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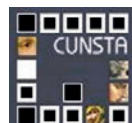
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Managing Archaeological Heritage in the Land of Frankincense. The Al Baleed Archaeological Park (Salalah, Sultanate of Oman) as a Model for Sustainable Valorisation

Alexia Pavan*

Abstract

The paper presents the Al Baleed Archaeological Park (Salalah, Sultanate of Oman) as a model for the sustainable management and valorisation of archaeological heritage within the UNESCO property *Land of Frankincense*. The aim is to illustrate an integrated approach combining archaeological research, conservation, environmental enhancement, and community engagement, within the framework of national legislation and international heritage management guidelines. The methodology relies on the interaction between stratigraphic excavation, digital recording, 3D modelling, and innovative communication strategies, including the use of augmented reality for on-site interpretation. The results demonstrate the effectiveness of a model that merges scientific documentation with public

* Ricercatrice RTD-A di Metodologie della ricerca archeologica, Università di Napoli L'Orientale, Dipartimento di Asia, Africa e Mediterraneo, Palazzo Corigliano, piazza San Domenico Maggiore 12, 80134 Napoli, e-mail: alexia.pavan@unior.it.

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accessibility, fostering community participation and sustainable territorial development through a balanced integration of preservation, knowledge, and social use of heritage.

L'articolo presenta il caso del Parco Archeologico di Al Baleed (Al Baleed Archaeological Park), Salalah -Sultanato dell'Oman-, come modello di gestione sostenibile e valorizzazione del patrimonio archeologico nel quadro dei siti UNESCO del *Land of Frankincense*. L'obiettivo del lavoro è illustrare un approccio integrato che combina ricerca archeologica, conservazione, valorizzazione ambientale e coinvolgimento della comunità locale, in relazione al quadro normativo nazionale e alle linee guida internazionali per la gestione del patrimonio culturale. La metodologia si basa sull'interazione tra scavo stratigrafico, rilievo digitale, modellazione 3D e strategie di comunicazione, incluse applicazioni di realtà aumentata per la fruizione in situ. I risultati evidenziano l'efficacia di un modello che integra documentazione scientifica e accessibilità pubblica, promuovendo la partecipazione della comunità e lo sviluppo sostenibile del territorio, in un equilibrio virtuoso tra tutela, conoscenza e uso sociale del patrimonio.

1. *Defining the Archaeological Park: Between International Guidelines and National Frameworks*

The term archaeological park does not have a single, universally recognised definition. At the international level, it is generally used to describe a protected area where archaeological remains are conserved, interpreted, and made accessible to the public within their original landscape. According to the *Salalah Guidelines for the Management of Public Archaeological Sites*¹, first outlined in Salalah, Sultanate of Oman, in 2015 and later adopted by the 19th ICOMOS General Assembly in New Delhi in 2017, an archaeological park should be understood as «a tool for the conservation of archaeological sites on the one hand, and their presentation and interpretation as a means to understand the shared past of humanity on the other hand». This dual function of protection and interpretation places the archaeological park at the intersection of field investigation, research, conservation, and community engagement.

In the Italian context, a more formal definition was introduced within the *Code of Cultural Heritage and Landscape* (D. Lgs. 42/2004, art. 101, paragraph 2, letter e), which includes among cultural institutions the archaeological areas and parks, defined as «territorial complexes characterised by the presence of ancient remains and organised as coherent systems for conservation, research, and valorisation». This notion was further specified in the D.M. 18.04.2012 – *Linee guida per la costituzione e la valorizzazione dei parchi*

¹ <https://icahm.icomos.org/wp-content/uploads/2018/07/GA2017_6-3-3_SalalahGuidelines_EN_adopted-15122017.pdf>, 12.10.2025.

*archeologici*² – which distinguishes between archaeological areas (sites or portions of territory with archaeological remains, whether excavated or not) and archaeological parks (organised structures endowed with management and interpretation functions). This framework institutionalises a model of integrated management in which archaeological heritage, landscape, and local communities are part of a single cultural and administrative system.

Although stemming from different contexts, both the international and the Italian definitions converge on a shared vision: the archaeological park as a living cultural landscape, where the preservation of material remains is inseparable from the processes of knowledge production, education, and sustainable public enjoyment.

In this perspective, the Italian framework represents only one possible model within a broader international debate on the management of archaeological sites open to the public, in which issues of conservation, accessibility, and interpretation are increasingly addressed within shared theoretical and operational frameworks.

Within this debate, the Omani case offers a particularly significant and still underexplored contribution.

In the Sultanate of Oman, the management and enhancement of cultural heritage are regulated through a well-defined legislative framework that has changed and evolved over the past decades. Early efforts were formalised with the promulgation of the *National Heritage Protection Law* (Royal Decree 6/1980), which established the foundational principles for the protection of archaeological sites and cultural property³. This development should be understood within the broader context of the policies promoted by Sultan Qaboos bin Said following his accession to power in 1970, often referred to as the “Omani Renaissance”, a period of rapid modernization accompanied by a growing institutional commitment to the protection and valorization of cultural heritage⁴.

This law reflected an early awareness of the risks posed by rapid development and introduced mechanisms for the registration, control, and protection of both movable and immovable heritage.

More recently, the *Cultural Heritage Law* (Royal Decree 35/2019) replaced the earlier legislation, marking a shift from a primarily protection-oriented approach toward a broader management framework. This updated law extends its scope to both tangible and intangible heritage and reinforces the role of state institutions in regulating ownership, access, documentation, and use of

² <<http://2.42.228.117/archeologia/index.php?it/222/circolari-e-linee-guida/6/2012-linee-guida-per-la-costituzione-e-la-valorizzazione-dei-parchi-archeologici-il-dm-18042012>>, 12.10.2025.

³ Gugolz 1996.

⁴ Valeri 2009.

cultural resources⁵. This extension reflects a growing awareness of the importance of intangible cultural heritage, including traditional knowledge, practices, and local cultural expressions, as an integral component of heritage management, as also highlighted by recent studies on heritage policies in Oman⁶.

In the Omani context, such an approach is particularly relevant in regions like Dhofar, where cultural identity is closely intertwined with long-standing traditions connected to the landscape and to practices such as the production and use of frankincense.

This perspective highlights the importance of sustainable management; in other words, archaeological parks must protect the integrity of ancient sites while allowing responsible access and providing social and economic benefits for local communities.

Among the sites that best exemplify this integrated approach is the Al Baleed Archaeological Park, located in Dhofar, the southernmost region of the Sultanate of Oman, where archaeological research, site conservation, and public engagement coexist within a sustainable management framework⁷.

2. *Heritage Management in Oman: The Case of Al Baleed Archaeological Park*

This contribution aims to analyse the Al Baleed Archaeological Park as a case study through which to explore the relationship between heritage protection, public accessibility, and sustainable management within the Omani legislative and institutional framework.

In this respect, the Omani model aligns with broader international guidelines, such as the *ICOMOS Charter for the Interpretation and Presentation of Cultural Heritage Sites* (2008)⁸ and the *Salalah Guidelines for the Management of Public Archaeological Sites* (2017), which emphasise the need to balance conservation with public access and interpretation.

Key principles emerging from the Omani legislative and administrative system include:

⁵ Al-Belushi, Al-Hooti 2023.

⁶ Al-Matani 2025.

⁷ This paper draws on the direct experience of the author as Resident Consultant for the Office of the Adviser to His Majesty the Sultan for Cultural Affairs (2016–2020), which since 2020 has become part of the Ministry of Heritage and Tourism of the Sultanate of Oman, during which she contributed to research, conservation and dissemination activities at the Al Baleed Archaeological Park.

⁸ <https://www.icomos.org/images/DOCUMENTS/Charters/interpretation_e.pdf>, 21.03.2026.

- the primacy of preservation as a central political objective
- the central role of state authorities in supervising and regulating heritage-related activities
- strict regulation of excavation, ownership, trade, and export of cultural property
- the development of inventories and registration systems as essential tools for protection and management
- the progressive integration of heritage management within broader processes of development and sustainable tourism

This model reflects a careful balance between conservation and accessibility, where public engagement is encouraged but consistently mediated through institutional control and long-term preservation goals. Within this framework, the Al Baleed Archaeological Park provides a concrete example of how these principles are implemented in practice.

The Al Baleed Archaeological Park is located in the southeastern sector of the city of Salalah, the second largest urban centre of the Sultanate of Oman in terms of both area and population. It lies between the district of Al Hafa, which has recently undergone a major urban revitalisation project including the renovation of its traditional souq and the construction of a well-equipped waterfront⁹, and the residential area of Dahariz. The park is enclosed by a fence along its western and northern sides, while to the east and south it is naturally delimited by one of the arms of the lagoon and by the Indian Ocean, which together form a buffer zone of 1.009.460 square metres (fig. 1).

The site occupies a coastal plain bordered by the lagoon of Al Baleed, an area that, like the entire Salalah plain, is affected by the seasonal monsoon, known locally as the *khareef*. Occurring between June and September, this climatic phenomenon transforms the landscape into a fertile environment that has long sustained human settlement and maritime activity. The *khareef* also gives rise to the distinctive ecological character of the Dhofar region, fostering a lush vegetation unique within the Arabian Peninsula and shaping both its natural and cultural identity.

Since 2000, Al Baleed has been inscribed on the UNESCO World Heritage List as one of the four components of the property known as the *Land of Frankincense*¹⁰. The nomination also includes the pre-Islamic port of Sumhram/Khor Rori, the inland settlement of Shisr/Wubar, located on the edge of the Rub Al Khali/Empty Quarter desert, and the wadi Dawkah frankin-

⁹ Hussein, Farhan 2020; <<https://www.archdaily.com/1027776/sasaki-reimagines-omans-second-largest-city-with-a-new-waterfront-masterplan>>, 12.10.2025.

¹⁰ World Heritage Site no. 1010, <<https://whc.unesco.org/en/list/1010/>>, 12.10.2025.

cense grove, which is currently the focus of an ambitious conservation and enhancement project carried out in collaboration with the prestigious Omani Amouage perfume house¹¹.

Together, these sites illustrate the outstanding universal value of the Dhofar region as the historic heart of frankincense production and trade, a vast network that, from the 1st millennium BCE onwards, connected southern Arabia with the Red Sea, East Africa, the Mediterranean, Mesopotamia, South-eastern Iran, India and China. Through these routes, frankincense became not only a major commodity but also a vehicle for the exchange of ideas, artistic traditions, and technical knowledge across continents.

This long-distance trade network not only shaped the economic development of the region but also positioned Dhofar as a key node within wider systems of cultural and technological exchange across the Indian Ocean.

The park extends over a vast coastal area encompassing both cultural and natural heritage and is conceived as a system of complementary units designed to serve different but interconnected functions. These include the archaeological site itself, which is currently the subject of ongoing archaeological investigations conducted by the University of Naples L'Orientale and the focus of research, maintenance and conservation activities; the Museum of the Frankincense Land, which presents the historical and cultural background of the region, and a visitor area offering facilities such as a bookshop, craft and souvenir shops, together with recreational services designed to enhance accessibility and comfort. In addition, the park encompasses a botanical garden that showcases the local flora and contributes to the appreciation of the unique natural environment of the region of Dhofar.

Particular attention has also been given to issues of accessibility. The internal pathways of the park are designed to be largely accessible to visitors with reduced mobility, reflecting a growing awareness of inclusive heritage practices.

In the Omani context, however, accessibility remains a complex issue, especially in historic structures, where the introduction of physical adaptations may conflict with the preservation of authenticity and material integrity. As highlighted in recent studies, providing access to heritage sites for people with mobility impairment requires a careful balance between equity and conservation, and is still not fully supported by specific national guidelines or standardized procedures¹².

In this perspective, accessibility can be understood not only as a technical requirement, but as part of a broader framework of sustainable and inclusive heritage management.

¹¹ <<https://www.wadidawkah.com/>>, 12.10.2025.

¹² Al-Belushi 2014.

This integrated structure reflects a holistic approach to heritage management, where archaeological, educational, and environmental components co-exist within a unified framework. It also embodies the principles formalised in the *Salalah Guidelines*, which promote sustainable and inclusive models for the protection and public enjoyment of archaeological sites.

2.1. *The archaeological site*

The site of Al Baleed has been the focus of intermittent archaeological investigations since the mid-20th century, which have progressively contributed to reconstructing its urban development and historical trajectory. Over the decades, several missions - including those of the American Foundation for the Study of Man¹³, Paolo Costa in the late 1970s¹⁴, and Michael Jansen¹⁵ with the University of Aachen in the 1990s -, have contributed to defining the chronology, urban organisation, and architectural development of the site. From the mid-2000s onward, the archaeological activities of Juris Zarins and Lynne Newton¹⁶, Krista Lewis and subsequently those directed by the author between 2016 and 2020¹⁷, were carried out under the auspices of the Office of the Adviser to His Majesty the Sultan for Cultural Affairs, the institution that oversaw the site until its responsibilities were transferred to the Ministry of Heritage and Culture, later Ministry of Heritage and Tourism, in 2020. Recent excavations, supported by material studies and radiocarbon analysis, have provided important insights into the architectural evolution of the site, construction techniques, and phases of occupation and decline.

However, despite the availability of both archaeological and written sources, particularly for the period following the Rasulid conquest in 1279, the earlier phases of the settlement remain poorly understood. The exact date of the city's foundation is still uncertain, reflecting both the fragmentary nature of the evidence and the uneven extent of archaeological exploration, which has so far covered only a limited portion of the settlement.

More broadly, the study of Al Baleed must be framed within the wider context of Dhofar, a region long marginal in archaeological research due to its geographical isolation and the late development of systematic investigations. While inland areas have recently attracted attention for the study of early populations and pastoral dynamics¹⁸, coastal settlements, despite their historical

¹³ Albright 1982.

¹⁴ Costa 1979.

¹⁵ Jansen 2015.

¹⁶ Newton, Zarins 2017.

¹⁷ Pavan 2021.

¹⁸ Rose *et al.* 2019; McCorriston 2023.

importance, remain comparatively underexplored, with the notable exceptions of Sumhuram¹⁹, and Al Baleed itself.

From a historical perspective, Al Baleed formed part of a dynamic political and economic landscape shaped by successive regional powers, including the Minjuids, the Habudis, and, most prominently, the Rasulid dynasty, under whose control the region reached a peak of development²⁰. Its role within the long-distance trade networks of the Indian Ocean, particularly in connection with the frankincense trade, contributed to its prosperity, while its decline, attested both archaeologically and in written sources, reflects broader transformations in regional and interregional economic systems²¹.

The town of Al Baleed, known in ancient time as Zafar, roughly rectangular in plan and covering about sixty-four hectares, was enclosed by imposing fortification walls and it was surrounded on three sides by a lagoon that once functioned both as a defensive moat and as part of the system for transporting goods. The southern side of the settlement opened directly onto the Indian Ocean. The lagoon, which has been periodically dredged and maintained from antiquity to the present, was a crucial feature of the infrastructure of the site, giving the town the appearance of an artificial island.

Within this enclosure, the urban layout reveals a carefully planned organisation, articulated into three main sectors reflecting different functions. In the western district stood the most prominent monuments, including the citadel, the Great Mosque, and the custom house, which together formed the political, administrative, and religious heart of the settlement. The central area was mainly residential in character, with houses, small neighbourhood mosques, and a religious complex provided with a cemetery. The eastern sector, which today appears largely levelled, shows traces of small mosques and light constructions in perishable materials; this area was likely devoted to productive and commercial activities, such as stabling horses, storing frankincense, and drying sardines.

Archaeological investigations conducted by J. Zarins and L. S. Newton along the southern edge of the site have brought to light an impressive line of fortifications with eighteen semi-circular towers, four large breakwaters, and four monumental gates²², which have undergone consolidation following recent fieldwork²³. Near the Southeast Gate, the remains of wooden posts embedded in the sand have been interpreted as part of a dry dock used for ship maintenance, while massive carved stone blocks with paired holes may have

¹⁹ See Buffa 2019 for a review of earlier bibliography.

²⁰ Giunta 2021.

²¹ Pavan *et al.* 2020.

²² Newton, Zarins 2017, pp. 76-87.

²³ Sassu *et al.* 2017.

supported the wooden structure of a jetty connected with the maritime trade, possibly related to the export of horses²⁴.

Although Al Baleed did not possess a protected harbour in the modern sense, maritime traffic was ensured by roadstead anchorage, a system also attested at other ports along the western Indian Ocean such as Şohar (northern Oman), Siraf (Iran), and Al Shihr (Yemen). Ships anchored offshore, and goods were transferred to land by means of small local boats, typical of Dhofar and still in use in Salalah until the 1980s.

Outside the Western Gate, historical sources and archaeological evidence point to the existence of a large market district, identified with the area known as Al Harja. The traveller Ibn Battuta in the 14th century described it as a thriving commercial centre, and Marco Polo likewise noted that the inhabitants of Al Baleed in the 13th century were almost entirely devoted to trade²⁵. The economy of the town centered around horses, incense, and sardines, but also included the trade of a wide range of resins, plants, pigments, animals and animal products, and perfumes, reflecting the richness and diversity of the resources of the Dhofar region²⁶.

To the west of the settlement lies an extensive cemetery, while further west and north, beyond the lagoon, in an area today covered by lush plantations, the remains of mosques, wells, and domestic buildings mark the ancient suburban zones of the city. Columns still visible among the palm groves point to the presence of both religious and secular structures outside the main enclosure, attesting to the wide extent of the inhabited landscape. Founded probably in the 11th century, Al Baleed flourished between the 13th and 15th centuries, declined after the arrival of the Portuguese in the Indian Ocean in the early 16th century, and was finally abandoned during the 18th century²⁷.

2.2. *The Museum of the Frankincense Land*

The Museum of the Frankincense Land was inaugurated on 23 July 2007 under the auspices of His Majesty the Sultan of Oman Sayyid Haitham bin Tariq al Said, then Minister of Heritage and Culture. The project was supervised and realised under the guidance of the late H.E. Abdul Aziz bin Mohammed Al Rowas, at that time Adviser to His Majesty the Sultan for Cultural Affairs. As the only museum in the Dhofar region, since its opening, it has become a major cultural landmark in southern Oman and remains today one of the country's most significant centres for heritage interpretation and dis-

²⁴ Ghidoni, Pavan 2022.

²⁵ Pavan 2024; Pavan, Visconti 2024.

²⁶ Pavan 2020.

²⁷ For the history of the city and the issues concerning its foundation, see Giunta 2021.

semination. It also served as a precursor to the development of the National Museum in Muscat and the Oman Across the Ages Museum in Manah, which were established later, expanding the national framework for the preservation and presentation of Omani heritage.

Located within the Archaeological Park, the museum was built in accordance with the traditional architectural style of the Dhofar region (fig. 2). Its design includes a central courtyard centred around a large frankincense tree, pointed arches typical of local architecture, and crenellations that define the upper edges of the walls.

While the white plaster characteristic of traditional buildings has been replaced by a cladding of light-coloured tiles, this material produces a soft, iridescent effect that recalls the brightness of the vernacular architecture of Dhofar and enhances the integration of the building with its coastal setting.

The main purpose of the museum is to offer visitors an overview of the long and rich history of Oman, with particular emphasis on the region of Dhofar, where the frankincense tree (*Boswellia sacra*) grows naturally and has shaped for millennia the local identity. Its exhibitions are organised into two complementary sections: the History Hall and the Maritime Hall, which together present a comprehensive narrative of the past of the country and its relationship overseas.

The History Hall explores the history of Oman through archaeological finds, models, maps, and multimedia displays. A large map of the country introduces visitors to the diversity of landscapes of the country with its mountains, deserts, islands, and extensive coastline, highlighting how geography has influenced its development and role as a crossroads of civilizations. The exhibition follows a chronological sequence beginning with Oman in prehistory and continuing through the Land of Frankincense sites, illustrated by finds from Sumhuram, Al Baleed, and Wubar. Subsequent sections trace the introduction of Islam, featuring a valuable collection of manuscripts, and Glimpses of Oman's History, which focuses on the country's role as a bridge between East and West, commemorating Oman's early diplomatic missions to China and the United States, making Oman the first Arab nation to establish such relations.

The Maritime Hall highlights the deep and enduring connection between the Omani people and the sea, illustrating traditional boatbuilding, navigation, and maritime trade. The exhibition opens with models of Omani vessels and continues through displays on craftsmanship, sailing techniques, and trade networks across the Indian Ocean. It highlights the historical role of Oman as a seafaring nation, whose prosperity was rooted in its strategic location and abundant resources, copper in the north and frankincense in the south.

2.3. *Visitor zone and recreational services*

To the east of the museum, a visitor area has been developed, comprising a bookshop and several shops selling traditional products such as frankincense, perfumes, and woven baskets. Many of these small businesses are managed by women, representing initiatives that promote micro-economy, sustainability, and generate positive impacts on the local community.

The park also features a range of recreational services designed to enhance the visitor experience while respecting the natural and cultural context of the site. Shaded gazebos, built with palm-leaf roofs, provide rest areas that embody principles of environmental compatibility and sustainability (fig. 3).

Visitors can enjoy the lagoon through boat excursions, while designated bird-watching platforms allow for the observation of the rich biodiversity of the region. The use of electric vehicles ensures that the entire park remains accessible, including for visitors with disabilities, while preserving the tranquillity and ecological balance of the site (fig. 4).

Overall, the visitor zone combines comfort, sustainability, and cultural authenticity, creating an atmosphere that encourages both relaxation and awareness of the region's unique natural and cultural heritage.

2.4. *Botanical Garden*

The Dhofar region is distinguished by a unique and remarkably rich flora, shaped by the effects of the *khareef* monsoon that transforms its landscape for several months each year. This seasonal climate sustains a wide variety of endemic and rare plant species, many of which hold medicinal, aromatic, or cultural value and have long been part of the region's traditional knowledge and daily life. In the early 2000s, a botanical garden was established within the Al Baleed Archaeological Park to preserve and showcase this extraordinary natural heritage. The initiative was developed in collaboration with the Tropical Herbarium of Florence (Italy), which provided scientific expertise for the identification, documentation, and conservation of local plant species.

The garden serves both educational and environmental purposes, illustrating the deep connection between Dhofar's natural environment and its cultural traditions. It offers visitors the opportunity to appreciate the diversity of the region's vegetation and to understand the delicate balance that links the frankincense landscape, the monsoon ecosystem, and the human communities.

3. Archaeological Research through Field Investigations and the Development of Tools for Documentation and Interpretation

Since 2016, research at Al Baleed have adopted a multidisciplinary and digitally integrated approach, combining stratigraphic excavation with geophysical surveys, 3D modelling, and the specialised study of artefacts and materials by expert collaborators²⁸. This strategy has provided a more comprehensive understanding of the city's construction techniques, spatial organisation, and environmental context, while also opening new perspectives on its chronology and patterns of occupation. Given the vast extent of the site and the logistical and environmental constraints associated with its management as a public archaeological park, research has focused on a series of key landmarks, including the Great Mosque, the citadel, the city walls with the gates, towers, and jetties, and selected residential and religious areas representative of the city's different functions and chronological phases. The location of the visitor pathways within the park also have influenced the selection of excavation zones, ensuring that areas under investigation are both scientifically relevant and accessible for public interpretation.

The documentation of archaeological activities constitutes a central component of the ongoing research strategy. Since 2021, a comprehensive digital database has been developed to record, organise, and analyse all data produced by fieldwork and related studies. Designed as a dynamic research tool and a long-term instrument for heritage management and site monitoring, the database is shared with the Omani authorities and is expected to become publicly accessible online in the near future, promoting transparency and collaboration in archaeological research.

This digital archive also incorporates the Museum Collection, originally initiated by M. Jansen and subsequently enriched by the missions that have worked at the site under the supervision and coordination of the museum team. The collection gathers artefacts selected either for their completeness or for their informational significance, representing a reference corpus that bridges archaeological research and heritage display. Although not part of the permanent exhibition, these items are available for temporary exhibitions and inter-museum loans, thus reinforcing the link between research, conservation, and public engagement.

This focus on documentation and data sharing aligns with broader efforts to strengthen the scientific infrastructure of archaeological research in Dhofar. In this context, Ali Al-Kathiri, Director of the Land of Frankincense Sites Department, promoted, together with the author, the creation of a central archive

²⁸ For a comprehensive overview of the research and field activities undertaken since 2016, see D'Andrea *et al.* 2021.

gathering all reports and publications produced by archaeological missions working in the region. This effort is consistent with the principles outlined in the *World Heritage Resource Manual – Managing Cultural World Heritage*²⁹, which emphasises that documentation should not only support conservation but also foster transparency, knowledge sharing, and public access to information as integral components of heritage management. In this perspective, the creation of a shared digital archive for Al Baleed publications responds to the same rationale, ensuring that archaeological and conservation data are systematically recorded, preserved, and made available for research, education, and long-term site monitoring. Initially conceived for the Land of Frankincense sites, the archive now also includes recent prehistoric studies, ensuring the preservation and accessibility of Dhofar's archaeological record for future research. Although the archive currently exists in physical form, the goal is to transform it into a digital and openly accessible resource, enabling broader sharing and integration of information across institutions.

Ongoing archaeological research at Al Baleed is currently led by R. Giunta, with the author as deputy director, within the framework of a broader programme of the University of Naples L'Orientale focusing on Islamic-period sites in the Dhofar region. This phase consolidates the multidisciplinary framework established in previous years, incorporating recent palaeobotanical and zooarchaeological investigations aimed at investigating food practices, providing insights into everyday life, resource management, and the interaction between human communities and their environment. The knowledge generated through these ongoing investigations forms the basis for effective protection and sustainable management of the site, ensuring that scientific research directly supports conservation and heritage policy.

4. Strategies for Conservation, Maintenance, and Environmental Integration within the Archaeological Park

The protection and maintenance of the Al Baleed Archaeological Park pose significant challenges due to both the extent of the excavated areas and the extreme climatic conditions that characterise the Dhofar region. The site lies within the zone affected by the *khareef* monsoon, which brings heavy seasonal rainfall from June to September, but it is also exposed to occasional low-pressure systems and tropical cyclones forming over the Indian Ocean. Among these, cyclone Mekunu in 2018 had a particularly severe impact on Salalah and its coastal heritage sites, including Al Baleed, underlining the vulnerability

²⁹ <<https://whc.unesco.org/en/managing-cultural-world-heritage>>, 12.10.2015.

of archaeological remains in this environment³⁰. In such a context, conventional protective structures, such as lightweight roofs or temporary shelters, are neither technically feasible nor environmentally appropriate. The combination of vast excavation areas and extreme climatic conditions makes large-scale coverage impractical. Conservation measures have therefore focused on the capping of wall tops with compatible mortars to mitigate erosion, limit water infiltration that would otherwise accelerate structural decay, and stabilise exposed masonry surfaces. However, this approach proves insufficient in open areas such as courtyards. Consequently, selective backfilling has been adopted as a sustainable method to safeguard visitor safety and ancient masonry alike, while preserving the legibility of the site and allowing for future re-excavation.

To ensure the long-term preservation of the structures, restoration and consolidation works at Al Baleed are carried out in full accordance with UNESCO recommendations and follow the principles of the *Triple R* approach, which stands for Recognizable, Respectful, and Reversible³¹. This framework defines the essential criteria for any conservation intervention, ensuring that the restored fabric remains both legible and compatible with the original remains.

In practical terms, the recognizability principle ensures that reconstructed masonry can be clearly distinguished from the ancient structures, thus preserving the historical legibility of the site. The respectful principle calls for reconstructions that are as faithful as possible to original techniques and materials, maintaining the visual integrity of the monument and its surroundings. Finally, the reversibility principle guarantees that restored portions can be removed or modified in the future without harming the ancient fabric, thereby preserving the potential for further research, reinterpretation, or re-excavation.

At Al Baleed, this philosophy has been translated into practice through the placement of a geotextile strip between the ancient and reconstructed parts of the walls (fig. 5). This solution, which does not require specialised labour, is cost-effective, visible, and fully reversible. It provides a clear physical marker of the intervention while ensuring mechanical stability and long-term protection of the structures. Furthermore, the restoration materials are sourced directly from within the site: masonry blocks and stones, as well as wall infill and wooden elements, are reused whenever possible from the same architectural contexts or, alternatively, from other areas of the ancient settlement. This approach not only ensures material compatibility and visual coherence but also aligns with sustainable principles by limiting the introduction of external materials into the archaeological environment. This methodology ensures that protection and presentation are conceived as complementary aspects of site management, balancing the needs of conservation with those of public accessibility and interpretation.

³⁰ Andreou *et al.* 2022; Pavan, forthcoming.

³¹ Sassu *et al.* 2017.

5. *Valorisation and Public Engagement*

The valorisation strategy implemented at the Al Baleed Archaeological Park is conceived as a dynamic and inclusive process addressing a dual audience: on the one hand, it welcomes a growing number of international and regional visitors attracted by Oman's expanding tourism sector; on the other, it continues to play a central role in the daily life of the local community of Salalah.

Over the past decade, Oman has experienced a remarkable expansion of seaside, cultural and eco-tourism, supported by major infrastructural investments and coordinated institutional initiatives. The country has promoted its heritage and natural landscapes abroad through targeted international campaigns, while simultaneously encouraging sustainable forms of tourism. This has included the construction of new hospitality facilities and eco-lodges designed to respect the environment and local traditions, as well as the growing presence of specialised travel companies offering tailored itineraries focused on history, archaeology, and nature.

Within this context, Al Baleed stands out as one of the main heritage destinations in the country. The seasonal alternation of visitors shapes the rhythm of activities: during the *khareef* months, the mild monsoon climate attracts large numbers of visitors from across the Arabian Peninsula, while in winter, the site welcomes European travellers who arrive through organised tours, charter flights, or as independent visitors and small groups.

This diversity of audiences requires flexible management and interpretation strategies, capable of addressing different cultural backgrounds, expectations, and levels of expertise.

A key element of the park's valorisation strategy is the interpretation of the ruins, which form an integral part of Salalah's cultural landscape. The remains of the ancient town have always been visible to the local population and, for centuries, were perceived as a familiar landmark rather than an isolated archaeological site. Until the early 1970s, the area even served as an open-air quarry, providing building materials for the growing districts of Al Hafa and Salalah Al Wusta. Today, the same site, once a source of construction stone, has become a place of encounter and recreation for the city's inhabitants, a public space where families gather, especially during weekends, National Day, religious celebrations, and festivals. In this sense, Al Baleed represents not only a heritage attraction for tourists, but also a living component of the social and urban fabric of Salalah.

At the same time, the park and the Museum of the Frankincense Land have become major instruments for cultural dissemination and education. Since the establishment of the archaeological park, a system of interpretative panels has been installed near the main monuments and points of interest. Conceived as an essential tool for public engagement, these panels offer visitors historical and archaeological information about the site and its broader context. Due

to the local climatic conditions, they are periodically replaced and regularly updated to reflect new discoveries and ongoing research.

In recent years, particular attention has been devoted to the development of digital tools for visualisation and interpretation, aimed at enhancing the understanding of the ancient city. Among these, virtual restoration of some of the investigated areas has been developed within the framework of the activities of the University of Naples L'Orientale. This approach employs 3D modelling and digital reconstruction techniques to recompose fragmentary remains and suggest the possible appearance of the ancient urban landscape (fig. 6).

By combining archaeological evidence with historical and architectural data, it enables visitors to visualise the city's past configuration without physically altering the site. Unlike traditional visualizations, often based on artistic impressions rather than on verifiable data, this method prioritises accuracy and reproducibility, aligning with current standards for scientific heritage communication.

A complementary augmented reality (AR) project is currently being developed by an Italian company in collaboration with the Omani authorities, with the scientific consultancy of the University of Naples L'Orientale³². The initiative envisages a series of designated viewing points within the park, accessible via electric vehicles, where visitors will be able to experience immersive visual reconstructions of key areas of the ancient settlement through AR glasses. Although AR technology has already been successfully implemented in several international archaeological sites, it has not yet been applied in Oman, where this project would represent the first experimental integration of such systems within a heritage context.

Unlike virtual reality (VR), which isolates the user in a fully simulated environment, augmented reality overlays digital content such as 3D models, text, and audio, onto the real space, enhancing perception while preserving the direct connection of the visitors to the archaeological site. This approach combines the authenticity of the physical context with the interpretative potential of digital visualization. Moreover, the system allows for flexible itineraries tailored to visitors' time, mobility, and interests, dynamically reorganizing information to ensure a coherent and engaging experience.

Together, these initiatives demonstrate a sustainable and innovative approach to heritage communication, merging technological advancement with archaeological research. By enabling visitors to visualise the ancient city's architectural layout and historical transformations, they bridge the gap between the fragmentary remains and their original appearance, while making the experience more engaging and accessible to a wider audience.

³² An augmented reality project is currently under formal development in collaboration with AR-Tour, a Naples-based company specialising in immersive technologies.

At the same time, the park's valorisation strategy places strong emphasis on education and community involvement, recognising that the long-term preservation of heritage depends on the active participation and awareness of the people who live around it.

The museum also promotes a public archaeology approach, encouraging awareness and active participation among both visitors and residents. Educational programmes are regularly organised in collaboration with schools (fig. 7) and universities, including guided tours, thematic workshops, and lectures introducing students to archaeology, conservation practices, and traditional crafts. Among these initiatives are drawing workshops, and creative activities that link heritage to contemporary forms of expression.

In addition, the museum collaborates with local institutions and cultural organisations to develop training and community-based projects. One notable example was the pottery workshop for Dhofari craftswomen, inspired by ancient ceramics displayed in the museum and organised in cooperation with the Craft Industries Directorate. Such initiatives contribute to the revitalisation of traditional skills, the strengthening of cultural identity, and the promotion of sustainable micro-entrepreneurship.

Public engagement is further fostered through participation in national and regional cultural events, including the Khareef Festival and the Frankincense Festival (fig. 8), which attract many visitors each year. On these occasions, the park and museum host temporary exhibitions, open-air performances, and educational sessions that enrich the cultural life of the Dhofar Governorate (fig. 9). Finally, tourism and community involvement also generate tangible socio-economic benefits. After the tourism boom recorded in 2016, the growing number of visitors has stimulated the creation of new employment opportunities for Omani guides, museum and park staff, and transport operators, as well as the development of complementary sectors such as hospitality and services.

Through this integration of research, conservation, and public participation, the Al Baleed Archaeological Park has evolved into a model of sustainable heritage management, simultaneously a centre of scientific inquiry and a catalyst for cultural, social, and economic development in the Land of Frankincense.

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Appendix

Fig. 1. The area of the Al Baleed Archaeological Park with borders in red (© Ministry of Heritage and Tourism of Oman)



Fig. 2. The internal courtyard of the Museum of Frankincense Land (© Ministry of Heritage and Tourism of Oman)



Fig. 3. Resting areas with palm-leaf roofed gazebos along the tourist path (© Ministry of Heritage and Tourism of Oman)



Fig. 4. Electric vehicles moving the visitors along the Park (© Ministry of Heritage and Tourism of Oman)



Fig. 5. Restoration works at the site (© Italian Archaeological Mission of L'Orientale at Al Baleed)



Fig. 6. Virtual reconstruction of the exterior and interior of the mosque at the centre of the settlement (Reconstructions by C. Passaro © Italian Archaeological Mission of L'Oriente at Al Baleed)



Fig. 7. School outreach activities (© Ministry of Heritage and Tourism of Oman)



Figs. 8, 9. The team of IAMOB and the staff of the Museum of Frankincense Land illustrating the archaeological activities and the typical flora of Dhofar during the last Frankincense Festival, December 2024 (© Italian Archaeological Mission of L'Orientale at Al Baleed; Ministry of Heritage and Tourism of Oman)



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