Construction of an informatics model of the São Luís historical centre buildings and methodological proposal of a risk map: case study – Giz Street

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Abstract

The physical, functional, and economical obsolescence of historic city centres and the lack of public and conservation policies have generated consequences that are deteriorating historical structures and creating serious risks to their integrity. The project intends to provide a methodological proposal of a risk map with the application of contemporary technologies for the heritage management, its protection, preservation and conservation.

Keywords: heritage, risk map, informatics model, technology

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Introduction

Many historical structures have been driven to degradation and even to ruins because of the total obsolescence of their historic city centres. It is indispensable to mention that historic city centres represent living ancestry and the marks left by them in traditional traces of construction, material, textures or architectural expressions which are indelible. These circumstances have been regrettably affected by the lack of economic and educational policies as well as the massive increase in automobiles. It is because of this panorama that the many historic centres of Brazilian cities exhibit similarities with many Ibero-American and European cities.

Nevertheless, in recent times, these cities have regained value within their central spaces, so the task is to achieve an active and coordinated policy to safeguard the historic centres is a straight road. But to obtain it, the full integration of the government, councils, private sector, and most importantly, the participation of the citizens is necessary.

The artistic, architectural and the historic value that comprises the historic centre of São Luís, Maranhão were decisive factors in deciding to develop a methodology that proposes the use of contemporary technologies for cultural heritage management. It is important to note that this method will explicitly and intimately contribute to the conservation of the existing set of artistic objects and ornaments in the historical buildings of this Brazilian city, as well as many other historical cities in the country.

For this methodology, it is important to specify that its sources offer a partial record concerning the real consistency of the historical buildings and the existing set of artistic objects and ornaments that are located on the street chosen for this work.

The bibliographies and files about the historical buildings chosen for studying the centre of São Luís do not give enough information to help in estimating real risks. Above all it is a shame that in many governmental departments the archives are obsolete, with old maps and technical drawings stored, and worse yet, deteriorating, in malfunctioning confined spaces. This confirms the necessity of an updated management system that will be presented in this work. The use of modern digital tools is very helpful because of the technology used. It stores, maintains, updates and the most important of all, interacts with other kinds of technologies.

1. The urban structure and its risks

Urban structures are very close to risk issues, specially the hazards derived from nature and direct actions caused by man. The evolution of urban history has taught us about the relevant changes in the structure of cities, despite their size. The process of city development has created irretrievable loss in cultural heritage. Nowadays, powerful chains are emerging in a globalized economic context and the result can be seen in the changes in cultural heritage. Many historical cities are facing risks caused especially by man's greed. Urban growth exerts pressure

on natural and environmental resources. Land occupation and its patterns, urban production, lack of accurate planning procedures, and severe faults in basic infrastructure, combined with the rapid increase of underprivileged populations in cities, lead to exposure to different risks such as natural hazards, air and water contamination, floods, land occupation, collapsed structures, and so on. According the ICOMOS 2000 Monuments and Sites in Danger Report, risks are derived from natural processes, economic development, collective social behaviour and conservation security net weakness.

Risk can be defined as a probability of social-economic loss due to the occurrence of a dangerous phenomenon (Díaz *et al.,* 1997). For Lavell (1996), the risk concept, in its simplest definition, refers to the probability of a population of facing something hazardous and destructive. Risk, to the author, is a consequence, latent or potential, and its level depends on the intensity of the hazard and existent levels of vulnerability. Social process derived from development global patterns increases the vulnerability of groups and urban communities and may power the human impact of physical risk factors naturally or humanally generated.

Risk according to Baldi (1991) is defined as the possibility of an undesired happening that can damage something with an attributed value. Risk derives, therefore, from a combination of three different elements: the value of the objects that constitute cultural heritage; its behaviour in the face of damage, i.e. its vulnerability; and the presence or probability of hazard factors. Those factors that are related to the environmental-air-domain are defined by the author as the aspects of the surface; the static-structural domain is defined as the constructional and static-structural characteristics; and the human domain for use and safety. Nevertheless, decision making concerning the safeguarding of cultural heritage can be taken and to corroborate this it is necessary to respond urgently.

The method presented in this work has its basis in the concept of the risk map, specifically the Italian principles of the Risk Map of Cultural Heritage (Maris) and the uses of criteria of a Geographic Information System (GIS). The GIS Risk Map developed in Italy is a system of alphanumeric and cartographic databanks with the capacity of exploring, superimposing, and processing information concerning potential risk factors posed to Italian cultural heritage. The organization of the Italian Risk Map is articulated in three different stages: the overall and theoretical appreciation of the deterioration factors which will lead to the hazard thematic maps compilation; the real occurrence of factors causing deterioration, which will determine the vulnerability levels definition; and the synthesis of the preceding stages in the development of the risk map.

The Italian project was an important piece of research for the completion of a Spanish thesis whose methodological approach to the historical centre of São Luís. Both are fundamental sources that enrich the current paper. It is of great importance to clarify which aspects of the Italian project and methodology of the Spanish thesis were used for São Luís.

One of the most important elements and part of the methodology for this work was the development of a databank. The databank as a dynamic tool allows the constant input of information related to natural events and human acts. The information can be stored, used, updated, and accessed throughout the world. The methodology that is proposed here is also intended to plan the organization of an inventory for all interested in conservation and preservation. With this information, along with the use of GIS and an informatics model, it is possible to store, translate, and interact with data from the São Luís historical scenery. This can be disseminated to possible management plans and other projects of conservation and preservation.

GIS is defined as a hardware and software system and elaborated procedures that facilitate the acquirement, management, manipulation, analyses, modelling, representation and output of spatial data. Barredo (1996) defines the elements of GIS as: the input of information, spatial data and thematic characteristics, e.g. several sources and formatting; data management concerning the aspects of the organization of spatial and thematic data in the database; transformation and data analysis, the potential operative, its definition, use and the spatial problem being solved through GIS; and finally the output data. The Geographic Information System is a complete informatics package (physical and logical support), created to manage capturing, storing, editing, manipulating, analysing, modelling and generating graphic spatial data output with the objective of addressing planning problems using complex resources. The applications of GIS are innumerable. GIS is a fast response to questionable spatial matters and it is beyond ancient and traditional databanks. Its effectiveness and productivity maximize the ability to carry out territorial and spatial

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analysis. This system can be used in the planning of several models of development and management.

2. São Luís, Maranhão

Although founded by the French in 1612, and also occupied by the Dutch for a short period of time, the city of São Luís was re-conquered in 1615 by the Portuguese and remained as a markedly Portuguese city. It has the largest example of colonial Portuguese architectural from the 18th and 19th centuries. The richness and beauty of the São Luís' historic centre is the result of many aspects including its culture, its peculiarities, surroundings, and most of all, its history.

The historic city centre's architectural and urban lots are divided into two significant urban zones, as declared by federal jurisdiction protection. It has approximately 1000 buildings with historical and landscape value in a 90 hectare area, and 2500 buildings with historical and artistic value in 160 hectares of area protected by state law in an Historical Preservation Zone (Maranhão, 1998).

The buildings are inserted on an orthogonal road network that determines regular drawing disposition and placed in lots according to topography, taking advantage of the area. It was possible to build big structures using a considerable amount of area making a good use of the corners of the streets. The typology of the constructions are 'L', 'U', 'O', 'C' and rectangular shapes. The façades are symmetrical and uniform. The big buildings are known as *sobrados* and *solares* and the single-storey houses are given specific names based on the number of windows in their façade: *Morada inteira*, *Meia–Morada*, *porta e janela*.

In general the buildings are composed of architectural elements adapted to the local climate. These adaptations were made in the Portuguese style. Their disposition presents many architectural aspects. Because of the tropical climate it was necessary to make some arrangements to deal with the heat and humidity. The results can be seen through the sash windows and doors with the *venezianas*, signs of Arabic influence during the Iberian Union. It is quite often present in internal patios in the *sobrados* and *solares* as well as in the *varandas* that surround the upper floors of the interior of the buildings. In fact, all of these arrangements were made to face the long sunny days throughout the year. Although sunny, the rainy season in the city is important due to the amount of rain that falls and a very wise solution

was the use of tiles to cover the external façades as protection from the rigorous weather and also to reflect the solar rays. It is important to mention that these buildings have a traditional construction system, e.g. stonework and lime, and with the heavy rain season the water sweeps strongly against those walls. Thus, they offer a combination of aesthetic value, thermal comfort and protection. The tiles in the buildings of São Luís were widely used in the 18th and 19th centuries; in those times the State of Maranhão was experiencing its best economic cycle due to the cotton industry and manufacturing, and received from Portugal a very considerable amount of imported tiles. Because of that, the city is recognized as 'the city of the tiles'.

A combination of geographical, historical, and economic factors made it a significant architectural heritage site.

3. Deterioration of the buildings in the historic city centre of São Luís and its elements

The research that has been made in the area of the São Luís historic city centre has shown many deteriorated buildings and the situation has lately worsened; it is currently possible to see the degradation of a significant group of buildings in different streets.

The intense rainy season has added to the lack of maintenance in structures such as roofs, walls and flooring has caused humidity damage to them. The relative air humidity in the island of São Luís, Maranhão can reach 82%. The humidity factor produces other deleterious factors like rottenness in the wooden components, weakness of walls, ruptures in the stonework, lime structure, and so on. It is necessary to also mention the serious problems that are caused by biological factors: microorganisms and plants. Humidity is the main factor in the majority of the physical and chemical deterioration process in the façade materials. In this situation, there are also human actions that increase the problem of deterioration, similar to any other historic city centre. The list is very extensive; constant traffic that causes contamination, vibration, noise, etc.

The streets in São Luís´ city centre are paved with old stone bricks (raw granite) known as '*paralelepípedos*'. Its irregularity and the strong traffic flow cause vibrations. The historic city centre has narrows streets, typical in an ancient urban structure, and they are not prepared for intense circulation

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of automobiles or heavy trucks. The old building structures are fragile and vulnerable to excessive movement and vibration caused by heavy traffic. The vibrations cause fissures and fractures in materials of oscillating temperature and humidity. They can also contribute to fatigue of constructive materials.

Human action is a relevant factor concerning the preservation of historic sites, monuments, and constructive structures. Human behaviour can accelerate the process of deterioration. Bad planning of tourism activities, no control of visit intensity, or placing objects and ornaments within reach can lead to damage or destruction. Elements such as pictorial coats, stones, and ornaments are generally very fragile.

Also many transformations and circumstances have taken place that directly affected the way of living in the historic city centre. The interrelation of conditions between the social and economic reality and the settlement of groups in the area have generated serious problems in the urban area. There has been a loss of the original function of the structures, as the buildings were constructed for the bourgeoisie class in the earlier centuries, and now accommodate new groups with differing economic levels, many of whom have come from the interior of the state. In the buildings of the area, groups from the same family and groups of different families living in the same building can be seen. In addition to working-class inhabitants, a large part of the population are elderly and living in a state of poverty. Among the residential groups there is a neuralgic problem concerning the maintenance of the buildings. Those who rent cannot afford the expenses of maintenance, nor can the owners. It is an eternal battle to determine who is responsible for the expenses. Evidently there is also a weak response from the state in dealing with these matters. This is a serious and problematic situation that contributes to the degradation of the historic buildings and also to the growth of structured risks (Figure 1).

The examples discussed here are complicated and this is a long-term matter. The list is extensive, however, and it shows the importance of identifying and evaluating risks and giving subsidies that can help in the development of new technological tools to manage new strategies to set back or to impede procedures that in many times are badly executed in historic city centres. The discussion above allowed for the development of the methodological proposal in this study, which can help in decision making concerning the management and safeguarding of cultural heritage sites.

4. Giz Street

Giz Street, located in the historic city centre of São Luís, was the street chosen as the object of this study since it belongs to the architectural collection listed by UNESCO as part of the cultural heritage of humanity. The street will exemplify the methodological proposal in this work. Giz Street is oriented east-west, with its northern limit at Nazaré street and southern at Jacinto Maia; it is paralleled to the west by Estrela Street and to the east by Palma Street. Its length is approximately 500 metres, covering 12 blocks of the area (Figure 2).

The architectural styles present in Giz Street are the Portuguese traditional *sobrados*, *solares* and the typical single-storey houses mentioned previously. The typology of building façades presents a regular form, a symmetrical span composition with balconies whose bases are of calcareous limestone.

The information collected for the organization of the work includes the use, the state of conservation, and the architectural style of Giz Street.

5. Method and proposal development

The compilation of information included the state and typology of the buildings settled at Giz Street,

Figure 1. The deterioration in the buildings of the historic city centre (Braga, 2004).

Figure 2. Giz Street in São Luís´ historic city centre (Moreira, 2006).

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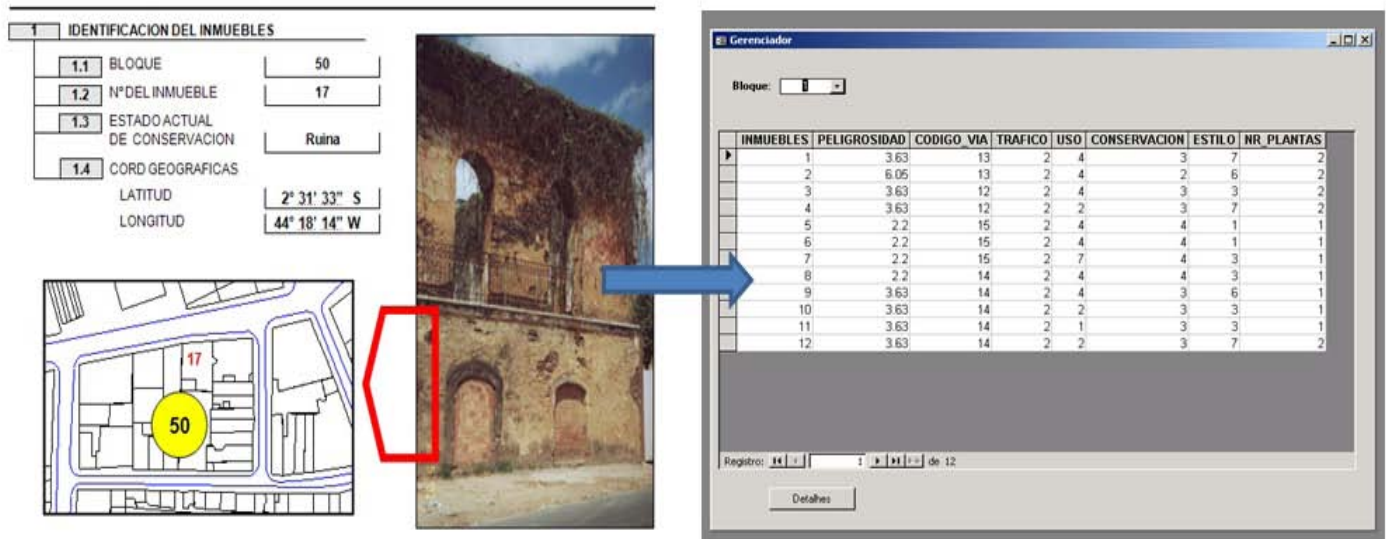
Figure 3. Cadastral files with databank - methodological proposal model (Braga, 2004).

as well as the delimited space, street identification, blocks, and spatial location done through investigation of urban plans, architectural archives, bibliographic references, local knowledge and *in situ* consultation. Information has also been collected by the Research and Planning County Institute (formerly IPLAM) and by the state government through the *PRAIA GRANDE/REVIVER* project. The information collected includes the use, state of conservation, and degree of conservation and has been evaluated according to the scales of intensity and extension of the damages and pathologies as well as the architectural styles and the number of floors. Subsequently, all the data compiled was organized in catalogue charts that include a photography survey and interviews.

For the development of the methodology proposal two stages have been elaborated, one for the construction of the informatics model and one for the risk map. It is important to mention the use of different software. Two statistical units were established: the buildings from Giz Street as the vulnerable element; and the territorial district where Giz Street is located with the traffic flow as the danger factor.

For the risk map the references from the Spanish thesis presented by Braga (2004) whose investigation resulted in the following methodology were used. The methodology for the thesis has helped with the information regarding in its first stage the organized and compiled data of the cadastral files of the buildings in the street chosen for this work. This includes the use, the state of conservation, the architectural style and the number of floors according to files from IPLAM (1998); georeferences for the

buildings processed by the Microstation software and cartography data and thematic maps; determination of the building vulnerability levels based on the evaluation of the information gathered in the files for the several states of conservation: ruin, bad, regular, and good (IPLAM, 1998); determination of the traffic danger flow in the street; identification of the databank codified and defined components and the organization of all information, along with the migration of the MS Access databank system. For the second stage all the files have been spatially compiled in a GIS environment, with the use of ArcView developed by ESRI (Environmental System Research Institute, Inc). The software was chosen at the time for the ease of conversion to CAD (file suffix .dwg) and Microstation (file suffix .dgn) files. The third stage consisted of the development of the risk map and with this map it is possible to interact with different levels of interface among users of the system, including ArcView and other digital tools (Figure 3).

The methodology has adopted the following criteria for the evaluation of damages and pathologies in the several levels of the state of conservation already mentioned (ruin, bad, regular, and good); the intensity scale of damage and pathologies were defined in relation to the extension of those and the vulnerability level of conservation was measured mathematically. The human danger level was identified as a territorial variable, as the area where the buildings are situated and where the information has been captured by the vehicle flow data. The information regarding the state of conservation of the buildings in Giz Street were added the vulnerability and danger factors and in addition to risk factors. Automatic

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cartography faces different kinds of hazards then the application of an evaluation model with the use of the ArcView (Figure 4 and Figure 5).
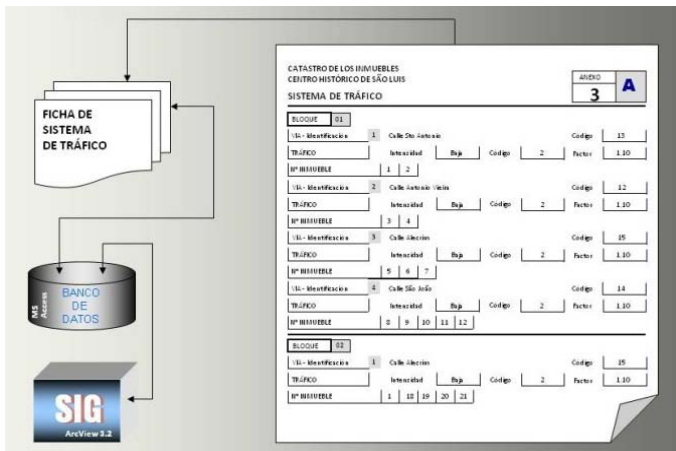

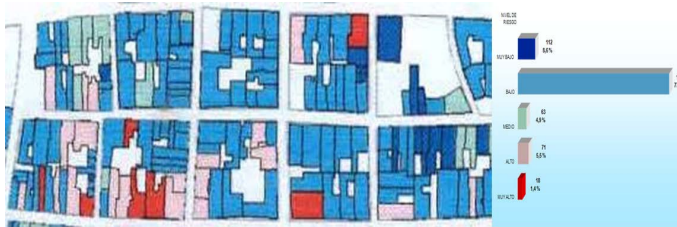**Figure 4. Methodological Development Model (Braga, 2004).**

Figure 5. Risk map of Giz Street. The dark blue colour represents low risk; the blues, very low risk; green, medium risk; magenta, high risk; and red, very high risk (Braga, 2004).

6. THE METHOD APPLIED TO THE CONSTRUCTION OF THE INFORMATICS MODEL

The development of the proposed model has been possible because of the information gathered concerning the cadastral file of the typology, architectural plans, and the topography of the street. With the research, archives, and information compiled the modelling and construction of the informatics model was started. The software AutoCad (AutoDesk) reproduced the accurate measurements of the architectural elements such as spans, balconies, gratings, and columns.

For the virtual walk, the modelling was imported to the BS Contat software that allows the visualization of the walks in a simple and interactive way, where the user has control of the walk orientation in the graphic environment designed space (Figure 6).

The proposal covers the reproduction of environments with a considered level of realism through

Figure 6. Square at Giz Street and the design for the virtual walk (Cordeiro, 2006).

rendering; nonetheless this procedure requires a high standard of hardware and production, for example the 3Ds Max (AutoDesk) software.

Cultural heritage in a broad sense refers to all the expressions, attitude, places, artistic objects, and all significant traces of human civilization. Its safeguarding is indispensable. This work is determined to spread awareness of the preservation and conservation of historic sites. It is expected that the proposed methodology in this work will collaborate in the management, control, and prevention of the factors that deteriorate not only Giz Street buildings but also all the historic buildings of the city of São Luís, Maranhão.

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Monitoring of the state of conservation in the context of the Edinburgh functional system

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Abstract

  The complexity of the process strongly depends on the organization of a site's functional system and political relations between the key stakeholders. The level of complexity affects monitoring methodology and the scope of monitoring indicators. One of the main challenges is to balance monitoring to ensure it provides high quality analysis for both the World Heritage Committee and the site's management.

Keywords: monitoring indicators, functional system, politics, management cycle

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The case of Edinburgh: overview

  This analysis is mainly focused on the case of the Old and New Towns of Edinburgh World Heritage Site, inscribed on the World Heritage List in December 1995. The inscription followed the International Council on Monuments and Sites (ICOMOS) recommendation that the property meets criteria (ii) and (iv) of Outstanding Universal Value.[1] The area of the World Heritage site covers the city centre of the vibrant capital of Scotland (Figure 1). The management strategy and state of conservation have been subject to regular monitoring since its inscription,

and so the analysis is based on solid experience. The analysis provides examples of solutions based on monitoring processes.

  Monitoring the state of conservation of a World Heritage site is an obligation of inscription on the United Nations Educational, Scientific and Cultural Organization (UNESCO) World Heritage List. Every six years, the World Heritage Committee requires State Parties to submit a report on the application of the *World Heritage Convention*. At the local level, annual monitoring reports form part of the *management cycle* and evaluation, and are focused on
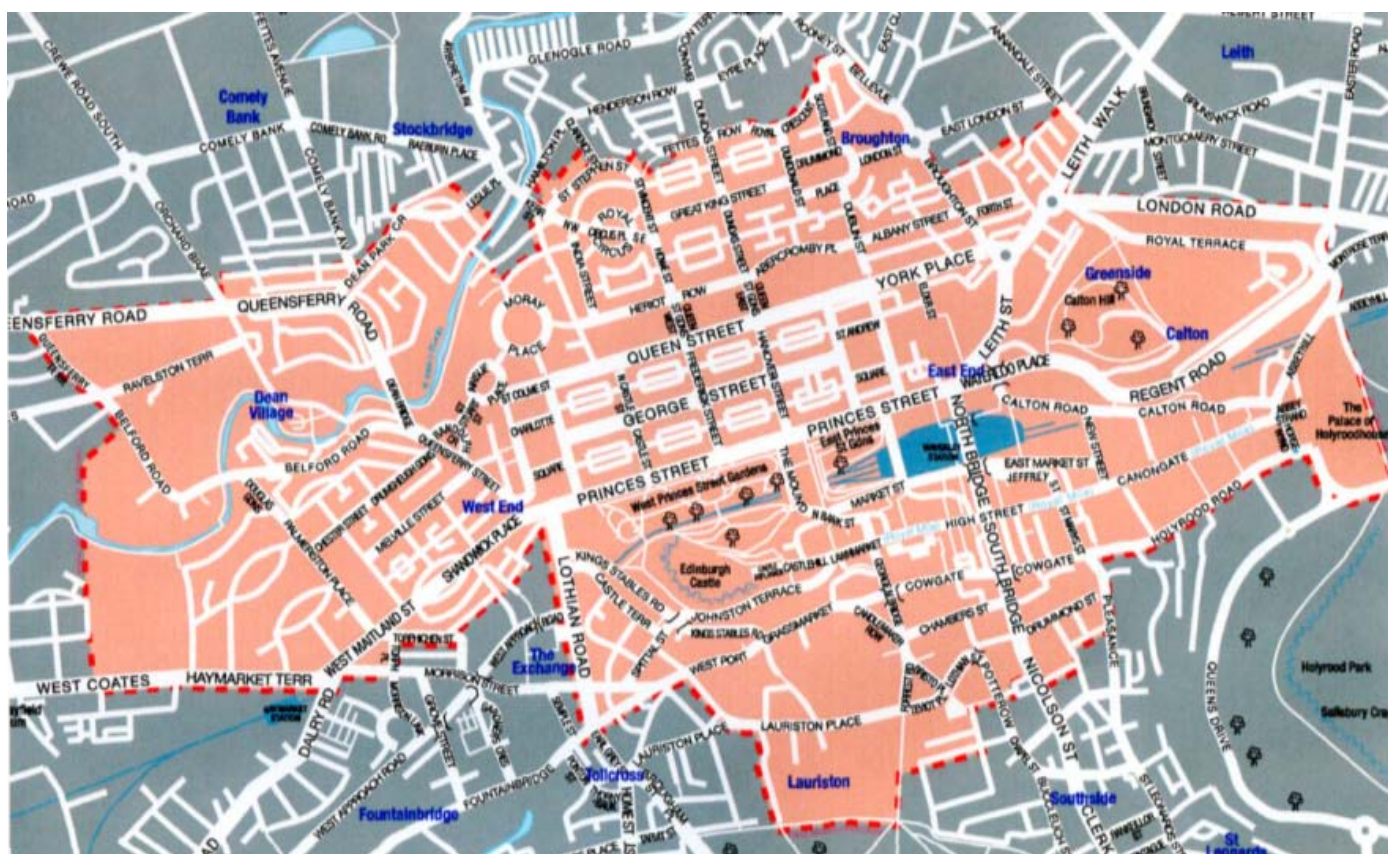

Figure 1. The Old and the New Town of Edinburgh World Heritage Site.

providing an evaluation of the state of conservation. Outcomes from the monitoring are incorporated in an Annual Action Plan, which breaks down the Management Plan objectives into actions. Appropriately carried out, monitoring is critical to the decision making process of the World Heritage Committee, the site's management and to anyone with an interest in the site. It is critical to carry out ongoing monitoring to identify trends and effectiveness of strategy over a long period of time.

Although this approach is fairly standardized it should be borne in mind that the compilation of the monitoring report itself is a subject to functional implications. This depends on the structure of the site's management. Often the issue is about balancing the use of monitoring reports in the context of scarce resources, being available to dedicate to compilation. This leads to a question of to what degree the scope of analysis should be orientated on international or local expectations. There is no straightforward answer to this question because each World Heritage site is different in terms of its attributes, values and, most importantly for this analysis, organization of the functional system.

Methodology (scope of indicators, data collection, and analysis) is the main *technical* issue related to the compilation of the monitoring report. In practice, the scope of monitoring indicators is a subject to an agreement of key stakeholders dictated by the scope of objectives in the Management Plan and projects of the Action Plan. The information and statistical data are relatively accessible (however broad the range of subjects and interests producing it), and are then gathered, analyzed and compiled in one report. In the case of Edinburgh, the methodology has been developed over the years from inscription with only minor changes. The current review of the Old and New Towns of Edinburgh World Heritage Site Management Plan gives an opportunity to optimize the monitoring mechanism for the new strategy. Finally, responsibility for the monitoring should be led by the principle of objectivity and ideally held by the coordinating body.

1. The functional system:
politics of management

In Edinburgh, the key roles in the implementation of the Management Plan and protection of the World Heritage site's Outstanding Universal Value are fulfilled by Edinburgh City Council, Edinburgh World Heritage Trust and Historic Scotland which form the core Steering Group; and Edinburgh World Heritage Partnership (Steering Group + Essential Edinburgh and Scottish Enterprise).[2] The Edinburgh Old and New Town World Heritage Site is a complex urban World Heritage site covering the capital's city centre and seven conservation areas.

It is a place where numerous different interests meet and, in some cases, collide. Therefore management of the World Heritage site is *indirectly* influenced by a larger number of organizations, lobbies, community and interest groups. Usually these groups have an interest in the management of the *city centre*, not *the World Heritage site* per se, hence their influence on the integrity and authenticity should be perceived as *indirect.* The set of various bodies and interests, taking in the existing relationships and interactions between them, is referred to by the author as a *functional system* ([Figure 2](#)).

It should be noted that the presented functional system does not reflect all the subtleties and exceptions and rather presents an ideal state of managerial efficiency. For instance, an interest related to the site's management coming from *CG* is articulated directly to *CEC or HS* and then redirected to *EWH.* This dysfunction may demonstrate low public understanding/awareness on the function of the key stakeholders. Ideally these types of issues should be subject to monitoring with the aim of understanding and improving functional relations between key players (stakeholders).

Understanding direct and indirect implications within the functional system is fundamental not only to monitoring but to the entire cycle management. Knowledge of who participates in the management
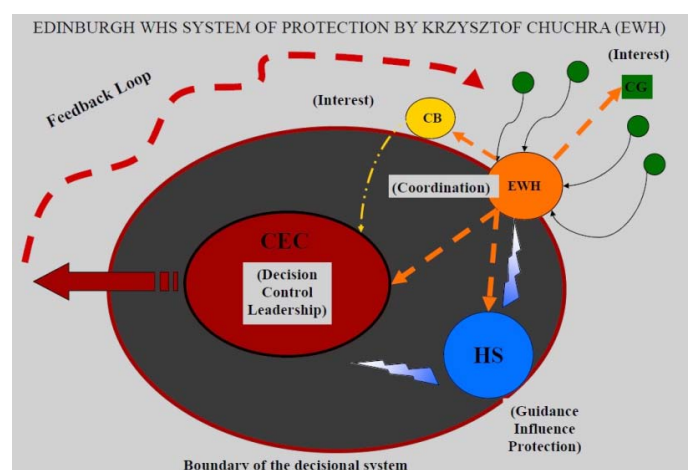

Figure 2. Edinburgh functional system of protection. Respectively: CG — community groups, EWH — Edinburgh World Heritage, CB — Cockburn Association, HS — Historic Scotland, CEC — the City of Edinburgh Council (Source: author's elaboration).

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should be utilized at the stage of scoping and data collection, ensuring bodies, which influence the system make research informed decisions. Therefore, not only impact of the decisions but also data used should be of interest for the entity responsible for monitoring. It has to be indicated that significant data is usually held by *large* players such as the local authority, government or developers. Decisions and influence made by, for instance, community groups, although important, mainly has a reactive character.

1.1. Local and external engagement

This functional system focuses on the local (Edinburgh) residents and experts. This approach results from the organization of British monument protection, which forms a part of the planning policy framework. The policy emphasizes an early community engagement in the decision making process at the local level. It obliges local authorities to consult local residents and experts with an interest in the city management of environmental issues. Advanced decentralization allows local communities to take ownership of place, including its historic assets, and shifts responsibility for the management onto the public by placing the local authority in a facilitating role. From the functional analysis point of view, Edinburgh is a particularly good example because of its capital status, as a centrally located and large World Heritage site in relation to relatively small area of the entire city[3], and high community interest in the city management.

However, World Heritage status is not about private interest but is about the common good. From a pragmatic point of view the opinion of local experts is important in decision making although not central, depending on the case; for instance, a reactive monitoring mission caused by exceptional circumstances. Often, the local experts are close to particular issues related to a site's management, playing an active role in the functional structure. It can be assumed that the best results are achieved if opinions of local experts are verified by external experts, given that the latter have the authority of broad experience and objectivity. When it comes to monitoring, the opinion of both external and local experts is equally important. Local experts are a good source of information about the state of the site, particularly in a situation when monitoring requires specific, expensive research such as on thermal efficiency of historic buildings.

In 2008, energy efficiency and fuel poverty issues were recognized as some of the main issues affecting

state of conservation and quality of life in the Old and New Towns of Edinburgh World Heritage site. A case study and monitoring exercise took place, the outcomes of which can be found in Energy Heritage report published by Changeworks in collaboration with Eaga Partnership Charitable Trust and Edinburgh World Heritage.[4] In 2009 the report-based guide entitled 'Renewable Energy'[5] was published. The functional response to this was development of the Energy Efficiency Officer post funded by the Climate Challenge Fund. The project aims at raising awareness among local residents of the importance of energy efficiency and sustainability issues, and to promote the use of green routes and activities throughout the city.

Certain information related to residency in the World Heritage site can be important for monitoring and evaluation because it provides the management with information, which can be critical for the strategy, such as reasons of residency, short and long term residency-based perception on the site, and the social and demographic structure of the community. For instance, long-standing residents often have better knowledge about the area, especially about its intangible and social attributes than, for instance, students arriving on a one-year exchange. On the other hand, new residents can provide monitoring with useful information over a period of time relating to the reasons for moving to the city.

Monitoring should provide information on how interpretative, educational, and outreach projects should be targeted in order to address the highest number of residents that could benefit from taking part in the cultural life of the City. It was recognized in the last Monitoring Report[6] that higher consideration should be made to targeting residents who live outside the boundary of the World Heritage site. Some of them, especially those living in relatively deprived areas, have never visited the site, which covers most of the city centre. In consequence, Edinburgh World Heritage is developing an outreach strategy coordinated with The City of Edinburgh Council's social inclusion work.

1.2. Functional system and monitoring

The functional system is also a subject to monitoring in the context of effective management and protection of the site's integrity and authenticity. This approach is considered as critical in countries with advanced democracies because public support and understanding of the issues tips the scales in decision making processes. Edinburgh World Heritage

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site experienced a crisis point as a result of accumulated development pressure, which would have affected the state of authenticity and integrity. This resulted in UNESCO-ICOMOS reactive monitoring mission in November 2010. However, the crisis was largely averted by public objections deriving from a broad understanding of the place's value.

It is important to recognize that values change over time and ensure that the site's management is responsive, bearing in mind that values provide justification for the conservation of the material objects. In the case of Edinburgh, minor structural changes and inter-organizational relations within the functional system in general do not require significant formalization. However, their accumulation over time are monitored and reflected in a flexible management structure and the Management Plan, reviewed every five years. For instance, in the last two years the role of the World Heritage Site Coordinator was moved from Edinburgh World Heritage since the organization itself is largely responsible for coordination and promotion of World Heritage projects. In 2009, the City of Edinburgh Council appointed a World Heritage Officer within

the planning department to raise awareness of the World Heritage site within its own structures and to ensure that the planning decision making process is better informed at early stages. The effectiveness of this functional change will be monitored in order to achieve effective protection of the site's components.

1.3. Monitoring functions

There are several functions of monitoring, which have to be considered in the context of the management of the site as factors of improvement.

1.3.1. Improvement s to strategic planning by the city management

World Heritage site protection is a significant part of the city management strategy, reflected in the Edinburgh City Local Plan.[7] Although the monitoring exercise is a World Heritage Committee requirement, it should also be of use to the city's management because the latter makes the main decisions affecting state of the site. Monitoring should ensure that those decisions are research-informed, rational, justified, and in consequence internally consistent.
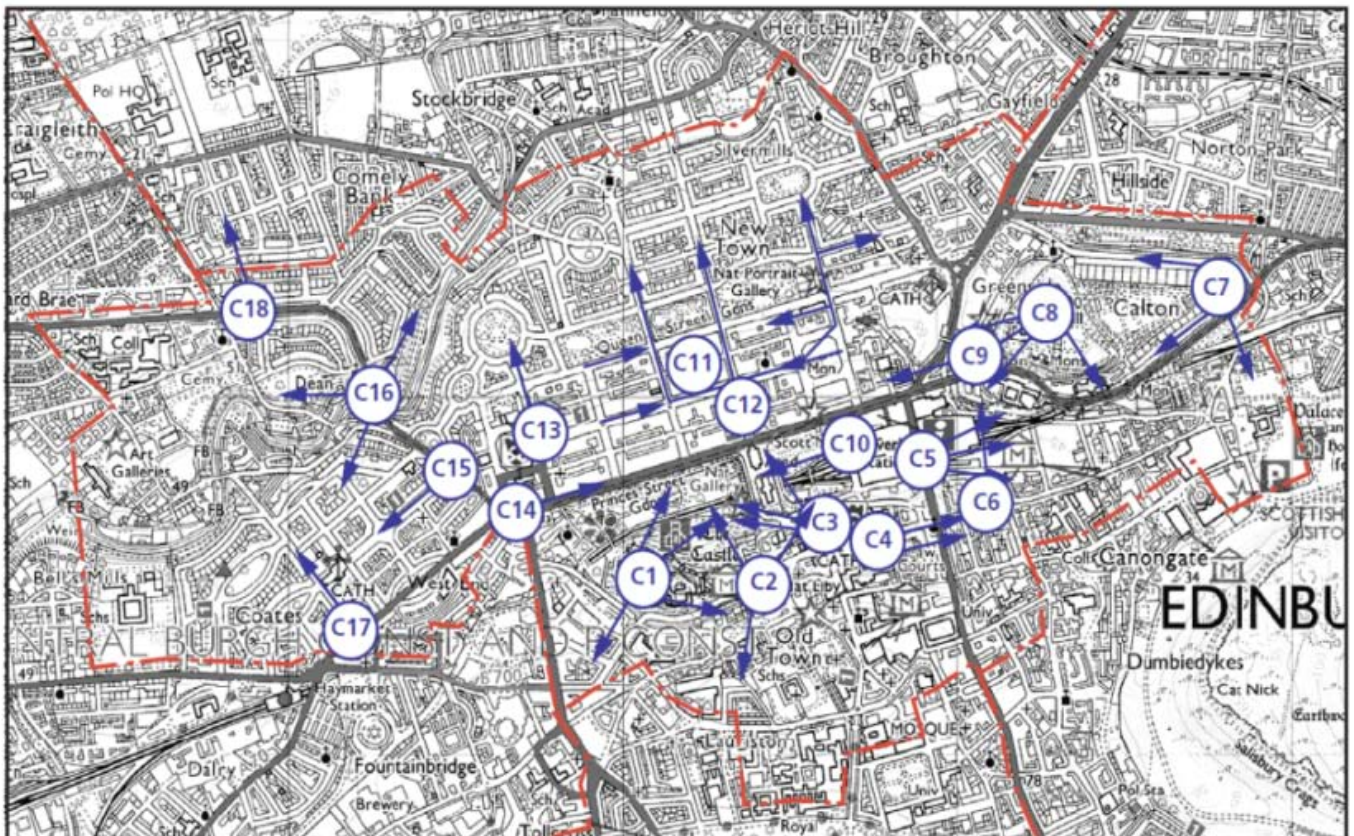

Figure 3. View cones from and within the World Heritage site 1 (Source: the City of Edinburgh Council). The proposed key views have been numbered to give each view cone a distinct number and to make views more readily identifiable. The city has been divided into five sections; Central (C), North (N), East (E), South (S) and West (W). The map extract shows the viewpoints from the World Heritage site. Individual sheets detailing each view are also available.

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This should guarantee that any resources that follow them are effectively allocated. A good example of this approach is the implementation of the *Guideline for the Protection of Key Views* across the Edinburgh World Heritage site (see Figure 3). The need for this was recognized shortly after the inscription on the World Heritage List. The high building policy was reviewed and informed by a study, which provided the site with a protective planning policy[8] (adopted by the City of Edinburgh Council in 2008). This well informed decision provided additional protective policy, which provides a basis for further improvements to the site's existing setting protection measures as a part of the review of the Management Plan. One of these measures is currently being considered by the Steering Group in relation to the buffer zone; the potential implementation of which was analyzed by another study. [9]

1.3.2. Improvements in implementation

This function is particularly critical to the site's management because it focuses on the quality of the implementation of the Action Plan, along with its projects deriving from the Management Plan's objectives. These projects, as results of past monitoring recommendations, may have a broad range of aims such as the implementation of a protective policy within the Local Plan, compilation of a promotion strategy, or even the restoration of an important historical landmark, etc. The progress of implementation of the projects is monitored in order to improve the management of the Action Plan, its structure and efficiency. Outcomes from the monitoring form new recommendations for improving the Action Plan. One of the main issues related to this function is the efficient balancing of the scope of indicators focused on state of conservation with effectiveness of project management (implementation).

1.3.3. Improvement of partnerships and collaboration

Monitoring does not have a direct role in this function; however, often its effectiveness is dependent on the quality of partnership between key stakeholders. In case of Edinburgh, the scope of monitoring (see Table 1, next page) has to be agreed by the key partners (the Steering Group). Some issues and projects may require assistance from other bodies. Ideally, these should be identified through monitoring and engaged at the compilation of the Action Plan. As a consequence, partners should be activated and involved in the dialogue — for instance,

those located outside *the decisional system* but showing an interest in constructive participation.

Effective operational collaboration between the key partners is critical to the quality of implementation. This is perhaps best achieved through selection at the stage of preparing and application for World Heritage status, along with clear definitions and understanding of roles of each partner. Later on, as indicated above, the partnership may be reshaped in order to meet changing strategy. Any problems in this part of the *functional system* should be identified and prioritized as a serious dysfunction.

Improvement of understanding

Understanding processes and factors that influence the effectiveness of the strategy and its implementation define the success of that strategy. Monitoring itself should aim for improvements in terms of its accurate analysis, recommendations, and scoping. This should form a base of knowledge on good practice, which can be verified and adopted externally, for instance at other World Heritage sites. In this sense, the function also has an educational angle.

1.3.4. Evaluation of effectiveness

Finally, monitoring should provide the public with an evaluation of effectiveness of implementation of the strategy. In most cases, the *management cycle* of the World Heritage site (State Party) is funded from public resources, hence the monitoring should guarantee transparency of the process to ensure legitimization and public support to the decision making.

2. SCOPING METHODOLOGY

The managers of the Old and New Towns of Edinburgh World Heritage Site Steering Group have developed the monitoring methodology over the years since inscription. This experience contributed to the development of the International Council on Monuments and Sites of the United Kingdom (ICOMOS United Kingdom) Toolkit for World Heritage Site Monitoring Indicators.[10] The toolkit became an important background document informing the process of monitoring scoping *sensu stricto*, however, it has to be complemented by functional analysis in order to be responsive to the site's managerial needs.

The monitoring methodology strongly depends on the complexity of the functional and environmental qualities of the World Heritage site. The latter are particularly important in the United Kingdom,

STATUTORY PROTECTION	CONDITION OF BUILT ENVIRONMENT	CONDITION OF THE NATURAL ENVIRONMENT	DEVELOPMENT AND CHANGE	CONSERVATION	EXISTING USES, ECONOMIC AND SOCIAL VALUES	LEARNING AND OUTREACH
The Management Plan	Conservation areas and listed buildings	Environmental policies in the local plan	Policy context	Edinburgh World Heritage Conservation Funding Programme	Demographic background	Promotion
The Development Plan	New listings	Gardens and designed landscapes	Commercial development	Major conservation projects	Institutions	Learning
Edinburgh Planning Guidance	Archaeology	Sites of special scientific interest	Development pressures in conservation areas	Projects to enhance the World Heritage site	Tourism	Activities in 2007-2009
Buffer Zone	Buildings at risk	Sites of special scientific interest		Enforced works	Visitors' experience	Conservation skills and training
Guideline for the Protection of Key Views	Public realm	Local nature conservation sites				
	City centre footfall	Local landscape designations				

Table 1. Scope of monitoring indicators of the Old and New Towns of Edinburgh World Heritage Site Monitoring Report 2007-2009.

where Outstanding Universal Value is protected through the planning system, and not solely reliant on separate monument protective legislation.[11] This means that monitoring recommendations may aim to influence the planning policy framework in order to achieve maximum effectiveness in protecting the site's integrity and authenticity.

One of the main issues indicated in Annual Monitoring Report 2006/07 was lack of World Heritage policy in the Local Plan, which it was felt would significantly improve the site's recognition within local planning policy framework. The Steering Group and the City Management considered the issue and as a result of much quiet negotiation and wider consultation on the Edinburgh City Local Plan (finalized on 28th January 2010)[12] includes a new Policy ENV 1, which specifies the following:

"Development which would harm the qualities which justified the inscription of the Old and New Towns of Edinburgh as a World Heritage site or would have a detrimental impact on the site's setting will not be permitted."

In addition Policy ENV 1 in para 4.6 gives recognition to the World Heritage site Management Plan:

"The management plan may itself be a material consideration for decisions on planning matters. The Outstanding Universal Value of the Edinburgh World Heritage site, as agreed at inscription, including its authenticity and integrity, is a key material consideration when decisions are taken on application for planning permission and other relevant applications, either by the Council or Scottish Ministers."

There are two main benefits from this change: the policy guidance should, if necessary, refer to the new policy and planning applications for major developments have to be considered in the context of potential impact on the site's OUV as well as authenticity and integrity.

3. MONITORING MATERIAL AND IMMATERIAL COMPONENTS IN THE CONTEXT OF AUTHENTICITY AND INTEGRITY

The interpretative part of the Statement of Outstanding Universal Value[13] provides an assessment

of the World Heritage site's attributes, both tangible and intangible. The majority of the statement focuses on tangible heritage; hence annual monitoring reports following inscription reflected this through the scope of *monitoring indicators*. The analytical side of these documents also provided recommendations focused on physical change within the boundaries of the World Heritage site.

Integrity is an essential quality defining the structural character of a site. Moreover, it also defines the site's uniqueness embodied in a combination of material (such as historic buildings, monuments or even elements of landscape) and immaterial (knowledge, beliefs or symbols) objects.[14] Material objects, such as historic buildings and monuments, form an integral part of urban environment. They can exist in people's (residents, workers and tourists) minds and perception as unique landmarks or as a natural place of shelter. Places hold values, which philosophically overlap or generate immaterial objects (such as stories around a historic building). This mutual dependency is an inspirational mechanism for interpretative projects related to conservation or restoration projects.

Edinburgh World Heritage runs monitoring specifically focused on buildings of historic interest that are strategically important to the site's integrity. This monitoring is separate to the national exercise, focused on 'A' listed buildings (the most highly protected) at risk. This approach ensures an efficient approach to targeted grant aid for conservation projects.[15] Potential projects identified through this monitoring are considered holistically, including interpretation and education actions. These actions aim to raise public awareness of the conservation project, World Heritage status, while engaging with the local community and educating *sensu largo*. Broad public support (feedback) is usually critical in fundraising strategies for projects as well as functional coherence.

Structural authenticity is the factor that defines the attractiveness of a site − the more authentic the site is the more interest it potentially gathers. Damage to the historic fabric erodes the site's authenticity and lowers its integrity, which in consequence leads to lowering its value in the same way as with any other property. Accurate monitoring of physical change within the site provides information for assessments of resources that the management needs to have available to it for conservation. Edinburgh, with 19% of the national stock of 'A' listed buildings[16] in the entirety of Scotland, 1660 listed

Conservation Area	A listed	B listed	C(S) listed	Total
Old Town	114	274	68	456
New Town	520	505	60	1085
Dean	7	22	2	31
Coltbridge and Wester Coates	1	0	0	1
West End	11	19	18	48
Marchmonts, Meadows and Bruntsfield	2	4	0	6
Southside	4	25	4	33
Total	659	849	152	1660

Table 2. Number of listed items in conservation areas within the World Heritage site in April 2009 (Source: the City of Edinburgh Council).

buildings on an area of 4,5 square miles, has a great challenge to face when it comes to conservation and maintenance (Table 2).

At the national level, the Scottish Government has established the National Performance Framework. It contains a National Indicator for the historic environment to *improve the state of Scotland's historic buildings, monuments, and environment.* The aim is to decrease in the percentage of 'A' listed buildings recorded as 'at risk' on the Scottish Civic Trust Buildings at Risk Register. In addition to this, different organizations with an interest in investing resources in conservation of Edinburgh's historic environment undertake their own monitoring, depending on its particular areas of interest. From a functional point of view, it is desirable to coordinate these efforts in order to focus outcomes, reduce repetition and reduce the drain on limited resources. The World Heritage Site Monitoring Report is an attempt to achieve this despite the formal limitation of the boundary of the World Heritage site. Any change in this situation would require structural changes to the *functional system* as the report is currently compiled by Edinburgh World Heritage on behalf of the Steering Group.

Immaterial objects are crucial to cultural identity, especially in urban environments where this factor can be easily eroded or even vulgarized. History, whether real (or more controversially, invented), and place are inseparably linked. There might be a presumption that material objects define the immaterial but none of them should be diminished or favoured in the context of the sustainable conservation of the

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World Heritage site. The 'House Histories' project is a good example of an interpretative project deriving from an idea of linking material and immaterial objects. The project was based on a behavioural scoping indicating that non-specialist visitors to the Old and New Towns of Edinburgh World Heritage site are interested in stories about people and historic buildings from a perspective of their occupants through time.[17]

The significance of immaterial objects in the context of authenticity depends on their character and utility. On the one hand authenticity is essential to an accurate intellectual understanding of a site. On the other it is an identified potential in the promotion of a site, public education through entertainment[18] or even leverage in raising public awareness. Authenticity has less significance for the wider public and tourists looking for attractions, such as popular stories related to an event that happened in the past.

The Edinburgh World Heritage Site Monitoring Reports contains indicators focused on the intangible heritage of the site. In the last few years monitoring proved that stronger emphasis should be put on this aspect of the site's management. It is reflected in increased number of indicators and data, which can be provided on issues such as the number of events, interpretative solutions, educational resources, public awareness dedicated to the World Heritage site's intangible values. This should ensure growing public support (legitimacy) to the *functional system*.

4. SYSTEM OF DATA EXCHANGE

An efficient system of data exchange between key stakeholders is essential in achieving well-informed decision making. Effective monitoring requires an ongoing collection of data for analysis and interpretation. In case of Edinburgh, a well-established system is already in place; however, it is limited to the key stakeholders and requires further development. Improvements can include unification of IT databases, rationalization of the existing *monitoring indicators* in order to minimize overlapping, ease accessibility to the system, and IT training. Efficient implementation of improvements would result in the creation of a system, in which data would be regularly updated and re-scoped. The system requires formalization with the aims of achieving better coordination, high quality information, flexibility in scoping and security with minimal investment of additional resources in the process.

The level of flexibility, however, has limitations because certain types of indicators19 related to the state (universal value, authenticity and integrity) should be understood as fixed (long-term) due to their ideal character. Indicators such as those related to pressure (threats to asset) and response (management and public use of asset) have a dynamic character (short-term); therefore the indicators status should be reviewed from a functional point of view in order to achieve sufficient level of responsiveness to the changing system's environment.

The process of establishing effective data exchange has a teleological character in the context of improving partnerships and collaboration function. Its formulation has to be preceded by a dialogue where each partner presents the type of information already being collected, any additional information that could be collected and finally whether existing data collection arrangements can be changed to contribute to the site's monitoring. This approach might be particularly important for newly established managerial structures, which involve a monitoring unit.

CONCLUSION

The monitoring exercise should not be limited only to Reports on the State of Conservation (Annual Monitoring Reports). The process should be flexible enough to react to the rapid changes affecting a World Heritage site's attributes of special interest by *ad hoc* operational monitoring of specific issues through small scale monitoring projects. An ideal way to achieve this would be a well organized and efficient *functional system* where the roles of all players are clearly defined, resources are accessible over a relatively short period of time and monitoring is recognized as a utilitarian and essential stage in the cycle management.

At the operational level monitoring should be a flexible exercise, which ensures that issues and attributes are addressed through the scope of *monitoring indicators* in a way that is useful to the decision making processes of both World Heritage Committee and site's management. One of the main functions of monitoring is found in the potential for establishing and improving existing partnerships and collaborations between directly and indirectly influencing bodies. This can be achieved through technical (e.g. unified system of data exchange) or non-technical solutions (e.g. formal agreements, public consultations).

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ENDNOTES

[1] The Old and New Towns of Edinburgh World Heritage Site Management Plan, 2005. Available at: www.ewht.org.uk.

[2] Ibid.

[3] Edinburgh total - 102 square miles, Edinburgh World Heritage Site — 4,5 square miles.

[4] Available at: www.ewht.org.uk .

[5] Available at: www.changeworks.org.uk .

[6] Old and New Towns of Edinburgh World Heritage Site Monitoring Report 2007/8 and 2008/9. Available at: www.ewht.org.uk .

[7] Available at: www.edinburgh.gov.uk .

[8] Colvin and Moggridge Landscape Architects, 2005. City of Edinburgh High Buildings Policy Review.

[9] Masson F. 2010. The buffer zone concept critically examined. An analysis of setting protection mechanisms for World Heritage Cities (unpublished), Edinburgh World Heritage.

[10] ICOMOS-United Kingdom. 2007. Toolkit for World Heritage Site Monitoring Indicators. Available at: http://www.ewht.org.uk.

[11] Chuchra K. 2009. Polish and Scottish systems of monument protection, (unpub).

[12] Available at: www.edinburgh.gov.uk

[13] The Old and New Towns of Edinburgh World Heritage Site Management Plan. Op.cit.

[14] These are actual components of Outstanding Universal Value even if not recognized at the inscription or being an effect of later social or architectural evolution.

[15] The strategy prioritizes main routes to the World Heritage Site, buildings at risk, and areas in need of regeneration.

[16] Buildings of the highest national or international importance. Other two listing categories in Scotland include 'B' listed buildings — regional importance, and 'C' listed — local importance and small architectural integrity and authenticity.

[17] Hicks, D. 2010. Interview with Edinburgh World Heritage Communications and Interpretation Manager. Information on the project available at: www.ewht.org.uk.

[18] Such as Doors Open Day organized in Edinburgh every year by the Edinburgh City Council, Historic Scotland Cockburn Association, Edinburgh World Heritage, National Trust for Scotland and others. Many important historic buildings are open for free to the public. Some of them hold themed events, which engage visitors of every age.

[19] Zancheti, S.; Hidaka, L. Draft of December 2009. An indicator for measuring the state of conservation of urban heritage sites: part 1 — theory and structure.

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One hundred years of hindsight: conservation of Mumbai caves from 1899 to 1999

Brinda Gaitonde Nayak[1]

Abstract

When Buddhist monks and Hindu ascetics first carved caves in Mumbai, more than 1500 years ago, little did they know that these fantastic enclaves full of sculptural imagery and exquisite architectural forms would be competing for survival amidst pressures of urban congestion and rapid degeneration due to climatological factors. Excavated into the rock-face from the 2nd to the 6th century AD, these monasteries were relatively near ancient townships in order to be accessible to devotees, but at the same time at a distance for the reclusive meditation of the monks. Now in the 21st century, unfortunately, these are cheek-by-jowl with urban settlements and a sprawling metropolis, spiralling out of control due to concerns of a growing population and inadequate infrastructure. In addition to these quintessential issues of urban decay are inherent problems of friable rock and natural weathering. To combat these and other issues has been a constant challenge for the conservators of these sites, aided by the unique architectural genre of these monolithic rock-cut art monuments. This paper examines the changing conservation methodology at these cave sites from 1899 to 1999, oscillating from the purist stone replacement approach to the pro-cement era and to the preservation of authenticity of material slant of recent times. This 100 year spectrum provides some interesting insight into the thought process of the conservators as well as their changing attitudes, in addition to gauging the impact of each conservation decision.

Keywords: Buddhist caves, archaeological survey of India, Mumbai rock-cut architecture

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The Buddha and the Gods

The foray of Buddhism into the western region of India coincided with one of the most poignant periods of architectural excellence that the country has ever witnessed. That it was spurred by the new religion with fresh spiritual insights and stimulating potential for building is a well-documented fact. However, these exciting prospects needed several factors to be in place, chief among which was a strong patronage or economic backing and good building material. The latter was easily resolved as the western region is known for its dense stone. Since the monks preferred reclusive enclaves for meditation and repose, these became perfect areas for excavating modest shelters in the form of rudimentary caves. It was while carving these that the monks evolved one of the most singular forms of early corporate industry of being 'at the right place at the right time'. And the way in which they achieved the correct balance between promulgation of their faith, with firm roots in charity and righteous conduct, along with building up a corpus for building and monastic purposes is an excellent study of management mechanisms in today's scenario of grant writing.

The topography of the western region of India is such that massive mountain ranges (the Western Ghats or Sahyadris) separate the plains (the Deccan) from the sea, thereby resulting in a landlocked peninsular zone that is not conducive to trade. Trade links to the sea and beyond to Persia and Europe were established via passes in the mountain ranges. It was at these crucial points of entry and exit that the monks established their abode; a strategic and planned move towards securing patronage for cave building and sustenance of the monastery. For the traders passing through these routes, fearing for the safe passage of their goods, pledged fabulous donations to the monasteries that they passed through. Numerous inscriptions at the caves carved at these transit points are testimony to this and act as travelogues from ancient times.

1. From timber to stone: evolution of rock-cut architecture

Now that sustained patronage was ensured the next step was the establishment of a unique architectural

idiom for building. Staying in reclusive enclaves away from the populace for meditative calm but relatively close to foster daily alms seeking (required of a Buddhist monk) and visits by laity, was already a norm. Fashioning shelters within rock-sides were early examples of such types, which with philanthropic overtures gradually started shaping into actual architectural compositions. Details were added and guidelines laid out for excavating prayer halls and residential cells; the two major components of a typical Buddhist monastery. Gradually these compositions took on more ambitious forms and proportions, perhaps to cater to the growing faith and leave a mark – quite literally – in stone. However, the local masons unaware of this peculiar form of building or what has often been called 'sculpture on a grand scale' showed initial hesitation towards complete adoption of this type of monolithic carving of an entire establishment in the hillside. Hence early examples portray correct but structurally redundant copies of timber joinery in stone and often combination of timber with stone, observed at the caves near Pune such as Bhaja and Karla where the stone vaulted ceilings are 'supported' by means of timber joists dovetailed into the stone masonry. The masons, used to working in stone masonry of regular courses, were puzzled about the structural stability of high ceilings and large spanned halls without masonry support, not realizing the stability of the entire mountainside acting as a crucial fulcrum. Soon however, such hankerings for timber joinery were abandoned when the true potential of monolithic architecture was realized. Ranging from the delicate details at Bhaja to the monumental carving of Buddha figures at Kanheri and progressing to the sculptural imagery (followed with an overlay of exquisite paintings) at Ajanta; Buddhism, through its rituals and the principles of the religion, had evolved one of the most enduring architectural typologies of the world. The prototypes were soon adopted by other pre-eminent and existing religions such as Hinduism and Jainism, with monumental examples of their own genre.

In addition to steady patronage and a unique architectural form, availability of good quality building material was essential for the progression of the faith. This was found in multitude and of excellent quality in the hill ranges of the Sahyadris, leading to a concentration of cave sites in the western part of India with over 1200 caves (or more than 80%). Exquisite examples of excavations are seen spread across this terrain from the World Heritage sites of Ajanta and Ellora in Aurangabad to the large

monasteries of Junnar near Pune and Kanheri near Mumbai. Although the genre of architecture is the same with the basic premise of being monolithic in form, each of these examples are distinct, with a spiritual and architectural vocabulary of their own that inspired the remark:

> "Rock sculpture and rock architecture have been practiced in many countries in the past. But in none of these instances did the art of the rock-cutter show so wide a range or such audacity and imaginative power as in India, where some of the most original examples of architecture produced in this manner may be seen" (Brown, 1965).

2. MUMBAI CAVES: A RHAPSODY OF GLORY AND THE DESPAIR OF RUIN

Excavated in dense to medium grain rock over 1500 feet above sea level, the caves at Kanheri in Mumbai present the most complete example of a monastic establishment in the country, provided with cells, prayer halls, a burial gallery, an excellent rainwater harvesting system for each cell and the oldest dam in the region. Although nearly devoid of wall paintings, the sculpture and over 50 inscriptions tell a most poignant story of splendour and glory. The monastery at Kanheri, apparently a teaching school for young Buddhist monks, reached its peak in the 2nd century A.D. and continued to influence nearby centres. In close proximity is the Buddhist site of Mahakali, which although much smaller in capacity, boasts of the oldest cave in the region. With its peculiar hut-like enclosure of the inner wall, the cave at Mahakali is similar to the Sudama caves in the Barabar hills of Orissa. *Shaiva* sites such as those at Mandapeshwar and Jogeshwari continued to grow unabated despite the resurgence of the new religion.

Jogeshwari comprises the longest cave in the country, which formed the core of the idea for the excavation of the later World Heritage site of Elephanta, cited on an island off the coast of Mumbai. Although these sites are within the jurisdiction of Mumbai city they are not on par with the World Heritage sites of Ajanta, Ellora and Elephanta; but they are significant in their own right and individually deserving of merit. Unfortunately due to inherent issues of weathering and proximity to the city making them prone to problems of urban decay and visitor pressure, these caves are fast facing extinction, unless intervention in the form of informed conservation decisions are initiated.

Nayak, B. G. 2012. One hundred years of hindsight: conservation of Mumbai caves from 1899 to 1999. *In* Zancheti, S. M. & K. Similä, eds. *Measuring heritage conservation performance*, pp. 197-202. Rome, ICCROM.

3. Early preservation: trials and tribulations

Preservation and preservation laws are not new to India. It has in fact one the oldest preservation laws of the world, when in 1904 the *Ancient monuments and sites protection Act* was installed on the basis of the earlier established (1862) Archaeological Survey of India. Since then, it has been the sole caretaker of listed monuments in the country. Challenged with a completely new architectural typology, early forays into conservation of these cave sites were limited to recording, listing, and documenting these sites. Chief among such architectural records are those by James Fergusson, a historian, and James Burgess, a trained architect, who single-handedly compiled a series of drawings and texts on the western Indian sites. Their combined and individual writings are even now an authentic source of information about these then little known monuments and between them they mapped, produced drawings, enclosed woodcuts of sculpture and copied inscriptions, making detailed recordings of the cave temples. They were responsible for firmly entrenching cave sites within the historic gene pool of Indian monuments.

Some of the earliest conservation works on the cave sites were limited to maintenance works such as mending of fences, clearing of centuries of accumulated dust and debris, as well as acquisition of the monuments under private holding. However, lack of surveillance at these sites led to a routine rifling of burial mounds by laymen and Orientalists under the guise of archaeology. Some of the known cases of such plundering of mounds known to contain valuable relics are recorded by both Fergusson and Burgess, who spoke and wrote vociferously against such acts and carting away important epigraphic evidence, thereby losing context to the primary site and eventual loss of material. Many archaeological expeditions were undertaken at Kanheri and Jogeshwari, chief among which was the excavation of a brick *stupa* in front of Cave 3 by Dr. Bird in 1839 (a copper plate found at this site is missing and the text provided is erroneous) and the detailed analysis of the work on the *stupa* burial gallery by E. W. West in 1853 at Kanheri. The later part of the 19th century was restricted to understanding the monuments, as the custodians had never come across such sites of composite imagery and monolithic forms. A *Cave Temple Commission* was formed expressly for this purpose and attempts made to decipher the inscriptions and debate upon the evolution of the architectural forms.

Though the listing of monuments was carried out in a detailed manner throughout the sites, actual preservation at the caves in Mumbai was only initiated in 1903,[1] when at Mahakali and Kanheri routine maintenance measures such as removal of fencing and vegetation were undertaken along with attempts at cleaning graffiti and soot. This propensity towards minimal work could be attributed towards concentration of restoration works (and a major chunk of the measly annual budget) at the prominent site of Elephanta. Unfortunately, the sites continued to languish in their ancient rubble of despair.

Carved in friable volcanic tuff in a low-lying mound, the cave at Jogeshwari is inherently prone to issues common to soft rock, with the presence of salts and deleterious effect of water movement active within the strata. The porous nature of the rock has led to the near disintegration of the pillars of the cave and degeneration of the sculpture, leaving only stubs of capitals and bases, with entire shafts missing or reduced to thin membranes. Although the rock at Kanheri is appreciably stronger than that at Jogeshwari, centuries of neglect and an influx of visitors has led to its gradual deterioration. Excavated in the sheer mountainside, the erosion of the pillars in most of the caves at both these sites do not pose a structural problem so much as an aesthetic one, due to their monolithic nature. But evidence of collapsed ceilings in wide spanned halls indicates the need to stabilize these pillars. The premise of minimal or no intervention in the early conservation days at the sites was not going to work for long.

4. A mammoth task: how to conserve a mountain?

In order to supplement the structural issue the pillars needed to be strengthened. However, replacing entire column shafts with like material in conformity with the monolithic nature was improbable due to availability of material and prohibitive costs. Hence, in the early 1920s, deteriorated columns were carefully hewn to accommodate pillars fashioned in regular courses of stone masonry. The material used was similar but the effect of coursing was jarring and not synonymous with the unbroken lines of monolithic carving. The same repair methodology was adopted for cave sites across the country extending from the Bagh caves to Ajanta. Although not pleased with the aesthetic perception, the sites were stabilized until a new solution presented itself.

Nayak, B. G. 2012. One hundred years of hindsight: conservation of Mumbai caves from 1899 to 1999. *In* Zancheti, S. M. & K. Similä, eds. *Measuring heritage conservation performance*, pp. 197-202. Rome, ICCROM.

The 1950s announced the advent of Portland cement in the country and it slowly percolated into historic sites, initially as combination mortars used in tandem with lime and then in widespread use for conservation works. For monolithic sites it was a timely intervention, as repairs with reinforced cement concrete afforded the un-coursed and joint-less face that could not be provided by stone masonry. In addition to that, it also ensured that not much of the historic material needed to be hacked out to dovetail details into the rock face, a requirement for stone replacement. Overjoyed at its flexible use and the dexterity it afforded for use in inaccessible rock-cut enclaves, Portland cement was uninhibitedly used across the sites. It seemed as though cement concrete was here to stay. However, one key issue surfaced: the action of salt. Presence of leaching salts within cement accelerated issues of water retention and salt crystallization causing corrosion of the reinforcement bars within the repaired matrix and eventual spilling from original stone fabric within a decade. For this too, the conservators had a ready reply that in any case a new intervention was supposed to have a limited lifespan and be reversible. Cement was fast finding popularity.

Preservation of sculpture and inscriptions was undertaken simultaneously. These ranged from reductions of local fruit to seemingly quack remedies such as 'Szerelemey's Liquid' to the eventual appearance of polyvinyl acetate as a consolidant. A finding published in the annual report of the Archaeological Survey of India in 1916 on the usefulness of the stone preservative mixture 'Szerelemey's Liquid' applied in 1914 states that the effect of the liquid, applied to the front part of Cave No. 3 at Kanheri was not yet perceptible. There seemed no difference in the appearance of the stones, which had received a wash of the solution and that the difference could not be marked in such a short span of time, i.e. two years. Szerelemey, a Hungarian resident in England, who had brought out a successful invention for the preservation of ironwork, had turned his attention to the perishable nature of stone and had patented a process. The underlying principle was to protect the face of the stone after it had undergone the Kahlmann's process (coating of stone surfaces with alkaline silicate soluble in hot water that on slight decomposition gave to the previously porous stone a surface in no degree permeable to moisture) or a similar process for a certain time, and thus give the soluble glass an opportunity of hardening. The second or protecting coat was a solution containing bitumen and most of the ingredients of common paint. According to analyses, the preparation contained 22.28% of organic matter, the remainder being silica, oxide of zinc and traces of lime (in fact the Bombay Builder stated in its publication that it placed very little confidence in the process!). While the preservation techniques seemed experimental, the quest for arriving at suitable solutions was ongoing as the medium was far different than anything the conservators had ever dealt with, clear from a lucid comment in one of the journals: "As is inevitable in dealing with such rock-cut non-structural monuments comprehensive measures of repair are scarcely possible, and the recommendations put forward must be, in some degree, tentative and experimental" (Archaeological Survey of India, 1916). The question that had left the custodians scratching their heads was, *how do you conserve an entire mountain?*

Cement repair of primary members also percolated to preservation of sculpture and at several instances liquid cement was gravity grouted from the top of the rock face at Jogeshwari in order to seal the dripping crevice seeping onto historic sculpture. It is interesting to note that when last recorded in 2008, the exact spot was found to be still susceptible and prone to leakage. Cement just would not adhere to the natural stone and water continued to find its way out much to the downfall of the sculpture. As part of the chemical preservation exercise, in 1950, wet paper-pulp was applied to the affected sculptures for the elimination of injurious salts and subsequent preservation with a thin solution of 'Gelva' – polymerized vinyl acetate resin. However, all these measures and more were not enough to curtail the accelerated deterioration, further compounded by the surreptitious implantation of a few houses near the top of the cave (these few houses numbered over a thousand shanties when surveyed in 2009). After much soul searching, a conservation chemist in 1954 recorded that "it is felt that no amount of chemical treatment will arrest the action of gypsum on the sculptured surface, and it has therefore been recommended that the sculptures should be detached and removed to a museum before it is too late" (Archaeological Survey of India, 1956). The final judgement for extinction of the site at Jogeshwari was announced, as removal of the sculpture would mean a complete loss of context, albeit resulting in preservation of these historic artefacts in a controlled environment. Fortunately, a series of interdepartmental upheavals meant that the motion was temporarily shelved and Jogeshwari granted a slight reprieve.

Nayak, B. G. 2012. One hundred years of hindsight: conservation of Mumbai caves from 1899 to 1999. *In* Zancheti, S. M. & K. Similä, eds. *Measuring heritage conservation performance*, pp. 197-202. Rome, ICCROM.

5. HERITAGE EDUCATION: THE NEW MANTRA FOR OLD SITES?

Over the years the rock-cut sites of Mumbai have been periodically conserved and treated. However, they continue to display the same issues and accelerated levels of degeneration observed through photographic comparisons and reporting. Loss of material is evident and rapid increase of urbanization and visitor pressure palpable. Vandalism and rifling through historic material (especially at the burial gallery) at Kanheri is rampant, while at Jogeshwari and Mahakali, slum settlements rule the roost – quite literally. Public interest litigation was filed by a local foundation at the Mumbai High Court depicting the plight of these monuments. The High Court issued a succinct directive to the custodians to look into the repairs and renewal of the caves, recommending the preparation of a conservation report as well as establishment of an expert committee. A conservation plan was prepared by the author in 2006, and the author was then subsequently inducted into the experts' panel (a hark back to the one formed in the late 1900s, although seeking to achieve different objectives). Armed with the additional powers bestowed by the High Court, the officials of the Archaeological Survey of India have managed to initiate several conservation actions, chief among which has been better manning of the sprawling site of Kanheri within a designated National Park and removal of layers of debris from the roof top of the Jogeshwari cave, yielding more than seven truckloads of rubble and rubbish. It was the first time in decades that such positive action was effected at the cave sites. The next step was educating the visitors at Kanheri in the form of informative brochures and signs. In the case of Jogeshwari, the settlement directly affecting the monument needs to be necessarily removed. But this would take time as the settlement has political backing, making it almost impossible to relocate. In early 2010, some of the most critical houses, directly affecting the monument were removed and work on the redirection of rainwater away from the monument continues. The gradual process of educating the people of this living shrine has started with the acknowledgement of the need for preservation by the local community. Ranging from understanding of the sites to preservation and moving onto educating about the sites, it has been in a sense completion of a full circle for the Mumbai caves, hopefully in a better direction.

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Inclusivity, interconnections and overlapping stakes: challenge to a static evaluation criteria

Sonal Mithal[1]

Abstract

Heritage tradition and modernity are strategic political positions, not fixed or essential qualities of sites or cultural practices, much less of individual identities. When there are several stakeholders on one site, each with clashing notions of heritage 'value' and managerial foci, a single or uniform notion of authenticity is hard to establish. There is no identity or existence of the site itself, except for its values recognized by its users and stakeholders. Having 'authenticity' and 'value' as the primary criteria for World Heritage evaluation thus becomes problematic. This paper examines how ICOMOS monitoring, while ticking a box for 'authenticity', falls into the trap of its self-created bias for material preservation of tangible heritage resources. In the process, World Heritage status becomes oppressive to the stakeholders and local community of the site who are the real guardians of the site but now have to comply with World Heritage Committee ideologies. Critiquing the evaluation report of Champaner-Pavagadh Archaeological Park, inscribed as a World Heritage site in 2004, and examining the nomination process and requirements, this paper argues for a paradigm shift in evaluation from monitoring how well the site has been preserved to ensuring how well the site can live on as an integral component of development process. Apart from being limited to a mere evaluation of a nomination dossier, the evaluation parameters need to integrate monitoring of interconnections and fluid boundaries of apparent heritage components, the dialectic between the tangible and the intangible, the inclusivity of overlapping ownership-usage realities and so also the open-endedness of *ad hoc* decisions.

Keywords: fluid heritage boundaries, overlapping stakes, ad-hoc decisions

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Introduction

In these days of globalization of western notions of heritage, control of heritage is a matter of political urgency. Every country's aspiration to have a site listed on UNESCO's well-reputed World Heritage list shows the inclination of nations to pursue western ideals of relating heritage to temporality and constructed identity (Choay, 2001, pp. 138). It is problematic as in this process every nation seeks a validation of a cultural identity by conforming to already established notions of heritage only to later reveal its deviance from the same. At the same time, by seeking recognition from a global, but essentially western, organization each country reinforces the power vested in the western countries which already have self-proclaimed power.

As stated in the abstract, this paper examines how ICOMOS monitoring, while ticking a box for 'authenticity', falls into the trap of its self-created bias for material preservation of tangible heritage resources, i.e. monuments and sites. In the process, the World Heritage status becomes oppressive to the stakeholders and local community of the site who are the real guardians of the site but now have to comply with World Heritage ideologies. This paper argues that the evaluation parameters fall short of a methodology to encourage a process for living heritage to age, fade and renew itself in harmony with a healthy, humane habitat. The argument is to shift the paradigm of evaluation from monitoring how well the site has been preserved to ensuring that the site can live on as an integral component of urban development process.

1. Why 'authenticity' and 'value' are problematic evaluation parameters

UNESCO's charters and ICOMOS documents show that heritage is driven less by theory than by consensus. Given this lack of a critical apparatus to determine a value of heritage, gauging 'authenticity' (UNESCO, 2005b) has become the most agreeable practice for World Heritage evaluation. It is ironic that authenticity has become extremely precarious in the discipline of heritage conservation; especially when most often it's neither the nation nor the state that can claim absolute right in matters of deciding authenticity for a site let alone the World Heritage Committee. The *Nara Document on Authenticity* was conceived to ensure protection of

cultural diversity and resist standardization of societies and environments; thereby suggesting a multiplicity of specific cases which are not comparable to each other (ICOMOS, 1994). Art-historian and scholar, Dede Ruggles reasons that acknowledgement of impermanence and renewal in the *Nara Document* (see Article 11, *ibid*.[1]) is in favour of the human being as being integral to the construction of meaning and ongoing creation of material culture. Article 12[2] of the *Nara Document* contradicts the previous article in the sense that if value of culture is based on interpretation and stakeholder interest then it is erroneous to universalize 'truth'. The World Heritage Nomination Dossier requires documentation that adequately presents a 'value' of the heritage site. Value is deemed necessary to construct a reference framework for the site that would lend the site its historical significance. Thus, the value is 'constructed' to specifically highlight temporal linearity of a history that can be conserved. The appendix to the *Nara Document* by Herb Stovel[3] brings up yet another impediment to outlining a definitive authenticity. If the value that makes anything authentic is constantly changing then this means that the authenticity is also changing, which subverts the very nature of authenticity.

Another contention of this paper is that there is no identity or existence of the site itself that is devoid of values unless recognized by the users or the stakeholders. In cases where there are several stakeholders managing a site and, each one's viewpoint clashes with that of the other, a single or uniform notion of authenticity is even harder to establish. The stakeholders may have good intentions but a rather limited purview of action and vision. Even if the stakeholders come to a consensus about how to conserve the site, the consensus will still be in the best interest of all the stakeholders or the site itself. The site endures abuse while its stewards are busy negotiating their agendas to come to a consensus about its 'authenticity' that can serve the least conflicting management attitude for the site. In this light it is imperative to answer who decides the value which judges a site to be 'authentic'.

Having professionally worked in identifying the tangible and intangible heritage components at the recently inscribed World Heritage Site of Champaner-Pavagadh Archaeological Park in India, the author finds it to be the site best suited for such an examination because it is at present managed by seventeen stakeholders, belonging to central government, state government, local administration, private groups and religious bodies. The historic

structures fall under the purview of the Archaeological Survey of India while the Forestry Department owns 93% of the land, making it the largest stakeholder with respect to sheer size. Temple trusts and ashrams (sectarian establishments) are other institutions that own shrines and temples and facilitate pilgrimage by providing boarding and lodging facilities.

2. CHAMPANER-PAVAGADH ARCHEOLOGICAL PARK

Champaner-Pavagadh Archaeological Park ([Figure 1](#) and [Figure 2](#)) was declared a World Heritage site by UNESCO in 2004. Its designated Core Zone spreads over an area of approximately 14 sq. k.m. (1,328.89 ha) and its Buffer Zone over an area of 30 sq. k.m. (2,911.74 ha), see UNESCO documents (2004a; 2004b). This is the only example in India, so far, to have gained World Heritage recognition as a site, rather than as a city or a group of monuments. The site has been inscribed under the following selection criteria:

> **iii)** to bear a unique or at least exceptional testimony to a cultural tradition or to a civilization which is living or which has disappeared;
>
> **iv)** to be an outstanding example of a type of building, architectural or technological ensemble or landscape which illustrates (a) significant stage(s) in human history;
>
> **v)** to be an outstanding example of a traditional human settlement, land-use, or sea-use which is representative of a culture (or cultures), or human interaction with the environment especially when it has become vulnerable under the impact of irreversible change;
>
> **vi)** to be directly or tangibly associated with events or living traditions, with ideas, or with beliefs, with artistic and literary works of outstanding universal significance.[4]

The hyphenated name of Champaner-Pavagadh denotes the split identity between Pavagadh as a landscape characterized by plateaus, mounds and streams studded with ninth century Rajput ruins along with the abode of a Hindu goddess, and its foothill Champaner as the remains of a 16th century medieval Sultanate capital city largely buried beneath a thick forest cover (Ruggles and Sinha, 2009, p. 79). Complementing the obscure Rajput and Sultanate structures, buried city and temples are myths and legends that have been passed down for generations through traditions of Bhavai

Figure 1. Champaner-Pavagadh Archaeological Park: Pavagadh Hill (Gource: Rahul Gajjar).

Figure 2. Champaner-Pavagadh Archaeological Park: Beyond the Jama Masjid, the 'authentic' Sultanate city buried underneath forest (Gource: Rahul Gajjar).

enactments and *Garba* dances. The Hindu Goddess Kalikamata Temple at the summit of Pavagadh is believed to be one of Shakti Peeths, which attracts millions of pilgrims to this site every year.[5] Today a village of 2,000 families (UNESCO, 2004a, p. 71)[6] is completely dependent on the pilgrim industry and agriculture constitutes a major component of stakeholder statistics. The overgrown forest has practically left the pre-Mughal Sultanate evidence almost absolutely untouched, which makes the buried part of the site uniquely 'authentic'. This authenticity

makes it a very significant knowledge resource. But, there is an irony here. The site was unknown and so the sultanate ruins retained their completeness; a community came and settled here and rendered the site an extended embodied meaning of spiritual and spatial experience. When the buried site was discovered the 'authenticity' defined by the past and untouched took precedence over the 'authenticity' of experiential and bodily engagement with the landscape.

3. Overlapping stakes

The complexity of ownership issues is such that any steps towards an integrated development and conservation of the site are leading to, more often than not, the status quo. The biggest owner is the Gujarat State Forest Department, which administers the site under the *Indian Forest Act*, *1927* [Act 16 of 1927] (Ministry Environment and Forests, India, 1927).[7] It has under its purview a large area of the site, mainly the Pavagadh Hill and the buried Sultanate city. Archaeological Survey of India (ASI) is another powerful stakeholder. It is the state representative to UNESCO as the official custodian of heritage in India. Although there have been 114 structures identified by ASI, a mere 55 receive protection by ASI under the *Ancient Monuments and Archaeological Sites Act*, *1958* (Ministry of Scientific Research and Cultural Affairs, 1959). ASI policies focus too narrowly on monuments resulting in a several islands of protected territories created within the entire Archaeological Park. It is ironic that although ASI nominated Champaner-Pavagadh as an Archaeological Park to the World Heritage Committee; it is bound by its own legislation in its inability to protect anything beyond the 300 metre fenced boundary.

Another important group of stakeholders are field-owners. They have been farming for over 200 years. Farming, due to its irrigation and ploughing requirements, has already resulted in an unintentional loss of important archaeological evidence. Heritage preservation measures that aim to forbid these practices highlight the tension between issues of human sustenance and academic conservation ideologies that weaken the case for an unbiased management of a heritage site. In similar vein, the residents of Champaner village (Figure 3) who stay within the ASI protected Royal Enclosure cannot upgrade their houses. ASI laws remain stringent, prohibiting any addition to its precincts; which means not even restrooms can be constructed. In cases like these the concern for heritage conflicts

Figure 3. Champaner-Pavagadh Archaeological Park: Royal Enclosure housing Champaner Village (Gource: Rahul Gajjar).

Figure 4. Champaner-Pavagadh Archaeological Park: a Jain Temple (Gource: Rahul Gajjar).

with basic human needs of health and hygiene. Upton regards academic conservation practices as an "emotional investment in authenticity [which] locates authenticity in the realm of identity, defined by difference and validated by culture" (Upton, 2001, p. 303). Authenticity is then merely a pleasure of the intellectual. The conflicts between ASI and local residents reveal the irrelevance of framing heritage in terms of authenticity of choice of traditional values, authentic forms and undiluted identities.

Nomination procedure insists on a systematic presentation of a site to tourists for the sake of knowledge dissemination about the heritage value of the site. This results in institutionalized objectification of the site for consumption. At the same time, choreographing the landscape leads to tourists losing freedom of interpretation and liberty to experience the site as they wish. Meaning occurs in the dialogue between the audience and the object. Photographic documentation and verbal description are just a biased medium of a professional or interest group. Several instances of graffiti on walls by tourists have led to a communication system that is often seen as obscene and detrimental to heritage. But if the monument is a human expression, so is graffiti. Why does the removal of graffiti conform to preservation of heritage? Why does preservation of one supersede the other? Do we really need the fake (constructed memorization) in terms of documented evidence of the original works for evaluation? The Tourism Department at Champaner-Pavagadh is merely concerned about provision of public conveniences in the absence of any specific tourism policy for the site. Most of the visitors to Champaner-Pavagadh are pilgrims (e.g. Figure 4) and they are unaware of the buried Sultanate Historic City. World Heritage status expects the site to

be educational and interactive, with participatory modes of tourism to convert the pilgrims into tourists. The expectation is to mediate the site to the visitors via special effects and audio-visual commentaries, including re-enactment of imaginary historical or mythical scenes. Instead, the evaluation should insist on a system that can help visitor to avoid these interferences and to be able to engage in non-mediated dialogue with the site.

The site is exploding at its seams, providing infrastructure to pilgrims far beyond its bearing capacity. It is especially ironic that as the visitors are a major source of stable economy the local residents make great efforts to please them, and often the ensuing resource constraints of the site are overlooked in the process. With the exalted status of the site, the Authority is meant to control the rampant economic activity that the local community wants to indulge in but in the process of controlling rampant development, all development is curtailed. Ironically, there is not much cultural tourist flow to the site that can specifically harm the site but since the World Heritage nomination tourism strategies aim at 'converting' the pilgrims to tourists and also to attract tourists to appreciate the site's historical and natural heritage. This is leading to more aggressive institutionalized exploitation of site to provide infrastructure resources that are detrimental to the sustainability of the site. Again because of the international status, the site is made to pretend to be touristy when it is better off simply sustaining itself as a purely pilgrim site.

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4. OVERLAPPING STAKES BECOME MUTUALLY EXCLUSIVE FOR WORLD HERITAGE SITE MANAGEMENT

Considering Art Historian Dell Upton's conviction that "it might be fruitful to understand heritage tradition, and modernity as strategic political positions, rather than as fixed or essential qualities of sites or cultural practices, much less of individual identities" (Upton, 2001, p. 303). it is critical to question whether the site under scrutiny is really benefited by the UNESCO WH-status – or is it being denied its right to urban development? The evaluation report for Champaner-Pavagadh strongly states that today the site is being managed through *ad hoc* decisions (UNESCO, 2004) and that there is urgency for a comprehensive management plan but its emphasis is still on the built environment. Champaner-Pavagadh provides the opportunity to study the interrelationship of architectural, urban, and landscape features in a complex historical settlement together with local communities. The site of Champaner-Pavagadh, and this holds true for many sites, cannot be limited to a specific historic moment and cannot be stabilized with fixed forms and meaning. Instead, it is a dynamic and interactive environment that is both a physical entity and an ongoing process. The Archaeological Park comprises a network of interconnected systems – pedestrian movement, water flow, habitats for vegetation and animals, a living village – that are hard to contain within a quarantine model of preservation within fenced enclosures (Ruggles and Sinha, 2009, p. 88).

In 2006, the Government of Gujarat, with the constant persuasive efforts of the Heritage Trust,[8] published an act popularly known as the 'Authority'[9] to "provide for constituting and establishing of an Authority to manage and ensure integrated conservation of heritage and natural environs, preservation of historical and cultural entity and also for preventing uncontrolled development and commercial exploitation of the Champaner-Pavagadh Archaeological Park and for matters connected therewith and incidental thereto." The Authority came up as a first step to managing the site with multiple and complex ownership. But it is still a long way before various stakeholders open up their constricted vision and cooperate towards coexistence. Convenient misinterpretations of the Authority by implementing officials are leading to several bottlenecks in development procedures. There were numerous instances of misuse of the document as

an excuse to not work by the government officials and at this point it is worth acknowledging that the misrepresentation and misuse happened because the Authority failed drastically in being effectively communicated to people at all levels of stakeholder representation. Also, the local community had been responsible until this date for the effective management of cultural and natural resources for its economic sustenance and also for the intensification of tourism and pilgrimage industry on the site. So, it is essential to justify why the outside more powerful Authority can take over the 'responsibility' of managing the site.

The Authority was instituted partially to also meet the UNESCO requirement of a "management regime and comprehensive planning" (UNESCO, 2004b), the absence of which was the major reason for deferred nomination result in March 2004. As a subsequent response to the Authority the site was declared a World Heritage site. This is particularly important as several problems arose on site between the local community and the district administration, after the issuing of the Authority, as the role and intention of the authority was never communicated to the people. The evaluation team seemed convinced by the proposed management as long as long as there was a top-down bureaucratic management system in place, even though the site needs an equitable and social approach, entrusting responsibility to the people who actually manage things on site.

There are multiple levels at which the Authority can hinder the integrated process of heritage management. First is the lack of availability, or inaccessibility of complete information regarding various issues for each stakeholder. Secondly, vast amounts of cultural resources lie unclaimed and hence are unattended by the agenda of any stakeholder. Thirdly, pilgrim/tourist oriented opportunities make the site economically self-sustained but also highly vulnerable. Lastly, aspirations of the residents of the village for a better lifestyle are being marginalized in the name of retaining historic authenticity. The Authority only encourages development of a heritage zone: actors who are 'authorized' to take decisions about development work are from the field of "heritage, archaeology, tourism, environment co-opted by the authority on the recommendation of the chief executive officer" (Authority, 2006; Sec. 5, Part G). The Authority nowhere mentions the safeguarding of intangible heritage. The Authority is exceptionally stringent and bureaucratic about the development rights of

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the community. In the absence of any set criteria it is completely on the discretion of the Authority to approve of development work (Authority, 2006; Sec. 3). The authority was introduced with the intention of prioritizing actions to reduce conflicts among stakeholders, if not eradicate them. The question remains unanswered whether reduced conflicts can help retain the authenticity of the site as well as benefit individual ideologies.

5. MAKE SPACE FOR NON-REPRESENTATIONAL HERITAGE, ITS FLUID BOUNDARIES AND EVER-EMERGING AD HOC DECISIONS AS EVALUATION PARAMETERS

Some of the problematic highlights of ICOMOS Evaluation process (ICOMOS, 2009) are firstly, it insists on main interaction with State Parties and secondly, it is the dossier that is being evaluated. UNESCO's inability to negotiate with any bodies other than the nation-state, i.e., no direct contact/ conversation with local communities is one of the serious shortcomings. The dossier is a one-time document that represents a site in accordance with the World Heritage Committee format, which is biased towards strict linear-history and the 'material culture' of the site. Anthropologist Thomas Eriksen finds the UN as "undecided about the relationship between culture as artistic work and culture as a way of life" (Eriksen, 2011, p. 131). If culture is a way of life then the dossier is expected to read as a catalogue of human activities. If culture is an artistic production then again it is a cataloguing of the representational. Eriksen insists on "what are spoken of as cultural rights in Our Creative Diversity, […] to be seen as individual rights" (Eriksen, 2011, p. 142).

The format furnished to State Parties for nomination dossier itself is very limiting. It encourages a temporal description of a commensurable physical property. An inherent bias is obvious towards the oldest while the contemporary is the seen more as a shift of 'original' values. The format of the dossier is inadequate to encourage applicants in presenting the intangible heritage. Champaner-Pavagadh has invaluable associations with its living intangible heritage of the earthly stories of the Goddess Kalikamata resonating in its mysterious forests (see Figure 5). These associations were one of the major criteria for its inscription into the World Heritage List. The myths and legends of Champaner-Pavagadh are not just restricted to the Kalikamata but are equally expressive about the wealth, grandeur, bravery and religiosity of the Rajputs. The

Figure 5. Champaner-Pavagadh Archaeological Park: temporary shrines along pilgrim path (Source: Rahul Gajjar).

stories tell us about the generosity and far-fetched vision of Sultan Mahmud Begarha and also about the poignant crumbling of his affluent empire into ashes before the ambitious ravage of the great Mughals. The *Garba* played during the Navratri festival throughout Gujarat celebrates the day when Kalikamata was enchanted at Pavagadh by the mesmerizing dance of her devotees and chose to take on a human aspect, joining them in their revelry. As the devotees enter the forecourt of the Kalikamata Temple at the summit of Pavagadh Hill this festive night comes alive in front of their eyes. The pilgrim path is lined with small shops selling ritual objects and collectibles related to the stories of Kalikamata. *Garba* songs and *Bhavai* music is played on CDs and cassette players in the wayside shops all along the path. The *Garba* is a dance form that the devotees perform in order to achieve the goal of spiritual unison with the divinity. With the *Garba* songs playing on their pilgrim path; the devotees are able to remain in that transcendent state with which they would want to appear before the goddess when they reach the temple.

The evaluation report does not recognize this live and festive quality nor does it evaluate/notice the absence of proposed strategies of how the continuity of practices of intangible heritage will be ensured at this site. Is the silence on this topic a way of silent acknowledgement of a practice that is best left to itself to thrive or is it a way of institutional indifference to its presence. Again there is an instance of

an inherent contradiction between World Heritage Nomination requirements and evaluation. The *Nara Document on Authenticity* acknowledges cultural landscapes are dynamic in nature, and the goal of management to guide change (Mitchel *et al.*, 2009, p. 58). To do this effectively, determinations need to be made on the impact of proposed modifications to the landscape resources and values. Certain types of change may be acceptable, while others would diminish the site's integrity. Nomination Dossier insists on proper inventory (Mitchel *et al.*, 2009, p. 27) of the site, but how important is an inventory if the value of the heritage component lies in its quality of constant change. The need is to define levels of acceptable change or thresholds for potential concern and also parameters to assess those definitions.

Geographer David Lowenthal opines about the two approaches to perceive heritage: one that is identifiable through objects and the other through awareness of 'organic change' (Lowenthal, 1979, p. 108). These two approaches lead to bipolar attitudes of conservation, i.e., preservation versus appreciation of decay which allows to "remould it to our desires" (*ibid.*, p. 116). In this case, the desires will keep changing with time and hence every effort at integrated conservation is itself insubstantial because it is particular to one specific moment in time. There is no need for a concept of culture to respect local conditions in development work. What is at stake in development work is not cultural authenticity or purity, but people's ability to gain control over their own lives. Mystifying the ideologically charged cultural concept has to be discarded to create global ethics system. The evaluation parameters should integrate the monitoring the interconnections and fluid boundaries of apparent heritage components. The dialectic between the tangible and the intangible, the inclusivity of overlapping ownership-usage realities and so also the open-endedness of *ad hoc* decisions are important agendas that need further consideration in evaluation systems. We could do better than mere institutionalized exploitation of cultural resources in the name of 'authentic' conservation.

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ENDNOTES

[1] "All judgments about values attributed to cultural properties as well as the credibility of related information sources may differ from culture to culture, and even within the same culture. It is thus not possible to base judgments of values and authenticity within fixed criteria. On the contrary, the respect due to all cultures requires that heritage properties must be considered and judged within the cultural contexts to which they belong."

[2] "[…] it is of the highest importance and urgency that, within each culture, recognition be accorded to the specific nature of its heritage values and the credibility and truthfulness of related information sources."

[3] "Efforts to update authenticity assessments in light of changing values and circumstances [are needed]."

[4] UNESCO. Champaner-Pavagadh Archaeological Park. UNESCO World Heritage Centre. Available at: http: //whc. unesco.org/en/list/1101.

[5] Industries Commissionerate. Panchamahals. Available at: http://www.vibrantgujarat.com/documents/profiles/panchmahal-district-profile.pdf.28. It attracts about 2,000,000 (20 lakh) visitors every year and has shown a growth of 10.92 % in the inflow of tourists in 2005-06.

[6] The District Census (1982) states that a population of 1,856, comprising 392 households, lives in 387 houses in Champaner. Out of these, about 200 are located in the main settlement within the royal enclosure.

[7] A reserved forest denotes forests accorded a certain degree of protection. Land rights to forests declared to be reserved forests or protected forests are typically acquired (if not already owned) and owned by the Government of India. Reserved forests and protected forests are declared by the respective state governments. Rights to all activities like hunting, grazing, etc. in reserved forests are banned unless specific orders are issued otherwise.

[8] An NGO, based in Vadodara, Gujarat and working for the protection and Integrated Management of the site since 1986.

[9] In this paper this act has been referred to as the *Authority* for purposes of convenience and also because that's how it is popularly known among the stakeholders.

Mithal, S. 2012. Inclusivity, interconnections and overlapping stakes: challenge to a static evaluation criteria. *In* Zancheti, S. M. & K. Similä, eds . *Measuring heritage conservation performance*, pp. 203-211. Rome, ICCROM.

Exclusion and efficiency in measuring heritage conservation performance

Saptarshi Sanyal[1]

Abstract

This paper argues for the need to have an adequately efficient monitoring approach for cultural resources in order to be apace with factors that undermine their value. By discussing real examples reflecting empirical knowledge and hindsight, fewer but more pertinent monitoring indicators are found by a process of exclusion, rather than collection of information. These indicators would be only the most relevant for a concerned property, rather than compilation of exhaustive data sets dictated by purely academic ideals or rule of thumb. A brief literature review is also seen to corroborate the need to have efficient and professional approaches. The lessons learnt in live cases, processed through logical reasoning, help us to advance a theoretical construct: a heuristic algorithm, presented within this discourse on measuring heritage conservation performance.

Keywords: information management, indicators, efficiency, exclusion

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Utopia, the practitioner's dilemma and need for efficiency

With steady advance in operational concepts of heritage management in recent times, monitoring aims to objectively assess and evaluate the conservation action after it has been initiated. In several cases, it helps to continuously keep threats under observation and develop requisite strategies to dispel them (Art. 169-176 of UNESCO, 2008). The prevailing monitoring approaches largely advocate collection of a comprehensive body of information related to the cultural resource being managed. This is considered logical, as a direct corollary of exhaustive data collection is thought to be an accurate picture. In an ideal world this would definitely stand true. However, for the peculiar constraints of heritage conservation practitioners or managers in fast developing, urbanizing and culturally homogenizing societies[1], collection, processing and working with exhaustive data is not unlike a distant utopia. The exhaustive approach to collection of information for monitoring presents a limitation rather than opportunity in such cases.

To appreciate this contrast between theory and practice more deeply it is necessary to look at conservation and heritage management practice in the developing (eastern) world more closely. In general, within such contexts, the practitioner in the heritage sector is continuously confronted with questions related to priorities of stakeholders and their representatives; as well as important actors in the conservation and management process, such as policy or decision makers. Numbers and role limits the professionals, who are usually very far down in the hierarchy of decision making. To make matters more serious, in these regions, heritage resources are numerous and diverse; while the pressures on heritage due to pace of industrial or urban development, very fast. The latter pressures may often undermine value of heritage through rapid urbanization, cultural homogenization, land use transformation or material and structural stress. These changes do not slow down to suit the pace of the decision makers' or conservation professionals' convenience and any idealistic need for collection of comprehensive amount of information for monitoring. The 'exhaustive' approach often results in on-course correction of conservation and management action becoming obsolete by the time it is implemented on the ground. This occurs due to time-lapse in comprehensive data collection, analysis and consequent decisions, in relation to faster paced external conditions. The contradiction between time-cycle of monitoring and the expected comprehensive approach essentially constitutes the practitioner's dilemma in a developing context.

The above dilemma necessitates the need for modifying our monitoring approach to make it applicable to developing societies. For this, the process would need to be extremely efficient as a prerequisite, to enable speedy yet effective implementation. This does not undermine the validity of the theoretically ideal international principles. They are possibly very practicable in societies that have relatively more evolved monitoring systems. However, without a major re-examination, application of such approaches has significant limitations in contexts where notions of heritage and conservation are nascent or markedly dissimilar from internationally

accepted ideas. It may also be submitted that a departure towards efficiency in monitoring processes would benefit the overall pool of ideas for selection of indicators. This aspect of efficiency in monitoring is critical to the ultimate aim of making the measuring of conservation performance objective in approach and substantive in contribution. To understand limitations of the 'exhaustive' approach, the following section illustrates the need for efficiency through some select but highly relevant cases in the Indian context, where the author has directly been involved.[2]

1. HINDSIGHT ON LITERATURE AND LIVE CASES TO REFLECT ON MONITORING CHALLENGES IN PRACTICE

The standpoint adopted in this paper is that perceived and recorded value of heritage resources is the key yardstick for measuring conservation performance. It is also generally accepted that value is not a fixed attribute.[3] It changes and evolves with knowledge about the site. This section focuses on specific issues regarding monitoring observed over time and based on empirical knowledge. Extremely compelling questions emerge in cases that represent how the dimension of time taken in monitoring is decisive.

Before we move into elaboration of examples and consequently the final theoretical framework being advanced here, it is important to provide due accreditation to literature that has previously alluded to the need for efficiency, which forms the core of our argument. John Ward (1995), in discussing the Periodic, Systematic and Comparative approach to monitoring, emphasizes the importance of inculcating professional methods into practice. Herb Stovel, in his reference to World Heritage (cultural) sites (Stovel, 1995), has iterated the need for robust systems to be in place for their monitoring. Walter Jamieson, with regard to necessary innovations, lists the selection of fewer monitoring indicators and a weighting system noting the large number of factors and parameters that exist in managing Cultural tourism (Jamieson, 1995). Scott Cunliffe (1995), builds upon Ward's indication of the need for professionalism by iterating that accountability of concerned individuals as well as of organizations is indispensable. Even these select texts show that the need for efficiency is not entirely unprecedented in professional discourse. Here, within available scope, we attempt to illustrate the same through some live examples.

Three important heritage sites in India are discussed below. These are only representative examples but nonetheless; contain a significant diversity of elements that contribute to heritage value. The three cases discussed below include two inscribed World Heritage sites and one tentative World Heritage site; the latter being in UNESCO World Heritage Committee's evaluation cycle at current date. In such choices for our discussion, we find opportunity to view the measurement of conservation performance in an adequately broad manner in the context of international principles, national mechanism, and local conditions.

1.1. The Sun Temple, Konark

The Sun Temple is a pinnacle of Indian temple architecture. It merited inscription on the World Heritage List (1984) based on its representation of a unique artistic achievement (criterion i), an outstanding testimony to the 13th century kingdom of Orissa (criterion iii) and as a link in the diffusion of the Tantric cult of Surya (Sun) Worship (Criterion vi). Its Outstanding Universal Value (OUV) is embodied predominantly in physical form through rendition of concept, architecture and sculpture. It was inscribed in its partially surviving state, with a long history of repair and conservation measures that had already been carried out and many more being in progress.

This structure, however, presented some unprecedented challenges in structural and material conservation. More importantly, some major conservation issues persist to date and are not independent of earlier repair attempts made. The two most important ones shall be highlighted here with respect to monitoring. These relate, firstly, to filling up of the surviving *jagamohana*[4] space, which continues to cause structural distress on the surviving monument. Second, the progressive deterioration of the elaborately sculpted exterior is another major concern. Both these factors of stress have profound impact on the OUV as they are related to the physical fabric. It may also be mentioned here that the understanding and interpretation of value of this monument has evolved greatly beyond the physical aspects since the original inscription. Being outside the scope of particular discussion on monitoring here, they are not discussed in detail subsequently. Before we proceed further, it is important to briefly surmise the history of discourses regarding the aforementioned conservation problems.

Sanyal, S. 2012. Exclusion and efficiency in measuring heritage conservation performance. *In* Zancheti, S. M. & K. Similä, eds . *Measuring heritage conservation performance*, pp. 212-221. Rome, ICCROM.

With the inscription bringing this monument in international focus, its very serious conservation issues began to be debated and discussed widely. Many renowned experts have contributed over time to ongoing dialogue.[5] Their recommendations supplemented those by the already existent Konark Temple Committee (formed in 1954), which was responsible for sanctioning and approving repair and conservation work. Officially, the structure was under the custodianship of Archaeological Survey of India (ASI) since 1915, which was also involved in structural and material conservation works. So elaborate and numerous have the (largely un-executed) recommendations been that their content alone has resulted in a compilation volume of over 200 pages (Chauley, 2006). Upon review of this enormous body of literature on recommendations, the latest efforts to arrive at a conclusive direction[6] has revealed the following issues in spite of ongoing conservation efforts:

• The superstructure, which was sealed in with masonry filling from the interior (executed under British rule in 1901-07) is at risk due to lateral thrusts on the structural walls (ascertained by tell-tale indicators); at the time of writing, the investigation of the interior is pending, resulting in only speculative knowledge on state of conservation and actual structural stability to guide further action (Figure 1);

• It was recently ascertained from historical photographs, field study as well as chemical constitution of the material (khondalite sandstone) that deterioration of fabric has

possibly been exacerbated due to ongoing chemical conservation work of half a century; cleaning and paper-pulp treatment of exterior removes the very protective, chemically inert, crust layer from the sculptures and this causes loss of fabric in every annual cycle, in addition to natural factors like its constant exposure to sea-breeze (Figure 2).

In spite of the above two critical factors, which endanger the very stability and fabric of the monument; most recommendations made over time have insisted on carrying out detailed investigations and significant amount of (time-consuming) documentation and analyses. While these are certainly very relevant as long-run measures, it is important to consider the consequences of deferring planned action, which as been the unfortunate case for over three decades now. As a priority, it may be sufficient to monitor the state of the fabric (measurement of surface loss) by suspending chemical conservation work for at least two annual cycles, and investigating and monitoring condition of the interior to address structural stress.

Should further planned action on the structure be suspended as second priority in sequence till exhaustive documentation (which can happen simultaneously and non-destructively) is completed? And should the monument be allowed to continue in its current trajectory of deterioration, when just two factors are crucial to monitoring *vis-à-vis* the preservation of its key values? These are very relevant questions in approaching a practical monitoring apparatus for the Sun Temple.
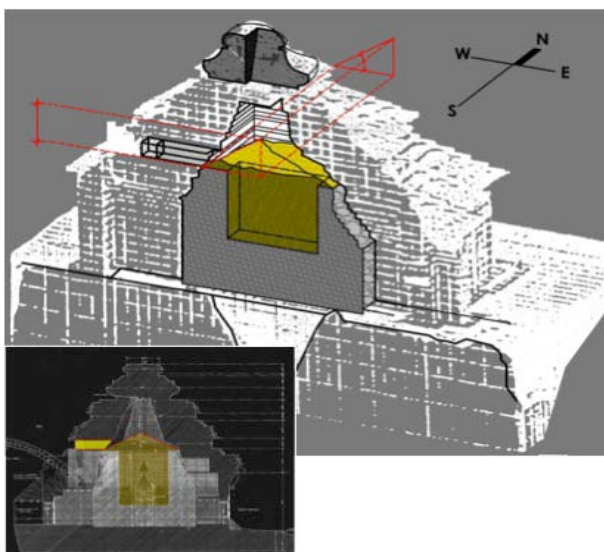

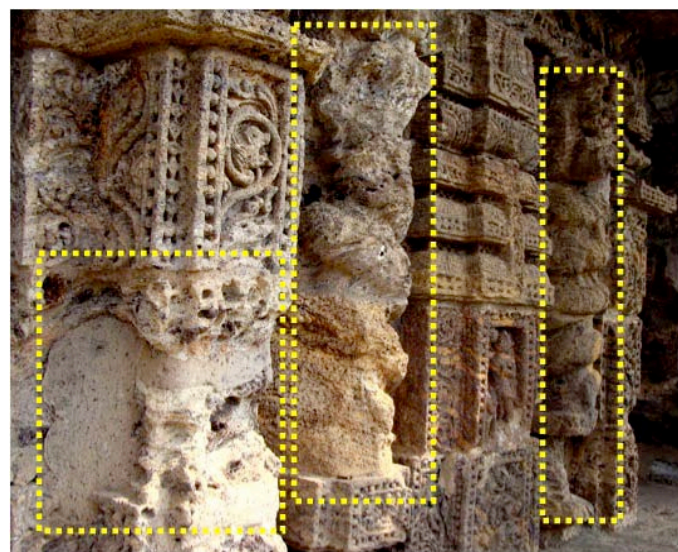**Figure 1. Structural stresses on superstructure of Sun Temple (Source: author, for ASI).**

Figure 2. Deterioration of fabric of the sculptural surface (Source: author, for ASI).

1.2. Hampi World Heritage Site

Hampi is widely acknowledged to be the erstwhile capital of the Vijayanagara Empire in southern India and preserves some of the finest specimens of monumental architecture, town planning and art. For these reasons, it has been inscribed in UNESCO's list (1986), for being a masterpiece of human creative genius (criterion i), being an exceptional testimony to a civilization (criterion iii) and an outstanding example of a building, architectural ensemble and landscape illustrating significant stages in human history (criterion iv). As a single site, Hampi's values are represented through possibly the most types of heritage resources. These extend from monuments, to partially and fully buried archaeological remains, prehistoric shelters, historic networks and water systems that are partially surviving and in use, as well as remains of an elaborate defence system, along with several sacred and living associations within an extensive cultural landscape; just to name a few (see Figure 3). Since inscription, continuing work has greatly contributed to an enhanced understanding of the values, level of sophistication in original design of the capital and complexity of the site as it is today.

Figure 3. Monuments within the Hampi landscape (Source: Prof. Nalini Thakur, for IMP).

There has been a flipside of this enhanced understanding of the site's complexity as well. While knowledge has been gained significantly at international academic and research platforms, the same understanding possibly failed to permeate into the perception of the site's custodians, decision makers, managers and other actors at the ground level. This led to serious shortcomings in the management approach until very recently. Confusion prevailed about whether the inscribed area was to be managed as an ensemble of monuments, a cultural landscape or just another development entity. The above confusion in value representing elements, both as entities as well as spatial, caused the construction of a colossal modern bridge through the inscribed property (site), thereby putting it in the List of World Heritage in Danger in 1999. It is interesting to note that the aforementioned bridge did not officially violate any legal protection in the national system, which was effective by design only within a limited area around each monument.[7]

The Integrated Management Plan (IMP, 2007-8) for Hampi was initiated in 2005. This attempted to address the above problem by integrating conservation and development priorities in a unified framework. Recognizing that the IMP was moving in the right direction to sustain the site's values and the government had suspended construction of the bridge, UNESCO removed the site from the endangered List in 2006.

The process of preparation of the IMP and the simultaneous dialogue with various actors has helped in achieving significant milestones in Hampi, albeit much is left wanting. For instance, the formation of a single regulatory authority for a World Heritage site and the legal status of Hampi World Heritage Area as a spatial mechanism for protection and development control in the Indian system are unprecedented. UNESCO Mission to Hampi lauded the same in 2007 (Kammier and Finke, 2007). It is also to be remembered that the IMP reaches a hitherto unparalleled benchmark in management plans in India for a complex site, which is the reason for significant amount of time being taken in its preparation. Its operational side, however, has made insufficient progress for the time expended. One of the key reasons for this has been stated to be the lack of comprehensive information such as mapping and documentation of both tangible and intangible heritage on the ground. Both UNESCO as well as the IMP have strongly insisted on carrying out this activity and undertaking studies based on it to inform future action. In must be noted that a direct outcome of this is the delay in operationalization. This occurs because a consensus on what constitutes 'comprehensive' information for effective heritage management with regard to Hampi is still required in the national framework.

The other major issue highlighted in implementing the IMP is lack of actual and mutual integration in the multitude of sectors that have a stake in the site. It is of major concern that there is very little check on the trajectory of development which is largely moving according to its pre-IMP days, as

Sanyal, S. 2012. Exclusion and efficiency in measuring heritage conservation performance. *In* Zancheti, S. M. & K. Similä, eds . *Measuring heritage conservation performance*, pp. 212-221. Rome, ICCROM.

operational goals and specific targets are lacking in the concerned departments as per IMP recommendations. The net result is a loss of heritage value over time due to excesses in tourism and unplanned development (see Figure 4). What then, could be possible indicators to *efficiently* monitor the state of conservation and management progress, *vis-à-vis* the IMP for Hampi?

- The site itself being extensive and managed by multiple parties, the foremost activity to be observed or measured would have to be the level of integration achieved with respect to the site's heritage aspect across sectors of planning (infrastructure, transport, housing), development (community facilities, health, education) and tourism (activity, sites, accommodation). All of these sectors, at current date, have disparity in budget allocation, targets and objectives; they are yet to recognize that the IMP is the overarching system in Hampi within which, their goals have to be unified and made conflict-free. This is not an easy task but the level of progress is easily measurable in objective terms: integration either being present or naught;

- Protection is still inadequate, as per current enhanced understanding of the values and extents of the site. To prevent undermining of any value-contributing element, the entire set of heritage resources need to be legally protected as a priority and the progress made herein can be gauged by the number of protected and unprotected heritage entities and their level of protection;

- The IMP has recommended major staffing upgrade and the supplementation of different departments, including the Management Authority, with well-qualified technical staff; the numbers and nature of duties of the new recruits are easily identifiable, specifiable and hence, their progress is measurable;

- The most important aspect, which is noted in the IMP is the very lack of a monitoring system to gauge progress of implementation with high level of expertise in-house from different specializations engaging in a common dialogue; as a priority, the establishment of this system itself can be

Figure 4. The advent of guest houses for tourists (Source: Prof. Nalini Thakur, for IMP)"

monitored simultaneously from national and international platforms.

The fundamental question posed here is thus, whether action and its consequent monitoring are absolutely essential or necessarily dependent on exhaustive information in a sequential process. Is it necessary to postpone action *until* all information is made available? The information is undoubtedly required, but would take significant amount of time to be obtained in full for a complex site like Hampi. Is it not possible to implement planned action and its systematic and objective monitoring based on fewer but stronger indicators? This is particularly of concern as the site, which is meant to be dealt by a management plan that is a accepted as a model of excellence for India,[8] is continuously falling prey to *ad hoc* developments taking place due to lack of operational status of the former. Can the fewer parameters not provide a holistic measure of progress of management and conservation action at this site?

1.3. Santiniketan

Santiniketan is a heritage site of modern history. It embodies the creative ideas of Rabindranath Tagore, India's first Nobel Laureate and a leading literary and cultural figure in the 20th century. This place is characterized by its distinctive living practices, art, architecture and landscape, in addition to the spiritual and other associated values related to the highly revered founding personality (Figure 5). Physically, the site is testimony to the efforts of the alternative educational environment created in colonial India, with the help of many enlightened Indian and international collaborators. This endeavour took place within a man-made landscape that was created as an *ashram* for Brahmo followers. The Brahmo Movement was a very important religious and spiritual

Figure 5. Archival image showing active engagements of students and faculty in construction and artwork (Source: Rabindra Bhavan Photo Archives acc. no. 14867H).

revival movement in the history of modern India, and represented the shift from religious dogmatism to liberalism and universality of cultures. As both a living institution (Visva Bharati) as well as a man-made landscape, the Nomination for Santiniketan justifies the OUV by the site's representation of an important interchange of cultural values between the east and the west (criterion ii), its bearing a unique testimony to several cultural practices in the plastic and performed arts (criterion iii) as well as its being tangibly associated with Rabindranath's beliefs and values such as internationalism, universality and creative unity in the arts in addition to his literary and artistic works of immense significance such as *Gitanjali* (criterion vi). [9]

The primary reason for including this example for our discussion on monitoring is that it presents the challenge of managing living intangible practices that are integral to the physical fabric's survival and value. The management approach for Santiniketan respects and applies the fact that surviving practices are inextricable from the physical environment.[10] However, in this case, the educational vision is currently guided by the priorities of the Ministry of Human Resource Development in India. Thrusts in development are generic and reflect the need for growth and modernization as a contemporary educational institution. Over time, they have caused a discord with the cultural values that are embodied in the place as it was originally conceived.

Additionally, efforts for conservation, until very recently, have attempted to freeze the physical fabric of the nominated property in isolation from the intangible component, causing disconnect between the physical aspect and the spirit of place. This has been reflected in several structures, which fell under neglect due to lack of use. Moreover, it must be recognized that originally, its users themselves managed the site, rather than any specialized outside agencies, in the active years under Tagore.

Another major issue is the impact of ongoing development and urbanization that has an impact on the very important rural setting for the site, which is equally significant in representing its value (Figure 6). Being a popular vacation destination coupled with expansion in population of the hinterland, the suburban built-up area has significantly increased.

Figure 6. Students display handiwork at a festival (Source: author).

This adversely affects the rural character, which was a decisive factor in the genesis of Santiniketan.[11]

The conservation progress in Santiniketan is at a very nascent stage, only recently coming under active care and management of Visva Bharati as the institution for managing the cultural practices and landscape and Archaeological Survey of India for building conservation respectively. The murals, artworks and objects of collection are managed by multiple agencies under the leadership of Visva Bharati and the Minstry of Culture. Current management system for Santiniketan: the Property Management Plan has strongly recommended a mechanism to integrate educational content into the site conservation and heritage management activities, rather than 'one-off' conservation projects. Thus, in the monitoring of progress in future *vis-à-vis* values of Santiniketan, the following questions would arise:

Sanyal, S. 2012. Exclusion and efficiency in measuring heritage conservation performance. *In* Zancheti, S. M. & K. Similä, eds . *Measuring heritage conservation performance*, pp. 212-221. Rome, ICCROM.

- Is it enough to monitor the state of physical entities alone, or should the active engagement of students and staff of Visva Bharati, which is declared as an institution of national importance, be monitored as well;

- Whether the educational policy for Visva Bharati which, as per Enactment of the Parliament of India, is different from any other institution, be developed specifically with respect to its original ideals;

- To what degree are students and staff contributing to the management of the site; or is it a top-down approach of authorities with the users only having a passive engagement;

- The setting, which forms the buffer to the nominated property, is equally important: what is the status of adoption and implementation of development controls in order to respect its original rural character.

The monitoring of physicality alone would not reflect whether the values of Santiniketan are effectively being sustained or not. Furthermore, such an exercise runs the risk of looking at the site only partially, rather than in its entirety. It would also consume more time and therefore, lack efficiency. To make monitoring more efficient, as well as effective, the few but important indicators described above are considered more critical to observing the progress of conservation action, rather than monitoring individual entities' physical state. If the mechanism is in place and is functioning correctly, resulting action would systematically result in more meaningful conservation progress at ground level. It would stem from a broader change in approach to policy and practices.

2. The dimension of time in monitoring: need for a paradigm shift

The underlying challenges in all the cases discussed above are those of indicator selection and time-lapse. Continuing issues with the Sun Temple, Hampi and Santiniketan make it quite clear that monitoring indicators need to be fewer and more pertinent. They should be defined clearly and measurable in time frames that are at par with adverse pressures. They also illustrate that comprehensive data collection is time-consuming, requires consensus of many parties and therefore, cannot solely

dictate initiation and operation of a monitoring process.

This situation demands that we seriously re-examine our current approaches to monitoring without any biases: in other words debate on a paradigm shift that would be relevant to developing contexts and perhaps, the entire body of knowledge on monitoring. A paradigm-shift, by definition, is required when the normally accepted process of problem solving presents limitations or fails to answer the questions posed, as observed in the live examples above. The former is not necessarily a linear addition to the existent body of knowledge (Kuhn, 1970). Advancing a shift in knowledge also requires clear articulation of the limitations and contradictions identified. These are presented briefly in the analysis below:

2.1. Academic versus commercial interest

The quest for perfect knowledge is very different in nature from the pursuit of profit. The primary drive for selecting monitoring indicators by professionals is arriving at a total picture while the entrepreneur in real estate or tourism is motivated by maximum returns in minimum time. This disparity is implicitly known but has rarely been spelt out in heritage management literature or theory. To address the dimension of time, it is therefore, crucial to move at a comparable pace by proactive heritage management. This can only be brought about by being aware of this fact and rendering of concrete innovations in the professional forums of heritage management discourse.

2.2. Monitoring physical versus operational

Largely physical observations and taking measures to mitigate them risk being equivalent to *ad hoc* treatments of symptoms rather than solving the root of problems. The former is indispensable for conservation works, but for monitoring systems, there should be a focus on observing the systemic aspects that lead to issues, and addressing the source of the problem, rather than outcome. Even through the cases discussed, we have seen a lack of accountability, which can only be solved if the responsibilities are clearly spelled out.

2.3. Bureaucratic versus professional

While professional heritage conservators and managers are responsible for pre-action studies and overseeing implementation of actions, very rarely are they also in the role of decision maker. An

uncomfortable truth to be accepted is that the latter are largely administrators or bureaucrats who seldom have time to examine all assessments in detail before taking a decision. This is not to their discredit per se but it must be remembered that their responsibilities are mostly widespread rather than focused in our systems of governance. From the experiences discussed above, it is also questionable to what degree they are advised by technically competent and professionally expert in-house staff in reality; that too occurs within a developing context. This condition also demands that the indicators be fewer but more pertinent.

2.4. Exhaustive versus exclusive information

The aforesaid limitations culminate toward this very important point. They indicate that vital to monitoring apparatus is a mechanism to critically exclude information in the selection of indicators, rather than exhaustive collection of information. The latter also tends to become a mechanical exercise, resulting in mostly quasi-professional or non-specialized personnel being engaged to carry it out. We are not failing to recognize that all changes, however small, have an impact on the heritage resource. It is, however, adequate to include only those that critically endanger the key values of the resource whose treatment is being monitored. The exclusion of the others is, thus, a necessary process that essentially informs the paradigm-shift in monitoring.

3. TOWARDS PRACTICE OF EFFICIENT MONITORING THROUGH AN EXCLUSION ALGORITHM

We have sufficiently articulated the limitations in trying to implement exhaustive monitoring systems meaningfully in practice, thus arguing the need for a new paradigm to address these issues. Such a paradigm would need to follow the principle of exclusion of information. It would need to be heuristic, which depends largely on specific empirical information about the site or resource in concern. Implicitly, this means that the degree of professional involvement would need to be very high. Particularly individuals or organizations with deep knowledge about the site would be required to contribute, rather than experts on theory. The latter may be consulted only on requisite occasion.

The actual framework within which an efficient monitoring system can be evolved in practical application is advanced as a heuristic algorithm.[12] Heuristic means that the use of empirical knowledge of

site takes precedence over exhaustive data collection.[13] For this reason, the construct elaborates the method for exclusion of information in selection of indicators. At this juncture, it must be remembered that exclusion is not an end in itself. It is being proposed only as we are convinced of its importance in measuring conservation performance by making it more efficient and meaningful.

In characterizing the algorithm, which is our theoretical construct, it would have to be sufficiently abstract for adoption within a wide range of situations. It would also have to allow for accommodation of both qualitative and quantitative indicators. Another important attribute is that it would need to be proscriptive rather than prescriptive in nature. This means that within the parameters of heritage value and the time frame available for monitoring, it would be a mechanism to exclude, rather than to include. The time frame would be dictated by weighting by the pace of growth of adverse pressures on the particular resource or site. Therefore, if we start with the superset of all possible monitoring indicators for a particular site or heritage resource, the algorithm would take shape in the form presented below:

1. Identify key value representing elements of the site or resource.

2. Exclude any indicators that are not related directly to the above.

3. Identify the major threats to value and estimate their pace of growth.

4. From step 2, eliminate indicators that are not related to threats identified in step 3.

5. Identify responsible parties for monitoring of indicators short listed in step 4.

6. Identify any gaps in professional capacities in responsible parties above, and supplement with training or recruitment to set up professional monitoring system.

7. Set-up time frames of monitoring by responsible participant for every indicator, based on rate of development of threat factor in step 3.

The above algorithm, even in its basic form, constitutes the critical apparatus for efficient monitoring. It follows a sequence of identification of key factors and elements both intrinsic in the resource, its mangers as well as external factors that may have

adverse effects, while excluding the residual indicators. In this manner it addresses the dimensions of values, time, threats as well as professional capacity to constitute the monitoring system.

Though the above system may be regarded as sufficiently robust, while also radically different from the current methods of practice, certain important considerations need to be stated in concluding. First of all, the algorithm above does not make any claims to be foolproof for universal use, and is presented as a theoretical model for discussion and debate only. Though it is considered suitable for practical use, it is likely that it has much scope for improvement, enhancement and refinement in continuing discourse prior to its permeation to actual use for heritage sites and resources. Thirdly, and most important, the algorithm is a professional tool only and several decisions and choices in its application can be made by trained and expert professionals in the heritage sectors alone. There is no substitute to expertise on either the subject in concern or the site. With its correct and well-directed use, the immense potential of a process of exclusion in selection of monitoring indicators for efficient heritage management may be realized meaningfully in future practice.

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ENDNOTES

[1] Psychologies and cultural ambivalence of Indian middle-class society have been discussed and the priorities of heritage are not seen to be very high in the prevailing mindset, the time and attention spent on heritage and conservation is therefore, not very substantial.

[2] The author has been responsible for studying the previous analyses related to the Sun temple, Konark to arrive at an action plan in current capacity as Conservation Architect in ASI; he has previously been an active part of the Integrated Management Plan team for Hampi World Heritage Site from 2007-10; for Santiniketan, the author is currently a member of Heritage Committee for implementation of the ongoing Management Plan, for which he was previously Consultant; in addition, he has authored two articles (2009, 2010) about the values and significance of Santiniketan in national heritage journals.

[3] The *Burra Charter* of Australia ICOMOS is an important document in this regard as it recognized the aspect of values evolving with knowledge about a place.

[4] The Jagamohana is the porch or entrance space of the Orissan Temple and is the principal surviving element of the Sun Temple which is partially ruined.

[5] Prof. R. Lemaire, Mme. M. Tabasso (1979); the late Sir B.M. Feilden, Prof. P. Beckmann (1989); Prof. (Ing.) Giorgio Croci (1997) and Dr. Pratima Rani Bose (2008), respectively.

[6] The International Seminar on Conservation of the Sun temple (March 2010), brought together expertise on how to tackle the pressing issues of conservation and the author was responsible for preparing the action plan which is currently underway.

[7] The *Ancient Monuments, Sites and Archaeological Remains Act of the Parliament*, in its rules, provides for 100 and 200 meters respectively as prohibited and additional regulated zone around every protected monument.

[8] ICOMOS in its last assessment of the site about removal of Hampi from the World Heritage List in Danger and review of the IMP, stated this in the report to the World Heritage Committee

[9] *Gitanjali* is Rabindranath Tagore's most acclaimed work of poetry, for which he was awarded the Nobel Prize in Literature in 1914.

[10] Important practices like the annual rain festival, where trees are planted, help sustain the natural environment, while the arts school's sublime faculty members and students are responsible for creation of the unique artistic environment through murals and sculpture in the landscape; in Tagore's lifetime, several of them had an important role to play in the construction of what are today heritage buildings as well.

[11] It is learnt through Tagore's writings that Santiniketan chosen as the site for his educational experiment as it provided the perfect natural environment, away from city life, to inculcate the qualities that were necessary in the principles of his school and (later) University of Visva Bharati.

[12] Algorithms are sets of specific instructions or sequence of steps to achieve a particular task or objective.

[13] Heuristic refers to experience-based techniques for problem solving, learning, and discovery. Heuristic methods are used to speed up the process of finding a good enough solution, where an exhaustive search is impractical. These are experience-based techniques for problem solving, learning, and discovery. Heuristic methods are used to speed up the process of finding a good enough solution, where an exhaustive search is impractical.

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A participatory action research framework for managing cultural heritage: a new approach to documenting, interpreting, and conserving the cultural landscape of Nantucket, Massachusetts

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Abstract

Heritage conservation is at an exciting juncture today. The establishment and maturation of the discipline comes with new challenges as heritage is redefined to embrace more of the cultural diversity and nuances that give it significance. Heritage is no longer viewed as static, as evident in the practice of cultural heritage management. This is the case on Nantucket, an island and U.S. National Historic District located in the Atlantic Ocean off the coast of Cape Cod, Massachusetts.

Since 1972, University of Florida's Preservation Institute: Nantucket has used a service-learning pedagogy to work with local stakeholders and engage outside experts to identify and record Nantucket's built heritage, as well as devise strategies for its conservation. Over time, the focus of cultural heritage conservation on the island has evolved from the initial documentation and intervention at individual sites to the management of the multifaceted forces impacting the long-term conservation of Nantucket as an urban and cultural landscape.

In 2008, the University of Florida's Preservation Institute: Nantucket (PI: N) implemented a new, Participatory Action Research (PAR) framework for managing the diverse heritage resources that comprise the cultural landscape of Nantucket. Based on a dynamic research approach that involves a range of stakeholders and employs mixed methods, the PAR-based model developed by PI: N and its partners elevates the significance of cyclical, long-term management of the island's heritage.

This paper briefly presents the evolution of the University of Florida's Preservation Institute: Nantucket and explores the implementation and initial outcomes of the new Participatory Action Research-based management model. A goal of the evaluation is to identify and articulate those components that need to be considered when potentially replicating the framework in another context.

Keywords: cultural heritage management, participatory action research, service-learning, cultural landscapes, scales of heritage resources

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Introduction

Heritage conservation is at an exciting juncture today. The establishment and maturation of the discipline comes with new challenges as heritage is redefined to embrace more of the cultural diversity and nuances that give it significance. Heritage is no longer viewed as static, as evident in the practice of cultural heritage *management*. This heightened awareness toward management begins to embrace the changing nature of cultural heritage resources as they, among other complexities, exist at different scales (from materials and objects to monuments to cultural and urban landscapes), are addressed from a multi-disciplinary approach and hold different meanings for a diverse range of stewards.

At the international level, the World Heritage Committee has led the way by committing to the management of heritage resources as they exist across a range of scales in tangible and intangible form (Bandarin, 2007). U.S. national, state, and local heritage managers are increasingly embracing the efforts by the World Heritage Committee to diversify their understanding of cultural heritage and thus more effectively manage the changing nature of these resources. This is the case on Nantucket – an island, town, and U.S. National Historic Landmark District (established in 1966) some 48 kilometres off the coast of Cape Cod, Massachusetts (Figure 1).

For nearly 40 years, the University of Florida's Preservation Institute: Nantucket (PI: N) has collaborated with local stakeholders to document and conserve the island's built heritage. Since 2008, the

Figure 1. View of Nantucket from harbour by Morris Hylton III.

University has collaborated with local partners and led an effort to implement a new *Participatory Action Research* (PAR) framework for managing the cultural heritage of Nantucket, Massachusetts. This paper briefly presents the evolution of the Preservation Institute: Nantucket and explores the implementation and initial outcomes of the new PAR-based management model. A goal of the evaluation is to identify and articulate those components that need to be considered when replicating the framework in another context.

1. History and evolution of Preservation Institute: Nantucket

During the summer of 1972, University of Florida faculty and students began to research and document the built heritage of Nantucket as part of the U.S. National Park Service Historic American Building Survey (HABS). These efforts contributed to a larger private-public initiative to restore the island's historic environment, encourage tourism and leisure-based businesses, and reverse an economic decline that had impacted the island for over 100 years. The social and economic (and subsequently, built) environment of Nantucket went into a dormant period following the collapse of the whaling industry ca. 1850.

Originally occupied by two Wampanoag Native American tribes, the island of Nantucket was settled by the English in 1659. After early, mostly unsuccessful attempts to establish an agrarian economy, the English settlers, initially instructed by the Native Americans, began to hunt Right, then Sperm whales. The whale oil was processed as fuel for lamps or made into candles in factories established along Nantucket's urban waterfront. By the early nineteenth century, the island, then a community of some 10,000 residents, was the whaling capitol of the world, with local captains and crews making three- to five-year voyages to the Pacific to hunt Sperm whales, returning to Nantucket to process the oil, and deliver it to Europe. The wealth and cultural-exchange made possible by the whaling industry, coupled with a strong social influence exerted by the Quaker religion, helped shape a distinct society and culture (Philbrick, 1993). Despite some success in promoting the island as a tourist destination to replace whaling beginning as early as the 1860s, Nantucket remained in a period of economic and population decline until the mid-twentieth century when cultural heritage conservation and tourism were used as tools to revitalize the historic environment and economy of the island and presumably, improve the quality of life for its residents. The research and documentation of the University of Florida's Preservation Institute: Nantucket proved invaluable to this endeavour.

At the invitation of local stakeholders, the University, after the first program in 1972, returned each year for approximately 10 weeks to continue the hands-on documentation of the island's historic architecture and urban environment. The typical product of each season was a Historic Structure Report (HSR) documenting the history, recording the existing conditions (including measured drawings to U.S. government standards), and proposing conservation recommendations for one or more historic buildings or sites. This work was augmented with independent research studies undertaken by students addressing a variety of issues impacting the sustainability of Nantucket's historic resources. The research and documentation produced each season was submitted to the Historic American Building Survey and Nantucket Historical Association to ensure the products were archived and made accessible to scholars and other interested parties. In addition to informing the conservation of Nantucket's historic built environment, the experiential learning approach of the Preservation Institute: Nantucket helped fill a void during the initial development of cultural heritage conservation (historic preservation) education in the United States.

In the decade that followed the adoption of the United States Historic Preservation Act in 1966, which encouraged and necessitated the training of experts, only a limited number of institutions of higher learning offered course work, including Columbia University, Cornell University, University

of Virginia, and University of Florida. Nantucket afforded many of the nation's first cultural heritage conservation students – from the University of Florida and eventually other institutions – their first opportunity to apply classroom-acquired knowledge in the field while helping complete the research and documentation needed to restore the historic architecture of Nantucket's urban core.

The Preservation Institute: Nantucket (PI: N) was formally established in the mid-1980s as a graduate-level, service-learning program where students meet prescribed learning objectives while helping address the needs of a community (Speck and Hoppe, 2004). Over the last two decades, PI: N faculty and student participants collaborated with local, national, and international partners and experts to help identify, record, and conserve the heritage resources of Nantucket. However, over time, with the goal of conserving the island's heritage and reversing its economic and population declines, the focus evolved from the documentation and intervention at individual sites to the evaluation and management of the multifaceted forces impacting the long-term sustainability of the diverse resources that make up Nantucket's cultural and urban landscape. In 2008, PI: N began the process of refining the research model and realigning the curriculum to more fully integrate concepts of heritage management at different scales of resources. The first step in the planning process was to assess the: 1) successes, limitations, and opportunities of the PI: N program; 2) emerging directions in cultural heritage conservation practice and education; and 3) new challenges threatening the heritage resources of Nantucket.

After consultation with key heritage groups both on and off island, PI: N faculty proposed working with local partners to explore the potential nomination of the Cultural Landscape of Nantucket to the World Heritage List. The efforts toward a World Heritage nomination is viewed as a vehicle for identifying and bringing together as many stakeholders as possible to explore and better understand Nantucket's diverse resources and develop and institutionalize – across the entire island – the processes and tools for managing them. To help achieve this goal, a *Participatory Action Research* (PAR) approach was adopted.

2. PARTICIPATORY ACTION RESEARCH FRAMEWORK

PAR derives from the identified need to involve a range of stakeholders in the research process as well as to employ a more dynamic research approach that incorporates mixed methods through an iterative scheme of delivery and evaluation (Stringer, 2007). The participatory action research model is predicated on a cyclical process with four phases (Figure 2): 1) planning, 2) action, 3) observation, and 4) reflection (Genat, 2009). PI: N's adoption of PAR draws upon the theoretical and practical applications of the model. In looking toward precedence studies where PAR has been successful, PI: N has been better able to apply the four phases in a move that has greatly influenced the evolution of the program's research strategy and has helped create a framework for managing the island's heritage resources (Friedman and Rogers, 2009; Kidd and Kral, 2005).
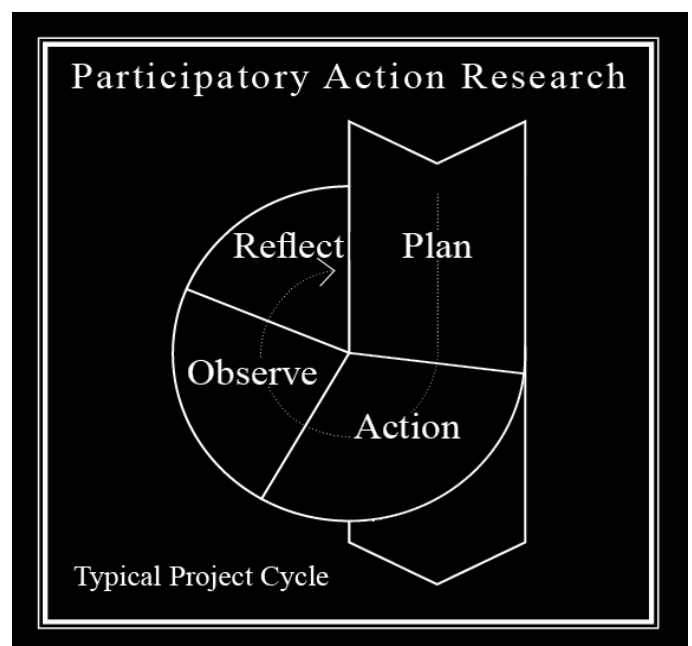
Figure 2. Participatory Action Research Project Cycle by Jocelyn Widmer.

Participatory action research has become an increasingly recognized form of research that necessitates a dynamic relationship between the researchers and the research context in which the research is embedded. An important distinction to make, then, is that PAR looks to *effect* change in society rather than to *measure* change. The overarching goal of PAR becomes to improve that context by engaging the issues and stakeholders that give meaning to the context. PAR builds on the critical pedagogy put forward by Brazilian educator Paulo Freire over fifty years ago. Freire and his early twentieth-century predecessors considered participatory action research an isolated learning conduit for the researcher. Today, participatory action research is intended to address specific issues identified by the

participants themselves (Sillitoe *et al.*, 2002). The adoption of the PAR model has been organic insofar as PI: N has always sought the input of the community intrinsic to the heritage resources of Nantucket.

The precedence of PAR's application on Nantucket is two-fold. From a theoretical perspective, the four phases of PAR are critical to experiential learning. From its onset, PI: N's pedagogical mission has been to provide an educational opportunity for students to practically apply the most current conservation techniques and technologies. Using the PAR model aligns with PI: N's efforts to set the pace and the direction for future conservation techniques and technologies. In addition to the pedagogical precedence, the PAR model also enhances what PI: N faculty and students have been benefiting from for years – the very engagement and dialogue with the dynamic community on Nantucket and its changing stakeholders. Without this relationship, PI: N would not have sustained the longevity of the program as it considers the potentials to grow under the newly-applied PAR model.

While there is clearly precedent within PI: N's pedagogy and outreach over the life of the program, the more formal adoption and application of the PAR model began at the fourth phase of the model (reflection stage) by considering the opportunities and challenges associated with nominating the Cultural Landscape of Nantucket to the World Heritage List. Moving then toward the planning phase, and in consultation with various stakeholders, the decision was made to explore the island's heritage from a range of scales rather than the traditional monument scale. Doing so necessitated breaking down PI: N's structure into three distinct research tracks that began to consider the varying scales of Nantucket's heritage resources. While these heritage resources exist on a continuum, PI: N has identified cultural landscapes, architecture and interiors, and materials and technologies to be the three scales of more refined exploration. A hallmark of the PI: N track structure is to distinguish the characteristics of resources at these distinct scales. However, the track structure recognizes the concentric nature of these three scales. Thus, the cultural landscape scale serves as the foundation, and gives further meaning in support of the built heritage on Nantucket.

Panning out to the cultural landscape scale, this track aims to identifying the island's systemic relationships that have evolved between the built and natural resources. Investigating how and why the built and natural heritage layers onto the physical landscape reveals different land and resource uses over time that have evolved with the character of islanders and their needs at the architecture and interiors and the building and materials scales. At the architecture and interiors scale then, we are now exploring the social sphere by identifying and better understanding stakeholder values, changing uses, and user needs. Traditionally, the documentation and research undertaken by PI: N faculty and student participants has focused at this scale, yet by engaging the social elements that accentuate the meaning of this scale of resources, we can begin to embrace a more holistic approach to the island's heritage. Finally, at the materials and technologies scale, we are helping to address acute needs on the island as the loss of authentic historic materials and the skills necessary to apply these materials poses a challenge to future management of historic structures on the island. This track has arguably become the most visible of our efforts to investigate the island's heritage, insofar as the stakeholders that repair and maintain Nantucket's buildings have enthusiastically collaborated with PI: N faculty and students through public demonstrations and sectional repairs of the highly visible buildings on the island. These buildings, along with the selection of sites for the other two research tracks, become critical as it is the application of the track pedagogy at specific sites around that island that substantiate the rational for a participatory action research approach to heritage conservation on Nantucket.

With PI: N providing the research expertise to thoroughly explore the breadth of the island's resources, site selection becomes a process that balances the needs of the island's private organizations with PI: N's focus at the three distinct resource scales. Selection of sites is based on three criteria: 1) representing the range of resources on the island; 2) embodying the myriad of issues impacting stewardship and management at different scales and types of resources; and 3) broadening the scope of stakeholders involved by identifying new ones and engaging them in the process. The logistics of accessing and researching the site are also taken into consideration. This criteria allows PI: N to collaborate with the island's key decision makers so that PI: N's research augments the on-going efforts by Nantucket's heritage resource managers, while at the same time establishes the metrics for consistently selecting sites across the range of resource scales.

In addition to establishing the research framework for investigating resources of different scales, the PAR model facilitates the introduction of a social

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dimension to what has traditionally been limited to physical assessments. Considering the social characteristics of a site and its resources requires a balance between the involvement of outside expertise and local stakeholders (Aas *et al.*, 2005). The social dimension also served to unite the site selection and three distinct research tracks to identify island-wide what some of the social issues are with heritage conservation at a range of scales. Inherent to each track objective is the social and cultural factors that not only give meaning to the resources at different scales, but also reveal the relationships that exist among these different scales to better manage and sustain these resources as the cultural heritage of Nantucket. By definition the PAR model excites a participatory or social component. Yet at the same time, the challenges and potential conflict that arise as a result of this community engagement stands to push the scope of PI: N's reach and developing role as both a stakeholder and a facilitator in the island's cultural heritage management.

At a macro level, PI: N has implemented one cycle of the PAR model, beginning with this initial reflection stage, and aligning the identified opportunities and challenges through planning for and implementing research at the three distinct research tracks. Thus, the action stage has been further explored at a micro or track level, where PAR also serves as the research model to add value to how dynamic the track research is at the three distinct scales, as well as how dynamic the research model is itself. Finally, the outcomes of the three distinct tracks, as identified through the observation phase, contribute to the macro-level planning phase for future iterations of the model. PAR established the research framework for integrating resources of different scales, incorporating a social dimension to what has traditionally been a physical assessment, adapting the direction of the heritage pedagogy, and balancing the involvement of outside expertise with local stakeholders. While the outcomes and considerations associated with each of these four components are immense, what PAR ultimately does is set in motion a cyclical rhythm to the research process that can be built upon and improved as outcomes are assessed.

OUTCOMES AND CONSIDERATIONS

As we come to the second round of reflections after one iteration of implementing the PAR-based framework for heritage management through the three-track research approach, it is appropriate to critique

the process, assess the outcomes, and identify and explore the principle attributes of the new model. This is particularly relevant if the framework developed for PI: N and Nantucket is to be considered for replication, either partially or fully, in another context. Eight *components* are considered critical to the PI: N model and its potential replication: common goal, catalyst, facilitator role, social dimension, different scales of heritage resources, stakeholder identification and engagement, iterative process, and expert participation (Table 1).

PRESERVATION INSTITUTE: NANTUCKET PARTICIPATORY ACTION RESEARCH FRAMEWORK
Eight Components for Consideration
Common Goal
Catalyst
Facilitator Role
Social Dimension
Different Scales of Resources
Stakeholder Identification and Engagement
Iterative Process
Expert Participation

Table 1. Components of PI: N model by Morris Hylton III.

Regardless of focus (natural resources, built environment, intangible aspects of society and culture, etc.) and target audience (year-round citizens, summer residents, visitors, university students, etc.), education is central to the missions of the public agencies and, especially, non-governmental organizations focused on conserving Nantucket's heritage, including the University of Florida's PI: N program. United through a *common goal* of education, a loose coalition of these various groups formed to explore, as previously noted, the potential of nominating the Cultural Landscape of Nantucket to the World Heritage List. The coalition views the research and planning needed to prepare a World Heritage nomination – particularly the requirement to demonstrate how the island's resources will be stewarded long-term – as a *catalyst* for encouraging a holistic approach to management that integrates individual, often overlapping interests and efforts.

Due in part to the history of the PI: N program and the well-established institutional relationships and collaborations with other heritage groups (such as

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the Nantucket Conservation Foundation, whose mission is to conserve, maintain, and manage the island's natural resources) a common, unifying goal was easily identified and agreed upon. However, choosing a catalyst proved more difficult. The catalyst needed to be an initiative with the potential to involve and mutually benefit all stakeholders. The World Heritage proposal for the Cultural Landscape of Nantucket has galvanized the key stakeholders by affording them the opportunity to use their distinct expertise in researching and planning for the nomination. However, beyond the core group of heritage groups, many stakeholders seem less knowledgeable of the World Heritage program. Communicating the benefits and possible negative impacts of World Heritage listing to the public is essential as the initiative moves forward.

Based partly on the neutral, apolitical position of an institution of higher learning, PI: N became the *facilitator* of the research and planning for the World Heritage nomination and the consolidation of efforts to develop a management framework for the island's heritage resources. The three-track structure (cultural landscape, architecture and interiors, and materials and technologies) was created as the principle vehicle for achieving these goals. The track approach allows PI: N to engage and collaborate with a variety of agencies and organizations dedicated to conserving the island's diverse heritage. Multi-year projects at different heritage sites (nature conservation areas with cultural aspects, house museums, historic buildings used by public agencies and non-governmental organizations, etc.) provide the opportunity to explore and study the multitude of challenges and opportunities for conserving Nantucket's *different scales of heritage resources*. The greatest challenges to the track approach have proven the limited time frame imposed by seasonal research and the communication of information between tracks and stakeholders.

In addition to addressing the scales of resources, the track projects also assist with *stakeholder identification and engagement*. This interaction with a greater range of stakeholders has helped heritage researchers and managers expand the *social dimension* of the heritage documentation and research, inherent to the PAR model. However, this approach presents a series of challenges. Among these challenges is communicating the intent of the process-oriented approach to heritage conservation on Nantucket. The heritage management on Nantucket that PI: N has been fundamental to has traditionally focused on the island's prominent built resources. We are posed with the challenge of communicating PI: N's evolving approach to heritage management that is now based on a participatory approach. The program's greatest ambassadors to the community on Nantucket are the students. However, the skill set that students come to the program with is more traditional in nature. Communicating how the social methods must be combined with traditional documentation methods to work toward cultural heritage management poses a pedagogical challenge to PI: N faculty and visiting experts that now include social scientists as well.

It follows that a third challenge of the PAR model is the two (sometimes conflicting) roles that must be embraced by PI: N (as a University of Florida program): both a facilitator of the heritage management process as well as a stakeholder in the heritage resources on the island. These seemingly divergent roles stand to challenge the rigor of the research (as the researcher is embedded in the research context) and question the neutrality of PI: N in the face of future heritage management decisions.

The *iterative process* established by a PAR-based approach has helped elevate process over product by establishing a cyclical rhythm where research is advanced and refined from year to year. For example, the conditions of a specific site are monitored annually and, depending on the outcomes, the monitoring approach can be adjusted to accommodate new observances. Students are asked to work closely with key stakeholders to develop a process for communicating this information. As necessary, research is also expanded to include new layers of information that enrich understanding of Nantucket and the forces impacting its heritage and the potential World Heritage nomination. The outcomes of seasonal research are evaluated as part of the reflection phase of the iterative PAR process. How these outcomes are then used to help inform and expand the research at the same or a similar site the following the year is critical. The goal is continuity, which has been achieved to date largely through extensive debriefings and planning sessions with collaborators where the outcomes of the projects are reviewed and potential next steps are outlined for further consideration and development during the intervening months.

Expert participation is the last significant component of the PI: N model. Based on the needs identified by PI: N in consultation with local partners, specialists in various aspects of international cultural heritage (cultural landscapes, archaeology, intangible

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heritage, tourism, materials conservation, economic development, etc.) are selected to participate as guest instructors or lecturers. These specialists work directly with students on track projects (cultural landscape, architecture and interiors, and materials and technologies) and consult with key stakeholders, helping enhance collective understanding of the island's resources and the changing forces impacting its management and conservation. These specialists also help connect the Nantucket stakeholders and their work with a larger network of expertise. One obstacle has proven the integration of experts into the inclusive, PAR approach without diminishing the role or contribution of local stakeholders.

CONCLUSION

With future efforts to adapt and apply this new Participatory Action Research approach, the scale of identified cultural heritage resources must be comprehensive and representative of the resources that actually contribute to the heritage of a place. The stakeholders and stewards of these cultural heritage resources should collectively commit to harnessing the opportunities and embracing the challenges associated with a comprehensive approach to cultural heritage management *and* this collective commitment should be directed toward realizing these opportunities and facing these challenges. A common goal and catalyst, such as education and the proposed nomination of the Cultural Landscape of Nantucket to the World Heritage List, can help achieve this collective commitment. Finally, this process necessitates the role of a facilitator. PI: N has embraced this role, while recognizing that as a stakeholder itself, PI: N does not always act with neutrality. PI: N's commitment to exploring new directions of cultural heritage management have set the model in motion. The adoption of the PAR approach will enable PI: N to facilitate a rigorous research agenda that more closely approximates the scale and scope (both tangible and intangible) of the resources that give life to the deep-seeded cultural heritage on the island of Nantucket today. The outcomes and generalizations of the new PAR framework developed by PI: N and its partners will hopefully offer lessons that can help inform the management of other cultural landscapes and urban-scale heritage sites.

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Brasilia: preservation, ambiguity and power

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Abstract

One of the main issues concerning the preservation of Brasilia as a World Cultural Heritage site is the absence or, to say the least, the ambiguity of the parameters that preside over the city's monitoring policies. The results are arbitrary and unpredictable decisions related to each and every urban episode. There is a paradox in which: 1) measures that imply damaging the cityscape are approved because they are not perceived as such by the preservation agencies; 2) measures that would benefit the city's configuration and its appropriation by the people are prohibited because they are seen as damaging the site. Thus, more measures are approved and more are prohibited than should be, simultaneously. Moreover, in both cases (permissions and restriction) an elitist ideology is revealed; one that benefits the city's appropriation by the upper-income layers. Measures grant more space for the individual car even in the most central areas (e.g. North Commercial Sector); while there is an aggressive repression of informal commerce in public spaces and more popular land uses in buildings, in important avenues. Such is the case with informal traders in the Road Platform; the TV Tower weekly fair; and the appearance of cheap hostels on the W-3 South Avenue. Brasilia's preservation policies do not take into account recent trends in similar policies around the globe, which give pride of place and cultural importance as a central aim concerning heritage preservation. Policies ignore the strengthening of urbanity as a crucial objective related to city's form by means of the valorization of public space; the opinion of the more popular social actors involved is disregarded and they do not succeed in countering official outlooks towards the city and in managing the implementation of alternative solutions which would benefit not only themselves but the city at large.

Keywords: Brasilia, World Cultural site, preservation policies, planning power, political ideology, political power

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Introduction

One must distinguish between discourse and actual fact in any aspect of reality. This includes urban configuration. Perhaps in Brasilia contradictions between discourse and fact are most acute. Since the city's inception, proposals pointed to one direction and the actual city's construction to another. There are many aspects in which we can analyze the configuration of a city. In this paper a choice is made, one which privileges relations between the city's spatial organization and the deployment of social classes in the ground, both concerning places of living and the daily use of the public realm. Relations between social classes x and their deployment in space present particularities according to place, but the same basic rule is noticeable everywhere: a constant struggle for widening the social spectrum in each area and the contrary movements that dominant ideology and power try to impose on them.

A particularity of Brasilia plays a central role here: it is a World Cultural Heritage site. Not surprisingly, the needs for preserving it as such provide a backcloth for the arguments concerning its spatial order, legitimately or otherwise. The site considered as cultural heritage contains the nucleus of the original project proposed by Lucio Costa in 1957, but even some of its original boroughs stay outside the site's limits, e.g. the individual family houses by the lake shore. Moreover, although constituting the largest protected urban site in the UNESCO record, it is a small part of the present metropolis: 116 km^2 out of the 5,802 km^2 of the Federal District. Still, it includes the four main types of urban configuration that constitute the metropolitan core. These four spatial types came to be called, perhaps rather inadequately, 'scales' of the city. They are urban configurations that have specific attributes concerning their open space structure and their building types, but they do not coincide exactly with certain parts of the city: some attributes can be found in places of diverse nature. And yet, they provide a useful framework for the text to follow.

Brasilia's four scales (henceforth without italics) are: 1) *monumental*; 2) *gregarious*; 3) *residential* and 4) *bucolic*. The monumental scale concerns the

most emblematic spaces of the city, those in which the buildings related to its primary function – a national capital – are located: the Plaza of the Three Powers, the Esplanade of Ministries, and its elongation towards the west. The gregarious scale concerns the 'centre of civil society', where offices, hospitals, hotels, shopping centres etc. are located. The residential scale concerns Brasilia's main type of residential space: the superblocks. Finally, the bucolic scale concerns the surrounding areas that are more sparsely occupied, in which, for example, the embassies and the University of Brasilia are situated (Figure 1).
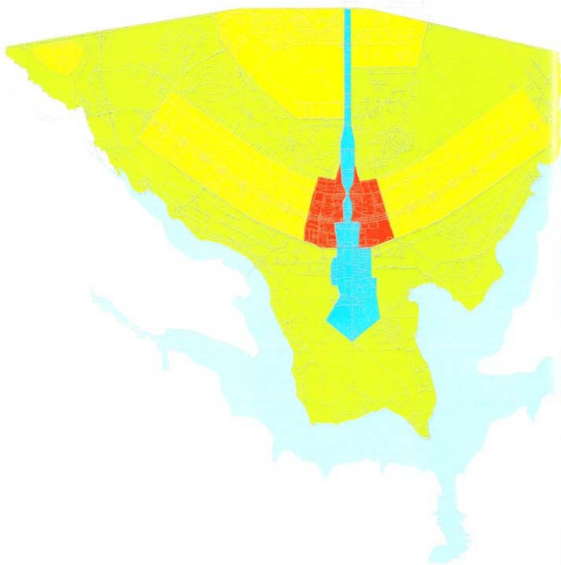
Figure 1. Brasilia's four scales. Monumental (blue); gregarious (red); residential (yellow) and bucolic (green) (Source: adapted from IPHAN, 2007).

Now, we shall not discuss the scales at large: this has been done in various other instances (e.g. Holanda, 2010; Ferreira & Gorovitz, 2009; Leitão, 2009). Rather, the aim will be to characterize politically and ideologically the *tensions* that show in each one of them, tensions that are related, as suggested above, to the way people of various social layers appropriate the city. Tensions are related to competing ways of categorizing and using the city and, in the last instance, to the quality of its organization to fulfil the fundamental city role, namely the opportunity for seeing and interacting with the Other. That is to say, its *urbanity.*

1. On the monumental scale

Some aspects of Lucio Costa's blueprint have never been realized; this is the case for every scale, in varying ways. The Esplanade of Ministries and Plaza of the Three Powers are the main elements of this

scale; they constitute the tract of the most symbolic places in the city. Here we find the headquarters of the republic's power: executive, legislative and judiciary. It is thus a place for civil servants, although it includes the Metropolitan Cathedral and two 'cultural sectors' in its western end. Still, even here, Costa proposed a richer cityscape than the one we find today: his first sketches indicate a low building that connects the individual ministries, among them along the east-west dimension of the Esplanade. The building would provide complementary activities to the state bureaucracy. As it was never done, activities as small restaurants and snack bars, newspapers and magazine stands, places where people fill in forms concerning lottery prizes (very popular in Brasilia) etc. began to appear in very similar locations as the ones indicated by Costa in his sketches.

These activities add to the formality of the place a different and interesting atmosphere (Figure 2). Without them, public space would be deserted, bar the moments in which people arrive at work in the morning or leave it in the afternoon (and also when they leave the buildings – when they do so – to have lunch elsewhere). With them, presence in the public open space is enhanced, particularly with people from lower social strata. A count of people has been made on both sides of the Esplanade on a sunny workday, from 7am to 5pm: in the busiest track of the place 4,602 people have been noticed, quite a figure. Use of public space is three times more intense when kiosks and street vendors are present. Instead of being inspired by this interesting *indiscipline of the ordinary man* (Certeau, 2000), by which common people contribute to the popular use of the place, the government represses the initiative. Time and again stands are removed by the 'forces of order', only to come back a bit later; in March 2010, the local newspapers registered 39 vendors, in six different spots (note that the Esplanade is 1 km long). After their subsequent removal, they returned. In September (same year), our inquiry detected 33 vendors in almost the same six spots). The argument is a recurrent one: it contradicts preservation rules. It is never stated in what terms it might be in accordance with those same rules, or if different solutions would be acceptable. Costa's original proposal, as usual, is not considered.

Brasilia's monumental space is what we have called, in another opportunity, an *exceptional space* par excellence: a place specialized for the superstructural political or ideological instance of society (Holanda, 2002). This is no novelty in history, but it has the same implications as ever: a place in which

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Figure 2. One of the busiest tracts of the Esplanade on a weekday (Source: authors).

only a specialized fraction of society works daily and which, to the common people, functions more *expressively* and to be seen from *outside*, than *instrumentally* and to be lived from *within*. Public policies in Brasilia, consciously or otherwise — it does not matter which — reproduce the strategy. The result is the weakening of the role that monumental spaces in Brasilia play in the minds and in the practical life of people. Despite this, the Esplanade is the first and foremost symbol of the Capital (and it is often referred to as one of the most powerful Brazilian symbols). If the space were incorporated into the life of people by improving its instrumental role, its symbolic importance would improve, not otherwise.

2. ON THE GREGARIOUS SCALE

The crossing of the city's two main axes is the material basis of its gregarious scale. This is where the bus station and a group of mono-functional non-residential sectors are located ('north' and 'south' commercial, hotels, amusement, etc. sectors), surrounding a large 'platform' that connects them — a fascinating building complex designed by Lucio Costa himself (Figure 3). The 'Amusement Sector' is depicted by Lucio Costa as a mix of Piccadilly Circus, Times Square and the Champs Élysèes. With these references of urbanity, it would appear that, by design, the urban core would support a thriving public life. This is not the case. The sectors function as islands, and access routes among them are often difficult, unpleasant and unsafe. They are places that lack shadow and inviting public plazas; open spaces are car dominated and poorly lit.

Nevertheless, hundreds of thousands of people come every day from all over the metropolitan area

to work in the city centre — where 40% of all jobs are situated (or 82% of the formal ones). On a sunny workday, from 7am to 7pm in the most bustling section of the platform, over 60,000 passersby were counted. The emergence of informal trade along the paths came as no surprise.

Informal trade contributes to shorten distances and enhance urban life to the city centre by adding new uses to public spaces and making people linger a little bit more in them. But, again, they are not seen as a contribution to the city, but as a menace; instead of using this social practice as a design input to improve poor public spaces and increase diversity in the gregarious scale, governmental power uses its force to eradicate it.

In May 2008 street vendors were given free stalls in a 'popular shopping' area located in a place where no one passes by. The governor himself declared that the idea was to keep the centre *clean*, from that moment on. We now see the result of this action:

Figure 3. The platform before the street vendors removal in 2007 (Source: authors).

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stalls that remained most of the time closed due to the obvious absence of clients were little by little being illegally sold to entrepreneurs. A local newspaper tells the story of a firm from another Brazilian state buying twenty stalls for USD 150,000 to establish a lingerie store. Meanwhile, vendors are returning to the streets, despite the strong repression they suffer.

In general, there is little concern about the quality of public spaces in the city or whether they have appropriate design to attract and shelter urban life, but in the gregarious scale this attitude is most acute. There are two 'plazas' on the Road Platform which are poorly designed, one of them located between a very successful shopping mall placed at street level and the National Theatre. It is 6,200m² and behavioural mapping has shown that the average occupancy, during a sunny workday, from 10am to 6pm, is no more than fifty people, out of which 67% are men (studies show that a great percentage of women in a public place is a good indicator of its success [Whyte, 1980]). Meanwhile, on the sidewalk along the shopping mall's façade one can easily count more than 1,400 pedestrians hourly, in the same period and kind of day. The fact that this 'plaza' is so unsuccessful does not seem to bother anyone, and changes in its structure are, in what concerns the preservation instances, forbidden.

On the other hand, debates on the lack of parking lots in the gregarious scale are frequent, and the car-oriented urban design prevails, e.g., in the North Commercial Sector. It is filled with isolated buildings with blind façades, lots of barriers, discontinuities, surrounded by parking places. In other words, a 'landscape of objects' instead of a 'landscape of places' (Holanda, 1984) with inexistent public realm – naturally, street vendors cannot be found there. On the other hand, in its older symmetric brother, the South Commercial Sector, spaces are scaled to human dimensions, there are continuous paths for pedestrians, places in which people easily gather, shops on street level, gentle slopes, etc. In other words, it is a 'landscape of places', where public life can happen.

Absurd as all such urban events and developments may be, they boil down to one and the same recurrent phenomenon in Brasilia, particularly in its most central bits: preventing the appropriation of public space by more popular social layers. To 'clean' and 'organize' the centre means to void them of people in informal activities, people who do not have jobs in the formal sectors of the economy, and returning the 'reconquered' spaces to an exclusively expressive function or for the car, in terms of more parking spaces.

3. ON THE RESIDENTIAL SCALE

Perhaps the most blatant contradictions between discourse about the Capital and its plain reality concern the residential scale. Lucio Costa has proposed only two types of residential space: buildings six stories high in the superblocks and single-family houses by the lake shore. He imagined that the houses and a variety of apartment plans would respond to the varied income layers of Brazilian society at that time. This proved far from the truth. Our research has revealed that there is a close relationship between building types and income layers, but that the variation obtaining here is much wider than the one envisaged by Costa; it ranges from individual houses by the lake shore, through flats in six storey high buildings over *pilotis*, to flats in three storey high buildings (some without *pilotis*) and a highly varied configuration of urban blocks, streets, form and size of plots, in which various building processes take place, including self-construction of the home or self management of the building process.

The close relationship between such varied solutions and the deployment of social layers in space is detectable in Brasilia. But one has to pay attention to something more than what is revealed by the average cityscape. On average, it is true that the closer we are to the city centre, the richer people are. However, there are many instances of non-conforming phenomena: for various reasons, here and there we find enclaves that include poor families in otherwise rich parts of the city; e.g. in three stories apartment buildings without *pilotis*, located in the middle of the South Residential Wing of the Pilot Plan – a very affluent place indeed. Among all, the Vila Planalto is the most telling example.

Vila Planalto is only 1,500m away from the Plaza of the Three Powers. It dates from the beginning of the construction of the city. It had its origins in a firm building camp that provided housing for the company employees of all layers – architects, engineers, technicians, manual workers. It was quite varied concerning plots, houses, blocks, streets, alleys, sidewalks etc., according to the respective social categories therein. Today (2010), fifty years after the inauguration of the city, such variation is still clearly printed in its configuration. The average plot size is very small (143m²) and 46% of all plots have less than 100m² of area. Some streets are so narrow that

they almost prevent cars from passing through. And yet the Vila presents an income stratification that is very close to the stratification of the Federal District as a whole − it is almost, as it were, a microcosm of the entire metropolis: there are a few more rich people in the FD (10.4% in the Vila, 11.9% in the FD), medium strata are also larger in the FD (49.8% in the Vila, 57% in the FD), and there are circa 7% more poor families in the Vila than in the FD (39.7% in the Vila, 32.5% in the FD). There has been some gentrification. The picturesque character of the Vila, as well as its privileged location, has attracted middle class intellectuals, some of them teachers at the University of Brasilia. The best houses are suitable to adaptations that correspond to middle class expectations and are situated in streets that allow generous parking space. But such houses are a minority. The larger part of the Vila's architecture and townscape is not fashionable to medium strata, let alone the rich. Thus, gentrification seems to be reaching a limit, imposed by architecture of the place and by the impossibility, enforced by law, of changing some of its fundamental characteristics. More than four decades after the Federal Government moved to the Central Plateau of Brazil, market forces were not powerful enough to expel low-income families from the place. When Brasilia was decreed World Cultural Heritage by UNESCO (1989), the Vila was included in the perimeter of the area thus considered. Henceforth it was no longer possible to make transformations that implied changes in the fundamental traits of plots, houses, blocks, streets and squares. This has further contributed to slowing down of market pressures upon the building stock of the Vila and implied the permanence of the lower income families. Architecture has spoken louder as an independent variable.

And yet, the Vila's example does not inspire new urban experiences currently being carried out in the Federal District. There are still unoccupied areas quite close to the metropolitan centre in the Pilot Plan, within or without the area declared Cultural Heritage. Predominantly residential new boroughs are being incorporated, the most recent of them − the Northwest Borough − for 40,000 people. The place is homogeneous concerning the building types, and it will be socially homogeneous as well. Buildings resemble those of the traditional superblocks but are much more sophisticated. We have seen the film: it will be an exclusive place for the extremely wealthy.

Why should this be so? Why should we not strive for new boroughs as microcosms of the whole

metropolis? Members of our research team have made some speculations. Careful attention has been paid to the parcelling of the land and the restrictions of building in them, in order to guarantee the local variation that will respond to different social classes' buying power. A wide spectrum of architectural types has been considered, the extremes of which being high towers for expensive flats, on the one extreme; plots for single family self-produced houses on another; and a varied collection of other types in between. A reasonable hypothesis, based in the knowledge of the real Brasilia, as it exists today, suggests that it is highly probable that such a borough would be physically as well as socially heterogeneous, realizing the fundamental attributes of urbanity. For example, we have compared the *Setor Noroeste* (a new borough westwards of the Pilot Plan's North Wing) as it is being incorporated now, with the same borough with an expansion doubling the present size (there is available space in the site). The expansion would have different building types according to the argument put forward above. The result is telling ([Figure 4](#)). Notice how the second scenario, based in real, similar boroughs of the city,
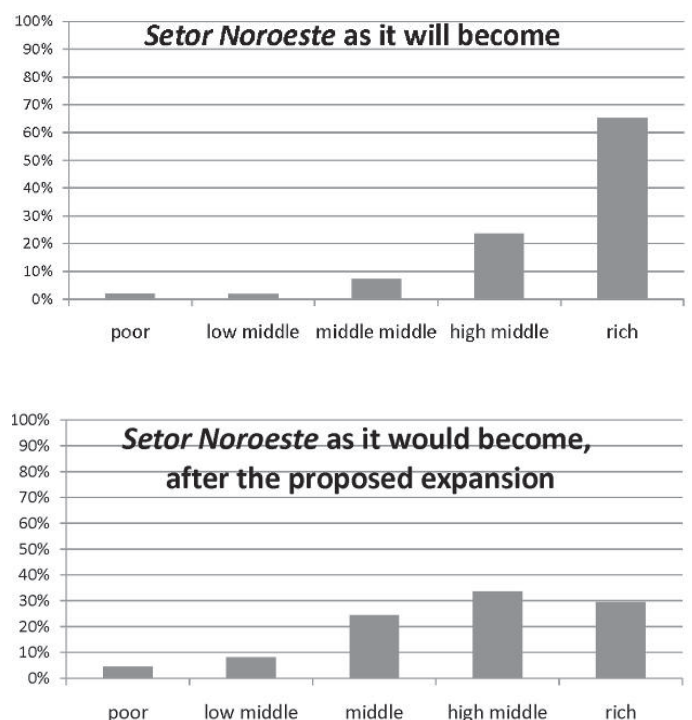
Figure 4. Graphs of income layers of Setor Noroeste as it will become žand as it would become after our proposed expansion. Rich families decrease from 65.2% to 29.4% while all other income layers increase: poor families rise from 2.1% to 4.5%, low middle from 1.9% to 8.2%, middle from 7.2% to 24.4% and high middle from 23.6% to 33.5% (Source: Tenorio and Santos Júnior, 2010).

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is varied in terms of families' income layers: built variety = social variety = urbanity.

The residential scale is not exclusively constituted by the housing stock: the diverse services therein − education, health, public security, religious, post offices, commerce, lodging etc. − are included in the scale. Unfortunately, the same gentrifying logic presides over the monitoring of such spaces, repressing transformations arising from bottom-up strategies of building the city. In one of the most important avenues in the Pilot Plan (South W-3 Avenue) various services have developed aiming at a poorer clientele. Cheaper hotels and lodging houses have appeared, replacing the previous exclusive residential use in the west side of the avenue. The purported reasons for *not* allowing such processes are not morphological but concern land use: they contradict preservation rules. But, again, there is nothing in the legal documents that confirm this. The transformations maintain the essence of the preservation, namely the *scale* of the area. But, it is argued, these are non-conforming uses, and a special place should be defined to house such functions; naturally, far away from sight…

4. ON THE BUCOLIC SCALE

The bucolic scale makes the transition between city and countryside: a predominantly green landscape, with sparsely constructed buildings of low height. Here are located the embassies, the University of Brasilia main campus and some other institutions. In the immediate periphery of the Pilot Plan the scale is, to the east, in the areas between the residential wings and the lake shore and, to the west, in two large urban parks. But the city's 'bucolism' is in

Figure 5. The bucolic scale is constituted by the predominantly green areas seen in the image, immediately below the residential wings of the Pilot Plan, but generous green areas within the superblocks and other places of the plan are also considered elements of such scale, intermingling with the others (Source: authors).

the presence of greenery everywhere, in greater or lesser extent (Figure 5).

Sadly enough, the city turns its back to the lake. The problems concerning the occupation of the lake shore have their origin in the relation between city and lake and in the mode of occupation of the lake's fringes suggested since the blueprint. Lucio Costa proposed that only clubs and tourism hotels should be situated here, but these were allowed to privatize the shore on which they were situated. In the end, 'tourism hotels' became permanent residences in the form of 'flats' (they are 'hotels' as well, are they not..?) and huge convention centres have appeared. Progressively, these flat complexes have transformed themselves in actual gated communities for the very wealthy. This is one more instance by which the central bits of the metropolis − namely the Pilot Plan and its immediate vicinity − are progressively occupied by higher income layers.

On the other hand, there have always been large distances between the residential wings and the lake (despite the fact that the original plan has been dislocated circa 500 meters eastwards, following the competition jury's recommendation). Embassies' plots of land (many of them empty so far), the university campus and other institutions occupy only a small part of it. There are large tracts the occupation of which is ill defined; or they are simply unassociated land. Also, there are still large bits of the lake margins themselves that have never been occupied.

No wonder the pressure concerning this vacant land is increasing fast. Proposals have been made concerning four large sophisticated hotels by the lake shore. The argument is that there will be a corresponding demand because of the Football World Cup to take place in Brasilia. For their headquarters, the embassies have progressively chosen to rent large houses in the South Lake Region (the richest administrative region in the Federal District) instead of building specific edifices in the places destined to them (the latter option is too expensive, they argue). In these plots, the TERRACAP (the land agency of the Federal District) suggests that buildings for services and commerce might be the case.

One way or the other, it is the same old story: gentrification of the most central and privileged parts of the metropolis that have not so far been gentrified. In the case of the remaining tracts of the lake shore, the tradition of maintaining whatever *public* margins of bodies of water in Brasilia should be rescued, instead of building expensive hotels. The tradition was surprisingly broken by Lucio Costa's

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plan, who otherwise had enormous sensibility for keeping other traits of the Brazilian urban tradition alive in his project (Holanda, 2010). Public space for leisure close to the lake is very much admired by people (particularly the lower income layers) who, despite problems of accessibility, come to the few remaining bits in holidays. The tracts should remain public.

As to vacant land, both in cases in which the use is prescribed (embassies) or otherwise, a new opportunity to rebalance the perverse land structure of the metropolis should be explored: today, 10% of the inhabitants live in the Pilot Plan and immediate surroundings while 44% of the total jobs of the metropolis are located here (it is easy to guess the huge amount of commuting generated by this). Vacant land in the bucolic scale may be occupied by low-rise (but high density) housing, in the varied way that Vila Planalto teaches us. No damage to the city's image will result. On the contrary: today, it is the 'imagebility' (Lynch, 1999) of the site that is damaged by physical discontinuities and unoccupied land. As in Vila Planalto, we are not talking about *exclusive* residential use here: diverse services in support of residential function may spring in the interstices of the residential fabric, in so far as they agree to the building types proper of the bucolic scale − which is *not* the case with what is being currently proposed by TERRACAP.

Conclusion

Preserving the many qualities of Brasilia as a World Cultural Heritage site is an indisputable task. Unfortunately, legal instruments, or even a clear doctrine, are missing concerning this goal. No official explicit arguments exist by which the essential attributes of the city are discussed, let alone defended. Legislation is too economical. It fails in describing the character of the city's various scales by not citing explicitly the morphological structure that supports them. This gives ample room for arbitrary interpretations and that is where sheer power comes in. Also, there are many commonplace beliefs and prejudices concerning the fact that the city is the 4th largest Brazilian metropolis; that it therefore needs to adapt itself to this reality, and the refusal to consider it as such. GDF (the local government) and IPHAN (the Heritage and Historical National Institute) often quote Lucio Costa − "Brasilia has no interest in being a large metropolis" − as an explanation for their denial to propose/accept interventions that could, for example, bring low income

families to live closer to the city core (as if Brasilia was only the World Cultural Heritage site, and not all the metropolitan area that holds circa 3.0 million people). A broad program of heritage education and an open debate are needed to establish new parameters to ensure not only the physical preservation of the capital but the social diversity in which its inhabitants' culture is based. Hopefully the Preservation Plan for the area declared as World Cultural Heritage, currently under preparation, will be a good starting point for this.

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Landscape of the urban shoreline of Valparaíso: towards the establishment of indicators for the dynamic preservation of change

Mario Ferrada[1]

Abstract

Valparaíso, UNESCO World Heritage site (2003), is a port city that has shaped its own identity and cultural landscape through a process extending over 500 years. Throughout this historic construction, the coastal border expresses itself genuinely as a landscape of modernity, as a spacial and mental interphase element in the mind of its inhabitants, and as an anchor of economic, cultural, and social exchange of domestic and international impact. The shoreline, as well as that of most post-independence Latin American urban seaports, unfolds itself as a cultural development of unparalleled uniqueness, especially in the course of its 200 years of self-sufficient existence. However, in spite of the undeniable potential for sustainable growth, Valparaíso and its waterfront face the threat of a highly mediated and economic globalization characterized by transnational, speculative processes whereby urban planning and local, regional, and national seaport administrations are unable to operate effectively.

The inadequate preservation of Valparaíso's coastal border, embedded within an active urban setting, calls for a conceptual redefinition of the place itself and the mechanisms promoting its appreciation and protection. This can only be achieved through the design of instruments enabling the management of a complex heritage resource and which is, by definition, dynamic and exposed to the ongoing *in situ/in visu* transformation of society over the time continuum. This paper proposes indicators relevant to the measurement of the state of preservation and the development of the coastal border. These indicators bear direct relation with the current/historic uses of the property, the social engagement of its inhabitants, the surrounding facilities, and the ecological relationships between natural and cultural resources.

Keywords: landscape, urban planning, architecture, heritage conservation

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The landscape of urban shorelines: a post-modern approach

In our contemporary urban/architectural culture, the arrival of new approaches aims to offer a comprehensive explanation for such phenomena as urban planning and development as well as the complex dimensions taken on by architecture within this field, especially with regards to the identification and appreciation of a cultural and social identity. In this respect, the landscape unveils itself as a concept and a technique, allowing an integrative understanding of the processes that man has developed systematically within his physical and natural environment and the value conferred to the construction of a place (*genius loci*).

The aforementioned observation becomes meaningful when corroborating the fact that the configuration of the coast in port cities leads to the emergence of centres for cultural and commercial exchange, which, acting as catalysts for an urban and architectural morphology, synthesize through an 'artificialized' second nature the shaping of the coastal, maritime, and environmental surroundings. In fact, such landscape can be conceived of as a series of successive collective transformations and as the cultural projections that the social groups exert over a given geographical space (Nogué, 2009). These materialize both in the form of physical and tectonic realizations as well as images and conceptual representations that gradually transpire in the art and in the immaterial realities of the mind.

However, in view of the complex nature of urban coastal landscapes, we are forced to regard this setting as a place intended created and designed and characterized by the constant interplay of environmental, social, and cultural factors over the time continuum. The landscape thus behaves as a system consisting of at least three levels (Rodríguez, 1998): a geosystem, pertaining to the environment and the ecology of natural resources; a social system, related to the production systems and the mechanisms of power within society; and a cultural system closely linked to the collective identity and its domains of representativeness.

Consecutively, the relation of man as a social individual with his environment and the elements of nature turns him into an entity aware of the need for transformation, being capable of generating models of nature-society relations and practical, physical realities of aesthetic application. In addition, an ethical function stems from man's confrontation with reconciliation mechanisms operating on a modified, and often times, mistreated nature (Zimmer, 2008).

From a historical-environmental standpoint, the landscape of Valparaíso city projects itself not as a static heritage asset but as a sufficiently adaptable and dynamic process to face the diversity of contemporary cultural schemata, a confrontation that translates into persistent interpretations and reformulations of foreign architectural models blended with local expressions largely shaped by geographic, climatic, material, and socioeconomic factors.

Equally worth mentioning is the function that the landscape grants to architecture, forcing it to act within a domain of active interdisciplinarity and creativity on the basis on the territory configuration and cultural reality. The landscape function of architecture finds justification in the search for new environmental equilibrium with a conscious effort for memory recreation (Montaner, 2008), a fact manifested in the refurbishment of pre-existing architecture (industrial and naval facilities, fluvial axes, piers, harbour systems) and the design of new infrastructure in tune with the predetermined patterns of the landscape.

As Roger (2007) points out, the landscape configuration is primarily an aesthetic, artistic and ethical action reflected in two interdependent operations which he refers to as 'artealization' One is direct and physical, acting directly on the setting the individual adapts; in other words, an *in situ* operation. The second one is indirect, occurring through the transformative and interpretative action of one's mind, i.e. *in visu*, and whose profound subjectivity makes it susceptible to ingoing cultural patterns and enriching periodic feedback of the *in situ* constructions. The landscapes of urban shorelines are prolifically documented with pictorial images capturing the setting, the maritime life, and the daily working routine on the shore; loading/unloading operations, shipping traffic, etc. ([Figure 1]).

The port's landscape, manifested in the land-water-inhabitant relation, becomes a market of consumerist and disposable images disseminated by the media, tourists and commercial discourse. In most cases, the information is distant from the original

Figure 1. The shipwreck of Arethusa, by Charles Wood Taylor (oil on canvas), 1826. Landscape representation of the western coastal border in Valparaíso and the inclement natural forces.

source: the place itself. One way to prevent this post-modern distortion is through "the re-assembly of the landscape in its aesthetic dimension and underlying values, an ambivalent mirror of our relationship with space, nature and the world" (Minca, 2009). Therefore, for an adequate understanding of Valparaíso's urban shoreline, it is necessary to analyze the way in which society has historically taken possession of the pre-existing natural resources and the patterns resulting from this dynamics.

In terms of heritage conservation, the concept of cultural landscape, adopted by the UNESCO World Heritage Convention in 1992, is defined as distinct geographical areas or properties "represent[ing] the combined work of nature and of man and are illustrative of the evolution of human society and settlement over time, under the influence of the physical constraints and/or opportunities presented by their natural environment and of successive social, economic and cultural forces, both external and internal" (UNESCO, 1992). However, the implementation of this concept at the level of specific conservation measures is far from having yielded a consistent theoretical frame and successful experience.

1. CURRENT AND HISTORIC SITUATION OF VALPARAÍSO URBAN SHORELINE

A brief historical account of the coastal landscape evolution reveals the long-standing vocation of a city strongly bounded to its water resources, a fact reflected in the following relevant stages:

Valparaíso was discovered in 1536. From then on, until the end of the 17th century, it served as a pier and small harbour opened to national trade, mostly at the expense of Santiago, the capital city, and as an international export centre for ships crossing between Spain and Port of Callao, Perú. As a result of the need for open-space areas to locate the population and the first warehouses, the city began to grow longitudinally (east-west) and towards the foothills (see Figure 2). The first traces of an early road system began to emerge. In this period, due to the tension triggered by the gradual population of hills and seaside areas, the most advantage is taken of the rocky foothills.

By the 17th century, and until 1832, war gun batteries were constructed over the hill plains (San José, San Antonio, de la Concepción) near the narrow downtown area to repel the attacks of pirates and corsairs seeking maritime and commercial dominance, especially those of England and Holland. Because of this, in September 1682, Valparaíso was declared a Military Port. This period in history is characterized by the pioneer settlements on the hills at 50 meters of altitude above sea level. The defensive configuration of the city made possible, for the first time, panoramic and visual control of the landscape.

In spite of these achievements, the actual beginning of the systematic process of creation and construction of Valparaíso's urban shoreline dates back to 1818 with the Chilean Declaration of Independence, a time when Valparaíso was finally opened to international trade. Soon the harbour transformed itself into the economic, cultural, and technological

pivot of Europe and the United States. The blossoming of the road system materialized in the artificial land filling in the coastal area, the first engineering operations and construction of wooded wharves.

In 1832 Peñón del Cabo [Cape Rock] was blown up and Esmeralda Street came into existence. Thus the oldest part of the city and El Almendral, on the north-east side, became connected as one area. Similarly, at the end of 1851, the tip of Artillería Hill (former settlement of Fort San Antonio) was blasted. These operations, together with the artificial land filling of the coastal border during the 19th century, highlight the most important engineering advances achieved thus far and which account for the development of port and commercial facilities. Throughout this process, artificial streets marked the boundary between the downtown area and the coastal border. In 1843 Cochrane Street was opened and in 1870, Blanco Street, giving birth to the first set of rectangular blocks located in the foothills. The most distinctive feature of this land filling process was the gradual displacement of the shoreline on the north-south side.

No doubt, the industrialization processes and transport developments during the second half of the 19th century are the hallmark of Valparaíso as the country's most important seaport, undergoing substantial improvement until the 1930s (see Figure 3 and Figure 4, next page). In 1852 the railway connecting Valparaíso and Santiago began to be built. These unprecedented advances radically transformed the urban configuration of space and form. The railroad layout significantly shaped the north-east side of the city, especially through the construction of Barón's railway wagon manufacturing factory and its workers' dwellings.

The system of industrial capitalism brings about the modernization of the transportation system, the growth of port facilities, the need for more factory facilities, the search for more land (in view of population growth), and the creation of pedestrian and commercial areas especially suited for the emerging bourgeois banking system.

By 1886, in an attempt to improve port facilities, the government began a land filling process that, together with the new infrastructure, determined the look and feel of the harbour waterfront. In 1909, the Port Commission Law (*Comisión de Obras PortuariasŁ* was enacted. Subsequently, intensive improvement operations on the urban coastal border came to a halt in 1928-1930. Significantly important is the role of the government in the consolidation of the port

Figure 2. Scenic view of ̇h YUNESCO ̇site ̇h ̇Uhhighlights the dock-facilities ̇in the urban border located in the Western ̇side of the city. Photograph, 2010 ̈ ̈(Collection of the Centre for Contemporary Urban Development Studies. DUOC Valparaíso).

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Figure 3. Map of Valparaiso, 1871. During this period major engineering constructions were built, such as backfilling works for containment of original beach (National Library of Chile).
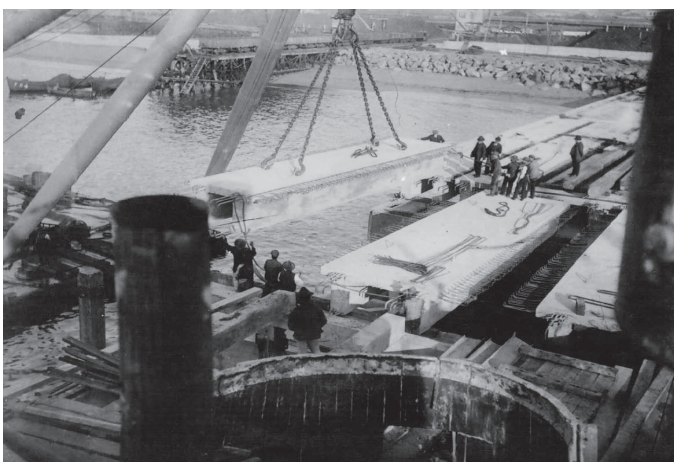

Figure 5. Coastal border and customs' warehouses, Las Habas in the west of the city. Clearing and levelling work was conducted on Artilleria hill to generate surface area for customs and dock-related activities.

Figure 4. Construction of the pier nearby Baron hill in the eastern side of the city. Photograph, 1929 (from author's own archives).

Figure 6. Precluded at the end of the 19th century by numerous studies and projects, the construction of the breakwater was finally completed in 1929.

development (see Figure 5) as well as the pioneering work of foreign and Chilean professionals in the field of hydraulics engineering (Ferrada, 2009). The working port is now a strategic tool for national and international growth that benefits, directly and indirectly, other coastal towns within the country.

In a context of global industrialization, the vision of engineering has a lasting impact on Latin America. Valparaíso does not escape this influence. The current port facility gives birth to a new modern city whose image begins to consolidate in 1928-30 (Figure 6). The concepts of rationality, transport efficiency, city connectivity and loading/unloading systems begin to figure gradually, but prominently, in the government's discourse. Emphasis is placed on the sanitary developments of the 19th century (drainage, street levelling, water service, etc.).

2. CURRENT SITUATION: ISOLATION OF THE LANDSCAPE SPIRIT FROM THE URBAN SHORELINE

An equally important matter is the gradual isolation of the shoreline from the rest of the urban territory during the 19th century, a fact that finds explanation in the dramatic changes in transport and technology brought about by the Industrial Revolution. Between 1830 and 1930, despite the consolidation of the port facilities, a number of irregularities evidence the isolation of the coastal border from the surrounding city areas. This isolation is intensified by the 20th century with the implementation of newer technologies in industry and transport.

Currently, such an alienating trend has been paradoxically characterized by a government policy to detach the working port from commerce, tourism, or culture-related activities. Another factor threatening the harbour's identity is the series of

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inadequate interventions occurring with the introduction of the conservation paradigm in the 1990s and its subsequent consolidation in 2003 with the UNESCO World Heritage site declaration.

As a result of a worldwide trend, the city's coastal area has become the subject of intensive planning pertaining to the development, maintenance and expansion of port facilities with standardization projects intended to diminish the historic role of this commercially important seaport. In South America no more than twenty harbours satisfy the market needs of the entire continent (doubling its surface area). Out of these harbours, three are Chilean: Valparaíso, San Antonio and Antofagasta. The first two are strategically located in the central region of Valparaíso, which acts as a corridor linking the Pacific Ocean to Asia (Mastrantonio, 2009).

Since the introduction of the Preservation Coastal Border Plan [*Plan de Recuperación del Borde Costero de Valparaíso*] in 1990, a government initiative negotiated by seaport administrations, a new freeway pass leading directly to the port has been built in order to avoid congestion in downtown streets. A similar innovation in the Barón area will result in a mega-development project consisting of malls, cultural centres, offices and apartment buildings. The fact the city's harbour requires, paradoxically, more space for its daily operations has sparked proposals for the construction of two new working sites and the failed attempt to demolish four state-run warehouses, some of the few remains of development works of the 19th century.

The evident mismatch between the appreciation of the urban coastal landscape and the heritage preservation tools can only be explained in light of the poor understanding of ecological and environmental matters in relation to the sustainable growth of the urban territory (adequate use of finite resources), a fundamental approach to the critical, interpretative view of the landscape and the resources of the territory (Ferrada, 2009).

None of the regulations contained in the National Coastal Border Policy (approved in 1994) introduce key concepts pertaining to landscape and component features, as understood from a material and immaterial connotation. There is only mention of the proper care of the natural resources from an ecological and environmental standpoint, but not from a cultural one.

As Andrade (2008) points out, the coastal border, as conceived of by the Chilean legislative system,

corresponds to a limited space subjected to a set of special regulations. Although such view satisfies the regulations on use of local resources, it does far from offering a systematic, comprehensive analysis of the coastal territory.

With regards to Valparaíso's heritage status, the protection of the shoreline and its cultural resources (urban, industrial, and architectural) applies only to certain areas in accordance with Law nº 17.288/70 (Barón railway manufacturing factory and areas extending beyond the UNESCO World Heritage site). Under the same law, some properties have been declared Historic Monuments; others have been declared Heritage Property by The City Regulations Plan [*Plan Regulador Comunal*].

3. TOWARDS THE ESTABLISHMENT OF GUIDELINES FOR PRESERVATION AND DEVELOPMENT

The current state of urban coastal landscape calls for the elaboration of classical policies of landscape appreciation and which should include a number of variables accounting for the ongoing processes of adaptability and change, particularly in relation to the intense physical and mental anthropization of the natural resources throughout history.

In other words, rather than just preserving the actual expressions of the process (facilities, architectures, city layout), we must pay attention to their underlying dynamics. Without a doubt, the appreciation of heritage and identity must be rooted in historical, urban, social, cultural, and economic factors that guarantee the vitality of relations of the internal system and an integrative unit of its components. The sustainability of these actions engages the natural insertion of the individual who inhabits, interprets, modifies, and perceives the urban coastal border. According to the historically documented process, the internal dynamics are shaped by the mobility of the commercial, industrial, and port activities taking place on the coastal border and by the functioning of the city as a territorial unit.

Adequate appreciation, conservation, management, and planning of this type of landscape, as well as the establishment of guidelines for its monitoring over time, must be based on a frame of technical operations supported by a system of four interrelated components: an environmental system, a cultural system, a social system, and an economic system. These will ensure sustainability in the active

dynamics that reproduces itself historically from its society.

Given the aforementioned reformulation of the heritage appreciation, it is fundamental to establish relevant guidelines for the state of preservation and development of the urban coastal assets and which should be designed interdisciplinary with the maximum level of participation and consensus on the part of the community under discussion (inhabitants, government, seaport organizations, commercial entities, etc.). These indicators must be manipulated interactively so as to derive a holistic vision of the actual state of conservation and development of the landscape dynamics to be protected.

4. Indicators for the preservation and development of the landscape in the coastal urban border

a) Level of impact of uses and activities: the aim at this level is to assess the degree of the impact upon the dynamics of the landscape system, taking as a basis the examination of the correspondence between historic and current activities in relation to the changes to be incorporated. In this respect, it would not be adequate to alter industrial, dock-related uses, as they are highly demanded for economic activities in the city, the region, and the country. The descriptors of this indicator derive from types and quantities of employment, consistency between planning instruments at local and regional levels, type and quantity of deployment of natural resources (biotic and abiotic) as well as the cultural expressions (urban manifestations, layouts, architecture).

b) Level of functionality, accessibility and interpretation: this level stresses the assessment of the correspondence and complementation between the border functions and those generated in the city and the region in order to maintain adequate transportation, pedestrian and visual accessibility from and to the border, either from the city or from the waterfront. Amongst the main descriptors we can mention transportation systems, the measurement of visual cones, identification of salient images as perceived by inhabitants from and to the urban border,

degree of pedestrian use of the different access points and their main areas.

c) Level of social involvement in processes of use, perception and appreciation of the coastal border: one aim is to determine the extent to which the inhabitants are able to create a landscape through their actions and their involvement with the activities it fosters, and also their capacity to critically interact in decision making related to changes and improvements (e.g. plans, programs, projects). It is in this level where 'artealization' plays a major role as a tool promoting a continual construction and identification with the landscape. As a descriptor we propose the evaluation of the kind and number of people benefited directly or indirectly economically, socially, and culturally with the activities generates in the urban border. We also deem it relevant to consider specific instruments of participation (polls, surveys, monitoring, political-administrative tools). It is likewise important to measure the extent and number of areas dedicated to public activities in contrast to those that are private or have been leased.

d) Level of impact and quality of physical interventions in the border and its surroundings: this indicator focuses on the spatial, formal, volumetric, perceptive, and visual treatment of the urban border, taking into account urban, architectural, and aesthetic patterns which characterize the landscape to be preserved. On the one hand, this level considers assessment of scope and quality of interventions seeking preservation and rehabilitation of existing supports (relevant architectures, dock, industrial and shipping equipment). On the other, assessment also considers advantages or disadvantages of new works and/or urbanizing initiatives as to their impact upon the configuration of the landscape (as seen in water and urban fronts). Descriptors are based on proper respect for heritage preservations norms (maximum heights, volumes, rhythms, etc.), preservation of valuable typological qualities and of the spatial

fluidity between architecture and public areas.

e) Level of 'artealization' of coastal urban border: this level aims at the assessment of the bi-/uni- vocal degree of activity between concrete and intangible factors that, as a whole, shape the heritage dimension of the border. The main objective is to identify, document, and make known the outcomes that the border generates in cultural and artistic fields (visual arts, music, literature, performances in public areas, etc.) under the assumption that these expressions, in turn, enrich an understanding of the heritage dimension of the border. In this perspective, it is important to broaden the conceptual tools under which the appreciation of the landscape takes place in order to incorporate aural, tactile, and olfactory elements. Amongst effective descriptors to attain these purposes we can mention: social and cultural activities generated in or by the border, funding and policies, both private and public, degree of involvement of members of the community in border-related activities (spontaneous or planned) and the levels of enrichment of toponymy.

f) Ecological level of use and reemployment of natural and cultural resources: This level seeks to assess the balance regarding the use of the existing capacity from natural and environmental resources (water, air, biotic and abiotic factors) and cultural resources in order to potentiate an adequate anthropization sustainable for the dynamic, unitary, and comprehensive quality of the urban border landscape. Descriptors attain to assess levels of pollution affecting the sea, land, and air. Regarding cultural resources, the descriptors seek to assess the degree of disintegration of architectures and relevant equipment, their rehabilitation for social and economic purposes, and the growth of cultural expressions derived from border activities as well as the respect for environmental norms, including those that regulate the preservation of the architectural and urban heritage.

5. THE LANDSCAPE OF THE COASTAL URBAN BORDER OF VALPARAÍSO: TOWARDS A DEFINITION OF ITS HERITAGE VALUE AND PROJECTIONS

In the context of the UNESCO Nomination granted to the city of Valparaíso in July of 2003, which declared its Historic Quarter as World Cultural Heritage, the protection of the coastal urban border along with its dock-industrial facilities becomes a matter of utmost priority and concern. Failing to safeguard this heritage may result in incalculable damage to the urban territory and irreversible loss affecting the seaport quality of Valparaíso, a condition that plays a key role in the identity of the city. In order to fulfil this challenge, it is first necessary to approach the invaluable heritage of the coastal border differently by re-considering its authentic meaning as a tangible and vivid expression of the landscape. Thus the coastal border grows as a privileged site from which to visualize the historical, social, economic, cultural, political, and technological developments of the city, from its discovery to today.

In this light – and according to the Operative Guide that translates the objectives set forth by the *Convention* on world cultural and natural heritage, approved by UNESCO in 1972 – the Nomination of Valparaíso is fully explained in Consideration II of the Convention which deems as valuable and exemplary those cities that represent "an exceptional testimony of the earliest stage of globalization at the end of the 19th century", emphasizing the importance of the nominated site as 'seaport historical area'. This definition clearly reflects the condition of Valparaíso and the remarkable quality of its urban and coastal landscape.

The permanent relationship of the border's trading, commercial, and dock-related activities with the city, from the mid-19th century to today, is also a relevant point to appreciate the role of the border. These activities condition the forms in which the flat area of the dock sector (UNESCO Historic Quarter) and the coastal border are occupied, which explain the continual and difficult backfilling over large surfaces that were originally part of a natural beach. The historic and urban evolution of Valparaíso – from the colonial period to the industrial modernization in the 19th century – emphatically determines that the commercial use of the docks (e.g. customs, warehouses) greatly contributed to the new urban settlements essential for the development of the city.

Ferrada, M. 2012. Landscape of the urban shoreline of Valparaíso: towards the establishment of indicators for the dynamic preservation of change. *In* Zancheti, S. M. & K. Similä, eds . *Measuring heritage conservation performance*, pp. 236-243. Rome, ICCROM.

In order to properly protect the coastal border it is necessary to activate technical measures and planning strategies in institutional and public areas. In this sense, the participation of the community is important to raising awareness about the preservation of this heritage under the assumption that the landscape is a social construction that members of a group create through time, culturally transforming, improving, and interpreting the natural surroundings.

Preservation aims, therefore, should stimulate the process of change that defines the uniqueness of a landscape, its very fluidity and dynamism, thus avoiding its paralysis or its transformation into an idealized image of commodity. In this light, natural, biological, and environmental resources are as important as cultural aspects (both concrete and intangible): they both interact generating the dynamic character that defines the landscape. Finally, architecture as a cultural element can be understood as a means to construct the landscape by signalling approaches to the activities of the border and by creating the urban scale of architecture so as to integrate the coastal border into everyday and authentic experiences in the city.

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Definition of indicators in the rehabilitation plan of the historic centre of Porto Alegre

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ABSTRACT

This article describes the construction process of indicators to be used in the implementation of the Rehabilitation Plan of the historic centre of Porto Alegre, RS, Brazil. It first presents a summary of this Plan, focusing on its main steps and proposed instruments, notably the strategic objectives and lines of action that articulate the priority projects. The indicators emerge as part of the implementation and management process of the Rehabilitation Plan. The approach focuses on the procedures used for their selection, definition and classification as qualitative and quantitative indicators. According to this categorization, it exposes and details the indicators related to monitoring aspects of the Plan which focus on conservation and physical intervention in urban space, such as improvement of public spaces and preservation of architectural heritage. Finally, this article presents a brief discussion of the process, pointing out its limitations and prospects.

KEYWORDS: REHABILITATION OF HISTORIC CENTRES, ARCHITECTURAL HERITAGE PRESERVATION, URBAN INDICATORS

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INTRODUCTION

The historic centre of Porto Alegre corresponds to the area circumscribed by the first inner ring road of the city, with 228 hectares and a population of 36,862 inhabitants (2000 census). It is a territory with a peculiar identity for its role in urban history, the stock of buildings and places of cultural interest, but also for the diversity, vitality and importance of the activities developed there. It is the most diversified area of the city, due to the characteristics of the social groups that inhabit, work or move around there.

In the Master Plan for Urban and Environmental Development of Porto Alegre (*Plano Diretor de Desenvolvimento Urbano e Ambiental de Porto Alegre,* hereafter PDDUA), the historic centre was pointed as an area of rehabilitation and as the object of a specific plan. With support from the Ministry of Cities, this Plan was prepared between 2007 and 2009, and joined the multitude of technical views of several municipal agencies with the support of external consultancy,[1] including also the necessary contribution of the most significant social actors.

The participation of these actors and agents representing the historic centre was essential for a joint construction of the Plan and for the agreement on the propositions presented during its development within a methodology that gave priority to dialogue between specialists and the community (Figure 1, next page). Monitoring the foreseen actions and expected results was as important as this participative aspect in the Rehabilitation Plan. To this extent, the process of constructing the respective indicators to assess the effectiveness of the plan constitutes the main object of this work.

1. SUMMARY OF THE REHABILITATION PLAN

The Rehabilitation Plan of the historic centre of Porto Alegre was developed from a diagnosis based on initial surveys, which supported the development and validation stage of the subsequent thematic instruments, consisting of the following: a
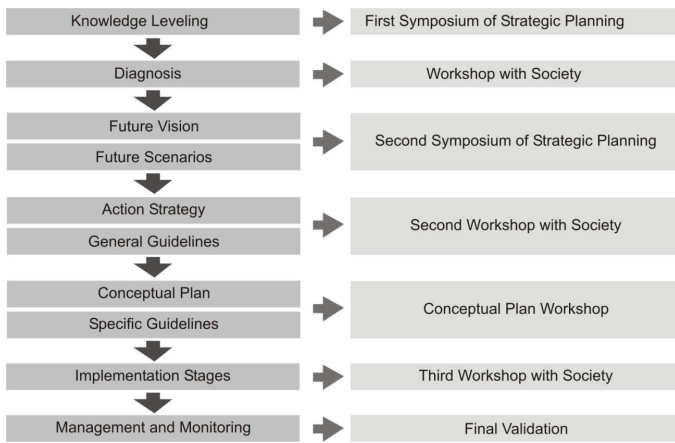
Figure 1. Stages of development of the Rehabilitation Plan of the historic centre of Porto Alegre.

Figure 2. Land use and architectural heritage in the historic centre of Porto Alegre (2007 data).

Strategic Plan, a Conceptual Plan, an Operational Plan and a Management Plan.

The diagnosis was made from evaluations of the City technical team, so as to identify the historic centre problems by crossing the data collected in matrices of the cause—effect type. These assessments were supported by surveys in the studied area, as well as by information from the City Hall's own database.
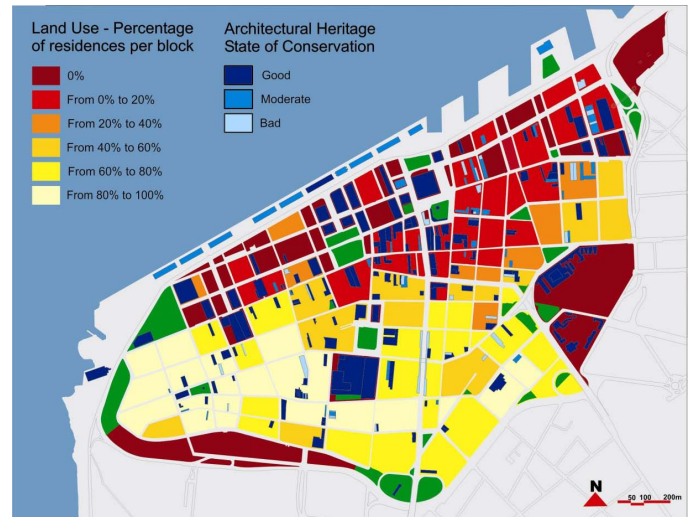
The map below (Figure 2) shows one aspect considered, focusing on the concentration of architectural heritage in relation to the zoning of the predominant activities in the study area. The preservation of architectural heritage in Porto Alegre is supported by specific legislation. The process of granting recognition and protection as 'heritage' occurs at the municipal, state or federal legislatures and is applied to buildings of exceptional value. The inventory is an instrument of municipal preservation, linked to the PDDUA. The historic centre has a total of 288 preserved buildings, 42 are listed as heritage and 246 have been inventoried, out of which 62% of them are in good condition, 24% in fair condition and 14% in bad state of conservation (2007 data). The technical perspective was complemented and integrated with a society perception, through two meetings and workshops held between the Working Group and representatives of the public, business and commercial sectors, residents, as well as formal and informal services and other organized groups of civil society. Thus, based on the physical—functional survey and on the identification of conflicts and potentialities pointed by the technicians and by the interested public, this report indicates the main qualifying and distinguishing elements of the historic centre to be considered in the continuation of the Plan.

The Strategic Plan (Figure 3, next page) was set after two meetings with society. Its purpose was to align the components and to set steps to be performed to achieve, efficiently, the goals set forth in the Rehabilitation Plan. Based on the mission and the future vision established for the historic centre in the next ten years and also incorporating the diagnosis interpretations, the Rehabilitation Plan assumptions, goals and guidelines were articulated, on the basis of three main directive factors:

  a) promoting the image of the historic centre in order to reverse the negative perception of the population due to the urban environment degradation, lack of security and social marginalization, to strengthen the local historical, social and cultural identity;

  b) improving urban space in order to restore and preserve the Architectural and urban heritage — reinforcing the historic centre role as a touristic and cultural reference in the city — and also to promote social integration through environmental improvement;

  c) strengthening the functional dynamics in order to push forward the economic, touristic, residential and cultural activities, thus enhancing the historic centre potential as a privileged site of social and economic diversity.

Bello, H.E.; Bressiani , D.; Calliari , T.; Marques , M. E. C.; Schwengber, E. B.; Gross, C.; Rizzotto, R. S.; Sant'Ana, S. A. & G. V. Bohrer. 2012. Definition of indicators in the rehabilitation plan of the historic centre of Porto Alegre. *In* Zancheti, S. M. & K. Similä, eds. *Measuring heritage conservation performance*, pp. 244-251. Rome, ICCROM.

Mission

To be a touristic, cultural, commercial and distinguished service reference

Vision

To be recognized as a touristic, cultural, commercial and service attraction pole nationally and internationally

Critical success factors

Qualifiers:	Cultural Diversity Social Diversity Economic Diversity	Directive factors:	Security Environmental quality Accessibility Managerial credibility

Directive factors

Image promotion	Urban space qualification	Strengthening of functional dynamics

Strategic Objectives

Strengthen social diversity	Restore and maintain buildings	Restore and maintain the open spaces	Promote the rehabilitation of deprived areas	Maximize the activities diversity	Assure the sustainability of the plan

Guidelines

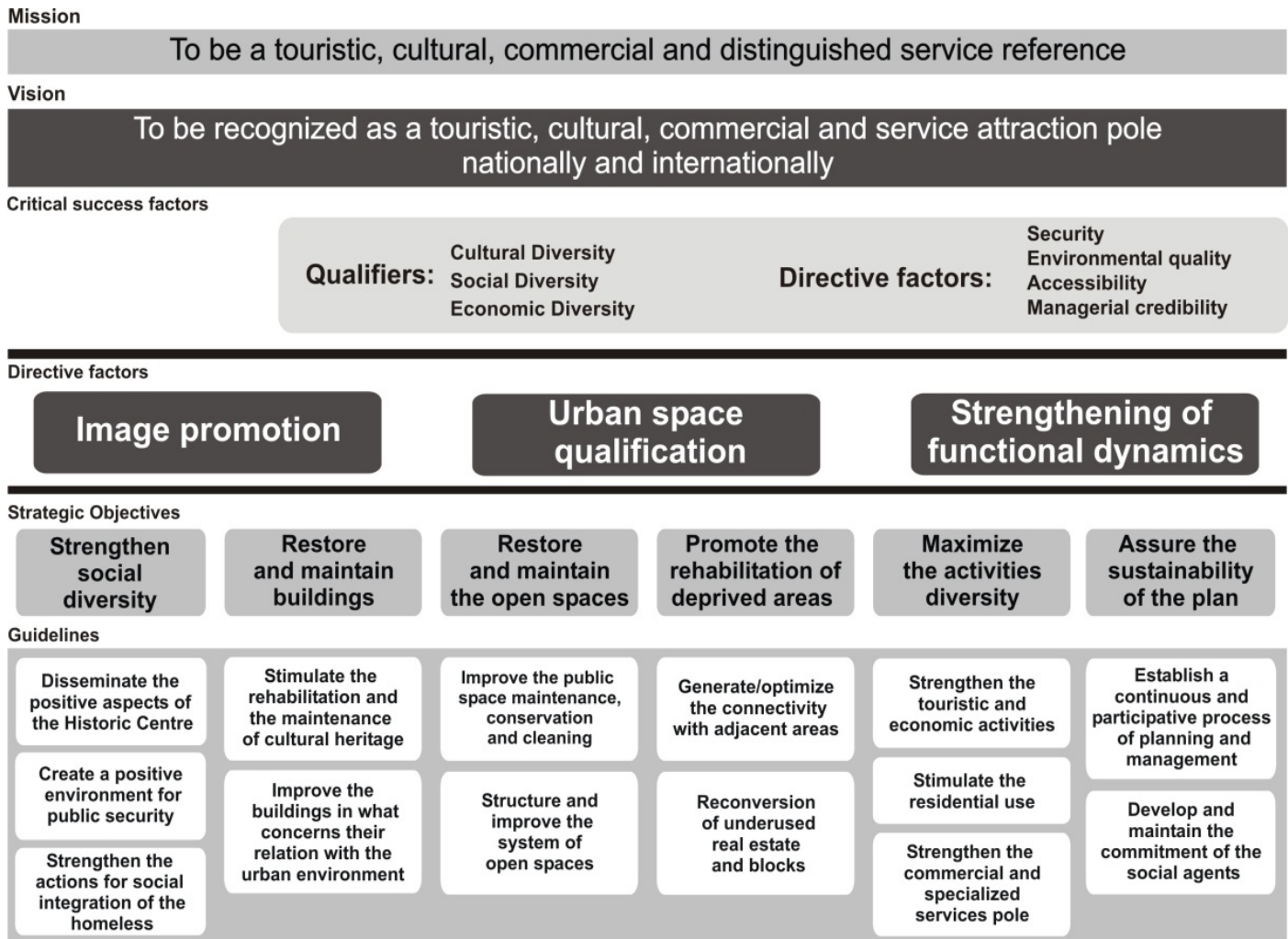| Disseminate the positive aspects of the Historic Centre | Stimulate the rehabilitation and the maintenance of cultural heritage | Improve the public space maintenance, conservation and cleaning | Generate/optimize the connectivity with adjacent areas | Strengthen the touristic and economic activities | Establish a continuous and participative process of planning and management |
| Create a positive environment for public security | Improve the buildings in what concerns their relation with the urban environment | Structure and improve the system of open spaces | Reconversion of underused real estate and blocks | Stimulate the residential use | Develop and maintain the commitment of the social agents |
| Strengthen the actions for social integration of the homeless | | | | Strengthen the commercial and specialized services pole | |

Figure 3. Strategic map for the Rehabilitation Plan of the historic centre of Porto Alegre.

The Conceptual Plan stage was characterized by the consolidation of general and specific guidelines for the physical and functional structural development of the historic centre, so as to guide the selection of actions and projects in an integrated manner. Thus a specific workshop was held under the coordination of the Working Group, and it was attended by teachers and scholars of Architecture from Porto Alegre Universities[2] and by an invited team from the Barcelona City Hall.[3] The technical teams have made several proposals of urban intervention, which are summarized in the map below (Figure 4).

This map demonstrates the spatial distribution of the guidelines adopted in the Conceptual Plan which guides actions in order to minimize or eliminate conflicts regarding the physical and functional structure of the historic centre. Considering the imminent impact of the Football World Cup 2014 on the urban space, such as the regeneration of the docklands (Mauá Quay), the guidelines give priority to proposals directed to land use, open space and mobility:

a) optimization of predominant uses where it was already established an area of regional use, characterized by the concentration of commerce and services and by the major institutional and cultural facilities in the city, and where there is local use, with evident residential vocation;

b) consolidation of the open spaces system – bound to the access and qualification/ planning/conservation of parks, street furniture, vegetation, pavements, buildings, outdoor advertising, etc.;

c) integration of the historic centre with adjacent areas – qualification of the connections between the central area and the surrounding neighbourhood, allowing an easier displacement, for both vehicles and pedestrians.

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Figure 4. Synthesis—Map of the conceptual plan for the historic centre of Porto Alegre.

The specific lines of action were also defined through these guidelines, characterized by rules for land use and occupation, preservation of cultural heritage buildings, establishment of routes, rationalization of public transportation, compatibility of the public and private parking lots provision with the urban structure, complements to the first inner ring road, among other measures.

The next step consists of the Operational Plan, aiming to establish, in a viable and integrated manner, the implementation of the General Plan from the definition of a structure that will accomplish the established strategy, also specifying the set of measures to be followed and their impact on the goals. Thus, in the Operational Plan, the sets of actions are articulated according to their similarity (then called 'Macroactions') and to the projects defined as priorities for the rehabilitation of the historic centre. Within this main goal, short, medium and long—term actions were determined, compiled in ongoing programs in the city management system available on the Internet specific website ('Portal de Gestão') and added to complementary proposals developed by the technical team according to the predetermined lines of actions.

Finally, the Management Plan addresses the administrative model to be adopted, to ensure continuity to the Rehabilitation Plan over time, independently of any political changes in municipal government. Another important factor to consider is the necessary flexibility to absorb the peculiar demands of a territory that continuously interacts with its surroundings at the municipal, metropolitan, regional and national levels.

Thus, the approach of the indicators will be more directly linked to these last two reported steps, according to the need to monitor the measures and to verify the results.

2. Proposed indicators

The process of monitoring and evaluating the Macroactions entailed by the Operating Plan generated the need to define indicators to measure the efficiency while performing the achievement of goals and objectives of the Plan, but also to carry out a permanent evaluation of these targets when it is detected the necessity of an eventual redirection. In this sense, the procedure adopted for the definition of indicators was based on the following schedule:

a) identification of the expected results (attributes) in each strategic objective;

b) election of numerical data or information which can reveal whether the strategic objective is being achieved or not;

c) creation of a list with the identification of each strategic objective, the quantitative data and corresponding units of measurement;

d) assessment of the viability of the data for the construction of each indicator, discarding those whose data were unavailable;

e) assessment of each indicator, using scores for factors which consider the aspects of ambiguity, ease of data collecting, ease of interpretation (concerning the data meaning) and ease of comparison with references, within the following criteria:

— ambiguity level of indicator (1 point—high; 2 points—moderate; 3 points—low)

— data collection (1 point—difficult; 2 points—moderate; 3 points—easy)

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— data interpretation (1 point—difficult; 2 points—moderate; 3 points—easy)

— references for comparison (1 point—difficult; 2 points— moderate; 3 points—easy)

f) multiplication of the points assigned to each factor to obtain the final score for each indicator;

g) selection of indicators for all the attributes, prioritizing those with higher scores;

h) suitability assessment of the indicators with higher score, checking whether they are sufficient to measure the performance of the strategic objective;

i) development of qualitative indicators to complement the quantitative evaluation and/or addition of other necessary information.

From the application of this method, thence, two types of indicators were obtained: the quantitative indicators – composed of numerical measurements of accessibility, monitoring and more immediate reading – and the qualitative indicators, consisting of a set of factors or subjective factors, requiring the use of more elaborate and/or indirect mechanisms for their determination, such as opinion polls and evaluations.

According to this categorization, 18 indicators were established for monitoring the six strategic goals set in the Rehabilitation Plan, which are listed below:

a) qualitative indicators:

— population's perception of the image of the historic centre

— population's perception of the public space condition

— population's perception of the buildings condition

— population's perception of trade, service, culture and leisure

— evaluation of the condition of the vulnerable population

— technical evaluation of the public space condition

— technical evaluation of the buildings condition

— evaluation about the increase in the developed activities

b) quantitative indicators:

— number of homeless people in social inclusion programs

— number of police reports

— number of restored, preserved or recently built squares

— number of abandoned/non—built up areas

— number of provisional parking lots

— number of idle or under—used real estate units

— number of new building units

— public investment in actions of the Plan

— private investment or public—private partnerships in actions of the Plan

— number of implemented actions of the Plan

From the set of indicators presented above, more details were elicited concerning those related to the three strategic objectives of the Rehabilitation Plan directly linked to the issue of conservation and/or physical intervention in the built space of the historic centre.

The first strategic objective indicates 'restore and maintain buildings' and has as expected results the total preservation of the declared and inventoried architectural heritage, with physically restored buildings, by means of compatible and sustainable activities. To monitor this objective, two qualitative indicators were selected:

a) population's perception of the buildings condition – opinion poll

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to be commissioned, in order to measure the degree of satisfaction of society concerning the conservation conditions and the use of declared and inventoried heritage in the downtown area;

b) technical evaluation of the buildings condition – diagnosis to be made by the technical team of the City Hall, containing at least the following items to compose the indicator:

— percentage of buildings declared heritage in good state of repair

— percentage of inventoried buildings in good state of repair

— percentage of the remaining buildings in good state of repair

— percentage of buildings with legal outdoor advertising

In the second strategic objective, 'restore and maintain open spaces,' the attributes concern street furniture qualification and conservation; proper management of forestation and vegetation; establishment of thematic routes, ensuring universal accessibility in public spaces, restoration and conservation of monuments and artistic works. In this case, there are two qualitative indicators that are similar to the previous item, as well as a quantitative indicator:

a) population's perception of the public space condition – opinion poll to be commissioned, so as to measure the degree of satisfaction of society concerning the conservation conditions and the use of open space in the downtown area;

b) technical evaluation of the public space conditions – diagnosis to be made by the technical team of the City Hall, containing at least the following items to compose the indicator:

INDICATORS	type of survey	data base	data unit	data feasibility	ambiguity level	data collection	data interpretation	references for comparison	final score
number of new building units	data collection	register in PMPA / *in loco*	quantity	yes	low	easy	easy	easy	81
number of abandoned / unbuilt areas	data collection	register in PMPA / *in loco*	quantity	yes	low	easy	easy	easy	81
number of provisional parking lots	data collection	register in PMPA / *in loco*	quantity	yes	low	easy	easy	easy	81
number of idle real estate or underused areas	data collection	register in PMPA / *in loco*	quantity	yes	low	moderate	easy	easy	54
number of restored, conserved or built-up squares	data collection	*in loco*	quantity	yes	low	moderate	easy	easy	54
technical evaluation of the public space condition	diagnosis made by the municipal technical team	register in PMPA / *in loco*	percentage	yes	low	moderate	easy	moderate	36
technical evaluation of the buildings condition	diagnosis made by the municipal technical team	register in PMPA / *in loco*	percentage	yes	low	moderate	easy	moderate	36
population's perception on the public space condition	hired polling company	public opinion	percentage	yes	low	moderate	easy	difficult	18
population's perception on the buildings condition	hired polling company	public opinion	percentage	yes	low	moderate	easy	difficult	18

Figure 5. List of indicators in order of priority, according to the scoring criteria adopted.

Bello, H.E.; Bressiani , D.; Calliari , T.; Marques , M. E. C.; Schwengber, E. B.; Gross, C.; Rizzotto, R. S.; Sant'Ana, S. A. & G. V. Bohrer. 2012. Definition of indicators in the rehabilitation plan of the historic centre of Porto Alegre. *In* Zancheti, S. M. & K. Similä, eds. *Measuring heritage conservation performance*, pp. 244-251. Rome, ICCROM.

— adequacy of street furniture

— management status of urban forestry

— universal accessibility conditions on sidewalks and streets

— state of repair of monuments and public art

— state of cleanliness of streets and squares

— street lighting adequacy and operation

c) number of restored/preserved/ urbanized squares, using as initial parameter the situation prior to the implementation of the Plan.

The third strategic objective seeks to 'promote the rehabilitation of deprived areas', where the attributes indicate fully occupied buildings, lack of provisional parking lots and adequately occupied/ built—up areas. To monitor this objective there are the following quantitative indicators:

a) number of abandoned/non—built up areas — obtained by collecting the number and square footage of non—built up areas in relation to their status prior to the Plan, obtained in the database of the of Municipal Planning Department (*Secretaria do Planejamento Municipal* — hereafter SPM);

b) number of provisional parking lots — obtained by collecting the number of lots used as provisional car parks in relation to their status prior to the Plan, obtained in the database of SPM;

c) Number of idle and under used real estate units, obtained through a search in the database of SPM in relation to their status prior to the Plan;

d) number of new building units, obtained by a search in the Municipal Technical Registration, out of the total number of existing residential and commercial buildings,

compared to the situation prior to the Plan, found in the database of SPM.

In the table below (Figure 5), the indicators resulting from these three strategic objectives are organized in order of priority through the score received by each one according to the selection criteria applied.

3. Discussion

The use of indicators to monitor public policies is a relatively recent practice in the Municipality of Porto Alegre. The lack of a deeper study and the little experience in this area still features the work routine developed within the scope of urban planning and preservation of Architectural and urban heritage of the city. In this sense, the report of this process must be understood as an effort in order to alleviate a disability that still persists.

At the present juncture, the Rehabilitation Plan is undergoing political—administrative validation and, therefore, the operational and managerial aspects are being structured. To this extent, the main drawback of the proposal and the discussion presented here is undoubtedly the absence of a practical application, thereby preventing the categorical verification of the effectiveness of the selected indicators.

Concerning the functionality of the qualitative indicators, is should be pointed out that an ongoing issue is related to lack of human and financial resources, very recurrent not only in Porto Alegre City Hall, but in any other municipal administration in Brazil. Thus, it is essential to understand the importance of the implementation and management of the Plan by the municipal authorities, ensuring that services are hired and a specific technical team is trained to conduct the necessary research and evaluations to monitor the process.

The qualitative indicators are not commonly found in the administrative structure and rarely occur in the working routine of a city government such as Porto Alegre, what characterizes the difficulty, for example, in conducting research involving public opinion. This fact is evidenced by the low priority level assigned to this type of indicator by the selection criteria applied (Figure 5). However, the major difference of this procedure considering other monitoring instruments is exactly the most direct account of the city space user's perspective, reaffirming the same intention of social participation adopted since

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the beginning of the development of this Rehabilitation Plan.

Regarding the quantitative indicators, to the extent that obtaining a wide range of information depends on several databases of the City Hall, it emphasizes the necessity of greater integration of the responsible bodies in different municipal departments which are autonomous. Therefore, improving the information access and management at the municipal level is a crucial issue to format the indicators in a fast and reliable manner.

Concluding Remarks

The construction of a working method for the development and validation of the Rehabilitation Plan for the community and the definition of indicators were great challenges. Now the new challenge is to follow the process, which demands new measures, capable of articulating the political, administrative and technical means which will ensure the implementation of this instrument in the downtown area.

With monitoring through the selected indicators, it is sought to provide a systemic view about the program of physical rehabilitation and use of public space, about the inventoried and heritage assets, among other actions set forth by the Rehabilitation Plan. Since this procedure is nowadays timely developed by private and public agents at a municipal, state and federal level, it is intended to expand this operation for the sake of a more integrated dynamic, which qualifies the urban management and preservation of cultural heritage, coupled with the promotion of the economic and touristic sustainable development in the historic centre of Porto Alegre.

The opportunity to present and discuss the experience reported here with professionals and specialists at a national and international level also represents a key aspect to improve the procedures to be adopted in the future development of this process.

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Endnotes

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An indicator for measuring the state of conservation of urban heritage sites

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Abstract

This paper sets out a proposal for an *indicator of conservation* to assess the state of conservation of urban heritage sites.[3] The indicator was designed as a monitoring instrument for evaluating the state of conservation of cities, towns, villages and other types of urban areas of heritage value. It is hoped this indicator will come to be regarded as a valuable instrument to be included in the UNESCO system for monitoring the state of conservation of the urban sites included in the World Heritage List. The indicator was designed to perform two tasks: 1) to evaluate how the conservation of an urban site evolves over time (internal performance analysis); and 2) to compare cities as to their conservation performance (comparative performance analysis). The indicator was developed using the theoretical approach suggested by Carley (1981). The paper presents the main concepts used as key performance indicators (KPI), that is, significance, integrity and authenticity and how they contribute to meeting the objective of attaining the sustainable conservation of heritage sites. This is the overall purpose of the indicator and why it seeks to measure the KPIs. The paper also presents the mathematical structure of the indicator, the weights of the variables of the indicator and the methodology used to calculate them.

Keywords: state of sustainable conservation, key performance indicators, significance, integrity, authenticity, opinion of the stakeholders

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The problem

Since about ten years ago, UNESCO has asked each new site included in the World Heritage List (WHL) to produce a management plan and to designate a national institution responsible for its implementation. These plans are important as they provide UNESCO with monitoring instruments to assist evaluations included in the Periodic Reports (PR) on the state of conservation of the sites, which are conducted every six years. The reports assess the permanence of the heritage values as well as the state of conservation of the sites. Moreover, they provide information on the changes in the social, political and economic context, the state of implementation of the World Heritage Convention and of management practice in the regions.

In spite of the importance of the PR, it is clear that what is lacking is even more effective monitoring instruments, especially to evaluate the state of conservation of the sites. It is important to use instruments to indicate changes in the state of conservation of each urban site in the World Heritage List (WHL) within a period of time that is sufficiently short to trigger control measures to prevent, correct or mitigate problems and tackle conservation. Indicators have been identified as the best instruments for performing this task.

For more than 40 years, indicators have been used for analyzing the performance of environmental, social, economic, urban and regional planning (Carley, 1981; Wong, 2006). In the specific case of conserving heritage sites, the use of indicators is very new. Attempts to construct indicators for assessing conservation assets were developed in 1999 (IAPH, 1999); 2000 (Carruthers *et al.*, 2001); 2006 (UNESCO 2006, p. 7); and 2007 (UNESCO, 2007). It was only in 2007 that the World Heritage Centre/UNESCO laid down that the objectives of the conservation indicators were those of UNESCO (2007):

- Maintaining the significance and the universal values;

- Maintaining the integrity and authenticity;

- Identifying the threats;

- Evaluating the management;

- Evaluating the public use.

And that the proposed uses of the indicators were:

- To be capable of showing tendencies towards change in the assets (urban areas);

- To permit comparison of current and prior performance in conserving the assets;

- To permit comparison between one specific asset and another;

- To permit the comparison of the performance of an asset relative to international standards of conservation.

Giving such a structure to objectives leads to adopting a classical division of the types of indicators: those of pressure (threats to the asset), those of state (universal values, authenticity and integrity) and those of response (management and public use of the asset). However, the *indicators of the state of conservation* are those which first and foremost require an effort to be made operational for they are the most important instruments of the monitoring system and permit a reply to the question: *What do the records show over time with regard to the state of conservation of a heritage urban area*? The other types of indicators are fundamental to the process of management.

Considering the current state of developing conservation indicators it is necessary: 1) to deepen understanding of the concepts of significance, authenticity and integrity; 2) to understand how these concepts can represent the state of conservation of the sites; and 3) how they can be the object of a qualitative/quantitative evaluation, or 'measurement'. These tasks impose the use of the theoretical base approach (Carley, 1985) to develop indicators of conservation. In this approach, indicators are derived from causal models that show the interrelation between the variables.

1. What is sustainable conservation of urban heritage sites?

Hypothesis: The sustainable conservation of urban heritage sites (UHS) depends on the maintenance of their present and past significance. To achieve sustainable conservation, managers of urban sites, and other stakeholders, act on the attributes of the heritage[1] that convey values. The attributes can be of a material (tangible) or a nonmaterial (intangible)

nature.[2] The actors may keep, change, restore, reshape or substitute the attributes or even the objects. They may also produce activities that help to foster values as part of the collective memory of society through educational and cultural activities. The actions of managers and other stakeholders should be guided in such a way that the values, the integrity and the authenticity of the attributes of objects are maintained.

1.1. Objects, processes, material and nonmaterial attributes

The conservation of urban sites, unlike the conservation of archaeological sites or of works of art, deals with objects (and their attributes) and processes because urban sites are basically living sites, in which the presence of humans is essential for their existence (Zancheti and Jokilehto, 1997). So the heritage of urban sites comprises objects and processes that have value for people.

Objects are identical to artefacts, understood as physical entities, with material substrata, that have been altered or selected by human beings.[3] The attributes of an object are defined as any and all features of objects and processes recognized as having heritage value, whether material or nonmaterial. The processes are the elements that generate the dynamics of urban sites, that is, make them alive and subject to continuous change due to human action. Those are intrinsically tied to the lives of the people of the site.

The heritage consists of those objects and processes which society recognizes as being important enough to be passed from the present to future generations. To society, important heritage values are those attributed by collective processes, through inter-subjective selection and evaluation procedures performed over long periods of time. Because of this, heritage objects tend to be old, or at least old in relation to the majority of objects in use in a society.

For the purpose of this paper, the city is seen as configured objects, structures, natural and built, and human/symbolic relations and processes. They are represented as significant entities that embrace material and nonmaterial attributes related to a mode of specific construction, living and being and are recognizable as being an essential part of an intelligible whole.

1.2. Values and significance

Urban sites are conserved because they have values and these are always defined in relation

Zancheti, S. M. & L. T. F. Hidaka. 2012. An indicator for measuring the state of conservation of urban heritage sites. *In* Zancheti, S. M. & K. Similä, eds. *Measuring heritage conservation performance*, pp. 252-264. Rome, ICCROM.

to other values. Thus, it is quite difficult to define values due to this circularity. Also it is very challenging to determine whether values are intrinsic to objects[4] (the objective approach) or whether they are defined by their subjects; that is people (the relativistic approach).

It was Frondizi (1971) who best defined values without being caught by the traps of these two approaches. He understood that the subject interacts with the object in certain contexts and the values are determined by this relationship. The object is not passive yet neither is the subject absolute in projecting values on the object. There is a reciprocal determination that depends on the context in which the interaction happens.

However, heritage values are significant for society when they are the product of many subject-object interactions, that is, they are the outcome of a large number of inter-subjective evaluations. They are related to historical time and to collective memories. Therefore, the values of the heritage can be many, depending on who evaluate it, when it is evaluated and where it is assessed.

The concept of significance embraces all values of the heritage within a period of time. Mason (2004) made an excellent observation on the conflictive nature of the concept, when he argued that since significance is "an expression of cultural meaning, it must be expected to change, involve multi-valence and contention, and be contingent on time, place, and other factors". Values are always identified in relation to other values, so significance is a set of values that has been mutually fixed and it is not easy to separate them from other values.

Significance is therefore a set of all values known about an object and, in this sense, it is impossible for one interpretation to capture the complete significance of the heritage (Zancheti *et al.*, 2009) of a specific society and period of historical time. Any attempt to formalize significance in a manageable text always produces a partial set of values, or a specific narrative.

The statement of significance is an instrument that selects a set of values of the significance with the intention of producing an instrument for managing conservation of the heritage. It is a set of values that was selected and validated by socially institutionalized procedures, as for example, through public consultations or in laws. However, the statement is not a complete substitute for significance since it must be revised periodically and be subject to judgment and validation by the stakeholders involved in the management of the site.

1.3. Integrity

The *Operational Guidelines for the Implementation of the World Heritage Convention* state that:

"Integrity is a measure of the wholeness and intactness of the natural and/or cultural heritage and its attributes. Examining the conditions of integrity, therefore requires assessing the extent to which the property: a) includes all elements necessary to express its outstanding universal value; b) is of adequate size to ensure the complete representation of the features and processes which convey the property's significance; c) suffers from adverse effects of development and/or neglect" (UNESCO, 2005, p. 23).

This interpretation is firmly rooted in the materiality of heritage. Some other authors have presented a different view, founded on the idea of circumstances, since objects, in order to convey meanings, must be interpreted in historical and cultural contexts.

Clavir (1994a, 1994b) thinks that the analysis of integrity must transcend the limits of the materiality of heritage to include the cultural environment, in which it has been created, understood, used and transformed. She advances the idea of conceptual integrity "in order to clarify the fact that the conservator´s decision making process includes consideration of the nonmaterial properties of the objects, properties such us religion or cultural significance, or the intention of the artist. These properties are included even if they are not physically evident to us through the object" (Clavir, 1994b, p. 53).

Jokilehto (2006), following a similar line of thought, proposes that integrity has three dimensions (who act simultaneously because each one poses limits and, at same time, opens up views for the identification and interpretation of values): the social-functional, the structural and the visual. Social-functional integrity is related to the activities performed when use was made of the heritage in its historical development and to the interfaces that the heritage site establishes with society, religion, the environment and the movement of people. Structural integrity expresses the soundness of the remains of the heritage that convey messages from past societies. Finally, visual integrity refers to the capacity of objects (and processes) to express visually (or aesthetically) messages and meanings.

Zancheti, S. M. & L. T. F. Hidaka. 2012. An indicator for measuring the state of conservation of urban heritage sites. *In* Zancheti, S. M. & K. Similä, eds. *Measuring heritage conservation performance*, pp. 252-264. Rome, ICCROM.

In this paper, integrity will be defined as the level at which the attributes of the heritage embody heritage values in a complete, whole and secure way considering their past and present contexts.

1.4. Authenticity

Authenticity is related to the idea of truth or falsehood and, therefore, depends on value judgments. Value is conferred on sites through their past and present activities, of memories, of knowledge and of socio-cultural relationships that occur in space and time (Jamal and Hill, 2004). This is the same line of thought advanced by Lowenthal (1999) when he stresses that different generations see authenticity in different ways and this reflects their need for truth, standards and credos in the uses of their heritage.

It was only in 1994 that a discussion was held on the concept and attributes by means of which authenticity is manifested, namely in the *Nara Document on Authenticity* (ICOMOS, 1994). The central ideas that permeate this document are that authenticity is the essential factor for attributing value and that it arises from cultural diversity, with due judgment being made, taking into consideration the cultural context of each asset. In this sense, the *Nara Document* closely follows the mainstream of current understanding regarding authenticity expressed in the works of Taylor (1992) and Ferrara (1998). However, the document did not manage to reach a precise conceptual definition, but rather an operational one and, once again, "the term does not have a clearly fixed meaning, but is essentially a vague, underlying quality that is recognizable, but not easily pinned down" (Heynem, 2006, p. 289).

Despite this, the Conference identified the means by which attributes or sources of information on authenticity might be identified. To do so, other criteria were included in the *Operational Guidelines for the Implementation of the World Heritage Convention*: form and design; materials and substance; use and function; traditions, techniques and management systems; location and setting; language and other forms of nonmaterial heritage; spirit and feeling; and other internal and external factors (UNESCO, 2005, p. 82).

The *Riga Charter* on authenticity and the historical reconstruction of cultural heritage introduced a definition of authenticity, as an operational and measurable concept: "Authenticity is a measure of the degree to which the attributes of cultural heritage [...] credibly and accurately bear witness to their significance" (Stovel, 2001, p. 244). However,

the idea of measurement brings with it difficult problems when applied to practice. It is possible to say that an object is authentic, or partially authentic, but it is almost impossible to evaluate the amount of authenticity in an object, since this assessment is the outcome of a judgment about the truth of the authenticity.

One can say that the authenticity of an object "is inseparable from its probability" (Stone, 2002). To avoid the problem of the indeterminate measurement, this paper will use the following definition of authenticity: the judgment of the probability of attributes of sites expressing heritage values whether in a true or a false way.

2. ASSESSING SUSTAINABLE CONSERVATION OF URBAN HERITAGE SITES

Sustainable conservation seeks to maintain the condition for the interpretation of the relation object-values[3] between generations, because it should: 1) carry forward the present values of heritage to future generations; 2) maintain records of values given by past generations for the use of present and future generations; and 3) leave open to future generations the possibility of interpreting and associating new values of past and present heritage (Zancheti and Lacerda, 1998). To do that, it is fundamental to keep the integrity and the authenticity of material or non-material attributes of the objects.

Conservation is a set of identification, analysis, judgment and decision actions. For the new paradigm of conservation, critical judgment is a double act of synthesis and judgment that, first, seeks knowledge and to interpret the values of the heritage and, second, decides which and how the material and physical attributes will be dealt with, depending on how the state of their integrity and authenticity is judged. The theory of contemporary conservation recognizes its dependence on subjective judgments.

This theory does not regard the conservator as an enlightened rational human being, as imagined by Brandi (1963), but as a social agent who works in a context of subjective interpretations and decisions. His role is to work with inter-subjectivity, recognizing that the heritage is valued differently by individuals and groups, thus seeking to identify the maximum social consensus that can be reached on conservation decisions (Clavir, 2002, p. 43).

It is on these plural substrata that decisions on what to conserve and how to conserve it are taken,

supported by practical knowledge, common sense and prudence; that is, on *phronesis*, the Aristotelian concept (Aristotle, 2004, Ch. VI) for defining the capacity of individuals to form judgments regarding conflicting values in different situations or contexts (Flyvbjerg, 2004).

Viñas expresses the Aristotelian role of the conservator very well when he states that: "Contemporary theory of conservation calls for 'common sense', for gentle decisions, for sensible actions. What determines this? Not truth or science, but rather the uses, values and meanings that an object has for people. This is determined by the people" (Viñas, 2005, p. 212).

2.1. Subjective and inter-subjective judgments

There are three questions when judging if the heritage is well conserved or not and if sustainable conservation has been pursued in a given period of time: was the significance maintained? Was the integrity maintained? Was the authenticity maintained?

These judgments cannot rely on an objective assessment since they are qualitative concepts, or 'variables', that cannot be 'measured' against defined quantitative standards. The judgment can simply state if the variables have been kept or not, or if there has been some change in the heritage, that has affected the perceptions of the values, integrity or authenticity in a positive (good) or negative (bad) way.

For Viñas, "[i]nter-subjectivism in conservation can be viewed as a consequence of agreements among the subjects for whom objects have meanings. Furthermore, the responsibilities for the conservation of an object fall on the affected people – or their representatives; it is their duty to preserve or restore those objects, and it is for them that conservation is performed" (Viñas, 2005, p. 153).

In practical terms, the judgment of the three main conditions for declaring whether the heritage has been well or badly conserved is the responsibility of people whose life is affected by the heritage or its meanings. This group is called the stakeholders (Avrami *et al.*, 2002; Cameron *et al.*, 2001) because they may generate and be impacted by tangible and intangible effects, in different ways and magnitudes, depending on the degree of their involvement with the significance of the heritage. Therefore, stakeholders are people with rights on what to do with the heritage and, in urban sites, they are basically: specialists, residents, cultural reference groups and visitors.

Stakeholders tend to play an increasing role in the management of heritage conservation, since decisions in this field must be reached by agreements between the people affected. As to the contemporary approach, conservation interpretations and decisions are based on negotiation, discussion and consensus (Avrami *et al.*, 2000; Staniforth, 2000; Cameron *et al.*, 2001).

3. THE INDICATOR OF THE STATE OF CONSERVATION (ISC)

The Indicator of the State of Conservation (Isc) is used to express the level of urban sustainable conservation of urban heritage sites. According to contemporary conservation theory, it is determined by three key performance indicators (KPI): significance, integrity and authenticity. The basic structure of the Isc is:

Where:

- I_{sig} is the KPI of significance/values
- I_{int} is the KPI of integrity
- I_{aut} is the KPI of authenticity

The theory of conservation does not provide arguments to define the structure of the function $f(I_{sig}, I_{int}, I_{aut})$. However, Table 1 suggests that the best structure is the multiplication of the KPIs:

$Isc = f(I_{sig}, I_{int}, I_{aut})$	(1)

$Isc = I_{sig}{}^{a} . I_{int}{}^{b} . I_{aut}{}^{c}$	(2)

and:

$a + b + c = 1$	(2.1)

The parameters a, b and c are the weights of the KPIs in the overall evaluation of the state of conservation. The theory of conservation has no elements to determine these weights by means of a mathematical or a statistical process. They will depend on historical contexts and perceptions, knowledge and beliefs of people affected in some way or other by the state of conservation of the site, since they are the outcomes of subjective judgments. It is only possible to give numeric values to a, b and c, that is, to the judgments, by means of weighting and scoring techniques (Thompson, 1993, p. 7). The scoring of the parameters implies that the overall weight, or the summation, of the KPIs must not exceed 1 (one) if the theory of conservation is to be respected.

The KPIs are calculated taking into account the evaluations made by four different social groups of people: *specialists*, *residents*, *cultural reference groups* and *visitors*. This means that each KPI results from the summation of group opinions:

$$I_{sig} = \alpha_1 I_{sig}{}^{Lesp} + \beta_1 I_{sig}{}^{Xesp} + \gamma_1 I_{sig}{}^{Lres} + \delta_1 I_{sig}{}^{Nres} + \varepsilon_1 I_{sig}{}^{Rgru} + \zeta_1 I_{sig}{}^{Vis} \quad (3)$$

$$I_{int} = \alpha_2 I_{int}{}^{Lesp} + \beta_2 I_{int}{}^{Xesp} + \gamma_2 I_{int}{}^{Lres} + \delta_2 I_{int}{}^{Nres} + \varepsilon_2 I_{int}{}^{Rgru} + \zeta_1 I_{int}{}^{Vis} \quad (4)$$

$$I_{aut} = \alpha_3 I_{aut}{}^{Lesp} + \beta_3 I_{aut}{}^{Xesp} + \gamma_3 I_{aut}{}^{Lres} + \delta_3 I_{aut}{}^{Nres} + \varepsilon_3 I_{aut}{}^{Rgru} + \zeta_3 I_{aut}{}^{Vis} \quad (5)$$

Where:

$$\alpha_i + \beta_i + \gamma_i + \delta_i + \varepsilon_i + \zeta_i = 1 \quad (6)$$

The parameters α, β, γ and δ are weights given to the opinions of the stakeholder. For each KPI, the summation of the parameters is equal to 1 (one). It is questionable if all KPI indicators should be assessed for all social groups involved in the process.

3.1. The weights of the Isc

Figure 1 shows the hierarchy of concepts used to define urban sustainable conservation and to determine the weights of the Isc. The hierarchy is necessary because R1, R2, R3 etc. represent and show how the relationships between the key indicators for value, integrity and authenticity act upon the material and the nonmaterial attributes of the objects of the urban site in order to ensure that the effect of urban sustainable conservation will be long-lasting

In Figure 1, the relations (R) 1 to 8, expressed by the links between the elements of each hierarchical level, represent the importance of the element in the level below so as to determine the importance of the element in the level above. Examination of the relations between Levels 3 and 2 reveals that the relations R3 and R4 express, respectively, the importance of the maintenance of significance[5] (values) for the conservation of material and the nonmaterial attributes of urban sites. The relations R5 and R6 and R7 and R8 express, in the same way, the importance of integrity and authenticity for the maintenance of material and nonmaterial attributes. The relations R1 and R2 show the importance of the maintenance of the material and the nonmaterial attributes to attain urban sustainable heritage conservation. So, to find the importance of maintaining the values, integrity and authenticity of sites for urban sustainable conservation, it is necessary to multiply the matrix of relation between the elements of the hierarchical levels 3 and 2 by the matrix that represents the links between levels 2 and 1. In formal terms:

$$A = \begin{bmatrix} R3 & R4 \\ R5 & R6 \\ R7 & R8 \end{bmatrix} \qquad B = \begin{bmatrix} R1 \\ R2 \end{bmatrix}$$

and

A x B= (Ws, Wi, Wa)   (6)

Ws, Wi and Wa (or simply Wj)[6] are measurements of the importance of significance, integrity and authenticity for sustainable urban conservation. To match the condition of equation (1.1) the importance of Wj can be transformed into ratios, or weights,
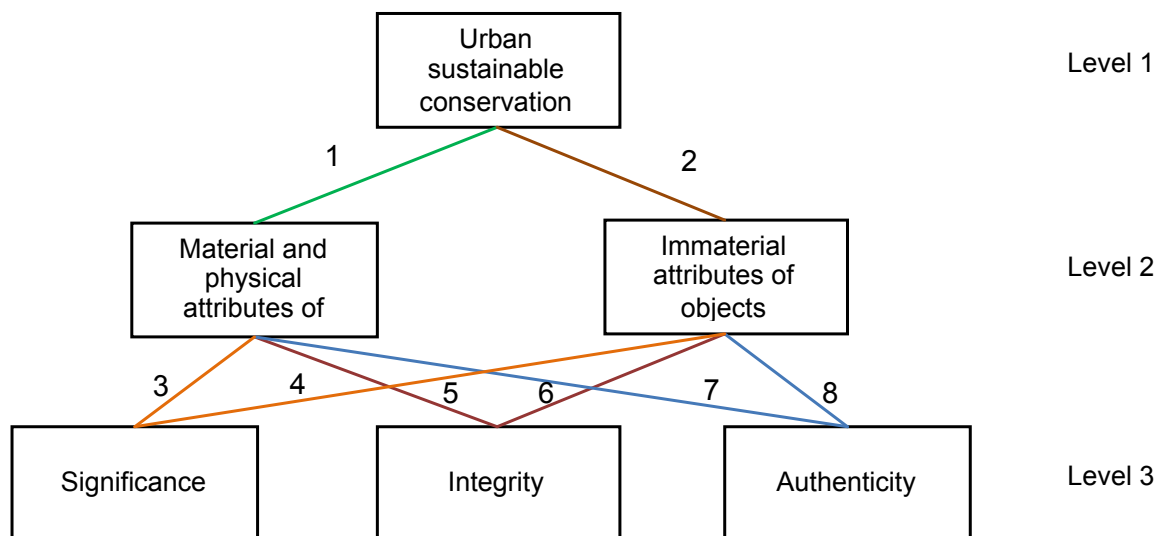

Figure 1. Hierarchy of concepts for planning urban sustainable conservation.

Zancheti, S. M. & L. T. F. Hidaka. 2012. An indicator for measuring the state of conservation of urban heritage sites. *In* Zancheti, S. M. & K. Similä, eds. *Measuring heritage conservation performance*, pp. 252-264. Rome, ICCROM.

Regions/Continents	Distribution of WHUS		Distribution of the experts on the Delphi Panel (DP)	
	Number	Percentage	Number	Percentage
Africa	23	22%	1	3%
Arab States	14	6%	1	3%
Asia and the Pacific	22	10%	4	12%
Europe and North America	123	57%	21	62%
Latin America and Caribbean	35	16%	7	20%
Total	217	100%	34	100%

Table 1: Geographical distribution of the experts participating in the first round of the DP (Source: UNESCO – ΞCMOS 2008).

by dividing each importance by the sum total of all three variables: Wj/(Ws + Wi + Wa). Thus, the weights a, b and c of (1.1) are obtained.

The size of the Delphi Panel (DP) plays an important role in assessing the quality of the results it produces. To determine the size and composition of the panel, an analysis was made of the distribution of World Heritage Urban Sites (WHUS) in the regions of the world covered by UNESCO. Also the minimum number of respondents required to start the DP was defined as being 30 so as to guarantee that Delphi principles were respected (Dalkey, 1969). Forty-five experts accepted the invitation to participate in the DP and 34 actually answered the first round. They were chosen from among conservation professionals and academics. The academics were identified from their publication profile and were drawn from such disciplines as urban conservation, urban regeneration and heritage management while the professionals were chosen by virtue both of their involvement in international or national institutions for the conservation and management of the heritage and of their work as managers or coordinators of emblematic conservation programs, plans and projects for WHUS. Table 1 summarizes the structure of the first panel of experts. The experts were based in 19 different countries[7], and thus the diversity of the sample by their geographical location is stressed. However, it was impossible to arrange a perfect match between the distribution of the experts on the DP by country of activity and that of the WHUS.

3.2. The weights of the KPIs in the ISC

The first round was not sufficient to reach complete consensus on the statements that describe the importance of the concepts of values, authenticity and integrity for sustainable conservation. The variation in the respondents answers in relation to statements 3 and 8 (see Appendix) resulted in inter quartile ranges larger than one unit and, according to McEntree (1989), consensus is present when the inter quartile range[8] is not greater than one unit in a five–point scale. The interaction of the second round led to an adequate consensus for statements 3 and 8. Thus, further Delphi rounds were not necessary, with a mean value capable of being transformed into weightings.

The weights of the KPIs (Ws, Wi and Wa) of the Isc were calculated by multiplying the two matrices below. These correspond to the matrices A and B of the theoretical model explained above.

Matrix A

Value of the means of the importance of the KPIs for the conservation of material and nonmaterial attributes of UHS:

KPI	Material Attributes	Nonmaterial Attributes
Significance	4.06	4.35
Integrity	4.24	3.76
Authenticity	4.18	3.96

Matrix B

Value of the means of the importance of the conservation of material and nonmaterial attributes of UHS to sustainable conservation:

Attributes	Sustainable Conservation	
Material	4.36	
Nonmaterial	4.18	

Zancheti, S. M. & L. T. F. Hidaka. 2012. An indicator for measuring the state of conservation of urban heritage sites. *In* Zancheti, S. M. & K. Similä, eds. *Measuring heritage conservation performance*, pp. 252-264. Rome, ICCROM.

The multiplication of Matrices A and B determines the weights of the KPIs for the sustainable conservation of UHS.

KPI	Sustainable Conservation	Weight
Significance	35.8846	0.342
Integrity	34.2032	0.326
Authenticity	34.7776	0.332
Total	104.8654	1

Table 2. Values of the weights of the KPIs for the sustainable conservation of urban heritage sites.

Therefore the Isc can be written as:

$$Isc = I_{sig}^{0.342} \cdot I_{int}^{0.326} \cdot I_{aut}^{0.332} \qquad (7)$$

The differences between the values of weights Ws, Wi and Wa are not large enough to claim that the contribution of anyone key performance indicator was much more important in relation to the others in determining the value of the indicator of sustainable conservation. These small differences are results expected from the point of view of the theoretical base of this study, since, from the standpoint of the theory, it is not possible to state which one of significance, integrity or authenticity is a more important concept than the other two in order to attain sustainable conservation. Thus equation 8 must be rewritten as:

$$Isc = I_{sig} \cdot I_{int} \cdot I_{aut} \qquad (8)$$

3.3. The weights of the opinion of stakeholders in the Isc

In Delphi round 1, some statements presented inter quartile ranges larger than 2. These statements were used to scale the importance of the opinion of longstanding and new residents to assess the significance (12), integrity (17 and 18) and authenticity (23 and 24) of WHUS (see Appendix). Consensus was not reached due to small differences between the scales of the respondents. Round 2 of Delphi was run with the five non consensual statements and the information of the main statistical parameters for all respondents and consensus was reached easily. The results of the second Delphi round enabled the weights of the opinions of the stakeholders to be calculated using the means of the responses. Table 3 shows the weights necessary to write the equations of the three KPIs already adjusted so as to sum up to 1 (one).

With these weights equations 2, 3 and 4 of the KPIs can be written as thusly:

$I_{sig} = 0.200I_{sig}^{Lesp} + 0.183I_{sig}^{Xesp} + 0.194I_{sig}^{Lres} + 0.127I_{sig}^{Nres} + 0.176I_{sig}^{Rgru} + 0.121I_{sig}^{Vis}$	(9)
$I_{int} = 0.206I_{int}^{Lesp} + 0.196I_{int}^{Xesp} + 0.192I_{int}^{Lres} + 0.122I_{int}^{Nres} + 0.164I_{int}^{R\text{-}gru} + 0.119I_{int}^{Vis}$	(10)
$I_{aut} = 0.206I_{aut}^{Lesp} + 0.199I_{aut}^{Xesp} + 0.190I_{aut}^{Lres} + 0.115I_{aut}^{Nres} + 0.178I_{aut}^{R\text{-}gru} + 0.111I_{aut}^{Vis}$	(11)

The set of equations (9), (10) and (11) represents the most complex case for evaluating the state of conservation of urban heritage sites, since it can be implied that the opinion of all types of stakeholders are important in all cases. However, that is not a rule for all sites since, for example, the significance of many of them when taken on their own does not depend on the presence of any others, such as the cultural reference groups. Among the large number of UHS on the World Heritage List (WHL), there is a small set where the values of the site are related to cultural groups, such as some based in religious sites.

KPIs	Local Experts	Outside experts	Long-standing residents	New residents	Reference group	Visitors	Sum
Significance	0.200	0.183	0.194	0.127	0.176	0.121	1
Integrity	0.206	0.196	0.192	0.122	0.164	0.119	1
Authenticity	0.206	0.199	0.190	0.115	0.178	0.111	1

Table 3. Weights of the stakeholder's opinion to determine the KPIs of significance, integrity and authenticity.

Zancheti, S. M. & L. T. F. Hidaka. 2012. An indicator for measuring the state of conservation of urban heritage sites. *In* Zancheti, S. M. & K. Similä, eds. *Measuring heritage conservation performance*, pp. 252-264. Rome, ICCROM.

It is important to notice that the relative weights of equations (09), (10) and (11) are split into two groups. The weights of the opinions of new residents and of visitors are relatively lower than the other weights, since their range varies, approximately, from 11.1% to 12.7%, while the others vary from 16.4% to 20.6%. It is clear that the panelists scaled the opinions of the specialists, long standing residents and reference groups as the core stakeholders when it came to evaluating the state of conservation of the sites and minimized the importance of new residents and visitors.

These outcomes are in line with the recent literature that evaluates the urban management process and stresses the importance of academic/experts/conservation enthusiasts, long-standing residents and cultural reference groups. The literature argues that they are the main social actors in sustaining the conservation process.

The possibilities of constructing equations for the KPIs are many. The weights of Table 2 can be grouped in many ways so as to express the different contexts of particular UHS in relation to the importance of stakeholders in conserving such sites. They will depend on decisions taken at the local level, by the national and local officials, with the advice of the WHC/UNESCO in the case of the WH sites. They will also take into consideration the complexity of the spatial, material, cultural, social, political and economic structure of the site and the country in which it is located. Certainly, the larger the range of stakeholders considered in the surveys for establishing the KPIs, the more precisely the Isc is likely to express the progress toward the sustainability of heritage conservation.

CONCLUSION

The indicator for measuring the changes to the state of conservation (Isc) of urban heritage sites was designed to answer three interlinking questions: Has the significance of a site been maintained over time? Has the integrity of the attributes that convey significance been maintained? Are these attributes authentic?

The Isc indicator is expressed as a function of the three performance indicators (KPIs) of significance, integrity and authenticity that are assessed by surveying opinions of the main stakeholders involved with the conservation management of sites. The indicator is thus based on the subjective judgment of individuals framed by an inter-subjective survey structure.

The method used in establishing the values of Isc and KPI weights was the Delphi round table technique. This was considered an appropriate technique because no previous knowledge or empirical research was available in the literature on the field. The outcomes favour the use of Delphi in designing urban conservation instruments for analysis and policy.

Regarding the components of the indicator of the state of conservation of the heritage urban site, survey results showed an almost perfect coincidence between the values of the weights of significance, integrity and authenticity. This result presents no surprise from the theoretical point of view, since it would be very difficult for theory to explain a different outcome. Again, the result confirms the importance of the Delphi technique in estimating subjective weights by means of inter-subjective controlled procedures.

The resulting values of the weights of stakeholder opinions in the KPIs were also in conformity with theory. Clearly, the stakeholders can be divided into two groups of importance. The opinion of the local specialists, long-standing residents and cultural reference groups were shown to be more important than the opinion of new residents and visitors.

The structure of the Isc is fixed and the same for all sites independent of their geographical location. However, the structure of the KPIs can be adapted to express the social composition of stakeholders and to use the capabilities and resources of the management institutions of the sites. It is an instrument that can contribute to improving the monitoring process of the UNESCO WHL, thus bringing more transparency to the process, giving a common structure to the evaluation of performance and diminishing bias, all of which need improvement in the instrument used today.

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APPENDIX: STATEMENTS ABOUT THE RELATIVE IMPORTANCE OF THE CONCEPTS TO THE ISC AND THE IMPORTANCE OF STAKEHOLDER'S OPINION FOR ASSESSING THE KPIS.

PART 1: SCALING THE IMPORTANCE OF SIGNIFICANCE, INTEGRITY AND AUTHENTICITY TO THE ISC

1. Maintenance of the attributes of material objects is essential for the sustainable conservation of urban sites.

2. Maintenance of the attributes of nonmaterial objects is essential for the sustainable conservation of urban sites.

3. Keeping values is essential for the conservation of the material objects of an urban site.

4. Keeping values is essential for the conservation of the nonmaterial objects of urban heritage sites.

5. Integrity is an essential quality for the conservation of the attributes of material objects in urban heritage sites.

6. Integrity is an essential quality for the conservation of the attributes of nonmaterial objects in urban heritage sites.

7. Authenticity is an essential quality for the conservation of the attributes of material objects in urban heritage sites.

8. Authenticity is an essential quality for the conservation of the attributes of nonmaterial objects in urban heritage sites.

PART 2: SCALING THE IMPORTANCE OF THE STAKEHOLDER'S OPINIONS TO THE MAINTENANCE OF SIGNIFICANCE (VALUES) OF SITES

9. The opinion of LOCAL EXPERTS is important to assess if the values of a World Heritage Urban Site have been maintained in the period being monitored.

10. The opinion of OUTSIDE EXPERTS is important to assess if the values of a World Heritage Urban Site have been maintained in the period being monitored.

11. The opinion of LONG-STANDING RESIDENTS is important to assess if the values of a World Heritage Urban Site have been maintained in the period being monitored.

12. The opinion of NEW RESIDENTS is important to assess if the values of a World Heritage Urban Site have been maintained in the period being monitored.

13. The opinion of VALUE REFERENCE GROUPS is important to assess if the values of a World Heritage Urban Site have been maintained in the period being monitored.

14. The opinion of VISITORS is important to assess if the values of a World Heritage Urban Site have been maintained in the period being monitored.

PART 3: SCALING THE IMPORTANCE OF STAKEHOLDER'S OPINIONS TO THE MAINTENANCE OF THE INTEGRITY OF SITES

15. The opinion of LOCAL EXPERTS is important to assess if the integrity of a World Heritage Urban Site has been maintained in the period being monitored.

16. The opinion of OUTSIDE EXPERTS is important to assess if the integrity of a World Heritage Urban Site has been maintained in the period being monitored.

17. The opinion of LONG-STANDING RESIDENTS is important to assess if the integrity of a World Heritage Urban Site has been maintained in the period being monitored.

18. The opinion of NEW RESIDENTS is important to assess if the integrity of a World Heritage Urban Site has been maintained in the period being monitored.

19. The opinion of VALUE REFERENCE GROUPS is important to assess if the integrity of a World Heritage Urban Site has been maintained in the period being monitored.

20. The opinion of VISITORS is important to assess if the integrity of a World Heritage Urban Site has changed in the period being monitored.

PART 4: SCALING THE IMPORTANCE OF THE STAKEHOLDER'S OPINIONS TO THE MAINTENANCE OF THE AUTHENTICITY OF SITES

21. The opinion of LOCAL EXPERTS is important to assess if the authenticity of a World Heritage Urban Site has been maintained in the period being monitored.

22. The opinion of OUTSIDE EXPERTS is important to assess if the authenticity of a World Heritage Urban Site has been maintained in the period being monitored.

23. The opinion of LONG-STANDING is important to assess if the authenticity of a World Heritage Urban Site has been maintained in the period being monitored.

24. The opinion of NEW RESIDENTS is important to assess if the authenticity of a World Heritage Urban Site has been maintained in the period being monitored.

25. The opinion of VALUE REFERENCE GROUPS is important to assess if the authenticity of a World Heritage Urban Site has been maintained in the period being monitored.

26. The opinion of VISITORS is important to assess if the authenticity of a World Heritage Urban Site has been maintained in the period being monitored.

ENDNOTES

[1] In this paper, the heritage is understood as a set of objects and processes of the urban sites that are under the protection of the society by a legal system.

[2] It is not simple to separate material from nonmaterial attributes since values are formed in the same process and their disaggregation is, in most cases, an analytical step in scientific analysis.

[3] There are non-material objects "that transmit information about our cultural heritage" (Orna *et al.* 1994, p. 52), but they will not be considered in the arguments of this paper.

[4] In this section, the term object is used in a philosophical way and includes the material objects and the processes of the urban heritage.

[5] The concepts in italics were analysed and defined in Part I of the paper. The definitions are in the Appendix.

[6] The process to multiply the matrices A and B is the following: Ws = (R3.R1+R4.R2); Wi = (R5.R1+R6.R2) and Wa=(R7.R1+R8.R2).

Zancheti, S. M. & L. T. F. Hidaka. 2012. An indicator for measuring the state of conservation of urban heritage sites. *In* Zancheti, S. M. & K. Similä, eds. *Measuring heritage conservation performance*, pp. 252-264. Rome, ICCROM.

[7] Netherlands, Portugal, Belgium, Italy, Lithuania, Denmark, Finland, Sweden, Great Britain, Brazil, Chile, USA, Canada, Lebanon, Benin, Nepal, Bangladesh, Philippines and Australia.

[8] All the inter quartile ranges of Table 2 and 3, and others were calculated using the Tukey method. Available at: http://www.investpedia.com/terms/q/quartile.asp; http://mathworld.wolfran.com/interquartilerange.html.

Zancheti, S. M. & L. T. F. Hidaka. 2012. An indicator for measuring the state of conservation of urban heritage sites. *In* Zancheti, S. M. & K. Similä, eds. *Measuring heritage conservation performance*, pp. 252-264. Rome, ICCROM.

INDICATORS OF CONSERVATION OF SIGNIFICANCE OF NATURAL/CULTURAL HERITAGE

Onilda Gomes Bezerra[1]

ABSTRACT

This article presents the partial results of the author's doctoral research to develop a system of indicators for monitoring the conservation of significance of natural/cultural heritage. The significance of Brazilian World Heritage national parks[2] is used as a theoretical and methodological basis for constructing indicators to evaluate their conservation. The indicators proposed here were developed in line with the model conceived by Carley (1985), which envisages the construction of systems on a theoretical basis interrelated with variables associating facts or phenomena to quantitative data. The discussion aims to derive indicators from the values which go towards making up the significance of natural/cultural heritage in order to evaluate how far a set of congruent and systematic indicators are operationally effective for monitoring the conservation of significance of heritage. Questions are raised about how the significance of heritage is understood, especially for properties where both natural and cultural characteristics are relevant. Natural and cultural values, whether tangible or intangible, are attributed to natural/cultural sites, giving them significance, a concept suitable as a methodological basis for monitoring heritage conservation through indicators.

KEYWORDS: HERITAGE CONSERVATION, SIGNIFICANCE, VALUES OF NATURE, INDICATORS, MONITORING

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[2] From among the types of Brazilian protected areas that are World Heritage sites, national parks were selected. These form part of bio-ecological and geophysical complexes, recognized by UNESCO as exceptional examples of natural human heritage. The following parks were investigated: Iguaçu, Serra da Capivara, Pau Brasil, Monte Pascoal, Descobrimento, Superagui, Pantanal Matogrossense, Chapada dos Veadeiros, Emas, Fernando de Noronha, Jaú and Anavilhana.

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INTRODUCTION

The preservation of natural and cultural heritage is a topic that figures in official discussions of policy, management processes and academic research on heritage as seen today. This concern has increased because of the scale of development undertaken on a global level, where associated environmental impacts are gradually destroying global heritage built up over time. This trend has drawn attention to the problem of how to protect the environmental heritage given the continuous decline in the integrity of natural processes and the loss of integrity and authenticity among cultural processes.

Heritage conservation has focused on natural goods that are vulnerable, fragile or under threat of extinction, as well as cultural goods that are unique representatives of the diversity of human self-expression and ways of life. These goods are exceptional living legacies — bio-ecological and geophysical processes and physical and visual aspects of landscapes — and the cultural inheritance represented by human processes incorporated within nature. Through the particular form it has taken, natural heritage is recognized for its hybrid values in terms of physical and biological characteristics together with the expressions of humanity stored up within it.

This context has brought about a huge mobilization throughout the world associated with valuing and recognizing natural and cultural goods. In practical terms, the number of heritage properties on UNESCO's[1] World Heritage List[2] has increased. The associated economic benefits and the boost to tourism in the areas where these properties are situated have increased competition among UNESCO Member States to include their sites on the list, alongside increased awareness throughout the world of the importance of heritage protection. The organizations responsible for managing conservation of the World Heritage have therefore considered the issues in greater depth and are in the process of working out operational mechanisms to monitor the conservation of the sites.

For the evaluation of candidates for inclusion, a committee under the aegis of UNESCO, made up of the IUCN[3] and ICOMOS,[4] analyses their natural

and cultural characteristics on the basis of a predetermined checklist of criteria.[5] The resulting categories express the antagonism that exists between the cultural and natural types of heritage, an attitude that reflects the dichotomy of heritage conservation movements – those that seek to protect cultural monuments and sites on the one hand, and those that defend natural elements. These criteria or conceptual parameters used to evaluate candidates for inclusion in heritage categories are employed in a very general way, focusing on the predominant and most exceptional characteristics of the site.

For evaluation for inclusion in the World Heritage List, UNESCO requires a Statement of Significance[6] attesting to the relevant character of the candidate justifying its consideration as being of world importance. This Statement provides information relating to the importance of the property, its representativeness for the community associated with it and the environment of which it forms part, these being the factors that justify its consideration as possessing exceptional value. The Statement of Significance is an important element in the process of evaluating natural and cultural properties, and its conceptual basis was first formulated in the heritage charters (*Australian Natural Heritage Charter* and *Burra Charter*) which define significance as the ensemble of values attributed to the property by those directly and indirectly involved with it. Whether they are natural or cultural, during the process of entry to the list, heritage sites are evaluated in accordance with the values itemized in the site's Statement, and they are categorized according to the classification criteria established by the World Heritage Centre (WHC).

UNESCO monitors the conservation of the ensemble of values associated with the properties through periodic reporting in order to check that heritage values are being preserved and maintained.[7] As well as evaluating the state of conservation of the site, this measure is also intended to keep information regarding changes in the environmental, socio-cultural and politico-economic context over time up-to-date. Periodic reporting is regarded as a fundamental tool in the management of heritage conservation. Despite its efficacy, however, it lacks practical operational mechanisms when it comes to monitoring the conservation of the ensemble of values associated with the sites. In light of this, thought has been given to indicators that could fill the gaps and strengthen monitoring systems for heritage conservation on a global level. Zancheti and Hidaka (2010, p. 2), analyzing the conservation situation for urban sites, it is important to use tools capable of perceiving changes in the state of conservation of the sites. In this way, operational measures can be developed to monitor in order to prevent or rectify damage, as well as mitigate or diminish threats to heritage preservation. Indicators are here seen as fundamental tools to meet this need.

Systems of indicators are suitable instruments for the evaluation of natural and cultural heritage, allowing the persistence of associated values and the state of conservation of heritage properties to be monitored. One of the greatest difficulties to arise lies with considerations relating to the theoretical and methodological underpinnings of these evaluation mechanisms. In line with the model developed by Carley (1985), the concept of significance was employed as a theoretical foundation, interlinking variables relating to the representativeness of the property being studied (Brazilian national parks within the human heritage) with quantitative data or parameters. This permitted the construction of a system of indicators for monitoring and conserving the significance of these sites.

Taking the heritage charters as a theoretical and methodological basis, the significance of Brazilian national parks was found to lie in the dimensions and categories of *biodiversity, geodiversity, natural beauty and cultural expressions* associated with this natural, and at the same time, cultural heritage. To identify the significance of Brazilian national parks that form part of the World Heritage, the method of 'content analysis' developed by Bardin (1977) was applied to technical and scientific evaluation reports produced by the main management organizations (UNESCO/IUCN/ICOMOS and IBAMA/ICMBio). On this basis categories were derived for the values applied to the parks in question. These categories were then interrelated with variables relating to the state of conservation of the parks and the pressures to which they are subject, making it possible to generate the indicators proposed for monitoring the conservation of the significance of these natural and cultural heritage properties.

1. HERITAGE CONSERVATION AND THE SIGNIFICANCE OF NATURAL AND CULTURAL HERITAGE

The integrated conservation approach, which built on the earlier idea that heritage, more than the monument itself, also meant the ensemble of works and its situation in the broader territorial context,

found strong expression in Italy in the 1970s. It is emphasized by Castriota (2009, pp. 229-230) that urban heritage conservation took shape after 1975,[8] but it did not arise all of a sudden on the European continent. It had operational antecedents as well as theoretical and conceptual ones. The formation of national associations[9] that promote initiatives to protect cultural heritage, with the objective of supporting public management of the safeguarding and restructuring of historic city centres, means that Italy must be seen as leading the way when it comes to the ideals of integrated conservation.

Summing up the integrated conservation approach to the historical heritage, Castriota (2009, pp. 229-230) calls attention to the idea that heritage is more than just the traditional concept of the historical, cultural building. In this context, heritage was interpreted within the scope of urban territorial planning. Integrated conservation came to be understood as a process with the objective of integrating heritage preservation in conjunction with the context of planning in its broadest possible sense, including the environmental dimensions around the object itself.[10]

In relation to the conservation of natural processes the principal focus lies on the protection of the 'living heritage', keeping in view the constant threat and the accelerated process of losses or extinction of species of flora and fauna, endangering the life of beings on the planet. The main motives underlying the defence of natural heritage were to avoid the destruction of biological processes built up over millions of years that are responsible for maintaining the life of species, including man; to maintain the integrity of ecosystems because of the important role they perform in regulating the equilibrium of bio-ecological phenomena within the biosphere; and to keep natural resources available because of the contribution they make to human welfare and development. The culminating element is the bio-ethical principle of conserving nature, understood as man's moral duty not to eliminate the life of other beings nor the geophysical processes that sustain them, which constitutes the inheritance of present and future generations.

The understanding of nature conservation is based on the interpretation of the relation between society and nature, built up during the course of human development. It is recognized that occidental society based its form of life and human development on Greco-Christian thought, whose theoretical and philosophical foundations involved anthropocentric ideas. From this perspective, nature is seen in terms of its utility; according to Passmore (1995, p. 91) over millennia, occidental peoples have considered nature to be of divine origin "created by God to be used by man" and defined as "that which, leaving the supernatural aside, designates what is non-human, neither in itself nor in its origins". Thus the concept of nature in the area of conservation was filtered through the understanding of the relationship between man and nature, whereby the key problem is the way this relationship is to be managed. In the context of sustainable development, it has been recognized that while existing societies need nature for their development, there must also be a commitment to safeguard it for future generations can benefit from it on the same terms.

Though movements defending natural resources go back to the 18th and 19th centuries, the idea of nature as heritage to be protected and safeguarded arose recently in the form of heritage conventions and charters. The protection of nature was formalized with the First Conference on the Human Environment, which underlined the importance of maintaining bio-ecological integrity given human physical and social development (UNEP, 1972).[11] The 1972 *World Heritage Convention* incorporated these ideas, institutionalizing the protection of cultural and natural heritage and creating heritage categories embracing the two dimensions of heritage.[12] The heritage types created differed in terms of the values attributed by the principal administrative bodies on a global and national level. On this basis the values traditionally defined as cultural heritage (historical, artistic and aesthetic) were expanded to include bio-ecological, geophysical and scenic values, producing a set of criteria to situate and evaluate cultural and natural objects. It can be seen that in institutional terms, the two areas of heritage protection, cultural and natural, were brought together. This explains the influence the IUCN has on ICOMOS. The institutional process of protecting heritage came to be a joint one, although the evaluation for inclusion of items on the World Heritage List was carried out differently depending on the cultural or natural characteristics involved.

As the concept of sustainable development became consolidated and established within administrative processes, it became imperative to create strategies for nations to replace their growth processes through the use of alternatives that are not destructive to the physical and cultural environment. This conceptual framework suggests that sustainability can only be achieved through radical changes in

Bezerra, O. G. 2012. Indicators of conservation of significance of the natural/cultural heritage. *In* Zancheti, S. M. & K. Similä, eds. *Measuring heritage conservation performance*, pp. 265-273. Rome, ICCROM.

terms of the use of resources and the distribution of costs and benefits. This would mean bringing about social equity both between generations and within each generation (*Brundtland Report*, 1987, p. 46).[13] Eco-92[14] delivered the *Convention on Biological Diversity* as a statute to defend the 'living heritage', in doing so establishing the concept of biological diversity. Considered the conceptual touchstone of bio-conservation, this was defined as "the variability among living organisms from all sources including, *inter alia*, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems" (CBD, 1992, Art. 2). The focus of biological conservation lies in the protection of the integrity of species and those natural environments that possess functions vital to the maintenance of life, having in view the survival of present and future generations (CBD, 1992).[15] Biodiversity, as part of the natural biological heritage, is one of the values highlighted in the *Natural Heritage Charter* of 1996 (Australian Committee for IUCN, 1996), which defined natural significance as the ensemble of values inherent to *ecosystems, biodiversity* and *geodiversity* on account of their *scientific, social, aesthetic* and life support values for present and future generations.

Geodiversity, another value of equal importance that goes into making up natural significance, is considered as the physical basis within which the biological diversity of the Earth's ecosystem exists. Together with biodiversity, it forms the biophysical ensemble of the values associated with nature. The Charter gives special emphasis to the relationship between these values and the *value of existence*, the intrinsic value of nature, and to the social and aesthetic values associated with natural resources. Geodiversity, corresponding to the non-biotic heritage, is made up of the geological, geomorphological, pedological, hydrological and paleontological resources of the terrestrial system. In the context of conservation, it is understood as 'geo-heritage', defined as the set of values representing the geodiversity of the physical and natural environment. Geodiversity is related to natural values and also to cultural ones. It may be represented by the geomorphic aspects of landscapes and geo-sites, and it is subject to the measures and procedures of the geo-conservation process (Rodrigues and Fonseca, 2008, p. 2).[16]

The geological and geomorphological aspects, the principal dimensions of geodiversity, describe our planet's history and features, helping us understand the forms acquired by the Earth over time and interpret what is visible today (Council of Europe, *Recommendation Rec* 2004-3). They constitute the morphological features of places and sites, generating the physical and visual expressions of natural heritage in the most diverse scenic forms or natural landscapes. Here, landscape is understood in terms of its aesthetic character resulting from the physical and natural morphology of the Earth's surface to which it lends varying perspectives and beauty through human aesthetic experience.

Natural significance with regards to terrestrial processes would also include the social values whose representations appear in association with the places and sites constituted by geophysical and bio-ecological formations. Rodrigues and Fonseca (2008, p. 2) emphasize that in the view of the *European Manifesto*, geodiversity unites the Earth, its people and its culture constituting the physical territorial basis within which societies are situated. In sum, the terrestrial heritage is made up of: the geological formations composed of rocks, soils and sediments, minerals, fossils, bodies of water and their morphologies represented by landscapes. Clearly, natural values are inextricably linked with cultural values as represented by human processes inscribed in nature over the course of time. The human attributes or cultural values are understood on the basis of the conceptual reference-point of the *Burra Charter*, which defined cultural significance as "aesthetic, historic, scientific or social value for past, present or future generations" (ICOMOS, 1994, Art. 1.2).

Against this background it can be seen that national parks may be understood as natural/cultural heritage, thus incorporating not only values related to nature as such, but also the additions that have been made by man through his historical and geographical trajectory. As a result of this investigation, the significance of the Brazilian World Heritage national parks was identified. The values attributed to them were shown to encompass *biodiversity*, *geodiversity*, *natural beauty* or scenic aspects of the landscapes, and *cultural expressions*, both material and immaterial, inscribed in the heritage locations or sites.

Having in view the conservation and maintenance of the natural and cultural values of heritage for the use and enjoyment of present and future generations, researchers and heritage conservation process managers have sought to develop operational instruments that have effect in the form of monitoring.

2. NATURAL / CULTURAL HERITAGE AND MONITORING INDICATORS FOR HERITAGE CONSERVATION

In the attempt to develop mechanisms with a view towards improving the process of evaluating and monitoring the conservation of the World Heritage sites, the WHC/UNESCO management system has met with operational difficulties. The organization is now promoting discussions to reflect on, and put together, instruments that are operationally effective and efficient for monitoring activities.

In relation to cultural heritage, particularly when it comes to historical sites, according to Zancheti (2009), in 1990 a pioneering initiative was launched that sought to put together conservation indicators for heritage cities within Latin American countries, but little progress was made in terms of practical proposals. In 2000 a seminar promoted by WHC/UNESCO and ICCROM[17] was held on the monitoring of human heritage cities,[18] which aimed to formulate conservation indicators, but despite the high level of participation by international specialists it too was unable to achieve consensus on a proposal. WHC/UNESCO has promoted studies with a view towards revising the methods of periodic reporting and producing proposals for conservation indicators for the properties on the World Heritage List. In 2006 a diagnostic study was carried out which observed that periodic reporting involved questions that were descriptive and non-quantifiable. Statistical data existed, but there were no indicators of conservation levels. In 2007 some progress towards the formulation of indicators, with the definition of typologies such as authenticity and integrity was seen, but there were still no concrete proposals for operationalizing the instrument.

One of the most notable systems of indicators that considers natural and cultural heritage jointly was developed in Australia, where the federal government monitors the country's natural and cultural goods using a system of environmental evaluation built up on bases set out in Agenda 21 giving support to the *National Strategy for Ecologically Sustainable Development* for the federal, state and territory governments. This system is made up of a set of indicators[19] specifically covering aspects ranging from human settlements to biodiversity, the land, internal bodies of water, estuaries and the sea, as well as taking into account natural and cultural heritage as such. However, the federal government emphasizes integrated treatment of heritage, both natural and cultural. The joint treatment of natural

and cultural indicators is considered by Australian administrative bodies to be an innovative, important and necessary method. In this way, the Australian model for indicators is aimed at integrated natural and cultural heritage; and within the set of indicators that have been drawn up, it focuses on the following heritage items: *natural heritage places*; *indigenous heritage places*, including those that form part of human cultural life, such as archaeological sites; *indigenous languages*, given the vital links between the aborigines and heritage places, considered to be sacred; *historical sites*; and *natural and cultural objects*. It is worthwhile to emphasize that although the indicators are presented in separate sections, efforts have focused on dealing with the environment, treating it as a whole within an integrated heritage vision that recognizes the complex interrelation between natural and cultural dimensions (Pearson *et al.*, 1998).

With regards to natural heritage, what have been developed in terms of indicators are the systems proposed for the environmental dimensions of sustainable development envisaged by Agenda 21, and consolidated following the Rio Conference. Based on the concept of sustainable development, environmental management instruments have been put together with the aim of promoting balance and integration between the economic, social, environmental and institutional dimensions mentioned in Agenda 21. It should not be forgotten, though, that environmental sustainability is related to the impacts and pressures of human actions on the environment. Building on this idea, the basis for the model of environmental indicators may be summed up as PSR (pressure/state/response). In this way interest in indicators to evaluate environmental actions and policies arose in the 1990s. This reflects the maturing of the theory and concepts of sustainable development, particularly after the Rio Conference.

Among existing models for indicator systems, where variables are interrelated with specific concepts and empirical data, a relevant point of reference is the theoretically founded model outlined by Michael Carley, which suggests that indicator systems can be developed on the basis of a theory that maintains relations with variables associating facts with empirical data, so allowing the formation of "estimates of relations between theoretically specified variables" (Carley, 1985, p. 68). This methodological orientation has allowed for the development of a system of indicators as an instrument for

Bezerra, O. G. 2012. Indicators of conservation of significance of the natural/cultural heritage. *In* Zancheti, S. M. & K. Similä, eds. *Measuring heritage conservation performance*, pp. 265-273. Rome, ICCROM.

monitoring the conservation of natural/cultural heritage on the basis of the concept of significance.

3. OPERATIONALIZING THE INDICATORS TO MONITOR CONSERVATION OF THE SIGNIFICANCE OF NATURAL / CULTURAL HERITAGE

Considering natural/cultural heritage within an integrated heritage conservation approach made it possible to understand its significance. Heritage significance was the theoretical and conceptual presupposition underpinning the construction of indicators for monitoring the conservation of the significance of Brazilian national parks that form part of the heritage of humanity. Heritage values were identified on the basis of an understanding of the operationalized concept of significance according to the theoretical and operational protocols and procedures used by world systems for managing heritage conservation.

According to the methodological protocols and procedures of the heritage conservation system, within the management process all involved actors should be heard in order to determine the significance. In order to carry out this investigation, the values attributed by the principal managing organizations (UNESCO/IUCN and IBAMA/ICMBio) were taken into account. It should be emphasized that these agents determine the policies, actions and implementation of management instruments for the conservation of the Brazilian national parks within World Heritage. For this reason, the heritage values they consider to be objects of protection attributed to the parks are officially recognized by the organizations responsible, giving them a solid political, technical and scientific basis in the context of conservation and thus making the evaluation substantive and credible.

The 'content analysis' of the documentation selected for the objective of this study, which consisted in evaluating the bio-ecological, geophysical, aesthetic and socio-cultural characteristics of the national parks under consideration, made it possible to derive categories of values found. These categories were linked with the various dimensions of values attributed to the national parks according to the significance represented by *biological diversity*, *geophysical diversity*, *scenic aspects of landscapes* and *cultural expressions*. This made up a matrix of values including biological and abiotic aspects (natural or non-human values), and the aesthetic aspect and human expressions (cultural value).

From an operational point of view, the allocation of the values identified to their respective heritage values was based on the evaluation and classification criteria adopted by UNESCO. By interrelating the set of values established in the heritage charters for natural and cultural significance with the heritage evaluation criteria adopted by UNESCO and the values identified as making up the significance of the Brazilian national parks, it was possible to define value categories that could be represented by indicators, making it feasible to monitor the conservation of significance of these properties. With a view to the construction of the indicators, the value categories identified were understood in terms of their representativeness in relation to the value dimensions shown in Table 1.

Once the structure underlying significance had been established, the mechanisms for formulating the proposed indicators were developed. The logical starting-point for the construction of the indicators was an understanding of the operational content of the categories as variables interrelated to parameters that can be quantified. In other words, the categories (described in Table 1, next page) functioned as variables related to data that can measure the fundamental characteristics of the values represented by each specific category. In consequence, the interrelation between the variables and the empirical data produced congruent indicators that are pertinent to them.

Thus, the basic operational procedure for formulating the indicators was to associate value categories with the data quantifying their characteristics. These data or quantifiable variables were deduced on the basis of situations related to the conditions that characterize the 'state' or the 'pressure' to which the parks are subject, in accordance with the PSR model (pressure/state/response). The result is a set of indicators that can instrument the monitoring of conservation of significance of Brazilian national parks that form part of the heritage of humanity.

CONCLUSIONS

The study showed that in order to construct a system of indicators for the evaluation of the heritage conservation of a natural/cultural item, first, the theoretical approach used as a basic methodological and conceptual premise needs to be taken into account; in this case this was integrated conservation.

Bezerra, O. G. 2012. Indicators of conservation of significance of the natural/cultural heritage. *In* Zancheti, S. M. & K. Similä, eds. *Measuring heritage conservation performance*, pp. 265-273. Rome, ICCROM.

VALUE CATEGORIES	VALUE DIMENSIONS	VALUES
NATURAL SIGNIFICANCE / NON-HUMAN VALUE		
Vegetation formations	BIODIVERSITY	BIOLOGICAL
Flora		
Fauna		
Habitats *		
Geological history of the Earth	GEODIVERSITY	ABIOTIC
Forms and features of relief		
Hydrological resources		
Relief units *		
Geological structures *		
Geophysical formations *		
Natural landscape	NATURAL BEAUTY	AESTHETIC VALUE
CULTURAL SIGNIFICANCE / HUMAN VALUE		
Historic or prehistoric records	CULTURAL EXPRESSIONS	CULTURAL VALUE
Indigenous peoples		
Immaterial culture		

Table 1. Categories, dimensions and values. * N.B.: These categories were not considered in the course of this research owing to the complex variables associated with geological, geomorphological, morphoclimatic and phyto-geographical aspects.

Secondly, the methodological procedures must be anchored in the doctrines and operational protocols of the instruments adopted by world systems for managing the conservation of natural and cultural heritage, as appropriate to the object being studied.

In terms of theoretical and conceptual premises, it was concluded that the integrated conservation approach involves a set of macrosystems for evaluating heritage conservation whose disciplinary approaches guide the operationalization of instruments applied to the evaluation of the object as a whole. Secondly, significance, considered as the key term for the evaluation of heritage conservation, calls for the interlinking of all the value dimensions it embraces, drawing on the specific disciplinary approaches needed to understand its theoretical and operational content. Given this, within the concept of significance there is an interdisciplinary interaction between the theories of the biology of conservation, geoconservation and the conservation of cultural heritage, both tangible and intangible.

From a methodological and operational point of view, it can be seen that the set of values identified made it possible to interrelate variables and quantitative parameters to generate indicators compatible with the theoretical and conceptual foundations drawn on as well as being suitable for monitoring the significance of natural/cultural properties. It may therefore be concluded that it is indeed possible to define a set of indicators capable of evaluating the conservation of significance of natural/cultural heritage by systematically bringing together a set of theoretical and methodological protocols and operational procedures applied to the process of managing integrated heritage conservation.

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Endnotes

[1] UNESCO — United Nations Educational, Scientific and Cultural Organization.

[2] UNESCO's World Heritage List currently includes 911 items, of which 704 are cultural, 180 natural and 27 termed 'mixed', spread among 151 member states. There are 11 cultural and 7 natural properties in Brazil. The natural items correspond to the protected areas which include the national parks that are the empirical object of this study. (www.unesco.org. Accessed: 09/11/2010).

[3] Inernational Union for Conservation of Nature and Natural Resources, currently known as the International Union for Conservation of Nature, and also formerly the World Conservation Union (www.iucn.org. Acessed: 09/11/2010).

[4] ICOMOS — International Council on Monuments and Sites.

[5] The ten criteria were drawn up by the The Operational Guidelines for the Implementation of the World Heritage Convention, in 1992, divided into six criteria for cultural heritage and four for natural heritage. In 2005, these were revised and compiled as a set of ten cultural and natural criteria.

[6] The 'Statement of Significance' is a document required by UNESCO/WHC (World Heritage Centre) which offers technical and scientific support to the Member States in drawing it up.

[7] Periodic reporting takes place every six years, and is carried out in one region of the planet at a time. Member States take responsibility for producing the reports with technical support from UNESCO provided by the WHC.

[8] This was the European Heritage Year, as declared by the Congress on European Architectural Heritage where the unique architecture of Europe was denominated as the 'common

heritage of all peoples' forming part of the 'cultural heritage of the entire world' (*Amsterdam Declaration*, 1975).

[9] The most active association at the time was the *Associazione Nazionale Centri Storico-Artistici*, formed in 1960, which mobilized politicians, administrators and intellectuals involved in the area of the conservation of the historical heritage (Castriota, 2009, p. 229).

[10] Castriota (2009, p. 230) notes that these ideas had been advocated before this, for instance in the *Bruges Charter*, which defined a broad European environmental policy including a focus on heritage matters. This may explain the impact of the 1972 Club of Rome report, which drew attention to the question of the limits of population growth given industrial development and the scarcity of food and natural resources.

[11] UNEP — United Nations Environment Programme — *Stockholm Statement*, 1972.

[12] This Convention defined categories referring to cultural heritage (monuments, groups of buildings and notable sites) as well as natural heritage (natural monuments, physiographical and geological formations, habitats and notable natural sites).

[13] This report, also known as *Our Common Future*, defines sustainable development as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (*Our Common Future*, 1987, p. 46).

[14] Known as the *Rio Conference*, the *Rio Charter* or UNCED (United Nations Conference on Environment and Development), held in Rio de Janeiro, Brazil.

[15] *Convention on Biological Diversity*, signed in 1992, during ECO-92.

[16] Geoconservation is the process of conservation of abiotic elements of nature, or geodiverisity. According to Sharples (2002) it aims to preserve geological and geomorphological meaning, the features and processes of the ground, maintaining the integrity of natural levels and scale while bearing in mind change within natural processes.

[17] ICCROM — International Centre for the Study of the Preservation and Restoration of Cultural Property.

18 Seminar on 'Monitoring for World Heritage Cities'.

19 The system of indicators makes up the substance of the report *Environmental Indicators for National State of the Environment Reporting — Natural and Cultural Heritage*, produced in 1998 by the Australian government's Department for the Environment.

Bezerra, O. G. 2012. Indicators of conservation of significance of the natural/cultural heritage. *In* Zancheti, S. M. & K. Similä, eds. *Measuring heritage conservation performance*, pp. 265-273. Rome, ICCROM.

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