Cultural Heritage Protection Cooperation Office,
Asia-Pacific Cultural Centre for UNESCO

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CASE STUDY REPORTS

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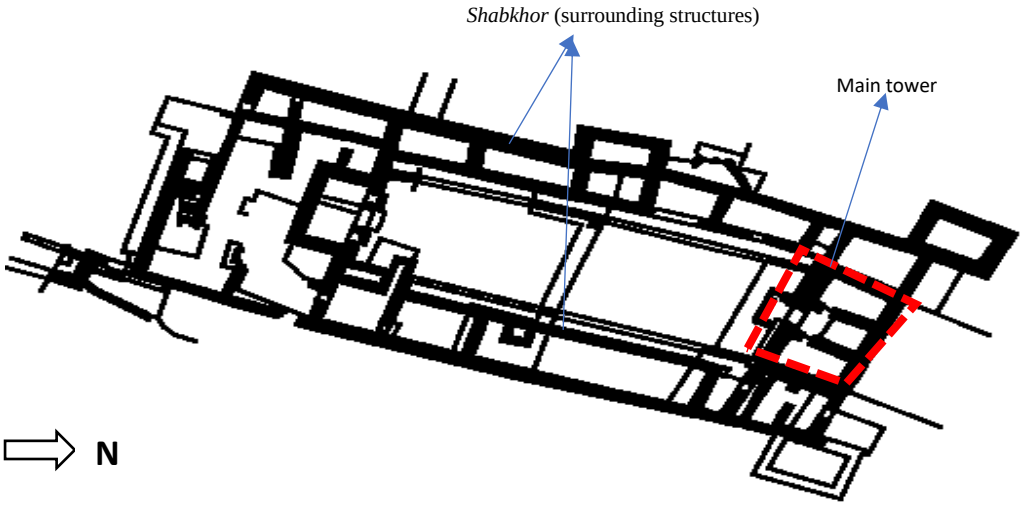
Challenges and Solutions for the Preservation and Sustainable Management of Bhutan's First Archaeological Site, Drapham Dzong (Fortress)

1. Background of the Site

Drapham Dzong, situated in the Bumthang region of Bhutan, is a monumental archaeological discovery, offering a window into the country's pre-Zhabdrung history, a period for which there are no written records. This site represents the first scientific archaeological excavation ever undertaken in Bhutan, marking a pivotal development in the nation's growing awareness of its material heritage. Excavations, conducted between 2008 and 2010, were part of the Bhutan-Swiss Archaeology Project, a collaborative initiative between the government of Bhutan and the Swiss Liechtenstein Foundation for Archaeological Research Abroad (SLSA), facilitated by HELVETAS Swiss Inter-cooperation. These efforts revealed significant architectural remains, including the ruins of the once-magnificent fortress believed to have been ruled by Chokhor Doeb. A monograph on Drapham Dzong was later published in 2018, providing a detailed analysis of the site and its historical context, interpreted through contemporary historical and literary evidence.

Picture 1. (left) Ruins after excavation. *Picture 2.. (right) Overall view of the excavation of the ruins.*
Source: Bhutan-Swiss archaeological excavation project 2008–2010 Drapham Dzong, Bhutan. Report 2009.

The excavation yielded invaluable artifacts, such as ceramics, pottery shards, and arrowheads, illuminating aspects of Bhutan's early history that were previously unknown. Furthermore, the project contributed significantly to capacity building within Bhutan, providing hands-on training to local archaeologists and establishing the groundwork for future heritage conservation efforts.



Picture 3. Plan of Drapham Dzong highlighting the consolidation work done

In 2020, consolidation work on the ruins was completed, using traditional construction techniques and adhering strictly to conservation principles, ensuring the preservation of this key historical site.

Picture 4(left) Before consolidation works of Utse. Picture 5 (right) After consolidation works of Utse.

On June 13, 2023, the findings from this inaugural scientific archaeological excavation at the Drapham Dzong ruins in Bumthang were formally presented to the public. These discoveries not only filled gaps in Bhutan's early history but also set a precedent for future archaeological endeavours in the country. However, despite these successes, the preservation and management of Drapham Dzong face significant challenges that require urgent attention

2. Challenges in the Management and Utilization of Drapham Dzong

2.1. Limited Expertise and Institutional Support

One of the primary challenges in preserving Drapham Dzong is the lack of trained professionals and institutional support in Bhutan's nascent archaeology sector. While the excavation of Drapham Dzong in 2008 marked a significant achievement, it also highlighted the limited availability of local expertise capable of managing future excavations and preservation efforts. Despite efforts to integrate archaeology into Bhutan's legal framework during the second phase of the Bhutan-Swiss Archaeology Project (2011–2013), Bhutan still lacks a robust institutional structure for archaeology. This scarcity of trained professionals is compounded by the lack of dedicated academic programs and infrastructure to support the long-term development of the field.

Furthermore, governmental support for archaeological projects, particularly those located in remote regions remains insufficient. The country continues to rely heavily on external donor funds and international expertise, both of which are finite and unsustainable over the long term. Without a dedicated effort to build internal capacity, the future preservation and management of sites like Drapham Dzong are in jeopardy.

2.2. Cultural Beliefs and Community Engagement

The preservation of Drapham Dzong is further complicated by cultural and religious beliefs that prioritize Bhutan's living traditions over its material heritage. Many rural Bhutanese communities, including those surrounding Drapham Dzong, place greater emphasis on maintaining their spiritual practices, festivals, and oral histories. These living traditions are often viewed as more valuable than physical ruins, which are sometimes seen as less relevant to contemporary cultural identity. This perception makes it difficult to generate local interest or support for the preservation of the ruins.

Additionally, some members of the community believe that disturbing ancient ruins could anger local deities or spirits, leading to a reluctance to engage in archaeological activities. Such beliefs contribute to a lack of local involvement, which is crucial for the long-term preservation of the site. Building local support is vital, not only for protecting Drapham Dzong but also for integrating it into the broader cultural landscape of the region.

2.3. Financial Constraints

The preservation of Drapham Dzong, like many other archaeological projects, is resource-intensive and requires substantial financial investment. The Bhutan-Swiss Archaeology Project was largely funded by the Swiss Liechtenstein Foundation, but the heavy reliance on external donors is not sustainable. Bhutan currently lacks a long-term, sustainable financial model for archaeological preservation, and many other significant sites remain unexplored due to a lack of funding for survey and documentation.

Developing a national archaeological inventory, as well as the infrastructure necessary to manage and protect these sites, requires continuous financial support. Without dedicated resources, the risk of degradation due to natural forces and human interference increases, further endangering Bhutan's archaeological heritage.

3. Strategies for the Preservation and Sustainable Management of Drapham Dzong

3.1. Capacity Building and Institutional Development

Addressing the shortage of skilled professionals is paramount for the sustainable management of Drapham Dzong. Developing targeted training programs for local archaeologists, conservators, and heritage managers will be essential for building the necessary expertise. Collaborative efforts with international institutions should be expanded, providing Bhutanese professionals with access to advanced methodologies in excavation, artifact analysis, and conservation.

Moreover, creating academic programs at local universities that focus on archaeology and heritage conservation is crucial. By cultivating a new generation of local experts, Bhutan can gradually reduce its reliance on foreign expertise. These professionals could also oversee routine maintenance of Drapham Dzong, ensuring the site is properly conserved and monitored for future generations.

3.2. Integrated Management Plans

Drapham Dzong requires a comprehensive, integrated site management plan that balances preservation with sustainable development. This plan should include clear guidelines for visitor access, ensuring that tourism is controlled in a manner that protects the site from damage while allowing for its educational and economic utilization. Additionally, the management plan should involve local communities, engaging them in the preservation process and fostering a sense of ownership over the site's future.

A dedicated management authority, empowered to oversee the day-to-day operations and long-term conservation of Drapham Dzong, could be instrumental in coordinating preservation efforts and ensuring adherence to international conservation standards.

3.3. Public Engagement and Awareness

Increasing public awareness about the significance of Drapham Dzong and its role in Bhutan's history is essential for its preservation. Public education initiatives, such as exhibitions, school programs, and media campaigns, could highlight the value of archaeological heritage, helping to bridge the gap between the living traditions that communities prioritize and the material heritage represented by sites like Drapham Dzong.

Involving local communities directly in preservation efforts, through workshops or employment opportunities related to the site, could also foster a deeper connection between the community and the physical remnants of Bhutan's past. Community buy-in is essential for ensuring that the site remains preserved in the long term.

3.4. Sustainable Funding Models

To ensure the long-term preservation of Drapham Dzong, Bhutan must develop sustainable funding models that go beyond reliance on international donors. Public-private partnerships, cultural tourism, and government investment in heritage preservation are potential sources of funding that could support

archaeological projects in Bhutan. Revenue generated from tourism could be reinvested in site conservation, helping to finance both routine maintenance and future excavations.

By diversifying its funding streams and creating a national strategy for financing archaeological endeavors, Bhutan can safeguard its heritage without over-reliance on foreign aid.

4. Conclusion

The excavation of Drapham Dzong has uncovered critical pieces of Bhutan's early history, offering invaluable insights into a previously undocumented era. However, the preservation and management of this site face significant challenges, from limited expertise and financial constraints to cultural and community-related hurdles. Addressing these issues requires a concerted effort to build local capacity, create sustainable funding models, and integrate the site into both the national consciousness and the local cultural landscape.

With the right strategies in place, Drapham Dzong can serve not only as a testament to Bhutan's rich history but also as a model for archaeological conservation in the country.

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Addressing Challenges in Management of Selected Heritage Conservation Projects in India

This document focuses on the challenges and learnings during the course of implementation of heritage conservation projects by Anupam Heritage Lab, in India. My work as a Conservation Projects Manager requires me to manage and monitor the progress of various projects and lead towards its successful completion in close liason with clients and stake holders in various capacities. Below are the various insights gained from personal experience and field observations during work.

(Top) Figure 1. (left) the Lalbagh Palace building, Indore,
Figure 2. (right) Ongoing conservation-restoration of the historic interiors in the palace sitting room.
(Bottom)Figure 3-4. Before and after restoration of sitting room. Source: Anupam Heritage lab (India) Pvt. Ltd. 2020-2022

1. Conservation of Historic Interiors at Lal Baug Palace, Indore.

1.1 Project: The rich interiors of the Holkar Royal Family's late 19th century Lalbaug Palace were in a dilapidated state. This project involved conservation of the historical interiors including polychrome stucco, carpets, furniture, upholstery, paintings on walls and ceilings, decorative art, marble and commenced in 2020 under the aegis of the World Monument Fund and Government of Madhya Pradesh. AHL worked as the materials conservation expert for Abha Narain Lambah Associates, the Conservation Architecture contractor.

1.2 Challenge: Halfway through the project, lockdown was declared due to the pandemic leaving the staff isolated there. Their outstation livings costs started mounting. As there was no flow of additional funds the question was whether to decrease scope of work or re-negotiate funding.

1.3 Management: Just before the lockdown, it was decided to immediately mobilize long-term conservation work-focusing on textiles, furniture, mouldings, etc. and necessary materials and equipment within a secure residential-working space, accessible only to a few conservation staff who stayed on site. The team continued their work throughout this period. WhatsApp video calls were used for close monitoring.

In recognition of the urgency to preserve historic materials and the emotional and financial challenges everyone faced, we chose to reinvest the savings from various project components back into the initiative, without renegotiating any funding. This decision was a reflection of our deep commitment to the project, gratitude for the health that allowed us to continue working, and a gesture of solidarity with our shared human heritage and with those heritage crafts-persons who perhaps faced similar trials in the past century.

1.4 Impact: The project was successfully completed, handed over and the restored palace rooms were opened to the public in 2022. The World Monument Fund requested us to partner in another project.

2. Conservation and Restoration of the Artistic and Historic elements at Afghan War Memorial Church, Mumbai.

(Top) Figure 5. (Left) The Afghan Church building,
Figure 6-10. (top to bottom) Conservation and restoration of the metal screen, flags, wooden font cover, metal plaque
(Bottom right) Figure 11-12. Measure drawings with final colour scheme for metal screen and regimental flag Union Jack-Bombay Navy Infantry XIII. Source: Anupam Heritage lab (India) Pvt. Ltd. 2022-2024

2.1 Project: The Afghan War Memorial Church was built by the British to commemorate the death of the soldiers during the First and the Second Afghan War. It is a Grade 1 Heritage structure as per the Heritage Regulations of Greater Mumbai. The church building and its elements were in dire need of conservation and restoration due to its fragile condition. The project involved restoring and conserving stone and metal memorial plaques on the walls, floors, vestibule area; mosaic walls; baptismal font; metal screens; lectern; pulpit; church bells; Altar reredos; memorial cross; flags (regimental colours).

2.2 Challenges: a. Overlapping works of collaborating teams: The conservation and restoration work required simultaneous interventions across various materials, necessitating the involvement of multiple teams. AHL was selected as the materials conservation contractor by Kirtida Unwalla Architects. Coordination of this project was recognized early to be a potentially significant challenge. Structural restoration of the built fabric was underway at the same time, with several teams—conservation architects, landscape architects, civil and site engineers, and others —working together on site. Difficulties surfaced as work started overlapping due to the 'unforeseen' work that would sometimes crop up. Progress of our material conservation work was often disrupted when other teams needed to carry out their tasks. and there were moments when, faced with emerging issues, they would question our approach. Balancing these overlapping responsibilities demanded constant adaptation and dialogue to keep the project moving forward.

b. Limited previous records: While there were some significant texts available on the history of the Afghan Church, there were very few references of the material elements inside the church. Restoration therefore became very challenging as we did not want to 'misrepresent' the physical aspect of heritage elements.

2.3. Management: a. Rather than dwelling on obstacles, we focused on finding solutions. We cooperated with the other teams, and ensured clear and regular communication with a spirit to achieve the end goal of the project rather than argue about scheduling of work, and maintained our position when necessary, ensuring the integrity of the heritage elements was upheld. We did not compromise on any site protocols, and ensured a multidisciplinary and parallel approach to the conservation implementation.
b. To ensure correct restoration, detailed research and technical examination was leaned on. Actors and stakeholders—including experts, the World Monuments Fund, conservation architects, and Church authorities—were actively consulted throughout the process to arrive at appropriate informed decisions. We

maintained flexibility by consistently adapting and fostering open communication, ensuring steady progress and keeping the project on course.

2.4. Impact: The project was successfully completed and opened for public in March 2024.

2.5. Need: Utilization plan and guidelines:
The Church which has a very small parish, is now opening up its space for classical music concerts and appropriate events. It is becoming a 'must visit' for heritage conservation training programmes, and heritage walks. While an interpretation panel has been installed to inform visitors about the successful restoration, improved visitor engagement has to be better designed to ensure a fuller appreciation of the church's historical significance and restoration efforts. Plans are ongoing for appointing additional staff to ensure proper upkeep, protection, and enhanced visitor experience. Guidelines for owners and visitors needs to be implemented.

3. Management of projects at Anupam Heritage Lab (India) Pvt. Ltd.

3.1 Projects: AHL provides large scale art conservation and restoration services to various State and Central Government institutions, collectors, corporates. Its prime focus is conservation, research, and training.

(Top) Figure .13-14 (from left to right) Preliminary examinations under digital microscope and Ultraviolet fluorescence
Figure 15-27 (from top right to bottom left) Conservation-restoration of art and artefacts of various materials like paper, paintings, wood, metal and stone sculptures, leather, etc.
(Bottom right) Figure 23-24 (from left to right) Training of young professionals.
Source: Conservation records, Anupam Heritage Lab (India) Pvt. Ltd.

3.2. Challenges: a. Organisation of documentation data and recordings: With multiple team members working on different objects, and various projects, managing the photo documentation of various simultaneous projects and objects becomes a challenge. Images sometimes get divided amongst different team members as everyone is encouraged to be independent in documentation. The decentralised documentation made it difficult at times to compile everything in one place. While AHL prides itself in its detailed report preparation, sometimes that takes up too much time, and often many of the conservation staff also do not have the same skills or interest in report writing as demanded by AHL.

b. AHL as a training ground for young persons: The institution policy is to proactively provide opportunities for trainees and freshers to learn conservation and restoration. However, this sometimes results in significant time and energy being spent on fresh graduates, which can delay ongoing tasks. Furthermore,

many trainees leave after their training period to pursue fellowships and other opportunities that open up due to the intensive experience gained here, limiting the institution's ability to build long-term internal capacity.

Management: a. At times, I had to take on the task of preparing reports myself to ensure the project could be completed when the team was unable to meet the deadlines. To address this, we implemented a system where each conservator was assigned a specific object and made responsible for both its documentation and timely treatment. In some projects, a single individual or team was designated to manage and organize all documentation in a central folder. Additionally, a backup drive was created to store all records securely.

Need: There is still a pressing need to standardize the documentation process. A dedicated documentation team should be assigned to efficiently manage and organize photographs and recordings for future projects.

b. Given the institution's commitment to encourage youngsters, I adapted by also managing the young students and their workflows accordingly. I ensured continuous monitoring of tasks, with regular deadline reminders to keep progress on track. Conservation treatments are ever-evolving and require ongoing research, so when making decisions or planning conservation strategies, I often had to educate myself first to ensure proper assignment, suggestion, or implementation of treatments while overseeing the work. Tasks were assigned based on the observed skills and progress of each team member. Additionally, they were encouraged to conduct their own research on various techniques and participate in workshops or training sessions offered by different institutions to enhance their skills.

Impact: Despite the challenges, this system has allowed AHL to contribute to building capacity in India and also in other countries and promote advocacy for conservation and preservation as a field.

Need: To further strengthen its personnel base and increase its bandwidth, AHL as an institution should consider investing more in and retaining trainees who demonstrate exceptional skills and dedication during their tenure.

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2. Project Report – Art Restoration works at Afghan War Memorial Church, Colaba, Mumbai (Phase II),Anupam Heritage lab (India) Pvt. Ltd. 2022-2024
3. Drawings by Ms. Apoorva Iyengar, Conservation Architect, Anupam Heritage Lab (India) Pvt. Ltd.
4. Conservation Records, Anupam Heritage Lab (India) Pvt. Ltd.

Heritage at a Crossroads: Assessing the Management and Utilization of Fort Rotterdam, South Sulawesi (INDONESIA)

Fort Rotterdam, located in Makassar, South Sulawesi, is a historic site that traces its origins to the Gowa Kingdom in 1545, when it was built as a defensive fortress. Captured by the Dutch East India Company in 1667 and renamed Fort Rotterdam, it became a center of Dutch colonial administration in Eastern Indonesia. The fort's unique architectural style, blending indigenous Gowa design with European influence, makes it an enduring symbol of cultural exchange, colonial history, and resistance, and even as a place of exile for Pangeran Diponegoro, a national hero of Indonesia (Ministry of Education and Culture Republic of Indonesia, 2012)..

Throughout its long history, the management of Fort Rotterdam has passed through various institutions, reflecting its evolving role. Initially maintained by colonial powers, after Indonesia's independence, the fort was protected as a national heritage site. Today, Fort Rotterdam is managed collaboratively by several institutions, including the Indonesian Heritage Agency and the Cultural Preservation Center under the Ministry of Education, Culture, Research and Technology. Additionally, the La Galigo Museum, overseen by the South Sulawesi Provincial Government, plays a key role in showcasing the region's history within the fort's walls. Other cultural institutions such as the Makassar Arts Council and the Tallo Traditional Institution contribute to the fort's cultural programming, ensuring its continued relevance as a hub of education, cultural preservation, and public engagement. This multi-institutional management reflects the complexities and potentials of preserving Fort Rotterdam's cultural legacy.

Picture 1. Map of the Division of Fort Rotterdam Ownership Assets
Source: Google Earth

As a significant heritage site, Fort Rotterdam holds immense potential as a space for public engagement, historical education, and tourism. However, it faces substantial challenges stemming from rapid urbanization, environmental degradation, and top-down governance. This report assesses the dual facets of Fort Rotterdam's current status: its potential as a dynamic cultural space and the numerous challenges undermining its preservation and utilization. The analysis further recommends sustainable management solutions that embrace community participation, ensuring the fort's resilience and relevance for future generations.

The Potential of Fort Rotterdam

Fort Rotterdam holds diverse potential as a cultural heritage site, including its role as a public space, a center for historical education, and a hub for community expression.

1. Public Space and Community Engagement

One of the most promising potentials of Fort Rotterdam is its capacity to serve as a public space for the local community. The open areas within the fort's grounds can be utilized for cultural performances, art exhibitions, and social gatherings. Currently, the fort occasionally hosts cultural events and performances, but there is significant room for increasing community-driven activities that reflect local heritage. Based on visitor data from Fort Rotterdam 2016-2022, Fort Rotterdam has great potential to be further utilized as a public space for the community.

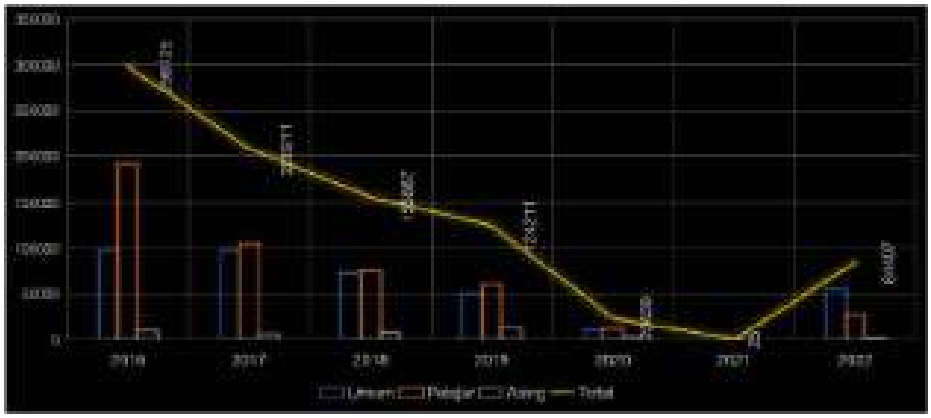

Table 1. Fort Rotterdam Visitor Data 2016-2022
Source: Fort Rotterdam Cultural Heritage Unit, Indonesian Heritage Agency, 2023

Picture 2. Utilization of Fort Rotterdam as a Cultural Center in Makassar
Source: Cultural Preservation Center XIX, MoECRT, 2022

A comparative example can be drawn from *Fort Santiago* in Manila, the Philippines, where the site has been successfully integrated into the city's cultural fabric. By allowing artists and community members to use the space for creative expression, Fort Santiago has revitalized its historical significance while fostering local pride. Similarly, Fort Rotterdam can leverage its historical significance as a place for communal expression, further connecting its cultural past with the present-day needs of the community.

2. Educational Value

Fort Rotterdam stands as an educational resource, offering invaluable insights into the history of South Sulawesi and Indonesia at large. With proper interpretation, the fort can become a center for immersive historical learning. Educational tours, interactive museums, and digital exhibitions can be integrated into the site's management plan.

Drawing from successful heritage sites such as the *Palace of the Sultanate of Yogyakarta*, which blends historical education with cultural immersion, Fort Rotterdam can enhance its role as an informative and engaging historical site. Programs targeting schools and youth could stimulate interest in history, while promoting awareness of cultural preservation.

3. Tourism and Economic Impact

Tourism remains a major aspect of Fort Rotterdam's potential, attracting both local and international visitors. Heritage tourism is a growing sector globally, and Fort Rotterdam could capitalize on this trend by offering enriched experiences, such as guided tours, historical reenactments, and souvenir shops featuring local crafts. The fort's historical significance, coupled with its architectural beauty, offers opportunities for innovative marketing campaigns that tie into Indonesia's broader tourism strategy.

By positioning itself as both a tourist attraction and a cultural education hub, Fort Rotterdam could stimulate local economic development through job creation and small business growth in the vicinity.

Challenges Facing Fort Rotterdam

Despite its potential, Fort Rotterdam faces numerous challenges that hinder its management, utilization, and preservation.

1. Urban Development and Encroachment

The rapid urbanization of Makassar poses a significant threat to Fort Rotterdam's historical integrity. The construction of multi-storey buildings, shophouses, and hotels around the fort, particularly along Losari Beach, creates a jarring contrast to the historical ambiance of the fort. This growing urban sprawl, combined with coastal reclamation, visually dwarfs the fort, which historically stood as a dominant symbol of the region's heritage.

Moreover, the proximity of these new developments alters the fort's historic setting, undermining its cultural significance. According to cultural landscape theory, the integrity of heritage sites is inextricably linked to their surrounding environments (Taylor, 2016). Without careful urban planning that considers the preservation of historical vistas and spatial relationships, Fort Rotterdam risks losing its sense of place.

2. Environmental Degradation

Fort Rotterdam's location on the coast presents unique environmental challenges. Exposure to sea winds carrying salt particles accelerates erosion of the fort's stone walls and causes corrosion of iron components. Salt intrusion not only degrades the structural integrity of the fort but also accelerates the deterioration of plaster and other materials.

Additionally, sea-level rise and potential flooding pose long-term risks to the site. Coastal erosion is a growing concern for heritage sites worldwide, and if unaddressed, these environmental threats could irreversibly damage Fort Rotterdam.

Picture 3. Fort Rotterdam Wall Conservation
Source: Cultural Preservation Center XIX, MoECRT, 2022

3. Impact of Vibrations from Traffic

The fort's proximity to major transportation routes, including the road leading to Soekarno Hatta Container Port, results in continuous exposure to vibrations from passing vehicles. Studies have shown that vibrations from heavy trucks can weaken the structural compactness of historical buildings. In Fort Rotterdam, vibrations could exacerbate the erosion of stone walls, further endangering the site.

4. Encroachment of Settlements

The growth of informal settlements along the eastern walls of the fort presents another management issue. Many of these residential buildings are attached to the fort's walls, with some residents using the fort's structure as part of their homes. This not only accelerates the deterioration of the fort's walls but also complicates conservation efforts.

Unregulated development in heritage buffer zones has been a recurring issue in many heritage sites globally. The lack of enforcement of protective legislation and the community's dependence on informal housing have left many heritage sites vulnerable to encroachment.

Picture 2. An aerial photo of the construction of a residential wall that intersects with the Fort Rotterdam wall (left)
Fort Rotterdam in Makassar seen from the air circa 1932 (right)
Source: Google Earth and digitalcollections.universiteitleiden.nl/

5. Top-Down Management Structure

The current management of Fort Rotterdam is heavily centralized, with both the central and regional governments playing dominant roles. Local communities have little to no involvement in the decision-making process regarding the fort's utilization and preservation. This top-down approach leads to a disconnect between the site's management and the needs of the local community. Ideally, Community participation is an essential issue within heritage management and effective community participation is a process that is vital to enhance long-term sustainable heritage management (Landorf, 2009). Furthermore, with the approval of the UNESCO Recommendation on the Historic Urban Landscape, community participation is recognised as a fundamental tool in heritage management practices (UNESCO, 2011).

Fort Rotterdam's current management model also limits the potential for community engagement in programming and activities, stifling the fort's development as a vibrant public space.

To preserve and enhance Fort Rotterdam as a cultural and historical landmark, the following management solutions are proposed:

1. Establishment of an Archaeological Open-Air Museum

Transforming Fort Rotterdam into an archaeological open-air museum could provide a sustainable model for both conservation and public engagement. An open-air museum format would enable visitors to explore the fort's historical layers, with exhibitions and activities designed to showcase its archaeology, architecture, and historical significance. This approach allows for the site to remain dynamic and accessible while maintaining its integrity as a heritage site.

Archaeological areas could be opened for supervised public viewing, allowing visitors to observe ongoing conservation efforts. Additionally, interactive workshops on traditional construction techniques, such as stone masonry or brickwork, could be incorporated into the museum's educational offerings.

2. Community Involvement and Co-Management

A shift from the current top-down approach to a community-centered model is essential for the sustainable management of Fort Rotterdam. Involving local communities in the decision-making process can foster a sense of ownership and responsibility towards the site. As facilitators, the government can guide community participation through training, capacity building, and providing the necessary resources for management.

3. Heritage Zoning and Urban Planning

The government should implement strict zoning laws that protect the areas surrounding Fort Rotterdam from overdevelopment. The creation of a heritage buffer zone, free from high-rise construction and commercial activities, would help preserve the historical ambiance of the site. Heritage Impact Assessments (HIA) should be mandatory for any development project in the vicinity of Fort Rotterdam.

4. Environmental Protection Measures

Addressing environmental threats, particularly the impacts of salting and vibrations, requires a robust conservation strategy. Regular maintenance and restoration work should be carried out to repair damage caused by salt and moisture. The use of green barriers, such as coastal vegetation, can reduce the impact of salt-laden winds and further protect the site from environmental threats. Moreover, raising awareness about the fort's environmental vulnerabilities among local communities and visitors can foster better conservation practices. Additionally, traffic regulations around the fort should be enforced to minimize the effects of heavy vehicle vibrations. Long-term environmental monitoring systems could also be implemented to assess ongoing risks and inform future conservation efforts.

5. Integration of Public Space and Cultural Programs

Fort Rotterdam's potential as a public space should be fully realized by incorporating more community-led programs. Local artists, cultural organizations, and schools could use the fort for regular events and exhibitions. The fort can be transformed into a cultural hub where Makassar's rich traditions are celebrated through performances, workshops, and festivals. Creating a sense of active engagement will encourage local residents to take pride in the site and actively participate in its preservation.

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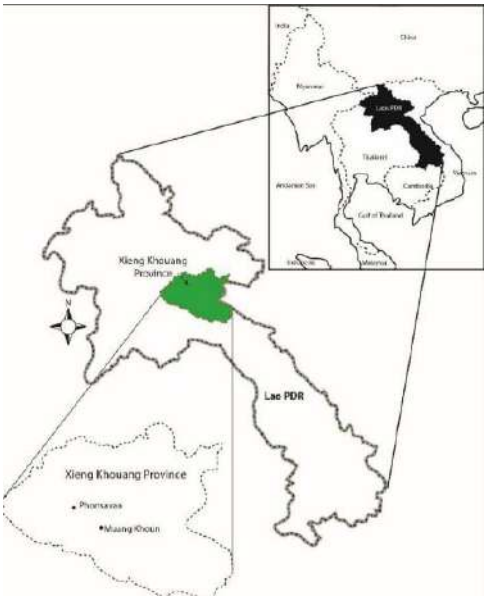
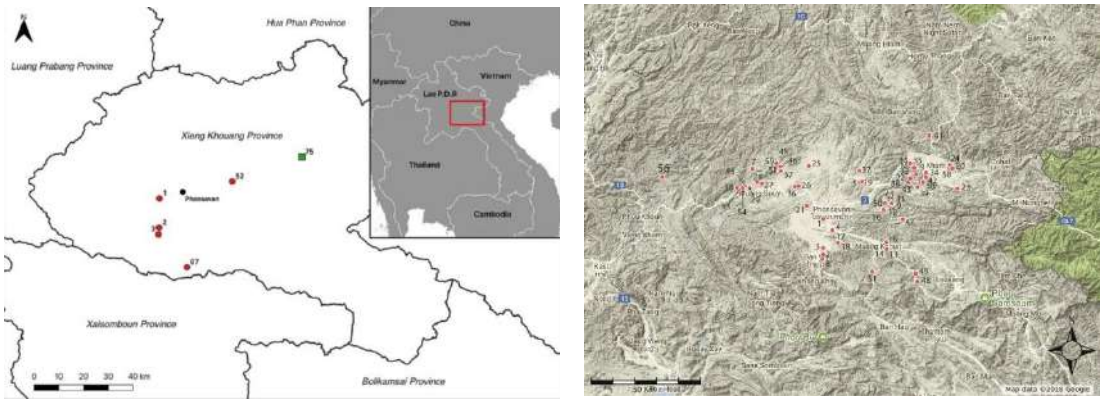
The Challenges on protection and preservation of The Plain of Jars in Xiengkhouang Province, Lao PDR



The Plain of Jars is a significant archaeological heritage site in Lao PDR. It was designated to National Heritage Site in 1997 and declaration as a World Cultural Heritage Site by UNESCO on July 06, 2019, the Plain of Jars showcases the prosperity of a Neolithic civilization dating back between 2,500 and 3,500 years. According to local folklore, "the stone jars were made by **King Khoon Cheng** (The King of Meuang Phuan ancient city of Xienkhouang province) to store wine for a victory celebration after his army triumphed in battle." However, archaeological research suggests that these stone jars were primarily used in burial rituals or as graves for ancient people.

Picture1: The map of Xiengkhouang Province is the area the most of located. (O'Reilly et al., 2018; Shewan et al.,2021)

The plain of jars comprises over 120 megalithic jars sites distributed throughout the mountains and lower foothills of the central Xiangkhouang Plateau in the Lao People's Democratic Republic (Laos). These sites included boulders, carved disks, and most notably stone jars that rang from one to three meters tall, weighing on average from 6 to 30 t. Some of larger sites have more than 300 stone jars, predominately carved from sandstone. but occasionally conglomerate, granite or breccia. They are part of a larger cultural phenomenon extending throughout northen Laos, reaching an area of ca 8000 km square, megalithic jars sites have been discovered across Xiengkhouang Province, Phu Khoon District (Luang Prabang), and Xaysomboon Province. The choronology of these stone jars remain uncertain. The phenomenon is frequently associated with Southeast Asian Iron Age, between ca.500BCE-500CE.



Picture 2-3: The map shown the point of sites location that expanding around Xiengkhouang Province. (Nick Spokal.,2023)

In recent decades, the conservation and management of the Plain of Jars have encountered numerous challenges. These include a lack of understanding on significance of the archaeological site, particularly among local communities, as well as the absence of a comprehensive management plan and finalized legal regulations. This has led to several damaging impacts on the Plain of Jars Heritage Site, such as:

Picture 3-4: The WHS management authority monitoring the Jars site 52, the larger site in Xiengkhouang province, there more than 400 stone jars. (Colani,1935)

1. Poaching: Many decades ago, there was a war that was a case of looting and there were the groups of treasure hunters have digging across the mountains, especially is a group of black flag robbers in the late 18th to early 19th centuries (bandit group from China), and the situation of smuggling and digging for cultural heritage properties in the Plain of jars heritage area was happened again in the 1990s because of the opening up of the country for tourism at that time, which resulted in the theft of foreign tourists combined with peoples within the country who did not know about cultural heritage value. The cultural heritage artefacts were dug up for sale, and some of the megalithic jars sites were destroyed due to ignorance of the cultural heritage value of the local people they broke stone jars, jar's lids or disks to make gliding stone, that were caused damage to the heritage of stone jars at the time.

2. Destructive War: The Indochina War, particularly the CIA's Secret War in the Xiengkhouang Plateau from 1965 to 1973, severely damaged the Plain of Jars. The site was subjected to extensive bombing, resulting in significant destruction of the heritage sites.

3. Natural Disasters and Human Activities: Natural factors such as climate change, rain, wind, landslides, floods, forest, fires, and tree growth in and around the jars have contributed to their deterioration. besides that, human activities may the case to effect to the Jars sites such as: infrastructure development, facilities construction, new residence expansion and hydropower dam projects building has further threatened to the jars site.

Picture 5,6,7,8,9: some negative impact to the Megalithic Jars sites from the past;

As a framework for the preservation and protection of national heritage before it is destroyed, in 1997, the President had issued the Constitution on the Protection and Management of Cultural, Historical and Natural National Heritage to protect all heritage sites in Lao PDR, including Megalithic jars sites. By 2005, the government had established this law as a foundation for cultural heritage preservation, with support from the Provincial Department of Information, Culture, and other stakeholders. Efforts have been made to educate local communities about the significance of their heritage. Although several sites are now well-preserved and listed on the World Heritage List, However, many more sites, which have been discovered but not yet fully explored, remain scattered throughout the forests of Xiengkhouang Province, Phu Khun (Luang Prabang), and XaiSomboon province. These areas face potential risks of encroachment and other challenges.

1. **Agitation and Propagation of Heritage**: Efforts to raise awareness about the significance of heritage and to disseminate laws and regulations regarding heritage management have not been consistent or widespread. This has led to a lack of knowledge and understanding among some local communities about the value of their heritage, resulting in neglect and non-cooperation in conservation efforts. Consequently, activities such as deforestation for farming, expansion of residential areas, road construction, and mineral extraction have encroached upon and damaged heritage sites.
2. **Personnel**: There is a shortage of knowledgeable personnel, particularly experts in conservation, management, and analysis, who are crucial for the effective implementation of preservation efforts.
3. **Budget Shortfall**: Insufficient funding for the implementation of conservation work is a major issue, significantly impacting the organization and execution of heritage preservation activities. This budget shortfall leads to delays and in some cases, stalls critical conservation efforts.

❖ **Proposed Solutions:**

1. Enhance Awareness and Education: Organize educational activities to raise awareness about the value of the Plain of jar heritage sites. Engage local communities in conservation efforts and enforce laws and regulations to prevent and penalize violations.

2. Promote Personnel Development: Invest in the training of conservation professionals, analysts, and cultural heritage experts. Encourage knowledge exchange with both domestic and international experts to enhance skills and expertise.

3. Secure Funding: Establish a dedicated fund for the conservation and restoration of the Plain of Jars, sourcing both domestic and international financial support. Although preserving this heritage is challenging, collaborative efforts can ensure its protection and legacy for future generations.

Referenced: (Colani, 1935; O'Reilly et al., 2018; Shewan et al.,2021) Plain of Jars Archaeology Research Project a collaboration between the Department of Heritage (DoH) and Australia National University (ANU)

Case Study Report: The Archaeological Investigation of Sia Boey, George Town
NG XIN YI (MALAYSIA)

The site

Sia Boey refers to a small triangular area located at the southern edge of the buffer zone of the UNESCO World Heritage site of George Town in Penang, Malaysia. Historically, Sia Boey holds significant importance to George Town, even when considered beyond the boundaries of the World Heritage site. Since the 19th century, this area thrived as a bustling trading hub, with markets and shops established along the Prangin Canal, which was constructed in 1804 by excavating and straightening a natural muddy creek. The canal served as a crucial waterway for market access and marked the southern boundary of George Town until the 1940s. In fact, the name "Sia Boey" means "end of the settlement" in Hokkien, a lingua franca that remains widely spoken in George Town today. The local Malays also referred to the area as "*Ujong Pasir*," which carries a similar meaning, "end of the (sandy) land."

By the mid-19th century, the local community had developed an urban settlement near the area, eventually transforming Sia Boey into a busy market and wholesale center. Goods were transported from the canal pier into the heart of the town. Around the 1880s, a cast-iron market hall have been constructed on the northern bank of the canal. The 1891 Kelly Maps show that the area housed a fish market, wooden shops, and stalls for vegetables and fruits. A tram line was also built alongside the market, running parallel to what was then Prangin Road[1].

In the 1960s, in response to the economic decline and the subsequent deterioration of George Town, the State Government of Penang launched the KOMTAR development project in 1974 with the goal of revitalizing the city. The Sia Boey site was designated as Phase 5 of the KOMTAR project. In 1978, the Penang Development Corporation (PDC), acting as the development agency for the State Government, purchased the surrounding private land in Sia Boey. By 2004, after the market was relocated, Sia Boey became largely vacant. Only the former residents and community members continued to visit the site, setting up a temporary altar for annual prayers during the Hungry Ghost Festival in the seventh lunar month.

Picture 1. (left) Sia Boey in the 1891 Kelly Maps, showing the market, canal, shophouses and the tram line. Source: GTWHI
Picture 2. (right) Sia Boey site map and built environment investigation as KOMTAR phase 5 in 2011. Source: GTWHI

1 Now renamed as Dr Lim Chwee Leong Road.

Archaeological Investigation 2016-2017

In December 2015, several granite structures were accidentally unearthed during the construction of a drainage diversion on the site. By that time, most of the original Prangin Canal had been filled in, and the remaining section at Sia Boey had turned into a drainage outlet for a low-lying, swampy area, functioning as a large monsoon drain that collected runoff water from the town. The plan at that point was to transform Sia Boey into a park and revitalize the remaining canal as an urban promenade and watercourse. Consequently, there was a need to construct a new, larger drainage diversion to maintain its drainage function.

Subsequently, George Town World Heritage Incorporated (GTWHI) was appointed by the Penang Development Corporation as the project manager for the Sia Boey Archaeological Site. The Centre for Global Archaeological Research at *Universiti Sains Malaysia* (CGAR-USM) was commissioned to carry out an archaeological investigation.

Between 2016 and 2017, the Centre for Global Archaeological Research conducted two phases of archaeological work at the site. The team uncovered a large portion of a basin connected to the canal, dating back to the 1890s. This included a 45-meter-long wall and a 10-meter-long canal lock and sluice, which might be the only structure of its kind in Southeast Asia. Additionally, a building structure, believed to be old barracks, was uncovered on the southeastern side of the site. The excavation also recovered more than two thousand pieces of cultural artifacts, primarily consisting of Chinese and European ceramics, imported household glassware, and several opium jars. These discoveries highlight the rich history of George Town as part of the Straits Settlements.

Following the discoveries, GTWHI developed the Sia Boey Integrated Site Management Plan in collaboration with Penang Development Corporation to outline strategies that facilitate the coexistence of development and heritage conservation – Sia Boey Urban Archaeological Park. It is a new plan that emphasizes the concepts of place-making and connectivity, built on its previous identity as a thriving marketplace and gateway into George Town. The goal is not only to create a public green space for the city, but also incorporate the archaeological discoveries into the urban landscape, and to enhance the George Town UNESCO World Heritage Site.

Sia Boey Contemporary Archaeology Project 2018-2020

The previous excavation and replanning efforts led to another archaeological project. A key aspect of developing Sia Boey into a park involved rejuvenating the Prangin Canal, which required surface dredging of the remaining section of canal. Based on the results of earlier archaeological investigations, there was a strong likelihood of cultural artifacts being present in the canal. Consequently, GTWHI decided to sieve the excavated mud deposits from the 200-meter section of the canal as a salvage archaeology project. Given the highly disturbed nature of the canal and the limited timeframe, the project focused on recovering surface assemblages of artifacts.

The sieving and screening process was conducted by the GTWHI team from June 2018 to March 2019, with excavation permission granted by the National Heritage Department of Malaysia. Cataloging work continued until the end of 2020.

Through this screening, over 6,000 artifacts with a total weight of nearly 700kg were recovered. Most of these artifacts were contemporary (from the 1960s onward) and mainly comprised glassware and pottery. Some older artifacts, such as Qing dynasty coins and 19th-century European and Chinese porcelain, were also discovered.

Most of the glass fragments were unidentifiable, though they appeared to be from drinking glasses and beverage bottles. Several complete alcohol and soft drink bottles were recovered, along with examples of a popular type of drinking glass.

Pottery was another common type of artifact, mostly comprising porcelain and stoneware, with some earthenware vessels. Coffee cups and soup bowls, commonly used in coffee shops and restaurants in Penang, were well-represented in the assemblage.

The third largest proportion of the artifact assemblage consisted of animal bones from medium to small mammals, along with fish and cockle or clam shells with a total of around 130 kg. The majority of which were retrieved from the first half of the canal, close to where the hawkers and wet market were located.

Additionally, a small number of metal artifacts were found, including historical and foreign coins, such as Qing dynasty coins, Malaya and British Borneo Dollars, Japanese Yen, Indonesian Rupiah, and Thai Baht. The investigation also recovered a small number of plastic and composite artifacts, including cell phones, cassette tapes, CDs, ID cards, credit cards, and toys such as plastic cars, glass marbles, and wooden spinners.


Picture 3. (left) Sieving and screening in progress. Source: GTWHI
Picture 4. (centre) Comtemporary artifacts recovered. Source: GTWHI
Picture 5. (right) A common coffee cup recovered. Source: GTWHI

The issues: The future of the artefacts

The archaeological work conducted at Sia Boey holds significant value in several aspects. It is the first project to examine the everyday life of early colonial Penang through material culture, while also reflecting Sia Boey's more recent history as a popular market and vibrant gathering space. The artifacts uncovered provide insights into the people who lived, worked, and gathered in the area, including children, thereby indirectly enhancing the historical and cultural importance of George Town, a UNESCO World Heritage Site. However, unresolved challenges remain regarding the long-term storage, management, and utilization of these artifacts.

Firstly, the GTWHI is neither a research institution nor a museum, and it lacks suitable facilities for artifact storage. A permanent solution for the storage of these materials will be necessary. Under current regulations, no specific agency has been clearly designated to safeguard archaeological

artifacts. Considering the volume of artifacts, it has been challenging to convince another agency to assume responsibility for their storage. To partially address this issue, a decision was made to transfer the faunal assemblage to the Centre for Global Archaeological Research at *Universiti Sains Malaysia*, where they can be used for educational and training purposes.

Secondly, although the assemblage recovered from the contemporary project may hold limited historical and archaeological significance, it possesses considerable educational potential. Developing an educational or community outreach program could serve as a means to utilize the artifacts while continuing to promote archaeology within the World Heritage Site. However, the implementation of such programs would require initial resources, including a dedicated space for exhibitions or educational activities.

The third issue relates to the previous two concerns. The volume of artifacts is substantial for an organization like GTWHI to manage. There has been ongoing discussion about ethical alternatives for managing the collection, rather than storing all the artifacts indefinitely. In the case of Sia Boey, many of the artifacts consist of sharp, unidentifiable glass sherds. Although there are no explicit regulations prohibiting the disposal of artifacts, it is generally understood that such materials should not be discarded casually. Innovative ideas or alternative solutions are needed to alleviate the burden of storage while ensuring that the artifacts are preserved in good condition.

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Jason Barnabas
Historic Preservation Specialist 1
Case Study Report

Introduction Overview

The name Sapwtakai refers to two entities (sapw- land and takai rock). The most common current usage is to refer to the Kousapw of Sapwtakai. This was a large land division presently owned by Henry Nanpei. Sapwtakai is a 13,000 square meter stone complex that crowns a hill north of Wenik. The site was first occupied around 1250 A.D. and functioned as a political center for at least four centuries. The walls, terrance platforms, stone-paved walkways, tombs, and other features were built in three phases. The upper portion of the fortress was the residental area while the southern part was the ceremonial center.The archaeological site of Sapwtakai is situated on a mountain top within the kousapw. (Figure 1)

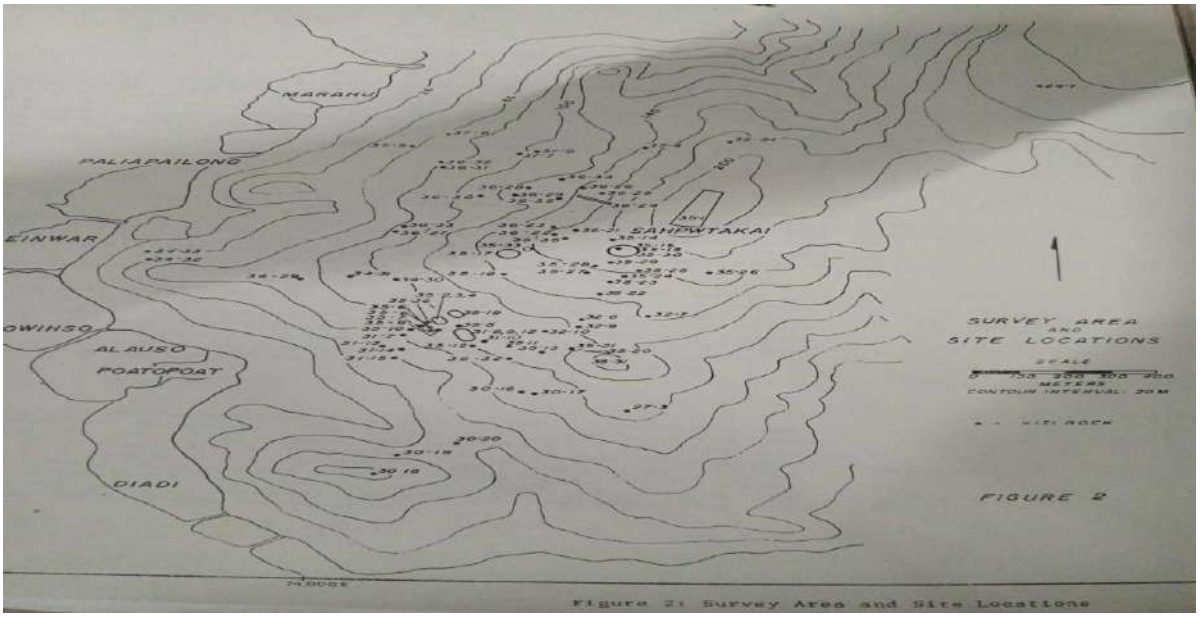

Figure 1

The wall on the north side of Sapwtakai is higher than at other points-presumably to deter enemies from that direction, while the steep slope on the east side offers natural protection. About 15 meters north of the

complex perimeter is another free standing 1.5- to 2-meter-high wall that runs south and east. Sapwtakai continued to be utilized for some time after the unification of Kitti, but was abandoned around 1850.

Problem 1.

The site was now covers with vegetation, with big trees growing all over the site. Another problem was that the site was needed to be registered. The wall around the site was falling apart. Another problem was that those who might know the whole story behind the site have already been died. Those people that was sharing the history till today know not that the whole story but some parts of the story. That another problem, we have to interview many people in order to combine and make the story complete again.

Solution to solve Problem 1

All the problems that mention under problem can be solve if we prioritized the site as one that need to be registered. If the site will be registered as national site, then I do believe that all the problem will be settled. All the vegetation could be cleared off, also what I learn from the lecture of restoration, maybe the wall can be restore again and look like when it first made. In order to make a full story regarding this side, we have to interviewed all the people that know a little bit about Sapwtakai and come off with the full story after combining what we learn or recording from the people.

Figure 2

Key Stakeholder

The key stakeholder for Sapwtakai was an important man in Kitti municipality known as **Rohsa** traditional title. That person real name was Willy Howley. That heritage site was known as one of the villages in Kitti. There was a chief who had been selected from the paramount chief of Kitti, and Rohsa also entitled him to be the one representing him and taking good care of his property or site.

Key result and outcome

Key results & outcomes of these problems was that we the staff of HPO (Historic Preservation Office) have to work together with the owner of the heritage to come off with a plan to help the heritage from been destroy.

Recommendation and next step

As an HPO office worker, I have seen the need and the struggle to preserve these heritage sites. We the HPO in Pohnpei need help in preserving our historic siters. Partnering up with other heritage preserving offices would be very much appreciated and helpful as we take the next step in keeping and maintaining these historical sites on our Garden Island of Pohnpei. To take the next step forward, I ask that we, as people whom our daily lives revolved around researching, maintaining, advertising and preserving our historical sites lend a helping hand to one another.

Acknowledgments and reference

Joyce Bath
Office of Pohnpei Historic

Impacts on the Monument of Sri Ksetra Pyu Ancient City in Myanmar

1. Introduction

Sri Ksetra Pyu Ancient City, is situated in Pyay Township, Pyay District, Western Bago Region of Myanmar, is one of Southeast Asia's most significant archaeological sites. As part of the Pyu Ancient Cities, Sri Ksetra has been recognized as a UNESCO World Heritage Site due to its outstanding cultural and historical value. This case study aims to examine the various impacts that threaten the integrity of this monumental site, both natural and human-induced, and to propose strategies for its preservation. The methodology for this study involves a comprehensive review of existing literature, analysis of conservation reports, and field observations.

2. Historical and Cultural Significance

Sri Ksetra, established in the early centuries of the first millennium, served as the most important city of the Pyu civilization, which is recognized as one of the earliest urban cultures in Southeast Asia. The city features extensive remains of brick structures, including stupas, temples, and fortified walls, reflecting the architectural ingenuity of the Pyu people. The site also holds immense religious significance, being associated with early Buddhist practices in the region.

The architectural layout and urban planning of Sri Ksetra are key elements that demonstrate the advanced state of Pyu civilization, making its preservation essential not only for Myanmar's heritage but for the broader understanding of early Southeast Asian history.

3. Types of Impacts on the monument

There are various types of Impacts on the cultural heritage. Especially, there are three main types of impacts on the monument. They are Natural Impacts, Human Impacts and Animal Impacts.

3.1 Natural Impacts

Natural Impacts on the monument can cause such as Flooding, Vegetation growth and Climate change.

(1) Flooding

Flooding poses a threat to the ancient monuments. Heavy rainfall and rising water levels can lead to waterlogging which erodes the foundations of brick structures, causes walls to crack and damages carvings and frescoes. Prolonged exposure to moisture encourages the growth of mold, algae and other biological agents that degrade building materials. Besides, sediment and debris carried by floodwaters can bury or damage artifacts.

(2) Vegetation growth

Vegetation growth significantly impact on the monument of Sri Ksetra Pyu Ancient City. Trees, shrubs and plants growing on or near the structures can penetrate walls and foundations with their roots, causing cracks, displacement and destabilization. Over time, this can lead to partial or complete collapse of brick structures. Additionally, natural erosion from wind and water wears away at exposed surfaces, gradually degrading carving, inscriptions and architectural details.

(3) Climate change

It poses a growing threat to the ancient monument. Increased temperatures, intense rainfall and unpredictable weather patterns accelerate the deterioration of these heritage sites. Heavy rains can cause flooding which erodes foundations while fluctuating humidity levels weaken the brick and mortar making them more susceptible to cracks and decay. Besides, climate change fosters more aggressive vegetation growth which further damages the monuments. These changing environmental conditions demand enhanced

conservation strategies to safeguard Sri Ksetra's ancient heritage against the evolving risks posed by a changing climate.

3.2 Human-Induced Impacts

Human-Induced Impacts on the monuments can cause such as Urbanization and infrastructure development, Agricultural activities and Poor Management and Conservation (etc.).

(1) Urbanization and infrastructure development

Urbanization and infrastructure development around Sri Ksetra Pyu Ancient City pose threats to its ancient monuments. Expanding residential areas, roads and utilities encroach upon the protected site, disrupting the landscape and potentially damaging archaeological remains. Construction activities can lead to ground vibration which weaken the foundations of ancient structures while increased traffic and pollution accelerate their deterioration.

(2) Agricultural activities

Agricultural activities around Sri Ksetra Pyu Ancient City treaten the preservation of its monuments Farming practices such as plowing and irrigation, can disturb or damage buried archaeological remains while the use of chemical fertilizers and pesticides degrades the surrounding soil and water quality. Moreover, expanding farmland may lead to land encroachment, causing erosion and instability in nearby ancient structures. The removal of vegetation for agriculture also increases the risk of soil erosion, further damaging the foundations of monuments. Sustainable land management practices and community awareness are essential to mitigate these impacts and protect Sri Ksetra's heritage.

(3) Poor Management and Conservation

Poor management and conservation risks to its ancient monuments. Limited funding and inadequate technical expertise hinder regular maintenance and effective preservation efforts, leaving structures vulnerable to decay. There is often a lack of coordinated planning and communication between local authorities, heritage organization and communities, resulting in insufficient protection measures. Additionally, outdated conservation techniques and materials can cause unintended damage to the site. The absence of comprehensive monitoring and assessment frameworks further exacerbates these issues, making it difficult to address emerging threats like climate change or urbanization effectively. Strengthening management capacity and adopting modern conservation practices are crucial to safeguarding Sri Ksetra's heritage.

3.3 Animal Impacts

These can impact ancient monuments in several ways, such as Structural Damage, Soil Disturbance, Nesting and Erosion (etc.).

4. Case Studies Impacts on the monument

4.1 Flood Impact

The Baw Baw Gyi stupa was decay mostly by rain water. Because of rain water, the hemispherical dome of this stupa is properly decay. The rain water pass through the upper layer of cement plaster and the cracks of the hemispherical dome. It can cause the erosion of cement mortar in course of time. Rain water can percolate and progress by capillarity within wall from their entry points and cause to break down to the brick wall. Because they can also penetrate through the brick and joints. Disruption of terrace surfaces due to accumulation of rain water filling the pore of the brick. The tremors led to the collapse of parts of ancient structures, with some areas suffering irreversible damage. Immediate restoration efforts were hampered by limited resources, and the long-term effects of the rain water are still being assessed. (Fig_1)

Fig_1, Open monument is affected by heavy rain.

4.2 Vegetation Growth and Erosion Impact

The growth of fungi (moss) and lichens is the biological agent of deterioration because of their trapping moisture. The growths of mosses are direct source of deterioration to the bricks of the structure. They penetrate deep into the brick and squeeze acidic substance which can have solvent action with the brick minerals. And another factor of Vegetation is set up of banyan trees. These trees were set up by the eager well wishes Buddhism's. But the roots of these banyan trees penetrate the soil towards the foundation of the structure and were became decay latter. Moreover, seed of the banyan trees fall on the structure is cause to growing another banyan trees. (Fig_2)

Fig_2, Monument is affected by vegetation growth

4.3 Urbanization and Infrastructure Development Impact

Roads for transportation, bridge construction, home expansion and agricultural land development due to urban growth pose a significant threat to cultural heritage. The expansion of residential areas has increased with the city's development, and document evidence shows that around 200 houses were built or expanded within the boundaries of Sri Ksetra Ancient City from 2013 to 2024. Urban development has impacted ancient monuments and archaeological sites, such as houses being constructed on the arms of the city gate and near the city gate, which can damage the integrity of these heritage structures. (Fig_3)

Fig_3, Monument is affected by development

4.4 Agricultural Activities Impact

Cultivation is a fundamental livelihood for the local people living in the Sri Ksetra Ancient City. The crop fields significantly contribute to the cultural landscape. In the past, agricultural processes were carried out using cattle. However, due to urbanization, these processes are now often performed using machinery. The use of machinery in plowing fields can damage archaeological remains buried underground. Besides, planting perennials near ancient buildings can obscure the visibility of cultural heritage, decreasing its cultural value. Chemicals like pesticides can cause harmful chemical reactions, leading to the deterioration of artifacts and structures. (Fig_4)

Fig_4, Agricultural activities nearby monument

4.5 Poor Management and Conservation Impact

Poor management and conservation can also cause impacts on cultural heritage. The basic factor that causes disaster is the lack of sufficient personnel. I think it is possible because of the lack of financial strength. Conservation should be done at the same time as excavation research is done. Plant growth can cause cracks in excavated areas and roots can cause further damage. If conservation is not carried out, it will cause damage and deterioration. Effective management requires coordination among departments. For example, there are sites that are deteriorating and that cooperation should be done with local residents. (Fig_5)

Fig_5, Palace wall collapsed by poor management & conservation

4.6 Animal Impacts

The activities of cattle and goats can cause damage the structure and disturb archaeological layers around monuments. Their movement can mix soil layers, making it more challenging for archaeologists to interpret the historical context of the site. (Fig_6)

Fig_6, Monument cause damage by cattle

5. Conservation Efforts and Challenges

5.1 Current Conservation Strategies

The Myanmar government, working with international organizations, has started several projects to protect Sri Ksetra ancient city. These projects include:

1. **Sustainable Tourism Practices**: They are creating ways for tourists to visit the site without causing harm. This helps bring in money and jobs while keeping the ancient city safe.
2. **Legal Protection and Regulation**: They are making and enforcing laws to protect the site from uncontrolled development and farming. These laws help ensure that the ancient city remains undamaged.
3. **Community Engagement and Education**: They are involving the local community and teaching them about the importance of preserving the site. When people understand why the site is important, they are more likely to help protect it.
4. **Structural Reinforcements**: They are strengthening the ancient buildings to prevent them from falling apart. This helps keep the structures standing for a longer time.
5. **Environmental Monitoring**: They are keeping an eye on environmental factors like soil erosion and plant growth. This helps them understand what is happening to the site and take action to protect it.
6. **Archaeological Research and Documentation**: They are studying the site and recording their findings. This helps them learn more about the ancient city and how best to preserve it.

Despite these efforts, there are still challenges. One major challenge is the lack of financial resources. There is not enough money to do all the work that needs to be done. Another challenge is the limited technical expertise. There are not enough experts who know how to properly conserve the site.

In summary, the Myanmar government and international organizations are working hard to protect Sri Ksetra ancient city through various projects. However, they still face challenges like limited money and not enough experts.

5.2 Challenges Faced

One of the main challenges is finding a balance between preserving the ancient site and meeting the needs of the local community. The people living nearby depend on the land for farming and building homes.

This can sometimes conflict with efforts to protect the ancient city. Another big issue is the lack of steady funding. Without enough money coming in all the time, it's hard to keep up with preservation work. This means that long-term plans to protect the site can't always be carried out properly.

In short, balancing conservation with local needs and securing continuous funding are major hurdles in preserving the ancient site.

6. Recommendations

To protect the impacts on the monument of Sri Ksetra pyu ancient city, it is important to take several key steps. First, we need to strengthen laws that safeguard the site and its nearby areas from uncontrolled development and farming. These legal protections will help ensure that the ancient city is not damaged by new buildings or large-scale agricultural projects.

Improving infrastructure to support sustainable tourism is another important step. This means creating facilities and services that allow tourists to visit the site without harming it. By doing this, we can balance the economic benefits of tourism with the need to preserve the ancient city. Tourists bring money and jobs to the area, but we must make sure their visits do not damage the monuments.

Enhancing monitoring systems and maintenance practices is also crucial. This means setting up better ways to keep an eye on the site and taking care of it regularly. Areas that are especially vulnerable to damage from the environment or human activities need special attention. For example, if a part of the site is prone to flooding or erosion, we need to monitor it closely and take steps to protect it.

For future research, it is important to conduct detailed studies on specific environmental impacts. This includes looking at issues like soil erosion and vegetation growth. By understanding these problems better, we can develop more targeted conservation strategies. For example, if we know that certain plants are damaging the ancient structures, we can find ways to control their growth.

Collaboration with international experts will also be very beneficial. Experts from around the world can bring new technologies and methods to help preserve Sri Ksetra. They can share their knowledge and experience, which will help us take better care of the site. Working together with these experts will make our preservation efforts more effective.

In summary, protecting Sri Ksetra ancient city requires a combination of strong legal protections, improved infrastructure for sustainable tourism, better monitoring and maintenance, detailed environmental research, and collaboration with international experts. By taking these steps, we can help ensure that this important historical site is preserved for future generations.

7. Conclusion

The Sri Ksetra Pyu Ancient City is a priceless heritage site that needs strong efforts to keep it safe for future generations. The problems it faces are many and complex, from natural disasters to human activities, all causing the site to slowly wear down. While current conservation efforts have had some success, much more needs to be done to tackle the challenges. International support and more focus on the site's needs will be crucial in protecting Sri Ksetra's legacy.

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Balochistan's Heritage at Risk: A Call for Cultural Conservation

Balochistan, Pakistan's largest province by area, is home to a rich tapestry of cultural heritage, including ancient archaeological sites, historical monuments, and traditional practices. However, there are a number of threats to the preservation of Balochistan's rich historical, cultural, and traditional heritage. A concerted effort to protect and promote Balochistan's distinctive cultural heritage is necessary to address these risks.

This report is based on the department's visitation of multiple archaeological sites in 2023 to review conservation efforts, identify areas for improvement, and evaluate site's overall condition. Here's an overview of the situation and a call to action for cultural conservation:

Site overview:

Ahmed Khan Zai Mound

An archaeological site spread over about 60000 sq.m, associated to multiple periods i.e., Iron Age/Quetta/Damb Sadaat/Kechi Beg in (figure 1).

Relative Chronology: 5000 BCE - 3000 BCE

Fig 1. Ahmed Khan Zai Mound

Nousar Site

The pre-historic mound No.11 is situated close to village Nauhisar at a distance of about 15 km from Quetta city north east of Quetta Chaman Road in (figure 2). The site is about 9 m diameter and 5.5 m high, plain as well as painted pot-shreds found lying on the mound.

Relative Chronology: 5000 BCE - 3000 BCE

Fig 2. Noushar Mound

Shaikh Manda

The mound No.10is situated about 1.5 km south of Quetta airport. It is 365 m long 30 m wide and 5 m high. The mound is littered with potshards and brick-bats. The pot-shards are both plain and painted. Some structures are visible on the upper levels of the site.

Relative Chronology: 3000 BCE - 1800 BCE

Fig 3. Shaikh Manda

Killi Gul Muhammad

The ancient mound of Killi Gul Mohammad is located one km away from the village Killi Gul Mohammad close to Quetta-Chaman Road. The site is about 400 x 200 m with surviving height of 15 m. Besides the various stages of pottery manufacturing techniques originated indigenously in rough and crude shape were gradually developed to a very refined stage.

Relative Chronology: 5000 BCE – 2000 BCE.

Fig 4. Killi Gul Mohammad

Damb Sadaat

This site lies 12 km southwards of Quetta city on National Highway leading from Quetta to Khuzdar (figure 5). The site is oval in shape with 73 m circumference and elevation of 15.2 m from the surroundings. During excavations at the site a large number of pottery assemblages and other objects were collected.

Relative Chronology: 3rd millennium BCE-1st millennium BCE.

Fig 5. Damb Sadat Site

Kechi Beg

The ancient mound of Kechi Beg is located 8 km away towards south of Quetta city (figure 6). The site is roughly circular in shape and is surrounded by residential and commercial buildings. The site is measuring 52 m in diameter, whereas its maximum height from ground level is 3.6 m. As a result of the excavations large number of potshards, plain and painted were collected.

Relative Chronology 3000 BCE to1000 BCE.

Fig 6. Kechi Beg Mound.

Sites Maintenance/Condition:

The French Mission conducted excavations at these sites between 1950- 960. Many years have passed, and these sites have been destroyed for various reasons. These sites are not identifiable as heritage to the average person. There have been no efforts made in conservation or maintenance. Due to ignorance on the part of the local community and government, Balochistan is on the verge of losing its historical legacy. It is imperative that we take a moment to consider how serious this issue is on all fronts, or else Balochistan's rich cultural legacy will be lost. I will discuss the threats that Balochistan is currently facing in this section.

Threats to the Heritage of Balochistan Today

Human activity: We lost priceless artifacts and destroyed archaeological sites as a result of vandalism, smuggling and illegal excavation. Development projects, such as new construction and infrastructure improvement, had been done without notifying the department which has threaten heritage sites through direct destruction or indirect damage from increased traffic and pollution, its prime example is Killi Gul Muhammad and Kechi beg. Due to encroachment many sites have totally vanished from the surface. In Quetta city there were 36 sites reported in 1960's but unfortunately only 5-6 sites are left.

Funding constraints: Financial constraints are another major threat that Balochistan is facing in trying to preserve its cultural heritage. Heritage site maintenance and restoration have suffered because of the limited funding available for conservation projects, which has limited their scope and quality. Significant financial resources are required for projects involving necessary stabilization, restoration, and repairs. No remarkable work was done following the 1950s and 1960s excavation, which resulted in the loss of excavated sites, Damb Sadat is one of them.

Security and Political Instability: Cultural sites and artifacts have been neglected and damaged due to political instability and ongoing regional conflicts. Because of the presence of militant groups in the area, conservation efforts are disrupted, site looting occurs, and access to sites is made difficult. Security concerns have limited access to heritage sites, making it difficult for conservationists to carry out necessary assessments, maintenance, and restoration work. Law and order situation has forced conservation

professionals to leave the region, leading to a loss of expertise and the disruption of conservation activities. Despite having interest in Balochistan archaeological sites, different foreign missions are reluctant to offer their efforts for preservation in the region.

Strategies for Conservation: A Call to Action

Professional training for conservation/maintenance: Unfortunately, we lack personnel with the necessary training to conserve or preserve sites. To guarantee that conservation work is carried out with the needful skills, technical expertise, and best practices to preserve the integrity and value of cultural assets, proper training is essential. Conservationists might not fully comprehend the historical and cultural significance of the objects and locations they are trying to conserve if they have not received the appropriate training. Offer workshops, seminars, and online courses to keep professionals updated with the latest conservation techniques and technologies. Facilitate knowledge exchange with international experts and organizations to incorporate best practices and innovative techniques.

Implementation of National Policy and Legal Frameworks: Despite having the Antiquity Act 2014 we failed to implement it in a true spirit. To preserve the cultural heritage, we need effective implementation that requires a structured approach to ensure policies and laws are translated into actionable and impactful measures. Establish and empower regulatory agencies to oversee heritage conservation, licensing, and enforcement. Create detailed action plans that outline specific tasks, timelines, and responsibilities for implementing the policy or legal framework. The government must enforce penalties for infractions of laws and regulations pertaining to the protection of archaeological sites with the assistance of local departments. It will help to protect sites from any illegal excavation, land grabbers, and any human activity which may cause damage.

Launch Public Awareness Campaign: It is need of an hour to educate the public about the importance of cultural heritage and the role of conservation through media, community events, and educational programs. Involve local communities in conservation efforts by providing them basic training. In addition to raising awareness through community events, we can raise funds for conservation projects as well.

Conduct Research: Support archaeological research to better understand the historical context and needs of each site. By conducting research, we will be able to maintain proper documentation of sites and artifacts. It will also help in monitoring site conditions, guiding conservation efforts and persevering knowledge for future generations.

Initiate Conservation Projects: On emergency level government needs to initiate conservation projects to save heritage sites. Create conservation plans according to the need of sites that tackle the threats. This covers strategies for risk mitigation, plans for site management, and physical restoration.

Collaborate with Global Organizations: Explore various funding sources, including government grants, international organizations such as UNESCO and Cultural Preservation NGOs, and private donations, to support conservation efforts. Partner with international organizations and heritage bodies to gain support, share knowledge, and access resources.

Conclusion:

The heritage of Balochistan is an invaluable resource that illustrates the profound historical and cultural foundations of the area. A multifaceted strategy including legal protections, community involvement, international support, and sustainable development is needed to preserve this heritage. It is need of the moment to counter these threats to preserve these valuable sites. If we lose this moment, we will have nothing left but regrets.

Case Study Report: Preservation, Rehabilitation, and Utilization of *Beluu er a Ngerutechei* (REPUBLIC OF PALAU)

Introduction

In November 2019, the Bureau of Cultural and Historical Preservation (BCHP), also known as the Palau Historic Preservation Office, launched the "Disaster Risk and Climate Change Impact Survey in the Republic of Palau Phase I." This project targeted ten significant cultural sites across Palau to assess the threats posed by climate change, including sea-level rise, typhoons, coastal erosion, and other natural disasters. The survey aimed to provide recommendations for mitigating these threats, preserving the cultural integrity and physical features of these vulnerable sites. One of the key sites identified was *Beluu er a Ngerutechei*, a sacred traditional village of *Ngeremlengui* State, Republic of Palau.

This site holds profound significance for the local community, serving not only as a place of traditional practices but also a vital source of medicinal plants, food, and wood collection. It plays a crucial role in providing self-mediation, fostering a sense of ownership, and reflecting the community's identity. The village is integral to nurturing and preserving the cultural heritage and practices that are essential for future generations.

The survey findings highlighted that *Beluu er a Ngerutechei* is at severe risk from climate change impact. Rising sea levels, increased erosion, and other natural disaster threatened to inundate and potentially destroyed many of its important features. This underscores the urgent need for comprehensive documentation, preservation, and rehabilitation efforts to safeguard this site. The ongoing threats to *Beluu er a Ngerutechei* not only jeopardize its physical integrity but also endanger the continuity of the cultural and historical connections it represents.

Addressing these challenges requires a multi-faceted approach involving community engagement, sustainable practices, preservation, rehabilitation, utilization and funding support of this sites. By taking proactive steps to mitigate these risks, there is a critical opportunity to protect *Beluu er a Ngerutechei*, ensuring that it remains a living part of the community's heritage and continue to provide cultural heritage benefits for the future generations.

Site Description

Beluu er a Ngerutechei also known as site number B:NM-3:6 according to the Bureau of Cultural and Historical Preservation archaeological survey reports, is listed on the Palau Register of Historic Places, a traditional village located in *Imeong*, *Ngeremlengui*, and it includes features from World War II. The site is nestled on a small peninsula at the base of *Etiruir* Mountain and near the natural stream *Taoch er a Ngerutechei*, which leads to mangroves and the fringing reef. The village follows a stone path contour along the hill and stream, facilitating access to rivers and streams.

Significant features at the site include *Diong er a Imeched*, a stone-lined bathing pool, three uang (canoe landings), monoliths including *Chesuch* (owl), multiple stone paths, platforms, and a foot bridge. The *Chesuch* stone monolith is facing the entrance of the mangrove channel and according to legend it offers protection to the village. The site's original foot bridge, *Did er a Ibai*, has recently been restored. According to informants at the site, *Did er a Ibai* was more than 100 years old.

The landscape has been modified in numerous ways by the villagers over time, including terraced fields, irrigation systems using culverts, and channels created through the mangrove for canoe access to the reef. The presence of these water features underscores the village's strategic construction and adaptation to its natural environment.

Historically, the site is considered the oldest and most sacred in Palau, with several features listed on the Palau Register of Historic Places. *Uchul a Rebong*, an elevated stone platform, is significant as the place where *Milad* bestowed chiefly titles for *Imeungs*. Other sacred features include *Olekull er a Ruchel*, believed

to be the burial site of demigods, and *Olekelek a Meducherutechei*, the burial site of the warrior *Meducherutechei*.

Picture 1. (Left) Chesuch (Stone Owl monolith) at low tide showing the whole feature.
Picture 2. (Right) At high tide. According to the informant, Chesuch was built on a stone platform above sea level. Photo by McMichael Mutok Jr.

UNESCO Participation Programme (2018-2019)/ Site Rehabilitation Project

In 2019, the *Ngeremlengui* State Government secured a grant of $4,000 from the UNESCO Participation Programme to rehabilitate and conserve the *Beluu er a Ngerutechei* site. The project was a collaborative effort between *Ngeremlengui* State Government, the Bureau of Cultural and Historical Preservation, and local communities. This joint initiative was crucial in safeguarding Palau's irreplaceable cultural heritage. The success of the rehabilitation project depended on local commitment and engagement from various community organizations.

Awarding of the Project

After securing the UNESCO funding, BCHP notified the *Ngeremlengu*i State Government and scheduled a consultation meeting. The scope of work, budget, and timetable were agreed upon during the meeting, and a Cooperative Agreement was signed between the parties on April 18, 2019. This officially initiated the site's rehabilitation and conservation project, with *Ngeremlengui* Governor Mary Frances Remengesau overseeing the project.

Rehabilitation and Development of the Site

The project began on June 8, 2019, with *Bungelkesol Chedebechel*, a traditional non-profit organization, spearheading the rehabilitation work. Their tasks included clearing heavy vegetation from the stone paths, restoring the *Did er a Ibai* foot bridge, planting local and medicinal plants to prevent erosion and clearing mangroves to improve canoe access to the site.

Approximately 60% of the work involved vegetation clearance and tree trimming, while 40% focused on restoring the foot bridge and replacing misplaced stones on stone paths and stone platforms. The project also worked to clear mangrove channels, enhancing access to the site by small watercraft. The *Bungelkesol Chedebechel* group worked on Saturdays, dedicating three hours per session to site rehabilitation.

The project was completed by September 30, 2019, with strong support from community and traditional leaders, who shared stories and oral histories of the site with the workers and the youth involved. The guidance of elders and chiefs was invaluable in preserving and passing on the historical significance of *Beluu er a Ngerutechei.*

Design, Construction, and Installation of Interpretive Signage

While restoration work progressed, BCHP collaborated with a design firm to create interpretive signage for the site. The sign was completed and installed at the entrance of the *Beluu er a Ngerutechei* stone pathway

on January 25, 2020. The *Ngeremlengui* State Government assisted with the installation, using traditional materials for the signage, including a thatched roof and concrete foundation.

Brochure Development and Distribution

BCHP also developed a brochure highlighting the historical significance of the site. The brochure went through internal review before being approved by the Bureau Director. Once finalized, 500 copies were printed and distributed widely for public education and use.

Final Completion and Opening of the Site for Public Visits and Tourism

The rehabilitation project was completed in 2019, but the official opening ceremony for public visits has been delayed due to customary obligations within the state.

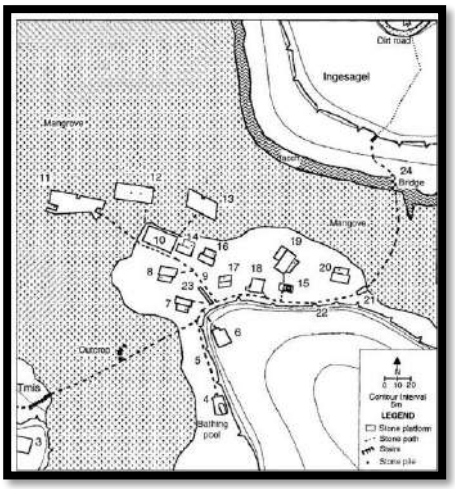
Picture 3. (Left) Community Group working to rehabilitate Beluu er a Ngerutechei Site. Picture 4. (Center) Repairing the 100-year-old foot bridge that was broken in two from a fallen tree. Picture 5. Locals crossing an ancient stone path that is now underwater. Photo provided by McMichael Mutok Jr.

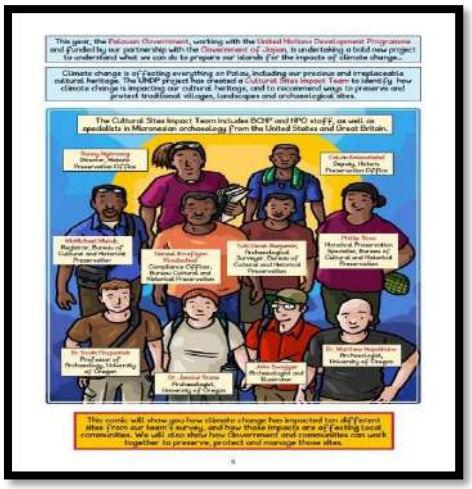
Challenges with the site current conditions

During my recent site visit to *Beluu er a Ngerutechei* on February 2024, the site is moderately intact and has its high integrity; however, there are moderate impacts to the condition, integrity, and cultural value due to its initial condition at this time. Even though, it is currently maintained, and it was recently cleaned by the state and the community, increased mitigation is needed before conditions and impacts at the site worsen. Overall, the village site is on the coastal low-lying area and had been uninhabited for many years, so it has been overgrown and covered by secondary vegetation. This causes buildup of silt and dirt that blocks and cover all its irrigation systems forcing dirt to cover up features. Vegetation's overgrown and roots on top of features dislodging rocks. Overgrown mangroves had covered stone paths and blocks water ways as well as the mangrove channel. Sea level rise had continued inundated features causing them to fall apart.

Individual features at the site will be differentially impacted. Below is a list of features and potential impacts:

- **Feature 10 -** *Bai er a Ibangellei* (stone platform): Will be inundated soon by rising sea levels.
- **Feature 11-13** – *Bteluachang er a Ibangellei* and the other two docks and uang (stone canoe landings): Will be inundated along with the stone path that leads to the dock from *Bai er a Ibangellei*.
- **Feature 14-16** – *Debellir ar Ruchel* (stone platforms): Although not at immediate risk for inundation, they may be inundated as the paths to the other villages is inundated.
- **Feature 19** – (stone platform): Will be inundated by sea level rise.
- **Feature 21** – *Iliud* (resting stone platform with monolith): Will be inundated, which places the monolith at risk as well.
- **Feature 24** – *Did er a Ibai* (bridge): Will be inundated as well as *Emeraech*, the pathway leading to it (B:NM-3:1, Feature 10) and away from it (Feature 22).





Picture 6. (Left) Map of central area of Beluu er a Ngerutechei Sacred Site. Source: Olsudong et al.1996:59
Picture 7. (Right) Climate Change Impact Team surveying vulnerable cultural sites: Illustration by John G. Swogger. 2020.Preserving Palau's Future.

All other features will be subject to inundation as the sea level rise continues due to the site location and elevation on the coastal area.

Recommended Needed for the Preservation and Maintenance of Beluu er a Ngerutechei
Based on the field assessment, it is evident that *Beluu er a Ngerutechei* requires immediate intervention to manage the changing environmental exposure and to improve its resilience against the effects of climate change. To maintain and preserve the site, we recommend the following measures:

(1) Detailed Mapping- Conduct a comprehensive mapping of the entire site, including detailed documentation of all individual features. This will serve as a baseline for monitoring and future interventions.

(2) Feature-Specific Restoration
- **Feature 10**: Restore the feature and clear out the encroaching mangroves to prevent further degradation.
- **Features 11-13**: Remove the mangroves and restore the features. In addition, clear the channels to improve the flow of water and prevent blockages.
- **Features 14-16**: Clear the mangroves and conduct partial reconstruction of the site to stabilize these features.
- **Feature 21**: Raise and restore the stone platform to prevent damage from potential flooding or waterlogging.
- **Feature 24**: Clean the surrounding mangrove channels and consider resurfacing them with mangrove wood to prevent inundation and protect the feature.

(3) Managing control of overgrown vegetation
- Remove secondary vegetation that has overgrown along the stone paths and platforms, except for edible plants that contribute to the cultural value and food security of the community.

(4) Community Engagement and Maintenance
- Develop a regular maintenance schedule and engage the local community in the process, particularly for large-scale tasks like clearing the mangroves and debris. Community involvement is crucial to ensuring long-term sustainability and respect for cultural traditions.

(5) Debris and Vegetation Clearing
- Remove any vegetation or debris that has disturbed the integrity of site features. Clearing this material will not only reveal hidden features but also allow enough sunlight to dry the area, reducing moisture-related deterioration.

(6) Irrigation and Waterway Management
- Clear and restore all culverts and water irrigation systems to ensure that water flows smoothly and follows the designated water channels. Proper water management is critical to preserving the stone paths and platforms from erosion.

(7) Tourism Considerations and Site Accessibility
- If the state intends to promote the site for tourism, it must be made more accessible to visitors without compromising its historical and cultural integrity.

(8) Interpretive Signage
- Install interpretive signs at significant features to educate visitors on the historical and cultural importance of the site. This would enhance the visitor experience while fostering a deeper appreciation for the site's heritage.

(9) Tourism Impact Assessment
- Conduct an analysis to understand the potential impacts of tourism on the site. This includes determining the carrying capacity of the site—how many visitors can access the site without causing degradation or damage to its features.

(10) Heritage Impact Assessment and Management Plan
- Develop a complete Heritage Impact Assessment and management plan that outlines strategies for maintaining the site, identification of heritage value, protecting its features, and regulating visitor access. This plan should address tourism management, community involvement, environmental preservation, and long-term sustainability.

(11)Public Awareness and Outreach

Conclusion

The preservation and rehabilitation of *Beluu er a Ngerutechei* showcase the power of community involvement in safeguarding cultural heritage. Through collaborative efforts between the local government, national agencies, and community groups, the site was partially restored to its original integrity while respecting its historical and cultural significance. This case study highlights the importance of integrating traditional knowledge and practices into conservation efforts, especially in the face of climate change.

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Accidental Finds, Treasure Hunting, and Monetization of Archaeological Cultural Properties

Last 2019, the National Museum of the Philippines (NMP) transferred their regulatory functions to the National Commission for Culture and the Arts (Republic Art (R.A) No. 11333 or the NMP Act). These regulatory functions were embodied through the R.A. No. 10066 as amended by R.A. No. 11961 or the Heritage law. It was only in 2022 that these regulatory functions were rolled out through the Cultural Properties Regulation Division of NCCA. The function is generally related to "**Archaeological and traditional ethnographic materials"** and is enumerated as follows: regulation of archaeological exploration and excavation, management of accidental finds, regulation of treasure hunting activities and investigation of unauthorized ones, regulation of artefact dealership and export whether temporary or permanent.

Pursuant to Section 33 (d), R.A. No. 11961, the Philippines require Archaeological and Heritage Impact Assessments (AHIA) as part of the Environmental Compliance Certificate (ECC) issued by the Department of Natural and Environmental Resources – Environmental Management Bureau (DENR - EMB) to development projects, both private and government. The ECC is only issued by the DENR - EMB when the NCCA approves of the AHIA submitted by the proponents of the developments. However, the weakness of this strategy is that it is only limited to environmentally critical areas identified under Presidential Proclamation No. 2146, series of 1981. This Presidential Proclamation identified historical and archaeological sites as environmentally critical areas.

In the two years of the full existence of NCCA CPRD, accidental finds in development projects have been mostly reported where majority are from government projects. Meaning, these projects continued with submitting any AHIA. Two examples of these are projects done by the Department of Public Works and Highways – National Capital Region (DPWH NCR) and DPWH - Marinduque. The first is a construction of a police station, wherein a part of an old Spanish water reservoir, that was not known before, was exposed during excavation works for the foundation of the proposed building (Figure 1). As mandated by R.A. 11961, whenever these kind of finds are exposed during construction activities, the said activities must be stopped and all the finds must be systematically recorded and recovered from the site. So the NCCA required DPWH to conduct an AIA under an archaeologist. It took the DPWH six (6) months to initiate the AIA, and their project got delayed because of this. It took the archaeological team only 10 days to be on site and 20 days to write their assessment and report. This project is in San Juan City, a very developed city within Metro Manila. The plans of this project were adjusted based on the recommendations of the archaeological team.

Figure 1. View from caved ruins of the destroyed

Another project by DPWH is in the province of Marinduque. This time it's a road-widening project, was issued a cease-and-desist order due to several pottery sherds (Fig. 2) and bones (human and animal) were discovered in the municipality of Buenavista, province of Marinduque. This triggered a rescue archaeology by the NCCA and NMP. The project got delayed by another three (3) months since the NCCA have other fieldworks in between. Nonetheless, the local government of Buenavista secured the site, so even if months have passed from the discovery of the site, the artefacts were safe. The rescue took only three (3) days for the excavation and extraction and one (1) month for the report. In these cases, both local offices of the department were not too familiar with the heritage law and other laws connected to it. These cases have clearly shown that

Archaeological and Heritage Impact Assessment (AHIA) does not delay developments. However, it does provide protection to heritage sites and artefacts while developments are being done.

Figure 2. Artefact sample found during road extension project

In the Philippines, treasure hunting is legal as long as it is permitted by the government pursuant to relevant legislations. The NCCA is the government agency tasked to regulate the operation of treasure hunting activities. As of writing, for the duration of the existence of the NCCA CPRD, the NCCA have issued less than five (5) permits. Issuance of permit for treasure hunting is deliberately hard to safe-keep possible archaeological sites from treasure hunters. Application for such permit has a lot of requirements from historical background of the claims for "treasures", methodology, to monetary capability of the proponent. These requirements have their own reasons. The NCCA does not easily issue any permit when it finds any parts of the application to be vague or questionable. Also, all treasure hunting sites permitted by the NCCA are subject to spot inspection to check for archaeological materials. If there are any artefacts (Fig. 3) or fossils found at the site, the permit is immediately revoked.

However, given that people tend to either not know the law or finds it hard to get a permit, they just excavate without any permit from the NCCA especially if the property is private in nature. Owners tend to think that all rights have been reserved to them when, in fact, it is limited by certain laws such as for this matter. Since the transfer of regulatory functions to the NCCA, which includes the investigation of heritage issues, it was observed that illegal treasure hunting is well-organized since people involved in it, from the financier down to the excavators, have their own roles and positions. It is also becoming problematic for the NCCA when people get rejected for the application for valid reasons. Applicants complain when they cannot comply for details that we ask with their rejection thinking that it is their right for a permit to be secured, while it is only actually a privilege. Nonetheless, most are resolved peacefully.

Figure 3. Base of a pottery found in a treasure hunting excavation

Lastly, the NCCA is mandated to give a *License to Deal Cultural Properties* to dealers of cultural properties (i.e. antique shops and collectors who buy and sell). With this, dealers are required to register all the cultural properties. Registration should include the provenance of the cultural properties they are to sell and how they acquired these. The best practice is to investigate and question these applications. If they acquire these cultural properties in this way, specifically artefacts, it is considered as illegal. For excavations or treasure hunting, the applicants for the license are to be investigated and incriminated to the full extent of the law. However, as of now, though there is rampant existence of these sellers, the NCCA have not issued any license yet. So all the existing sellers are, technically, illegal even if they have all other business documents such as incorporation of their business.

As of now, the NCCA is currently investigating some sellers of artefacts. One case is already for filing a criminal case. It was found out that he, himself is a treasure hunter and a financier of treasure hunting in several sites in the Philippines. He funds people, specifically Indigenous Peoples, to look and recover artefacts in their area (Fig. 4). Another thing that we found out is that the person also sells fake artefacts, which means he has been deceiving people too. However, it is only for another case. His case will be for selling artefacts without any license from the NCCA.

Figure 4. Bead artefact being sold by person being investigated

The next step that will happen to this person of interest is the seizure of all his inventory and stoppage of his activities.

With all these cases that we are currently handling the NCCA have tied up with the Presidential Anti-Organized Crime Commission PAOCC, which resulted to the production of the crime cluster in the Philippines *Crimes Against Cultural Properties*. This is a new cluster that the PAOCC will focus on wherein the NCCA is the lead agency in the investigations. The operation against the illegal seller of artefacts was actually supported by the PAOCC.

With all these the main solution that we see is more on information dissemination and a change in the education in the Philippines with regards to culture and heritage. This is would be a hard solution but not impossible. The NCCA will not be tired in reaching out to people and informing them about cultural heritage and its benefit to them. We have seen this in other provinces where we conducted investigations of treasure hunting. When we talk to the right people, they pass it to the community and we see results. More and more reports of treasure hunting are coming in, and with this, we also see the weakness of the NCCA: lack of personnel.

As of now, the NCCA is only based at the National Capital Region. Fieldworks in far provinces takes time to plan and execute. Some are even cancelled for some reasons. With this, the NCCA CPRD is pushing for more positions and, possibly, regional or provincial offices. This would trigger the creation of more jobs to locals and an industry for cultural workers.

Values-based heritage conservation in Buddhist monuments and sites in Sri Lanka:

Identification of Needs and Issues of the AnulaTisa Stupa Site at Mihintale

AnulaTisa monastery was once a large monastery complex, located two kilometers from Mihintale city. The monastery's main monument "AnulaTisa Stupa" stands atop a rock ridge, honouring the surrounding environment. The Mahavamsa mentions *"Anulā Dēvi"* the queen of King *MahāNāga*, who learned the Dhamma from *Mahinda* Thero and became the first Buddhist bhikkhuni (nun) in the country. As per Mahavamsa, this bhikkhuni and her fellow bhikkhunis lived in *AnulaTisa Pabbatta vihāra*, a nearby monastery to the citadel. According to some legendary stories, this temple is significant to China, Tibet, and Mongolia, as it was home to Sri Lanka's nun who introduced female Theravada nunhood (bhikkhuni) to the above-mentioned countries. The *AnulaTisa* Stupa and the monastery were once deserted after the fall of the *Rajarata* civilization. The area, originally designated as an archaeological reserve in 1926, was remeasured in 1969 to 46 acres, 02 rood and 27 perches. An on-site survey in 2021 confirmed that 51 acres of property belonged to the historically off-limits area. AnulaTisa Pabbatta is described in two inscriptions on the site and these have been significant in identifying the ruins of the AnulaTisa Pabbatta vihara that is referenced in the Mahavamsa. This Buddhist monastery is evident for its religious, archaeological, and architectural values.

Excavations

As a result, the Department of Archaeology formally began three stages of excavation phases on this stupa from 2021 to 2022, test trench excavations were completed in the stupa's west-east and north-south orientations. This allowed for a recognition of the stupa's fundamental building elements. Because the bricks were removed at some point while the stupa had two Pesas. The shape of the stupa suggests that it may have taken on a bubble-like appearance. The stupa's left overall height is around 4.48 meters, and its total diameter is approximately 81.78 meters. At the remaining level of the stupa, nine relic chambers have been identified. It can be assumed that the unauthorized excavators destroyed the eastern part of the stupa. However, the excavations revealed that the bricks had been removed for other purposes before the superstructure was subjected to unauthorized excavations. Among the movable artefacts found during the excavation of the stupa were reliquary caskets made using dolomite rock and reliquary caskets made of clear crystal. Excavation of this stupa also found bones which were badly decomposed. These bone fragments could be identified through the soil fillings of stone caskets found during the excavations. 09 types of Bricks have been identified during excavations. In addition, beads, jewellery, coins, three flower seats etc. are among the artefacts found.

The problems that have arisen regarding these premises are found to be interconnected and they are listed as follows.

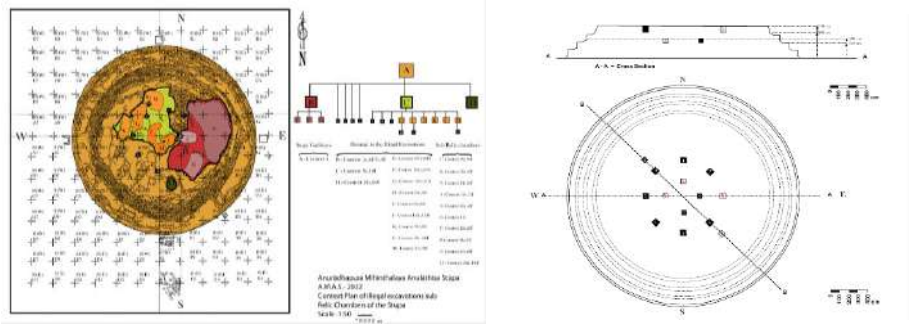


Figure 1 and Figure 2 Plans of the Excavated Stupa
(Source: Archaeological Excavation report, Department of Archaeology, Sri Lanka. 2023)

Problem No.1: The issue that has arisen regarding ownership

Further conservation efforts here have been put on hold due to disputes with the parties claiming the property where this stupa is located. The Department of Archaeology is the legal proprietor of this monument,

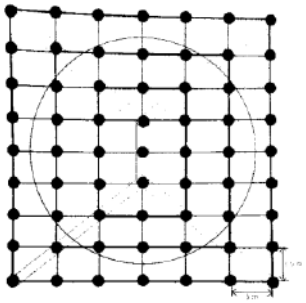
according to Antiquities Ordinance No. 9 of 1940 and No. 24 of 1998 (Amendment). Building the stupa was primarily done to commemorate and inter the relics—cremated bones or ashes—of a specific Buddhist person, Anula Terani. Therefore, the top priest asserts that the Mihintale Temple, whose principal owner currently holds the proper ownership, is the rightful owner of this land. A prestigious private institution and the Director General of Archaeology signed into an arrangement in 2023 to conduct archaeological work on the monument's site. This matter has now been referred to the Attorney General of Sri Lanka for views since the agreement cannot be enforced until the dispute over ownership mentioned above is settled.

Figure 3: Stupa before Excavation ***Figure 4& 5:*** Drone images of the excavated Stupa
(Source: Archaeological Excavation report, Department of Archaeology, Sri Lanka. 2023)

Figure 6, 7, 8, 9: Relic caskets found from the excavation process
(Source: Archaeological Excavation report, Department of Archaeology, Sri Lanka. 2023)

Problem No.2: The issue of conservation has arisen

The aforementioned private institution and the Department of Archaeology only suggested restoring this stupa to its current state rather than rebuilding it entirely. As a result, it was suggested that a shelter be erected and that a nearby construction serve as a research facility for scientists looking into the stupa's architectural and archaeological elements. The stupa has been covered by a makeshift shelter to keep it out of the weather conditions. The conservation activity has come to a halt because of disagreements among the aforementioned stakeholders about these conservation proposals. As of right now, a guard has simply been used to verify the security of the monument and its surroundings.



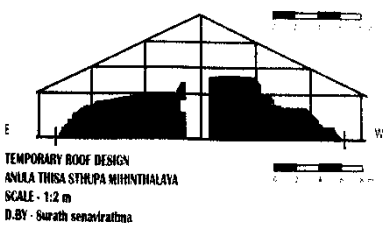


Figure 10 & 11: Plan of Temporary Shelter used in AnulaTisa stupa
(Source: Archaeological Conservation Proposal, Department of Archaeology, Sri Lanka. 2023)

Need No.1: Rapid resolution of ownership issue

As previously stated, preservation efforts for this monument have been halted pending directives from the Attorney General. While the weather has not destroyed the monument thanks to the temporary shelter, the Department of Archaeology's interim fixes are insufficient to address brick loss, insect damage, and grass growth on the monument. For this reason, it is crucial to use stakeholder interventions to fix this issue.

Need No.2: Quick conservation

Conserving a historic structure like the Anula Tissa Stupa requires a thoughtful approach to both preservation and restoration. In my thought as the first step Conducting a detailed survey of the stupa to assess its current condition is essential and it will focus on any structural damage, erosion, or biological growth. Then Document the findings with photographs and sketches. Record any areas of concern or deterioration. At the same time, doing the restorations of any structural damage with compatible materials and techniques. This might involve replacing missing or damaged stones and reinforcing weak areas. The stupa that was excavated here needs to be confirmed and bound with plaster to stop additional damage. Second, excavations at the Stupa Maluwa have to be excavated and strengthened the retaining walls. Immediately Address any urgent issues that could lead to further damage. This may involve shoring up unstable sections or temporary measures to protect the structure.

Need No.3: Community-based conservation

About the conservation Design Department of Archaeology plus funding, the institute must involve local stakeholders and the community in conservation efforts. Their involvement can be crucial for ongoing care and protection. In the conservation of stupas, values play a pivotal role in guiding preservation efforts and ensuring that these sacred monuments are maintained with integrity and respect. Here, Spiritual values are paramount, as stupas serve as important symbols of Buddhist teachings and practices, embodying profound religious significance for practitioners. highlight the importance of preserving the stupa's architectural and construction elements, which offer insights into historical periods and cultural developments, most importantly emphasizing the stupa's role in continuing traditional rituals and communal activities, which are integral to the cultural identity of local communities is important.

This monument is set apart from the rest of the ruins by a public road that the villagers have constructed across specially gazette land. If the road surrounding the monument is used in consultation with the villagers, who are the primary stakeholders of this archaeological site, the wall surrounding the temple can be restored and updated. Here I believe that the design of conservation must focus on balancing heritage values to ensure that conservation efforts not only protect the stupa's physical structure but also uphold its spiritual, cultural, and educational significance.

The Department of Archaeology organized an exhibition in 2024 to educate the public about the methods used in Anuradhapura excavations, the artefacts discovered there, and other antiquities and cultural proposals. As I witnessed people have no idea about the stupa or findings and they think stupas are filled with treasure rooms according to the chronicle's texts. This attitude leads people to treasure looting. The show took place in connection with Vesak Poya Day. Below are some moments of the archaeology exhibition.

Figure 12, 13 & 14: Exhibition about AnulaTisa stupa and conservation in, June 21-23, 2024 (Source: onsite)

Need No.4: Carrying out further excavation and conservation work on the land and maintaining the land

This location is a main, unidentified site that is distant from Mihintale's main archaeological site. Not even the locals are familiar with this station. Promoting this standing is essential. Mihintale Temple receives 3–4 lakh pilgrims annually in June; by promoting these locations, the major tourist area becomes less crowded. Therefore, the rest of the monuments such as the AnulaTisa stupa in this region should be identified by archaeological excavations and conserved and implemented under a proper tourism management plan.

Need No.5: Development of a museum to store further treasures inside the walls of this AnulaTisa temple.

Placing the relics (cremated bones) found inside the stupa and allowing people to venerate it are essential. The stupa's initial religious purpose was to serve as a monument, and it still has religious significance today.

Every other artefact discovered during the excavation of this archaeological site ought to be constructed and placed in a museum in a section of this station devoid of monuments. Artefacts acquired from that station will lose value if they remain in a museum in another station; however, if a museum is constructed and placed in the same station, the artefacts there will retain their same worth.

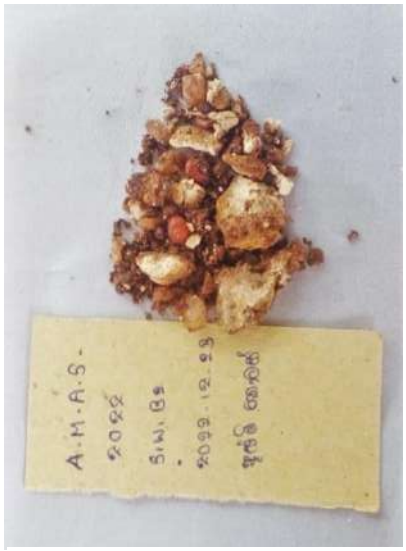


Figure 15: Relics found from excavation
(Source: onsite)

Figure 16 & 17: various *stone, clay, metal artefacts and beads found in excavation*
(Source: onsite)

References:

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ACTIVITIES OF THE NATIONAL MUSEUM OF TAJIKISTAN IN THE FIELD OF ARCHEOLOGY, RESTORATION AND CONSERVATION OF HISTORICAL HERITAGE

The National Museum of Tajikistan opened on March 20, 2013. Every year More than 100,000 people visit the National Museum. The institution's fund contains more than 85 thousand exhibits/

The National Museum successfully implements its activities in all areas. In particular, exhibition, archaeological, restoration activities and cooperation and international exhibitions.

The exhibition activities of the museum are very significant. The National Museum has four exhibition departments; Department of Nature, Department of Ancient and Medieval History, Department of Modern and Contemporary History, and Department of Fine and Applied Arts.

The archaeological activity of the National Museum is also very significant. After the commissioning of the new building of the National Museum, a department of archaeology and numismatics was created here, which annually conducts independent excavations on historical monuments of the territory of the republic. So far, the archaeologists of the Museum have conducted archaeological excavations on 9 monuments, the number of finds of which exceeds 2000.

One of these monuments is Halkajar settlement, which belongs to the 1st-4th centuries AD. During the excavations, there were found various objects such as gold, silver and copper coins, ceramic vessels, stone, metal and bone tools, which have great historical importance.

Another monument is the ancient town of Sayod, which is located in the southern part of Tajikistan. In 2016, 2018 and 2021, the National Museum conducted archaeological excavations in this monument, which yielded hundreds of rare ancient objects, such as architectural remains, stone tools, decorative objects, coins, ceramic vessels and coins.

Among the rare and interesting finds from these monuments are gold leaf, a gold pendant with an image of a Centaur, gold coins and ceramic pipes, which were discovered by museum staff.

Along with the achievements in this area, there are also difficulties and problems in the monuments:

1. Archaeologists are not provided with modern technology;
2. Not having a protector;
3. Absence of walls to close the boundaries of the monument;
4. Not having a roof;

Most of the monuments of Tajikistan, including the above-mentioned monuments, belong to the ancient period. These monuments do not have high walls and at first glance they look like ruins. This is the reason that the attention of tourists and local residents is rarely attracted to them. If we pay attention, the attention of domestic and foreign tourists is mostly attracted by medieval castles and monuments, and there is a reason for this. The main reason is that they are in a relatively good condition, have high defensive walls... I think that in order to draw more attention to the monuments of the ancient period and to protect them, we need to build defensive walls in the form of their original. Local governments and relevant institutions should pay special attention to them. This will cause historical monuments to become a place for viewing and crowding, and will bring benefits to the state budget. At the same time, these works can protect monuments from destruction.

Another important activity of the National Museum of Tajikistan is protection, restoration and conservation of museum objects. It should be noted that after gaining state independence and commissioning the new building of the National Museum of Tajikistan, the art of restoration was further developed and a separate department, “Restoration and Conservation,” began to operate, in which young specialists are engaged in the restoration of historical artifacts.

In the first years of their activity, from 2013 to 2016, the employees of the department of restoration and conservation of the museum worked in three areas - restoration of ceramics, metal and paintings. Later, with the initiative of the management of the institution and the involvement of young specialists were expanded other areas of restoration, such as paper, wood and fabric works. Now, in total, the employees of the department are carrying out restoration work at a high professional level in 6 directions - restoration of ceramic, metal, fine and applied art, paper, wood and fabric objects.

Also, to improve their theoretical and practical knowledge, they attended training courses in the field of restoration and conservation in various countries, including the Russian Federation, Republic of Uzbekistan, Islamic Republic of Afghanistan, Republic of Turkey, Republic of Kazakhstan etc., the result of which we see everyday in their activities.

One of the important areas of activity of the department is the restoration of ceramic objects. During the activity since 2013, more than 137 different ceramic objects have been restored in the National Museum of Tajikistan. Among the restored artifacts, the "clay coffin" and the "big hum" are of interest, which belong to Kushan dynasty period (I-III centuries AD). These exhibits, after

restoration, are now on display in the exhibition halls of the National Museum of Tajikistan.

In the direction of restoration and conservation of metal artifacts, over 9,849 coins of different eras were cleaned by experts, and 635 other metal objects were restored.

During this period, specialists of restoration of fine and applied art have cleaned more than 1934 paintings. Also, 248 number of oil paintings were restored, which is an indicator of the effective activity of restorers.

One of the most difficult and delicate directions is paper restoration. This field started working in the department in 2017. During this period, 11 books were cleaned and 18 rare handwritten books were restored and conserved by specialists.

Wooden objects are also an important part of the collection of the National Museum of Tajikistan. During this period, more than 130 wooden exhibits were restored and conserved by specialists of this field. (see pic.15, 16)

During this period, fabric restorers restored and conserved 5 fabric objects and handed them over to the museum fund.

It is important to mention that along with the restoration and conservation of the objects of the National Museum of Tajikistan, specialists of the Department of Restoration and Conservation play a prominent role in the cleaning and restoration of objects from other museums of the country, which are brought to the National Museum for temporary exhibitions. Since 2013, 352 different historical objects of other museums have been restored by our specialists.

In total, more than 13,394 different historical items were cleaned and restored by specialists of the Department of Restoration and Conservation during the working activities of the National Museum of Tajikistan.

Mirali Karimdodov

Issues on Cultural Heritage Protection in Thailand

This report discusses issues regarding cultural heritage protection in Thailand. The issues are classified based on the parties involved: private entities and local people, government organizations, and experts in the same field. Possible solutions and related questions are also discussed at the end of each section.

1. Issues related to private entities and local people

1.1 Archaeological sites and artefacts may be discovered on land owned by a private entity or a citizen. In this case, the owner of the land must comply with the related laws to conserve and protect the cultural heritage. However, in practice, people often view the laws as imposing constraints and causing the inconvenience of being unable to fully utilize the land. As a result, they might not fully coordinate with the authority.

One example is an ancient ruin, or its part found on private land. Figure 1 depicts bases of ancient structures on private lands. The owners built their residences too close to the bases. Given limited resources, the authority cannot fully monitor heritage in private areas, especially ones that are in hardly accessible locations. Hence, law enforcement alone cannot ensure sufficient protection.

One may argue that the government can purchase the land where the heritage was located, renovate the site (such as building a flower garden nearby), and make it publicly accessible for people to visit and learn about the heritage. Nevertheless, heritage of a kind may be scatteredly found in many areas, so it is nearly impossible to use the approach to conserve all cultural heritage sites.

Therefore, designing a proper and sustainable protection system is important for conserving heritage in private properties. It might be more effective if individuals are willing to protect the heritage. Also, the local community can help monitor and protect old artefacts and architecture in the local private areas. The important question is how the authority can empower, support, and incentivize people and local communities to do so.

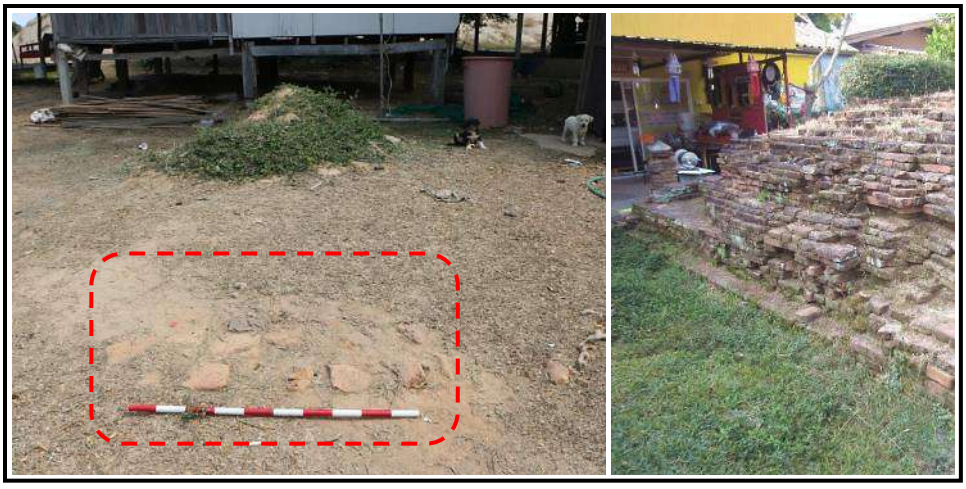

Figure 1: Ancient building base on a private land

1.2 Local people may lack the knowledge to identify archaeological sites, old artefacts and other evidence. As a result, they might unintentionally damage old artefacts or trespass into the sites. A common example is that artefacts (pottery and remains of ancient tools) and other evidence (bones and residuals), were often found in agricultural lands owned by local people. Figure 2 shows bones found in a private pond.

At present, the government is trying to publicize the guidelines and regulations by distributing physical and online documents consisting of details about identifying and protecting old artefacts. Still, not all people have access to such information. Even informed people may not realize the artefacts or heritage upon finding them. Raising people's awareness of protecting heritage is essential for sustainable conservation in the long run.

Figure 2: Bones found in a private pond

1.3 Private entities might try to utilize archaeological sites and make changes to old artefacts without permission. The problem may become more complicated if an entity has support from the local community.

Old temples, stupas, and other Buddhist architecture are examples of this issue. In Thailand, Wat is a religious place where local people gather to do Buddhist activities and make wishes. Wats usually consist of old temples, Buddhist statues, stupas, and other architecture that are protected by the protection law. Hence, permission must be granted before renovating architecture, temples, statues, and other artefacts.

The first example is when a Wat wants to utilize the area near a pagoda. Usually, a certain area surrounding a pagoda is restricted to provide a protective buffer for the pagoda. However, the Wat may not want to sacrifice much area around the pagoda, resulting in less area reserved for conservation. Also, local people may want the Wat to utilize the area for Buddhist activities such as candlelight procession and praying.

The second example is when renovation takes place without advance notice in such a way that reduces authenticity but makes things look grand and more sacred. One such example is shown in Figure 3 where a temple was renovated with dazzling colors and excess decoration that may damage the old structure. In practice, the authority may have limited power to order the Wat committees to undo the decoration since local people who are firm believers may be upset and do not understand the need to comply with the law. In this case, an interesting question is what the authority can do when changes are made, and the result is irreversible.

Also, one key relevant question is about the way in which the authorities should allow local communities to renovate heritage sites. From the lecture, we see that people and the local community should be the center of conservation. However, it is important to make sure that the renovation conserves authenticity and is in line with history. If the government were to allow local communities to decide how to make changes, then what would be the criteria for determining appropriateness? One challenge is that the historical and cultural contexts in one area may differ from those in other areas. Hence, appropriateness may vary according to such factors, and decentralized decision-making may not be consistent in all areas.

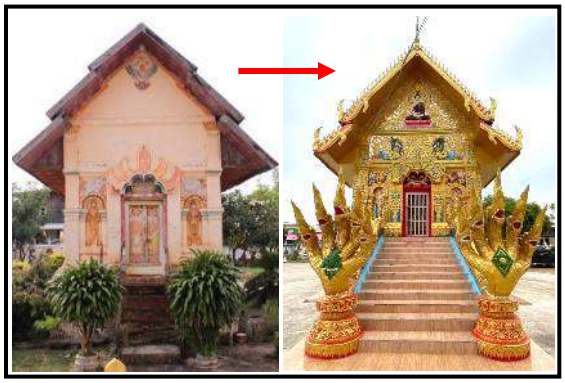

Figure 3: Unauthorized renovation of a temple

2. Issues related to other government organizations

Government organizations have their own right to utilize lands in their possession. Although related laws allow the cultural authority to protect cultural heritage sites, conservation might be difficult in practice due to the fact that the authority cannot directly manage the site.

For example, the law empowers one office to manage abandoned Wats and other religious areas. If the area contains archaeological sites or old artefacts, the authority needs to reserve the nearby area as a protection buffer. However, the authority may have an incentive to minimize the buffer zone so that it can utilize more space. Figure 4 shows such a case where the heritage is located on land owned by another government organization, with the surrounding area rented to local people. Although some space is spared for conservation, the authority cannot fully monitor land use all the time and hence cannot fully protect the heritage. Moreover, the owning organization might not want to upset people who currently rent the area and may not fully coordinate with the protection authority. This complicates the enforcement of protection law in practice.

Another example, shown in Figure 5, is an ancient well found in a military base. Although the protection authority can request the military to reserve the area around the well, the well might not be fully preserved in practice since the owner does not have an incentive to do so. Since the area is fully restricted for security, the heritage cannot be made publicly accessible and fully monitored. Hence, a mechanism is needed to ensure such heritage is appropriately protected.

As a minimum requirement to address the issue, amendments should be made to empower the protection authority to properly manage and protect cultural heritage sites. Nevertheless, law enforcement might not be effective if the counterparty is also a government organization. Hence, it is crucial to design a settlement mechanism that can balance conservation and utilization.

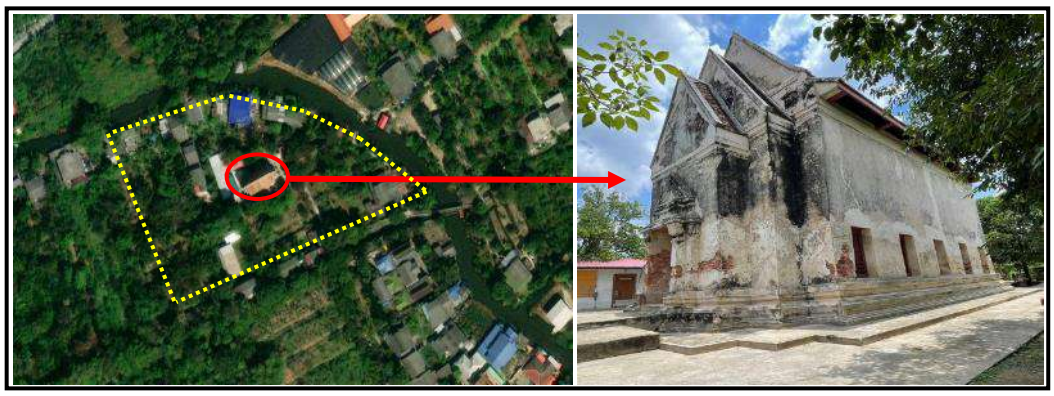

Figure 4: Heritage on a land owned by another organization

Figure 5: Ancient well located in a military base

3. Issue related to experts in the same field

Experts in the same field may have different views on how to conserve a cultural heritage.

An example is the degree to which an architecture is renovated. One expert may want to conserve authenticity and renovate as little as possible, while another may have a different opinion and want to modify or reconstruct the architecture. Similarly, two experts may have different views on how to repair an old artefact. One expert may prefer the repaired artefact to contain all parts, which requires sophisticated techniques and high cost, while another expert may believe that having only the main parts repaired is sufficient for the artefact to convey its history.

Although the Venice Charter and Nara Document on Authority provide guidelines and principles for conserving cultural heritages from different periods, experts may still have different opinions about conservation, such as what elements to be conserved, the choice of materials used, and the design. Even if the decision is finalized, local people might disagree with them. This poses a challenge to how operating staff can reach the final decision regarding the conservation of a particular heritage.

Figure 6 illustrates an example of this case. The left and right pictures show a stupa before and after renovation, respectively. During the process, experts had different opinions and could not settle the final design. After renovation, local people are not happy with the stupa, resulting in the site not being as popular as it was before the renovation.

Figure 7 shows another example of disagreement between experts. The left picture shows an ancient wall before being scraped and the right one shows the wall that is partially scraped. One expert believes that we should scrape the remaining part to fully reveal the old layer that contains ancient paintings. However, it seems that the paintings had been incomplete from the beginning, so the wall was painted with brown color to conceal the paintings. Hence, it is expected that the incomplete paintings will emerge once the wall is fully scraped. Thus, another expert thinks that we should repaint the wall and fully conceal the paintings. This is an ongoing debate to date.

Training experts is indeed the key step in creating a sound conservation system. However, it is also important to ask how and who to finalize a decision regarding conservation when two experts have different opinions. Also, what mechanism ensures that the final decision is informed to operating staff. If the decision process is to be decentralized, what principles do we need to build a systematic decision-making process among local communities, academic experts, and operating staff?

Figure 6: Renovated Stupa

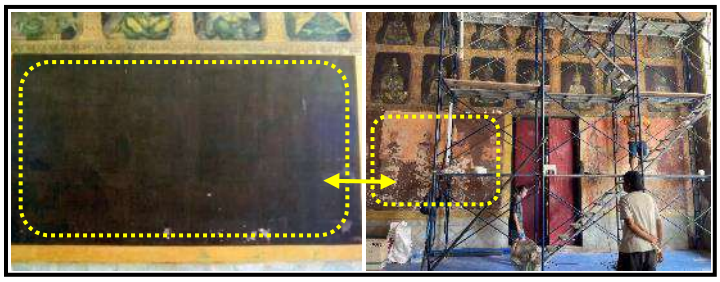

Figure 7: Scraped wall with ancient paintings

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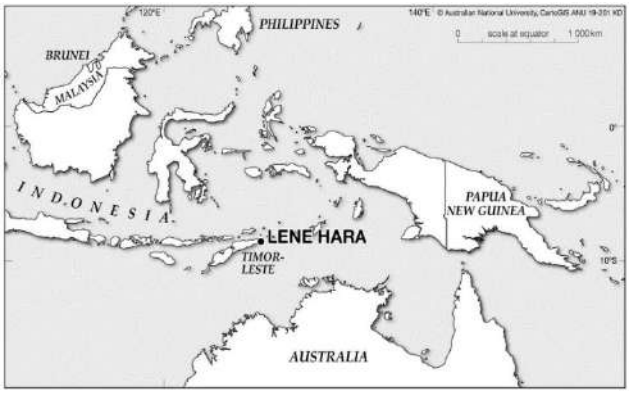
THE STATE OF CONSERVATION OF LENE HARA CAVE: CHALLENGES AND SOLUTIONS

Lene Hara is one of the best-known prehistoric sites in East Timor, famous for the variety of rock art styles with hundreds of figures present. In fact, it is one of the most important records for the archaeology of Timor-Leste, especially the process of occupation of the island of Timor. It is characterized by being an open cave occupied by modern humans since the Late Pleistocene era, and is considered one of the oldest sites of occupation by modern humans in Timor-Leste, dating back to 43-41,000 cal. BP (O'Connor et al., 2020). One of the first archaeological investigations carried out at this site was by Portuguese anthropologist, Rui Cinatti in 1962 (Cinatti, 1963), and the first archaeological excavation was carried out by Portuguese anthropologist, Antônio de Almeida in 1962 (Almeida and Zbyszewski, 1967) through a project called Missão Antropológica de Timor (MAT). The second excavation was carried out by archaeologists from the Australian National University in 2002 (O'Connor et al., 2002), followed by new excavations at the site by the same researchers in 2006 (O'Connor et al., 2020).



Picture 1 Location of Lene Hara Cave. Resource: (O'cconor et al., 2020).

Picture 2 North front of the Lene Hara site. Resource: State Secretariat for Art and Culture, 2024.

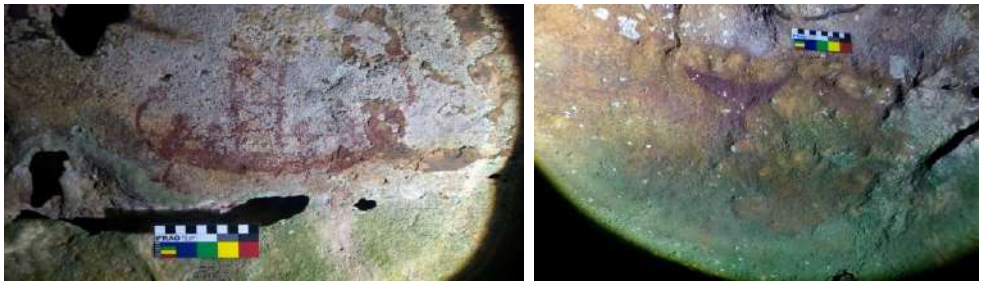
The problems identified in the state of conservation of Lena Hara Cave

Recently, technical teams from the State Secretariat for Art and Culture monitored archaeological sites located in the eastern region of Timor-Leste, especially in the area where the highest concentration of rock art is found. They identified that there has been a big change in the state of conservation of these sites compared to the conditions of five years ago, and one of them is Lena Hara, which is the subject of this case study.

Presently, Lena Hara cave is in a delicate state of conservation that requires preventive conservation actions in the short term to stop the progress of degradation of the state of conservation, because a part of the cave painting has been degraded or has disappeared. Therefore, the factors that have contributed to the degradation of this heritage are identified.

Problem 1: Half of the cave paintings in this cave have disappeared or are completely covered by biological and geological agents. Biological organisms such as fungi and bacteria dominate the walls where the paintings and engravings are found. However, the actions of these agents through biochemical processes contributed to the degradation of the rocks along with the archaeological records. Geological agents are also considered to be elements that have deteriorated this cave, mainly through the process of transformation of speleothems such as flowstone and stalactite.

Picture. 3 – 5 (from left to right) the three prints by Lena Hara cave are covered in green fungus. Resource: The State Secretary for Art and Culture, 2017



Picture. 6 and 7 (from left to right) the two Lena Hara cave paintings recorded in 2017 were covered by lichens. Today, they are completely covered by biological organisms. Resource: The State Secretary for Art and Culture, 2017

Problem 2. Free access to animals and the public. It was identified that anthropic actions gradually contributed to the degradation of the state of conservation, such as the use of the space by local communities for ritual ceremonies, hunting, resting and other visitor activities. In addition, vandalism is very common at this site and other similar sites nearby. The use of the site by animals from the local communities to rest and avoid the rains is also a cause for concern.

Picture. 8 (left) the main south entrance to Lene Hara Cave. Picture 9 (right) the entrance on the north side of the cave. Both pictures show that there is no impediment to accessing the site, either by humans or animals. Resource: The State Secretary for Art and Culture, 2024

The necessary solutions to be implemented

Therefore, the identified problems mentioned above regarding the state of conservation of the Lene Hara site have the following solutions to be implemented.

1. Stop the spread of biological and geological agents that are a constant threat to the rock paintings and engravings, and remove them, especially flowstones, lichens and green fungi.

2. Limit and control the free access of communities to archaeological sites and stop access by animals, especially cows. In order to stop animal access, it is necessary to install the grid, circulating the site, and at the same time install information signs so that communities and visitors are aware of the importance of the site.

3. Raise awareness among the island's communities, especially those who live near the sites, to collaborate in protecting the sites.
4. Restore the visibility of the paintings and document them using 3D technologies. In order to carry out this plan, it is necessary to collaborate with specialists.

5. Install or build a trail so that visitors can access the site without damaging the elements and promote them so that people know their importance to the history of human existence on this island.

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Dalvarzintepa: Challenges in the Preservation of a Kushan Capital (UZBEKISTAN)

Dalvarzintepa (fig. 1), located in the Shurchi district of Surkhandarya province, Southern Uzbekistan, is one of the largest and most significant archaeological sites in the region. Covering approximately 40 hectares, the site represents one of the capital centers of the Kushan Empire. Dating back to the Graeco-Bactrian period, Dalvarzintepa saw its peak during the Kushan era, and its remains provide a window into the cultural and artistic life of Northern Bactria. This case study focuses on the preservation challenges faced at Dalvarzintepa, the archaeological findings, and the future prospects for managing and conserving this historically rich site.

Fig. 1. General view of the Dalwarzintepa settlement

Historical Background

Dalvarzintepa emerged in the 3rd century BCE as a small fortified settlement during the Graeco-Bactrian period. Over the centuries, it expanded into a major urban center under the Kushans, particularly during the 1st and 2nd centuries CE. The site includes impressive fortification walls, Buddhist temples, residential areas, and evidence of vibrant craftsmanship, such as pottery kilns and workshops. Dalvarzintepa was abandoned in the 4th century CE, after a period of decline, but was briefly resettled in the 6th and 7th centuries before being completely deserted following the Arab conquest.

Archaeological research at Dalvarzintepa began in the 1930s, with significant excavations carried out from the 1960s onward. These efforts have uncovered valuable insights into the material culture of the Kushan period, including sculptures, wall paintings, and one of the largest gold hoards ever found in Uzbekistan.

Archaeological Excavations and Findings

The excavations at Dalvarzintepa have revealed several key features that underscore its importance as a Kushan capital. Among the most significant discoveries are:

Fortification Walls (fig. 1, 6): The remains of fortifications, particularly in the Lower Town, provide insights into the defensive architecture of the period.

Buddhist Temples: Two Buddhist sanctuaries, including DT-25, have yielded remarkable finds, including stucco sculptures (fig. 2) and wall paintings that illustrate the rich iconography of Northern Bactria during the Kushan era.

Potters' Quarter: This area includes pottery kilns and workshops, highlighting the role of craftsmanship in the city's economy.

Gold Hoard (fig. 3): Discovered in DT-5, the hoard contains 115 items of gold jewelry, weighing over 35 kilograms, offering a glimpse into the wealth and artistry of the period.

Despite these remarkable findings (fig. 4-5), many areas of the city, particularly residential buildings and public structures, remain underexplored due to the aforementioned funding and preservation challenges.

Fig. 2. Bodhisattva sculpture

Fig. 3. Golden treasure

Fig. 4. Mural painting

Fig. 5. Ivory come.

Current Challenges

One of the main challenges faced in the preservation of Dalvarzintepa is the environmental degradation caused by the region's climate and soil conditions. The site's architecture, primarily built from mud bricks and compacted clay (*pakhsa*), is particularly vulnerable to erosion from groundwater and soil salinity. Additionally, extreme weather conditions and lack of continuous site monitoring have led to damage in several parts of the site, including the fortification walls.

Another challenge is the lack of consistent funding for preservation efforts. While Dalvarzintepa has been the subject of significant archaeological interest, the resources available for large-scale excavations and conservation are insufficient. This has resulted in some sections of the site remaining unexcavated or improperly conserved.

Conservation Methods and Needs

Traditional excavation techniques have been used throughout the study of Dalvarzintepa, but there is a growing recognition of the need for modern technologies to enhance conservation efforts. Geophysical surveys, 3D photogrammetry, and advanced documentation tools are being gradually introduced, supported by a three-year grant from Uzbekistan's Agency of Innovative Development.

The application of geophysical methods in 2022 (fig. 8), for example, has already yielded valuable data about the layout of the Lower Town and the structure of the fortification walls. However, further use of

these technologies is required to complete a comprehensive map of the site and to ensure effective conservation of the fragile mudbrick architecture.

Fig. 6. General view of the Dalwarzintepa settlement

Management and Future Prospects

The management of Dalvarzintepa faces several challenges, notably in securing sustained funding and establishing regular maintenance protocols. The site's vast size and complex stratigraphy require detailed planning and resource allocation, which has been difficult to achieve.

One of the main goals for future research is to continue excavations in the northern part of the city, near the Temple of the Goddess Nana, as well as in the residential quarters that have been partially uncovered. The incorporation of modern techniques, such as 3D scanning and photogrammetry (fig. 7), will not only enhance documentation but also improve site management.

International collaboration is another vital area for Dalvarzintepa's future. Past partnerships, such as those with Japanese researchers, have been fruitful, and expanding these collaborations could provide the technical expertise and resources necessary to advance the site's conservation.

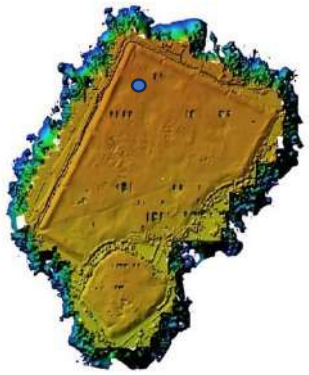

Fig. 7. Digital Elevation Model of Dalvarzintepa

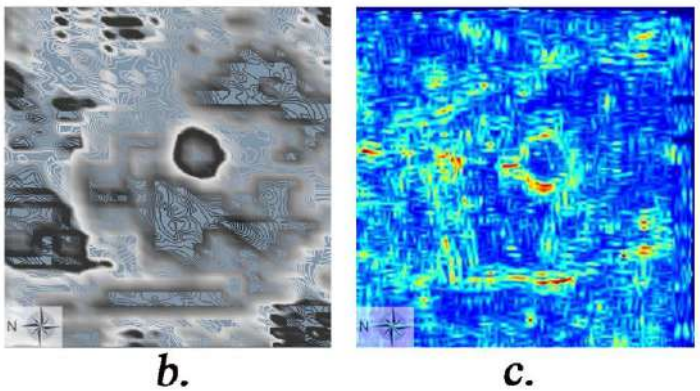

Fig. 8. Maps of geophysical anomalies within the DT-40 site: (b) electrotomography, (c) GPR surveys

Dalvarzintepa is a site of immense historical and cultural significance, offering valuable insights into the Kushan Empire and the broader history of Central Asia. However, the site faces ongoing challenges in conservation, funding, and management. Addressing these issues through modern conservation techniques, increased funding, and international cooperation is essential to preserving this unique heritage for future generations.