

# Visitors' Center in Archeological Sites – an architectural approach to the sustainable use

**Ghetti Neuvânia C.; Martins Angela M. M.;  
Krause Claudia B.; Bastos Leopoldo E. G.**

Architecture and Urbanism College, Federal University of Rio de Janeiro, Brazil

**ABSTRACT:** To recognize the importance of the sustainability questions (environmental quality) applied to the edified areas matters, must be the central point in planning actions, including all the values and particularities, especially in those that have tourist interest.

The determination of the priorities, involving the enterprise environmental quality, considering the environmental, sanitary and comfort characteristics, is the theoretical basis to conduct the construction and its phases, such as programming, project and execution.

Besides, it must be considered the Charge Capacity concept, leading to preventive actions promoting an adequate environmental use profile to guide the exploration of the place.

The methodology proposed in this paper is the HQE (Environmental High Quality) approach, studying the relation of the building (it's construction, use and operation) with the sensible neighborhood, the sanitary conditions and the user's comfort, including the visitors.

This paper aims to a reflection about the use planning in high sensible places that include historic heritage and which importance is improved by tourist and ecological values, such as the archeological sites, keeping as guide and reference the environmental characteristics, considered in the HQE approach.

**Keywords:** Sustainability, HQE, Heritage.

## 1. INTRODUCTION

The archeological material signs left by the ancient societies to the modern world stimulate the interest of visitors in historical and pre-historical sites all over the world. This interest satisfies the people's needs in having the living contact with the material evidences of their own past.

Besides, the visits are made, also, with the aim to increase the knowledge about the ancestral material culture, as to elucidate the visitor about the heritage and the environmental preservation of the site. The archeological sites are indeed, often investigated by the most different researchers such as sociologists, anthropologists archeologists, historians, architects, chemistries, and others.

Nowadays, Brazil has about 8.000 archeological sites registered in the IPHAN (National Institute for the Historic and Artistic Heritage). Some of these were created by consecutive human occupation along the history and by the material residues of fire, litho and bone artifacts, cave paints and human cemeteries of the ancient groups formed by hunters, collectors, fishers, and producing "super-artifacts" like foundations and others built elements.

So, the preoccupation about the public exhibition process of the archeological heritage grows, making necessary to think about the use in these high

sensible places, which importance is amplified by tourist and ecological value.

This paper aims to reflect about the applicability of the HQE (Environmental High Quality) approach, in the installation of Visitor's Centers in special archeological interest area – the archeological sites, with an approach that includes the environmental characteristics applied in projects compromised with the user's and visitor's environmental, sanitary and comfort qualities.

## 2. TOURISM, HERITAGE AND THE SUSTAINABLE USE

### 2.1 The Tourism and Heritage question

In these days, the tourism is an important academic, governmental, industrial and public area.

Although it is public that the tourism is the biggest economic activity in the world, the tourism is important not only because of the dimension involving the travelers, the creation of employs and the economic factors, but also by the great impact that produces in the visited places and in the people life, and in the way that it is very affected by the surrounding ambient (HALL, 2004).

According to the WTO (World Tourism Organization) it is clear that is necessary to satisfy some essential conditions, among which can be pointed the investment in the local environment and

heritage valorization, eliminating the damage practices and stimulating the preservation and protection actions. The growing tourism makes these aspects very important and an essential condition to the development.

In this context, the tourism has showed greater tendencies inside the tourist planning traditions, because it happens in different manners, through the infrastructure development, the use of the earth and resources, the organization, the human resources and the marketing. It also includes structures like governments, governmental and non governmental organizations in different scales, nationals, internationals, transnationals, regional and local ones in all the phases of the planning action such as research, implementation, evaluation and the satisfactory execution of the purposes. So, the tourist planning actions must be strategic and integrate, avoiding the negative impacts and being efficient.

The tourism is plural, involving social, economics and physics dimensions. Thinking in the factors that form the sustainability – economic development, socio-cultural criteria and environmental quality, it is important and vital to put together the environmental and the architectonic preoccupations, in the moment that it is need to act in a place that shows historic, cultural and tourist values. The tourist activity conducts to an increase of the tourist destinies use capacities, in many times exposing historical and cultural high value sensible and fragile places.

## 2.2 Special archeological interest area

The archeological sites generally are situated in protection area, like municipal, state or federal parks or in ecological conservation unities. In some cases, they can be located in private proprieties. At all these situations, the correct approach to the use planning is conduced considering the local aspects including the cultural, physics, ecological and social-economics ones.

In face of each archeological site sensibility and fragility, the intense impacts produced by the tourist visitation on the natural and archeological heritage, it is important to characterize the principal site access paths in all the aspects physics, ecologic and environmental, divulgating the zoning politics included in the Management Plan and Tourist Development Program to the area.

So, it is necessary to know the area historic data, situating them and pointing the area creating process included in the archeological site. It is also necessary to have the soil, vegetation and fauna data of the area, in order to view the environmental problems caused by the different ways of use and accesses to the archeological site.

## 2.3 The sustainable use

The sustainable development can provide the tourist activity implementation and, in many cases, generate jobs and capital, creating motivation to set up new constructed unities, new infrastructure, providing new actions and interventions on the natural environment itself, and also, many times, on the built environment.

The sustainable use needs a continuous well-being in the dimension of the social and physics environment and the interpretation of the use must also have continuous and constant re-evaluations in order to create future conservation actions to protect the environment / building.

Pollution relative questions, in all the proportions and ways, environmental degradation and natural or constructed heritage destruction matters may set the new project development models, which will consider the structural transformations occurred due to the environmental reasons.

Nowadays, the tourist routs depends on the existence of an expressive constructed apparatus and on the necessary infrastructure in order to the visitor experience may go on.

Bad planning equipments, disrespecting the natural limits and potentialities, no programming in the visitor welcome center conception, in many times, generate the visitor lack of interest in making the living experience on more original situations about the visited place.

So, it is necessary to make the rupture with a restricted view in the architectural questions on projects and on the architectonic objects and urban spaces preservation actions. The sustainable development perception recognizes that an environmental and ecological mistake in the architectonical and urban spaces projects is the mark point to the beginning of intense discussions about ideas and concepts.

The maturation in the relationship architecture and sustainability indicate particular participation strategies among different disciplines and dimensions and their inter-relations, getting the objectives of the local development and the edified environment quality, inside a tourist space.

There is the need about to develop mechanisms to make possible the articulation and the data, information and responsibilities sharing between the intervention managers and planners, such as the cumulate intrinsic knowledge systemizing, and the strategic application in the programming process leading to effective actions since the projects conception.

In the idea that the use must be conducted to not exceed the natural or constructed environmental capacity and not exhaust or destruct it, it is necessary to understand the limits within which the environment accepts the transformations. This means that it must be done judgments about the resource and environment ability to accept the needs, without irreversible, unacceptable and damage looses.

According to the realized Visitor's Center implementation process, it will be possible to make the control and the visiting flux management, defining the time and space balance to the visit and/ or the visitor standing in the archeological site and its surroundings.

This approach will directly affect the visitors' actions prevision providing a more efficient analysis about the resources and rules to these places preservation and protection considering since the simplest touch until the conservation intervention material quality control.

### 3. HQE (ENVIRONMENTAL HIGH QUALITY) APPROACH AND THE RELATION WITH ARCHEOLOGICAL SPECIAL INTEREST AREAS

The HQE approach is a derivation of the Sustainable Architecture idea, and consider in the development:

- the economic sustainability, proposing the efficient resources use (labor, materials, water and energy quality and management);
- the environmental sustainability that defines the careful use of the natural resources minimizing the wastes, and the environment protection and improvement; and
- the social sustainability that consider the different “social actors” needs, specially those involved in the construction process (from the planning to the demolition phases), the client high satisfaction, the environmental compromises and the local community.

This approach allows the constructive process to integrate a new value – the environmental value – in the global process conception, where the architectural and environmental questions must have a multi-criteria view.

A very important aspect is that this approach must begin soon, in the initial process phase and includes three stages: Programming – Project – Conception. There is a consonance among the HQE process environmental category preoccupation and those included in ISO 14001 normative series, but the HQE approach does not concerns to the enterpriser organization, but with the enterprise itself, bringing the “environmental performance” notion clearly and widely, because it takes in importance the sanitary aspects and the building users’ comfort.

The starting point to the definition and evaluation of the buildings environmental quality, according to the HQE approach, is defined by means of an environmental profile, defined in the 14 categories: the environmental, sanitary and comfort preoccupation targets.

In the exterior environment designed Eco-construction, there are:

- 1) the building and surrounding relations;
- 2) the integrate product, systems and constructive choices; and
- 3) the low impact construction area.

In the Eco-management, there are:

- 4) the energy management;
- 5) the water management;
- 6) the waste management; and
- 7) the maintenance management

In the interior environment, the building users’ comfort are identified in the:

- 8) hydrothermal comfort;
- 9) acoustic comfort;
- 10) visual comfort; and
- 11) smelling comfort.

In the building users’ health aspects, there are:

- 12) the environmental sanitary quality;

13) the air sanitary quality; and

14) the water sanitary quality.

The positive tourist action impacts such as the regional and local economic diversification, the enterprises creation, the population fixation in the interior area, the basic infrastructure improvement (sanitary and transport systems) and the equipment improvement in protected sites, must be indicated as prominent points to the local development.

In this way there is the preoccupation with the built installations, respecting the natural and historic environmental limits, defining the low impact projects that, indeed, amplify the tourist satisfaction and that can be capable to promote a bigger comprehension about the current natural and cultural-historic systems.

These projects have the nature as the inspiration and must be adapted to it, conducting the tourist to an experience that will “give him the feeling that the visit is something beyond the usual, a precious opportunity to learn, give importance and feel the world.” (CIFUENTES, apud SEABRA, 1999).

In the tourist activity planning, the researcher can make recommendations about the building projects, the energetic resources use, the solid waste treatment and the available infrastructure, with the aim of getting the sustainability. So, it is necessary an approach that includes the environmental excellence and the users’ comfort.

#### 3.1 The HQE approach application on Archeological Special Interest Area Visitors’ Center projects.

In the HQE process approach, this paper proposition will be conducted considering the environmental preoccupation categories, with the aim to give theoretical subsidies to delineate and support the programming, the conception and the implementation project, to the increase or to the modification of a Visitors’ Center.

In the exterior environment will be studied the targets relative to Eco-construction and Eco-management.

In the interior environment it will be considered the objectives relative to the users’ comfort and health.

#### Exterior Environment

##### 1 – Eco-construction

a) Relation building and surroundings – it must be considered the advantages and disadvantages in the sensible context to be possible the definition about the project morphology, its functional and architectural organization, according to the archeological site.

b) Integrate choice of products, systems and constructive processes – it is important to respect the right choice of the products that will be incorporated to the building, so the use of systems dedicated to the enterprise time long and adaptability and, according to the constructive processes, the preoccupation must be directed to the environmental impacts during the expected cycle of life.

c) Construction area – it is necessary that the programming include the use of low environmental impact constructions areas, with the purpose of

minimizing the caused damages in the site or surroundings. The waste production must be reduced and its management shall be optimized. The discomfort and pollution caused by the construction must be avoided.

## 2 – Eco-management

a) Water management – in these cases, it is important to consider the use of artesian water well up resources, which must be evaluated about the human drinking qualities and in relation to the water reutilization.

b) Waste management - the preoccupation about the interior and exterior waste collect must be present, such as the waste treatment, including the setting up of collect recipients in adequate quantity.

c) Maintenance management – it is necessary to recognize the importance about the stability on the environmental and sanitary performance, simplifying the maintenance and cleaning, by an easy access to the energy, water and waste housing. These places' conception must be based in the uncomplicated use, guaranteeing an easy component replacement and reducing the users' discomforts.

## Interior environment

### 1 – Comfort

a) Hydrothermal comfort – the enterprise must have a preview about the users' hydrothermal comfort aspects, especially considering the regional climatic characteristics, and so the possibilities in the tourist use increasing.

In not air-conditioned rooms, the thermal comfort must be searched, letting the user to control the temperature as his wishes, by opening or closing windows.

In the air-conditioned rooms, it must be defined a specific ventilation system, getting the temperature adequate level in the different accommodations when in use and according to the type of the use. The users shall control the air speed and thermal characteristics. The solar incidence must be considered, controlling, as much as possible, the environmental solar heat discomfort.

b) Acoustic comfort – a good environmental acoustic comfort must be obtained by the adoption of architectural and spatial arrangements, keeping these characteristics to the neighborhood and in the rooms' interrelations.

c) Visual comfort – the natural and artificial illumination in the interior and exterior areas must be cared, guaranteeing good luminosity uniformity, with comfort and the control possibility to the users.

d) Smelling comfort – the building characteristics must be adequate to permit effective ventilation, in order to avoid unpleasant odors, mainly in the near bathrooms areas.

### 2 – Users' health aspects

a) Environmental sanitary quality – in the situations where are necessary to be present bathrooms and kitchens and also when it must be given drinkable water to the users, it is essential to care about the water quality aspects, besides the

adequate hygienic conditions of the collective use equipments.

The bathrooms and kitchens waste collect and throw-outs must be studied with the purpose to avoid eventual contamination on the natural water resources.

b) Air sanitary quality – an adequate ventilation must be searched, keeping the hygienic exigencies, the necessary air renew and the flow control possibility.

c) Water sanitary conditions – in the cases where there is artesian well up water resource, it is important to evaluate the type and the effectiveness of the treatment, making possible the human consumption, and guaranteeing that no contamination will affect the water resource, that is kept isolate from the waste collect and distribution system. The stocking of water for a long time must be also avoided.

## 4 – FINAL COMMENTARY

Other aspects and considerations can be made additionally to those above related. So, it can be thought that:

- as the archeological site is a fragile heritage, special care must be taken about the indicative signalizations aiming to the tourist – user environmental education;

- as the archeological site is an eco-tourist place, it must be present particular worry to the site access paths cleaning, as to the built elements maintenance such as bridges and ways, avoiding the generation of new environmental impact and degradation points;

- security questions, like the fire combat preventive plan and the possibility on evacuation emergency in accidents situations must be present in the enterprise planning. Actions against vandalism acts, avoiding damages to the heritage must also be included;

- individual security aspects (police, health emergency, rescue and safe) must be included in the planning. The medical assistance to the users and visitors must also be provided;

- the users' participation must be stimulated by the use of opinion formularies and questionnaires, in order to evaluate the spaces and building comfort level;

- the sanitary quality aspects of the tourist services are very important, particularly the water and food quality controls;

- the parking areas must be planned with the purpose to not exceed the maximum tolerance limit delimited to the Visitors' Center and even to the archeological site; and

- a rest area can be thought in the Visitors' Center exterior, providing the contemplation and nature enjoy possibility.

This paper's Visitors' Center enterprise suggestion takes in view the environmental characteristics according to the civil construction aspects (products, planning, project, construction work) considering an approach that aims to the environmental high quality

targets and considering, also, the sensibility of the place and the tourist use in particular.

The tourism has to be linked to the conservation and leisure and not to a conflictive use with negative objectives and effects that produce the visitors' discomfort and dissatisfaction.

With a correct planning stage and the installation of the Visitors' Center, many of the troubles described in this research may be close to their solution or, even, to their total elimination.

To recognize the importance of the sustainability and architectural questions, especially those relative to the historic and cultural heritage or to the tourist spaces, with all their particularities, must be pointed as a new management pattern.

So, it is necessary to create and establish plenty mechanisms to promote an adequate situation control and evaluation, predicting future events and making possible the cycle feedback for adjustments and continuous improvement, in order to guarantee the historic and cultural resource preservation and the space quality in the visitors' receiving processes.

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