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The Previous Conservation Data and the Process of Conservation: A Case from Jordan

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Abstract

Although conservation practitioners are ultimately interested in the protection or restoration of the archaeological heritage, much of every day work of conservation involves the production of documents in different formats which endorse the various actions taken during the conservation processes to counter threats to the archaeological heritage. Documenting, managing and understanding of these available data is a critical step in many stages of the conservation process such as setting priorities as to when and where to work, developing strategies to address these problems, coming up with measures and new solutions to determine whether a given conservation project or programme is achieving its desired results, and analysing and comparing results to promote learning. Despite the importance of documents in the conservation process, there are only a few standardised systems for dealing with managing these data within conservation community in Jordan and no system in wide use across institutions. To address these problems, in this paper we focus on the status of the documents such as photographic and written reports from Jordan which refer to World Heritage Site of Petra and Jerash, for their long record of conservation processes. A database network for the conservation documents is proposed as local solution for the two cases, and which might become the first draft of a system that after sufficient discussion and modification might be adopted across the conservation community in Jordan in the coming future.
Introduction

In most archaeological conservation cases, the conservation processes produce documents and reports that explain how the processes work, and that discuss the historic contexts as well as the related goals and priorities of the conservation processes. While the processes can operate in the absence of these documentations, conservation documents keeping and reviewing are vital because they are the most effective means of communicating the processes, the results and their recommendations to others. Documenting the previous conservation processes, apart from saving large amount of time and money needed in the conservation processes and which can be diverted into research in conservation, also records the different intervention decisions taken about archaeological remains. The economy of the previous conservation data is illustrated in Fig. 1. For comprehensive archaeological conservation, for example, diverse data from fields such as geology, engineering, biology, climatology, geomorphology and geography may also be needed. As time goes by, individual conservation scientists, conservators and institutions to be involved in the conservation processes will depend, in part, on the available documents which are present for the under-investigation archaeological remains.

![Diagram](image)

Figure 1. Economy of the previous conservation data

Archaeological conservation documents in general might include: registries of site and artefacts, reports, scientific articles, photos, video and audio media, maps, drawings and illustration, slides, samples, etc. and might have detailed information about:
1. the conservation process,
2. the used techniques,
3. the used materials,
4. time schedule,
5. the cost, and
6. the names of the involved parties.

During the archaeological conservation process, the various stages are documented, reviewed and evaluated to reflect the current knowledge. Other related documents and reports, on the other hand, must also be revised and updated to suit the current state of knowledge. During the conservation process, previous conservation data generally flow in a multiple broad-lines system (Fig. 2). These data need to be represented in such a way that can be easily adopted, modified and exchanged by the conservators. On the other hand, when the conservation documents or other materials containing information (i.e. graphics, photos, visual and video media, etc.) of the conservation process and the data system are well organised and are made in widely accessible and readable format, they are more useful for the prospective users.

To obtain this effective circulation of the conservation data, one has to answer questions about the data storage such as: How will data be stored? Where will it be stored? Who will have access to it? Should all the data be available to the end user? and, what about confidential data?

Figure 2. Conservation Data System
The archaeological conservation work plan

The protection and conservation process many times is an obligated act of governments and institutions towards their human cultural remains in response to the deteriorating and vanishing monuments, diminishing resources and disappearing sites. As a result, the practices of conservation and preservation have emerged as a new and natural force to protect the human heritage. However, in some contexts, conservators’ interventions would appear as an external human interference in terms of the historic context of the archaeological remains, as the processes of archaeological conservation that are being implemented with historical value of the remain are already in the mind of the conservators. Nevertheless, archaeological conservation can broadly be defined as: “a broad group of activities which aim to prevent portable and importable archaeological records from becoming deteriorating and disappearing”. It might include the direct conservation of the archaeological remains, collections of data, education programmes, invasive damage control, recovery and restoration work, research programmes, training, etc. Normally, archaeological conservation work is implemented through a plan which is generally comprehensive.

The archaeological conservation work plan should consider the following in general:

- that the purposes of the conservation and the mission of the work plan is being fulfilled;
- that the general conservation plan policy direction is incorporated into the management of the archaeological heritage sites;
- that opportunities are available for interested groups to participate in the development of management direction;
- providing a systematic process for making and documenting conservation decisions, and for establishing broad management strategies for conservation management programmes and activities, and
- providing a basis for assessment and evaluation of accomplishments.

Previous documentation and evaluation of conservation process, as well as the registration of the maintenance procedures, represent significant components of the historical value of the archaeological monuments. Nevertheless, all the intervention processes of a comprehensive conservation process indeed are new embedded historical context of the archaeological structures.

Therefore, the documents and evidences and other data type of the conservation process are generally the important surviving communication means of the archaeological structures (Fig. 3).
Whatever the results of the conservation processes are, in general all previous conservation documents do produce the expected and unexpected results, and do provide a lot of information concerning: the state of the archaeological building under study, the different interventions needed and the way these archaeological structures are deteriorating. However, scanning and reviewing all possible conservation documents (e.g. reports, scientific articles, photos, maps, drawings, slides, samples, etc.), implied techniques (whether modern or traditional) and materials (mortars, consolidantes, chemicals, etc.) may be too detailed and perhaps confusing for the requirements of a conservator at once.

Therefore, to avoid this inconvenience and for the benefit of the conservation process in terms of cost and time, establishing a simpler quarried database with easy record-keeping method about each site could be used, as well as one that would require less time and would be easier to understand, crosscheck and interpret. On the other hand, the achieved results from previous works and techniques need to be reproducible documents and critically evaluated before taken, since they rely on the record’s objectivity. And before we discuss the database network and its structure, goals and affectivity, we need to answer this question:

**What are the challenges facing archaeological conservators in Jordan?**

In most of the cases, during the mid of last century, archaeological conservation in Jordan has often been carried out by the archaeologists themselves without any previous planning, and often without the aid of experts.
This activity was carried out under the following conditions:

- loss and disappearance of high-value sites or monuments due to non-sustainable management,
- loss and fragmentation of remaining archaeological records,
- some conservation data was not well kept and was often not accessible,
- loss of traditional conservation processes and management and its associated knowledge,
- archaeological conservation skills and infrastructure shortages, and
- lack of accurate data on archaeological conservation, their distribution and the threats that each site or monument faces.

However, the biggest challenge for archaeological conservation in Jordan today is the challenge to make archaeological conservation relevant to Jordan Heritage and its current priorities with the following primary objectives:

To have regular conservation policies tailored to Jordan and its special cultural and environmental particularity, in order to halt the marginalisation of conservation process in the heritage general plan policy process and to enhance its full and beneficial integration into the local and regional economy;

- To generate local knowledge in conservation and have local conservators;
- To involve local communities and eradicate poverty;
- To place archaeological sites and monuments, both individually and collectively, on a standard path of sustainable conservation and development;
- To identify conservation as a sustainable tool of archaeological heritage management and accelerate the process of conservation;
- Since archaeological conservation is often composed of small and large projects that are located in different parts of Jordan, and are generally far away from one another spatially and culturally, it is highly important that communication systems are developed to be both process-effective and cost-effective.

Therefore, a serious issue that also needs to be discussed here is how these data will be communicated to interested conservators and others. Establishing a network with structured database would allow effective transfer of the conservation data. A network will also promote good and reliable communication among conservators. Apart from the web sites, online researchable database and emails, this communication can include governmental control, face-to-face meetings, cross-site visits, workshop and conference calls, new cases reporting, etc.
Creating a database for previous conservation works

Previous Conservation Documents are being held by a wide range of stakeholders in Jordan to determine specific conservation needs and priorities, participating in training workshops and developing resources and capacities. However, Previous Conservation Documents need further support in order for these activities to be supported and to occur more widely in order to successfully implement the conservation action plan.

The development of a structured network and access to electronic resources and tools by Jordanian conservators will greatly improve the ability of conservation practitioners to make informed decisions and to carry out successful conservation work. The purpose of establishing database is to set forth a practical solution of how previous data in the conservation works should be identified, documented, evaluated, treated and represented. The database should help to reduce the questions asked to a minimum, rather than succumb to the temptation to produce an over-elaborated scheme which would be more difficult to use and standardise.

Hence, specialised conservation database needs to be a multidisciplinary one; it should not be constructed so broad as to include in some way irrelevant data nor so narrow as to contain only very relevant type of data. It is also important to identify the physical sources of information of the existing conservation data that is needed to formulate goals for identification, documentation, evaluation and treatment, and to identify factors that will affect achievement of those goals.

Digitalisation and full computerisation of the previous documents of the archaeological heritage conservation will make the data considerably more resourceful, both for research and as a conservation tool. Theoretically, the production of a digital version of the conservation data will oblige us to manage the original paper record and its archives as they are now the original reference for the digital database. One has to bear in mind here the total number of the special areas of conservation process of which only a handful has been published and find what the actual scientific value of the each paper and the sense of publishing the raw data of the Sites and Monuments record. However, it also has to be stated that the management of the previous conservation documents will firmly be based in the conceptual framework of existing local conservation experiences and in the particular physical environmental setup of the archaeological sites.

To create an adoptable conservation document database in Jordan, the following suggested procedures can be followed and which can be adopted in other areas too (Fig. 4):

1. Identify the geographical limits, time period and the concept for the conservation data.

The geographical areas and chronological order of each conservation case should be defined on the basis of the established theories, models and descriptions and these can be
used as the basis for defining the conservation data concepts. The identification and description of previous conservation works should incorporate contributions from all disciplines involved in conservation procedures. However, in some cases there may be exceptions, for example in preservation large fortified masonry walls where the topographic and physiographic regions are often outlined first. The geographical boundaries for conservation criteria should not be based upon contemporary political, administrative, project or other contemporary boundaries if those boundaries do not coincide with conservation criteria boundaries. For example, boundaries for predominantly sandstone masonry structures will have little relationship to contemporary site, city, or region boundaries is that of the local geology.

**Figure 4.** Assembling the existing data about the conservation work

**Existing previous conservation data assembling**

Different institutions and groups that may have important roles in defining conservation criteria and values should be identified. A range of local or traditional constructors and restorers, knowledgeable professionals drawn from the preservation, planning and academic communities will in most cases be available to assist in defining conservation criteria as well as in identifying sources of information to assemble. The process can be accomplished by collecting several kinds of information: literature on archaeology, history, geomorphology, architecture and the environment; information about the cultural history of the area encompassed by the natural context, social and environmental impact assessments; micro and macro land use; architectural and social studies and oral histories; ethnographic research; technical reports prepared for the assessments of the archaeological monuments; and direct consultation with individuals and organised groups must be made to construct a conservation database. Other sources may include survey data which are an important source of information about the geographic distribution of the archaeological and nature resource.
Information should be gathered keeping in mind its relative importance to the conservation procedures, the cost and time involved, and the expertise required to obtain it.

**Previous data assessment**

All collected information should be assessed and reviewed to identify bias in conservation perspective, methodological approach, material used, or area of coverage: for example, different stone materials behave differently with different bonding material in different environmental setup, or field surveys for archaeological sites sometimes ignore relative and important data for conservators such as masonry quarry sites.

**Synthesizing previous conservation data**

The information collection, evaluation and analysis results are invaluable data for the present and future conservation works. These data provide a detailed synthesis of the data that have been collected and analysed. Quarry of these data might answer needed questions in the digenesis of the masonry or might cover data on the following aspects: previously used materials; compatibility of a type of used consolidants; cognitive and aesthetic values embodied in architecture; construction technology or craftsmanship; research values or problems relevant to the conservation criteria; social and physical sciences and humanities; cultural interests of local communities; and even data on intangible cultural values of ethnic groups.

**Defining the different archaeological records types**

Whatever the archaeological record types, if it was an artefact, structure, feature or ecofact, it is based on shared physical or associative characteristics. Conservation criteria defined for each record type should be directly related to the conceptual basis of the conservation procedure: for example, the archaeological structures in Petra can be classified into two major types i.e. rock-cut and free standing monument types (Plate 1).
UPDATING EXCITING DATABASE, AND IDENTIFYING DATA WEAKNESS AND DATA NEEDS

Filling gaps in information is an important element of a successful conservation procedure designed for each archaeological remain. Statements of the information needed should be as specific as possible, focusing on the information needed, the conservation conditions it applies to, and why the information is required to perform identification, evaluation or treatment activities.

Communicating and circulation of the conservation data:

The success of compatible preservation process depends on how well it solicits and integrates by time the results and views of various groups, at various situations and locations. The state of compatible conservation process is directed first toward resolving conflicts in principles, means and goals for archaeological remains preservation, and second toward resolving conflicts between archaeological preservation goals and other cultural resource management and use-planning goals. Thorough documentation of the multidisciplinary process of conservation at the different levels with the public participation are integral to compatible conservation approach, which could be achieved through at least the following actions (Fig. 5):

- Collection of the various definitions, parameters, reviews and revisions of the cultural significance, context, goal and priorities of the archaeological remain from the previous work of the involving conservators, archaeologists, historians, architects, and others from related disciplines;

- Involving documentation and collection of the various opinions of the interested groups in the conservation of the archaeological heritage to evaluate if the existing expectation of the archaeological remains against the vision of the achievement of the suitable protective measures;

- Involving documentation of the present and prospective users of the preservation data and the ability in achieving the use of the previous works and defined issues, goals and priorities;

- At archaeological sites level actions should involve documentation of the various conservation procedures and implied techniques and materials used by the present and previous conservators of the archaeological structure and their ability to achieve the results of the involved professional inputs of all disciplines based on the defined issues, goals and priorities;
At the country level, it should involve the documentation of the different attempted coordination of the site conservators with other conservation efforts at local, regional and national levels, as appropriate;

Perhaps one of the most difficult challenges facing any learning of the circulated data is to help the member conservators manage and make sense of the data that they obtain. Generally, conservators too often collect large amounts of data that then never get used. Therefore, data need to be transformed into useful type of information to be used;

Translating foreign text so it can be understood by the conservation community;

Finally, documentation of the various attempted process-timeline and mechanisms for identifying and resolving conflicts about archaeological heritage preservation issues.

**Developing conservation database of previous works; The Jordan case: general approach**

A database of previous conservation works is an organisational format that groups information about the conservation works related to archaeological remains, based on a
characteristic physical and chemical parameters, theme, topographic and geographic limits, and chronological period.

In a large archaeological site such as Petra for example, a conservation team can learn about a conservation strategy they are using based on their own experiences and plans. But in a matter of fact, there is probably another team a few hundred metres away and two more teams in the same site, and a dozen or so teams around the country testing and applying similar conservation strategies. Therefore, creating a conservation database network can help in bringing together these different conservation teams to go through the collective experience unitedly in a learning network that subsequently will reduce the cost effect of the conservation process.

Available information and previous works about archaeological preservation as mentioned earlier need to be divided into manageable units before it can be useful for implication and evaluation purposes. Major decisions about identifying, evaluating, documenting and conservation of archaeological remains are most reliably made in the context of other related conservation works of local and international scales.

Beyond the enormous touristic and economic value, a comprehensive and long range programme of conservation and presentation of Petra and Jerash was part of prerequisites for increasing the touristic and economic resources.

PETRA

Petra is one of the World Heritage Sites, preserving huge and distinguished archaeological remains of the Nabatean culture. In 1998 Petra was placed in the List of 100 most Endangered Sites that is issued every other year by the World Monuments Watch, a programme of the World Monuments Fund. The archaeological site has a long and considerable archaeological and conservation history. Description of the Petra site and general summary of the Nabatean history and architecture can be found in much literature (Hammond 1972, Browning 1973, Makenzie 1990, Zayadine 2000, etc.)

Apart from the many management problems in Petra, the conservation of the site was of highest priority for long term sustainability of this place as a cultural resource in Jordan. Several conservation cases in Petra can be considered as a single conservation context describing one or more aspects of the conservation history and historic development of conservation procedures, considering history, culture, architecture, archaeology, and engineering that identify the significant conservation criteria for that individual archaeological building. These cases can also represent a set of previous conservation data as a comprehensive summary of all aspects of the history of conservation of archaeological structures in that area.

Several surveys and studies have been carried out to locate, enumerate and describe historic features in the Petra region; the last of which is the survey and mapping conducted by The Hashemite University, which now consists of a database of more than
3,000 monuments and more still to be included. The database, which is linked to a GIS geodatabase, includes the general condition in terms of location, type, use, architectural detailing, and relative level of deterioration for each monument. The data was collected in the field and transferred into computerised spreadsheets of Microsoft Access format. Such an archive can be the basis for further developing conservation and site management plans (Akasheh, 2000 and 2003).

Various studies were conducted to understand the weathering agents, effects and depositional by-products phenomena and the evaluation of damages at the stone monument in Petra, which is vital for finding solutions related to the conservation of the site (Barjous and Jaser 1988; Fitzner and Heinrichs 1998; Heinrichs and Fitzner 1999, 2000a, 2000b; Khrisat, 2004). These studies focused on the sedimentological lithostratigraphic classification and analyses of petrographical properties, and on the characterisation and quantification of the weathering state of monuments; structural, physical, thermal and hydrologic properties and related geoarchaeological data were collected from most of the archaeological monuments.

Experimental work in the laboratory has been conducted on various consolidants; these were tested and evaluated in order to assess their compatibility with the sandstone monuments of Petra before application (al-Saad 2000). Other studies focused on the anthropogenic induced humidity by the monument visitors which prior studies (e.g. Giovanni 1977, Michalski 1993, Paradise 1995, Jones and Wakefield 1999) had shown that increased moisture in restricted spaces can increase the production of surface salts (efflorescence) and can increase in-rock permeability.

Conservation efforts to preserve the monuments in Petra and to ensure their adequate presentation to the visitor started already in 1958. The weathered and partly non-existent column of the monument known as al-Khaznah was restored, as well as the other existing columns next to it (Fig. 2). Philip Hammond (1964) and the Department of Antiquities excavation and restoration of the Main Theatre in 1964 is also a type of rock-cut Nabataean structure in Petra.
Qasr el Bint (Fig. 7) is another example of long history of conservation work and research since the 1950's till today. There was partial reconstruction of the south-eastern corner of the temple in 1961-62 made by the Department of Antiquities, whereby sandstone blocks in addition to reinforced concrete were used in the restoration (Saffarini 1994 and Zayadine 1985).

Restoration work was also conducted for the eastern wall of the Temple of the Winged Lions (Shaer 2003). This temple represents one of the earliest excavated freestanding structures in Petra conducted between the years 1973 and 2002 by the American Expedition to Petra (Hammond 1975; 1977-8; 1996). Other conservation data can be found in the excavation reports of Great Temple (Joukowsky 2000: 333-334). Conservation work at the site included structural consolidation and reconstruction of some parts, as well as the consolidation of painted plaster layers. Moreover, conservation work was carried out at three Byzantine churches: Petra Church (Roby 1995: 47), Ridge Church and the Blue Church (Bikai 1996; 2001: 8; 2002: 2, Frozen, et. al. 2002, Tillack, et. al. 2001) located along the hill north of the colonnaded street which was rebuilt by the Department of Antiquities in 1960. During 1998, several restoration measures took place in the market area of the colonnaded street in Petra (Kanellopoulos 1998: 3).

JERASH

On the other hand, though archaeological investigations and intensive scholarly investigation in Jerash goes back to the early part of the 19th century since the rediscovery by Seetzen in 1806, subsequently by the Swiss Burckhardt (1812), Bukingham (1816) and later those of G. Schumacher in the beginning of the last century (1891 – 1902), which helped in the archaeological documentation of the archaeological sites.

However, the earliest known archaeological conservation in Jerash goes back to the 1920s, under the British Mandate, when some clearance and consolidation work was directed by G. Horsfield and P.A. Ricci; besides, the description of the conservation
magnitude and the material used was given briefly by Kraeling (1938, p. 3). These actions were followed by the American Expedition to Jerash (Horsefield, 1925) and the study of Bacon and Crowfoot (1928) see (Fig. 8); in this report, detailed information was given about the process of conservation that was used by later restorers of the Jerash.

Restoration work was also made to the southern theatre during 1953-56, where Diana Kirkbride and Theo Canaan restored the scaena frons of the southern theatre; but the tragic death of the young architect, who fell from scaffolding, stopped the work. Later, in the frame of the government touristic development of Jerash in 1979, the Department of Antiquities was able to conduct some restoration work. During that time the restoration works included Artemis Temple, the Cathedral, and the Churches of St. John and St. George and the lower esplanade of the Zeus Temple (Kalayan, 1981a, b).

Figure 8. Bacon and Crowfoot (1926) report that gives detailed information in the process of conservation that has been used by later restorers of the Jerash.

Apart from the literature or written documents, conservation references can also be found in Jerash in the format of photographic and graphic support, such as those of the southern gate (Fig. 9).

Figure 9. Several stage and types of documents can be found for the restoration of the southern gate of Jerash.
An excellent example of photographic documents from 1858 reporting the state and conservation history can be seen in the photos from the *Jerash Archaeological Project 1984–1988 part II* Publication Hors Serie N 18, Extrait de Syria, tome LXVI, 1989 (Librairie Orientaliste Paul Geuthner S.A., Paris). These photographs can be very useful for conservators when comparing the state of the oval plaza in Jerash.


As most of the archaeological and conservation work has to be reported to the Department of Antiquities in the form brief reports, huge amount of published and unpublished data in the conservation works at Petra and Jerash can be found in the different volumes of the Annual of the *Department of Antiquities Journal* and in the library of the Department. These reports occur in a form of recent excavations and Restoration of the Department of Antiquities (e.g. Zayadine 1981, pp. 341; Al A’elmi 1973; Hussien, 1979, etc.)
Data on previous conservation works from Petra and Jerash is the cornerstone of the present and future conservation planning process in these sites. The goal of this conservation data is to identify, document, evaluate and treat the full range of problems representing each conservation context, rather than only one or two types of conservation methods. Identification of conservation activities in both the sites, including database documentation of applied materials, is organised to ensure that research and survey of previous conservation works also include different methods representing all aspects of the conservation procedure. Evaluation uses the available results of the previous conservation works in Petra and Jerash as the framework within which the compatibility criteria for evaluation is applied to specific cases or property types in other sites. The critically evaluated results of previous conservation works of both sites is used in organising major preservation activities to ensure that those activities result in saving of time and money and the preservation of the wide variety of buildings that represent archaeological history in Jordan, rather than only a singular-handled, small, biased sample of conservation methodology.

Conclusions

Conservation work of archaeological sites and artefacts should be achieved by means of methods that are respectful of the values represented by conservation, while planning the scientific priorities for management and restoration.

The huge exposed archaeological remains in Jordan need to be conserved, end even duly studied. The change in planning and priorities by the local international bodies that are responsible for the protection of archaeological remains sometimes lead to great damage of the cultural heritage itself; this can occur especially in the absence of inadequate cultural policy, limited funds, old measures, oligarchic conservation concessions, inadequate museums and storage, and by personnel that is not always available; apart from the lack of good keeping of the previous conservation documents.

In this paper we have attempted to highlight the academic importance and economical value of the previous conservation documents, mainly considering the present state of that kind of documents in Jordan. Consideration of the long-term value of the conservation record requires us to at least take into account the future of the data thus produced with the establishment of the conservation document database. Sometimes, dealing with the database, there can be no absolute objectivity related to the data collected from one or two conservation cases; besides, this need not to discredit the whole scheme, but emphasises the specific and the uniqueness nature of data from different conservation experiences. On the other hand, translation of some of the previous conservation documents and articles written in different languages through the
several years on conservation science may lead to enrichment of the database and to an interesting exchange of ideas and rise discussion on some of the conservation processes. Collecting data on conservation procedure types permit the development of broad planning background for identification, evaluation and treatment of archaeological buildings, even in the absence of certain parameters of individual cases. Like the planning for conservation procedure, previous data are artificial constructs which can be evaluated and may be revised as necessary.

On the study we proposed the establishment of a conservation network which will be unique in its conception and scope. Like all long-term projects, problems might raise in adjusting concepts arrived at the different stages needs, but practice has shown that in the case of such network, these difficulties are not in fact as serious as they might have been (for example see, www.bcim.ca, www.heritageconservation.net, www.globalheritagefund.org). However, this can be eliminated through the sophistication of the archaeological and conservation records, but also careful planning of the network, a process involving many individual scholars. The careful planning and the consistent way in which the proposed network can be executed will ensure a permanent place among the chief achievements of conservation of the archaeological structures in Jordan and the surrounding regions levels, and one which will retain its relevance in the near future. There is no doubt that the variability of the conservation plans (by different foreign archaeological missions), techniques and methods reflecting the diversity of the Jordan archaeology (in terms of site type, geographic location and the cultural phases) has much to contribute to the conservation of the archaeological heritage, not only as a source of information, but also as a method which may be worth imitating where resources allow.

Finally, supervision and aid from the local, regional and governmental bodies responsible for the protection of archaeological sites and objects helps in this type of network. From an administrative point of view, the concept of archaeological network enables us to create a space for the enhancement of value and for the fruition of archaeological heritage, as well as to achieve an integrated conservation work.

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Third International Conference on Science and Technology in Archaeology and Conservation (Amman, Jordan, December 7-11, 2004)

Held in Amman, Jordan, the Third International Conference gathered about 150 scientists, engineers, architects, archaeologists and other specialists of international renown, to deliver papers on their work in Archaeology, Cultural Resources Management, Restoration, Conservation, Tourism and many other important fields that support archaeological knowledge.