

Report on

**Collaborative Practice-led Research Agenda for the Cultural sites
of Al Ain (Hafit, Hili, Bidaa Bint Saud and Oases Areas) World
Heritage Site**

As part of

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Collaborative team

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I. Background

1. Brief description of the World Heritage property

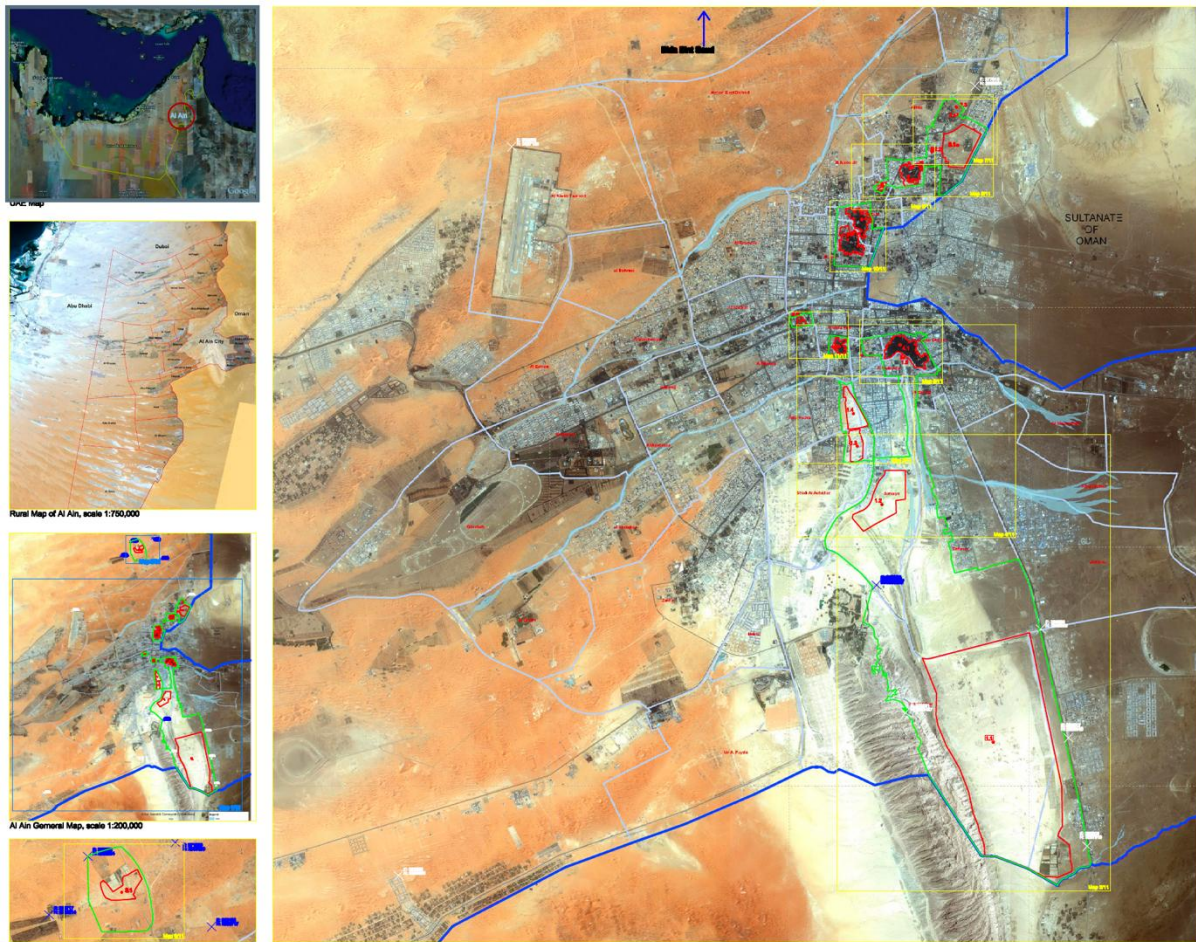
The Cultural Sites of Al Ain and Al Ain Oases, often referred to as the “Garden City of the Gulf,” is a UNESCO World Heritage Site located in the Emirate of Abu Dhabi, United Arab Emirates (UAE). Nestled at the base of Jebel Hafeet and near the border with Oman, Al Ain reflects a remarkable blend of human ingenuity and environmental adaptation. This desert settlement has thrived for millennia through innovative water management, sustainable agriculture, and its strategic position as a hub of cultural and economic activity.

The property includes six oases, archaeological sites, mudbrick structures, and defensive buildings, each illustrating the longstanding relationship between humans and their environment. The site’s location at the crossroads of ancient trade routes—linking Oman, the Arabian Peninsula, the Gulf, and Mesopotamia—further emphasizes its historical significance as a center for exchange and interaction.

1.1 Outstanding Universal Value (OUV)

Inscribed on the UNESCO World Heritage List in 2011, Al Ain provides an exceptional record of human settlement, adaptation, and innovation in an arid desert environment. Its OUV is reflected in several key aspects:

- Cultural Continuity and Early Settlement: Al Ain preserves tangible and intangible evidence of prehistoric communities that adapted to extreme climatic conditions while developing sustainable socio-economic systems. Well-preserved archaeological sites, including circular stone tombs from the Hafit period and settlements from the Umm an-Nar period at Hili, illustrate early sedentary life and cultural evolution.
- Architectural and Cultural Heritage: The site showcases an extensive range of mudbrick forts, watchtowers, mosques, palaces, and houses, each serving distinct functions—defensive, religious, domestic, or economic. These structures highlight the evolution of architectural styles and construction techniques, reflecting the resilience and ingenuity of Al Ain’s inhabitants.
- *Aflaj* Irrigation System: A defining feature of Al Ain’s heritage is its sophisticated *falaj* irrigation system, which has sustained the oases for centuries. This equitable water distribution network, some of which is partially underground, demonstrates a deep understanding of hydrology in arid climates. Passed down through generations, the *aflaj* system remains central to the region’s agricultural and cultural heritage and is also recognized on UNESCO’s Intangible Cultural Heritage List.



Cultural Sites of Al Ain (Hafit, Hili, Bidaa Bint Saud and Oases Areas)

1.2 Al Ain as a Crossroads of Civilizations

Archaeological evidence highlights Al Ain's role in regional and global trade networks, with discoveries such as copper artifacts, Mesopotamian pottery, and Indus Valley trade links underscoring its significance as an ancient center of commerce and cultural exchange. This legacy of intercultural interaction continues to shape Al Ain today.

At the national level, Al Ain embodies a multigenerational sense of belonging and continuity. The oases and their associated practices, such as palm gardening and irrigated agriculture, have been passed down through families, reinforcing deep cultural connections. Adaptive reuse of historical structures further strengthens its role as a community hub:

- Qasr Al Muwajji, a former palace, has been transformed into a museum that narrates the life and legacy of the UAE's founding leaders.
- Forts and towers, once used for defense, now serve as venues for exhibitions, art workshops, and national celebrations, maintaining historical significance while adapting to contemporary needs.

Locally, Al Ain remains valued for its Islamic traditions, communal ethos, and educational importance. The oases, with their cool shade and life-sustaining water, continue to be

centers of social interaction, economic activity, and cultural exchange. These spaces reflect core Emirati values such as generosity, hospitality, and shared knowledge. Additionally, practices like equitable water distribution and sustainable agriculture highlight the community's ability to adapt to environmental challenges.

Al Ain serves as a living classroom, offering insight into early human settlements, architectural ingenuity, and cultural resilience. Its tombs, settlements, and mosques not only preserve history but also inspire contemporary appreciation for past civilizations.

1.3 A Synthesis of Cultural and Ecological Significance

The Al Ain World Heritage Site represents a unique intersection of cultural and environmental values:

- **Cultural Identity:** The transmission of traditional practices across generations has ensured the preservation of intangible heritage and strengthened community ties to the land.
- **Ecological Adaptation:** The *aflaj* irrigation system exemplifies sustainable water management, supporting agriculture and human settlement in a desert environment.
- **Educational and Historical Legacy:** The site offers invaluable insights into human adaptation, socio-economic systems, and early civilizations, contributing to ongoing research and heritage education.

Through its interwoven history, architecture, and environmental ingenuity, Al Ain remains a testament to human resilience, cultural continuity, and sustainable living in harsh desert conditions.

1. Present priority issue(s) - Maximum 500 words

The Al Ain World Heritage Site comprises cultural sites, traditional practices, and natural systems that have evolved over centuries. However, heritage management authorities have identified key challenges that threaten its long-term sustainability. Urbanization, climate change, and the potential loss of traditional knowledge—particularly concerning the *aflaj* irrigation system—pose risks to both the tangible and intangible heritage of the site.

While no immediate physical deterioration of the property's components has been reported, management acknowledges the need for proactive measures to prevent the loss of material fabric, cultural practices, and systems of knowledge that contribute to the site's Outstanding Universal Value (OUV). The primary concerns include the pressures of rapid urban expansion, which, if not carefully managed, could lead to encroachment on archaeological sites, oases, and traditional agricultural lands. Additionally, the *aflaj* system, an essential water management network that has sustained Al Ain for centuries, is increasingly vulnerable due to modern infrastructure developments that may disrupt its functionality and transmission as a living cultural practice.

Management has also highlighted climate change as a significant factor affecting the site. Rising temperatures and shifting weather patterns threaten the viability of traditional

agriculture, water resources, and local ecosystems, which are deeply intertwined with Al Ain's cultural identity. However, this challenge also presents a key opportunity—the protection and strengthening of traditional water management systems, particularly the *aflaj*, can play a vital role in enhancing climate resilience. By preserving and adapting these centuries-old irrigation techniques, Al Ain can mitigate water scarcity, support sustainable agriculture, and reinforce ecological balance. As a result, there is a strong commitment to addressing these challenges through enhanced heritage planning, regulatory protections, and community engagement, ensuring that Al Ain's interlinked natural and cultural values contribute to both heritage preservation and climate adaptation for future generations.

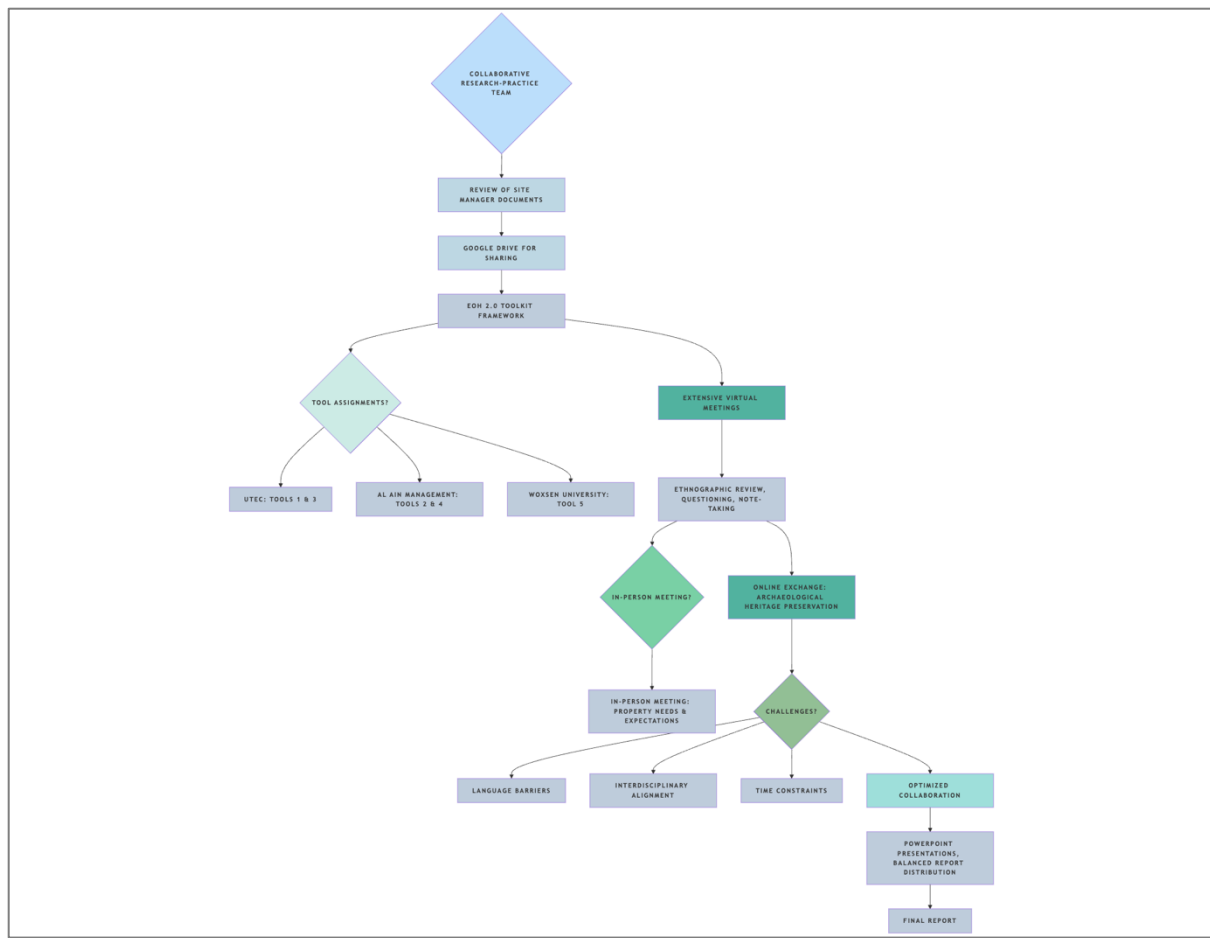
Furthermore, integrating heritage management into the city's infrastructure, development, and climate planning will ensure that Al Ain's unique heritage is protected in the face of modern challenges. This includes aligning heritage conservation efforts with climate mitigation and adaptation strategies, recognizing the interrelationship between urban development, environmental sustainability, and cultural resilience. Strengthening traditional water management systems, sustainable agricultural practices, and ecosystem preservation will not only safeguard heritage but also enhance the city's capacity to adapt to climate change, ensuring long-term resilience for both natural and cultural landscapes.

II. Collaborative process

Our research-practice team followed a highly collaborative approach, integrating different methods and tools to facilitate communication, data collection, and analysis.

A key starting point was the review of documents provided by site managers, including reports from the Panorama initiative, GIAHS, and various heritage pamphlets. These materials helped clarify the challenges faced by the World Heritage components and complemented the information recorded in the worksheets. To streamline document sharing and collaboration, we created a Google Drive folder and maintained coordination through a WhatsApp group.

The EOH 2.0 Toolkit played a central role in structuring our work. It provided a standardized framework that helped align expectations between researchers and site managers, ensuring clear and consistent communication. Each university team was responsible for specific worksheets: UTEC researchers worked on tools 1 and 3, the Al Ain management team on tools 2 and 4, and Woxsen University on tool 5. Completing the tools' worksheets required extensive virtual meetings, averaging three hours per worksheet plus additional time for refining language, totaling around 25 hours of collaborative effort.



The Collaborative Process

Our meetings followed an ethnographic approach, where we systematically reviewed documents, formulated questions, and took detailed notes to refine our understanding of the issues at hand. Each session generated new insights, leading to further questions and requests for clarification in subsequent discussions. This iterative process helped bridge the gap between theoretical frameworks and practical heritage management concerns.

The in-person meeting in China was instrumental in finalizing the identification of key property needs and management expectations. Additionally, online meetings provided a cross-fertilization space where researchers and site managers exchanged perspectives on the challenges of archaeological heritage preservation in Al Ain. These sessions often included presentations by the management team, which helped visualize the site's location and features.

While this collaborative effort was highly productive, it also presented challenges. Language barriers were evident, as both researchers and site managers were non-native English speakers. Additionally, the interdisciplinary nature of the team required ongoing dialogue to align different academic and professional perspectives. Time constraints also played a role, requiring efficient coordination to balance workload distribution.

To optimize collaboration, we took turns preparing PowerPoint presentations and leading discussions with the HPL team. The final report was divided according to individual preferences and prior contributions to the worksheets, ensuring a balanced distribution of responsibilities.

Overall, the process highlighted the benefits of combining structured methodologies with flexible, iterative discussions. The collaboration between researchers and site managers allowed for context-based discussions that bridged theory and practice, ultimately strengthening the research outcomes.

III. Key findings from the analysis of the management system

The team's research priorities emerged from an evolving understanding of the complex challenges facing the Al Ain World Heritage Site. Initially framed around development pressure and stakeholder engagement, the collaborative process revealed a more intricate web of interconnected issues, including urban expansion, climate change, governance coordination, and the sustainability of cultural and natural heritage systems. Through discussions with site management and a multi-disciplinary assessment, it became clear that addressing these concerns required a holistic approach that integrates policy enforcement, environmental resilience, and community participation.

As a result, the team identified four key research priorities that reflect this broader perspective. These priorities focus on governance structures, stakeholder engagement, environmental sustainability, and cultural identity—all of which are critical for the long-term preservation and adaptive management of Al Ain's heritage. The research priorities were shaped by evaluating compliance mechanisms, regulatory frameworks, urban development pressures, and environmental risks, while also identifying gaps in public awareness, policy implementation, and stakeholder involvement. This comprehensive approach ensures that heritage management strategies not only mitigate immediate threats but also foster resilience and sustainable development for the future.

The team's findings have significant implications for heritage conservation, governance structures, community engagement, and economic sustainability. Below is a breakdown of these findings in relation to the four research priorities.

a. Strengthening Stakeholder Engagement and Regulatory Frameworks for Effective Compliance

One of the primary challenges identified in Al Ain's heritage management is the lack of clarity and accessibility of regulatory frameworks, leading to inconsistent compliance and enforcement. The fragmented responsibilities among different agencies, including DCT Abu Dhabi, Al Ain Municipality, and other stakeholders, create delays, confusion, and inefficiencies in buffer zone and property management. Furthermore, the rules and legal requirements are often complex and not easily understood by stakeholders, making compliance difficult.

This research priority aims to address these issues by enhancing community participation, improving enforcement mechanisms, and strengthening the communication of regulations to ensure greater clarity and accessibility for all stakeholders. The team found that local communities have limited formal involvement in compliance and monitoring efforts.

Traditional knowledge, such as *fa/aj* irrigation practices, has been only partially integrated into modern enforcement frameworks, not just due to limited engagement, but also because of institutional and regulatory mismatches that make its incorporation challenging. Differences in management structures, legal recognition, and technical approaches have created barriers to fully aligning traditional systems with formal heritage policies. Rather than simplifying regulations, a key focus should be on enhancing communication and awareness to bridge gaps between traditional knowledge holders and regulatory authorities. As part of community-led enforcement, this research priority seeks to identify structured collaboration mechanisms and best integration points, ensuring that traditional water management practices are effectively incorporated into modern heritage governance while maintaining their cultural and environmental significance.

Implications and Action Areas:

- Clarifying and Simplifying Regulations: Developing user-friendly guidelines, digital resources, and multilingual materials to improve stakeholder understanding of compliance requirements.
- Incentivizing Compliance: Expanding financial and technical incentives for heritage conservation, including subsidies, tax reductions, and professional support.
- Leveraging Technology: Implementing GIS mapping, mobile apps, and real-time reporting systems for better monitoring and compliance tracking.
- Community-Led Enforcement: Encouraging local engagement through monitoring programs, training initiatives, and structured collaboration with traditional custodians.

By addressing these areas, this research priority can bridge the gap between stakeholders and enforcement bodies, fostering a collaborative and transparent regulatory environment for Al Ain's heritage conservation.

b. Optimizing Governance Frameworks for Effective Interagency Collaboration

The team's findings revealed significant governance challenges, particularly regarding the coordination between multiple enforcement agencies. The absence of a clear, unified governance structure leads to overlapping responsibilities, gaps in policy implementation, and inconsistencies in penalty enforcement. Additionally, the heritage law is not fully activated, and reliance on municipal fines limits heritage-specific legal action against violations.

Implications and Action Areas:

- Defining Agency Roles: Establishing a formal governance framework that outlines the clear responsibilities of DCT Abu Dhabi, Al Ain Municipality, and other stakeholders, reducing bureaucratic inefficiencies.
- Creating an Interagency Task Force: Forming a dedicated heritage enforcement unit to oversee compliance, address violations, and ensure seamless coordination between agencies.
- Strengthening Legal Enforcement: Activating heritage-specific penalties and ensuring uniform application of regulations across different administrative bodies.
- Ensuring Policy Alignment: Aligning urban planning, environmental laws, and heritage conservation strategies to balance development with preservation.

Implementing these governance enhancements would create a cohesive and accountable heritage management structure, ensuring that compliance mechanisms operate efficiently and transparently.

c. Creating a Cohesive Identity Across Al Ain's Heritage component parts

The team identified a lack of a unified identity among Al Ain's multiple heritage components, which has led to fragmented public engagement, inconsistent branding, and low levels of local pride. Visitors experience disjointed narratives across different sites, weakening their understanding of the Outstanding Universal Value (OUV). Additionally, community feedback emphasized the need for a unified cultural identity across Al Ain's heritage sites. The *falaj* irrigation system serves as a key link between these components, reinforcing their interconnectedness. Integrating *falaj* practices into heritage management can strengthen community engagement, climate resilience, and sustainable water use, ensuring both cultural and environmental values remain central to Al Ain's preservation.

Drawing from comparative examples of multi-site heritage branding, the team concluded that Al Ain requires a coherent and well-structured narrative that enhances public awareness, tourism appeal, and economic sustainability.

Implications and Action Areas:

- Developing a Strong Branding Strategy: Creating a unified visual identity, signage system, and marketing campaign to connect all heritage sites under a single, recognizable framework.
- Community-Driven Identity Formation: Involving local stakeholders in shaping the heritage narrative through participatory workshops and storytelling initiatives.
- Educational and Awareness Campaigns: Launching school programs, digital outreach, and heritage festivals to reinforce local engagement.

- Economic and Tourism Impact: Promoting sustainable heritage tourism models that benefit local businesses while ensuring cultural preservation.

A cohesive identity would enhance visitor experiences, increase engagement, and position Al Ain as a premier cultural heritage destination, ensuring long-term economic and social benefits.

d. Sustaining Al Ain's Traditional Water Systems Amidst Urban Development and Climate Change

The *Aflaj* irrigation system, a cornerstone of Al Ain's heritage, is under increasing threat from urbanization, groundwater depletion, and climate change impacts. The team found that modern infrastructure projects disrupt traditional water management systems, reducing their effectiveness and placing oasis agriculture at risk. Furthermore, community awareness of traditional water conservation practices has declined, largely due to urbanization, modernization of water infrastructure, and reduced reliance on ancestral irrigation methods. More detailed understanding of these factors is crucial to ensuring that revitalization efforts address past challenges and create sustainable, adaptive management strategies for the future.

Comparative research shows that community involvement is critical to sustaining heritage water systems globally. Therefore, preserving Al Ain's *Aflaj* networks requires an approach that combines traditional knowledge with modern conservation strategies.

Implications and Action Areas:

- Assessing Environmental Risks: Conducting research on water scarcity, desertification, and climate change impacts on *Aflaj* systems.
- Integrating Traditional and Modern Practices: Developing conservation strategies that blend indigenous knowledge with contemporary water management.
- Community Engagement and Training: Empowering local farmers and residents to maintain and manage *falaj* systems through capacity-building programs.
- Policy and Infrastructure Support: Implementing government-backed initiatives that promote sustainable water usage while protecting heritage-based agricultural practices.

By addressing these challenges, this research priority aims to preserve Al Ain's historic water management systems while ensuring long-term resilience against climate change impacts and urban expansion. Integrating urban planning as a tool can help align historical values and attributes, particularly the *aflaj* irrigation system and its associated knowledge, with modern development, ensuring its continued relevance and sustainability.

IV. Practice-led Research Agenda Outline

A. Research Priority 1

Research Priority 1	Establishing Clear Engagement Protocols for Integrating Cultural Heritage into Urban Planning and Development in Al Ain
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Background:

a. How did the Team conclude that this is the most important research priority?

The management of Al Ain's heritage faces significant challenges due to complex governance structures and the involvement of multiple stakeholders. The absence of clearly defined engagement protocols among municipal departments, external institutions, and private stakeholders has hindered the effective integration of cultural heritage considerations into urban planning and development guidelines.

To address these challenges, this research priority seeks to develop structured engagement frameworks that facilitate coordinated decision-making between municipal planning, infrastructure, property management, and heritage authorities. A key focus will be on clarifying responsibilities, improving communication channels, and ensuring that heritage protection is systematically integrated into development processes.

Additionally, the research will explore ways to enhance accessibility to zoning and regulatory guidelines, particularly for developers, landowners, and private stakeholders. This includes evaluating the effectiveness of current GIS-based zoning systems, identifying gaps in heritage-related considerations within engineering-focused building codes, and proposing measures to strengthen stakeholder awareness and compliance. By doing so, this research will contribute to more effective governance, streamlined decision-making, and better protection of Al Ain's cultural heritage amid urban expansion.

b. What areas of knowledge/disciplines are required to develop this research priority

This research priority, identified around the effective governance and policy making of Al-Ain as a UNESCO World Heritage site, essentially requires a comprehensive approach that integrates qualitative and quantitative research methodologies from the social sciences. It involves assessing the conditions and limitations of current heritage policy frameworks, the modes and degrees of stakeholders' involvement, and the dynamics of interagency and multi-level collaboration.

Political and social anthropology offer valuable theoretical and methodological frameworks for exploring these governance challenges. Qualitative research, particularly ethnographic methods such as archival research, participant observation, and stakeholder interviews, can provide insights into the barriers hindering effective interdepartmental and stakeholder collaboration. These methods can also inform the development of structured engagement strategies tailored to Al-Ain's specific heritage governance landscape.

Comparative analysis of governance models from similar heritage contexts—particularly within the Arab region or the Global South—can further enhance understanding of effective decision-making structures. However, it is crucial to consider the specific sociopolitical and cultural contexts of these cases to avoid overgeneralization and ensure the applicability of best practices to Al-Ain’s unique setting.

Action research presents another valuable approach for identifying practical mechanisms that foster inclusive governance frameworks and sustain community engagement. By integrating qualitative and quantitative tools, it is possible to identify mechanisms that facilitate heritage governance while ensuring meaningful community participation. Participatory action research can help incorporate local traditional knowledge and insights into formal heritage management protocols, reinforcing the role of communities in decision-making processes.

On the quantitative side, economic analysis can provide essential data on financial sustainability and equity in engagement initiatives. Evaluating funding mechanisms and economic incentives can support the long-term viability of community participation in heritage management, ensuring that financial constraints do not hinder inclusive governance.

By adopting a multi-method approach in research, Al-Ain can enhance its heritage governance structures, promote stakeholder collaboration, and integrate community perspectives into sustainable management practices. This holistic strategy will contribute to the long-term preservation of both the cultural and natural heritage that define Al-Ain as a World Heritage site.

c. Elaborate the research questions that need to be responded in order to address this priority.

Research Question	Type of Research	Focus
What barriers hinder effective collaboration among municipal departments and stakeholders in Al Ain for formalizing engagement protocols?	Exploratory	Identifying obstacles to inter-departmental and stakeholder collaboration.
What frameworks can be developed to formalize engagement protocols among municipal departments for heritage management?	Practical	Creating structured engagement strategies.
How can traditional knowledge and community insights be integrated into formal engagement protocols in Al Ain?	Participatory Action Research	Incorporating community perspectives into formal processes.

Which decision-making models from other heritage sites can be adapted to improve coordination in Al Ain?	Comparative	Comparative analysis of effective models from similar contexts.
What mechanisms (e.g., committees, workshops) can facilitate governance and ongoing community engagement in heritage management, and how can their effectiveness be assessed?	Action Research	Practical mechanisms for inclusive governance framework and sustained engagement.
How can financial resources be better allocated to support the formalization of engagement protocols in Al Ain?	Economic Analysis	Enhancing financial equity and sustainability for engagement initiatives.

B. Research Priority 2

Research Priority 2	Enhancing Community Engagement in Decision-Making for Heritage Management in Al Ain
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Background:

a. How did the Team conclude that this is the most important research priority?

Community engagement plays a crucial role in sustainable heritage management. Feedback from the site management team indicated a strong desire for greater involvement of local stakeholders in decision-making, particularly concerning conservation strategies and tourism development.

Observations by the research team highlighted that top-down decision-making processes often lack local insights, leading to inefficiencies, potential conflicts, and reduced effectiveness in managing heritage assets. A participatory approach is expected to foster a sense of ownership among the local population, strengthen cultural connections, and ensure that conservation efforts align with the community's values and needs.

Additionally, UNESCO's Operational Guidelines for the Implementation of the World Heritage Convention emphasize the importance of local communities in heritage stewardship, advocating for inclusive governance structures that integrate local participation and traditional knowledge into heritage management.

b. What areas of knowledge/disciplines are required to develop this research priority?

Addressing this research priority requires a multidisciplinary approach that brings together insights from social sciences, heritage management, and policy studies. Understanding how to effectively involve local communities in heritage decision-making

goes beyond simply inviting participation—it requires examining cultural values, power dynamics, and existing governance structures to create meaningful engagement.

One key discipline in this effort is cultural and social anthropology, which helps uncover local traditions and beliefs that shape how communities relate to heritage sites, ensuring conservation strategies align with local values. Similarly, public archaeology examines how people connect with prehistoric sites, shedding light on potential gaps between institutional heritage narratives and community perspectives.

From a sociological standpoint, community studies provide tools like Arnstein’s Ladder of Participation to assess the depth of public engagement, distinguishing between token consultation and meaningful empowerment. Complementing this, heritage management and policy studies explore ways to integrate local voices into governance structures while addressing practical challenges related to capacity and interest.

To understand power dynamics, Gaventa’s Powercube Framework offers a lens for analyzing who holds decision-making authority, which groups are marginalized, and how influence can be more equitably distributed. Meanwhile, environmental psychology helps assess how emotional and psychological ties to heritage influence community involvement, reinforcing the role of identity and place attachment in participation.

c. Elaborate the research questions that need to be responded in order to address this priority.

Research Question	Type of Research	Focus
What social, cultural, and structural barriers currently prevent effective community involvement in decision-making at the site?	Exploratory	Identifying obstacles to community participation.
What methods and frameworks can facilitate the incorporation of traditional knowledge and community insights into formal heritage management strategies?	Practical	Integrating local knowledge into management frameworks.
What decision-making models from heritage sites with similar cultural or ecological contexts could be adapted for use in Al Ain?	Comparative	Adapting successful models from similar sites.
What specific mechanisms (e.g., councils, workshops) could foster consistent and impactful community engagement in site management, and how can their effectiveness be evaluated?	Practical	Identifying tools for ongoing community engagement.

C. Research Priority 3

Research Priority 3	Creating a cohesive identity across the various heritage sites in Al Ain to enhance public awareness, engagement, and local pride.
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a. How did the Team conclude that this is the most important research priority?

The team identified creating a cohesive identity across the various components in Al Ain as the third most important research priority based on key challenges observed in compliance and governance assessments. While Al Ain consists of oases, *falaj* irrigation systems, archaeological sites, and historic settlements, many of these sites lack clear recognition as part of a cohesive whole, reducing public awareness and engagement. Visitors often experience a fragmented narrative due to an inconsistent identity across different locations, making it difficult to fully grasp the site's Outstanding Universal Value (OUV).

The management team feedback emphasized a strong desire for a unified identity to foster local pride and create a deeper connection between residents and all areas of the site. Additionally, based on the worksheet assessments, the urban development pressures, buffer zone disputes, and environmental risks contribute to the perception of the heritage sites as isolated rather than as part of an interconnected cultural landscape. Inspired by successful branding strategies from other multi-site heritage properties, the team recognized that a unified identity could enhance visitor experience, attract more tourists, and generate economic benefits for the community. Through marketing campaigns, educational programs, and community-driven initiatives, this research priority aims to strengthen public appreciation, improve stakeholder engagement, and ensure long-term sustainable heritage management for Al Ain.

b. What areas of knowledge/disciplines are required to develop this research priority?

Developing a cohesive identity for the Al Ain World Heritage Site requires expertise from multiple disciplines to ensure historical accuracy, cultural inclusivity, effective communication, and economic viability. Heritage conservation and management are essential to align the branding efforts with UNESCO guidelines while preserving the site's Outstanding Universal Value (OUV). This involves integrating traditional cultural landscapes, archaeological sites, and historic settlements into a unified identity that reflects authenticity. Public history and archaeology further support this effort by documenting and interpreting Al Ain's heritage, ensuring that visitor narratives are both engaging and historically accurate.

Incorporating marketing, branding, and tourism management is crucial to developing a strong visual identity and promotional strategy. Learning from successful multi-site heritage branding strategies can enhance visitor engagement and recognition. At the same time, urban planning and landscape architecture play a role in designing wayfinding systems, signage, and visitor experience strategies to unify the various sites while balancing urban development pressures. Community engagement and social sciences are also key, as stakeholder consultations and participatory research ensure that the identity resonates with local communities, fostering a sense of pride and ownership.

Additionally, digital media and communication are vital for strengthening public awareness through social media, virtual tours, and interactive educational programs. Lastly, economics and sustainable development are necessary to assess the financial impact of a unified identity on heritage tourism and ensure long-term economic benefits for local businesses and communities. By integrating these disciplines, Al Ain can establish a holistic and impactful identity, reinforcing both its cultural significance and sustainable development potential.

c. Elaborate the research questions that need to be responded in order to address this priority.

Research Question	Type of Research	Focus
What barriers prevent the establishment of a cohesive identity among the heritage sites in Al Ain?	Qualitative	Identifying obstacles to creating a unified identity.
How can branding strategies from other successful multi-site heritage properties be adapted for Al Ain?	Case Study	Adapting successful branding models for local application.
What role does community feedback play in shaping a unified identity for Al Ain's heritage sites?	Participatory Action Research	Understanding community perspectives on identity formation.
What specific initiatives (e.g., marketing campaigns, educational programs) can enhance public awareness and engagement with Al Ain's heritage sites?	Action Research	Identifying initiatives to promote engagement and awareness.

How can a unified identity for the heritage sites contribute to local economic benefits through tourism?	Economic Impact Assessment	Assessing the economic impact of cohesive branding on tourism.
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D. Research Priority 4

Research Priority 4	Exploring the challenges, impacts, and community roles in sustaining Al Ain's traditional water systems amidst urban development and climate change impacts.
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a. How did the Team conclude that this is the most important research priority?

The team identified sustaining Al Ain's traditional water systems as a critical research priority due to growing pressures from urban expansion, groundwater depletion, and climate change. The *falaj* irrigation system, which has historically supported oasis agriculture and local ecology, is increasingly threatened by modern infrastructure projects and reduced community involvement. Discussions revealed that younger generations have limited awareness of traditional water conservation methods, further endangering these systems.

Recognizing global examples where community participation has helped sustain heritage water systems, the team concluded that understanding how local communities can contribute to preserving and adapting these systems is crucial. This research aims to develop policy recommendations and conservation strategies to ensure the long-term sustainability of Al Ain's historic water heritage.

b. What areas of knowledge/disciplines are required to develop this research priority?

Developing sustainable strategies for Al Ain's traditional water systems requires expertise from multiple disciplines to address the environmental, urban, and cultural challenges impacting the *falaj* irrigation system. Water resource management and hydrology are essential to understanding groundwater depletion, climate change impacts, and the long-term sustainability of traditional irrigation methods. This includes examining not only climate hazards such as rising temperatures and changing rainfall patterns but also human-induced factors like urban expansion, increased water extraction, and shifts in land use, which can heighten these impacts. Environmental science, climate science, and ecology provide insight into how these water systems support oasis agriculture, biodiversity, and soil conservation, particularly in buffer zones. To effectively address climate-related challenges, it is essential to conduct a risk assessment that identifies specific vulnerabilities within the water management systems. Key risks include declining groundwater recharge, increased evaporation due to rising temperatures, sedimentation

and clogging of falaj channels, reduced water flow affecting agricultural productivity, and salinization of water sources. Understanding these risks will inform targeted adaptation strategies, ensuring that traditional irrigation methods remain viable and resilient in the face of climate change.

Heritage conservation and archaeology are critical for preserving the historical integrity of the *falaj* systems while integrating modern conservation techniques. Urban planning and infrastructure development help assess the impact of urban expansion on these traditional water networks and explore ways to mitigate encroachment. Community engagement and anthropology are necessary to understand how local knowledge, traditional practices, and stakeholder participation can contribute to the long-term sustainability of the *falaj* system.

Additionally, climate change adaptation and policy studies are crucial for developing regulatory frameworks that balance water conservation, heritage preservation, and urban growth. Economics and sustainable development play a role in ensuring that conservation efforts are financially viable and that water management strategies align with broader sustainability goals. Education and public awareness initiatives can further support knowledge transmission, ensuring younger generations understand the value of these traditional systems.

By integrating these disciplines, this research can develop holistic and actionable solutions for preserving Al Ain's historic water heritage while addressing contemporary environmental and urban challenges.

c. Elaborate the research questions that need to be responded in order to address this priority.

Research Question	Type of Research	Focus
What are the primary challenges to maintaining the sustainability of Al Ain's traditional water systems, in the context of modern urban development?	Qualitative	Identifying obstacles to create a unified identity.
How have traditional water management systems and irrigation systems, influenced the sustainability of Al Ain's local	Case Study	Exploring the long-term impact of traditional water management systems

ecology and agricultural practices over time in the buffer zones?		
In what ways can the local community contribute to preserving Al Ain's heritage water systems and improving ecological resilience against climate change?	Comparative/Action Research	Assessing the climatic impact and examining how preserving Al Ain's heritage water systems can improve ecological resilience

V. Next Steps

RA 01. Establishing Clear Engagement Protocols for Integrating Cultural Heritage into Urban Planning

One of the critical steps for the site management team is to develop structured engagement protocols between DCT Abu Dhabi, Al Ain Municipality, urban planning departments, and other relevant authorities to ensure that cultural heritage considerations are systematically integrated into development planning. Currently, urban expansion poses a challenge in the buffer zone areas of the property due to unclear heritage guidelines in municipal development codes. All stakeholders should collaborate to establish a unified vision and clear development regulations. To address this, All stakeholders should collaborate to establish a unified vision and clear development regulations..

A key initiative will be the development of standardized heritage guidelines that align with urban development regulations while preserving the site's Outstanding Universal Value (OUV). These guidelines should be made accessible to developers, landowners, and private stakeholders, ensuring that they fully understand compliance requirements when planning new projects near heritage zones. Public information campaigns and training sessions can also be introduced to improve stakeholder awareness of these regulations.

In addition, leveraging digital tools such as GIS-based zoning systems can streamline decision-making processes by integrating real-time heritage site data with urban development plans. This will allow planners and heritage managers to assess risks more efficiently and ensure that height restrictions, buffer zones, and preservation requirements are respected. Strengthening these protocols will contribute to a more cohesive and

effective urban-heritage management approach, ensuring that Al Ain's cultural sites are safeguarded as the city continues to expand.

RA 02. Enhancing Community Engagement in Decision-Making for Heritage Management

Community engagement remains an essential aspect of sustainable heritage management. Currently, limited stakeholder involvement has led to a gap between official heritage policies and local understanding, participation, and ownership of heritage conservation. To address this, the site management team should establish structured channels for community participation, ensuring that local stakeholders—including traditional custodians, landowners, farmers, educators, and youth—have a voice in decision-making processes.

A crucial step will be the creation of community heritage councils or advisory boards, bringing together representatives from different sectors of the local population. These platforms will facilitate regular consultations where residents, academics, and municipal officials can collaborate on policies, projects, and best practices for heritage conservation.

Additionally, educational and outreach programs should be developed to increase public awareness and appreciation of Al Ain's heritage. This could include:

- School programs and interactive workshops to educate younger generations about the importance of heritage conservation.
- Training initiatives for local custodians and farmers to enhance traditional knowledge transmission, particularly in managing the *falaj* irrigation system.
- Community-led monitoring programs, empowering residents to take an active role in protecting heritage sites from unauthorized development or environmental threats.

By fostering a culture of shared responsibility and active participation, the management team can strengthen the long-term resilience of Al Ain's heritage and ensure that conservation efforts are sustainable and locally driven.

RA 03. Creating a Cohesive Identity Across Al Ain's Heritage Sites

One of the major challenges identified through the research process is the lack of a unified identity across Al Ain's various heritage components, leading to fragmented public engagement and inconsistent branding. The site management team should develop a comprehensive branding strategy that highlights the interconnectedness of the city's archaeological sites, oases, falaj irrigation system, and historic structures under a single, recognizable identity.

A key component of this strategy is leveraging the falaj irrigation system as the unifying element across all heritage sites. Since the *falaj* network has historically sustained the oases, settlements, and agricultural landscapes, emphasizing its role in Al Ain's cultural and environmental history can create a strong narrative that ties together all serial components of the site.

To strengthen public engagement, the team should also develop cohesive interpretive materials, such as:

- Unified signage and wayfinding systems across all heritage sites.
- A digital platform, including a website and mobile app, providing interactive maps, virtual tours, and historical narratives.
- Community-driven storytelling initiatives, where residents contribute oral histories, personal experiences, and archival material to enhance public appreciation.

In addition, collaborations with tourism and marketing specialists can help position Al Ain as a premier cultural heritage destination, attracting domestic and international visitors while ensuring that tourism development remains culturally and environmentally sustainable. Strengthening this identity will enhance public awareness, community pride, and economic opportunities while reinforcing the OUV of Al Ain's heritage landscape.

RA 04. Sustaining Al Ain's Traditional Water Systems Amidst Urban Development and Climate Change

The *falaj* irrigation system, a cornerstone of Al Ain's heritage, faces significant threats from urban expansion, climate change, and shifting agricultural practices. The site management team must prioritize the preservation and adaptation of these traditional water management systems by integrating them into modern water conservation strategies and urban planning frameworks.

The first step is conducting a comprehensive risk assessment to identify key vulnerabilities in the *falaj* system, such as:

- Declining groundwater recharge due to increasing demand and environmental shifts.
- Rising temperatures and increased evaporation rates, reducing water availability.
- Encroachment from infrastructure projects, potentially disrupting historical water channels.
- Sedimentation and degradation of *falaj* structures, requiring restoration efforts.

Based on these findings, the team should explore adaptive solutions, such as:

- Policy incentives and subsidies to support farmers and custodians maintaining the *falaj* system.
- Combining traditional knowledge with modern hydrology to develop sustainable irrigation techniques.
- Strengthening legal protections for water rights associated with the *aflaj*.

Community involvement is also key to sustaining these water systems. The management team should engage local farmers, water custodians, and conservationists through training programs that ensure knowledge transfer and technical capacity-building. By incorporating climate resilience measures and local stewardship models, the *falaj* system can remain a functional and symbolic part of Al Ain's heritage for generations to come.

VI. Concluding Comments

The collaborative research process has been instrumental in identifying critical challenges and developing strategic solutions for the sustainable management of the Al Ain World Heritage Site. Through this process, the team has deepened its understanding of key governance, environmental, and cultural issues and recognized the need for a holistic and multi-sectoral approach to heritage preservation.

Over the course of these discussions, it has become evident that the long-term preservation of Al Ain's Outstanding Universal Value (OUV) requires an integrated, multi-sectoral approach. The research priorities established during this workshop—enhancing governance structures, formalizing engagement protocols, strengthening community participation, and ensuring the sustainability of traditional water management systems—reflect a collective commitment to improving heritage management practices.

One of the key takeaways has been the need for structured coordination between municipal authorities, regulatory bodies, and cultural institutions to ensure that development pressures do not compromise heritage protection. Similarly, the importance of community involvement in decision-making has been underscored, with a focus on developing inclusive frameworks that empower local stakeholders. The discussions on climate change resilience and the preservation of the falaj irrigation system have also provided critical insights into how traditional knowledge can be integrated into modern conservation strategies.

Moving forward, the site management team is committed to strengthening governance structures, improving stakeholder engagement, and ensuring that heritage protection is fully integrated into urban planning and climate resilience strategies. Special emphasis will be placed on:

- Enhancing regulatory frameworks and communication protocols to facilitate more effective collaboration between municipal authorities, developers, and heritage managers.
- Encouraging community-driven conservation efforts by empowering local stakeholders through training, education, and advisory councils.
- Developing a strong and unified heritage identity that reinforces the historical and cultural significance of Al Ain's diverse heritage components.
- Preserving the falaj irrigation system as a vital element of both Al Ain's heritage and its environmental sustainability.

As the next phase of work begins, the priority will be to translate these research findings into actionable policies, conservation strategies, and implementation frameworks. Strengthening regulatory enforcement, enhancing communication between stakeholders, and fostering greater public awareness will be key steps in ensuring that Al Ain's heritage remains protected amid changing urban and environmental conditions. The outcomes of this workshop will serve as a foundation for future planning efforts, ensuring that Al Ain's unique heritage continues to be safeguarded for generations to come.

VII. References

Abu Dhabi Authority for Culture and Heritage (ADACH) (2010) Al Ain Oasis Cultural Quarter Master Plan (AAOCQMP): Cultural Heritage Review.

Abu Dhabi Urban Planning Council (2007) Plan Al Ain 2030: Urban Structure Framework Plan.

Abu Dhabi Urban Planning Council (2011) Abu Dhabi Public Realm Design Manual.

Abu Dhabi Urban Planning Council (2018) Abu Dhabi Urban Street Design Manual.

Al Nuaimi, A. (2023) 'The UNESCO World Heritage Site of Al Ain: Management approaches', in *Advances in UAE Archaeology: Proceedings of Abu Dhabi's Archaeology Conference 2022*. Oxford: Archaeopress Publishing Ltd, pp. 393-428.

Al Tikriti, W.Y. 2011. *Archaeology of the Falaj: A Field Study of the Ancient Irrigation Systems of the United Arab Emirates*. Abu Dhabi: Department of Historic Environment, Abu Dhabi Culture and Heritage.

Bandarin, F. 2012. From paradox to paradigm? Historic urban landscape as an urban conservation approach, in K. Taylor and J. Lennon (eds) *Managing Cultural Landscapes*: 1-20. London: Routledge.

Bandarin, F. and R. van Oers (eds) 2014. Preface, in *Reconnecting the City: The Historic Urban Landscape Approach and the Future of Urban Heritage*: xiv-xviii. Chichester: Wiley-Blackwell.

Blake, J. 2015. *International Cultural Heritage Law*. Oxford: Oxford University Press.

Brumann, C. 2019. Imagining the Ground from Afar: Why the Sites Are so Remote in World Heritage Committee Sessions, in B. Christoph and D. Berliner (eds) *World Heritage on the Ground: Ethnographic Perspectives*: 294- 317. Helsinki: University of Helsinki.

Cleere, H. 2010. Management Plans for Archaeological Sites: A World Heritage Template. *Conservation and Management of Archaeological Sites* 12(1): 4-12.

Department for Communities and Local Governments 2009. Circular on the Protection of World Heritage Sites, viewed 20 December 2024, <https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/7698/circularworldheritage.pdf>.

Department of Culture and Tourism - Abu Dhabi (DCT) 2020. <https://dct.gov.ae/en/default.aspx>.

Government of the United Arab Emirates (2015) Proposal from the United Arab Emirates For the designation under the GIAHS Program of Al Ain and Liwa Historical Date Palm Oases.

Harrison, R. 2013. *Heritage: Critical Approaches*. London: Routledge

ICOMOS 2013. The Burra Charter, viewed 3 January 2025, <<https://australia.icomos.org/wp-content/uploads/The-BurraCharter-2013-Adopted-31.10.2013.pdf>>.

Ishizawa, M. and Jo, E. (eds) (2024) *Heritage Place Lab: A Model for Research-Practice Collaboration in the Context of World Heritage*, Report of the Pilot Phase 2021-2022. ICCROM.

Joy, C. 2019. UNESCO is What?, in B. Christoph and D. Berliner (eds) *World Heritage on the Ground: Ethnographic Perspectives*: 60-77. Helsinki: University of Helsinki.

Lixinski, L. 2019. *International Heritage Law for Communities: Exclusion and Re-Imagination*. Oxford: Oxford University Press

Makuvaza, S. (ed.) 2018. *Aspects of Management Planning for Cultural World Heritage Sites: Principles, Approaches and Practices*. Cham: Springer.

Ripp, M. 2011. Strategies, policies and tools for an integrated World Heritage management approach: Experiences from the city of Regensburg. *Facilities* 29(7/8): 286-302.

Sheehan, P., Khalifa, M., Ajou, M.A. & Marzooqi, N.N.A. 2023, 'Secrets of the shaabiyat: Recent developments in the archaeology of the (urban) oasis landscape of Al Ain', in P.E. Fadi, M. Gannon, K.A. Shohof & T.A. Ghoul (eds), *Advances in UAE Archaeology: Proceedings of Abu Dhabi's Archaeology Conference 2022*, Archaeopress, pp. 293-306. <https://doi.org/10.2307/jj.14638142.17>.

Tourism & Culture Authority Abu Dhabi (n.d.) 'Al Ain: Culture and Heritage Sites', Section 10.

UNESCO, ICCROM, ICOMOS and IUCN (2023) *Enhancing our Heritage Toolkit 2.0: Assessing Management Effectiveness of World Heritage Properties and Other Heritage Places*.

United Arab Emirates (2010) *The Cultural Sites of Al Ain (Hafit, Hili, Bidaa Bint Saud and Oases Areas) Serial Property Nomination File*.

Yildirim, E. and El-Masri, S. (2010) 'Master Planning for Heritage Conservation in Al Ain Oasis, UAE', 46th ISOCARP Congress 2010.