

Integrating Tourism and Heritage Management: A Sustainable Tourism Development Perspective (Egypt Case Study)

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Abstract. History and culture are elements which attract tourists in a place. They constitute significant tourist resources. Heritage sites are frequented by millions of tourists every year (Mass tourism), which reflects the high number of visitors in cultural and heritage sites. This pattern of visitation creates pressures that need to be managed effectively to improve the visitor's experience and minimize the negative impacts on the heritage resources. This paper discusses the conflicting relationship between tourism and heritage management, then it examines some of the issues affecting sustaining cultural heritage assets and the potential techniques for managing visitor impacts and moving towards sustainability. Furthermore, this research aims at identifying actions of heritage sites management that could sustain the quality of these sites through balancing tourism activities and conserving the built heritage sites. The field study based on in-depth interviews with site managers, officials in the Supreme Council of Antiquities, officers of the Egyptian Museum and tourism consultants in Egypt. The research provides recommendation for actions that could improve the management of heritage sites.

1. Introduction

Tourism is one of the largest industries around the world and heritage tourism is its most rapidly growing international sector (UNESCO, 2009; Garrod and Fyall, 2000). Cultural heritage assets are a vital component of any country's tourism industry since they stimulate travel to tourist destinations (Dewhurst and Dewhurst, 2006; Coccossis, 2008; Swarbrooke, 1999; UNESCO, 2005; Poria *et al.*, 2003). While heritage tourism provides economic opportunities for many cultural rich destinations as well as strong basis for protecting and enhancing their heritage attractions (Coccossis, 2008), it may also represent a threat in terms of the potential degradation of the heritage resources (Aas *et al.*, 2005). Sustainable heritage tourism is defined as "a partnership that satisfies both tourism and cultural heritage management objectives" (McKercher and du Cros, 2002: p. 11). Heritage tourism consumes heritage resources to the extent that the sustainability of these resources is threatened (Mekawy, 2005; Fyall and Rakic, 2006).

Heritage sites are involved in the struggle between the potentially conflicting aspiration of both

conservation and tourism (Medlik, 1997). With millions of tourists visiting heritage sites every year, tourism brings pressures on heritage resources.

The dynamic growth in tourism at heritage sites creates challenges regarding how to respond to the public demands for access, while at the same time protecting their values to be presented to current and future generations (UNWTO, 2009). Heritage sites are particularly sensitive to excessive tourism pressures. Tourist flows and associated tourist development often affect heritage sites creating conflict (Sigala and Leisle, 2005; Coccossis, 2008). The relationship between heritage and tourism is frequently characterized by contradictions and conflicts whereby conservationists perceive heritage tourism as compromising conservation goals for profit. In order to minimize these threats, there is a need for dialogue, co-operation and collaboration among the various stakeholders involved in tourism (Aas *et al.*, 2005; du Cros, 2001). The emergence of the sustainable development concept has focused attention on the need to safeguard tourist attractions from the negative impacts of tourism. Heritage sites need the development of efficient management systems and planning processes (Helmy and Cooper,

2008). Long-term sustainable tourism at heritage sites is only possible through collaboration between ministries and authorities dealing with site conservation, tourism policy issues and the tourism private sector (UNWTO/UNESCO, 2008; Helmy and Cooper, 2008). McKercher and du Cros (2002) state that those who manage assets and the community in general are very interested in finding ways to manage assets in a truly sustainable manner. Tourism is increasingly being recognized as the most important user of heritage placing greater pressure on tourism and cultural heritage management (CHM) stakeholders to collaborate for their mutual benefit. It is obvious that sustaining heritage sites in tourist destinations that depend on heritage tourism cannot be fully achieved if it is not professionally integrated into the planning framework of the tourism sector (Helmy and Cooper, 2008; Helmy and Cooper, 2002).

This study aims at investigating methods, procedures and tools of heritage tourism management that could sustain the quality of heritage sites through balancing the conservation of heritage sites with the rights of tourists to enjoy such places.

The paper begins with an overview of the conflicting relationship between heritage management and tourism. Then, it moves on to the principles of heritage management and the key areas of heritage management responsibilities. Moreover, it examines some of the issues affecting the future sustainability of heritage sites and goes on to identify techniques and strategies for managing visitor impacts and how we can balance the demands of the present against the desire to preserve the past for future generations.

2. Literature Review

2.1. Heritage and tourism

According to McKercher and du Cros (2002), the challenge facing the heritage tourism sector is to find balance between tourism and heritage management, between the consumption of extrinsic values by tourists and the conservation of the intrinsic values by cultural heritage managers. Conflicts have emerged between the two sectors as they vie to use the same resources. Medlik (1997) has shown that heritage management is a new concept that has developed alongside the growth of the heritage industry. Heritage and tourism are developing fast. On one hand, the idea of heritage is central to the critical decision-making process regarding whether irreplaceable resources are to be used by people of the present or conserved for future generations. On the other hand, heritage tourism is part of the switch in

emphasis from manufacturing to service industry (Millar, 1989).

Buhalis and Costa (2006) and McKercher *et al.* (2005) mention that tourism and CHM represent discrete sets of stakeholders with specific roles to play in the sustainable development of this sector; tourism has assumed the role of product transformers, developers, marketers and guides. On the other hand, the cultural heritage management sector owns and manages the assets and has to deal with the impacts of tourist visitation. Each has traditionally performed its job in isolation from the other, with little interaction, often resulting in conflict. McKercher and du Cros (2002) mention that each sector evolves independently with different core ideologies and values to serve different sets of stakeholders and achieve different objectives. Tourism industry professionals consider cultural assets as raw materials for their products to generate tourism activity. Cultural heritage management professionals value the same assets for their intrinsic merits. Table 1 highlights how cultural heritage management is different from tourism. Aas *et al.* (2005) point out that the lack of communication between the two sectors provides a pathway towards uncontrolled and destructive development.

2.2. Principals of cultural heritage management

Cultural heritage management is the systematic care taken to maintain the cultural value of heritage assets for the enjoyment of present and future generations (McKercher and du Cros, 2002). Medlik (1997) argues that heritage management enables the critical balance to be maintained between the needs of the resource and the needs of the visitors. McKercher and du Cros (2002) summarize the principles of CHM into four broad themes: Core, concepts, sustainability and tourism, as mentioned in Table 2.

Cultural heritage management is a structured process guided by a series of international charters, declarations and conventions created by the following organizations (Goodall and Beech, 2006; Buhalis and Costa, 2006):

- (1) International Council on Monuments and Sites (ICOMOS).
- (2) United Nations Educational, Scientific and Cultural Organization (UNESCO).
- (3) International Center for the Study of the Preservation and Restoration of Cultural Property (ICCROM), which is recently known as either the "International Center for Conservation" or the "Rome Center".
- (4) The International Union for Conservation of Nature and Natural Resources (IUCN); it is

Table 1. Comparing cultural heritage management and tourism

	Cultural Heritage Management	Tourism
1- Structure	* Public sector oriented * Not for profit	* Private sector oriented * Profit making
2- Goals	* Broader social goal	* Commercial goals
3- Key stakeholders	* Community groups * Heritage groups *Minority/ethnic/indigenous groups * Local residents	* Business groups * Non-local residents
4- Economic attitude to assets	* Existence value *Conserve for their intrinsic values.	* Use value *Consume for their extrinsic appeal
5- Key user groups	*Local residents * Often school children.	* Non-local residents
6- Background of professionals working in the sector	* Social science * Arts degrees.	* Business/marketing degrees
7- Use of asset	*Value to community as a representation of tangible and intangible heritage	* Value to tourist as product or activity that can help brand a destination
8-International political bodies/ Non-governmental organization (NGOs)	* International Council on Monuments and Sites (ICOMOS) / International Council of Museums (ICOM)/ United Nations Educational, Scientific and Cultural Organization (UNESCO) - promote conservation of culture.	* World Tourism Organization (UNWTO) / World Travel and Tourism Council (WTTC) - promote development of tourism.
9- National NGOs.	* National Trusts/ Heritage Trusts/ indigenous and ethnic organizations	* Tourism trade associations/ tourism industry bodies
10-National/regional political/bureaucratic bodies.	* National, state and local agencies and some museums concerned with heritage management, archives.	* National, State and regional tourism bodies tasked with product development, Promotion and italicizing returns from tourism.
11- Stakeholders	* National organizations for heritage professionals/ local historical groups/ religious leaders.	* National tourism trade associations, other industry bodies

recently known as the World Conservation Union. (5) International Council of Museums (ICOM).

2.3. Heritage management

Shackley (1998) and Helmy and Cooper (2008) have mentioned that the overall aims of heritage management is to improve the visitor’s experience, reduce the negative impacts of visitors on the sites and monuments, determine the carrying capacity of heritage sites to develop guidelines for their protection and sustainable use, and to provide a framework for the conservation of the heritage sites. Goodall and Beech (2006) explain that management in the context of heritage can be seen to have concerns in four areas; finance, visitors, the resource itself and employees.

2.3.1. Funding and financial management

Funding is necessary for the maintenance and ongoing support of heritage assets. Decreases or increases in the allocation of funds may determine

whether a structure or monument can be restored and preserved or erodes and becomes structurally unstable (UNWTO, 2004). Goodall and Beech (2006) and UNWTO (2004) show that it is important to define how funds generated and obtained from different sources are used for the maintenance of the sites and presenting heritage to the tourists. Rushell and Eagles (2007) explain that the amount of funds allocated to the restoration, preservation and maintenance of heritage assets on a yearly basis differentiated according to different sources of funding, such as government funds, visitor entrance fees, individuals, donations, local community, private foundations, international financial and development institutions, NGOs, charities, private companies, volunteers’ contributions and finally tourism’s contribution to preservation through the sale of goods found in souvenir shops (such as handicrafts), equipment to visitors and informative materials, revenues from catering and accommodation services, tourism related tax designated to site maintenance, donations from

Table 2. Cultural heritage management principals

Cultural Heritage Management	Sustainability	Stakeholders	Tourism
CHM aims to preserve and care for a representative sample of humanity's cultural heritage for future generation	The identification, documentation and conservation of heritage assets are essential parts of the development of sustainability	Most heritage assets have multiple stakeholders	Tourism needs are not the only ones considered in cultural heritage management
Conservation of intrinsic values is important	Each cultural heritage asset will have its own meaning and assessable cultural significance or values.	Consultation with stakeholders is important for defining their needs in the conservation process	Tourism may be seen as an important use of a heritage asset, but not the only use. Tourism can cause adverse Impacts.
Caring for both intangible and tangible heritage is becoming increasingly important.	Some cultures differ in their view about how much intervention or change can occur before an asset ceases to be authentic	A stakeholder other than the cultural asset manager may have greater control over the asset	Tourism requirements may sometimes clash with those regarding conservation of an asset.
The scale among heritage assets conserved varies greatly, and the management process needed for each type also varies accordingly.	Cultural heritage assets should be used only in culturally appropriate and sustainable ways.		
Cultural heritage management has an evolving framework.			Tapping into the revenue generated by tourism for reinvestment in the conservation of heritage. Assets are an important goal for most cultural heritage managers.
CHM and conservation are ongoing activities that aim to provide some structure to the conservation of heritage	Some heritage assets are too fragile or sacred to be fully accessible to the public, including tourists.		
Conservation of heritage assets is rarely carried out without some requirement for their presentation and interpretation to public	Consultation of stakeholders is an important part of developing an asset sustainably.		

Source: McKercher and du Cros, (2002)

tour operators and visitors and concession fees (UNWTO, 2004). Cochrane and Tapper (2006) have noted that funding for heritage sites has often been inadequate, and most have received their funding from the national and international public sectors; now an increasing emphasis is being placed on the role of other groups in civil society in contributing to these sites management.

The government has had the sole responsibility for the administration of heritage sites with funds for managing them allocated from the national budget or from international bodies. Munyima (2009) adds that funding heritage conservation in many countries has been linked to the economic returns through tourism. Cochrane and Tapper (2006) point out that the standard way of collecting revenues for heritage sites is through entrance fees. However, these rarely cover the operational costs; this is one of the reasons why the partnership arrangement is necessary to link public sectors with private companies in order to

channel funds into site management.

Moreover, money is not only required for maintenance, but also for staff and marketing (Goodall and Beech, 2006).

2.3.2. Visitor management

Managing visitors is one of the important ways of attempting to control the impacts of tourism on heritage sites and particularly to reduce negative impacts (Mason and Kuo, 2006; Mason, 2003; Coccossis, 2005). Visitor management has been applied by a number of different agencies and organizations at different scales and in a variety of locations to control visitor flows (Mason, 2003).

Mason (2003), Mason and Kuo (2006) and Coccossis (2005) indicate that visitor management can be viewed as a way to regulate visitors. Three approaches are commonly used to achieve that: diverting tourists from the so-called "honey pots", which are locations with large volumes of visitors,

"hardening" and modifying visitors' behavior. Hence, regulation may relate to such factors as preventing or allowing access to particular sites. Regulation is also likely to involve the provision of information and instruction on what can and what cannot be done. However, as well as regulation, managing visitors can also involve education, often via the process of interpretation. A combination of education and regulation has been used in an attempt to manage visitors. Mason (2003) suggests the three main ways of managing visitors as follows:

- Controlling the number of visitors either by limiting the number to match capacity or spreading the number throughout the year rather than having them concentrated in peak periods.
- Modifying visitors' behavior.
- Adapting the resource in ways to enable it to cope with the volume of visitors, and hence suffer less damage.

Dewhurst and Dewhurst (2006) mention that a failure to implement effective visitor management techniques is likely to lead to congestion outside and overcrowding inside the attraction; moreover, it will undermine the visitor's experience and contribute to a sense of dissatisfaction among visitors who will be less inclined to repeat the visit and more inclined to make negative comments about the attraction. So, effective visitor management techniques are essential for customers to enjoy their visit experience.

2.3.3. Heritage sites and resources management

Heritage attractions present unique problems in their management for visitor enjoyment and satisfaction (Drummond and Yeoman, 2001). According to Sigala and Leslie (2005), visitor satisfaction depends on a diverse range of factors such as the general condition of the site, the quality of services, the facilities available, the number of visitors and maintenance, and the cleanliness of the site. The site has to be made safe to visit, equipped with high standards of visitor facilities (such as signage and interpretation to assist visitors in understanding its significance, travel information centers and visitor centers), provided with ancillary services like cars and coach parking and catering (Medlik, 1997; Drummond and Yeoman, 2001). Attention must be paid to public amenities such as drinking water, toilet facilities, tourist police for safety and assistance and emergency medical services. Achieving this level of development requires capital investment, staffing and management (Drummond and Yeoman, 2001; Sigala and Leslie, 2005; Shackley, 1998). In addition, Poria *et al.* (2001) state that understanding tourists' behavior,

motivations and perceptions is helpful for the management of sites. Heritage sites can be threatened by the physical impacts of over-visitation and congestion and the insensitive developments due to the commercialization of the authentic historic character (UNWTO, 2004).

Medlik (1997) mentions that long-term planning for heritage tourism with an integral, continuing conservation policy is essential in ensuring a quality experience for the visitor at each heritage site (Poria and Ashworth, 2009). Poria *et al.* (2006) and Medlik (1997) assure that the interpretation provided at heritage sites is a key element in a tourist's experience; the main objectives of the interpretation are to educate and provide visitors with knowledge of these sites, to entertain by facilitating learning and to increase visitor's awareness of the need to preserve heritage sites (Kozak and Andreau, 2006). Moreover, Medlik (1997) points out that heritage interpretation if done badly, it may mean a significant part of our heritage is lost forever.

Leask and Yeoman (1999) summarize that within the context of heritage sites, the operations function could include the following concepts: design and development of the site, presentation and interpretation, management and control of visitors, organization and staff training, management and monitoring of quality issues, matching of supply and demand (capacity management) and measurement of visitor satisfaction.

2.3.4. Human resources management

Heritage sites require staff to manage activity at these sites; they are required to deliver an efficient and effective operating performance and ensure customer satisfaction at the same time. These demands can only be met through the professional management of staff, which is best achieved through the development and implementation of effective human resources strategies that comprise human resources planning, recruitment and selection, induction orientation, training and development as well as performance monitoring (Dewhurst and Dewhurst, 2006). Goodall and Beech (2006) indicate that the challenges that many operations face include a workforce that largely comprises full-time, part-time, and volunteers.

Visitor attractions' operators and site managers are faced with the conflicting demands of having to safeguard and protect their sites, while at the same time encouraging as many visitors as possible to access their sites (Dewhurst and Dewhurst, 2006).

Moreover, Heritage tourism managers are faced with a range of problems related to conservation,

presentation and visitor management (Drummond and Yeoman, 2001).

Pedersen (2002) mentions that heritage sites' managers must determine the point at which the number of visitors would cause a feeling of crowding, assess and balance the costs and benefits of visitation and also balance the need for facilities with the efforts to maintain a site's authenticity and integrity (Alberts and Hazen, 2010; Cochrane and Tapper, 2006). Fyall and Rakic (2006) state that heritage managers need to understand what types of visitors frequent the site, their patterns of behavior and the trends in that market that are likely to make visitation to such sites.

Furthermore, within the cultural heritage tourism system, the public, private and voluntary sectors all have a role to play. The public sector manages many cultural resources and promotes them through destination marketing. The private sector, as well as managing some heritage resources, also makes up the vast majority of the intermediaries and suppliers of support services. The contribution of the voluntary sector is generally seen in the management of heritage tourism resources such as historic buildings and sites (Swarbrooke, 1999).

2.4. The none-sustainable dimension of heritage tourism

Swarbrooke (1999) and Fyall *et al.* (2003) mention that there are some aspects of cultural heritage tourism which are not compatible with the principals of sustainable tourism. Visitor attractions are subject to a wide range of negative visitor impacts such as overcrowding, wear and tear, traffic related problems and pollution (Fyall *et al.*, 2003).

Overcrowding

The problem of overcrowding is highly dependent on the capacity of the site to receive visitors. The over-use of the sites and the presence of too many visitors at the same time can result in damage to monuments, cause congestion (Sigala and Leslie, 2005; Swarbrooke, 1999; Shackley, 1998) and can lead to queues which have a number of adverse impacts on the visitors' experience (Fyall *et al.*, 2003; Medlik, 1997); first, visitors may feel that enjoying their experience is impaired because they have had to spend a lot of time in queues, either to enter the attraction site or to see specific parts of it. Second, some visitors may turn away when they see the length of the admission queue; others may join the queue but become bored by its slowness. Third, some visitors may put off from visiting the attraction because it has gained a reputation for lengthy queues. Leask and

Yeoman (1999), Pedersen (2002), Dewhurst and Dewhurst (2006) and Fyall *et al.* (2003) argue that the impacts of overcrowding are obviously reducing the opportunity for visitors to see and do everything they want and they also negatively affect visitor satisfaction. Furthermore, visitors flow may create overcrowding in the sites and overwhelm the infrastructure since they may not have the capacity to deal with high number of visitors (Sigala and Leslie, 2005).

Wear and tear

Cochrane and Tapper (2006), Garrod and Fyall (2000), Garrod and Fyall (2001) and Fyall *et al.* (2003) point out that the group of visitor impacts includes trampling, handling, humidity, temperature, graffiti and pilfering. Brown (1998), Sigala and Leslie (2005) and Williams and Shaw (2002) clarify that visitors cause wear and tear on monuments through intensive use associated with vandalism, which leads to further damage and deterioration of the site. Moreover, the volume of visitors is a major threat, especially in enclosed interior places, due to the increasing of humidity, temperature fluctuations and vibration levels. Obviously, tombs are not designed to be entered on a regular basis (Shackley, 1998). A clear example of the impact of humidity on a visitor attraction is the damage caused to the ancient wall paintings of the tomb of Queen Nefertari in Egypt. The presence of visitors in the tomb raises the level of humidity significantly, causing the paint to flake away from the limestone surface of the inner walls of the tomb (Shackley, 1998; Fyall *et al.*, 2003). Furthermore, the breath of too many visitors causes excessive erosion (Smith, 2003). In addition, handling, on the other hand, is more likely to be deliberate act on the part of the visitor who cannot resist putting his moist fingers, even when they are requested not to do so (Fyall *et al.*, 2003). Moreover, visitors cause abrasion through touching (Pedersen, 2002). Graffiti can range from being a minor blemish on the ambience of the site to becoming a very real issue in terms of the protection of the site (Fyall *et al.*, 2003). Similarly, archaeological sites are particularly vulnerable to souvenir collectors who remove bits of historic fabric as first-hand souvenirs of their visit. (Tyler *et al.*, 1998).

Traffic-related problems

Since many visitors arrive at visitor attractions by car or coach, the most common related problems include traffic congestion, noise, air pollution and vibration that cause damage to monuments (William and Shaw, 2002; Brown, 1998; Coccossis, 2005;

Sigala and Leslie, 2005).

2.5. Techniques for managing visitor impacts

According to Swarbrooke (1999), there are many different approaches to developing more sustainable heritage tourism. Fyall *et al.* (2003) suggest that the techniques of visitor management can be divided into those that are designed to regulate supply and those that are designed to manage demand for visitor attractions.

2.5.1. Supply-side techniques

Supply-oriented visitor management techniques are used to manipulate capacity levels in such a way as to avoid the physical degradation of the site while ensuring customer satisfaction. These techniques include queue management, site hardening and capacity-raising schemes that may involve new product developments that extend the existing site (Dewhurst and Dewhurst, 2006).

Queue management

Queue management is often the first response to the problem of excess demand, since many other visitor management techniques will take more time to be implemented. Queue management techniques include providing literature and displays to distract visitors and entertaining them while they are waiting in the queue to make waiting in the queue more bearable (Fyall *et al.*, 2003; Pedersen, 2002).

Site hardening

Other impacts, particularly various forms of wear and tear, are traditionally addressed through the use of “site hardening techniques”. These include employing security and room stewards (often volunteers at heritage-based attractions) to provide a physical presence at sensitive locations, roping-off vulnerable parts of the site, strengthening footpaths, resurfacing paths, using glass or other materials to encase artifacts and making use of prohibitive notices and fast-growing plants to block a trail leading to a fragile or restricted area. (Mason and Kuo, 2006; Pedersen, 2002; Fyall *et al.*, 2003).

Making capacity more flexible

Visitor attractions can take a number of measures to make their existing capacity more flexible. This can help to reduce or even eliminate queues. Techniques include extending or restricting opening hours, opening more admission tills when demand is high, increasing staff levels at peak periods, offering certain routes to facilitate the free flow of visitors around the site, opening additional areas within cafeterias and other facilities during peak periods,

limiting the permissible length of stay in the threatened area, raising the entrance fee for the threatened area only, limiting and restricting the number of people who can enter the threatened area, not providing facilities in the threatened area, diverting tourists from the so-called “honey pots” which are locations with large volume of visitors, zoning and applying visitor dispersion strategies (Mason and Kuo, 2006; William and Shaw, 2002; Pedersen, 2002; Mason, 2003).

Restrictive ticketing and quota systems

Perhaps the most extreme of the supply-side measures available to manage visitor impacts is ticketing that restrict the time of entry (requiring pre-booking), the length of stay, the size of groups and the number of visitors permitted per day (Page and Michael, 2003; Theobald, 1998; Fyall *et al.*, 2003; Youell, 1998).

Advanced booking system

Advanced booking system gives visitors peace of mind. They can avoid spending time in queues and are guaranteed entrance at the time specified. Ticketing and advanced reservation systems are particularly useful if the site attracts large number of visitors; it may help to reduce crowding level at a site. Moreover, automating the reservation enables capturing visitors’ patterns and profiles information facilitating heritage sites management (Buhalis *et al.*, 2006; Youell, 1998).

Using technology as a new way of presenting heritage assets

Information Communication Technologies (ICTs) present new opportunities for heritage sites to enhance the service that they provide. ICTs can support site management, interpretation approaches and site conservation (Buhalis *et al.*, 2006). Technology developments provide new and exciting opportunities for presenting materials. Already, some firms have begun to offer guided tours using Bluetooth technology. Visitors turn on their mobile phones; as soon as they walk past a concealed transponder (inside or outside structures) their numbers are dialed automatically and a message about the site feature is sent. This technology is still in its infancy but it heralds an emerging trend of on-demand information. Reconstructions and virtual reality technology are also new ways of presenting aspects of heritage assets (Buhalis and Costa, 2006).

2.5.2. Demand management techniques

This group of techniques aims at influencing the

number or behavior of visitors in order to moderate their impacts on the site (Dewhurst and Dewhurst, 2006; Fyall *et al.*, 2003).

Regulating visitors' behavior

Visitors' behavior can be changed through education programs teaching how to behave at a site and how to minimize the negative impacts, interpretation programs teaching respect for the site's resources, discussing protection issues and explaining the site's significance to the visitors and the use of codes of conduct (Mason, 2003; Pedersen, 2002; Fyall *et al.*, 2003; Page, 2003).

De-marketing

Buhalis and Costa (2006) mention that the concept of de-marketing means shifting demand from over-utilized to under-utilized attractions through the promotion of a wider variety of attractions. Swarbrooke (1999) says that we need to de-market less sustainable forms of cultural heritage tourism, which can mean de-marketing places and times. Visitors at off-peak times can be promoted through advertising. Heavily used sites can be de-marketed and less intensively used sites can be marketed as alternatives. It might be desirable to develop new visitor attractions to deflect pressure from more sensitive sites (Boyd and Timothy, 2006; Pedersen, 2002; Youell, 1998).

Price incentives

One possible pricing technique for managing visitor impacts would be to use elevated admission prices to moderate levels of demand. The use of elevated admission prices would also accord with the "user pays" principle which states that those responsible for using resources that are vulnerable to damage should be required to pay for the remediation of any user-induced impact (Fyall *et al.*, 2003; Pedersen, 2002; Garrod and Fyall, 2000). Williams and Shaw (2002) and Cochrane and Tapper (2006) add that differentiated pricing structures are important tools for visitor management techniques (Youell, 1998). Dewhurst and Dewhurst (2006) suggest that the revenue management options available to managers include the varying of admission prices according to the time and duration of visit, the category of visitor, the volume of visitors and the number of resources being accessed by visitors.

2.6. ICTs and heritage management

Saleh (2002) argues that due to the rapid advances in communication systems and information technology, it becomes obvious that using these

technologies would assist in the management of valuable heritage assets. They can have an additional impact on sustainable development through their role in preserving and sustaining cultural heritage (Rizk, 2008). According to Korzay and Chon (2002), the limited use of technology is defined as a hindrance for the sustainable development of the heritage tourism product. In order to demonstrate how ICTs can help in the management of heritage sites, the main functions involved in heritage management have been classified into three categories: conservation, education and site management. Table 3 presents a summary of how ICTs can be used to support the heritage management process. These technologies are selected on the basis that they are particularly beneficial to heritage management (Buhalis *et al.*, 2006)

Furthermore, Geographical Information System (GIS) may be employed as a management tool to help analyzing data produced by monitoring systems; for example, analysis of visitor flows. This would enable site managers to review the management plan and see whether visitors are utilizing the whole of the site or concentrating on certain areas. Then, steps could be taken to implement visitor flow management to even encourage a more distribution across the sites. Also, the system helps monitoring the number of visitors and identifying times and places where it exceeds safe limits and access restrictions should be enforced. Moreover, GIS could be used for decision support. This includes modeling potential developments and supporting changes to the management plan. Furthermore, it may be used to provide a source of information for promotional activities. This may include map production, generation of statistics and material for site interpretation. Finally, the contribution that a GIS could make to the site as a whole is to support the overall improvement of the visitor's experience that the management plan hopes to achieve. (Shackley, 1998).

2.7. Tourism carrying capacity and heritage sites

Paralleling tourism's rapid expansion in recent years has become a concern for managing its future growth and impacts. Tourism like other economic enterprises is well recognized as an agent of change; when managed properly, it has the potential of being a relatively low user of resources and a sustainable industry. When left to expand in an unbridled fashion, it has the capability of developing beyond sustainable economic, social, environmental and ecological limits. Central to this issue of tourism's growth has been the notion of carrying capacity.

Along with recent thinking on sustainable

Table 3. ICTs Functional for heritage sites

Technology	Situation	Conservation	Education	Site Management
Ticketing and Reservation Systems	Walk-ins	Monitor attendance levels to prevent possible damage to site.	For internal use to get closer to the customer	Avoids overcrowding
	Advanced	Avoid site overcrowding and possible damage to site as restrictions are applied	Visitors learn booking in advance guarantees a visit at time specified and avoids queuing.	Sites can prepare for groups in advance.
Website	Site awareness	Educates visitors about conservation issues and increases awareness as to what to do to reduce impact.	Websites can be used before, during and after the visit to supplement knowledge	Generates realistic visitor expectations as well as reduce the needs giving orientation and other information at the time of visit.
	Information provision	Opportunity to present conservation message	Allows museum visitors to access the information they choose according to market segments	Reduces staff's time answering the public's questions
	Inventory awareness	Fragile artifact need not be displayed. A digital image can be used instead	Showcase entire inventory range and interrelate with relevant context, artifacts, sites, stories	Site managers restrict access to fragile areas and artifacts
	Virtual tours	Restrict public from fragile areas. Improve understanding of conservation issues.	Virtual tours provide "edutainment" that is entertainment and education combined.	Addresses accessibility issues and provides better capacity management
Mobile Multimedia Guide	Augmented Reality	Shows the effect of the environment/ visitors	Visitors can compare what was once on the site to what there is today.	Ensures every visitor sees the same reconstruction.
	Orientation	May reduce some impacts by monitoring visitor's location ensuring they follow the appropriate path.	Information is fed to visitor in accordance to location on site.	Navigation assistance and dynamic updates enable a more responsive site management to market segments, demand levels, weather, etc.
Collection Management Database	Remote access to database	Reuse of digital content	Greater access to information for private study and professional use	Connect to other research institutions and exchange of information.
	Record information	Record condition of the artifact use to compare artifact in the future	Collate information for use in interpretation and research.	Information stored in one place.

Source: Buhalis *et al.*, (2006).

development, as well as appropriate and low impact tourism, the concept carrying capacity suggests an approach to tourism which permits growth within acceptable limits (Theobald, 1998). Medlik (1997: p. 301) defines tourism capacity as the maximum number of tourists that can be contained in a certain destination area. However, there are two schools of thought concerned with the nature and interpretation of tourism capacity. First, tourism capacity is envisaged as the capacity of the destination area to absorb tourism before negative impacts of tourism are felt by the host country. In other words, the capacity is dictated by how many tourists are wanted rather than by how many tourists can be attracted. The second proposes that tourism capacity is considered as the levels beyond which tourist flows will decline and, therefore, the destination area ceases to satisfy and attract tourists and hence they will seek alternative destinations.

Carrying capacity in this context refers to "the maximum number of people who can use a site without

an unacceptable alteration in the physical environment and without an unacceptable decline in the quality of the experience gained by visitors" (Theobald, 1998: p. 232). Similarly, Williams and Shaw (2002: p. 313) define carrying capacity as "the maximum use of any site without causing negative effects on the resources, reducing visitor satisfaction, or exerting adverse impacts upon the society, economy and culture of the area". Youell (1998) argues that many of tourism adverse socio-cultural and environmental problems stem from overcrowding and the over-use of facilities; too many tourists in a heritage site will spoil their own enjoyment and cause damage to the site. Therefore, controlling the number of tourists in an area seems an obvious way of reducing their harmful effects. It can be argued that every tourist area has a carrying capacity which is categorized into environmental (physical) capacity, ecological capacity, psychological (perceptual) capacity and infrastructural capacity (Cook *et al.*, 1999; UNWTO, 2004; Mason, 2003; Mekawy, 2005; Pedersen, 2002).

2.8. Heritage sites in Egypt

Egypt is abundant in different types of historical treasures that go back almost 3000 years and is considered one of the most significant archaeological tourist destinations in the world (Helmy and Cooper, 2002). The Pyramids of Giza and the Sphinx are some of Egypt's most important archaeological monuments. Moreover, it is Egypt's major tourist attraction and it is estimated that over 1.5 million international tourists visit this site each year. Furthermore, the site of Ancient Thebes in Luxor is under constant threat from the flow and volume of visitors, as mentioned in Table 4. In the early 1990s, concerns were raised by UNESCO regarding the impacts caused by tourism and urbanization which had resulted in notable deterioration of the monuments. This deterioration occurred despite the efforts of the Egyptian Antiquities Organization (EAO) to improve the management of tourism at the

sites. Concerning the protection of Egypt's ancient sites, the Supreme Council of Antiquities is now responsible for the management and preservation of antiquity sites and the Egyptian museums in Cairo and Luxor. Organization for the archaeological sites is completely separate from that of tourism. The Supreme Council of Antiquities must balance the demands of ever-increasing number of visitors with the needs of conservation. Urgent attention must be paid to the management of tourism and to the applications of control procedures to minimize the impacts of tourism on the antiquity sites and on the quality of visitor experience (Shackley, 1998).

3. Methodology

The study seeks to identify the possible management tools and policies that can be used to minimize the impacts and pressures of visitors and contribute to long-term preservation of the archaeological sites in Egypt.

A qualitative method has been adopted using in-depth interviews via open-ended questionnaire. Aas *et al.* (2005) claim that in certain studies it is necessary to acquire the opinions of experts, particularly in qualitative and exploratory studies. Therefore, the researcher has interviewed a sample of 17 officials in the Supreme Council of Antiquities, site managers, officers of the Egyptian Museum and tourism consultants in Egypt.

The interviews have included questions related to economic, regulatory and organizational measures which assist in conserving and enhancing heritage assets and showing how far the present practices contribute to the sustainability of heritage attractions.

4. Findings

The in-depth interviews reveal a wealth of information on the potential strategies for moving heritage sites towards sustainability.

First section: the economic measures; they include pricing and fees, user rates, charges and incentives.

(1) Regarding "increasing prices", most respondents assure that charging elevated prices for admission usually runs counter to the fundamental mission of heritage attractions which includes providing public access to the site; and this tool is highly unpopular among site managers.

Among the main reasons offered for this standpoint are the following:

(a) High admission charges may act as disincentives for repeating the visit.

Table 4. Visitors to main tourist sites and museums in Egypt 2009

Site	Foreigners	Egyptians
Cairo Museum	1636664	378741
Coptic Museum	215458	66811
Other Tourist Sites in Cairo	1751156	908597
The Pyramids	1721967	730455
Sakkara	592427	15609
Meet Rehena	423178	6565
Dahshour	111199	1344
Alexandria	583242	515195
South Sinai	587232	39381
Fayum	10198	4702
Beni – Suif	10833	20537
Luxor	4307844	293995
Sohag	31088	6614
Menia	14797	63652
Aswan	3852179	343451

Source: Ministry of Tourism, Tourism in Figures (2009)

- (b) Charging may also reduce spending elsewhere in the local economy.
- (c) Charging elevated admission fees may conflict with the objectives of the visitor attraction.
- (d) Secondary spend may fall if high admission charges are introduced.

On the other hand, some respondents agree with raising admission prices to make the visitors feel the importance of the site, which may lead them to understand that they are visiting a particularly unique site and will need to behave respectfully towards it. Furthermore, it can raise much needed revenue to fund the attraction's wider strategic goals, such as conservation of the site or public education. In addition, the use of high admission price will limit the number of visitors.

- (2) As for "price variation", all the respondents are against this since it encourages demand at off-peak periods.
- (3) Concerning "visitors' secondary spending", the majority of respondents explain that the strategy of trying to increase visitors' secondary spending carries a number of inherent dangers; first, the pursuit of secondary spending usually requires investment in additional on-site facilities such as gift shops, restaurants and other ancillary services. This kind of development, which is widely acknowledged to detract from the authenticity of the heritage experience, can divert investment away from vital repair, maintenance and conservation work. Second, the strategy of attempting to increase secondary spending is often viable when the number of visitors is stable or increasing; if the heritage property is approaching its carrying capacity or has already exceeded it, then the strategy is likely to prove counter-productive in the long run.
- (4) "The user pays principle" as a potential vehicle for promoting sustainability: most of the respondents are unconvinced by the logic of the user pays principle for two reasons. Firstly, they believe that heritage has a value far beyond the price that can be paid for it. Secondly, if potential visitors are prevented from entering the heritage sites because it is too expensive, then whose heritage does the property represent and for whom is it being preserved?

Second section: regulatory measures; they refer to land-use planning and zoning to control development, restrictions to accessibility and restrictions to activities.

- (1) The survey indicates that site managers assure

they have concentrated their work to implement site management projects all over Egypt. The main elements of the plan related to regulatory measures are:

- Creating safe zones around archaeological sites to protect them from their outside surroundings and environmental threats. This protective measure is applied in the Unfinished Quarry in Aswan, Edfu, Kom Ombo, Sakkara, Pompey's Pillar and Kom El-Dikka. in Alexandria
- Creating access routes to keep tourists away from the walls of monuments and other fragile areas of sites.
- Opening alternative and additional sites for visit and providing infrastructure to encourage the use of these areas. For example, on the east side of the Great Pyramid, the three subsidiary pyramids are prepared for opening to the public.
- Limiting the permissible length of stay in the threatened areas.
- Opening the threatened areas according to a schedule; for example, entering the Great Pyramids of Giza at fixed times.
- Reducing the opening hours of the site helps to limit and restrict the number of visitors entering the site.
- Applying the strategy of the conservation program through the closure of one pyramid at a time to give each one a short break from visitors' pressure.
- Parking areas are sited some distance from the monuments to reduce the risk of vibration caused by vehicles.

- (2) Furthermore, all the respondents argue that the problem with "site hardening" is that it risks compromising the authenticity of the site.

Third section: organizational measures; they are concerned with reservation systems, information, education and marketing.

- (1) The application of such tools is represented in implementing "quota systems" which are not recommended by the majority of respondents because they may annoy tour operators and visitors and, as a result, they may choose to go elsewhere.
- (2) Another effective reservation tool is the "advanced booking". However, it is not applied at archaeological sites and museums in Egypt, although it can avoid spending time in queues and guarantee entrance at the time specified.
- (3) Building "visitor centers"; visitor centers play a major role in visitor management at tourism destinations to provide information and assistance at the site. This tool is applied in a number of sites

in Egypt including Unfinished Obelisk, Edfu, Deir El-Bahari and the Valley of the Kings.

- (4) Using "technology tools"; most respondents agree that technology needs to be applied at archaeological sites. It can be used to support the heritage management process: conservation, education and site management. On the other hand, some respondents argue that using high technology at archaeological sites can even put more people and guides out of work.

5. Conclusion

Tourism and cultural heritage management often have an uneasy relationship which may involve conflicting values, posing significant challenges related to the combination of tourism, heritage preservation and the enhancement of the living conditions of local communities. Managing those challenges effectively is a major task for policy makers and planners in order to achieve sustainable heritage tourism development. Managing actions can be direct or indirect. Direct management actions confront problems of human behavior through regulations that may entail enforcement, restrict activities or ration use. On the other hand, indirect methods seek to affect behavior through education, information and persuasion. This paper relies on investigating actions and tools of heritage management at archaeological sites in Egypt to reduce negative impacts of tourism.

Moreover, the survey reveals that there is insufficient number of specialists such as impact evaluators for archaeological sites, cost-benefit analysts and site planners to manage tourism as a benefit to the long-term preservation of the heritage value. Furthermore, information on site protection is not included in tourist leaflets or tickets. The results also indicate that site managers are against using elevated prices to limit the number of visitors; they are not also convinced by the principle of de-marketing peak periods. On the other hand, they recommend using IT and building visitor centers at archeological sites to introduce the site for visitors before their visit.

6. Recommendations

- Tourism and heritage sectors need to determine the carrying capacity of tourist sites to develop guidelines for their protection and sustainable use and take appropriate measures to manage tourist flows.
- Raising awareness of heritage sites and building

pride with local communities and visitors through conservation education.

- Linking tourism marketing strategies and programs on the regional, national and international levels with sites' needs and capabilities.
- Setting up mechanisms for demonstrating the positive role tourism can play in heritage conservation. Also, engaging the tourism industry to contribute to site protection.
- Facilitating interaction between site management, local, national and regional authorities and the tourism industry.
- Tour operators can motivate visitors to make donations for sites conservation and teach them how to contribute to sites protection.
- Tour operators must change the policies they work with to attract independent tourists rather than mass tourism and to generate international backing for conservation efforts.
- World Heritage Center should be involved in attracting the types of tourists who maximize site conservation benefits.
- World heritage participation in international tourism trade fairs raises awareness by teaching the importance of safeguarding world heritage sites.
- Tourism policy must identify the number of visitors and the approximate share of heritage tourism to limit market flooding, especially at archaeological sites.
- Tourism industry participation could involve developing add-on attractions to neighboring sites and offering new archaeological sites in tourist programs. This would relieve tourism pressures at highly visited sites.
- Action is needed to attract the involvement of specific target tourism market segments that are geared to support heritage sites conservation efforts.
- Tour operators can provide donations via a surcharge to the tour purchase price.
- Organizing archaeological exhibitions abroad to supplement sites conservation and operation costs.
- Generating revenues for heritage sites through user fees (secondary spending activities) in addition to entrance fees; for example, for car parks, visitor centers, restaurants and ancillary services.
- Tourism development policy must lead to improvements in infrastructure and services to deal with the increased number of visitors.
- Heritage sites can develop additional income

streams through introduction of conferences and events programs.

- Price variations might be used at archaeological sites to encourage demand at off-peak periods.
- Tour guides can play an important role in educating tourists to respect heritage sites.
- Interpretation and presentation programs should encourage developing a high level of public awareness and provide support necessary for the long-term survival of the cultural heritage.
- Archaeological authorities should be held responsible for providing the tourism authorities with the maximum permitted number of tourists to each site, by calculating the number of tourists per day, and the sites that have recently been discovered and can be used as tourist attractions.
- Tombs can be presented by using interpretive media outside the tomb to present and explain the tomb's contents. This means that tourists do not have to enter the interior of the tomb or they may spend a shorter period of time inside the tomb. Replicas can also be used.
- Linking between information technology, cultural heritage management and sustainable development.
- An analysis of SWOT (Strengths, Weaknesses, Opportunities, and Threats) can be used to identify gaps between site promotion and tourism trends.
- Tourism policies should be conducted with respect for the archaeological and cultural heritage which they should protect to future generations.

Tourism activities should be planned in such a way as to allow traditional cultural products to survive rather than causing them to degenerate

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