

Article

Heritage as a Driver of Sustainable Tourism Development: The Case Study of the Darb Zubaydah Hajj Pilgrimage Route

Monica Moscatelli 

Architecture Department, College of Architecture and Design, Prince Sultan University, Riyadh 11586, Saudi Arabia; mmoscatelli@psu.edu.sa

Abstract: Heritage plays a pivotal role in sustainable tourism development along pilgrimage and historical routes, shaping the identity and character of these places. This study aims to investigate the relationship between heritage and tourism along the Darb Zubaydah pilgrimage route in Saudi Arabia, exploring strategies for developing sustainable tourism that preserves cultural and natural heritage while promoting local economies and community engagement. This research employs a mixed-method approach, integrating data collection and observational research along the Darb Zubaydah route, the main historic Hajj pilgrimage route connecting Kufa in Iraq to Makkah in Saudi Arabia. The chosen case study is analyzed through four heritage sustainable criteria: cultural, environmental, spatial, and economic development, through a cross-sectional analysis of the aspects related to safety measures and risk management. The results demonstrate that including the four criteria in the development of the pilgrimage route leads to defining strategic solutions to enhance this tourist trail for pilgrims, promoting the cultural landscape and heritage by strengthening the sense of identity via a sustainable approach. This study wants to contribute to Vision 2030 to enhance the development of tourism by revitalizing the Islamic, Arab, and national cultural heritage, offering insights into sustainable tourism practices that can be applied to other cultural routes globally.

Keywords: culture heritage; community engagement; economic development; pilgrimage route; sustainable tourism; Saudi Arabia



Citation: Moscatelli, M. Heritage as a Driver of Sustainable Tourism Development: The Case Study of the Darb Zubaydah Hajj Pilgrimage Route. *Sustainability* **2024**, *16*, 7055. <https://doi.org/10.3390/su16167055>

Academic Editors: Richard W. Stoffle, Simon Larsson and Kathleen A. Van Vlack

Received: 28 June 2024

Revised: 2 August 2024

Accepted: 15 August 2024

Published: 16 August 2024



Copyright: © 2024 by the author. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).

1. Introduction

This research, starting from the initial investigation developed in the paper “Enhancement of cultural heritage tourism along the Darb Zubaydah pilgrimage route in Saudi Arabia. Fayd Oasis as a sustainable development scenario” [1], places a strong focus on heritage as a driver of sustainability tourism development in this study.

Heritage is a crucial connection between past and present, allowing the historical and cultural legacy it represents to be conveyed into the modern era [2]. Cultural heritage is a powerful driver of sustainable tourism development along the pilgrimage and historical routes, playing a vital role in shaping a place’s identity and character [3]. Cultural heritage sustainability is part of SDG 11, “Sustainable Cities and Communities”, UN Sustainable Development Agenda 2030. This inclusion highlights the vital connection between conservation and sustainable development. Furthermore, Target 11.4 focuses on “strengthening efforts to protect and safeguard the world’s cultural and natural heritage” [4–6]. Enhancing the heritage of these cultural routes and destinations can attract visitors by strengthening and preserving cultural and natural heritage, supporting local economies, and promoting community engagement, all while ensuring the preservation of valuable cultural assets for future generations [7].

The ICOMOS (International Council on Monuments and Sites) expanded the notion of heritage to include the natural, the built, and the cultural environment [8]. The ICOMOS International Cultural Tourism Charter of 1999 aims to manage tourism at places of heritage significance in a way that both conserves cultural values and enhances the visitor experience.

ICOMOS identifies tourism as a significant vehicle for cultural exchange, increasingly appreciated as a positive force for natural and cultural conservation. It captures the economic characteristics of heritage and harnesses them for conservation by generating finance and educating the community.

Major tourist attractions include natural and cultural heritage, diversity, and living cultures. Tourism should benefit host communities and give them an important means and motivation to care for and maintain their heritage and cultural practices.

Hence, the primary objectives of the International Cultural Tourism Charter are to enhance the accessibility of cultural heritage to both the host community and visitors, to foster the promotion of heritage and the living cultures of host communities by the tourism sector, to facilitate dialogue regarding the significance and delicate nature of heritage sites in the pursuit of a sustainable future, and to urge policymakers to develop precise, quantifiable goals and strategies for the presentation of heritage sites and cultural activities within the framework of their conservation and preservation [9]. Tourism is, therefore, considered a leading tool for the intellectual, emotional, moral, and spiritual development of the communities that support that heritage [10].

Moreover, UNESCO (United Nations Educational, Scientific and Cultural Organization) states that no development can be considered sustainable without including the “culture” and the “full integration of culture into sustainable development policies” [11,12]. This highlights the importance of the correlation between heritage and sustainable tourism in urban and rural areas, which UNESCO considers to be living laboratories of sustainable development. Culture and tourism play a vital role in promoting a greater understanding of the richness of cultural heritage. Therefore, cultural tourism is an inevitable component of cultural heritage, a key driver of economic growth, and a promoter of local cultural identity [13].

As a result, the preservation and reveal of cultural heritage through tourism development has become a primary objective for numerous nations. Saudi Arabia, a beacon of cultural preservation, is at the forefront of this endeavor, experiencing rapid growth in hospitality and tourism due to its efforts to diversify the economy away from oil, and adopting sustainability-oriented methodologies while revealing local heritage [14]. This effort in tourism development is aligned with the objectives outlined in Saudi Vision 2030, aiming to diversify the country’s economy and strengthen the Islamic identity through strategic national tourism. The National Tourism Strategy plans to increase the tourism sector’s contribution to domestic product to over 10%, provide one million more job opportunities and attract 100 million annual visits by 2030 [15].

This study underscores the importance of the relationship between heritage and tourism of pilgrimage and trade routes, focusing on Saudi Arabia, the birthplace of Islam.

As the heartland of Islam, many pilgrims and traders have crossed the Kingdom over the centuries to reach the Two Holy Mosques and Holy Places. In recent years, the number of pilgrims and tourists entering the country has tripled to 8 million. The government has launched numerous initiatives to promote urban planning processes and programs to improve tourist offers [16], such as the Pilgrim Experience Program, launched in 2019, to support pilgrims’ journeys to Mecca (Makkah). The program has set the goal of hosting 30 million pilgrims by 2030 [17], implementing technology, services, transport, and facilities to improve their hospitality and, as a next step, preparing historical Islamic sites to enrich their religious and cultural experience [18].

The research highlighted in this paper seeks to be part of the Pilgrim Experience Program, aligning itself with one of the five pillars of Islam, namely, the annual Islamic pilgrimage (Hajj) directed towards the Holy City of Makkah [19]. Since Saudi Arabia is rich in Arab and Islamic historical and cultural heritage, the goal is to build a future based on the creation of a system of public services for religious and cultural tourists directed to the Holy City by creating a “heritage route”, building profitable tourism growth through sustainable strategies, but at the same time, preserving national identity by considering economic, social, and cultural values [20]. The transit of pilgrims is essential for the identity

of the heritage and the management of a successful modern pilgrimage, as well as ensuring the Kingdom's economic growth. This research expands the pilgrim's routes and landscape knowledge by examining sustainability and global challenges. Furthermore, it will highlight natural and cultural heritage by developing jobs and growth along pilgrim routes through developing a low-impact tourism itinerary and strengthening local traditions; this reconnects pilgrims with their environment, landscape, and culture [1].

This study aims to investigate, in particular, the relationship between heritage and tourism along the Darb Zubaydah pilgrimage route in Saudi Arabia. Its objective is to formulate sustainable tourism strategies that safeguard cultural and natural heritage, boost local economies, and foster community involvement. By providing insights into sustainable tourism practices, this research endeavors to contribute to Saudi Vision 2030 and support revitalizing Islamic, Arab, and national cultural heritage, with potential applications to other cultural routes worldwide.

From this perspective, this work explores the following research questions:

- How can heritage drive sustainable tourism development along the Darb Zubaydah pilgrimage route in Saudi Arabia?
- What economic benefits can sustainable tourism along the Darb Zubaydah route bring to the local communities?
- How can the preservation of the heritage of the Darb Zubaydah route contribute to the cultural identity of the local communities?

Each of these proposed research questions is underpinned by a corresponding research hypothesis. These hypotheses serve as a comprehensive framework for the study, addressing various aspects of sustainable tourism development along the Darb Zubaydah pilgrimage route as follows:

1. Integrating cultural heritage into tourism development plans along the Darb Zubaydah route will enhance cultural and natural heritage preservation, promote linear "slow tourism", and lead to the discovery of local culture and historical sites, bringing greater cultural awareness.
2. Sustainable tourism development along the Darb Zubaydah route will significantly contribute to the local economy by creating job opportunities, boosting local businesses and promoting cultural events and activities. This potential for job creation can encourage and motivate the local communities.
3. Preserving the Darb Zubaydah route's heritage can significantly contribute to the cultural identity of local communities by maintaining and revitalizing historical landmarks, which serve as tangible connections to their past. These preserved sites foster a sense of pride and continuity, reinforcing the community's historical narrative and cultural traditions.

In order to achieve this goal, the article is structured as follows. The next section reviews the existing literature on various forms of tourism and their trends; it also outlines a theoretical framework by defining key concepts, exploring their interrelations, and suggesting an integrated approach to studying pilgrimage routes. Then, the paper presents its methodology, applying a mixed method that combines and integrates the data collection with observational research of the pilgrimage route in Saudi Arabia selected as a case study. The chosen case study is analyzed through four heritage sustainable criteria based on the principles outlined in the ICOMOS International Cultural Tourism Charter of 1999: cultural, environmental, spatial, and economic development. The Results section highlights the strategic solutions that should be implemented along the route through an overview table according to the four heritage sustainable criteria and the aspects of safety and risk management, enhancing the heritage sites and monuments along the trail to strengthen the cultural identity of these places. The Discussion section proposes some regenerative design strategies that could be implemented along the route to develop sustainable cultural tourism. Finally, the paper concludes by highlighting the scientific value of the research, adding limitations and future considerations on this topic.

2. Literature Review and Theoretical Framework

International tourism has multiplied in recent decades, making it one of the most important economic sectors in the world. The UNWTO (United Nations World Tourism Organization), at the 1st UNWTO International Congress on Pilgrimage and Tourism in 2014, estimated that more than 300 million people undertake a journey to a place of pilgrimage every year [21,22].

Within cultural tourism, there is spiritual tourism, which includes the pilgrims or those tourists looking for a place of reflection and an inner experience to develop their spirituality or learn more about the spirituality of others. These tourists satisfy their needs in various contexts, not only in sacred places but usually in natural and wellness-related environments. Furthermore, cultural itineraries have also gained increasing importance in recent years. They are based on cultural heritage and encourage the participation of local communities. These routes represent immense opportunities for economic growth in tourism, stimulating cultural exchanges, enriching cultural identity, and promoting links between visitors and host communities.

Trends in cultural tourism indicate a growing desire for meaningful and authentic experiences. The demand has shifted from static visits to dynamic, interactive experiences, appealing to a broader segment of society. Cultural tourists prefer to be seen as “guests” rather than mere visitors, valuing opportunities to explore hidden heritage and access less-traveled places. More importantly, they wish to participate actively, co-create their travel experiences with organizers, and share their journeys on social media.

According to recent research by the Adventure Travel Trade Association (ATTA) in collaboration with East Carolina University and supported by Outside magazine, the primary motivation for planning an adventure trip is to embark on a “transformative trip” [23]. This trend emphasizes travel aimed at personal growth, self-understanding, a deeper appreciation of the world and its people, and a stronger connection with nature and cultural heritage. The study found that hiking is the most frequently mentioned activity by adventure travelers, both for past (92.3%) and planned future activities (51.6%) [24]. Given these trends, pilgrimage routes and hiking trails are well-suited to meet the demands of spiritual tourism, experiential cultural tourism, and transformative travel.

Pilgrimages have significant political, economic, social, and cultural consequences and can influence global health [25]. Pilgrimage routes offer rural areas with rich cultural heritage a valuable opportunity to attract culturally interested tourists. The economic contributions of these tourists can ultimately provide financial advantages for the development of heritage sites and benefit residents [26,27].

Pilgrimage is considered one of the forms of linear tourism, which takes place along organic and linear routes to reach sacred sites. These routes are organic in that they developed naturally from pilgrims’ continuous and repeated passage. The contemporary practice of walking along pilgrimage routes is a way to escape from frenetic modern life by undertaking forms of slow travel in contact with the local community. For this reason, the pilgrimage is considered “slow tourism”, which leads to discovering local culture, historical sites, and the beauty of the natural landscape. Today, the pilgrimage is undertaken not only for religious reasons but also by spiritual tourists, motivated more by travel and discovery with greater environmental and cultural awareness [28]. Among the linear pilgrimage routes, created to connect different “nodes” or “stations” containing historical infrastructures to welcome travelers, we can mention the Santiago de Compostela Pilgrim Routes, whose route can be started from various starting points and arrive at a single destination, the Cathedral of Santiago de Compostela, Spain [21].

The valorization of pilgrimage routes with cultural heritage value leads this research to develop a holistic and integrated approach to understanding the phenomenon’s complexity. The aim is to create cultural itineraries through cultural, environmental, spatial, and economic development. This comprehensive approach acknowledges the multidimensional aspects of pilgrimage tourism and highlights the interconnectedness of cultural preservation, community involvement, and sustainable economic practices. By integrating

these elements, the research proposes a strategy that enhances the pilgrimage experience while ensuring that local cultures and environments are respected and preserved for future generations.

Pilgrimage Routes in Saudi Arabia

Religious pilgrimage has always represented a substantial cultural value and economic potential. Makkah has always been a pilgrimage destination in Saudi Arabia, with pilgrims coming from neighboring countries. To date, four important ancient land routes of the Hajj that lead to the Holy site can be identified. The ancient land routes of the Hajj, materialized over time due to trade routes and cultural exchanges. Moreover, these deeply rooted cultural and religious traditions have constituted the most crucial material traces of Islamic civilization over the centuries.

In the past, the journey to Makkah was arduous. The pilgrims had to travel for months on caravans, horses, and donkeys, cross the desert on dirt paths with extreme temperatures, and avoid possible raids and other obstacles—some service stations with water wells along the routes allowed for stops during the long journey. Several primary and secondary routes lead to Makkah, but four are the most important, as depicted in Figure 1 [27].



Figure 1. The most important ancient land routes of Hajj (credit: Monica Moscatelli) [1].

- The Pilgrim Road from Syria: This road connected Damascus to Makkah, passing through the province of Tabuk in Saudi Arabia, and Madain Saleh (Hegra), an archaeological site in the Al-Ula area, today an important tourist destination in the Kingdom rich in cultural heritage. This route is referred to as the Ottoman or Shami (Levant) route.
- The Pilgrim Road from Egypt: The African road used by pilgrims from Egypt, Morocco, Andalusia, Sicily, and various areas of Africa. Along this route are rock carvings by pilgrims as a reminder of their Hajj journey.
- The Pilgrim Road from Yemen: This road came from southern Saudi Arabia. Three routes, one coastal, one internal, and one primary, crossed the province of Asir in Arab territory until the city of Taif and then Makkah. Along the way, several villages were where pilgrims stopped.
- The Pilgrim Road from Iraq: This road connected the city of Baghdad and Kufa in Iraq to Makkah, traversing the north of the Kingdom and its center, passing the vast and treacherous sands of the Empty Quarter, the largest sand desert in the world, before reaching the Holy City. This ancient route is known by the name Darb Zubaydah because it takes its name from Zubaydah bint Jafar, wife of the Abbasid caliph Harun Al-Rashid, for the remarkable charitable work she has supported along the Hajj route through the construction of numerous stations, canals, wells, forts, and mosques.

3. Methodology

This study addresses the importance of preserving and revealing the heritage of the Iraqi cultural route by developing sustainable tourism along the Darb Zubaydah trail in Saudi Arabia, focusing on its cultural, environmental, spatial, and economic development. The journey of exploration began in 2021 when the author conducted observational research at the Fayd archaeological site along the Darb Zubaydah route. In 2022 and 2023, the author developed an initial investigation developed in the paper “Enhancement of cultural heritage tourism along the Darb Zubaydah pilgrimage route in Saudi Arabia. Fayd Oasis as a sustainable development scenario” [1]. The subsequent pilgrim data collection, methodology, findings, and analysis, integrated with sustainable criteria, were carried out in 2024, ensuring the most up-to-date information.

This study applies a mixed method that combines and integrates the data collection with observational research of the Darb Zubaydah route. In particular, the research approach is structured according to five steps represented in Figure 2.

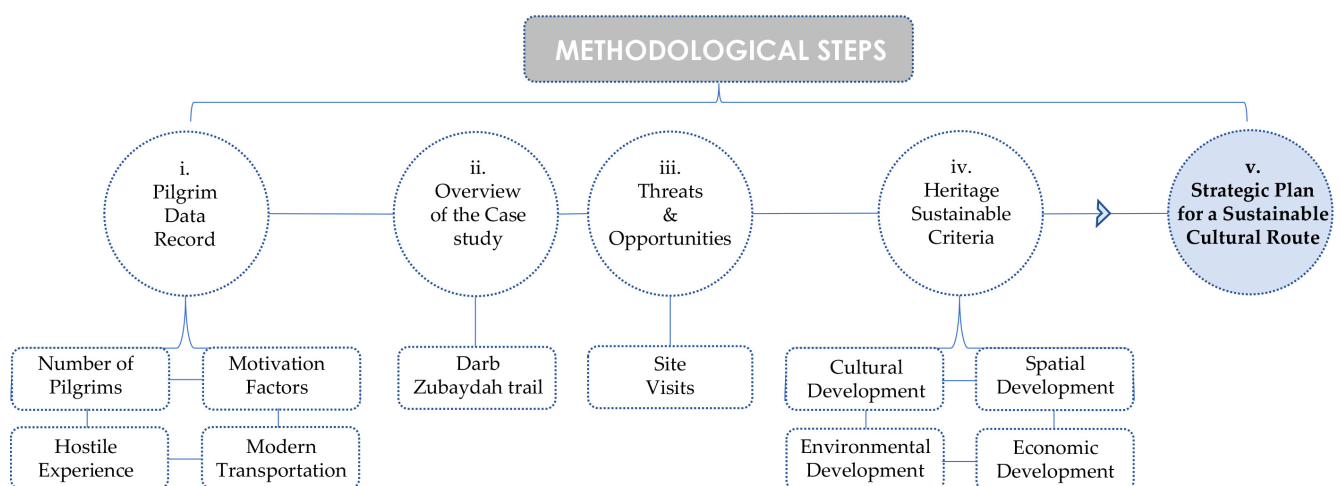


Figure 2. Methodological flowchart (credit: Monica Moscatelli).

The methodology steps are as follows: (i) data collection of statistical records of pilgrims in Saudi Arabia; (ii) overview of the case study location and heritage sites along the trail; (iii) identification of threats and opportunities according the site visits of the main archeological sites along the route; (iv) definition of the heritage sustainable criteria:

cultural, environmental, spatial and economic aspects; and (v) results validation according to the four heritage sustainability criteria and the common aspects of safety and risk management that lead to defining a strategic plan for developing sustainable cultural tourism along the Darb Zubaydah.

This section will present the first step, and the following steps will be presented in the Results section of this study.

There are no published studies or ideas focused on restoring and bringing to light the heritage of Darb Zubaydah and making it a tourist destination. This strategic approach, conceived by the author through a rigorous methodology applied to the Darb Zubaydah route, aims to be the precursor to bringing to light what was an important activity imbued with cultural and religious meaning. Integrating various data collection methods and observational research along the Darb Zubaydah route provides a comprehensive picture. It allows for a deep understanding of the relationship between heritage and tourism. Combining qualitative and quantitative data poses challenges in ensuring consistent and coherent integration, which can affect the robustness of the conclusions. But simultaneously, the mixed-method approach requires substantial resources in terms of time, workforce, and finances, which have limited the depth and breadth of the data collected. The methodology could be implemented in the future by integrating more interactive methods, such as interviews or focus groups, to extend the observational research. This would strengthen the observational method carried out by the author on site and specifically identify local needs and activities that can be included at the tourism level along the pilgrimage route, leading to greater accuracy of the results. Furthermore, further studies on the archaeological remains along the trail are needed; detailed information on each archaeological site is currently limited, and further studies should be carried out to rigorously map the assets to be preserved along the axis.

Acknowledging these limitations can direct future research to address these gaps, thereby enhancing the comprehensiveness and applicability of the findings and recommendations for sustainable tourism development along the heritage route.

3.1. Step 1: Pilgrim Data Record in Saudi Arabia

As an initial step, the research involves gathering data on pilgrimage in Saudi Arabia, such as the annual number of Hajj pilgrims traveling to Makkah, the factors that drove pilgrims to undertake a pilgrimage experience, the analysis of the hostile experience and the safety issues, and the impact of modern transportation on the historic pilgrimage routes. All these data were collected based on the main databases, like Google Scholar, Scopus, Web of Science, and official sites. Through the keywords “religious tourism”, “Hajj”, “pilgrims”, “survey”, “motivation”, “satisfaction”, and “safety”, this study has collected and analyzed the primary data to cover all possible application areas of this topic and highlighted in the following sub-sections.

The aim is to illustrate how pilgrimage studies have evolved in response to new tourism development, highlighting the integration of sustainable practices and enhanced safety measures in modern pilgrimage experiences.

3.1.1. Annual Number of Hajj Pilgrims

The official Hajj data collection is based on different sources. They include the General Authority for Statistics (GASTAT), which is responsible for collecting data and performing Hajj statistics of pilgrims from within Saudi Arabia, data from administrative records of government entities involved in the statistics for the foreign pilgrims, and data from the electronic registration and documentation processes adopted by these entities.

Recent data from GASTAT show that in the year 2024, the number of pilgrims to perform Hajj amounted to 1,833,164 pilgrims, with 1,611,310 pilgrims arriving from outside Saudi Arabia and 221,854 internal pilgrims, both citizens and residents [29]. The trend of pilgrims from 1999 to 2023 is shown in Figure 3. Without considering the year 2020, when the Saudi government limited the Hajj to Saudi Arabian residents only during the

COVID-19 pandemic 2020, the number of pilgrims fell to around 58.7 thousand in 2021; today, there have been more than 1.83 million pilgrims. Therefore, the Hajj is considered the most significant human gathering in the world, and all this leads to rethinking the importance of pilgrimage cultural itineraries by reorganizing the design of public space and reshaping the nature of economic activity.

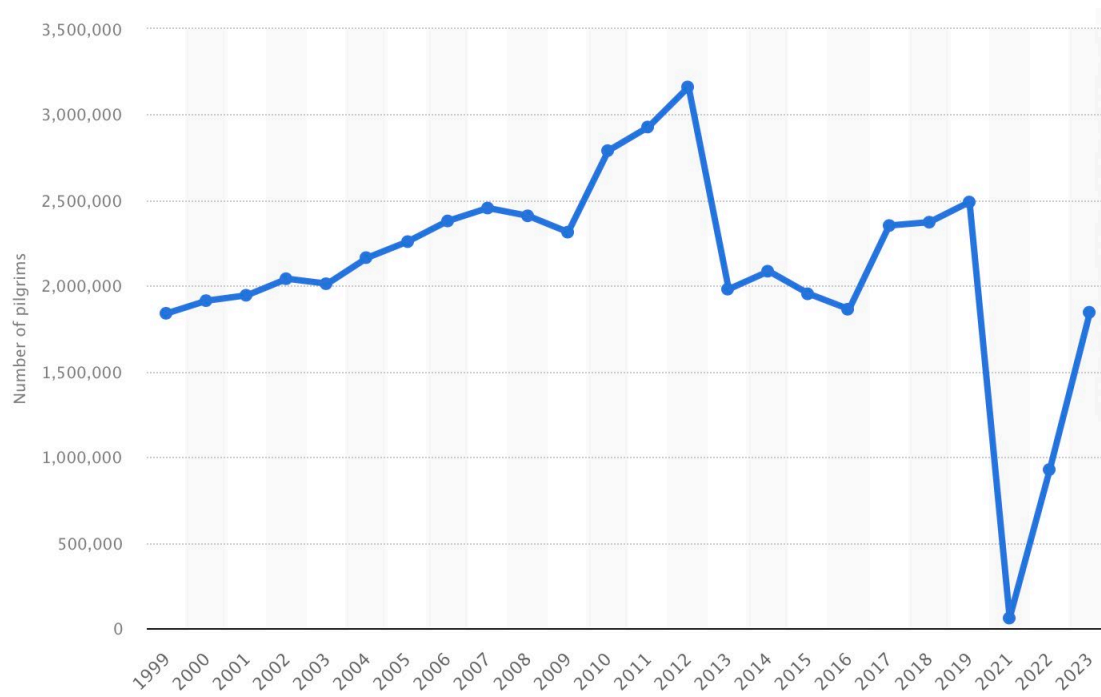


Figure 3. Annual number of Hajj pilgrims to Saudi Arabia from 1999 to 2023 (credit: General Authority for Statistics—Saudi Arabia, 2024) [29].

3.1.2. Factors That Drive Pilgrims to Undertake a Pilgrimage Experience

A study conducted by Hassan et al. (2022) identifies the segmentation of religious tourism based on their motivation for undertaking the pilgrimage to the city of Makkah. The research applies 350 detailed online questionnaires to identify distinct segments of religious tourists, such as those motivated by spiritual fulfillment, cultural enrichment, social interactions, and personal obligation. The findings reveal that these motivations significantly influence the pilgrims' experiences and behaviors. This paper suggests tailored strategies for managing and catering to each segment, aiming to enhance the overall pilgrimage experience and address the specific needs of different groups of pilgrims [30].

Similarly, Kayal (2023) examines the different personae of religious tourists and the underlying motivations driving their visits to religious sites in Saudi Arabia. The research uses a comprehensive survey and analysis to identify various tourist personas, including devout worshippers, cultural enthusiasts, and heritage seekers. People are driven by distinct motivations such as spiritual devotion, interest in cultural heritage, and educational purposes. The findings indicate that these motivations significantly impact the tourists' intentions to visit religious sites [31].

Considering a broader scale, religious motivation has been identified as the primary motivation in previous research, such as in the study by Bozic et al. of the Vujan Monastery in Serbia [32] or in the study of Lois-González and Santos for the Portuguese Way of Santiago De Compostela [33], or again in the study of Abad-Galzacorta et al. on the Ignatian Way in Spain [34].

3.1.3. Hostile Experiences and Safety Issue

A study by Quaium et al. (2023) analyzed the negative experiences reported by Hajj pilgrims and the development of recommendations to address these issues based on a large-scale survey. The study investigates the negative experiences of Hajj pilgrims through a comprehensive survey to understand the challenges encountered during the pilgrimage. The analysis highlights common issues such as overcrowding, inadequate facilities, poor organization, and health-related problems. Based on the survey results, this study proposes recommendations to improve the Hajj experience, including better crowd management, enhanced infrastructure, improved medical services, and more efficient logistical support. These recommendations aim to mitigate the identified problems and improve the overall safety and satisfaction of pilgrims [35].

Furthermore, the study by Hassan et al. (2022) examines how the satisfaction levels of religious tourists with various Hajj services affect their experiences at sacred sites in Saudi Arabia. Through a comprehensive survey methodology, the results reveal lower satisfaction ratings related to overcrowding and inadequate facilities negatively impacting the pilgrims' experiences. The study concludes that improving service quality in these key areas can significantly enhance the overall experience of religious tourists, thereby supporting the goals of Saudi Vision 2030 to boost the Kingdom's reputation as a premier destination for spiritual tourism [36].

In addition, the last Hajj in June 2024 confirmed the hostile experience and the safety issues during the pilgrimage to the city of Makkah, where more than 1300 pilgrims died [37]. Undertaking the Hajj pilgrimage is a spiritual journey that requires careful planning and attention to health and safety. Most of the deceased had not obtained permission to participate in the pilgrimage. They were, therefore, unregistered pilgrims who found themselves without the necessary support for such an arduous journey: medical care, safe accommodation, and adequate transportation to avoid long walks under the scorching sun [38]. Overcrowding, high temperatures above 50 degrees Celsius, and the advancing age of the pilgrims were the combinations that caused most deaths. The advanced age of the pilgrims made them vulnerable to the pilgrimage's harsh conditions and physical demands. The intense heat, prolonged periods of walking, and the physical strain of performing the rituals increased existing health problems, leading to new complications and deaths [39].

3.1.4. Impact of Modern Transportation on the Historical Pilgrimage Routes

For centuries, millions of pilgrims have made long-distance journeys to reach the city of Makkah, which has a unique character and image as a sacred land for Muslims worldwide. Every year, during the Hajj, the number of Muslims who go to the Holy City increases more due to the ease of land and air transport. In the year 2024, the external pilgrims arrived at the Holy Place through airports (1,546,345), through land ports (60,251), and seaports (4714). The statistical data analysis showed that 94% of foreign pilgrims in 2019 mostly used the air route; only 5% arrived by land and 1% by sea, as shown in Figure 4 [40,41]. With the increase in air travel, the rise of low-budget airlines means traveling from one place to another more comfortably.

On the other hand, these newly facilitated transport means have made the historical pilgrimage routes obsolete, and some overlap with the new roads and highways. The roads leading to Makkah have always been vital to the religious and economic life of Arabia, extending as far as Syria, Egypt, and neighboring countries. Given the importance of these pilgrimage routes, they require particular attention and valorization by creating cultural and sustainable itineraries. Preserving these ancient paths not only honors the rich history and traditions of the Hajj but also offers opportunities for educational tourism and promotes a deeper understanding of Islamic heritage.

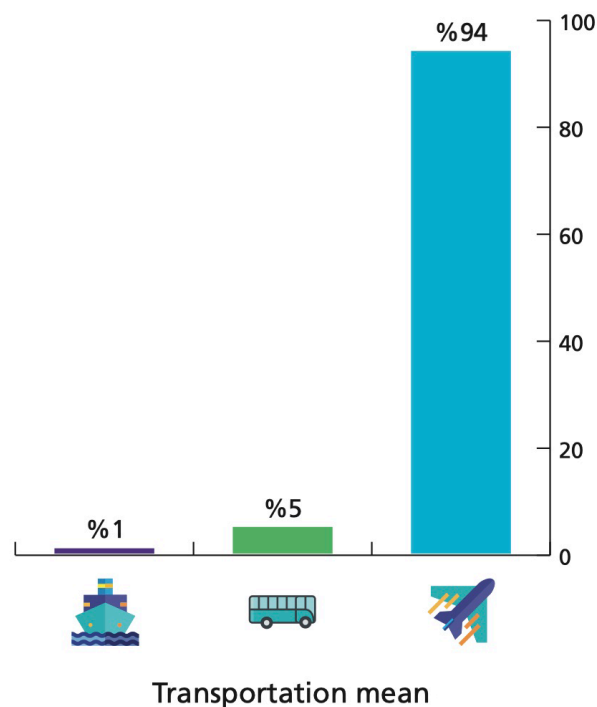


Figure 4. Foreign pilgrims in 2019 by transportation means (credit: GASTAT—General Authority for Statistic, Hajj Statistics 2019—1440) [30].

4. Results

4.1. Step 2: Overview of the Case Study: The Darb Zubaydah Route

The second step focuses on the Darb Zubaydah trail, the main historic Hajj pilgrimage route connecting Kufa in Iraq to Makkah in Saudi Arabia. The Darb Zubaydah is a historical, cultural route of exceptional universal value, and since 2 January 2022, it has been included in the Saudi Heritage Tentative List of UNESCO. This step examines the strategic location of the Darb Zubaydah route, dissecting the several heritage sites along the trail. The investigation was underpinned by a comprehensive analysis of cartographic, iconographic, and bibliographic online materials, ensuring the accuracy and reliability of our findings.

This study uncovers a 1300 km route with 13 heritage sites, 4 in Iraq and 9 in Saudi Arabia, each selected for their state of conservation, representativeness, and geographical position along the route (Table 1). The route includes 27 stations and 27 substations, as well as landmark elements from the Abbasid period, which materialize along the whole path linking the city of Kufa in Iraq with Makkah in Saudi Arabia. Today, the segment of Darb Zubaydah in Iraq covers approximately 1/5 of the trail's total length, and the other part in Saudi Arabia covers 4/5, providing an architectural overview of this extraordinary Hajj route, as shown in Figure 5 [42].

The Darb Zubaydah is not just a route but a living museum of cultural heritage and architectural marvels. The different architectural typologies that grace the route—the milestones, shelters, and water systems—are all testaments to the flow of pilgrims and traders along the Darb Zubaydah. This road has been the subject of extensive historical and archaeological research, shedding light on the development of stations along the route, water structures, and milestones [43,44]. A series of consecutive settlements bounded the road. Among the selected heritage sites, the research identifies wells in each settlement to provide adequate water for many travelers and their animals, given the heat and aridity of the region. The provision of water facilities is one of the best-studied elements of the Darb Zubaydah, and the presence of mosques is another essential requirement for pilgrims [45].

Table 1. The nine sites along the route of the Saudi Arabia segment [32].

No.	Archeological Site	Coordinates	Brief Description of the Representative Cultural Heritage
1	Al-Thulaiimiya	29°37'29.83" N 43°36'46.09" E	Historical station, located about 10 km from the Saudi-Iraq border. It features a well-preserved 32 m diameter circular basin with a thick wall and a large staircase for water access, along with a reservoir, mosque, and other structures.
2	Al-Jumaimiyah	29°36'20.03" N 43°36'13.48" E	Pilgrim station 14 km east of Rafha, Saudi Arabia. It features a well-preserved 30 × 30 m rainfed basin, a dry dug well, and old foundation remains. The basin is 3.45 m deep with eleven flights of steps descending from the eastern wall. Nearby, 1 km south, are the ruins of a possible fortress or caravanserai.
3	Al-Zabalah	29°23'55.80" N 43°33'43.80" E	Zabalah, 38 km south of Rafha, was a key pilgrim station known for its abundant water and vibrant trade during Hajj. Spanning 2 × 1 km, it had a fortress, mosque, and three large water tanks, including a restored 40 × 45-m tank. The site also features hundreds of deep wells still in use. South of the wadi are the ruins of a 35 × 35-m fortress with round towers and an enclosed court, alongside house ruins.
4	Stretch of the paved route between Buraykat al-'Ashshar and Birkat al-'Ara'ish	28°28'53.16" N 43°19'49.24" E	Darb Zubaydah's road infrastructure, spanning approximately 40 km from Buraykat al-Ashshar to Birkat al-'Ara'ish, features stone pavements of varying widths (2–4 m). This Abbasid-era achievement aimed to facilitate pilgrim travel across the soft sands of the Nefud desert.
5	Fayd	27°7'13.20" N 42°31'20.73" E	Fayd, located midway between Kufa and Makkah, was strategically vital on the Darb Zubaydah. During the Abbasid era; it served as a crucial station and administrative center for pilgrims, offering storage for supplies. Fayd's historical significance predates Islam, evidenced by its well-known fortress and ancient wells. Fayd was described as a fortified town dependent on pilgrim trade. The ancient monuments lie north of modern Fayd, with numerous wells and two large sand-filled reservoirs nearby. The original Pilgrim Route, now marked by cleared paths with low stone walls, passed nearby.
6	Al-Neqrah—Al-Jafniyah Pool	25°32'41.70" N 41°35'14.80" E	Ma'dan An-Neqrah, north of Jabal Ma'dan, historically mined copper and served as a key point on the Darb Zubaydah pilgrimage route. It featured a palace, mosque, road markers, and pools like the Aljfnyh Pool, facilitating pilgrims' journeys and reflecting its multifaceted past.
7	Al-Rabadhah	24°37'51.70" N 41°17'23.39" E	Prosperous pilgrim station, inhabited by Bedouins and equipped with accommodations and water facilities. Al-Harbi documented a fortress, two mosques, and two reservoirs, circular and square. Archaeological excavations have revealed valuable ceramics and interior decorations reminiscent of the imperial Abbasid style.
8	Al-Kharabah	22°11'41.88" N 40°50'3.05" E	Situated in a depression in Sahl Rakhah, it features two large and well-maintained reservoirs. An aqueduct from Wadi al-Aqlq supplies water to these tanks. The first tank is rectangular, 36 × 28 m with stepped sides and access steps, while the second tank is circular, 54 m in diameter and stepped, with a domed room between them likely for station caretakers.
9	Harrat Rahat, stretch of the cleared route between Sufayna and Birket Hadha	22°10'27.68" N 40°47'10.68" E	The road from Birkat Al-Shihiyya to Birkat Hamad cuts through rocky terrain where Abbasid engineers cleared large stones to form roadside walls. It spans about 18 m wide and continues southward through volcanic harrat Rahat, winding around large boulders with smaller rocks used for curb-walls, widening to around 20 m in the most challenging areas.



Figure 5. The nine archeological sites of the Darb Zubaydah route (credit: Monica Moscatelli).

4.2. Step 3: Threats and Opportunities along the Route

The third phase of the research identifies current threats and opportunities along the route. It involves site investigation to assess the existing physical conditions. This investigation was essential for pinpointing potential sites to enhance the cultural landscape and heritage, revitalize the area, and promote services and activities for tourists and pilgrims [46]. This study will lead to the presentation of a strategic trail proposal that combines heritage and natural wealth.

Threats: The site investigation reveals several issues along the Darb Zubaydah trail. These include limited access via secondary roads, significant distances between heritage sites and pilgrim stations, inadequate roadside services, and insufficient tourist accommodation. Additionally, religious facilities are scarce between cities, and there is inadequate night lighting along the route, poor promotion of archaeological sites to tourists, inadequate protection, and a lack of informational and explanatory materials.

Opportunities: From the site observation of archaeological sites, the Fayd site has attracted particular attention, as it is the main oasis along the pilgrimage road from Baghdad. The archeological area is the most prominent landmark in the city of “Fayd” and the largest palace on the Hajj route (Figure 6). The site visits and photographic surveys of the archaeological area verified the current state of the site and its related services.



Figure 6. Fayd archaeological site: satellite photo of the area (Credit: Bing Maps, 2024).

The city of Fayd is the most significant archaeological and historical site, located 120 km southeast of Hail and 1.5 km north of the present modern town of Fayd. It is the oldest settlement in the Arabian Peninsula, 1300 years ago, and covers an area approximately 1.5 km long by 1.5 km wide [47]. The oasis of Fayd, in the early period of the Abbasid Caliphate and even before the Islamic era, was considered the most important and strategically located along the Darb Zubaydah route. Furthermore, it was the main station for pilgrims, as it was used to supply food and water. Pilgrims and merchants converged on this oasis for more than five centuries.

Fayd, a city with a rich history dating back to the 13th century, is distinguished by its unique features. It was a fortified city with double walls of black basalt, a large fortress consisting of several floors with a tower in each corner, a mosque dating back to the early Islamic era, and wells for the water supply [42]. The ruins of the Kharash Palace, the old houses, the mill for grinding cereals, the wells, and some findings are still visible today (Figure 7a,b). The fort's walls have recently been rebuilt to give an idea of what the site was like. To the south of the fort, between the two walls, excavations have brought to light a series of rooms belonging to the homes and perhaps to the shops of the people of the Fayd oasis (Figure 8a) built around a central road (Figure 8b). Furthermore, an area with ovens used by the population was found to the south. The remains of the ancient mosque used by the inhabitants of Fayd and the pilgrims and merchants who visited it are also visible. The primary water sources were two large water cisterns, still visible today: a tank located north of the village and one to the southeast [48]. As for services, before entering the archaeological site, visitors go through the Fayd Museum, which contains the findings of the ancient fortress and its surroundings. There are no outstanding services around. A petrol station with a mosque without architectural value is visible on the other side of the road. The archaeological site of Fayd is not just a historical relic but a crucial player in the strategic planning and development of the cultural route. It remains central to Darb Zubaydah, a testament to its role in preserving and promoting the rich heritage along the trail. By safeguarding and interpreting its archaeological treasures, Fayd connects us to the past, inviting visitors to explore and appreciate its enduring legacy.



(a)



(b)

Figure 7. Photographic survey of the findings of Fayd Fortress (credit: Monica Moscatelli): (a) one of the wells in the archeological site; (b) some archeological findings.



(a)



(b)

Figure 8. Photographic survey of Fayd Fortress (credit: Monica Moscatelli): (a) residential rooms and commercial spaces; (b) ruins of the houses built along the central road.

4.3. Step 4: Heritage Sustainable Criteria

The fourth step highlights the main criteria for revitalizing the historical pilgrimage along the Darb Zubaydah route. This phase recognizes the pilgrimage route's transformative potential when seamlessly integrated with various facets of cultural, environmental, spatial, and economic development. Table 2 provides a comprehensive overview of the four key criteria essential for unveiling the heritage along the route and fostering sustainable cultural tourism. Each of the four Heritage Sustainable Criteria—cultural, environmental, spatial, and economic development—reflects key principles of the ICOMOS International Cultural Tourism Charter [9]. They aim to conserve and enhance heritage sites, promote sustainable tourism practices, improve visitor experiences through thoughtful infrastructure development, and support local economies, all while engaging and benefiting local communities. This alignment ensures that the revitalization of the Darb Zubaydah route adheres to internationally recognized best practices for managing tourism at places of heritage significance.

Table 2. Identification of the four criteria to develop sustainable cultural tourism along the trail.

Heritage Sustainable Criteria	Criteria Definition	Connection to ICOMOS Charter
Cultural development	Integration of the pilgrimage route with the local culture, aiming to preserve and reveal the rich cultural heritage along the trail. It involves showcasing cultural landmarks to create a meaningful experience for tourists and pilgrims.	The ICOMOS Charter emphasizes the conservation of cultural heritage and its integrity, promoting public awareness and understanding. This criterion aligns with the Charter by ensuring that cultural landmarks are preserved and presented to enhance visitors' appreciation and understanding of the site's historical and cultural significance.
Environmental development	Focused on the sustainable management and conservation of natural resources along the pilgrimage route, this criterion ensures that tourism activities do not harm the environment. It includes measures for promoting eco-friendly practices to maintain the natural beauty and health of the region.	The ICOMOS Charter advocates for sustainable tourism practices that protect and conserve natural and cultural environments. This criterion aligns with the Charter by promoting eco-friendly practices that minimize environmental impact, ensuring that the natural resources along the pilgrimage route are conserved and maintained for future generations.
Spatial development	Physical planning and infrastructure improvements are needed to support the pilgrimage route. It includes the development of accessible pathways, accommodation, amenities, and transportation facilities that enhance the overall experience while maintaining the integrity of historical sites and landscapes.	The ICOMOS Charter stresses the importance of integrated management in heritage and tourism, ensuring that infrastructure developments support heritage conservation. This criterion aligns with the Charter by improving infrastructure to facilitate visitor access and enhance their experience while preserving the historical and cultural integrity of the pilgrimage route.
Economic development	This criterion aims to boost local economies through tourism by creating job opportunities and fostering economic activities related to the heritage route. It ensures that the financial benefits of tourism are distributed equitably among local communities, contributing to their sustainable growth and development.	The ICOMOS Charter highlights the need for tourism to benefit local communities economically, supporting their social and economic well-being. This criterion aligns with the Charter by fostering economic development that benefits local communities, ensuring that the financial gains from tourism are shared fairly, leading to sustainable growth.

Heritage, therefore, plays a pivotal role in reviving archaeological sites along Darb Zubaydah by creating a "Heritage Route" as a dynamic resource in revitalizing the pilgrimage axis. Archaeological sites are also a fundamental component in sustainable development, as emphasized by the directives of ICOMOS [8,49].

4.4. Step 5: Results Validation

This section presents the findings from the Darb Zubaydah pilgrimage route investigation, applying the four heritage sustainability criteria: cultural, environmental, spatial, and economic development. Each criterion is divided into sub-criteria, helping to streamline the strategic solution and making it easier to focus on specific areas of development and implementation of the Heritage Route (Table 3).

The studies analyzed in the first methodological step, regarding the data on pilgrims' motivations and intentions, revealed distinct motivations for pilgrims to Makkah, including spiritual fulfillment, cultural enrichment, social interactions, and personal obligations. Therefore, on the one hand, these motivations are well integrated and go hand in hand with the heritage sustainable criteria derived from the ICOMOS Charter; on the other hand, the results highlighted key problems during the Hajj pilgrimage, including overcrowding, inadequate medical facilities and services, and safety issues. Therefore, to reach adequate strategies to develop sustainable ways of traveling for pilgrims, the four heritage sustainable criteria were analyzed through a cross-sectional analysis of the aspects of safety measures and risk management. In this way, it was possible to outline common aspects that also take into account the current problematic elements of the Hajj recently encountered in Makkah: flow management, infrastructure implementation, medical services, operational strategies, heat and weather management, technological device, security measures, environmental sustainability, pilgrim education, regulation, and compliance. These aspects complement achieving sustainable cultural tourism in complete safety and risk management. By addressing these elements, authorities can create a safer, more sustainable pilgrimage experience that preserves the cultural and spiritual significance of the journey while protecting the wellbeing of all participants.

The results underscore the strategic solutions for large-scale planning necessary to enhance the cultural landscape and heritage of the route, promoting sustainable tourism while strengthening the local identity and economy.

- For the cultural development criteria, the strategic solutions focus on two sub-criteria: restoration and conservation and heritage programs. Restoration and conservation efforts include the preservation and maintenance of significant archaeological sites, such as fortresses, mosques, and wells, as well as the upkeep of pavements along the route. Heritage programs aim to enhance visitor engagement and education through the development of informative panels, guided tours, interactive exhibits, and educational facilities like cultural centers and museums [50]. These initiatives are designed to deepen visitors' understanding of the historical and cultural significance of the route, highlighting the Abbasid era and other historical contexts. It is a unique experience to cross into a region rich in heritage. The main objective in reviving this cultural route is to achieve an exceptional visitor experience, rich in historical values and creative interaction with the cultural and environmental heritage of Darb Zubaydah.
- In terms of environmental development, the strategic solutions offer many benefits. They are divided into sustainable practices and environmental programs. Sustainable practices emphasize using natural energy sources, such as solar panels, for site operations and lighting and promoting water conservation and recycling. These practices not only reduce the environmental impact but also contribute to the sustainability of the route. Environmental programs focus on activating desert tourism activities that allow visitors to experience traditional social life while encouraging low-impact activities like hiking and camel riding. Additionally, promoting environmentally friendly transportation options, such as electric vehicles, and creating a desert science center for star watching are integral parts of the strategy. Implementing a linear greening solution along the path further supports environmental conservation. The goal is to integrate Darb Zubaydah culture with the natural environment into the daily lives of citizens and visitors alike.

- Spatial development is addressed through infrastructure network improvements and enhancements to accessibility and connectivity. Implementing a secondary infrastructure network with perpendicular roads to the main route allows visitors to access the pilgrimage route at various points, reducing the distance between stations. New stations have been added to facilitate shorter travel segments, with distances of 10 to 30 km. Developing a comprehensive site map and introducing smart technology, such as GPS-enabled apps, help visitors navigate different itineraries and cultural events on their phones [51]. Enhancements to accessibility and connectivity include establishing designated parking areas, developing public transportation options like shuttle services, improving connectivity between sites with pedestrian paths and bicycles, and creating alternative trails linking different stations.
- For economic development, the strategic solutions are categorized under local economy and tourism facilities. Promoting cultural events and festivals is essential for attracting visitors and boosting the local economy. Establishing a visitor fee system supports site maintenance, while workshops and activities highlighting cultural heritage provide economic opportunities for local communities. The financial impacts of the tourists can benefit the development of heritage sites and the residents financially [26,52]. Lighting along the road and in the archaeological sites will allow visitors to visit the archaeological sites at night and have a different perception of the site between day and night. The development of tourism facilities focuses on ensuring a comfortable and safe experience for visitors. This includes creating accommodation facilities such as traditional Bedouin-style tented camps to host tourists in an authentic space, allowing them to become closer to the local traditional culture and the desert landscape. Local shops and souq markets, spiritual and reflective spaces, health centers, and security posts will also be strengthened along the way.

These strategic solutions provide a comprehensive framework for developing sustainable cultural tourism along the Darb Zubaydah pilgrimage route. A key aspect of this framework is the implementation of safety measures and risk management, which are crucial in ensuring the health, security, and well-being of pilgrims. By addressing these aspects, strategic planning aims to create a more sustainable and secure environment for pilgrims, ensuring that they can fulfill their travel with minimal risk and maximum comfort. This focus on safety and comfort is in line with the overall goal of enhancing the visitor experience, preserving the route's historical and cultural heritage, and supporting local communities by addressing cultural, environmental, spatial, and economic aspects, as well as safety measures. The scattered archeological sites will become landmarks along the route, a reference point for pilgrims and tourists, as a catalyst for revival and sustainable development.

The path along the Darb Zubaydah is not only meant as a means by which to rediscover one's spirituality and religiosity but also as a way to find oneself, a journey to be traveled alone or in a group. It is an alternative to mass tourism in the name of physical and spiritual well-being and, above all, a journey rich in history and culture to discover the rich cultural heritage of Saudi Arabia. The idea is to promote sustainable, healthier, and more affordable tourism in contact with the nature of the pristine desert, crossing places of extraordinary historical and monumental beauty. However, effective implementation will require robust collaboration between ministerial bodies, local communities, and international organizations.

Table 3. Strategic solution to develop sustainable cultural tourism along the Darb Zubaydah route through the four criteria and integration with common elements of security and risk management.

Heritage Sustainable Criteria	Sub-Criteria	Strategic Solutions to Enhance the Darb Zubaydah Pilgrimage Route	Common Elements of Security and Risk Management
Cultural development	Restoration and Conservation	<ul style="list-style-type: none"> Restoration and conservation of the archeological sites: fortress, mosques, wells. Maintenance of the pavements along the route. 	<ul style="list-style-type: none"> Flow Management: Separation of flows with different means of sustainable transport and hierarchy of paths: primary and secondary. Infrastructure Implementation: Increasing the capacity of key locations and ensuring smooth flow of people. This includes better design of entry and exit points and optimizing the layout of essential facilities.
	Heritage Program	<ul style="list-style-type: none"> Development of informative panels and guided tours to educate visitors on the site's history along the trails. Creation of interactive exhibits detailing the historical significance of the site. Establishment of educational facilities, like cultural centers and museums, to explain the Abbasid-era achievements and the historical context of the site. 	
Environmental development	Sustainable Practices	<ul style="list-style-type: none"> Utilization of natural energy sources for site operations. Use of solar panels for lighting and facilities. Promotion of water conservation and its recycling treatment. 	<ul style="list-style-type: none"> Medical Services: Provide readily accessible medical facilities along the pilgrimage route, including mobile clinics and emergency response teams; offer health screenings and vaccinations prior to the pilgrimage to reduce the risk of disease outbreaks. Operational Strategies: Staggered scheduling of pilgrim movements to prevent congestion and the use of advanced communication systems to provide timely information to pilgrims.
	Environmental Program	<ul style="list-style-type: none"> Activate desert tourism activities and taste traditional social life. Encouragement of low-impact tourism activities such as hiking and camel riding. Promotion of environmentally friendly transportation options (electric vehicles). Creation of a desert science center for stars watching. Implementing a linear greening solution along the path. 	
Spatial development	Infrastructure network	<ul style="list-style-type: none"> Implementation of a secondary infrastructure network with a perpendicular road to the main route, allowing visitors to reach the route at different points. Adding new stations to reduce the distances between one station and another (like 10 km to 30 km). Development of a comprehensive site map for visitors. Introduce smart technology, such as an app with GPS coordinates, to help visitors consult different itineraries and cultural events for each station. 	<ul style="list-style-type: none"> Heat and Weather Management: Provide shaded areas and cooling stations along the route to protect pilgrims from extreme heat. Technological Device: The use of wearable devices for real-time tracking of pilgrims, as well as simulation models to predict crowd behavior and identify potential bottlenecks.
	Accessibility and Connectivity	<ul style="list-style-type: none"> Established designated parking areas. Development of public transportation options, like shuttle services. Enhancement of connectivity between the sites with pedestrian paths or bicycles. Develop an alternative trail connecting different stations. 	
	Local Economy	<ul style="list-style-type: none"> Promotion of cultural events and festivals to attract visitors. Establish a visitor fee system to support site maintenance. Promotion of cultural heritage with workshop activities. 	
Economic development	Tourism Facilities	<ul style="list-style-type: none"> Development of accommodation facilities along the route, like tented camps for traditional Bedouin-style camps for an authentic cultural experience. Development of commercial activities, like local shops and Souq market. Development of spiritual and reflective spaces. Implementation of health centers and security posts along the route. Implement lights along the roads and visit the archaeological sites at night. This will give visitors a different perception of the site between day and night. 	<ul style="list-style-type: none"> Security Measures: Increase the presence of security personnel to manage any potential threats or conflicts. Environmental sustainability: Promote the use of eco-friendly materials and practices to minimize the environmental impact of the pilgrimage. Pilgrim education: Educate pilgrims on the risks and safety measures through pre-pilgrimage workshops, guides, and mobile apps. Regulation and Compliance: Enforce regulations to ensure all pilgrims have the necessary permits and are registered to receive support services.

5. Discussion

The strategic solutions to enhance the Darb Zubaydah pilgrimage route previously identified in Table 3 could be applied to the entire route, showing a possible guideline to promote and bring cultural heritage to light by developing sustainable cultural tourism. Today, safeguarding architectural and cultural heritage is closely linked to social significance, sustainability, and environmental impact [53]. Sustainable cultural heritage management can be central to local development strategies, fostering social cohesion and driving economic growth through tourism [54]. Thus, tourism is closely intertwined with sustainable development and the preservation and promotion of cultural heritage [55]. In particular, remote areas in the Saudi Arabia desert stand to gain significantly from preserving and promoting their tangible and intangible cultural assets, enabling the ongoing preservation of cultural heritage [56,57].

The cultural heritage in Saudi Arabia is exceptional, given the Kingdom's rich history. Today, with the Saudi Vision 2030 centered around three themes: a vibrant society, a thriving economy, and an ambitious nation, tourism emerges as a key driver of diversification in the Kingdom. Therefore, the most prevalent method of developing the local economy of these desertic rural areas is through tourism [58]. Depending on its implementation plan, this choice could either be beneficial or detrimental to the environment of its application. Hence, an integrated strategic plan for sustainable tourism development could serve as a regulatory factor of the anticipated potential and threats.

However, the success of these strategies hinges on several critical factors. This implementation strategy should be guaranteed through the Ministry of Culture and the active participation of the local community in promoting local products and activities. The involvement of the local community is not just beneficial, but integral to the success of the project.

Striking a delicate balance between tourism development and conservation is crucial to preventing over-commercialization, which could dilute the authenticity and spiritual significance of the route. Ongoing monitoring and adaptive management strategies will be key to ensuring that this initiative remains in line with sustainable tourism principles and continues to meet the needs of both visitors and local communities. The proposed strategic solutions are comprehensive and well-founded, and their successful execution will be ensured through meticulous planning, continuous evaluation, and a steadfast commitment to sustainability and cultural preservation.

The strategically identified solutions for Darb Zubaydah invite reflection on how the revitalization of archaeological sites and the implementation of new services can increase the identity of a pilgrimage route, adding layers beyond the religious aspect. Each strategy introduced takes the visitor along the trail and makes him experience devotion and gratitude together with the cultural and adventure experience.

According to the findings, this study proposes a schematic regenerative design strategy for the Darb Zubaydah route to enhance the cultural and environmental assets for the Kingdom's sustainable tourism development (Figure 9). As depicted in the figure, the oasis of Fayd is located in the middle of the Iraqi route and should be considered, as in the past, the central pilgrimage station along the entire trail (Figure 10). As a result, an increased influx of visitors is anticipated, necessitating the implementation of additional services and activities around the archaeological site. Fayd should be transformed into a cultural and welcoming space, offering various entertainment options for pilgrims and tourists. Alongside the existing museum, new amenities will be introduced, including expanded exhibition areas, mosques, refreshment facilities, a primary healthcare center, commercial zones, and rental services for bicycles, electric vehicles, and traditional camels to provide an authentic Bedouin experience. The preservation and enhancement of the archaeological site will involve promoting tourist itineraries, both during the day and at night, to explore the rich history of the Fayd fortress. Experienced guides will lead tourists through the ruins of the archaeological site and the Kharash Palace. Additionally, cultural and scientific

forums, exhibitions, and events will be organized in the Fayd Oasis to engage and entertain visitors during their stopover midway between Kufa and Makkah [1].



Figure 9. Design strategy to enhance the Darb Zubaydah route (credit: Monica Moscatelli).

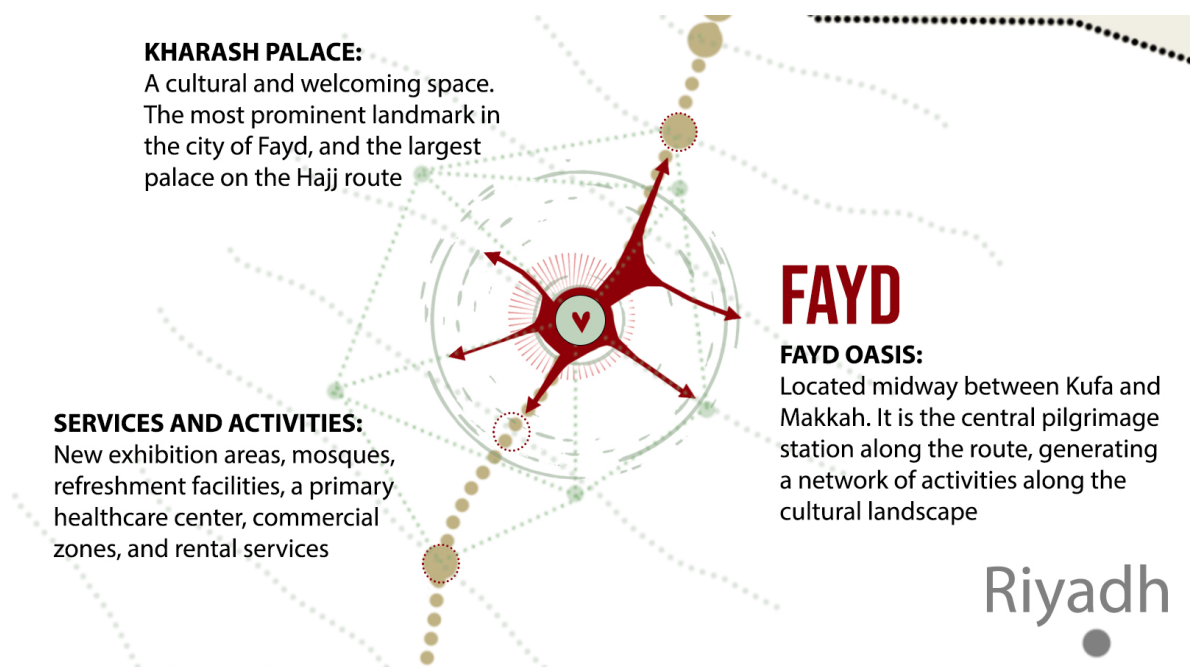


Figure 10. Regenerative design strategy of the Fayd Oasis (credit: Monica Moscatelli).

6. Conclusions

This study is an initiating step in highlighting the importance and role of the cultural routes in Saudi Arabia in the planning process of heritage revitalization and a starting point in developing subsequent steps for each aspect of the route's development. The creative implementation of the pilgrimage route, explored in this research, plays a crucial role in reviving heritage and creating benefits for the local community. The reactivation of this trail represents a complex system, contributing qualitatively to the concept of heritage in both cultural and natural aspects as a geographical representation of continuity.

The objective of the proposed strategy is to make Darb Zubaydah an economic engine and a first-rate cultural itinerary, offering boundless artistic and natural riches. This solution aims to enhance landscape's cultural heritage and identity so that they are integrated into ecosystem service assessments to inform decision-making and physical and spatial planning for the sustainable management of ecosystems and cultural landscapes.

The strategic approach shows how to enhance natural and cultural heritage while developing jobs and growth along the pilgrimage route by developing low-impact tourism and digitalization, welcoming tourists and strengthening local traditions to reconnect tourists and pilgrims with their environment, landscape, and cultural heritage.

Despite the strategic solutions proposed, this study recognizes some limitations, highlighted in the methodology section: the need for prior studies or ideas on restoring and promoting Darb Zubaydah as a tourist destination, resource constraints, and limited archeological information along the route. In the future, a comprehensive archeological study on archeological sites will be necessary to map and preserve heritage assets. Future research should integrate interactive methods, such as interviews and focus groups, to identify local needs and activities for tourism development. Given the extensive length of the route, the future intervention strategy should be divided into distinct phases for effective management and programming. This approach ensures the proper design and implementation of security measures. The phases can be categorized into three macro-sectors. The first phase will focus on the implementation of the Fayd oasis area. The second phase will address the pilgrimage axis between Fayd and the city of Makkah. Finally, the third phase will cover the stretch of the route from Fayd to the border with Iraq. Implementing the various strategic phases requires solid collaboration between ministerial bodies, local communities, and international organizations. It is undoubtedly an infrastructural axis with archaeological sites that deserves the attention and cooperation of the United Nations Educational Scientific and Cultural Organization (UNESCO), the International Council of Monuments and Sites (ICOMOS), and the World Tourism Organization (UNWTO), promoting such destinations rich in historical heritage.

Furthermore, there is a risk of excessive commercialization, which could dilute the authenticity and spiritual meaning of the path. Finding a balance between tourism development and conservation is crucial. Finally, adaptive management strategies are essential to ensuring alignment with sustainable tourism principles.

By addressing the identified limitations and focusing on future implementations, the potential for sustainable tourism development along this historic route can be fully realized, contributing to the broader goals of Vision 2030 and beyond. This sustainable strategic plan, therefore, requires an integrated approach that can be generalized and applied in future studies that replicate this study in other pilgrimage routes and on a global scale.

Funding: The author would like to acknowledge Prince Sultan University's support in paying the article processing charges (APC) for this publication.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: Data are contained within the article.

Acknowledgments: This contribution is part of the Sustainable Architecture Lab (SA Lab). The author would also like to thank Bertel S.r.l. for taking her to discover the archaeological beauties of the Fayd site.

Conflicts of Interest: The author declares no conflicts of interest.

References

1. Moscatelli, M. Enhancement of cultural heritage tourism along the Darb Zubaydah pilgrimage route in Saudi Arabia. Fayd Oasis as a sustainable development scenario. In Proceedings of the IFKAD, Managing Knowledge for Sustainability, Matera, Italy, 7–9 June 2023.
2. Jin, Y.; Hou, B.; Kong, X. The Practice Characteristics of Authorized Heritage Discourse in Tourism: Thematic and Spatial. *Land* **2024**, *13*, 816. [CrossRef]
3. Andrade Suárez, M.; Caamaño Franco, I.; Sousa, A.Á. A pilgrim but a tourist too: Re-examining the contemporary links. *Curr. Issues Tour.* **2024**, 1–18. [CrossRef]
4. Potsiou, C.; Ioannidis, C.; Soile, S.; Boutsis, A.-M.; Chliverou, R.; Apostolopoulos, K.; Gkeli, M.; Bourexis, F. Geospatial Tool Development for the Management of Historical Hiking Trails—The Case of the Holy Site of Meteora. *Land* **2023**, *12*, 1530. [CrossRef]
5. Petti, L.; Trillo, C.; Makore, B.N. Cultural Heritage and Sustainable Development Targets: A Possible Harmonisation? Insights from the European Perspective. *Sustainability* **2020**, *12*, 926. [CrossRef]
6. Lerario, A. The Role of Built Heritage for Sustainable Development Goals: From Statement to Action. *Heritage* **2022**, *5*, 2444–2463. [CrossRef]
7. Vythoulka, A.; Delegou, E.T.; Caradimas, C.; Moropoulou, A. Protection and Revealing of Traditional Settlements and Cultural Assets, as a Tool for Sustainable Development: The Case of Kythera Island in Greece. *Land* **2021**, *10*, 1324. [CrossRef]
8. Al-Jaberi, Z.A.; Hasan, S.A. Reviving the cultural route and its role in the sustainability of historical areas—Kerbala as a case study. *Int. J. Sustain. Dev. Plan.* **2022**, *17*, 1737–1746. [CrossRef]
9. ICOMOS. International Cultural Tourism Charter. Managing Tourism at Places of Heritage Significance (1999). Available online: https://www.icomos.org/images/DOCUMENTS/Charters/INTERNATIONAL_CULTURAL_TOURISM_CHARTER.pdf (accessed on 22 June 2024).
10. Brooks, G. Heritage as a driver for development: Its contribution to sustainable tourism in contemporary society, 2012. In Proceedings of the ICOMOS 17th General Assembly, Paris, France, 27 November–2 December 2011.
11. UNESCO—United Nations Educational, Scientific and Cultural Organization. Florence Declaration: Culture, Creativity and Sustainable Development. Research, Innovation, Opportunities. In *UNESCO World Forum on Culture and Cultural Industries*, 3rd ed.; UNESCO: Florence, Italy, October 2014. Available online: <https://unesdoc.unesco.org/ark:/48223/pf0000230394> (accessed on 18 June 2024).
12. Moscatelli, M. Preserving Tradition through Evolution: Critical Review of 3D Printing for Saudi Arabia’s Cultural Identity. *Buildings* **2024**, *14*, 697. [CrossRef]
13. Nocca, F. The Role of Cultural Heritage in Sustainable Development: Multidimensional Indicators as Decision-Making Tool. *Sustainability* **2017**, *9*, 1882. [CrossRef]
14. Filippi, L.D.; Mazzetto, S. Comparing AIUla and The Red Sea Saudi Arabia’s Giga Projects on Tourism towards a Sustainable Change in Destination Development. *Sustainability* **2024**, *16*, 2117. [CrossRef]
15. Ministry of Tourism, National Tourism Strategy. Available online: <https://mt.gov.sa/about/national-tourism-strategy> (accessed on 22 June 2024).
16. Mazzetto, S. Sustainable Heritage Preservation to Improve the Tourism Offer in Saudi Arabia. *Urban Plan.* **2022**, *7*, 195–207. [CrossRef]
17. Fast Company. Saudi Arabia Will Host 30 Million Pilgrims by 2030. This Is How Technology Will Help. Available online: <https://fastcompany.com/news/saudi-arabia-will-host-30-million-pilgrims-by-2030-this-is-how-technology-will-help/> (accessed on 22 June 2024).
18. Vision 2030. Available online: <https://www.vision2030.gov.sa/en/> (accessed on 22 June 2024).
19. Pilgrim Experience Program. Available online: <https://www.vision2030.gov.sa/en/vision-2030/vrp/pilgrim-experience-program/> (accessed on 22 June 2024).
20. Moscatelli, M. Cultural identity of places through a sustainable design approach of cultural buildings. The case of Riyadh. *IOP Conf. Ser. Earth Environ. Sci.* **2022**, *1026*, 012049. Available online: <https://iopscience.iop.org/article/10.1088/1755-1315/1026/1/012049> (accessed on 22 June 2024). [CrossRef]
21. World Tourism Organization. *Affiliate Members Global Reports, Volume Twelve—Cultural Routes and Itineraries*; UNWTO: Madrid, Spain, 2015. Available online: https://catedratim.files.wordpress.com/2017/01/omt-2015-global_report_cultural_routes_itineraries.pdf (accessed on 22 June 2024).
22. Tsiornis, C.N. Pilgrimage and Religious Tourism in Society, in the Wake of the COVID-19 Pandemic: A Paradigmatic Focus on ‘St. Paul’s Route’ in the Central Macedonia Region, Greece. *Religions* **2022**, *13*, 887. [CrossRef]

23. ATTA. *North American Adventure Travelers: Seeking Personal Growth, New Destinations and Immersive Culture*; Adventure Travel Trade Association: Seattle, WA, USA, 2017.
24. Green Pilgrimage. Policy Peer Review of European National and Regional Policies on Pilgrimage Routes and Cultural Trails Protecting and Enhancing Cultural and Natural Heritage through Sustainable Tourism. Available online: https://projects2014-2020.interregeurope.eu/fileadmin/user_upload/tx_tevprojects/library/file_1542361094.pdf (accessed on 22 June 2024).
25. Collins-Kreiner, N. The geography of pilgrimage and tourism: Transformations and implications for applied geography. *Appl. Geogr.* **2010**, *30*, 153–164. [CrossRef]
26. Fernandes, C.; Pimenta, E.; Gonçalves, F.; Rachão, S. A new research approach for religious tourism: The case study of the Portuguese route to Santiago. *Int. J. Tour. Policy* **2012**, *4*, 83–94. [CrossRef]
27. Vlizos, S.; Kosta, E. Designing Cultural Routes in the Region of Sparta, Peloponnese: A Methodological Approach. In Proceedings of the 6th UNESCO UNITWIN Conference, Leuven, Belgium, 8–12 April 2019. Available online: <https://ees.kuleuven.be/unitwin2019> (accessed on 22 June 2024).
28. Olsen, D.H.; Trono, A. *Religious Pilgrimage Routes and Trails: Sustainable Development and Management*; CABI Publishing: Wallingford, Oxfordshire, UK; Boston, MA, USA, 2018; pp. 1–13.
29. GASTAT—General Authority for Statistic. Available online: <https://www.stats.gov.sa/en/news/532> (accessed on 22 June 2024).
30. Hassan, T.; Carvache-Franco, M.; Carvache-Franco, W.; Carvache-Franco, O. Segmentation of Religious Tourism by Motivations: A Study of the Pilgrimage to the City of Mecca. *Sustainability* **2022**, *14*, 7861. [CrossRef]
31. Kayal, G. The personas and motivation of religious tourists and their impact on intentions to visit religious sites in Saudi Arabia. *Int. J. Tour. Cities* **2023**, *9*, 201–219. [CrossRef]
32. Božić, S.; Spasojević, B.; Vujčić, M.D.; Stamenkovic, I. Exploring the Motives of Religious Travel by Applying the Ahp Method—The Case Study of Monastery Vujan (Serbia). *Int. J. Relig. Tour. Pilgr.* **2016**, *4*, 4. [CrossRef]
33. Lois-González, R.C.; Santos, X.M. Tourists and pilgrims on their way to Santiago. Motives, Caminos and final destinations. *J. Tour. Cult. Change* **2015**, *13*, 149–164. [CrossRef]
34. Abad-Galzacorta, M.; Guereño-Omil, B.; Makua, A.; Iriberrri, J.L.; Santomà, R. Pilgrimage as Tourism Experience: The Case of the Ignatian Way. *Int. J. Relig. Tour. Pilgr.* **2016**, *4*, 20. [CrossRef]
35. Quaium, A.; Al-Nabhan, N.A.; Rahman, M.; Salim, S.I.; Toha, T.R.; Noor, J.; Hossain, M.; Islam, N.; Mostak, A.; Islam, M.S.; et al. Towards associating negative experiences and recommendations reported by Hajj pilgrims in a mass-scale survey. *Heliyon* **2023**, *9*, e15486. [CrossRef] [PubMed]
36. Hassan, H.T.; Abdou, A.H.; Abdelmoaty, M.A.; Nor-El-Deen, M.; Salem, A.E. The Impact of Religious Tourists' Satisfaction with Hajj Services on Their Experience at the Sacred Places in Saudi Arabia. *GeoJournal Tour. Geosites* **2022**, *43*, 1013–1021. [CrossRef]
37. Deaths during Annual Hajj in Saudi Arabia Underscore Extreme Heat Dangers. Available online: <https://www.hrw.org/news/2024/06/25/deaths-during-annual-hajj-saudi-arabia-underscore-extreme-heat-dangers> (accessed on 1 August 2024).
38. Hajj Deaths Highlight the Need to Keep Pilgrims Safe. Available online: <https://www.thenationalnews.com/opinion/editorial/2024/06/25/hajj-pilgrims-heat-saudi-arabia-travel-safety/> (accessed on 1 August 2024).
39. Climate Change Has Made the Hajj Pilgrimage More Risky. Available online: <https://www.unsw.edu.au/newsroom/news/2024/06/climate-change-has-made-the-hajj-pilgrimage-more-risky> (accessed on 1 August 2024).
40. GASTAT—General Authority for Statistic, Hajj Statistics 2019–1440. Available online: https://www.stats.gov.sa/sites/default/files/haj_40_en.pdf (accessed on 22 June 2024).
41. Jaffer, I. Spiritual Motivation for Religious Tourism Destinations. In *Spiritual Religious Tourism. Motivations and Management*, 2nd ed.; Dowson, R., Yaqub, J., Raj, R., Eds.; CAB International: Wallingford, Oxfordshire, UK; Boston, MA, USA, 2019; Volume 3, pp. 59–72.
42. UNESCO World Heritage Convention. The Hajj Pilgrimage Routes: The Darb Zubaydah (Saudi Arabia), in Tentative Lists, Permanent Delegation of Saudi Arabia to UNESCO, 2022. Available online: <https://whc.unesco.org/en/tentativelists/6577/> (accessed on 22 June 2024).
43. Gierlichs, J. Early Pilgrimage Routes to Mecca and Medina. In *Roads of Arabia. Archaeological Treasures from Saudi Arabia*; Franke, U., Gierlichs, J., Eds.; Wasmuth: Berlin, Germany, 2012; pp. 208–223.
44. Bloom, J.M. Architectural 'Influence' and the Hajj. In *The Hajj: Collected Essays*; Porter, V., Saif, L., Eds.; British Museum: London, UK, 2013; pp. 133–141.
45. Blair, A.; Ulrich, B. From Iraq to the Hijaz in the Early Islamic Period: History and Archaeology of the Basran Hajj Road and the Way(s) through Kuwait. In *The Hajj: Collected Essays*; Porter, V., Saif, L., Eds.; British Museum: London, UK, 2013; pp. 44–51.
46. Oikonomopoulou, E.; Delegou, E.T.; Sayas, J.; Vythoulka, A.; Moropoulou, A. Preservation of Cultural Landscape as a Tool for the Sustainable Development of Rural Areas: The Case of Mani Peninsula in Greece. *Land* **2023**, *12*, 1579. [CrossRef]
47. Ibrahim, A.O.; Baqawy, G.A.; Mohamed, A.S.M. Tourism attraction sites: Boasting the booming tourism of Saudi Arabia. *Int. J. Adv. Appl. Sci.* **2021**, *8*, 1–11. [CrossRef]
48. Egal, F.A. Major Oasis City Along the Pilgrimage Road from Baghdad, the Saudi Arabia Tourism Guide, 2017. Available online: <https://www.saudiarabiatourismguide.com/fayd/> (accessed on 22 June 2024).
49. Cassalia, G.; Tramontana, C.; Ventura, C. New Networking Perspectives towards Mediterranean Territorial Cohesion: The Multidimensional Approach of Cultural Routes. *Procedia-Soc. Behav. Sci.* **2016**, *223*, 626–633. [CrossRef]

50. Raffa, A. Museum Inside the Territory. The Museo Diffuso as a Tool for Cultural Infrastructure of Places. The Case of the Lybian Coastal Road. 2018. Available online: <https://iris.unibas.it/handle/11563/167134> (accessed on 1 August 2024).
51. Allawi, A.H. Towards smart trends for tourism development and its role in the place sustainability- Karbala region, a case study. *Int. J. Sustain. Dev. Plan.* **2022**, *17*, 931–939. [[CrossRef](#)]
52. Fernandes, C. Developing religious tourism in emerging destinations: Experiences from Mtskheta (Georgia). *Int. J. Bus. Glob.* **2011**, *7*, 102–115. [[CrossRef](#)]
53. Guzman, P.; Roders, A.P.; Colenbrander, B. Measuring links between cultural heritage management and sustainable urban development: An overview of global monitoring tools. *Cities* **2017**, *60*, 192–201. [[CrossRef](#)]
54. Albarrán, J.D. Tourism Development and Urban Landscape Conservation in Rural Areas: Opportunities and Ambivalences in Local Regulations—The Case of Spain. *Sustainability* **2024**, *16*, 3973. [[CrossRef](#)]
55. Thirumaran, K.; Mohammadi, Z.; Azzali, S.; Eijdenberg, E.L.; Donough-Tan, G. Transformed landscapes, tourist sentiments: The place making narrative of a luxury heritage hotel in Singapore. *J. Herit. Tour.* **2023**, *18*, 243–264. [[CrossRef](#)]
56. Vehbi, B.O.; Hoskara, S.Ö. A Model for Measuring the Sustainability Level of Historic Urban Quarters. *Eur. Plan. Stud.* **2009**, *17*, 715–739. [[CrossRef](#)]
57. Koutsi, D.; Stratigea, A. Unburying Hidden Land and Maritime Cultural Potential of Small Islands in the Mediterranean for Tracking Heritage-Led Local Development Paths. *Heritage* **2019**, *2*, 938–966. [[CrossRef](#)]
58. Popescu, C.A.; Iancu, T.; Popescu, G.; Croitoru, I.M.; Adamov, T.; Ciolac, R. Rural Tourism in Mountain Rural Communities-Possible Direction/Strategies: Case Study Mountain Area from Bihor County. *Sustainability* **2024**, *16*, 1127. [[CrossRef](#)]

Disclaimer/Publisher’s Note: The statements, opinions and data contained in all publications are solely those of the individual author(s) and contributor(s) and not of MDPI and/or the editor(s). MDPI and/or the editor(s) disclaim responsibility for any injury to people or property resulting from any ideas, methods, instructions or products referred to in the content.