

Management and Controlling Tourism Activity and Services (MCTAS) at ALBAHA City Using GIS

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Abstract - This paper aims to industry a tool for use in decision support tourism, based on GIS applications, so that it explains the sites and tourist services, tourism statistics, and other factors that could affect the development of tourism, with the integration of applications with a variety of assistive technologies such as forms a three-dimensional, and virtual reality, which make scalable applications, that provides a centralized store and retrieve all the tourist data, prepare geographic database, tourist sites in Al-Baha City - Saudi Arabia. Tourism is probably the only economic sector which provides concrete and quantitative growing in TRADING opportunities. Therefore, this paper gives discussion on an initiative for the development and the implementation of Geographic INFORMATION SYSTEMS in the tourism industry for an important region of Saudi Arabia.

Keywords - GIS Techniques, Municipality of ALBaha, Destination Management, Tourism, ICT Diffusion Strategy ARCGIS.

1. Introduction

Growing importance of tourism is as important as an industry which have economic benefits of social prominent. The tourism industry has become a cost-effective solution quickly. The piece has become necessary to provide a comprehensive base for Tourism Planning and work on coordination precise in setting goals and determining the means available. Taking into account the provision of a saucepan counted and analyzed in order to promote what is available from the tourist possibilities and services linked to tourism activity and maintained to ensure continuity in the present time and the future. The tourism sector development needs strategic planning, which takes into account environmental considerations and the resources available, so we find that it is necessary to plan, implement, monitor and manage all levels, with a

scientific approach, and special programs for the inventory of the existing possibilities and how to exploit optimally.

Good planning needs to provide accurate and detailed information. The process of collecting, organizing, analyzing, presenting and coordinating become this information easy and quick. Geographic Information Systems (GIS) provide an important scientific tool in keeping geographic information about the nature of places and monitor all resources by analyzing and modeling them with monitoring effects resulting from tourism development. We find that it has become a practical tool essential in the analysis, and as a display for tourism and archaeological sites, and other resources in the form of geographic maps contribute to the provision of all information and data that support the tourism planning.

Intervention of (GIS) in various scientific fields, includes: the environment, criminology, archeology and geographic history, marketing, urban planning, and other areas of interest to different groups of specialists, as well as being important for both society and the environment. The objective of the establishment of (GIS), does not differ from other information that aims to collect information in certain areas and organized, so that it can be made available to beneficiaries when needed systems, therefore, the development trends and methods used to retrieve information from these systems is something very important, which leads to facilitate access to the process Information, analysis and benefit from them.

2. A Review of Literature

A GIS combines software, hardware and information for analyzing. GIS means the incorporation of statistical

analysis, cartography and the database technology. It has the power to relate information from many different sources and incorporate it into one database software.

There have been four distinct phases in the development of Geographic Information Systems. Phase one, between the early 1960s and the mid-1970s found a new discipline being dominated by a few key individuals who were to shape the direction of future research and development. The second phase, from the mid 1970s to early 1980s found the adoption of technologies by national agencies that led to a focus on the development of best practice. Phase three, between 1982 until the late 1980s found the development and exploitation of the commercial market place surrounding GIS whilst the final phase since the late 1980s has seen a focus on ways of improving the usability of technology by making facilities more user centric. [16]

Table 1: Definitions of GIS

Properties of GIS		GIS Analytical Functions
A process	A system for capturing, storing, checking, manipulating, analyzing and displaying data, which are spatially referenced to the earth.	Presentation and thematic mapping, Data query, Spatial query, Database, integration, Route finding
A toolbox	Containing tools for collecting, storing, retrieving, transforming and displaying spatial data.	
A database	Spatially referenced entities	Point in polygonal analysis Overlays Buffering Visualization and 3-D modelling
An application	Cadastral information system, marketing information system, planning information system, etc.	
A decision support system	Integrating spatial data within a problem-solving environment	

Source: Adapted from V. Jovanović, A. Njeguš 2007, p. 2.

GIS has been applied in many disciplines including geography, urban planning, and environmental studies. Similarly, tourism has been a subject of interest to geographers, economists, environmental planners, As such; the potential for GIS applications in tourism is significant.

GIS can produce a number of benefits for destination management activities in terms of:

- Reducing costs, lowering the need to print and distributing promotional material.
- Reducing times needed for undertaking activities, the collection and analysis of tourism

data, while at the same time increasing their effectiveness.

- Increasing quality, with the introduction of authorization processes enabling distributed editing of tourism contents, ensuring up-to-dating as well as precision and truthfulness of information provided.
- Increasing effectiveness, for instance through the delivery of targeted promotional campaigns for specific high-value segments or even individuals.[4]

WTO argues that "the key to success lies in the quick identification of consumer needs and in reaching potential clients with comprehensive, personalized and up-to-date information" (WTO, World Tourism Organization, 1988).

Travelers and tourists may be classified into visitors who spend at least one night outside their usual residence and tourists that stay at least one night in a collective or private accommodation in the place visited [12].

So far, applications of GIS in tourism has been limited to recreational facility inventory [9], Most of tourist operators prefer customers that return to the same destination. Because positive word of mouth is the result of satisfaction. Special attention needs to be given to customer satisfaction and complaint handling. The former should be constantly monitored in order to identify the problem areas and to make necessary modifications to enhance customer satisfactions [7]. GIS applications in tourism planning [15], range of issues and potential applications of GIS (Table 2).

Table 2: Common tourism-related issues and GIS applications

Problem	GIS Application
Benchmark/database	Systematic inventory of tourism resources
Environmental management	Facilitating monitoring of specific indicators
Conflicts	Mapping recreational conflicts: recreation-wildlife; user conflict
Tourism behavior	Wilderness perceptions
Carrying capacity	Identify suitable locations for tourism/recreation development
Prediction	Simulating and modeling spatial outcomes of proposed tourism development
Data integration	Integrating socio-economic and environmental datasets within a given spatial unit
Development control and direction	Decision support systems

Source: Adapted from Butler 1993, p. 33 (cited in Bahaire and Elliott-White (1999), p.162). One of the earliest applications of GIS in tourism planning is discussed by Berry (1991) in the US Virgin Islands. GIS was used to define conservation and recreation areas and determine the best locations for development.

3. GIS Applications in Tourism Planning

- We find that the most technically advanced countries become relies primarily on its work on geographical information systems, the introduction of this technique in most government and private entities, particularly in those that provide public services, most of these agencies have a direct connection through computer networks, which are entitled the following points:

3.1 The Benefits of GIS Systems in Tourism Planning Applications are

- The provision of information to decision makers, as well as to take based on accurate and current information procedures, which is reflected on the tourism planning in encouraging tourism investments.
- Link maps and data as part of one system, accurate and effective way for the development of facilities, road networks and other services in tourist locations.
- Electronic archive is a GIS, tourist sites and their own data, save the information, so that can be used with easy and in very quick time.
- The uses of GIS in tourism planning effectively contributes positively to determine future needs, cost-saving compared to other means, as aerial photography and ground surveys.

3.2 The Most Important Graphic Elements in GIS That Contribute to The Planning Process for The Areas of Tourism Development are

- Topographic charts, geologicaly charts, diagrams and hydrological.
- Elements represented in natural attractions (vegetation, and the natural environment unique.)
- Elements represented in tourist attractions (archaeological, heritage and tourist attractions).
- Infrastructure available.
- Tourism facilities and services.
- Statistics tourist.

3.3 The Role Played by The GIS in The Preparation of Tourism Development Plans is as follows

- Build a database, a tourist descriptive and spatial.
- Tourism data analysis.
- Provide data on tourist areas, and tourist services, and the size of fiscal revenue

- It contributes to the process of making the right decision for planners and investors in tourism development process
- Contributed to the issuance of tourist maps

3.4 To get the best results, the use of GIS applications, in future planning of tourist sites, are the following

- Choose the appropriate satellite pictures, depending on the required fee scale or the size of the study area and quality.
- Processing and analysis of images according to the study area, to show some phenomena.
- Gathering information, collecting maps of the study area, the work of field surveys geographically correct images using GPS devices.
- Produce final images show the required parameters, can be used on-map, relying on a specific point to ensure the matching information.
- To compile the detailed information of the site by the competent authorities or field surveys.
- Extracting information from satellite images of areas on the required layers vector.

The use of GIS applications (GIS) effective technique you can do many of the tasks in tourism planning, by analyzing, storing, processing, management and output data and spatial information and linking descriptive information, it can be done in the form of models, maps and data visible help planners and decision makers in the tourism planning in areas of tourism to be developed.

4. Potential Applications of GIS in Al-Baha

The main rationale for the choice the city of Al Baha Saudi Arabia is that the proposed system is implemented where they need to geographic the information system technology, due to the geographical structure in the region, and the importance of the region archaeological, where diverse tourist attractions in the study area, which has been expressed in 11 information layers (Look at table3), was illustrated the importance of the proposed system in the management and development of tourism infrastructure of the city of Al-Baha.

Table 3 11-information layer by GIS

Name of Layer	Attributes
Boundary Of District	ID, Name, Area, Length
Way	ID, Name
Mosque	ID, Name, Address , image
Health centers \ hospitals	ID, Name, Address
Government buildings	ID, Name

Hotel	ID, Name, Category, Address, Web, Telephone, image
Restaurant	ID, Name, Type of Food, Address, image
Public Garden	ID, Name, The coordinates of the site , image
Archeological sites	ID, Name, The coordinates of the site, image
Museum	ID, Name, Address, image
Markets	ID, Name, Address

The proposed system is designed using the program (ARCGIS 9.3), where all the proposed system layers processed through this software, which loaded the system on the Internet through the program (ARCIMS 9.3). It is a program for the dissemination of geographical data via a local intranet network (Figure 1 explains the architectural ArcIMS system).

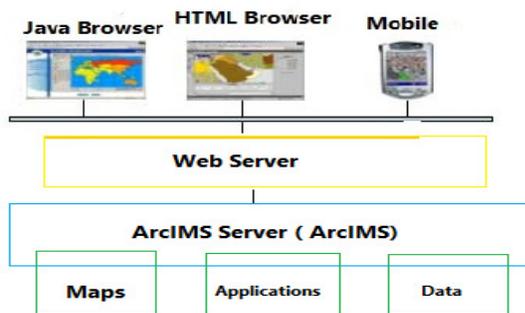


Figure 1: Architectural ArcIMS system

It can be seen the effects of the tourism sector employees through access to all geographic databases details, or global Internet that can be seen by tourists all over the world through the Internet and mobile phones and wireless devices.

Providing software ARCGIS 9.3 do many of the analysis on the map, as each Feature phenomenon within the map, have been linked to a table metadata, Attribute Data, a data that includes information describing spatial / geographic data, Spatial Data. This metadata and associated spatial data by coding system. And Define Objective of the required database, and Decide What You Need to Achieve, and knowledge of the required data type, format and output. (Figure 2)

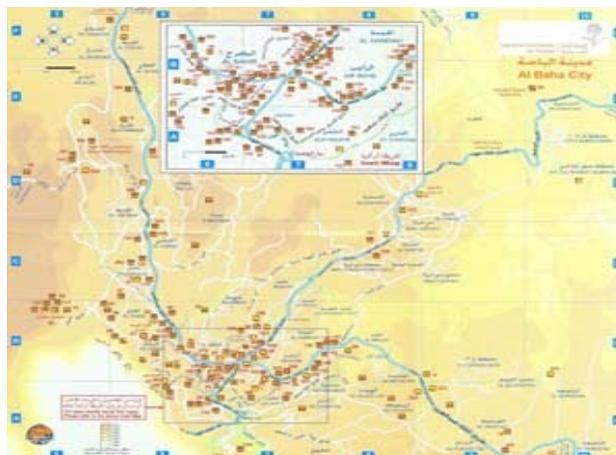


Figure 2: Baha tourist map

We can go through its own map query for any effectiveness the user wanted of this system archaeological database. The database includes a number of tables in the form of areas dealing with various special study area aspects. The user can go through the proposed system open any hyperlink, and access to all the information with him, through a tool called Identify, to show the data in the table to any place, and these tables can be used in the search using the historical period. Analytical processes offered by the proposed system for the management and development of tourism using GIS:

There is a set of information that can be provided accurately and permanently, without any consideration of time and place, which is the input, processing, management, query, analysis. This is done through the Internet, and is characterized by the proposed system easily used among the most prominent things that offer:

1. Identifying Specific Feature
2. Identifying Features Based On Conditions
3. The road network analysis
4. Locate A specific Feature or Attribute



Figure 3: Baha tourist map2

5. Conclusion

The experiences gained over the years spent on the diffusion of GIS in tourism destinations, offer a number of insights as related to the arguments of this paper, in particular on the main barriers towards the utilization and diffusion of GIS. There are several uses of geographical information system, according to the multiplicity of applied fields used in the management and development of archaeological and tourist locations, and these uses depends on the differing views about the identification and classification of applied goals. GIS can do many of the tasks in the field of archaeological sites management, through the use of Multi Map of picture and sound as well as the possibility of the system in a different statistical analysis and analysis of road networks.

The proposed system allows the user the multiple options based on specific data, and displays a variety of information on this system, including aerial photographs and satellite visuals and detailed maps that shows constituent particular site elements and shows the depth of information selected, also to display the building with a header picture of the site of tourism. The power of GIS lies not only in the ability to visualize spatial relationships, but also beyond the space to a holistic view of the world with its many interconnected components and complex relationships

Applications of GIS in tourism and recreation planning illustrate that GIS is a strong and effective tool that can aid in tourism planning and decision-making. Impact assessment and simulation are increasingly important in tourism development, and GIS can play a role in auditing environmental conditions, examining the suitability of locations for proposed developments, identifying the conflicting interests and modeling relationships.

We find that GIS applications in the Arab world is still limited in use and neglected in the tourism side due to the high material cost, and the lack of specialists in dealing, as a result of the lack of awareness, training and education, in addition to the problem of access to data. There is an opportunity in terms of the possibility of the use and application of GIS in other tourist locations, through re-studies and plans for the development of new tourism and archaeological sites, but you need the material and technical support from the government and private entities that support the users of the system.

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