery, jewelry, basketry, traditional clothing) (Source: Taken by the authors)

3. Enhanced use of new information and communication technologies (ICTs)

It is essential to boost the use of ICTs in public administration to ensure the information available anywhere and anytime. It is also necessary to increase ICT use in tourism businesses by expanding online services since the internet has become one of the most practical and rapid booking tools among tourists. Finally, citizens' use of ICT equipment and networks must be expanded.

4. Qualification and professionalism:

All workers in the sector, including reception agents, guides, and travel agencies, must be trained. By launching a public awareness campaign and integrating tourism education into school programs, it is possible to stimulate the entire population to support the concept of tourism and build the foundations of its culture. An appropriate training program, updating, and renewal of professional expertise in the sector to improve tourism management skills are essential. Tourism professionals should be trained to focus on the entire process of tourism-related actions (design, sales, marketing, reception), and the quality and professionalism of services.

5. Marketing approach

It is necessary to create an official website for the municipality providing all the necessary information and presenting all future tourism opportunities and projects attractively. Road signage should be improved, and a map representing all assets should be placed at the entrance of each village to attract curious visitors. It is also essential to stimulate the press's interest by organizing more events (sports, cultural, scientific). It is advisable to invite foreign journalists and facilitate their work by reporting or broadcasting about the town.

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