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Urban heritage and the four pillars of sustainability: Urban-scale facility management in the World Heritage sites

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Abstract. The discussion addressing sustainability issues of the World Heritage (WH) as cultural sites that holds outstanding universal values (OUV) has started to surface since the adoption of the “Strategic Action Plan for the Implementation of the World Heritage Convention 2012-2022”, specifically in the third goal, which states that “heritage protection and conservation should consider present and future environmental, societal, and economic needs.” This goal aligned with the first three pillars of sustainability. After the introduction of “culture” as the fourth pillar of sustainability by UCLG in 2011, the issue of sustainability in the WH sites has drawn global attention. The balance of all four pillars of sustainability within protected sites can potentially be achieved by improving efficiencies through urban-scale facility management (Urban FM). The principles of Urban FM aligned with UNESCO’s recommendation on the Historic Urban Landscape (HUL) approach, which is a holistic approach to managing historic sites. This study discusses aspects of managing urban-scale facilities in urban heritage areas and aims to shed light on the knowledge of Urban FM at WH sites by employing a literature review approach. The preliminary findings indicate that culture, the fourth pillar of sustainability, was involved and bound to the other three pillars: economic, social, and environmental. Within WH sites, urban-scale facility management needs to be considered seriously to ensure the protection of OUV that efficiently defines the existence of their status as World Heritage.

1. Introduction

After the 1992 Earth Summit in Rio de Janeiro established the three pillars of sustainable development, namely the economy, social equity, and environmental balance, nearly all aspects of development and society were linked with these three elements [1], [2]. However, later, the United Nations Educational, Scientific and Cultural Organization (UNESCO) and multiple international summits on sustainable development recognized the necessity for the cultural approach to be included as the fourth pillar of sustainable development [3]–[5]. This new approach addresses the relationship between culture and sustainable development through the development of the cultural sector and ensures that cultural aspects are given the appropriate weight and place in public policy, particularly those pertaining to education, the economy, science, communication, the environment, social cohesion, and international cooperation. Since the adoption of the “Strategic Action Plan for the Implementation of the World Heritage Convention 2012 -2022”, especially in the third goal, which states that “heritage protection and conservation should consider present and future environmental, societal, and economic conditions,” the topic of preserving historic districts, particularly World Heritages (WH) as cultural sites with outstanding universal values (OUV), concerning sustainability has begun to surface. This objective aligns with the first three sustainability pillars.

After the United Cities and Local Governments (UCLG) introduced “culture” as the fourth pillar of sustainability in 2011, the issue of sustainability in WH sites and urban heritage areas has grown much



more complex than simple tourism issues. The balance of all four pillars within the context of WH sites could be achieved by increasing efficiency through urban-scale facility management (Urban FM) as a people-focused discipline. Urban FM principles align with UNESCO's guideline on the Historic Urban Landscapes (HUL) approach, which is a holistic method for maintaining historical monuments, including WH sites [6]–[8]. Urban FM is expanding the discipline of facility management (FM) into urban contexts to respond to the needs of communities by facilitating their shared values [9].

The selection of WH sites in this paper was based on their ability to describe the context of this study and their clearer universal shared criteria. This study aims to shed light on the understanding of urban-scale facility management in WH sites within the context of the sustainable development pillars, including “culture” as the proposed fourth pillar. Within WH sites, urban-scale facility management should be carefully considered to maintain the efficient protection of the OUV that characterizes the status of WH. This study examines the economic, social, environmental, and cultural aspects of the management of WH sites.

2. Background

2.1. *Towards the proposal of the fourth pillar of sustainability*

Cultural heritage contains tangible and intangible examples of human innovation that have been passed down through generations and are valued by communities, groups, or society. These heritages are preserved in the present and passed on for the benefit of future generations. Cultural heritage is vital because it reminds us of the past and gives us a sense of cultural origins, which contributes to the development of national and local community identity, which is essential for a sense of place and for bringing people together [7]. Examples of tangible cultural heritage include monuments, groups of structures, cultural landscapes, and locations. In contrast, intangible cultural heritage comprises the practices, representations, expressions, knowledge, and abilities of communities, organizations, and occasionally even individuals, together with the instruments, items, artifacts, and cultural spaces accompanying them [10].

As a novel approach, the proposed fourth pillar of sustainability addressed the relationship between culture and sustainable development by fostering the cultural sector's growth and securing culture's place in all public policies [11]. In this instance, we are all aware that our contemporary society faces not only economical, social, and environmental obstacles. Creativity, knowledge, diversity, and beauty are essential values indispensable to human civilization's evolution.

The primary objective of any government is to foster a healthy, safe, tolerant, and creative society, not just economically affluent. This means that local governments must promote a model of development that “meets the needs of the present without compromising the ability of future generations to meet their own needs,” as well as ensuring the enjoyment of culture and its components by all, as well as protecting and enhancing the rights of citizens to freedom of expression and access to information and resources by incorporating culture into the pillars of sustainability [12]. This fourth pillar establishes sturdy bridges with the previous three development dimensions and is compatible with each.

The longstanding commitment of local and regional authorities to the promotion of culture as an integral part of the development and as a necessary condition for a diverse and peaceful society has prompted the World Organization to mainstream culture in its current work and to encourage the adoption of Agenda 21 for culture by local and regional governments [6]. Based on UNESCO's Universal Declaration on Cultural Diversity (2001) and Convention on the Diversity of Cultural Expressions (2005), the UCLG decided to develop a proposal to include “Culture” as the fourth pillar of sustainable development [12].

2.2. *The origin of the World Heritage: A brief history*

The concept of “world heritage” is innovative. Traditionally, inherited cultural assets were restricted to specific people or communities [13]. With the new terminology of “world heritage,” a cultural item is deemed universal, has a broader reach, and is incorporated into global human history. In 1959, during the construction of the Aswan Dam in Egypt, the Ramses II temple at Abu Simbel, one of the world's most distinctive cultural landmarks, was at risk of being destroyed. This led to the development of World

Heritage [14], [15]. UNESCO initiated a global campaign to save valuable archaeological remains, which generated a discussion about the necessity of a worldwide treaty to safeguard the world's most significant cultural and natural heritage sites.

In 1972, UNESCO formed an accord covering the world's natural and cultural assets. The agreement aims to preserve globally significant sites of universal significance that belong to all humanity. OUV refers to the cultural and natural significance that transcends national borders and is of interest to all human generations, past, present, and future [16]. Therefore, the permanent protection of this asset is of the utmost importance to the global society and is becoming the defined terminology of "World Heritage" that we know today.

2.3. Tangible, intangible, natural, and man-made cultural asset

Heritage has expanded beyond a concern for physical assets such as historical monuments and buildings to include groups of buildings, historic urban and rural centers, historic gardens, and nonphysical heritage such as surroundings, social aspects, and, more recently, intangible qualities [17], [18]. The term "Tangible Cultural Heritage" refers to the physical items created, preserved, and passed down through a community's generations. It includes creative accomplishments, constructed heritage such as buildings and monuments, and other items of human innovation imbued with cultural significance in society. "Intangible Cultural Heritage" refers to "the practices, representations, expressions, knowledge, skills that communities, groups, and, in some cases, individuals acknowledge as constituting their Cultural Heritage" [19], [20]. Intangible heritage includes oral traditions, performing arts, indigenous knowledge, and traditional skills. However, the tangible can only be comprehended and interpreted through the intangible. Thus, society and values are inextricably interwoven [20].

Tangible and intangible cultural resources require separate preservation and protection techniques, which is one of the key reasons for creating and adopting the UNESCO Convention for the Safeguarding of the Intangible Cultural Heritage in 2003 [19], [21]. The Convention acknowledges the importance of intangible Cultural Heritage as a catalyst for sustainable development and a source of cultural diversity. UNESCO, recognizing the importance of people for the expression and transmission of intangible cultural heritage, pioneered the recognition and promotion of living human treasures, defined as "persons who possess to a very high degree the knowledge and skills necessary for performing or recreating specific elements of intangible Cultural Heritage [22].

3. Methodology

This study examines aspects of urban facility management in historic urban areas. The selection of WH sites was based on their ability to describe the context of this study and their clearer shared criteria. This study aims to shed light on the understanding of urban-scale facility management in WH sites within the context of the pillars of sustainable development, including culture as the proposed fourth pillar, by conducting a non-systematic literature review. Due to the ongoing discussion regarding the cultural aspect of sustainability, a literature review was chosen. Some results of semi-structured interviews with the managers of three Norwegian World Heritage sites are also provided to back up and justify some aspects of urban-scale facility management in the context of Norwegian WH.

4. Results and discussions

4.1. World Heritage sites as cultural assets

Heritage was absent from the widespread academic discussion on sustainable development in the past despite its fundamental importance to societies and widely accepted ability to contribute to social, economic, and environmental goals. In response to a significant call from national and local stakeholders, the 2030 Agenda adopted by the UN General Assembly incorporates the role of culture, through the WH program, as one of the facilitators of sustainable development across the Sustainable Development Goals [23]. WH may serve as a forum for creating and assessing innovative strategies that emphasize the significance of heritage to sustainable development [24].

Safeguarding WH sites may be considered an essential contribution to human wellbeing. It is challenging to imagine our society without the recognizable remnants of our past. In addition to their

intrinsic value for present and future generations, WH sites can significantly contribute to sustainable development in all dimensions [24]. A well-protected WH cultural site can directly contribute to alleviating poverty and social inequality by providing fundamental necessities and services, such as security and health, through shelter and access to clean air, water, and food.

WH, as a cultural asset, is essential to the wellbeing of the dwellers due to its profound visual and symbolic properties. The recognition and conservation of the cultural and natural heritage, in addition to fair access and equitable sharing of the benefits of WH assets, improve a sense of place and belonging and a sense of pride, purpose, and ability to maintain common wellbeing, which contributes to the social bonding of a community and individual. Access to heritage is essential, as it is a fundamental part of human development [24].

The preservation of history is also crucial for avoiding risks linked with natural and man-made disasters. Experience has shown that deteriorated natural resources, neglected rural areas, urban sprawl, and poorly designed new construction increase the disaster risk exposure of populations, especially in emerging nations. Alternatively, a well-preserved natural and historic environment based on traditional knowledge and skills considerably reduces disaster risk factors, improves community resilience, and saves lives.

In times of crisis, access to and care for the heritage can help vulnerable individuals re-establish a sense of continuity, dignity, and autonomy. All the above are potential positive contributions to sustainable development that an effective conservation and management of WH could give [24].

The role of the urban scale facility manager is, therefore, to ensure a balance between the limit of acceptable change (LAC) in conservation practices to maintain the OUV, visual quality, and authenticity of WH sites, as well as the welfare of the stakeholders, including residents, migrants, tourists, investors, business owners, and workers [25], [26]. Culture is maintained by not neglecting the progression of time while presenting culture as the hub for the other three pillars of sustainability. Dresden (2009) and Liverpool (2021) had their World Heritage classification withdrawn when the heritage sites were not adequately preserved and managed in compliance with UNESCO's regulations. The World Heritage Committee (WHC) resolved to remove Dresden (Elbe Valley) and Liverpool (Maritime Mercantile City) from the WH list due to the irreversible loss of qualities conveying the heritage asset's outstanding universal values.

4.2. World Heritage sites as a driving force for the sustainable economy

The presence of WH properties enables the protection and provision of social, cultural, and educational resources. Frequently, irreplaceable WH structures, monuments, and sites contribute to tourism and economic growth, creating jobs and the economic trickle-down effect [27]. International, national, and local heritage authorities and other heritage development practitioners engage with local organizations to safeguard cultural assets and encourage the development and use of conservation skills. Development professionals can also increase future economic possibilities by safeguarding cultural treasures and supporting sustainable tourism [7], [28]. In recent decades, cultural heritage has become a major tourist attraction, especially those urban heritage areas designated as WH sites, resulting in a huge increase in the cultural tourism industry [29], [30]. WH site is also an essential asset for other types of economic growth by attracting investments and producing green, locally based, steady, and high-quality jobs, of which only a fraction of them may be tourism-related [19].

The urban-scale facility managers at WH sites, well-known as tourism attractions, are responsible for ensuring that all supporting services required for comfort, safety, and user experience are supplied effectively. A negative image of inadequate urban facilities and infrastructure will be detrimental to promoting the WH site, resulting in decreased tourism to the area. The severe reduction in tourism at WH sites will precipitate the collapse of the general tourism industry, including the informal sector and the small-to-medium economy, which have relied on tourism as the economic engine. In addition, WH caretakers should provide investor-friendly support services and encourage business, corporate social responsibility (CSR), public-private partnership (PPP), and public-private-people Partnership (PPPP).

4.3. Relationship between World Heritage status and social equity

In this study, the term “equity” is preferred to “equality.” “Equality” implies that each person or group receives the same resources or opportunities, whereas “equity” acknowledges that each person has unique circumstances and provides the exact resources and opportunities necessary to achieve an equal result [31].

The heritage authorities maintaining WH sites are often under intense pressure [32]. The WH sites are frequently enormous and vital to the local tourism industry. Large populations may reside in and around them, and overtourism often creates tensions between local dwellers and tourists. The WH sites are both an asset and a severe responsibility for certain countries. The conflicting demands of conservation, economic development, and social equity complicate the management of the WH site. Effective management of this issue demands the ability to observe change and to connect with community perspectives, allowing essential information and community involvement to be included in the management process [32]. To maintain a sustainable, low-cost urban heritage living model, for example, a nonexpert individual or community would benefit from guidance for self-renovation provided by the heritage authorities [33].

Integrating social equity and environmental sustainability could have significant conservation advantages for WH sites [34]. For instance, the entrance fee discussion in the context of WH sites in the literature focuses primarily on whether an entrance ticket should be implemented. Based on the “user pays” approach (Laarman & McGregersen (1996) in [35]), user fees are often promoted for their potential to increase economic efficiency (Walsh (1986) in [35]) and to financially support the preservation of the WH assets [35], [36]. In contrast, based on the principle of social equity, some heritage activists propose free entry to WH sites as assets that are frequently owned and administered on behalf of the public. The entrance fee may also prevent some individuals from accessing public resources to which they are legally allowed (Buckley (2003) and Walsh (1986) in [35]). Raising entrance charges is, initially, intended to increase the site’s tourism revenues and reduce visitor numbers to support heritage preservation. It may appear to be a win-win situation for cultural assets. However, legacy tourism is a resource-dependent tourist industry [37]. Due to the uniqueness and irreplaceability of the historical and cultural assets at WH sites, the motivation to visit these locations would not be affected drastically by price changes. In this scenario, increasing the entrance cost will not be sustainable for WH sites, as the number of visitors, particularly international and wealthy tourists, is not decreasing considerably, while at the same time, the increase in ticket prices prevents locals from visiting their own national heritage assets [35]. Utilizing an integrated social sustainability assessment (ISSA) tool to identify the strengths and weaknesses [38] could be used to address these problematic issues. This is an illustration of how to tackle social inequality in the management of WH properties.

However, in general, the increasing profit and number of visitors will attract further new investments in different sectors. Investment of economic resources in cultural and natural heritage may promote social, equitable, and inclusive advantages for all, in addition to the anticipated economic benefits of jobs and income. Regarding WH, inclusive economic development prefers a people-centered economy, reconciling economic growth with social equality through exploiting local resources and fair competitiveness on a global market [39]. By integrating the principles of universal design, accessibility, and social equity into the management of historical assets, urban-scale facility managers at WH sites can promote social justice for all stakeholders, including the poor, the disabled, and the elderly.

4.4. Environmental considerations in the management of World Heritage sites

Activities associated with stewardship of cultural and natural heritage are local by definition and environmentally friendly “by design” because they embody a fundamentally more sustainable pattern of land use, consumption, and production, developed over centuries, if not millennia, of gradual adaptation between communities and the environment. This is true not only for biodiverse protected natural regions but also for cultural landscapes and historic cities [24].

Climate stresses can directly affect cultural heritage structures, monuments, and communities. Rising sea levels threaten coastal assets due to increased erosion and saltwater intrusion. Storms and floods are more frequent and more robust, which can cause damage to structures that were not built to resist prolonged structural pressure, erosion, and immersion [40]. Changing precipitation patterns can cause

rapid deterioration of assets constructed for a different environment. Increases in soil moisture caused by an increase in precipitation can weaken the structural integrity of historic structures and archaeological sites. Warmer temperatures and higher humidity can cause damage to building materials and buildings by fostering decay, insect infestations, and erosion. The relative significance of these and other climate change threats varies, with a range of cost implications, compounding effects, and repercussions on development objectives [28].

These consequences, ramifications, and required resources must be considered by decision-makers to appropriately raise awareness of existing and future threats by building capacity in conserving and maintaining the site [41]. Adaptation options for cultural heritage include giving stakeholders the skills they need, changing management practices and policies about infrastructure maintenance, reinforcement, and development to protect and fortify structures, and making partnerships that include benefits sharing since those who want to preserve a site may be different from those whose actions are needed to protect it. If climatic considerations are incorporated into early planning and design, specific adaptation options may require minimal or no further investment, whereas others may require extensive additional resources [28], [41]. Incorporating adaptation strategies into existing cultural heritage management plans and programs can enhance long-term preservation efforts. When restoring, renovating, and monitoring cultural heritage assets, it is essential to examine all significant long-term factors [28].

The evaluation and monitoring can be performed concurrently with other urban and adaptive planning. Even though many adaptation strategies for cultural heritage assets are identical to those for different types of infrastructure, cultural heritage assets also present distinct challenges. For example, cultural heritage objects are often irreplaceable [42]. In addition, many adaptation strategies are specific to heritage assets, such as combining traditional materials and skills with modern engineering when reinforcing, stabilizing, and renovating historic structures to both preserve their historic beauty and increase their endurance. Adaptation options also differ depending on whether the cultural heritage object may be relocated [28], [42].

Cultural WH sites, which are more prominent in the number of sites compared to the protected natural sites [43], are often far smaller than natural WH sites in size and were not designated for their biological values. However, adaptation to climate change and disaster risk reduction concerns both natural and cultural WH sites. Only by preserving healthy ecosystems can natural WH sites continue to provide the many services and benefits they already give to local and global communities. Environmental sustainability as a whole must be prioritized in the expansion of the WH agenda.

Heritage authorities and urban facility managers in WH sites are now expected to conduct a Heritage Impact Assessment (HIA) prior to deciding whether to allow development applications to proceed if the proposed heritage building refurbishment is compromising the authenticity or poses a danger of irreparably harming the cultural significance of heritage assets [44]. As a result, HIA asserts that, due to its preventative nature, it helps statutory authorities identify and prevent the acceptance of aggressive development, defined as development that undermines the cultural significance of heritage properties [44]. HIA structures an examination of the potential harm or advantages that may accrue to the cultural heritage assets' significance.

Urban-scale facility managers who manage WH sites must also consider the environmental aspect as a significant element of the conservation plan. Although it requires global action in fighting climate change, the heritage authorities and urban facility managers might conduct a local strategic plan to mitigate the imminent potential danger of the obstruction of OUV that might cause the deletion of WH status in the near future.

5. Conclusions

Within the management of WH sites, urban-scale facility managers play a significant role in the management of support services that safeguard the authenticity, visual quality, and outstanding universal values (OUV) of the protected assets. Managers of urban-scale facilities are responsible for maintaining a balance between the limit of allowable change in conservation and the interests of stakeholders. They are also responsible for ensuring that all supporting services essential for comfort, safety, and user experience are properly provided in order to prevent a decline in tourism to the area that could result in

the collapse of the tourism industry as a whole. By incorporating the principles of universal design, accessibility, and social equity into the administration of historical assets, the presence of urban-scale facility managers at WH sites acts as an enabler for social justice for all stakeholders by providing equal support services, while also paying close attention to the environmental aspect as significant elements of the conservation plan. Overall, the principles of urban-scale facility management align with UNESCO's recommendation on the Historic Urban Landscape (HUL) approach in managing historic urban assets such as World Heritage sites.

6. References

- [1] M. Grubb, M. Koch, K. Thomson, F. Sullivan, and A. Munson, *The 'Earth Summit' Agreements: A Guide and Assessment: An Analysis of the Rio '92 UN Conference on Environment and Development*, vol. 9. Routledge, 2019.
- [2] B. P. Y. Combes, "The United Nations decade of education for sustainable development (2005–2014): Learning to live together sustainably," *Appl. Environ. Educ. Commun.*, vol. 4, no. 3, 2005.
- [3] G. Burford *et al.*, "Bringing the 'missing pillar' into sustainable development goals: Towards intersubjective values-based indicators," *Sustainability*, vol. 5, no. 7, pp. 3035–3059, 2013.
- [4] N. Duxbury, C. Cullen, and J. Pascual, "Cities, culture and sustainable development," *H. Anheier, y YA Isar, Cult. Policy Gov. a New Metrop. Age*, pp. 73–86, 2012.
- [5] N. Lazar and K. Chithra, "Role of culture in sustainable development and sustainable built environment: a review," *Environ. Dev. Sustain.*, vol. 24, no. 5, pp. 5991–6031, 2022.
- [6] K. Boluk, "Going Beyond: Perceptions of Sustainability in Heritage Studies No. 2." Taylor & Francis, 2018.
- [7] M.-T. Albert, *Perceptions of sustainability in heritage studies*, vol. 4. Walter de Gruyter GmbH & Co KG, 2015.
- [8] B. N. Prabowo, A. T. Salaj, and J. Lohne, "Urban Heritage Facility Management: A Scoping Review," *Appl. Sci.*, vol. 11, no. 20, p. 9443, 2021.
- [9] A. T. Salaj and C. M. Lindkvist, "Urban facility management," *Facilities*, vol. 39, no. 7–8, pp. 525–537, Apr. 2021.
- [10] A. P. Roders and R. Van Oers, "Bridging cultural heritage and sustainable development," *J. Cult. Herit. Manag. Sustain. Dev.*, vol. 1, no. 1, pp. 5–14, 2011.
- [11] Y. G. Kim, "Sustainable Development and Korea's Intangible Cultural Heritage Policy," *MUNHWAJAE Korean J. Cult. Herit. Stud.*, vol. 49, no. 3, pp. 256–269, 2016.
- [12] K. Nurse, "Culture as the fourth pillar of sustainable development," *Small states Econ. Rev. basic Stat.*, vol. 11, pp. 28–40, 2006.
- [13] J. Jokilehto, "Considerations on authenticity and integrity in world heritage context," *City time*, vol. 2, no. 1, p. 1, 2006.
- [14] J. Wienberg, "The past is everywhere," in *Heritopia*, Lund University Press, 2021, pp. 1–34.
- [15] N. Smith, "Classic projects: Relocation of Abu Simbel," *Eng. Technol.*, vol. 6, no. 3, 2011.
- [16] W. Logan, "Cultural diversity, cultural heritage and human rights: Towards heritage management as human rights-based cultural practice," *Int. J. Herit. Stud.*, vol. 18, no. 3, pp. 231–244, May 2012, doi: 10.1080/13527258.2011.637573.
- [17] J. Ryan, "Intangible cultural heritage: the new frontier of destination branding," in *Ideas in marketing: Finding the new and polishing the old*, Springer, 2015, pp. 388–390.
- [18] M. Z. Idris, N. B. Mustaffa, and S. O. S. Yusoff, "Preservation of intangible cultural heritage using advance digital technology: Issues and challenges," *Harmon. J. Arts Res. Educ.*, vol. 16, no. 1, pp. 1–13, 2016.
- [19] J. Blake, "UNESCO's 2003 Convention on Intangible Cultural Heritage: the implications of community involvement in 'safeguarding,'" in *Intangible heritage*, Routledge, 2008, pp. 59–87.
- [20] D. Munjeri, "Tangible and intangible heritage: From difference to convergence," *Museum Int.*, vol. 56, no. 1-2, pp. 12–20, 2004.
- [21] C. F. Kreps, "Appropriate museology in theory and practice," *Museum Manag. Curatorsh.*, vol. 23, no. 1, pp. 23–41, Mar. 2008, doi: 10.1080/09647770701865345.
- [22] F. Lenzerini, "Intangible cultural heritage: The living culture of peoples," *Eur. J. Int. Law*, vol. 22,

- no. 1, pp. 101–120, 2011.
- [23] D. Wiktor-Mach, “What role for culture in the age of sustainable development? UNESCO’s advocacy in the 2030 Agenda negotiations,” *Int. J. Cult. Policy*, vol. 26, no. 3, pp. 312–327, 2020.
- [24] W. H. C. UNESCO, “Policy Document for the Integration of a Sustainable Development Perspective into the Processes of the World Heritage Convention,” in *Paris: General Assembly of States Parties to the World Heritage Convention at Its 20th Session*, 2015.
- [25] G. S. J. Roman, P. Dearden, and R. Rollins, “Application of zoning and ‘limits of acceptable change’ to manage snorkelling tourism,” *Environ. Manage.*, vol. 39, no. 6, pp. 819–830, 2007.
- [26] D. F. Rahman, “Re-Evaluating Socio-Cultural Change in World Heritage Sites: A Case Study of the Cultural Landscape of Bali Province.” UCL (University College London), 2021.
- [27] E. Andalib and Y. Khodadadeh, “The role of innovative design in creating city identity and tourist attraction: Investigating Sheikh-Zahed Monument as a case study,” *J. Des. Think.*, vol. 2, no. 2, pp. 123–136, 2021.
- [28] D. Harkin *et al.*, “Impacts of climate change on cultural heritage,” *MCCIP Sci. Rev*, vol. 16, pp. 24–39, 2020.
- [29] R. A. de Oliveira, R. M. A. Baracho, and L. Cantoni, “The perception of UNESCO World Heritage Sites’ managers about concepts and elements of cultural sustainability in tourism,” *J. Cult. Herit. Manag. Sustain. Dev.*, 2022.
- [30] J. Romão, “Tourism, a Place-Based Activity,” in *Tourism, Territory and Sustainable Development*, Springer, 2018, pp. 37–64.
- [31] M. E. Guy and S. A. McCandless, “Social equity: Its legacy, its promise,” *Public Adm. Rev.*, vol. 72, no. s1, pp. S5–S13, 2012.
- [32] R. Fletcher, I. Johnson, E. Bruce, and K. Khun-Neay, “Living with heritage: site monitoring and heritage values in Greater Angkor and the Angkor World Heritage Site, Cambodia,” *World Archaeol.*, vol. 39, no. 3, pp. 385–405, Sep. 2007, doi: 10.1080/00438240701465001.
- [33] C. Senior, A. T. Salaj, M. Vukmirovic, M. Jowkar, and Ž. Kristl, “The spirit of time—The art of self-renovation to improve indoor environment in cultural heritage buildings,” *Energies*, vol. 14, no. 13, p. 4056, 2021.
- [34] G. Wardell-Johnson *et al.*, “Re-framing values for a World Heritage future: what type of icon will K’gari-Fraser Island become?,” *Australas. J. Environ. Manag.*, vol. 22, no. 2, pp. 124–148, 2015.
- [35] M. M. Su and G. Wall, “Chinese research on world heritage tourism,” *Asia Pacific J. Tour. Res.*, vol. 16, no. 1, pp. 75–88, 2011.
- [36] S. S. Kim, K. K. F. Wong, and M. Cho, “Assessing the economic value of a world heritage site and willingness-to-pay determinants: A case of Changdeok Palace,” *Tour. Manag.*, vol. 28, no. 1, pp. 317–322, 2007.
- [37] C. Wang and H. Xu, “The role of local government and the private sector in China’s tourism industry,” *Tour. Manag.*, vol. 45, pp. 95–105, 2014.
- [38] T. Akbarinejad, A. T. Salaj, and A. Johansen, “A Novel Approach to Develop an Integrated Social Sustainability Assessment Framework: Case Study of Norway,” *SSRN Electron. J.*, 2022, doi: 10.2139/ssrn.4279208.
- [39] P. B. Larsen, “Human rights, wrongs and sustainable development in World Heritage,” in *World Heritage and Sustainable Development*, Routledge, 2018, pp. 120–133.
- [40] C. McGuigan, R. Reynolds, and D. Wiedmer, “Poverty and climate change: Assessing impacts in developing countries and the initiatives of the international community,” *London Sch. Econ. Consult. Proj. Overseas Dev. Inst.*, pp. 1–40, 2002.
- [41] C. N. Cook, M. B. Mascia, M. W. Schwartz, H. P. Possingham, and R. A. Fuller, “Achieving conservation science that bridges the knowledge–action boundary,” *Conserv. Biol.*, vol. 27, no. 4, pp. 669–678, 2013.
- [42] X. Romão, E. Paupério, and N. Pereira, “A framework for the simplified risk analysis of cultural heritage assets,” *J. Cult. Herit.*, vol. 20, pp. 696–708, 2016.
- [43] T. Badman and B. Bomhard, “World heritage and protected areas,” Quebec City, 2008.
- [44] A. P. Roders and R. Van Oers, “Guidance on heritage impact assessments: Learning from its application on World Heritage site management,” *J. Cult. Herit. Manag. Sustain. Dev.*, 2012.