

INFORMATION MANAGEMENT FOR THE CONSERVATION OF ARCHAEOLOGICAL SITES -
SUGGESTIONS FOR A SITE IN WESTERN ANATOLIA¹

ABSTRACT

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In the world of today, regarding the increasing number of threats to archaeological sites and the complexity of problems that are faced, management of archaeological sites has become one way to ensure their conservation. An important aspect of managing an archaeological site is to evaluate the information on the site and to suggest methods for the proper management of information. Especially in archaeological sites where excavations are continuing, new information is reached continuously and is added to the already existing data, which can be in forms such as plan drawings, inventories, photographs, etc. The decisions made during the management planning of a site and those that will be made in the following years depend on the available information on the site; thus, employing wise, systematic means and a holistic approach in collecting, classifying and disseminating all the information on the site is critical. The importance of information management increases in providing the optimum circumstances for understanding the site. In this respect, utilization of computers and other digital media are all the more favoured. Within this framework, current circumstances in an archaeological site in Turkey can be discussed to evaluate conditions for the sustainability of the site.

INTRODUCTION

The complex circumstances in which the works for the conservation of archaeological sites have to be accomplished, necessitate methods that allow the responsible people / institutions to act on as much information as possible about the site. The need to make decisions based on detailed information, so as to avoid making mistakes, requires employing management systems both for the overall conservation of the site and also the storage, access, dissemination and review of information about the archaeological site in question. In this context, management of an archaeological site means "...to approach a defined objective, or objectives, for that site in a disciplined way which, with given constraints and resources, will most easily allow that objective to be realised" (Evans 1986:10). In short, management is about planning the future of an archaeological site with conservation aims, defining guidelines for matters such as visitor management, consolidation and restoration of ruins, interpretation and presentation and maintenance

To understand a site, a range of information is necessary, from archaeological and architectural data to social aspects, legal administration, land ownership of the site, etc. since the site is considered as an integrated whole with its surroundings. At present, the use of digital technology in the studies on archaeological sites lessens the amount of time obtaining

information but also increases the amount of data to be stored, re-accessed and updated. On the other hand, multi-disciplinary studies have increased in the scientific works carried out at archaeological sites, and as a consequence, many kinds of information exist for understanding an archaeological site, other than those of only archaeological interest. Consequently, systems where the data is recorded, classified, accessed, disseminated and updated are important. Applying appropriate digital technology can aid decision-making for conservation in the management of archaeological sites, through cross-relating the stored and updated data.

In this respect, the following study contemplates on the necessity of an information management system for an archaeological site in the Aegean Region of Turkey, in order to develop a holistic perspective in the decision making process for the sustainable conservation of the site.²

ARCHAEOLOGICAL SITE CONSERVATION IN TURKEY

Turkey, having a total of 4920 listed archaeological sites and archaeological research projects (incl. scientific excavations and surface expeditions), is showing an increased interest in the conservation of its archaeological sites. The number of archaeological excavations, which are conducted by either Turkish or international teams or the local museums, increased from 71 to 282 in the last 20 years. Similarly, developments in the field of conservation are observed: the sites themselves, as a whole, gained importance since the 1990s, upon which conservation and development plans for

Management	Management of Archaeological Sites
<ul style="list-style-type: none"> - Understanding resource through analyses - Evaluating data to find means of achieving the aims - Foreseeing changes in the resource and its surroundings - Reconciling conflicts 	<ul style="list-style-type: none"> - Holistic and Integrative Approach - Determination of values - Planned decisions opposed to crisis decisions - Gathering of related interest groups - Periodic reviews of the management plan and its decisions based on updated information

Figure 1 - Management for the conservation of archaeological sites can be useful in providing the above



Figure 2 - Location of Magnesia ad Maeandrum (National Geographic Society, Washington DC, September 2002)

archaeological sites, among them Hierapolis/Pamukkale and Perge, were prepared. Previously, the activities of conservation in archaeological sites in Turkey were mainly oriented towards consolidation, repair and restoration of single monuments. Lately, management as a system for enabling comprehensive site conservation is being debated and a site management plan for Hierapolis/Pamukkale has been prepared.

However, there are many factors common for all archaeological sites threatening the future of archaeological sites in Turkey. Especially worth mentioning are the lack of integration of conservation works with development policies and the disregard of the importance of cooperation of key interest groups of the archaeological sites. A step forward could be to collect all information about an archaeological site, and to form a medium to share it with the determined key interest groups and most importantly the responsible institutions, so as to make decisions for the sustainable conservation of the site. At a smaller scale, the information collected through documentation and research and other means, should be gathered in a database system, enabling evaluation by considering a variety of information, resulting in the definition of priority actions and long and short term plans for the conservation of the site.

SUGGESTIONS FOR THE USE OF INFORMATION MANAGEMENT IN MAGNESIA

The ancient city of Magnesia is located in the Germencik district of Aydin Province, on the western part of the Great Menderes (Meander) Plain near Gumusdag (Mount Thorax) (Fig.2). It is situated in a rural area surrounded by villages but is close to urban centres such as Kusadasi, Aydin and Izmir. The city was an important religious centre from the archaic period until it was abandoned in the 1300s. The most important

historical information on Magnesia is the epiphany - a divine manifestation- of the Goddess Artemis that took place in the city and the Isitheria festivals that started to be held in honour of this event. Magnesia attracted many travellers before the 20th century, especially because its Temple of Artemis was mentioned in Vitruvius' 'Ten Books on Architecture', but the first excavations took place in the 1890s, carried out by C. Humann.

Magnesia is a registered archaeological site since 1990, with visible archaeological remains belonging to the Hellenistic, Roman, Byzantine and Principalities Periods. Major above-ground remains are the Theatron, Gymnasium and the Roman Baths/Barracks as well as the Altar and Temple of Artemis, the Market Basilica and the Propylon of the Agora, Mosque and Cemetery. However, some of the ruins, among them the Temple of Zeus, were transported to Europe prior to the 20th century and today are in the museums of Louvre in Paris and Pergamon in Berlin.

Currently, archaeological excavations are continuing under the supervision of Prof. O. Bingol from Ankara University, who has been working at Magnesia since 1984. The excavations are carried out on the expropriated areas; the larger section of the site is privately owned and used for agricultural facilities. The works accomplished during the scientific excavation consist of digs in many locations, environmental investigations, restoration of building remains, material conserva-

Strengths	Weaknesses
<ul style="list-style-type: none"> - Registered archaeological site status providing compulsory protection - Ongoing archaeological excavations - Representative of history of archaeological research in Turkey - Local support and interaction - Cultural and socio-economic values of the site 	<ul style="list-style-type: none"> - Registered archaeological site boundaries not covering the whole ancient city - Inability to work in larger areas within the site - Less known compared with surrounding sites such as Ephesus and Miletus - Use of predominantly manual methods in documentation and archive keeping - Lack of integrated information for evaluation - Inefficient holistic decisions for conservation - Lack of financial sources
Opportunities	Threats
<ul style="list-style-type: none"> - New information reached continuously - Sponsors aided the scientific works - Situated in a highly attractive tourism area close to many famous archaeological sites - Well-informed visitors - Location in well-known region - Located near a frequently-used highway - Transition to digitised methods in architectural documentation and archive keeping 	<ul style="list-style-type: none"> - Lack in legal provisions for the security of the excavated ruins - Lack of communication between legally responsible organizations - Uncontrolled tourism development in the vicinity - Expansion of new construction areas towards the archaeological site boundaries - Natural hazards - Illicit excavations within the boundaries - Site separated by a highway

Figure 3 Analysis of current conditions in Magnesia (SWOT Analysis)

Cultural Heritage Management

tion, architectural documentation and environmental organization. This leads to a variety of information about the site, which has to be evaluated to understand the site's past and to plan for its future. A detailed analysis of the current conditions (Fig.3) reveals that there are multi-faceted conditions calling for necessary experience of a multi-disciplinary effort. There is a need for an information management system that enables comparison and interaction of information and a mechanism to monitor the condition of the site. Considering the fact that Magnesia has several problems to be solved, including natural, legal and financial ones, there is a need to make comparative analysis of the information relating to these problems, to define strategies for conservation.

In this context, the main goal for the conservation of the site should be to find means for establishing a site management mechanism, working not only for Magnesia but also for other sites in the region. Similarly, the short-term objectives for managing Magnesia for its conservation should include aims about establishing a digital information management system for the scientific archaeological excavations that are being carried out.

In this way, users of information about the archaeological site, including the excavation directorate, local and central government and the public, would be connected. The objectives can be:

In this way, users of information about the archaeological site, including the excavation directorate, local and central government and the public, would be connected. The objectives can be:

- Establish a digitised database of all information on the site (incl. socio-economic conditions, legal framework) providing evaluation of data in relation to one another
- Establish a system enabling integration and interaction of information that gives way to making appropriate decisions for the conservation of the site
- Transform previously finalized architectural documents into a utilizable database
- Prepare action plans for archaeological excavation and architectural documentation
- Ensure periodic revision of action plans and update information for decision-making

Considering the current conditions at Magnesia, there are some priority decisions that need to be made, which at best should be decided on through utilizing methods such as GIS technology. These decisions are:

- Archaeological Site Boundaries
- Cadastral plan
- Roads, Railway and Paths
- Topography
- Geological Characteristics
- Landownership
- Land use
- Flood Areas
- Area Protected with Fence

- Excavated Areas
- Architecturally Documented Areas
- Buildings (ruins, new blds. etc)
- Periods of Ruins
- Condition of Ruins
- Locations of Ruins Abroad
- Locations of Small Finds
- Favourite Tourist Routes
- Location of Information Panels

Figure 4 Possible layers of information for a GIS application in Magnesia

- Designation of zones showing physical expansion directions/areas and reserve areas of archaeological work
- Designation of areas that need to be expropriated for the continuity of the excavation
- Designation of ruins in need of immediate intervention

In the case of GIS applications in the archaeological excavations at Magnesia, a number of layers of information need to be studied (Fig.4). The correlation between these layers is essential in coming up with the optimum solutions to problems. As an example to decision-making, the designation of expansion zones depends on the cross-relation of most of the layers printed above, among them, a relation between land ownership status showing lots that can be expropriated in the short term, and the location of ruins in need of urgent intervention, can be mentioned.

CONCLUSION

The conditions at Magnesia and the methods to provide its sustainable conservation can be common for many archaeological sites in Turkey. This means that, there is a need for a holistic system in Turkey. At this point, it is essential to understand that, one of the key aspects (what should also be the priority aim) in archaeological site conservation in Turkey is the develop information systems on archaeological sites and to provide their integration into the national development systems. Within this framework, a selected part of the data in the information system, that is to be based on the site's scale and characteristics, which are at best created by a multi-disciplinary team working at the site, should be made public and accessible to a wide range of users, from academic researchers, to the local community. This could provide related persons and institutions, such as scientists working on the site and the local and central governments, with the data required and form the basis of an integrative approach in conservation. In the future, a transition from information systems of archaeological sites based on geographical regions to information systems based on various themes could be put forward. A sample further step could be to devise an information system that could present information about the Roman archaeological sites in the Aegean Region.

¹The study presented here is a further examination of a part of an MSc Thesis prepared by B.N. Oz, to the Faculty of Architecture, Department of Restoration, Middle East Technical University, Ankara, Turkey, under the supervision of Inst. Nimet Ozgönül of METU and the excavation director of Magnesia, Prof. O. Bingol of Ankara University. The author (B.N. Oz) would like to thank Prof. O. Bingol for his permission to study at Magnesia and to use related documents for the preparation of the thesis.

²This study reflects primarily the views of restoration architects. It is acknowledged that most of the information and suggestions supplied here can be more comprehensive if studied with a multi-disciplinary group.

³ Data taken from related reports of the Ministry of Culture for the year 2001.

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