

Using GIS Tools as a Mechanism to Achieve Concept of Sustainable Touristic marketing, With Special Reference to Egyptian Hajj Road

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Abstract— Tourism industry during the last years is facing quick mobility through the national and global levels. Tourism become one of the most investments supporting the national economy of many countries. So that, many countries decided to compete and increase its touristic market share in the international market. Modern understanding of tourism marketing is based on a comprehensive marketing management in terms of sustainable tourism using new digital techniques.

Using Geographical Information System (GIS) now isn't still a challenge during tourism marketing phases. Geographical Information Systems are tools that allow a better decision-making process, accessing politicians and managers in tourism development. Moreover, providing integrated touristic information. Furthermore, these are powerful tools for the development of destination marketing strategies. The selected case study in the paper is "old Egyptian Hajj road". The yearly Islamic pilgrimage to the Holy city of Makkah is one of the five pillars of Islam and one of the most important and most ancient religious pilgrimages in the world. Until today, millions of Muslim pilgrims visit Makkah every year to accomplish this religious duty. Pilgrimage routes were not only religious axes but also commercial axes favoring movement across the ancient world and the cultural and commercial exchanges with continuity over a long period of time. The Egyptian Hajj road perfectly embodies the cultural significance coming from exchanges and multi- dimensional dialogue across countries.

The research objective is to develop a local and global effective tourism system by Re-habitation and document the old Egyptian Hajj road. As the tourist, investors, community and the government now looking forward to tourism sector growth. In addition to support the decision maker with the full stored database of the natural and human resources serving the historical and traditional places especially old Egyptian Hajj road. Moreover, find the optimum alternatives to use the touristic locations in effective ways using GIS. The research questions are focusing on the required data input for creating the full marketing database provide the case study. In addition to maximize the benefits of using the GIS program to provide the tourism sector with marketing the route and its facilities. The research methodology is to allocate the already exist of the historical and traditional locations places during documenting the old Egyptian Hajj road.

KEYWORDS: Geographic Information Systems (GIS), Sustainable tourism, old Egyptian Hajj road, Sustainable Touristic marketing.

Index Terms— Urban Assets Management, Assets registration, Elements of Asset Management Framework.

1. INTRODUCTION

The yearly Islamic pilgrimage to the Holy city of Makkah is one of the five pillars of Islam. Also, it is one of the most important ancient religious pilgrimages in the world. Until today, millions of Muslim pilgrims visit Makkah every year to accomplish this religious duty. Pilgrimage (Hajj) described as a spiritual and psychological journey. Guests of Al-Rahman feelings are mixed between joy and sadness, longing and nostalgia, far away from home, family and friends, winning and suffering, hope in Allah's mercy and mixed Human feelings. In the past, the Muslim pilgrims all over the world crossed the Arabian Desert with huge groups that followed traditional paths and routes to reach the Holy City of Makkah. Pilgrimage routes were not only religious axes but also commercial axes favoring movement across the ancient world, the cultural and commercial exchanges with continuity over a long period of time. The old Egyptian Hajj road perfectly embodies the cultural significance coming from exchanges and multi- dimensional dialogue across countries. It permitted to bring together Muslim pilgrims from different ethnic groups and regions, favoring the cultural, religious and scientific exchanges among the inhabitants of the region. The old Egyptian Hajj road illustrates the interaction of movement, along the

route, not only space but also in time from the early Islamic Caliphate to the end of the Ottoman Rule in the early 20th century CE.

The question is how to market the old Egyptian Hajj road in sustainable methods using the geographic information systems. Putting in consideration the vision of Egypt 2030 and the vision of Saudi Arabia 2030. These visions argued that their countries have to develop tourism sectors using the digital techniques with special references to geographic information systems. Geographic information system (GIS) is one of the most effective popular elements providing many industries especially tourism industries. GIS technologies provide the marketing plans with flexibility and high accuracy. Moreover, it is always using to expand the efficiency of the marketing campaigns in the global touristic market. So that the paper focused on using the GIS as a mechanism to manage touristic areas by building well organized data base for managing the touristic locations. Since 50's the extent of the approaches in different areas of marketing of tourism services has depended on the trends in the international tourism and on the development of the demand and supply shift respectively. So that, the paper decided to spread the modern understanding of

tourism marketing which based on a comprehensive marketing management in terms of sustainable tourism with special references to the old Egyptian Hajj road.

2. SUSTAINABLE TOURISM CONCEPT

Sustainable tourism known as a global approach to tourism that covers planning, development and frequent evaluation of tourism operations. Sustainable Tourism involves social responsibility, a strong commitment to nature and the integration of local people in any tourist operation or development. Sustainable tourism is a process as much as a concept. It takes into account the current and future impacts of tourism to offer better places for good life and to interested visits. Sustainable tourism is a strategy with significant objective [1]. Sustainable tourism has to understand the interaction between the touristic sites and surrounding natural forces putting in consideration a social, economic and environmentally balanced forum [2]. Sustainable tourism is defined by the World Tourism Organization (WTO), the Tourism Council (WTTC) and the Earth Council as "Sustainable Tourism Development meets the needs of present tourists, host regions while protecting and enhancing opportunity for the future. It is envisaged as leading to management of all resources in such a way that economic, social and aesthetic needs can be fulfilled while maintaining cultural integrity, essential ecological processes, biological diversity and life support systems. Sustainable tourism products are products which are operated in harmony with the local environment, community and cultures so that these become the beneficiaries not the victims of tourism development."

3. SUSTAINABLE TOURISM MARKETING CONCEPT

Sustainable Tourism is a term similar to responsible Tourism, Soft Tourism, Minimum Impact Tourism and Alternative Tourism. Engineers and marketers are pushing the tourism industry towards a sustainable development approach. [3]

They used strategy for Sustainable Tourism marketing concept has many objectives. These objectives are to understand the interaction between the organization managing a site and surrounding natural forces. Results on approach are creating a social, economic and environmentally balanced forum. [2]

3.1. CATEGORIES AND APPROACHES IN TOURISM MARKETING

Travel and tourism marketing can be divided according to a criteria, Public and private tourism marketing, Demand and supply tourism marketing, Tourism economy and tourism industry, Tourism marketing by the tourism subsector, Destination marketing and regional approach by the continental, national/state, (sub) regional or local tourism marketing. Finally, documentation for future marketing.

The tactical marketing focused on service performance, service quality, product development, distribution channels or demand models and pricing. In addition to the field of performance measurement, which is based mainly on the measurement of effectiveness, efficiency, destination marketing management and competitiveness. [4]

Table no. 1- the approaches in marketing of tourism services

Themes	Sub-themes
1- Consumer behavior	Motivation, perception,

	satisfaction, loyalty, intercultural marketing
2- Market segmentation, targeting and positioning	Psychographic and behavioral segmentation factors, positioning
3- Brand strategy and brand management	Branding, image, brand, brand attribute, destination personality
4- Strategic marketing and marketing concept	Marketing research, market orientation, marketing strategies, relationship marketing, experiential marketing
5- Traditional and new communication tools (e-marketing)	Communication mix, promotion, internet usage, user-generated content, social media, mobile marketing, web 2.0
6- Relationship, sustainability, societal marketing	Relationship, societal and ecological tourism marketing

Source: Monika palatkova, Travel and tourism marketing - review, Czech journal of tourism, 2012, p: 30-52.

4. THE ROLE OF GIS IN TOURISM MARKETING

A large number of applications of GIS appear in the field of tourism marketing. The main role of GIS during the tourism marketing process is through spatial data management. NO one can deny the connections between GIS and marketing. Basic features in the GIS can provide the marketing plan with rich spatial vision into marketing data, a greater potential for the visualization of marketing analysis, accurate marketing reports and presentations. In 2001 Hsu and Powers stated that GIS can have important application in marketing of the hospitality industry. In addition to argue that the GIS is commonly used for the evaluation of locations of certain facilities and identification of places where the best profit potential has. [5] Hotels, resorts, golf courts, restaurant chains and pedestrian route, are suitable examples for the effective use of GIS. Furthermore, the location is important in relation to the main traffic and transportation routes to the tourists. GIS and geospatial analysis help to spread the possibility for meeting the expectations of a heterogeneous group of tourists. These results could lead to using GIS not only in the management and planning of tourism at the destination, but also offer corresponding potential tourists which would lead to a reduction in marketing costs. [6]

Wu and Carson (2008) point out that GIS should be used in the analysis and visualization of the trips that include visiting various different destinations. They stress that the visit to multiple destinations include spatial aspect (destinations themselves) and the time aspect (the duration of the visit), and the type of transport between destinations and characteristics of supply and demand in all destinations. [7] These variables can

be effectively and efficiently analyzed using GIS. Tourism uses GIS to focus on the geographic variables used to determine the potential and capacity of the city as a tourist destination. Using GIS, tourism sector can define locations where are, according to accessibility, capacity and quality, possible locations for organizing tourist activities. E-Tourism planning requires the collection and processing of a huge number of spatial data using GIS. GIS technology offer a number of advantages in the documentation of data and their processing to tourism planning and e-tourism. [8]

5. METHODOLOGY

5.1 CASE STUDY

Egyptian Hajj Road is One of the important pilgrimage routes in Islamic history, linking Egypt to Makkah and Medina, through which benefited the masses of Muslim of pilgrims coming from Egypt, Sudan, Central Africa, Morocco, Andalusia and Sicily, as they meet in Egypt, then travel through Sinai to Aqaba then march across two trails:

- **The first**, is internal trail moving to Medina passing Shaghab, Beda, valley of the villages.
- **The second** is coastal trail passes through a number of stations most important of which are: Ainouna, Al-Muwailih, Dhuba, Al-Owained, Al-Wajh, Al-Hora, Nabat, Yanbu and Al-Jar. From Al-Jar the trail heads to Makkah through Al-Juhfa then Khulais then Usfan. Or heads through Badr until it reaches Makkah or Medina.

Like all the other Islamic pilgrimage roads, it received great interest and attention of Muslim rulers in different Islamic eras and periods, as they established many structures on the path of this road like pools, canals and wells, they also paved obstacles and built barricades, bridges, castles, forts and mosques, and on the road near the camps are numerous Islamic inscriptions and commemorative writings, engraved by pilgrims as they passed through the road.

This path is important not only for Egyptian pilgrims, but for it was is the path of the pilgrims from Libya, Tunisia, Morocco, Ghana, and Central Africa; it was also the path for pilgrims from Andalusia. The course of this road changed through time, according to political circumstances and technological development. This road is divided into to four distinct period of time as the followings:

Period one: extends from the Islamic conquest of Egypt, until mid-5th century AH/9th century CE, this route was divided into two paths in Arabia: an internal road and coastal road, **Period two:** Egyptian pilgrims used Nile ships to sail to Qus and then travel to Aitheb by caravans then crossed the sea to Jeddah, **Period three:** during which pilgrims returned to use the coastal road, Period four: the land road discontinued and pilgrims travelled by sea from Suez, and then, by air to Jeddah. [9] The stage of Aitheb path, during this period, the northern Hijaz land road was halted.



Fig no. 1: capture of Egyptian Hajj Road in ancient times,
Source: <http://alsahra.org/?p=1686>

6. DATA COLLECTION AND ANALYSIS

Ibn Hawqal* described this road from Egypt to Medina, the coastal road is twenty stages long, and the Egyptian Hajj Mission will meet with the Syrian Hajj mission in Aiyla. Moroccans accompany Egyptians and probably remain together unless they reach consent, the people from Palestine will pass Median (Tabuk) in two roads: one through Al-Bid' and Shaghab, till they reach Madinah. The second path remains parallels to the coast until it reaches Al-Juhfa were the people from Iraq, Damascus, shall meet.

Judge Wakea* counted the stages of the Egyptian road, from Al-Fusttat, Al-Jub, Al-Hafer, Al-Buwaib, Manzel um Saad, Ajroud, Al-Qalzam, Kursi, Al-Hafer, Nakhal, Aiyla, then the road separates to a coastal and inland roads. The inland road from Aiyla to Sharaf Al-Baal, Madien, Falis, Al-Aghar, Al-Kilabiyah, Al- Bedea, Shaghab, As-Sarhtain, Al-Suqiya, and there both the Shami and Egyptian paths meet. The coastal path: from Ayla, Ainona, Al-Mussala, Al-Nabak, Dhuba, Al-Murrah, Uwainid, Al-Wajh, Mankhus, Al-Hora (Umluj), Qussaiba, Al-Buhra, Yanbu, Al-Jar, to Medina [7] as described in table no. 2.

Table no. 2 - the stations of Egyptian Hajj Road

The Road starts form the Town of Haqel on the Gulf of Aqaba			
Name	Zone	Easting	Northing
Magha'ir Su'aib in Al-Bide'	36 R	695650.71 m E	3152942.30 m N
Median Wells in Al-Bide'	36 R	697620.02 m E	3152641.60 m N
Ainouna Wells	36 R	716331.00 m E	3109849.00 m N
Sharma	36 R	718481.63 m E	3096908.41 m N
Al-Mwaileh Fort	36 R	744653.95 m E	3064321.00 m N
King Abdul Aziz Fort in Dhuba	36 R	766600.29 m E	3027908.70 m N
Al-Azlam Fort	37 R	204309.01 m E	2994336.37 m N
Al-Souq Fort in Al-Wajh	37 R	246113.14 m E	2903342.79 m N
Cape Karkoma	37 R	265527.62 m E	2861839.45 m N
Traditional Souq in Umluj	37 R	324781.39 m E	2769008.61 m N
Al-Swaiq Site in Yanbu	37 R	443914.59 m E	2695595.50 m N
Yanbu Al-Nkhel site	37 R	440647.09 m E	2689974.03 m N
Old Town of Badr	37 Q	479103.11 m E	2629557.91 m N
Al-Abwa Traditional Town	37 Q	507956.37 m E	2554667.38 m N
Rabigh Tower	37 Q	503323.70 m E	2522178.06 m N
Al-Juhfa Site	37 Q	514032.67 m E	2514807.92 m N

The Road then ends in Makkah

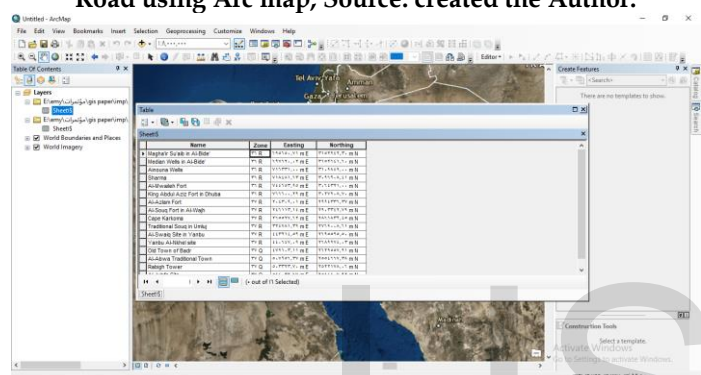
Source: <https://whc.unesco.org/en/tentativelists/6028/>

7. RESULTS AND DISCUSSION

The database of the Egyptian Hajj Road was built using Arc catalogue and Arc map which consists of first personal geodatabase, second feature dataset and finally feature classes. The stations were then signed on GIS as shown in Figure (2) captured from Arc map 10.5. Data for the stations in attribute tables were added as shown in Figure (3), In addition to The

Figure 1 consists of two maps of the Persian Gulf region, showing the locations of 12 oil fields. The left map shows the fields with black dots and labels. The right map shows the same fields with red dots and labels, and includes a legend for 'Oil field' and 'Road'.

Fig no. 5: Developing the route map with allocating the Egyptian stations of old Hajj Road, Source: created the Author.



8. CONCLUSION

GIS is used in tourism sector in different ways in diverse countries. It can help to achieve the vision of 2030 for Egypt and Saudi Arabia vision. In general, the most common use of GIS in tourism is location "Stations" analysis and related routes, transportation and accommodation. In general, the paper achieved its results by documenting the historical places and necessary places for tourism for re-habitation the old Egyptian Hajj road. The use of application of GIS in the tourism sector can be divided into the following three categories like tourism planning, Tourism development tourism research and tourism marketing map. Map and GIS is closely related to each other. Maps produced with GIS, can show the important features, attractive sites, possible routes of travel, location of hotels and all facilities attract visitors and investors. For that the potential for GIS applications in tourism is significant. The strength of tourism planning can be enhanced by GIS applications. So as whole it can be said that GIS is a useful and efficient tool for sustainable tourism development and for tourism research as well. The GIS can build a complete marketing database, allocate all sites, reduce costs, achieve higher quality, better information flow, and more efficient distribution. The paper decided to put the Egyptian Hajj route for future research and exploitation for attracting the visitors to reuse the path and identifying the target segments to target them to visit and invest etc... Finally, the paper wishes to export the route path and develop different Hajj roads in the past to be added with Hislo mobile application.

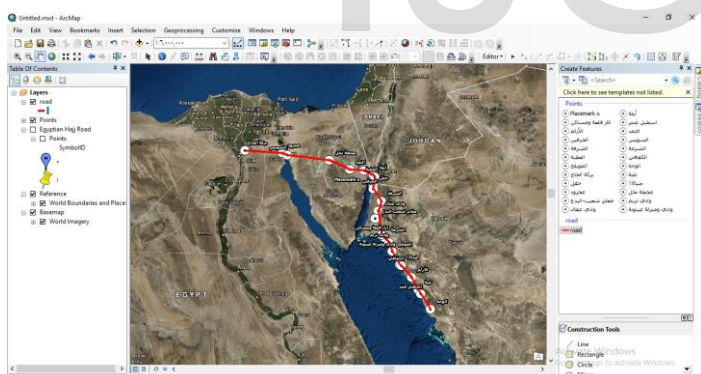


Fig no. 4: Developed the route through connect the Egyptian Hajj Road stations expected, Source: created the Author.

9. CONCLUSIONS

* Ibn Hawqal : Muhammad Abū'l-Qāsim Ibn hawqal, also known as Abū al-Qāsim b. , Alī Ibn hawqal al-Nahībī, born in Nisibis, Upper Mesopotamia; was a 10th-century Arab, Muslim writer, geographer, and chronicler who travelled 943-969 AD. His famous work, written in 977 AD, is called *sūrat al-'Ard* ("The face of the Earth"). The date of his death, known from his writings, was after 368AH/978AD.

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