

# The Challenges Facing the World Heritage Site of Baalbek and the Importance of the Involvement of the German Archaeological Institute – German Expedition

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## Abstract

Baalbek (Lebanon) belongs to the most impressive ancient ruins in the world. As a UNESCO World Cultural Heritage Site (listed in 1984) it is famous mainly for its Roman temples. In 2002, the Lebanese Council for Development and Reconstruction in close coordination with the Directorate General for Antiquities of Lebanon started a project named “Cultural Heritage and Urban Development Project” (CHUD-project) that aims to implement additional touristic infrastructure and information in several prominent archaeological sites in Lebanon, including Baalbek. Through this project, the areas planned to be open to visitors have been enlarged considerably. However, a major part of the area was excavated, but at that time neither scientifically documented nor in terms of conservation prepared for larger groups of visitors.

Since 2001, a team of the German Archaeological Institute and Brandenburg University of Technology Cottbus-Senftenberg has been conducting further archaeological research as well as scientific documentation and publication of these areas.

The CHUD project foresees a relocation of the main entrance to the southeast of the archaeological area. There, a historic house has been converted into an entrance building, which is part of the “Bustan Nassif” garden area. In the future, the main visitor axis of the archaeological site will pass through Bustan Nassif. Excavations in the 1960s–70s revealed a medieval city quarter that mainly dates to Ayyubid and Mameluk periods (12<sup>th</sup> to 15<sup>th</sup> century). Archaeologically well preserved structures such as the foundations of houses, a mosque, a commercial building and a public bath have been excavated and testify that the inhabitants lived in a certain wealth.

In coordination with the Directorate General for Antiquities of Lebanon Dr. Heike Lehmann (at that time German Archaeological Institute), Prof. Dr. Jeanine Abdul Massih (Lebanese University) and architect-restorer Maroon Hoshaymeh evaluated the CHUD proposals, adjusted them to the archaeological structures and developed a conservation project that aimed at making visible the archaeological remains and explaining the function of the area.

Between 2016 and 2018, for a larger part of the area a conservation and presentation project was carried out that benefited from generous funding from the German Foreign Office. Work was mainly in the hands of the Lebanese partners of the project and structured as a further training for students and young craftsmen.

## Zusammenfassung

Baalbek (Libanon) gehört zu den beeindruckendsten antiken Ruinen der Welt. Als UNESCO-Weltkulturerbe (aufgenommen 1984) ist es vor allem für seine römischen Tempel berühmt. Im Jahr 2002 startete der libanesischen „Rat für Entwicklung und Wiederaufbau“ in enger Abstimmung mit der „Generaldirektion für Altertümer des Libanon“ das Projekt „Cultural Heritage and Urban Development Project“ (CHUD-Projekt), um die touristische Infrastruktur und Informationen in mehreren prominenten archäologischen Stätten im Libanon, darunter Baalbek, zu verbessern. Die für Besucher zugänglichen Gebiete wurden hierdurch erheblich erweitert. Allerdings war ein Großteil des Gebietes zwar ausgegraben, aber damals weder wissenschaftlich dokumentiert noch konservatorisch auf größere Besuchergruppen vorbereitet.

Seit 2001 übernahm ein Team des Deutschen Archäologischen Instituts und der Brandenburgischen technischen Universität Cottbus-Senftenberg zusätzliche archäologische Forschungen, die wissenschaftliche Dokumentation und die Publikation dieser Bereiche.

Das CHUD-Projekt verlegt den Haupteingang in den Südosten des archäologischen Gebietes. Dort wird ein historisches Haus als Eingangsgebäude dienen, das Teil des Gartenbereichs „Bustan Nassif“ ist, und die Besucherhauptachse der archäologischen Stätte durch den „Bustan Nassif“ führen. Ausgrabungen der 1960/70er Jahre brachten hier ein mittelalterliches Stadtviertel zutage, das hauptsächlich aus der Ayyubiden- und Mamelukenzeit (12. bis 15. Jahrhundert) stammt. Archäologisch gut erhaltene Strukturen wie die Fundamente von Häusern, eine Moschee, ein Handelsgebäude und ein öffentliches Bad wurden freigelegt und beweisen, dass die Bewohner in einem gewissen Wohlstand lebten.

In Absprache mit der Antikenverwaltung des Libanon evaluierten Dr. Heike Lehmann (damals DAI), Prof. Dr. Jeanine Abdul Massih (Libanesische Universität) und der Architekt-Restaurator Maroon Hoshaymeh die CHUD-Vorschläge, passten sie den archäologischen Strukturen an und entwickelten ein Konservierungsprojekt, mit dem die archäologischen Überreste erfahrbar gemacht und die Funktion des Gebiets erklärt werden.

Zwischen 2016 und 2018 wurde für den größeren Teil des Gebietes ein vom Auswärtigen Amt großzügig gefördertes Konservierungs- und Präsentationsprojekt durchgeführt. Die Arbeiten lagen hauptsächlich in den Händen der libanesischen Partner des Projektes und waren als Fortbildung für Studenten und junge Handwerker konzipiert.



*Fig. 1: Baalbek, Jupiter sanctuary. Remains of the temple and great courtyard (Photo: Deutsches Archäologisches Institut (DAI), Irmgard Wagner)*

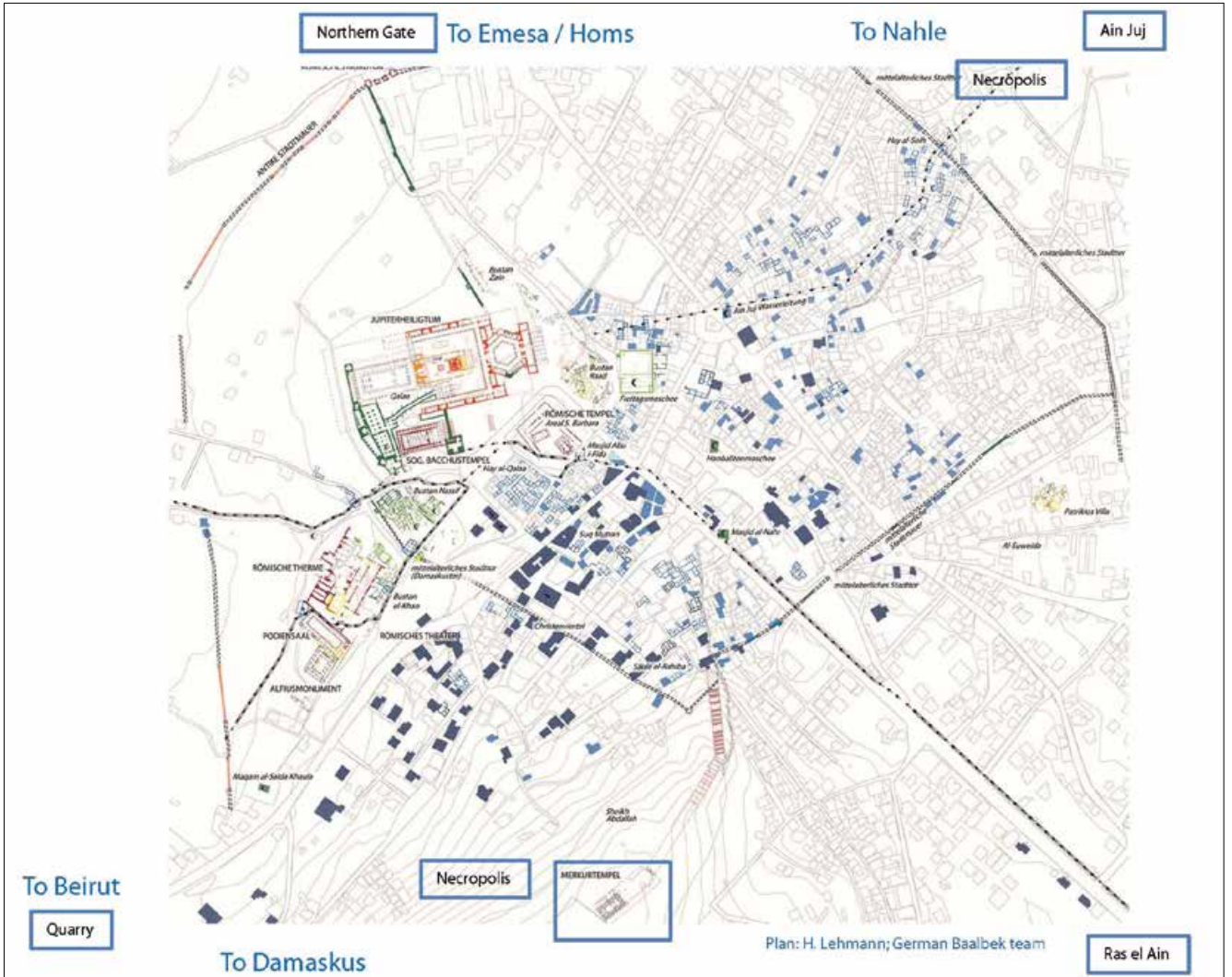
Baalbek (Lebanon) belongs to the most impressive ancient ruins in the world (fig. 1). As a UNESCO World Cultural Heritage Site (listed 1984) it is mainly famous for its Roman temples. The religious complex of Baalbek (ancient Heliopolis) belongs to the most significant Roman architecture of the imperial period. The importance is based on the combination of local and Roman tradition and on its outstanding artistic and architectural values. The acropolis of Baalbek comprises of several temples dedicated to Jupiter, Bacchus and a goddess commonly named Venus. It is characterised by a colossal construction built over a period of more than two centuries. The area of the Roman sanctuary, relatively intact, has survived the passing of time. After its abandonment at the end of the Roman Empire, it was first converted into a Christian church and then into a medieval castle.

From the 17<sup>th</sup> century onwards, Baalbek became one of the first attractions for visitors, especially Europeans. On November 1, 1898, Baalbek hosted the visit of emperor Wilhelm II of Germany and his wife. Then, between 1900 and 1904, German archaeologists uncovered the ruins of the great sanctuary, followed in the 1920s to 1940s by further excavations and restorations accomplished by French archaeologists. In the 1960s, the General Directorate of Lebanese Antiquities (DGA) discovered extensive new areas around the temple and in the city, revealing that the archaeological site of Baalbek is much more extensive than the temple

quarter, although no additional sites was yet being opened to visitors (fig. 2).

In 1998, a site museum was inaugurated in the World Heritage Site in cooperation between the DGA, the German Archaeological Institute (DAI) and Lebanese scholars. Since 2001, the German Archaeological Institute in Baalbek has been conducting research by documenting and carrying out further scientific investigations in the archaeological areas that were uncovered until 1975, the beginning of the Lebanese civil war.

In 2002, the Lebanese council for Development and Reconstruction in close coordination with the Directorate General for Antiquities of Lebanon started a project named “Cultural Heritage and Urban Development Project” (abbreviated as CHUD-project) that aims to implement additional touristic infrastructure and information in several prominent archaeological sites in Lebanon, including Baalbek (fig. 3). The expectation of 4 to 5 hundred thousand visitors per year implied that a more adequate infrastructure should be provided. Through this project, the areas planned to be open to visitors have been enlarged considerably. However, a major part of the areas was already excavated, but not scientifically documented nor in terms of conservation prepared for larger groups of visitors. Such was the case for the site locally called Bustan Nassif located the southwest of the city. It is through this example that the current problems and possible solutions for Baalbek will be presented.



△ Fig. 2: Baalbek, topographical map of the modern town and indication of archaeological and historical remains (DAI Baalbek project, Plan: Heike Lehmann)

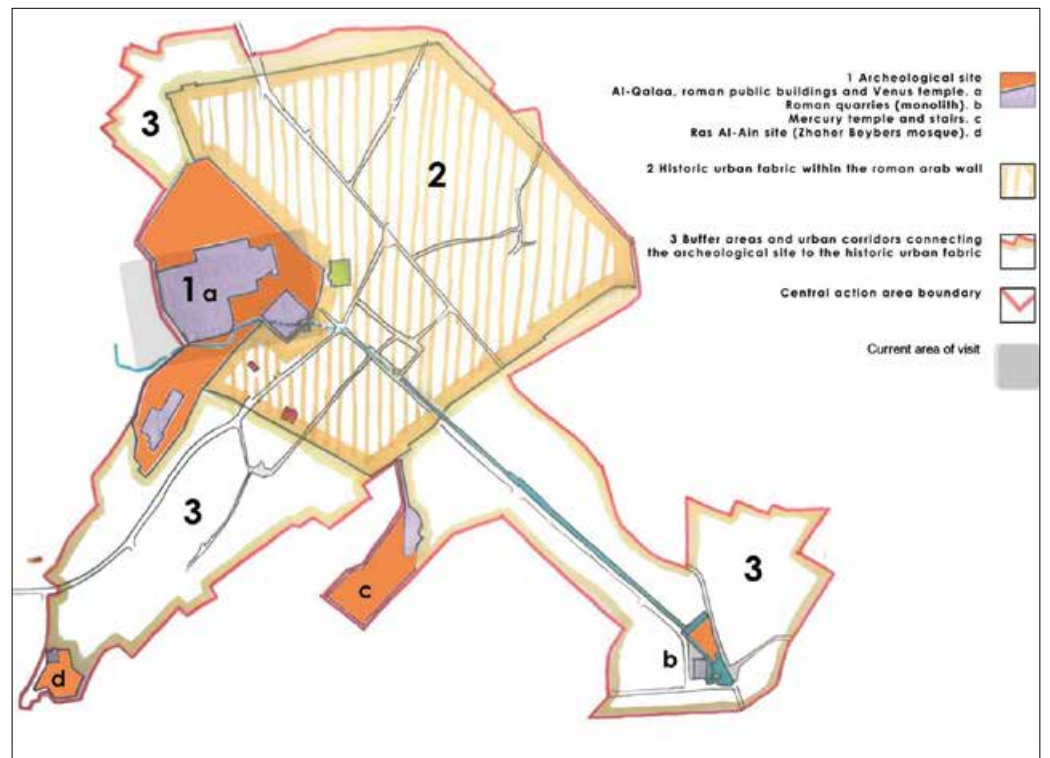


Fig. 3: Baalbek, mapping of archaeological relevant areas for the CHUD project (after J. Yasmine BAAL Hors Serie IV (2008), fig. 9)

## The CHUD Project

The CHUD site management project of Baalbek foresees a relocation of the main entrance to the south-east of the archaeological complex in order to encompass new excavation areas and to structure the visitor trail. Thus, the main visitor's axis of the archaeological site will therefore in future pass through the Bustan Nassif where a historic house has been converted into an entrance building (fig. 4).

Excavated in the 1960/70s the Bustan Nassif revealed a medieval quarter of the city that mainly dates to Ayyubid and Mameluk periods (12<sup>th</sup> to 15<sup>th</sup> century). The particularly well-preserved area of 14,300 m<sup>2</sup> belongs to the very few large residential area discovered from the Ayyubid and Mamluk periods, which gives it a special historical value (fig. 5). Here, the uncovered foundations of houses, a mosque, a commercial building and a public bath testify that the inhabitants lived in a certain wealth. However, the constructed features are mostly preserved only in their foundations, and they were also built either in double-faced masonry or in rubble. Floors and installations are occasionally preserved, but overall in a fragile state of conservation. The

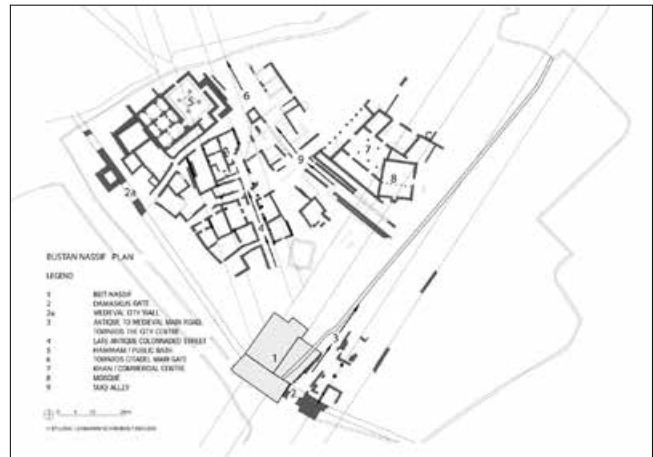


Fig. 5: Baalbek, Bustan Nassif. Schematic map of the area (after Heike Lehmann (2015), Taf. 36)

most remarkably preserved monument in the Bustan Nassif is the public bath, which must have played an important role at the time of its use, as it is located next to the main entrance

Fig. 4: Baalbek, Bustan Nassif. The restored Beit Nassif (centre of the photo) will serve as an entrance building (Photo: DAI, Julia Nádor)





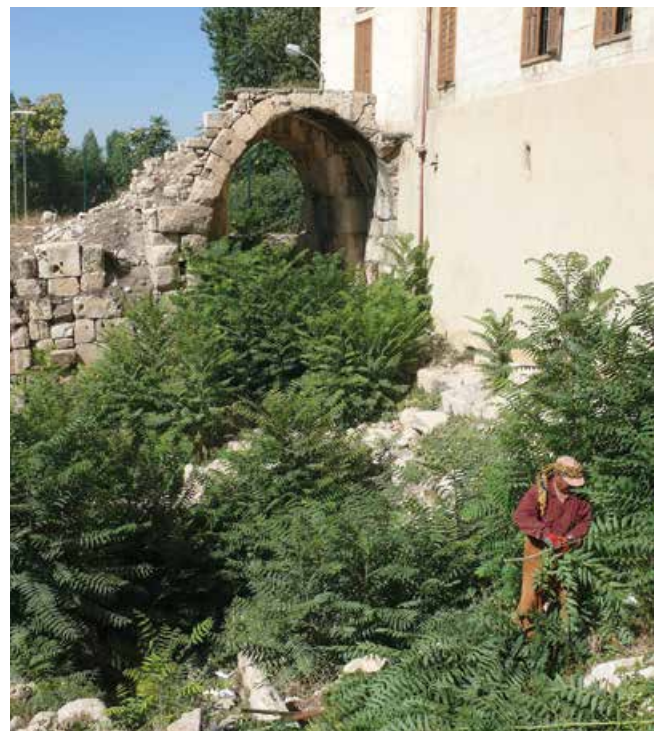
Fig. 6: Baalbek, Bustan Nassif, public bath. The changing room after conservation in 2018 (Photo: DAI, Julia Nádor)

of the medieval castle (fig. 6). The public bath or Hammam is preserved at a considerable height, and the bathing infrastructures such as the water basins and hydraulic infrastructures are still clearly visible, as well as parts of the wall plaster that had been observed during the excavations. Overall, the remains of Bustan Nassif proved to be so rich in detail that a substantial part of Baalbek's medieval history has been reconstructed by the building historian Heike Lehmann in her thesis.

As the main axis of the tourist route is to start in this area, the archaeological district had to be assessed for its compatibility with the general planning and attractive information and visiting points had to be created. In the meantime, Lebanon was first hit by new political and security problems and foreign archaeologists and experts were once again unable to continue their work consistently. Since 2012, the civil war in Syria has also made itself felt in Baalbek, which is located not far from the border with the neighbouring country.

As a result, the maintenance of the temple area could be sustained, but not that of the complementary areas. The walls, which already needed to be preserved, continued to deteriorate and the tree of heaven, *Ailanthus altissima*, which is a fast-growing shrub or tree, took over the site (fig. 7). The state of the urban irrigation canals leading to the surrounding agricultural fields was increasingly dilapidated and water was lost in the archaeological area, leading to a general deterioration of the site.

Fig. 7: Baalbek, Bustan Nassif, medieval city gate. Aggressive vegetation took over the archaeological area (Photo: DAI, Julia Nádor)



## The Bustan Nassif Project

The German Archaeological Institute, Heike Lehmann, Jeanine Abdul Massih of the Lebanese University and Maroon Hoshaymeh, a Lebanese architect-restorer with a good knowledge of the archaeological sites of Baalbek, therefore elaborated a conservation and valorisation project which was mainly carried out by colleagues, students and local Lebanese craftsmen. During the summer months from 2016 to 2018, up to forty workers, specialized craftsmen, students in archaeology or in conservation techniques from Lebanese University as well as architects completing post-graduate studies at the Centre of Restoration and Conservation of the Lebanese University in Tripoli were involved in the realization and the completion of the project in the autumn of 2018 (fig. 8). Implemented by the German Archaeological Institute, the project was very fortunate to receive special funds from the German Foreign Office to support the Archaeological Heritage Network coordinated at the German Archaeological Institute. All the choices and phases of the project were made in constant exchange of opinions and decisions with the Directorate General for Antiquities of Lebanon and the responsible staff for the CHUD project based at the Council for Development and Reconstruction.

The Bustan Nassif project consisted mainly of re-evaluating all the archaeological structures, in particular with their long-term presentation potential, making choices concerning the backfilling of certain parts for better preservation of the remains and buildings, designing visitors paths, recommending consolidations of certain walls for static reasons or better preservation, proposing modern materials and constructions for the floor covering to ensure safe and informative circulation in the area, and planning the logistics of the project. In addition to the preservation and enhancement of the area, the aim of the program was to highlight and transmit traditional and modern conservation techniques related to the archaeological stonemasonry architecture typical of the entire region.

## Issues and Choice of intervention

Different choices of interventions were made according to the needs of the site and the preservations issues. The backfilling was considered to be the most effective way of preservation for archaeological structures (figs. 9a, b). Following a plan for the presentation of selected constructions, all archaeological remains that were too fragile or would

*Fig. 8: Students, workmen, specialists and architects were involved in the conservation project (Photo: Paula Abou Harb, Marc Yared)*



have been difficult to understand for the non-specialist have been backfilled, either immediately after excavation or during the project. Backfilling comprised a layer of geo-textile covering the archaeological levels, sometimes a packing of mortar and rubble stones covered with the typical earth of the area.

The architectural constructions destined to be presented were uncovered and cleaned. The term cleaning within this project describes a controlled and constantly documented activity led by archaeologists and sometimes restorers by which either the protective cover of earth or the more destructive roots of plants were removed from the buildings. Special cleaning of surfaces was only performed on the upper face of the walls when it was necessary to protect them from water infiltration.

In limited areas additional excavations were carried out in order to be able to present the architectural ensemble. On the other hand, stones that were found out of context and that could not be identified as part of a building through scientific analysis were either backfilled or collected in order to clear areas for better explanation. Still, a particular challenge has been encountered by the restorers, namely the widespread growth of the tree of heaven. This shrub propagates by rhizomes, especially by shallow running roots. It destroys easily stone structures and less durable construc-



*Figs. 9a. b: Baalbek, Bustan Nassif. Above: Damascus gate after cleaning (Photo: DAI, Margarete van Ess), below: Damascus gate after backfilling (Photo: DAI, Julia Nádor)*





*Fig. 10: Baalbek, Bustan Nassif. Joints of rubble stone walls were closed with hydraulic lime coloured with earth (Photo: DAI, Julia Nádor)*



*Fig. 11: Baalbek, Bustan Nassif. Gabion walls were built where larger protection structures were needed (Photo: DAI, Julia Nádor)*

*Fig. 12: Baalbek, Bustan Nassif. Pebble covers of different colours were used to indicate chronological or functional characteristics of the area (Photo: DAI, Julia Nádor)*





tion materials. Lime injections and in some cases biocides were used to remove the shrubs when growing inside archaeological walls.

Reinforcement of architectural stability is intended to prevent further deterioration of the walls when they are kept in the open air. We reintegrated fallen or detached stones by providing accurate documentation of the interventions. In order to prevent the original earth mortars from being further washed out, the joints of the rubble stone walls were covered with traditional hydraulic lime mortar mixed with earth to preserve the original colour (fig. 10). On the faces of the walls, the preserved plaster was reinforced and the edges consolidated.

The reconstruction of walls and other architectural elements was an exceptional option applied in cases where static or structural problems were to be expected due to the constant passage of visitors. Modern limestones were used to replace the lack of a single stone and gabion walls were built where larger protection structures were needed (fig. 11). Inside the public bath, all the preserved water installations were cleaned and consolidated. In some cases, architectural elements have been completed or entirely reproduced in lime.

As for the general presentation of the site, distinctive coloured gravel was used to suggest the differences between open spaces such as streets and alleys and interior spaces such as rooms in houses (fig. 12). A colonnaded street of late antiquity, which marked the district, later incorporated into the medieval structures, was enhanced and emphasised by the treatment of the flooring according to the modern layout of the area. This general display has been substantiated by explanatory panels reproducing the design developed by DGA and installed on all the important areas near the major buildings of Bustan Nassif.

## Conclusion

All interventions were constantly documented in drawing, description and photographs. Plans developed for the planning of the project were completely updated at the end of the project in order to indicate where interventions had been taken place. All measures taken are completely reversible. These actions were made possible through the scientific collaboration between the DAI and the Lebanese team. The execution and concept of the project were discussed step by step and realized by students, workers, specialists and architects that worked hand in hand with traditional material and dealing with ancient techniques to preserve the authenticity of the site. Currently, a team of specialised workers has been trained in Baalbek to help with site maintenance and emergency consolidation. This team is supervised by young archaeologists who are currently in charge of the site and who can therefore supervise the work in the eventuality of an intervention. This experience involving young archaeologists, architects, restorers, craftsmen and masons from Baalbek, Lebanon has conferred a sustainable development aspect to the project.

The completion of the conservation project was honoured by the visit of the German Ambassador in Lebanon, regional politicians and the Director General of Antiquities of Lebanon. The economic crisis has so far prevented the achievement of the CHUD project. The new entrance building and the passage through Bustan Nassif are still not opened. Our conservation and presentation measures have so far passed the endurance test in cold winters and hot summers. At present, the public irrigation canals are undergoing a new repair and the drainage in the terrain is being reworked. So we hope that next year the travel opportunities will improve and visitors will be able to experience a new chapter in the history of Baalbek.