

IMPROVING THE DEVELOPMENT PROCESS OF HERITAGE SITES

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ABSTRACT

Heritage Tourism is one of the world's largest industries and biggest income generators. But the demands of tourism can have severe negative impacts on local communities and the environment if not properly developed and managed. The Development Process is important to maintain heritage sites. Also, it is a demand to inscribe heritage sites in UNESCO World Heritage List.

The purpose of this paper is to improve the development process of heritage sites. The method used to address this research is a deductive method by first stating the Design Key Consideration of the development process and then concluding an evaluation checklist. Using the Evaluation Checklist, helps improving the development process of the heritage sites.

The result of this paper is an evaluation checklist for the Design Key Considerations, it is used in improving the Development Process of Heritage Sites.

KEYWORDS:

- Heritage Tourism - Heritage Sites - Development of Heritage Sites -Design Key Considerations -Evaluation Checklist

1. INTRODUCTION:

Heritage sites *“Are natural or man-made sites around the world that have been internationally recognized for their outstanding value as natural and cultural treasures.”*

Heritage Tourism can be defined as *“Travel to experience the places and activities that represent the stories and people of the past and present, It includes cultural, historic sites, museums, and natural resources.”* Heritage is a non-renewable resource that current generations are responsible of its preservation and sustainable use. (1)

Egypt is one of the countries that have witnessed many ancient civilizations; it has many heritage sites and monuments. Unfortunately only few heritage sites are inscribed in the UNESCO world heritage list. It is quite important to develop Heritage sites, in order to help inscribing more heritage sites in the UNESCO world heritage list.



Figure (1) : Picture Showing Pyramids of Giza, one of the heritage sites inscribed in the UNESCO World Heritage List.

Aim of the Study: This paper aims to help improve the development process of Heritage sites by concluding an evaluation checklist for the Design Key Considerations.

2. DEVELOPMENT OF HERITAGE SITES

Each heritage Site has their own characteristics in terms of integrity, history and space, location and environment, carrying capacities. Even though heritage types may be the same, they can be distinguished by behavioral types, resource sensitivity, spatial distribution and management methods, which could have an effect on the heritage resources.

In order to develop Heritage Sites, there are main design key considerations that shall be existing in the development process. These are the main Design Key Considerations of the development process of Urban Heritage Sites:

1. Buffer zone
2. Protection of view perspective
3. Security system of heritage site
4. Transportation and mobility
5. Accessibility
6. Ticketing
7. Tourism information
8. Facilities and commercial activities
9. Visitors circulation
10. Infrastructure
11. Risk preparedness and natural threats
12. Quality restoration and management
13. Accommodation

2.1 Buffer Zone:

The buffer zone is a part of the overall management system for the property. The management system should state the influence of the development program on the boundaries of the heritage site. Buffer zone can be defined as “ *Clearly delineated area(s) outside a world heritage property and adjacent to its boundaries which contribute to the protection, conservation management, integrity, authenticity and sustainability of the outstanding universal value of the property.*” It is a two dimensional character that is insufficient instrument for conserving heritage site. (2)

Inscribing world heritage properties doesn't include buffer zone but they are formally registered at the time of inscription of the property or at the time modifications are approved

Buffer zone depends on the location of the heritage site. It may be neutral areas which include no qualities relating to the heritage site. On the other hand, it may include areas which include physical and other qualities (e.g. economic, legal, functional, visual or environmental)

The goals of the buffer zone are: Meet the condition of integrity. Protection of the heritage site. Plays an important role in social, cultural, economic exchanges which are vital for the heritage property.

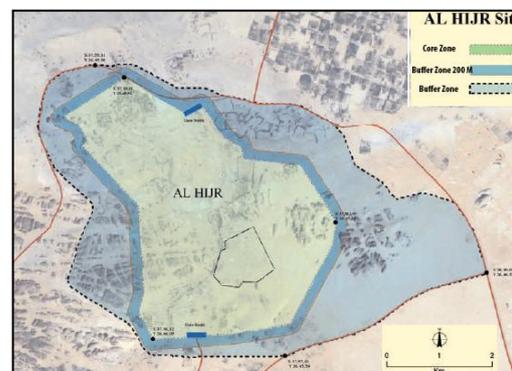
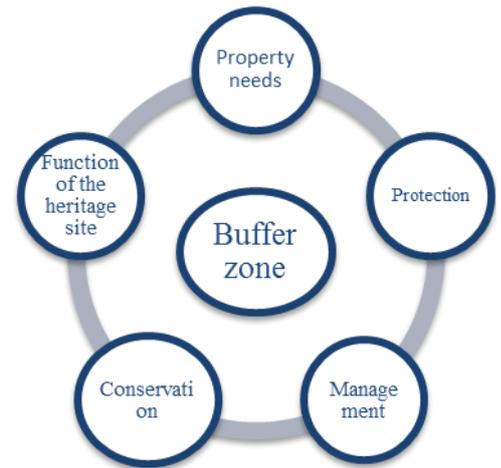


Figure (2): Map Showing Buffer Zone of Al-Hijr Archeological site, Saudi Arabia.

hydrology, visual impact. Buffer zone for cultural properties are determined on the basis for visual impact. It should connect the property with social, economic and cultural aspects of the heritage site. It must be logical and defensible in-relation to the identification of attributes that convey the value of the property. It should be useful for management based on physical features and natural features, human features such as roads. The buffer zone provides a range of functions, uses and activities which are different within the property.



2.2: Protection of view perspective:

Conservation of visual integrity is a fundament

2.2: Protection of view perspective

The visual relationships and view perspective are important prerequisites for conservation of World Heritage. Constructions around the heritage site can severely detract or even destroy the qualities of the world heritage site. Therefore, these problems can be avoided in advance by research and documentation of historic and current visual relationships surrounding the heritage site.

In order to ensure the visual integrity of the World Heritage Sites therefore, They should define view perspectives, silhouettes, and panoramas as protection goals and to incorporate these early on in all legal instruments and relevant procedures. (3)

2.3: Security system of the heritage site:

Heritage and listed properties are prime targets for crime. The heritage site should have a security concept. There are protection goals and measures that should be defined to protect against natural or manmade threats and dangers. Active elements such as alarm systems, video and access control and passive construction measures (fences, bars and safety glass for valuable items), fire fighting systems. These protective measures shall be added in a way that doesn't negatively affect the visual aspect of the heritage site. (4)

Security systems proposed for heritage buildings must meet a number of tests:

- **Minimal Intervention:** Any changes to a heritage building must cause as little impact to the building as possible.
- **Necessity:** Only the minimum amount of work necessary to achieve the security objective should be undertaken. All work should be supported by a detailed risk assessment
- **Reversibility:** Any changes to historic fabric of a listed building should be reversible, wherever possible
- **Sensitivity:** Security systems should be installed with due consideration to the overall appearance of the building as well as having the minimum impact on its fabric. In particular, appropriate use should be made of existing features (such as voids, risers, old chimneys and ducts) to conceal wiring runs
- **Appropriateness:** The security adopted must be appropriate to the level of risk.
- **Compliance:** The installation of security equipment, like all changes to listed buildings, must comply with all legal requirements, including listed building consent, building standards, fire regulations and NSI Gold certification requirements.



Figure (4): Security Camera



Figure (5): Security Camera at the Acropolis, Greece

2.4: Transportation and Mobility:

Managing transportation and mobility is a priority for management development of Urban heritage sites. Mobility is not only an issue of transportation but it is being able to get to the heritage site easily. There should be a practical way to reach the heritage site that is inexpensive and environmental friendly. Connectivity between visitor attractions in terms of access routes and transport options can also influence a visitor's initial destination choice, length of stay and overall satisfaction. (5)

Professionals in charge of development of urban heritage sites must seek to permanently modify behaviors and commuting habits that are potentially harmful to heritage preservation. Parking guidance systems and parking plans can alleviate pressure from traffic. The amount of space for parking should be able to accommodate increasing number of visitors.

The goals of Transportation and mobility:

- Improving the existing circulation network.
- Design suitable access gate panels.
- Identifying appropriate tour routes for various transportation methods according to the heritage site.
- Introduce alternative transport around site (jeep caravans, bus, and road train).
- Protect the heritage site from damage.

Criteria of Transportation and mobility:

- Identifying certain places that vehicles are allowed to go and not go due to terrain and sensitivity of the site.
- Defining a suitable technical solution to achieve a sufficiently stabilized road surface avoiding the use of asphalt that would spoil the natural environment of the site.
- Parking areas in of the historic site (at a distance not exceeding the 200-300 meters).
- Parking area includes a drop off area for taxi: other vehicles dropping off and picking up
- Disabled parking areas easily identified by all visitors.

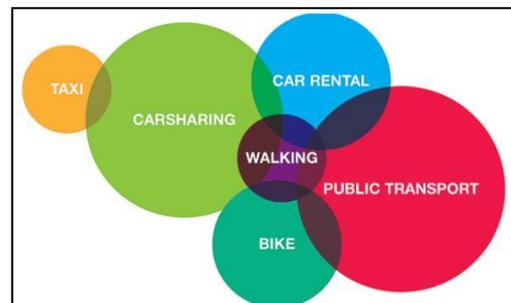


Figure (6): Diagram Showing Different Transportation Methods

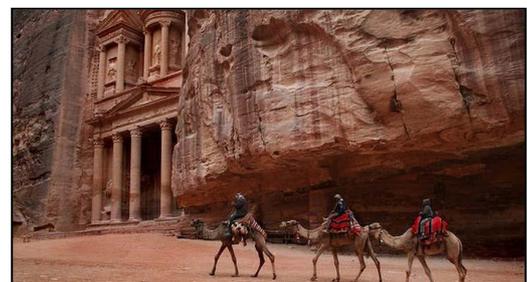


Figure (7): Picture Showing Camels at Petra Archeological Site, Jordan

- Connectivity between the different modes of transport , including linkages between train and bus services and transport to and from the airport. This includes the provision of appropriate signage and way- finding tools and maps to allow for easy navigation through a region.
- Connectivity between transport and visitor attractions to ensure ease of access and encourage increased length of stay and expenditure.
- The impact of economic and social trends such as fuel prices and climate change awareness on the demand and use of transport types.

2.5: Accessibility:

It is creating an effective controlled accessibility at the entrance and exit to reduce vandalism on site and study alternative solutions to improve the situation.

Criteria of Accessibility:

- Design suitable access gate panels.
- Deciding the main and secondary access gates.
- Identifying technical solutions to reduce the visual impact of the access gates on the heritage sites.

2.6: Ticketing:

The presence of a continuous fence around the site, and of a circle-circuit with a single entrance/exit, offers the best possible scenario for the creation of a paying mechanism. The ticketing and the reservation system distributes visitor arrivals throughout the day. The ticketing mechanism should not exceed the site visitor's carrying capacity during any part of the day. There may be online ticketing to facilitate ticketing process.

2.7: Tourism information:

The heritage site should have tourism information to guide the tourists such as information panels, information material, documents, flyers, site maps, postcards, posters, videos, CD-ROMs etc. possibly with the addition of three-dimensional models carefully designed and made of suitable materials. The tourism information might also include a descriptive audio tour and video guide tour. These informative elements should be added to the heritage site without being intrusive or negatively affecting it.

2.8: Facilities and Commercial Activities:

There are different types of facilities that should be available in the heritage site, such as: Staff equipment and facilities and tourist facilities. The staff and equipment facilities that should be available such as staff accommodation and services, vehicles that facilitate the movement of the stuff within the site.

As for the tourists facilities it is defined according to an estimation of the maximum amount of visitors per day. There should be creation of services such as restaurants, café's, WC's with baby changing room, gift shops, first aid, shops and boutiques, etc.



Figure (8): Map Showing Different Accessibility Gates of Al-Hijr Archeological Site. Saudi Arabia

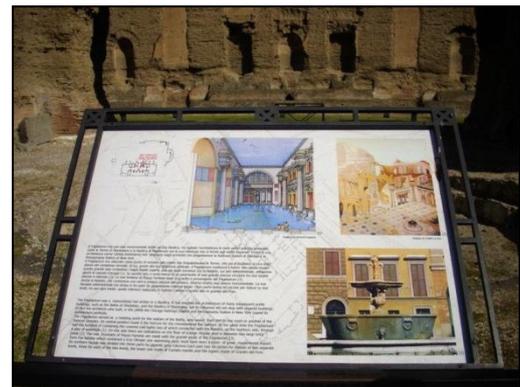


Figure (9): Picture Showing Information Panel at Treme Di Caracalla Archeological Site, at Rome, Italy.

Criteria of Facilities and commercial activities:

- The facilities serving the tourists should be integrated within the heritage site without negatively affecting it.
- Gift shop for tourists should have local handmade products.
- Accessible disabled toilets with automatic door opener.
- Appropriate lighting and acoustics.
- Audio guide and free orientation leaflet.
- Seating at the drop off-pickup area and through the site.
- Available wheelchairs for disabled & old people .

The World Heritage Site recommends to have a central visitor’s center that is opened on a daily basis. The Visitor's center foresees a meeting point for groups and school classes (and the possibility to have on the site explanations, lectures or conferences). It may be the point of departure for all visitors and it includes a film about the history of the heritage site on how the heritage was. Visitors shall have a positive experience through effective deliveries of information about the heritage place. It is an important orientation and interpretation function and allow management of heavy visitors load. (6)

Site Selection:

Before diving into the actual design of the building, the first step dealt with practical issues of where to place the building. The location of Visitor Center chosen based on the following criteria:

1. Previously unoccupied by any Centennial structures
2. Leveled foundation on surface
3. Suitable soil-type for urban development
4. Visible from the new entry road
5. Visitor center to be hidden from the sight line of the Japanese House veranda
6. The interior must capture scenic views of the heritage site (7)



Figure (10): Picture Showing Visitor’s Center of Stone Henge, England

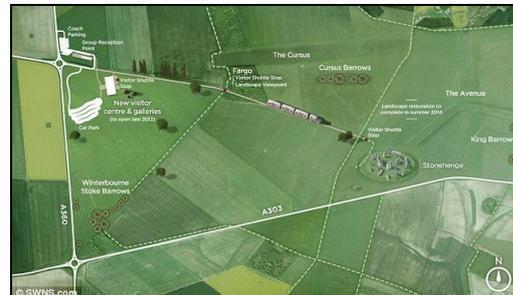


Figure (11): Site Plan Showing The Location of the Visitor’s Center in respect to Stone Henge, England

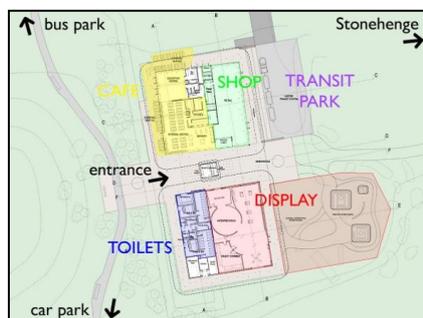


Figure (12): Plan of the Visitor’s Center of Stone Henge, England

2.9: Visitors circulation and flow:

It is important to ensure that the World heritage site is not endangered by an increasing flow of visitors. Visitor flow management is The development of a range of new and different opportunities for visitors thereby spreading the visitors load.

There should be measures to guide the flow of visitors. The number of visitors in enclosed spaces should be limited by introducing an intelligent visitor-management system to reduce impact on the monument.

Develop an easily navigated visitors routing, by defining the start point and making it visible to tourists. This route should put in consideration the climatic condition during the year of the historic site. Reinforce the sightseeing paths and electric cars.

Criteria of the visitors circulation:

- Pedestrian paths that enable easy mobility.
- A motorized route if it is needed for long distance walks.
- The visitors route should be easily visible.
- It should put in consideration the climatic conditions through the year.

Measures to assist with visitor management at peak periods.

1. Implemented a reservation system where visitors must pre-purchase their tickets one day in advance. Visiting times are controlled and allocated by the site
2. The local community, pilgrims, individual visitors and tour groups enter Different entrances to the heritage site.
3. In order to speed up visitor flow through the limited the amount of time guides spend with tour groups and have prohibited photography in certain scenic location. (8)

2.10: Infrastructure:

Infrastructure refers to all of the aboveground or belowground installations and facilities needed for the city to run properly: transportation (rail lines, metros, streets, highways, parking lots, ports, airports), energy distribution systems, and networks (water, sanitation, electricity, gas, telecommunications, etc.).

The installation of infrastructures in sensitive natural and cultural sites such as the dense, complex fabric of historic cities is regularly the source of conflicts about how to maintain a World Heritage property's value. It is often difficult, at the planning stages of an infrastructure project, to foster the cooperation and dialogue needed to accord cultural values the same importance as financial risk, for example, within the project specifications.

However, assessments of an infrastructure project's impact on a site's values are increasingly used among the sites inscribed on the World Heritage List. Degraded, failing or inadequate infrastructures can, on the other hand, negatively impact the image and attractiveness of listed historic cities.

2.11: Risk preparedness and natural threats:

Set up a risk-preparedness approach establishing the necessary connections with the national and local bodies in charge of civil protection from natural and man-caused calamities, with the aim of adapting their policies to the specific needs of the site (earthquakes, floods, wars, terror Attacks, etc.).

- Elaborate a “**risk map**” of the whole area, identifying the most fragile and endangered elements, in order to establish a list of priorities for future conservation and restoration interventions based on scientifically-based assessment.
- **Floods:** pose a serious threat to the tourism activities. To minimize the impact of floods and rain falls on tourist activities in the heritage sites, flood mitigation measures are investigated including terracing, construction of check and storage dams.
- **Excess pumping** of underground waters for agricultural is a threat for the environmental equilibrium as it affects the water table level.
- Managing **waste disposal** in the area to reduce the risks of environmental pollution caused by garbage and solid waste, while raising the visitors’ awareness on ecological issues and on the impact of uncontrolled disposal of rubbish in the natural landscape.

2.12: Quality and Restoration Management:

Restoring heritage sites without causing it any physical harm. Remove any graffiti at the historic site. Protect the site from vandalism and deterioration.

2.13: Accommodation:

Providing comfortable accommodation that encourages tourists to stay longer. Comfortable and near heritage site to encourage longer stays and providing transportation to heritage site.

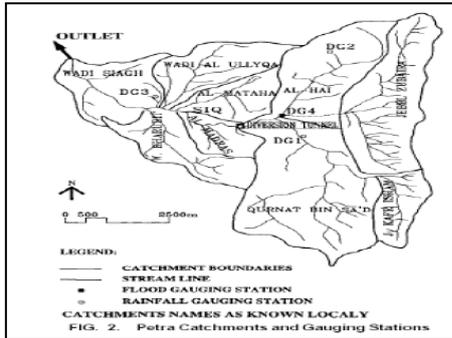


Figure (13): Map of Watershed (Floods Risks) of Petra, Jordan

Figure (14): Picture of Hotel Near Petra Heritage Site at Jordan

3.3 Goals and Features of Design Key Considerations:

The following table shows the goals and criteria of each design key consideration of the development plan: buffer zone, protection of view perspective, security of the heritage site, transportation, accessibility, ticketing, tourism information, facilities and commercial activities, visitors circulation, infrastructure, risk preparedness and natural threats, financial source, expertise and training of staff in conservation and management techniques, quality restoration and management and accommodation.

Table (1): Goals and criteria of each Design Key Consideration.

Consideration	Goals	Features/Criteria
1. Buffer zone	<ul style="list-style-type: none"> -Provides the basis for the formal adaptation to protect the visual setting and land use around the heritage site. -Respect the integrity of the heritage site. -Help developers to develop proposals and suggestions that doesn't contradict or harm the heritage site nearby. - Provides the opportunity for neighboring landowners to develop projects that helps in conserving the heritage sites. -The identification of a buffer zone helps to provide increased "certainty" for those involved in managing change in the areas around the World Heritage Site. 	<ul style="list-style-type: none"> -The size and characteristics of the buffer zone depends on the heritage site precise boundaries. - It should include immediate setting of the heritage site, views around heritage site, surrounding areas that are important to protect heritage site.
2. Protection of view perspective	<ul style="list-style-type: none"> Protect the visual relationships surrounding the heritage site, and to ensure the visual integrity of the heritage sites. 	<ul style="list-style-type: none"> -Doesn't cause any visual harm to the heritage site. - Integrates with the heritage site.
3. Security of the Heritage Site	<ul style="list-style-type: none"> Setting protection goals and measures to protect against natural or manmade threats and dangers. 	<ul style="list-style-type: none"> Active elements such as alarm systems, video and access control and passive construction measures (fences, bars and safety glass for valuable items) and fire fighting systems.

<p>4. Transportation</p>	<p>-Identifying appropriate tour routes for various transportation methods according to the heritage site. - Introduce alternative transport around site (jeep caravans, bus, and road train) -Considered to reduce visual nuisance.</p>	<p>-Identifying certain places that vehicles are allowed to go and not go due to terrain and sensitivity of the site. -Defining a suitable technical solution to achieve a sufficiently stabilized road surface avoiding the use of asphalt that would spoil the natural environment of the site. -Parking areas in of the historic site (at a distance not exceeding the 200-300 meters). -Parking area includes a drop off area for taxis or other vehicles dropping off and picking up. -Disabled parking areas easily identified by all visitors.</p>
<p>5. Accessibility</p>	<p>- Creating an effective controlled accessibility at the entrance and exit to reduce vandalism on site and study alternative solutions to improve the situation.</p>	<p>- Deciding the main and secondary access gates. - Design suitable access gate panels. - Identifying technical solutions to reduce the visual impact of the access gates on the heritage sites.</p>
<p>6. Ticketing</p>	<p>- Creating a paying mechanism allows to control and distribute site visitors capacity.</p>	<p>-The presence of a continuous fence around the site, and of a circle-circuit with a single entrance/exit, offers the best possible scenario for the creation of a paying mechanism. -Online ticketing.</p>
<p>7. Tourism information</p>	<p>-Guiding the tourists with informative elements without negatively affecting the heritage site and without being intrusive.</p>	<p>-Informative elements should also be available at the site such as information panels, information material, documents, flyers, site maps, postcards, posters, videos, CD-ROMs etc. - Descriptive audio tour, Video guide tour, Free orientation leaflet. -Official guidebooks available in print format.</p>
<p>8. Facilities and commercial activities</p>	<p>- Define, according to an estimation of the maximum amount of visitors per day, the needs in services (toilets, cafeteria, First Aid, etc.). -Creation of services and facilities such as restaurants, café's, WC's with baby changing room, visitor's center, gift shops, first aid, shops and boutiques, etc. - Foresee a meeting point for groups and school classes (and the possibility to have on the site explanations, lectures or conferences).</p>	<p>- The facilities serving the tourists should be integrated within the heritage site without negatively affecting it. - Gift shop for tourists should have local handmade products. - Accessible disabled toilets with automatic door opener, Accessible staff toilets . - Audio guide and free orientation leaflet. - Seating at the drop off-pickup area and through the site. - Available wheelchairs for disabled & old people . - Appropriate lighting and acoustics. - Visitors Center.</p>

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<p>9.Visitors circulation</p>	<p>- Develop an easily navigated visitors routing, by defining the start point and making it visible to tourists. This route should put inconsideration the climatic condition during the year of the historic site.</p>	<p>-The visitors route should be easily visible. - It should put in consideration the climatic conditions through the year. - A motorized route if it is needed for long distance walks. - Pedestrian paths that enable easy mobility.</p>
<p>10. Infrastructure</p>	<p>- Installing infrastructure in sensitive heritage sites .</p>	<p>- A regular exchange of expertise with the conservation team. - Transportation (rail lines, metros, streets, highways, parking lots, ports, airports). - Energy distribution systems. - Networks (water, sanitation, electricity, gas, telecommunications, etc.).</p>
<p>11. Risk preparedness and Natural threats</p>	<p>-Set up a risk-preparedness approach establishing the necessary connections with the national and local bodies in charge of civil protection from natural and man-caused calamities, with the aim of adapting their policies to the specific needs of the site (earthquakes, floods, wars, terror Attacks, etc.).</p>	<p>-Elaborate a “risk map” of the whole area, identifying the most fragile and endangered elements. - To minimize the impact of floods and rain falls on tourist activities in the heritage sites, flood mitigation measures are investigated including terracing, construction of check and storage dams. - Excess pumping of underground waters for agricultural since that it is a threat for the environmental equilibrium as it affects the water table level. - Managing waste disposal in the area to reduce the risks of environmental pollution caused by garbage and solid waste, while raising the visitors’ awareness on ecological issues and on the impact of uncontrolled disposal of rubbish in the natural landscape.</p>
<p>12. Financial source</p>	<p>-Availability of a suitable budget in order to be able to restore, maintain and develop the heritage site.</p>	<p>-International donations such as world heritage bank or UNESCO. -National budgets specified for maintaining and developing heritage site. - Entrance fees are collected and used for maintaining and developing the heritage site.</p>
<p>13. Expertise and training of staff in conservation and management techniques</p>	<p>-Training the staffs helped by outside group of experts of skilled archaeologists and engineers or by different research institutes and universities.</p>	<p>- Technical training for staff. - Training for stakeholders.</p>
<p>14. Quality restoration and management</p>	<p>- Restoring heritage sites without causing it any physical harm.</p>	<p>-Remove any graffiti at the historic site. - Protect the site from vandalism and deterioration.</p>
<p>15. Accommodation</p>	<p>- Providing comfortable accommodation that encourages tourists to stay longer.</p>	<p>-Comfortable and near heritage site to encourage longer stays and providing transportation to heritage site.</p>

3.4 Evaluation Checklist of Design Key Considerations:

The Following Table is an evaluation checklist concluded by the researcher after stating the main Design Key Considerations of Developing Heritage Sites. This evaluation checklist is used to help improve the development process of heritage sites. Each Design Key Consideration has several points of evaluation. After applying it to heritage site it will help to know the defects / weak points and then develop these weak points to overcome them.

Table (2): Evaluation Checklist

Consideration	Point of Evaluation	Strong	Medium	Weak
1. Buffer zone	-Legal restrictions placed on the use and development of heritage site.			
	-Immediate setting of the heritage site and its surroundings.			
	-Connects the heritage site with social, economic and cultural aspects.			
	-Provides a range of functions, uses and activities in it.			
2. Protection of view Perspective	- view perspectives, silhouettes and panoramas are defined and protected.			
3. Security system of Heritage Site	The heritage site has a security concept.			
	Alarm system.			
	Video and access control.			
	Passive construction measures (such as fences, bars..etc).			
4. Transportation	-Identifying certain places that vehicles are allowed to go.			
	-Defining a suitable technical solution.			
	-Parking areas at a distance not exceeding the 200-300 meters.			
	-Parking area includes a drop off area for taxis or other vehicles dropping off and picking up.			
	-Disabled parking areas easily identified by all visitors.			
5. Accessibility	-Main and secondary gates.			
	-Suitable access gate panels.			
	-Technical solutions for the visual impacts of gates.			
6. Ticketing	-A suitable paying mechanism.			
	-Online ticketing.			
7. Tourism information	-Descriptive audio tour.			
	-Video guide tour.			
	-Free orientation leaflet.			
	-Official guidebooks available in print format.			
8. Facilities and Commercial Activities	- Signs easily legible for visitors.			
	- The facilities serving the tourists should be integrated within the heritage site without negatively affecting it.			
	- Gift shop for tourists should have local handmade products.			
	- Accessible disabled toilets with automatic door opener, Accessible staff toilets .			
	- Audio guide and free orientation leaflet.			
	- Seating at the drop off-pickup area and through			

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	the site.			
	- Available wheelchairs for disabled & old people .			
	- Appropriate lighting and acoustics.			
	- Visitors Center near heritage site.			
9. Visitors Circulation and Flow	-The visitors route is easily visible.			
	- Considers the climatic conditions through the year.			
	-A motorized route if it is needed for long distance walks.			
	-Pedestrian paths that enable easy mobility.			
10. Infrastructure	-A regular exchange of expertise with the conservation team.			
	- Electricity installations			
	-The creation of a sewerage system.			
11. Risk preparedness and natural threats	-“Risk map” of the whole Heritage site.			
	-Managing natural disasters such as floods, volcanoes, earth quakes...etc.			
	-Managing agricultural pumping.			
	-Managing waste disposal .			
12. Quality restoration and management	-Remove any graffiti at the historic site.			
	-Protect the site from vandalism and deterioration.			
	-Develop a GIS training curriculum for archaeology.			
	-3D modeling of temples and building features.			
13. Accommodation	-Comfortable accommodation near heritage site to encourage longer stays.			
	-Providing transportation to facilitate reaching heritage site.			

6. CONCLUSION:

Heritage sites needs developing in order to maintain for the future generations. The researcher concluded an evaluation checklist for the Design Key Considerations. This Evaluation Checklist helps to upgrade and improve the Development Process. Each Design Key Consideration has several points of evaluation. After applying the evaluation checklist to heritage site it will help to know the defects / weak points and then develop these weak points and overcome them. The main design key considerations that shall be acquired in the development process of heritage sites are: Buffer zone, Protection of view perspective, Security system of heritage site, Transportation and mobility, Accessibility, Ticketing, Tourism information, Facilities and commercial activities, Visitors circulation, Infrastructure, Risk preparedness and natural threats, Quality restoration and management and Accommodation.

General Tips for Developing Heritage sites:

- Buffer Zone identification.
- Establishment of monitoring and warning systems.
- Take measures to protect the integrity, and prevention of natural and man-made hazard.
- Predict potential damage arising from the interaction with the environment.
- Use of advanced technology to abate noise pollution through providing self-guided devices and mobile phone self-help systems for visitors; and for groups wireless microphone systems, as well as other new means to reduce noise pollution.
- During peak season two things need to be well done: tourist security and heritage protection. First is to activate contingency plans, adapt protection measures to prevent visitors' bad behavior that could cause damage; second, to improve the frequency of monitoring inspections of the entire heritage site, but particularly of areas where more

tourists gather, and the rockery and bridge where visitors typically stay longer. Thirdly,

- During the off-season, the management department shall undertake monitoring and maintenance of heritage site. General monitoring system is reviewed and reorganized.

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