



Bridging the nature–cultural heritage gap: evaluating sustainable entanglements through cemeteries in urban Asia

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Abstract

The expanding footprint of urban Asian settlements and increasing living standards have put pressure on cemetery sites. Public health narratives and the sanctity associated with death matters in Asian urban landscapes have fed into the rhetoric of cemeteries as undesirable heritage spaces. Often lacking protection, many cemeteries have been exhumed, cleared, and relocated to allow room for new developments and infrastructure, risking the survival of this quiet element of the urban cultural patrimony. Within an Asian context, synergies between nature and cultural heritage preservation are not prevalent in major cities like Singapore, Hong Kong, Tokyo, Manila, Kuala Lumpur, and Bangkok. In light of increasing recognition of urban cemeteries as multi-valued sites with both natural and cultural heritage values, this paper turns to deconstructing the nature–cultural binary and the concept of entanglement to frame an investigation of collaborative interactions. A focused study on Asian urban cemeteries follows, examining existing trends and adapted mix uses and highlighting the region’s unique conservation challenges. The analysis reveals three major typologies encapsulating the region’s current nature–cultural heritage entangled preservation approaches: sustainable compromises, memories, and everyday sustainability. To conclude, the paper distils respectful alternative futures for these spaces to be better integrated into the modern textures of the cities, unlocking functional recourses to destruction or oblivion.

Keywords Nature and cultural heritage · Urban Asia · Heritage and sustainability · Heritage preservation · Cemeteries in Asian cities · Environmental and social sustainability

Introduction and background

Popular narratives posit human activity, coded as ‘culture’, as a dominating force of exploitation and colonisation in opposition to natural landscapes in the service of development priorities (Brockwell et al. 2023). Conversely, through the eyes of cultural heritage conservation, nature is viewed as an agent of destruction and a harbinger of hazards to be managed via novel conservation techniques (Coombes and Viles 2021). The perpetuation of this nature–culture binary,

presupposing an inevitable imbalance between natural and cultural systems, denies a reality of collaboration where synergies foster greater resilience for landscape assemblages of human and non-human actors alike (Pretty et al. 2009; Tsing 2004, 2015). Living local communities are particularly susceptible to erasure through this lens. Critiques in these past decades have been levelled at this separation of culture and nature, having since prompted a rethink of this dualistic paradigm and its influence on our conception of best practices towards studying, managing, and enhancing cultural and natural heritages (Harrison 2015; Head 2007). Increasingly, away from addressing “natural” heritage and “cultural” heritage with separate conservation mechanisms, new conservation approaches operate based on multi-value or hybrid frameworks accepting the interconnectivity—or ‘entanglement’—of nature and cultural values (Coombes and Viles 2021; Azzopardi et al. 2023).

Entangled landscapes consist of combinations of cultural and natural features that communities interact with, maintain, and appreciate over time. These multiple networks of

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care and value form the urban assemblage, facilitating or disrupting interconnecting networks and dynamics that form the basis of an urban place's embodied experience, character, and resilience of its communities (Amin and Thrift 2016). But in having to provide facilities and infrastructure for these various activities and mobilities, therein lies numerous points of overlap and thus tension in balancing between developmental, cultural, and environmental priorities (Barry 2019). Difficulties in balancing these priorities, often manifesting during intensive and rapid urban development, pose a destructive threat to natural and cultural heritage sites.

The struggle to tackle this challenge is aptly encapsulated by the persistent struggle to protect cemeteries and other death landscapes within rapidly changing urban fabrics. Cemetery spaces are functionally a place for the hygienic and cultural disposal of human remains (McClymont and Sinnott 2021). With increasing population density in developing urban centres, particularly from the nineteenth century onwards, larger cemeteries historically emerged to meet a demand for sensible sites for disposal and funerary rituals, with smaller overcrowded cemeteries often being relocated to the contemporary fringes of a city (Rugg 2022; Lopez-Martinez and Schrieur 2022; Kong and Yeo 2003). This wave of relocations was often tied to a push to separate living communities from burial spaces as part of the “hygienic imperative” of cemeteries (Johnson 2007, p. 782), reducing health hazards while providing aesthetic, cultural purpose-built death spaces (Kong and Yeo 2003). The boundaries of cities have long since expanded, resulting in many of these once-fringe cemeteries being subsumed into the urban fabric once more. The challenging question of conservation or destruction has thus re-emerged in this twenty first-century context. While many cities worldwide, particularly in the West (Ocón 2021), have embraced and integrated death landscapes into their urban fabrics as aesthetic historical sites to a degree,¹ cemeteries still dominantly conjure negative and undesirable associations for urban dwellers. Within the cultural heritage frameworks, they generally lack legal classifications and protections, with scarce formal documentation and digital preservation (Ocón 2023). This is a challenge faced by many cemetery sites, particularly those in Asian settings that were subject to relatively later waves of unprecedented growth and urban expansion (Hirschman 1994; Schneider et al. 2015; Güneralp et al. 2020). Asian cemeteries make for a unique regional case study for their often lacking visibility as valuable heritage sites and for

different sensitivities relating to mortuary cultural practices, kinship, and sacredness.

As dedicated sites for mourning, remembrance, and practising and respecting burial traditions, the cultural value of cemeteries and comparable death landscapes is broadly represented. Different cultural cemetery sites have been demonstrated from historical, archaeological, architectural, and other heritage perspectives. Their natural or ‘green’ value is less discussed, but no less significant. There has been increasing acknowledgement of the services cemeteries provide to urban landscapes, including ecologically as micro-habitats, contributing to resilient flora and fauna biodiversity (Barrett and Barrett 2001; Gong et al. 2021; Löki and Deák 2019; Sallay et al. 2023). However, despite the evident proliferation of urban cemeteries in multiple regional contexts, there is inconsistent and lacking consideration of the nature–cultural values urban cemeteries present to urban landscapes as sacred sites and repositories of socio-cultural histories, as well as serving as refuges for biodiversity.

This paper seeks to answer the following two research questions: Can current multi-value conservation frameworks sufficiently address the convergences of nature and cultural heritage in urban Asia? Building on this, how can these convergences be integrated into more efficient and sustainable typologies of heritage preservation in Asian cities? To achieve this, it seeks to identify existing nature–cultural heritage preservation approaches, and to propose new avenues of mutual support particularly within Asian landscapes. This investigation is grounded in a multifaceted research methodology, including examining current heritage preservation policies and a literature review of existing research in the field, specifically focusing on cemeteries and the heritage of death. A multiple case study approach, with a review of case studies within Asian landscapes identified using specific thematic keywords, follows this. Through an analysis of identified sites and their features and significance, the study reveals convergences of natural and cultural heritage and highlights the variety of conservation narratives faced by Asian urban cemeteries. The investigation includes fieldwork and observation of local cemeteries in Asian urban spaces in Singapore, Hong Kong, Japan, Thailand, and Malaysia to record the nature–culture entanglements visible in urban cemeteries. Intending to speculate positive futures for the resilience of such plural sites and further appreciation of their nature–cultural entanglements in the context of Asian cities, this study posits a set of conservation strategies to adapt to remaining cemetery sites for greater community cohesion and resilience in the context of contemporary discussions on urban sustainability and development.

¹ Some of the most notable examples include Paris's *Cimetière du Père Lachaise*, London's *Highgate Cemetery*, Buenos Aires's *Cementerio de La Recoleta*, New York's Brooklyn *Green-Wood Cemetery* and Sydney's *Waverley Cemetery*.

Urban entanglements: nature–cultural heritage

More work has been done to ground the conceptual entanglement between natural and cultural heritage: human environments are acknowledged as habitats and biomes in their own right; specific cultural institutions and Indigenous knowledge have been recognised as environmental adaptation strategies, among others (UNESCO 2023). Adjacent to this, there is increasing recognition that nature and cultural heritage conservation challenges are interlinked and not wholly separate issues, with consequences for ignoring or severing such nature–culture linkages (Bridgewater and Rotherham 2019). Cultural and natural heritage conservation strategies often overlap with each other. It has been observed that sacred sites protected for long durations are able to host richer biodiversity relative to their heavily modified surroundings (Dudley et al. 2010). For example, in East Ulu, South Sulawesi, local Tossuq belief of the deification of their ancestors informs their prohibition of intensive exploitation and clearance of recognised sacred Ussu and Cerekang sites. This not only protects the late pre-Islamic and transitional Islamic sites enclosed in these areas, but also the local foliage and biodiversity (Bulbeck 2023). The protection of the forested landscapes also protects the forest systems the communities rely on for natural resources for nutritional and other local economies. Where vegetative elements and geographical features are integral features of a site’s cultural value to communities and its custodians, by virtue of common territory they are included as part of the overall protections of the site resulting in a multifaceted conservation strategy, intentional or otherwise. In extension, sustained landscapes facilitate a convergence of novel forms of nature–culture ‘entanglements’, generating new cultural and natural value alike.

Complex entanglements manifest through a negotiation of dependent relationships between human and non-human actors, as described by Hodder (2012). Across longer time spans, such entanglements may instigate mutual changes in both human and non-human actors, such as the co-evolution of domesticated species and increasingly sedentary human societies, resulting in further entanglement (Van der Veen 2014). Resource extraction activities may thus intertwine with cultural practices and ecological aspects, a complex entanglement fostered over generations. From a philosophy of mutual cooperation of the Subak water management system in Balinese rice terraces, to the aquaculture practices in the of Budj Jim cultural landscape of the Gunditjmara people in Southeastern Australia (UNESCO 2012, 2019; Lansing and Fox 2011), each site is cared for and managed with long-standing knowledge

systems embedded with both cultural and ecological functionalities.

Discourses wrestling with nature–culture entanglements have manifested in more institutional recognition and protections. Through the lens of cultural heritage management, existing criteria for assessing heritage sites include considerations of aesthetic, historic, scientific, and social value, while broader nature–culture entanglements may be best represented in the institutional classification of cultural landscapes (UNESCO 2021). In acknowledging landscapes as hosts for multiple interactions, other interconnections identified include the kinship ties of local and Indigenous communities between human and non-human actors as well as with their terrain (Harrison 2015; Rose 1999). In recognising these aboriginal connections to the land, Australia’s Uluru-Kata Tjuta and New Zealand’s Tongariro National Parks have been classified as Cultural Landscapes in the UNESCO World Heritage List, enshrining these overlapping values of natural significance and cultural memory (Head 2007; Larsen and Wijesuriya 2015). The human and ‘cultural’ elements are positioned as part of a broader entangled natural–cultural landscape that is continuously transformed, as opposed to a postcolonial idealisation of a static, untamed natural wilderness (Bauer and Bhan 2018). Such recognition of entanglements is likewise extended to the built environment and urban settings, within which unique value networks may also be observed. Under the *Historic Urban Landscape* (HUL) management approach outlined by UNESCO, such dynamisms of historic urban centres are recognised as a setting for overlapping natural and cultural values (Taylor 2016). In answering conservation questions for an urban landscape, the HUL approach calls for a holistic consideration of intertwining elements. However, entangled networks of value in urban settings are not cultivated solely through policy, but through sustained interaction that fosters care.

Urban landscapes are a cumulation of overlapping networks: of human and non-human mobilities shaped by materiality and physical infrastructure, power and political institutions, symbolism and cultural memory, among other influences (Barry 2019; Ingold 2011). These dynamic networks of activity and movement are prime interfaces for valuable nature–culture entanglements to emerge based on the negotiation between the meeting, clashing, and coexistence of an urban landscape’s inhabitants and topography. They may manifest in a variety of forms: dedicated sites such as parks and gardens for recreation; liminal spaces such as sidewalks lined with foliage or paths cutting through fields; longstanding landscape features such as an ancient tree as local intergenerational landmarks, among others. While some forms of urban nature–culture entanglements may

resiliently thrive in the margins, others are more susceptible to external threats.

Heritage landscapes are incrementally fragmented over time as new forms of mobilities and structures emerge with the expansion of urban centres. Similar threats of habitat fragmentation to ecological networks are extensively forewarned within various regional contexts (Barry 2019; Cros et al. 2020; Dudley et al. 2010). This disruptive reality of urban expansion that generates a heterogeneous landscape is not inherently bad, but rather the issue is one of isolation (Tsing 2015). In this constant negotiation for space, heritage sites on the fringes of popular consciousness are often excluded from conservation areas or destroyed in countries without legislation necessitating oversight, and in extension amputating them from the body of interconnected cultural and natural systems they were once part of. In land-scarce urban areas, there is great need for conservation strategies accounting for an entangled multi-valued approach, protecting the interrelations between natural and cultural systems. Through cemeteries as fragmentary remains of native ecologies and cultural heritage networks, we may investigate the dynamic overlaps for strategies enhancing biodiversity and enhancing cultural heritage resilience in urban contexts (Barrett and Barrett 2001).

The living and the dead: nature–culture heritage entanglements in cemeteries and death landscapes

In the increasing acknowledgement of the significance of cemeteries from both natural and cultural heritage standpoints, several studies have been conducted to evaluate their role in conservation in both respects. In reviewing existing scholarship on cemetery research, Rugg (2022) outlines multidisciplinary threads of interest in the role of cemetery space and their potential beyond funerary functions. More specifically, Sallay et al. (2022, 2023) have considered cemeteries as part of green infrastructure and tourism and Löki and Deák (2019) have explored the biodiversity potential of burial spaces. With the increasing demand for green infrastructure in sustainable urban landscapes, the proliferation of cemetery sites across different cultural contexts renders them a useful tool to speculate future trajectories for nature–culture entanglements. For across different cemetery sites, there is an observable typology of nature–culture entanglements that recommend the conservation of cemetery site assemblages: of long-term refuges in the margins, curated socio-historical narratives, and of sites for gathering and ground-up local initiatives.

Cemeteries are sites of contestation of power and identity, a tug of war between religious and political authorities, and

with the community in determining acceptable standards of mortality rituals (Rugg 2022). Tastes and trends may be observed in architectural elements, planning, landscaping of the site, intangible cultural stigmas, sensitivities (whether to death, piety, etc.), and preferences. Existent cemeteries may thus serve as unique assemblages of material culture and intangible cultural knowledge. Natural systems within a cemetery may also interact and contribute to the cultural dynamisms hosted in these sites. It is in liminal spaces with low-intensity human activity such as cemeteries that non-human actors may find refuge (Löki and Deák 2019). For in this age of the ‘Anthropocene’, defined by large-scale intensive transformations of our environment by human activity intentional or otherwise, undisturbed pockets of habitats and all their enclosed processes and interconnections are a rarity. The ecological value of cemeteries has received greater attention not just as micro nature reserves in disturbed environments, but also as accessible domains for communities to foster stronger bonds to their natural landscape (McClymont and Sinnott 2021).

A study on family graveyards in Northern Chinese agrarian landscapes observed their role in providing semi-natural islands in biodiversity conservation (Gong et al. 2021). Within the plot of arable land belonging to a local family, these graveyards typically contain the remains of generations of the family. These sites facilitate the strong cultural values attached to ancestral kinship and filial piety in the Chinese tradition and serve as isolated islands from the agricultural activities in the surrounding areas. The study included a field survey mapping 199 family graveyards in Quzhou County in the Hebei Province, alongside a plant survey to record species diversity and richness. A positive correlation between the size of the family graveyard and length of occupation with plant richness was observed, attributed to a greater “heterogeneity of environmental conditions” that were more capable of sustaining larger and varied native species’ populations that would otherwise be removed in favour of agricultural produce (Gong et al. 2021: 3). This correlation was similarly observed in a study (Chae et al. 2022) on how traditional Korean graveyards generate the right conditions for the persistence of endangered plant species. Looking at the growth of the flowering plant *Thalictrum petaloideum* in traditional cemeteries, the study revealed how a combination of the characteristics of the limestone locality alongside traditional graveyard management activities through seasonal clearing generates a prime habitat for the endangered plant to flourish (Chae et al. 2022). In this case, cultural cemetery activities were observed not as disruptive, but instead as interventions favourable for the particular species in curtailing the competition of invading plant growth. In recent times of changing funeral cultural practices and subsequent discontinuation of graveyard management activities, the



Fig. 1 Green elements entangled with the mortuary in Highgate Cemetery and Bogor Dutch Cemetery, respectively (Highgate Cemetery, n.d.; Vysotsky 2018)

endangered species no longer thrive in increasingly unattended cemeteries. Such a dependent relationship between cultural activity and ecological value emphasises how nature–culture entanglements are rooted in a convergence of geological, biological, ecological, cultural, and other aspects.

This positive relationship between existing diverse habitats and ecological richness has been observed in European cemeteries, parks, and other managed landscapes (Benton et al. 2003; Nowińska et al. 2020; Morelli et al 2018; Sämel et al. 2023). The entanglement of natural and cultural heritage values is clear in the informal role of death spaces in conserving local biodiversity while being tied to their recognised role in local cultural value systems. The local scale in which such entanglements occur likewise suggests the need for conservation strategies to be contextualised to be sustainable. Emergent sites are anchored by existing natural features, such as how London’s *Highgate Cemetery* was built around a 200-year-old cedar tree, felled in 2019 due to poor health (Highgate Cemetery n.d.) (Fig. 1). Conversely, parks and green spaces may emerge around an existing cemetery and feed into the character of the cemetery landscape. Enclosed within the *Bogor Botanical Garden* grounds, established in 1817 in West Java, Indonesia, lies the Dutch cemetery with its earliest burials dating to the eighteenth century, for it was established first within bamboo planting grounds near the then relatively new *Bogor Palace* (Kurniawan and Marwoto 2023). Kurniawan and Marwoto (2023) hypothesise that the presence of remaining greenery in the surrounding bamboo groves with the botanical garden grounds provided an aesthetic and peaceful site of rest for significant figures (Kurniawan and Marwoto 2023) (Fig. 1). As a long-term established habitat, the botanical garden is a refuge for high bird species richness, one of the highest in a city landscape in Java, Indonesia, and with great accessibility (Kurnia et al. 2021).

Nature–culture entanglements are cultivated over time, and this is particularly so in tropical Southeast Asia as a biodiversity hotspot. Great biodiversity has been observed in long-standing cemetery sites such as the century-old Singapore’s *Bukit Brown Cemetery* (Tan et al. 2013; Roots 2022). Despite being bracketed by motor highways and with a portion of the cemetery being exhumed in 2013 and developed over for a new road, the remaining cemetery grounds still serve as a rich habitat in heavily urbanised Singapore (Chua 2013). The cemetery, the site of one of the country’s last surviving sizeable lush secondary forest green lungs, is home to over 90 birdlife species, including some threatened such as the changeable hawk eagles and endangered mammals such as the large flying fox. The sum of these entangled natural and cultural elements is an essential basis not just for the functions of the cemetery, but also for its character and significance for the local community.

Select nature–culture entanglements may be more purposefully cultivated. Cemeteries in regions such as Europe and North America have been reoriented as entangled multifunctional sites to provide different services to their respective urban contexts, particularly as urban parks (Sämel et al. 2023). Such sites have notable points of historical and cultural significance, such as the interred personalities in the famous *Père Lachaise Cemetery* in Paris, the most visited necropolis in the world with 3.5 million visitors, and Copenhagen’s churchyard-turned city park *Assistens Cemetery*, the final resting place of many famous Danes, such as Hans Christian Andersen and Søren Kierkegaard; or provide aesthetically pleasing and accessible city parks and green oasis such as the landscape of the UNESCO World Listed *Skogskyrkogården* in Stockholm and the lush and tranquil *First Cemetery* of Athens, often used for picnics and family get-togethers. In the USA, cemeteries such as the *Granary Burying Ground* in Boston and the *Trinity Church*



Fig. 2 Berlin's *Prinzessinnengarten* (prinzessinnengarten kollektiv berlin n.d.)

Cemeteries and *Green-Wood Cemetery* in New York City are part of the daily-life texture of metropolitan spaces.

In some contexts, there is an observable conceptual shift of cemeteries as public spaces in urban planning and communal use, providing for an emergence of various functions. Beyond their original intentions, novel adaptations of cemetery spaces have been generated across numerous contexts, cultivating new nature–culture connections and values for communities. For instance, the *Cemetery Matzleinsdorf* in Vienna and the *Heritage Gardens Cemetery* in Vancouver (Säumel et al. 2023; Heritage Gardens n.d.; Kiniry 2021), have been adapted as community spaces and edible gardens, harvesting crops that range from Brussels sprouts to kale and squash. A section of the *Heritage Gardens* is reserved for beehives and a pollinator meadow, now an untamed space brimming with tall grasses and wildflowers, and families can sponsor a beehive for their loved ones and receive most of the honey it produces. At the *Old City Cemetery* in the American city of Lynchburg, the *Piedmont Beekeepers Association* produces jars of “Died and Gone to Heaven” honey from onsite hives to sell in the cemetery’s shop. In Berlin’s *Prinzessinnengarten* in the *Neur St. Jacobi Friedhof Cemetery*, a non-profit collectively assists in the maintenance and preservation of the cemetery while facilitating a volunteer network of gardeners and a café space amongst others, intended as an “urban place of learning” (Holleran 2023; Prinzessinnengarten 2023), an urban farm known for its fresh herbs and veggies, as well as a café where visitors enjoy salads and snacks made from the garden (Fig. 2).

In a time of radical transformations of complex natural ecosystems into human-dominated landscapes, the green role of cemeteries as a refuge, buffer, and interface for new nature–culture interactions is an opportunity for novel conservation solutions to ensure the resilience of human and non-human agents alike (Steffen et al. 2011). Zakaria (2022), however, points to a dearth of studies on the roles performed by graveyards as nature–culture entangled landscapes or as “socio-environmental spaces” (Zakaria 2022, p. 725). This

scarcity of studies on the entangled role of cemeteries is particularly exacerbated in regions undergoing rapid urban expansion, as in large parts of Asia. The following section addresses this gap and discusses the most prominent typologies of nature–culture entanglements found today in some of Asia’s urban realities.

Entanglements and sustainability in Asian cemeteries

The growth of Asian cities in the late twentieth century and beyond has been exponential and is reflected in the radical transformations of how local communities organise both the living and their dead. Today, Asian cities are some of the most heavily and densely populated urban spaces in the world, with the population of Southeast Asia alone having more than quintupled in the last century (Hirschman 1994; Schneider et al. 2015; Güneralp et al. 2020). Manila, for instance, tops the world rankings of cities with the highest population density per square mile, and the city-state of Singapore and the city SAR of Hong Kong rank second and third, respectively, in the list of countries and dependencies by population density (World Population Review 2023). When dense cities such as Bangkok, Taipei, Tokyo, or Kuala Lumpur need space to develop housing and other infrastructure, pragmatism and optimisation from economic standpoints are prioritised, with natural and cultural heritage resources not being spared. Space is a highly sought commodity in these land-scarce, urbanised, and heavily populated areas, and cemeteries appear as vulnerable, dispensable spaces that stand in the path of development. Asia’s rapid urbanisation poses many dilemmas. For decision-makers, in confronting the threats to urban cemeteries’ natural and cultural heritage, the conflicts between development, urban planning, sustainability, memory-shaping, and identity-building priorities must be resolved. For local communities, this dilemma presents itself as a reflexive exercise in confronting their relationship with the dead and death spaces.

Evidently, cemeteries can perform overlapping entangled roles, provisioning for green spaces, delivering ecosystem services, and as sites of cultural significance (McClymont and Sinnott 2021). Cemeteries integrated into the urban fabric may serve as transient green paths between neighbourhoods, green lungs for densely populated areas or sites of interest, whether as memorial parks or recreation sites. Within cemeteries themselves, complex, entangled nature–cultural assemblages may be hosted: mixtures of natural green elements and cultural historical material culture through gravestones overgrown with foliage and trees, or heritage trees left undisturbed on cemetery grounds (Edensor 2023; Harrison 2015). While such relationships have been demonstrated in an Asian context through observed

correlation between protected sacred natural spaces and rich biodiversity, entanglements in Asian urban contexts are relatively lacking (Dudley et al. 2010). Many of the possible cemetery entanglements discussed in the previous section are less commonly found in Asia, with Asian societies being conventionally more cautious in their everyday interactions with death spaces (Afla and Reza 2012; Goh and Ching 2020). Taboos have customarily surrounded death practices, including the regular use of cemeteries and graveyards in several Asian cultures, rooted in traditional ways of dealing with them (Ang 2019; You 2018; Zhang 2018).

However, the supernatural and sacred elements associated with death spaces is not a one-dimensional malevolent aspect to be avoided. Rather, sacredness is intentionally embedded in the character of Asian death spaces to invoke, honour, or appease spiritual agents on different scales: geographically such as in the Chinese concept of fengshui where elevation and meandering landscape formations were important considerations in the placement of the burial (Feng and Hui 2023; Yeoh 1991); or through small active additions by communities to augment the spiritual aspects of a site, such as by adding specific plants and offerings to nurture the spirits of those interred, or to cleanse and defend against undesirable spirits in Malay graveyards (Skeat 1900). Here, it needs to be noted, however, that while taboos, superstitions, and the belief of cemeteries as supernatural zones where spirits and ghosts are present may manifest more profoundly in Asian contexts, these aspects are well presented in most parts of the world, even in those that advocate for a more active multi-use of cemeteries (Peinhardt 2019; Bry 2019). Regardless of locality, these varied manifestations of sacredness across grand and mundane scales defy easy categorisation for the discerning planner. The challenges in navigating the complex sensitivity and sacredness associated with cemetery sites in an Asian context often render them less visible and attractive as cultural heritage sites. Cemeteries, typically less popular than other heritage sites and often non-protected, remain as nature and cultural heritage “blind spots” (Ocón 2021) concerning their preservation. Yet, therein lies an intersection between heritage conservation and current dialogues on sustainability that remains untapped. Sustainability is at the heart of some crucial interventions in Asian cities today, and considerable resources are being invested in greening urban spaces for improved liveability. Although still nascent in many urban contexts around the region, cities such as Hong Kong (van Ameijde et al. 2023; Standard Insights 2023) and Singapore (Chan 2022; Robles et al. 2023) are regional leaders in exploring and integrating liveable approaches to sustainability, making green spaces more central than ever to urban lifestyles. To better address these issues, Singapore, for instance, in 2020 created the *Ministry of Sustainability and the Environment* (MSE). The new Ministry had a substantial budget of

S\$3.32 billion (about \$2.5 billion) in 2023, an increase of over 24% from the previous year (MOF 2024). In 2021, the Ministry launched the *SG Green Plan 2030* to advance the country’s environmental protection, resource sustainability, and climate action efforts. The plan involves and encourages communities to support the co-creation of solutions for a sustainable Singapore through the *SG Eco Fund*, endowed with S\$50 million (about \$37.5 million) (SG Green Plan 2024). This study addresses the gap between heritage preservation and sustainability by casting light on a series of case studies located in urban Asia, where, with variable degrees of success in navigating survival, policymakers and civil societies have explored alternative paths for cemeteries beyond destruction and oblivion. Lack of maintenance, poor resources and funding, and priority changes are among the most frequent challenges experienced by these spaces. The following section is clustered around three major nature–cultural heritage preservation typologies resulting from this study, explored from the point of view of sustainability, both environmental and social.

Patterns of resilience of cemeteries: regional themes and challenges Specific keywords and terminology were employed to identify sites of interest (Table 1). Case studies of existent cemeteries in Asia with sufficient sources and literature to characterise possible nature–culture entanglements were identified for comparative analysis, with a selection for discussion in this paper (Table 2). This analysis, focusing on Asian characteristics and specificities, will inform this section where patterns of resilient entanglements were identified and mapped onto three thematic conservation trajectories in speculating futures for these heritages: sustainable adaptations, memorialisation and sustainable compromise, and everyday sustainability.

Sustainable adaptations: city parks and spaces for leisure, recreation, and community engagement

In many parts of Asia, there is a customary reluctance to engage with death spaces due to associations with superstitions, taboos, and sacredness (Goh and Ching 2020; Kong 2011). The exceptions are for death-specific cultural practices, such as annual celebrations like the Chinese tradition of *Tomb-Sweeping Day* (清明节 *Qing Ming Festival*) in early April and the *Day of All Saints* on November 1st, widely observed by the region’s Christian communities. Increasingly common, however, are some regional examples of recreational, cultural, and educational uses of cemeteries that challenge traditional conventions. These ‘sustainable adaptations’ pave the way for exploring future alternative uses for burial spaces, helping identify novel nature–culture synergies for other similar Asian urban contexts.

One such adaptation is the transformation of city cemeteries into parks. Beyond the acknowledgement and tribute

Table 1 Thematic keywords used by authors to identify relevant case study sites and literature and identify opportunities for conservation and development

Themes	Keywords
Preservation and conservation	Conservation, threats, maintenance, abandoned, exhumed, at-risk, rural, urban, hygiene
Urban	Development, construction, rural, expansion, migration, destruction, geography, zoning, master plan, transport, infrastructure, roads
Community	Ground up, local, organising, social media, gathering, independent, community space, volunteering
Recreation	Park, garden, aesthetic, recreation, mixed use, play, performance, venue, events, leisure
Nature	Ecology, plants, biodiversity, health, networks, migration, fragmentation, flora, fauna, services
Culture	Historical, cultural, ritual, burial, religious, ethnic, architectural, funerary, mortuary, national identity
Sustainability	Green, ecological services, networks, urban heat island, carbon, habitats, isolation, fragmentation, threats, resilience, vulnerability, adaptation, community engagement, interaction

of memories and cultural heritage associated with buried ancestors, new generations can immerse themselves in pleasant green surroundings. This is the case of Manila's *Paco Park*, a former municipal cemetery (*Cementerio General de Dilao*) turned into a park and event venue in the mid-1960s after having fallen into disrepair (Fig. 3). When adopted by the *National Parks Development Committee* (NPDC), the cemetery's facilities were enhanced, and lighting, toilets, a central piazza, and other modern amenities were added. In that process, many of the original tombstones and monuments were preserved, honouring the former function performed by the location. Today, *Paco Park* draws crowds on weekends, with public weddings and concerts being regular events (Alcazaren 2016; Villareal 2020). One of the most popular ones is *Paco Park Presents*, a series of live classical and traditional Filipino music concerts staged at the park every Friday by sunset (Tano 2023).²

In Bangkok, *Wat Don Cemetery*, founded in 1900 by the *Teochew Association of Thailand*, houses the tombs of thousands of Chinese immigrants to Thailand. Despite its gloomy reputation as a former execution site and a frequent spot for deaths by suicide, in the last two decades, it has experienced a revival. Renamed *Teochew Park*, it is now a popular place to host sports and recreational activities such as taekwondo lessons, skateboarding sessions, and karaoke groups. It has also hosted outdoor concerts, with free performances, drawing thousands of visitors to the park (Nornrit 2022; Wongchaiyakul 2013, 2022) (Fig. 4). Also in Bangkok, the Muslim community has made the *Tonson Cemetery*, one of the oldest Islamic burial grounds in Thailand, a core

location for the Muslim community in the city (Kongrut 2016).

In Singapore, the well-maintained *Japanese Cemetery Park* is the largest Japanese cemetery in Southeast Asia. Founded by three Japanese brothel-keepers in 1891 as a burial ground for women brought to Singapore for prostitution, today it hosts 910 tombstones that also contain the remains of other members of the early Japanese community in Singapore, including civilians, soldiers, and 135 condemned war criminals executed at Changi Prison (Singapore Tourism Board 2021). The park also holds the ashes of thousands of Japanese soldiers, marines, and airmen killed during the Second World War. The peaceful park, spanning four football fields, is reminiscent of a Japanese garden, with playful floral archways lined with pretty pink bougainvilleas that provide shade along the main paths, quaint Japanese architecture, and well-manicured and zen-like surroundings (Fig. 5). The park has also adapted to the local context and has some rubber trees from when the location was still a rubber plantation. (The Smart Local 2021).

Kolkata's *South Park Street Cemetery*, established in 1767, is one of the world's largest remaining public colonial cemeteries. Despite its location in the middle of the hustle and bustle of the Indian city, its encircling high brick walls isolate it from its busy surroundings, making it a peaceful green island. Tall, shady trees and many beautiful flowers and bushes surround the tombs and cenotaphs, creating an atmosphere of calmness and enigma. Visitors need to pay an entry fee, which contributes to maintaining the cemetery serene. Students from local schools can be seen visiting the graveyard, learning about structural and curative restoration alongside the cultural heritage and history of the place (Basu 2022; Niyogi 2022).

² In 2022, the *Women's Leadership Initiative* (WLI) Philippines hosted a design competition for *Paco Park* in partnership with the NPDC, open to all-female teams within the Philippines, to revitalise *Paco Park* and highlight sustainable and responsive design by updating the park's developmental guide. The competition was open to all-female teams within the Philippines and aimed to provide further visibility to women in real estate (Formalejo 2022).

Table 2 Asian cemeteries: summary of identified case studies with possible nature–culture entanglements

Site name	Paco Park	Wat Don Cemetery, now Teochew Park	Japanese Cemetery Park	South Park Street Cemetery
Type of site	Urban cemetery, park, and event venue	Urban cemetery and park	Memorial cemetery park	Public colonial cemetery
City, country	Manila, Philippines	Bangkok, Thailand	Singapore	Kolkata, India
Locality	In the urban metro area	Urban district, nearby Jawa Mosque and Vishnu temple	Residential area	Near a newer active cemetery and a shopping area
Established in	1807, revived and refurbished in the 1960s–1960s	1899, transformations into a park in 1996	1891, turned into a memorial park in 1987	1767, partially destroyed in 1984, a restoration project in the 2000s
Entry/access	Gated with entry fee	Gated with entry times	Entry times	Entrance fee
Nature–culture				
Green spaces and ecological features	Trees and other maintained tropical greenery	Banyan trees, green lung in urban area	Flower archways (bougainvilleas), trimmed grass, trees	Tall trees, flowers, bushes between paths and graves
Mortuary features	Selected gravestones and monuments remain, some exhumed and transferred. Niches, memorials	Intact multi-ethnic headstones, including Buddhist, Hindu, and Muslim graves	Graves of Japanese figures and military, with information plaques for figures of interest	Colonial tombs and cenotaphs. An early example of a cemetery not attached to a church
Other cultural and architectural features	Fountain, original plan layout, chapel, walls	Chinese shrine	Japanese shrine	
Recreation	Live concerts, outdoor fitness activities	Outdoor concerts, senior spaces, fitness spaces for exercise and sports	Park, walking, and exercise area for nearby residents	Volunteer guide services
Community spaces	Piazza	Café	Pavilions, benches	
Public infrastructure and structural features	Lighting, toilets, cleaning	Benches, paths	Access road, paths, bins, vending machines, signs, information boards	Brick walls, with a main gateway, paths with drains, prone to flooding during monsoon
Site name	Bukit Brown Municipal Cemetery	Fort Canning Hill and Park	Armenian Memorial Garden	
Type of site	Public municipal cemetery	Park and memorial cemetery	Memorial garden	
City, country	Singapore	Singapore	Singapore	
Locality	Residential area, high-traffic roads and highways	In the central business district, near museums, places of worship, and the historic downtown area	Grounds of the Armenian church, near museums, central business district	
Age/established in	1922, closed to new burials in 1973, but still open for visitation	First cemetery site in 1819, closed to burials in 1865. Shift to military use in 1859; into a park in 1972. Was a prominent centre in the fourteenth century	Garden in 1988, church consecrated in 1836	
Entry/access	Gated	24 h access, lit at night	Gated with entry times	
Nature–culture				
Green spaces and ecological features	Trees and tropical greenery, rich biodiversity	Heritage trees, tropical garden greenery	Trees and hedges line the church grounds	
Mortuary features	Graves of prominent Chinese figures, unique styles of Chinese gravestones	Relocated gravestones and structures, wall of fifteenth century Malay ruler Iskandar Shah	Tombstones from a cemetery were transported to the site in the 1970s. An Armenian Khachkar (cross-stone) as a memorial	
Other cultural and architectural features	Free-standing cemetery gate and columns at the entrance	British fortifications and military structures, colonial lighthouse, archaeological site	Church, parsonage house	

Table 2 (continued)

Site name	Bukit Brown Municipal Cemetery	Fort Canning Hill and Park	Armenian Memorial Garden
Recreation	Walking, bird watching, exercise, regular volunteer guided tours	Park activities, walking and exercise, thematic gardens, venue for festivals and activities, exhibition spaces Previously included a theatre and aquarium	Site for cultural festivals and events
Community spaces		Pavilions, open green spaces, event and exhibition venues, cafés	Small pavilion
Public infrastructure and structural features	Footpaths and small roads through the cemetery	Footpaths, streetlights, children's play areas, bins and vending machines, benches, signages, escalators and stairs. Water reservoir	Lamps, information sign by the entrance
Site name	Kwong Tong Cemetery	Aoyama Cemetery	Koagannu
Type of site	Urban cemetery	Urban cemetery	Coral cemetery complex
City, country	Kuala Lumpur, Malaysia	Tokyo, Japan	Maldives
Locality	In the city, next to a shopping district, city centre, cultural institutions, and other cemeteries	Urban area and between popular shopping districts	Waterfront (on Addu Atoll)
Age/established in	1895, designated Heritage Park in 2006	1874, 2003 government policy to turn into a park	Eighteenth century
Entry/access	Gated with entry times	Gated with entry times	
Nature–culture	Hills overlooking the city	Cherry blossoms and amber trees planted throughout the park	
Green spaces and ecological features	Trees and other vegetation	Graves of many historical and cultural figures.	Oldest and largest burial grounds in the Maldives. Coral grave markers, tallest single-piece
Mortuary features	Chinese graves featuring many migrant Chinese pioneers. War memorials. Columbarium. Active cemetery for visitation, burial, and ritual activity	Military memorials. Foreign section for historical non-Japanese graves with a memorial plaque	porites coral stone grave marker. Minarets, mausoleums, coral stone structures
Other cultural and architectural features	Hall for an art, culture, and heritage museum with cultural relics		Four small mosques. Active cemetery
Recreation	Free tour guide services available from cemetery management	Strolling and picnicking	
Community spaces	Pagoda/columbaria		
Public infrastructure and structural features	Roads and footpaths through the cemetery, and with nearby smaller cemeteries	A road through the cemetery, administrative office and information centre, toilets, drink vending machines	Water wells

Memorialisation and sustainable compromises: documentation and narratives as sources of remembrance

On other occasions, the inexorable advance of urban development destroys the cemeteries. Building new roads, housing, transportation hubs, and other facilities, required by the city's enlargement, takes priority. In those cases, the removal of the tombstones and markers is necessary to allow space for new uses of the land. While preserving the integrity of the cemetery is not possible, preserving some of the stories, and identities associated with the cemetery can be an alternative to complete oblivion. This is done by transferring some of the tombstones and markers to an alternative space, usually the well-preserved, grander, or those from community members who have made significant contributions. Generally, the new spaces take the form of commemorative or memorial gardens, abridged 'memories' of former larger cemeteries.

This approach is particularly favoured in densely populated and land-scarce Singapore. The *Armenian Memorial Garden* was created in 1988 to commemorate the memories and contributions of Armenians in Singapore. From the hundreds of graves that used to populate now defunct large cemeteries such as the old *Fort Canning*, *Bukit Timah*, and *Bidadari*, a couple of dozen gravestones were transported and arranged at the grounds of the Armenian Church. That of Agnes Joaquim, who created what is now Singapore's national flower—the *Vanda Miss Joaquim* orchid, is one of them, located in a peaceful, serene green spot in the heart of a busy area of central Singapore. The memorial garden is well documented, and visitors can learn about its origins and *raison d'être* in noticeably located information signage (Fig. 6).

While well intentioned, this scheme is not exempt from contradictions. The *Ying Fo Fui Kun* burial ground is a reduced version of the vast *Hakka Cemetery* built in 1887 that covered a large area near Singapore's bustling area of *Holland Village*. In the late 1960s, most graves were exhumed, the remains cremated, and the ashes placed in urns within smaller, simpler, symmetrical memorial stones arranged in neat rows. Occupying less than 5% of the lush greenery area it used to, the reduced cemetery rests today sandwiched between public housing blocks, car park buildings, a metro line and a used car dealer, a 'memorial preservation token' removed of all the nature and cultural grandeur it used to have and with little information offered to visitors.

Another curious location in Singapore is *Fort Canning Hill*. Formerly the site of a sizeable cemetery itself, one of the first burial grounds for Christians in Singapore, it was closed for burials in 1865 and transformed into a park in the second half of the twentieth century. In that process, to preserve some of the gravestones, they were built into the



Fig. 3 Transformation of cemeteries into park spaces such as in Paco Park (Villareal 2020)

walls of the former cemetery (Fig. 6). Additionally, some of the cemetery's distinctive features, such as its two Gothic gates and two dome-shaped cupolas, were kept too. Today, *Fort Canning Hill* is commonly used for picnics, concerts, film screenings, and outdoor performances and events. Ironically, after the original cemetery was removed, *Fort Canning Hill*, already a park, received twelve gravestones from another former cemetery, *Bukit Timah Cemetery*, which had closed in 1971 (Chua 2016; Roots 2019). Located at a central location and surrounded by busy entertainment and business zones, the area has maintained part of its original lush tropical vegetation and greenery, albeit tamed, which can be considered an achievement from the point of view of nature conservation. From the cultural heritage perspective, however, the conservation effort had mixed results: while the area is frequented by tourists and locals, especially at weekends and special occasions, most visitors leave unaware of the rich cultural heritage that surrounds them due to the lack of information signages. In addition, some of the tombstones often serve as the backdrop for installing mobile toilets and other facilities to cater for events (Fig. 7).

Singaporean cemeteries are no stranger to dwindling footprints and negotiating with forces of destruction and conservation within a single site. The exhumation and impending destruction of a portion of the *Bukit Brown Cemetery* to make way for a new road stimulated public and academic outcry against the perceived threats to cultural and natural heritage (Roots 2022; World Monuments Fund 2014), leading to the creation of the *Bukit Brown Cemetery Documentation Project* (Fig. 8). The project included a historical investigation of numerous Chinese immigrant individuals interred onsite, a mapping of graves, and the topography of the site and an excavation of select graves (Chua 2013; Tai 2014). Collated information is now hosted on an accessible website (The *Bukit Brown Cemetery Documentation Project* n.d.), including photographs of 3732 graves, offering



Fig. 4 Spaces for cemetery activities and recreational activities in Wat Don Cemetery (Wongchaiyakul 2022; Nornrit 2022)

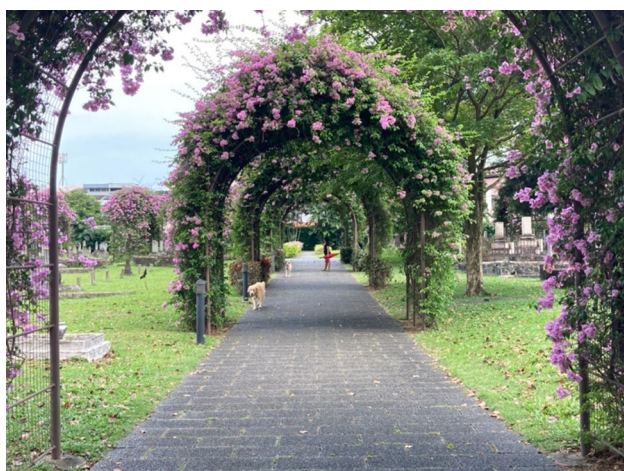


Fig. 5 Residents walking through the paths cutting through the cemetery, lined with flower arches (photos by authors)

an alternative digital memorialisation compromise that can perpetuate the cemetery's rich heritage for the future generations. As such, while the portion of the cemetery site has been destroyed, much contextual socio-cultural and historical information has been captured for posterity, future reference, and research. Concurrently, the cemetery's natural

heritage and ecosystem services continually exist through the remaining portions open for visitation. Further study of the cemetery has also been possible using the data collected, including a spatial and multi-period analysis of the distribution of graves and funerary objects, yielding new insights into the social histories reflected through mortuary heritage and material culture (Feng and Hui 2023).

Everyday sustainability: practical solutions to increasingly common challenges

In the face of dramatic socio-political and natural changes, cemeteries can be at the centre of controversies and major threats and be adapted to serve roles beyond their original intended function. Rapid increases in population, food shortages, and transformations in the environment, often associated with climate change, make 'everyday sustainability' a necessity. Whether it is from the perspective of providing food security or as green lungs in the heart of densely populated cities, the marriage of nature and cultural heritage can provide innovative solutions to some of the challenges our societies face today. In the Philippines, for instance, in the municipality of Talavera, a twist to the connection between nature and cultural heritage in an urban setting emerged in 2014, when residents created an organic vegetable garden in



Fig. 6 Memorialisation in Armenian Memorial Garden (photos by authors)

Fig. 7 Selective conservation of cemetery material culture in Fort Canning Green (photos by authors)

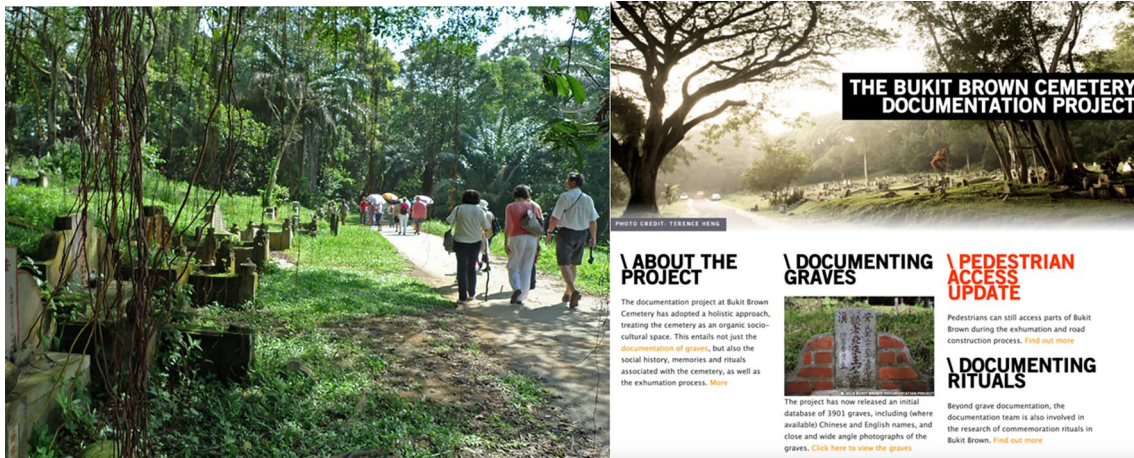


Fig. 8 Following threats of destruction: ongoing recreational activities and research investigations of Bukit Brown Cemetery (World Monuments Fund 2014; Bukit Brown Cemetery Documentation Project n.d.)

the public cemetery of Barangay Bulac, set aside from any burial plots, and that has been feeding *Talavera* populations since then (Galang 2014).

Kwong Tong Cemetery is one of the oldest and largest remaining Chinese cemeteries in Malaysia's capital Kuala Lumpur. Founded in 1895, it was built to bury the large population of Chinese migrants and houses many prominent Kuala Lumpur pioneers. The cemetery remains active for burials and receives many visitors during the *Qing Ming Festival*. Encircled by expressways, private residencies and condominiums and shopping malls, the cemetery was designated *Heritage Park* in 2006 due to recognition of its historical significance³ and value as a very needed green lung in the city. Recent research shows that large green spaces can function as cooling areas beyond their boundaries. For instance, *Bishan Park*, the site of a former cemetery (*Peck San Theng*) and now a full-fledged recreational

³ Later, a hall was built to house the Art, Culture and Heritage Museum to collect, collate and preserve historical data and cultural relics and to educate the younger generation about their forefathers' contributions.

park in Singapore's central region, can be up to about 2 degrees cooler than high-density residential blocks in other parts of the city (Robles et al.2023).

Similarly, part of a densely populated area, and a short walk from iconic and busy Shibuya, Tokyo's *Aoyama Cemetery* provides a respite in the middle of the concrete jungle. Opened in 1874, the cemetery was under threat following the *Second World War*, with the "Foreign Section" of the cemetery facing challenges regarding its preservation (Tokyo Park n.d.; Plung 2021). Following a government effort in 2003, the site has been developed as both park and cemetery: from infrastructure ranging from a visitor centre to planted cherry blossom trees lining common roads and pathways that attract viewers in Spring (Fig. 9) (refer to Table 2). *Aoyama Cemetery* is also the final resting place of numerous historical and cultural figures of Tokyo, and one of its most famous occupants is the famous dog *Hachiko*, buried next to his master. Changes associated with climate change can also threaten some cemeteries and their heritage. When this happens, novel solutions are needed to overcome the challenges and ensure preservation. It is the case of Maldives'

oldest cemetery, *Koaganuu*, the oldest and largest burial ground in Maldives, with beginnings in the twelfth century (Jameel and Hussain 2022). It comprises 1,500 tombstones, a mausoleum, and a mosque constructed of coral cut from the shallow reefs around the island (Fig. 10). The cemetery continues to accept burials and serves communal life on the island. However, it currently faces a serious menace in the form of sea-level rise, and as a result, in 2022, the site was listed by the *World Monuments Fund* among the 25 culturally significant but endangered heritage sites of the world (World Monuments Fund 2022). Systematic conservation is needed to keep the authenticity and integrity of the original structures and doubts remain about the sites' midterm survival.

Discussion: alternatives to destruction and oblivion

Faced with the dilemma of preservation versus oblivion, the above-mentioned sites and speculative conservation strategies suggest possibilities for alternative approaches that are informed by a consciousness of nature–cultural heritage entanglements (Table 3).

The first typology, sustainable adaptations of defunct and former cemeteries and graveyards into community spaces, seems to be the region's most implemented choice. While still not as prevalent compared to other parts of the world, the transformation of death spaces, restricted by their former role as graveyards, into engaged and functional communal places is gaining popularity in some Asian cities. Increasingly, local communities are overcoming traditional superstitious caution and embracing alternatives that combine nature–cultural heritage preservation with functionalities fulfilling their contemporary needs. Beyond an appreciation of cemetery sites as culturally and naturally valuable, cemeteries are increasingly accepted as appealing mixed-use spaces for leisure and recreation. This is typically done with two approaches: low-impact and high-impact transformations and usage.⁴ In the former, parts of a cemetery are commonly converted into community parks without major infrastructural additions, where residents can enjoy peaceful

⁴ Nordh et al. (2023) have investigated similar “passive and active” urban cemetery recreation possibilities and limitations in Norway and Sweden. Their findings suggest that “passive” recreational activities (e.g., strolling or having a cup of coffee on a bench) are generally perceived as acceptable behaviours, while more “active” undertakings such as biking, running, and walking a dog offer a more mixed range of divided opinions. In that regard, the notion of what can be considered “low-impact or passive” and “high-impact or active” is contentious and largely contextual. At the *Fairmount Cemetery* in Denver, “passive recreation” is understood as jogging, picnicking, and biking around the cemetery grounds. At the *Congressional Cemetery* in Washington D.C., one-fourth of the cemetery revenue now comes from paid memberships for walking dogs off-leash privileges, a common sight today.

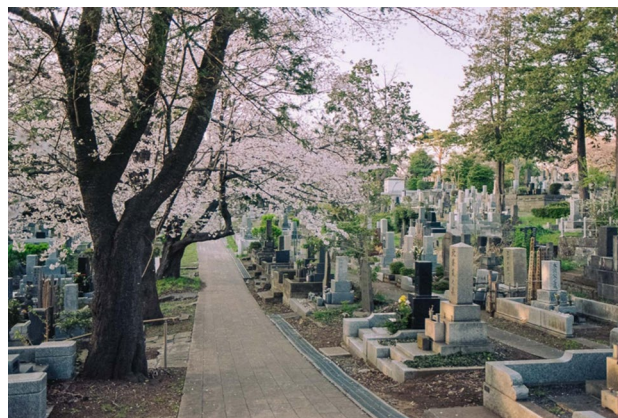


Fig. 9 The easy accessibility of Aoyama Cemetery and its popular cherry blossom trees lining the pathways (When In Tokyo n.d.)



Fig. 10 Coral tombstones in Koaganuu threatened by rising sea levels (Jameel and Hussain 2022)

strolls and educational activities in serene environments. In the latter, the idea of ‘gathering space’ is enhanced through modifications that can include carving out purpose-built venues for recreational events such as concerts and performances, weddings, and various sporting activities.

While these options are not wholly feasible nor appropriate in all the regional contexts, particularly in more conservative settings or religious communities that do not allow for the exhumations of remains, this approach can provide a middle ground to policymakers and local communities. The protection of a cemetery landscape and of a former cemetery's tangible appearance is likewise extended to preserving its character, material culture, ecological networks, non-human inhabitants, and associated cultural memories.

Table 3 Summary of typology of speculative heritage conservation strategies and their proposed interventions

Typology	Interventions
Sustainable adaptations	<p>“Lower-impact” activities: improvement of accessibility and signage and installation of benches, lamp posts, bins and water dispensers</p> <p>“Higher-impact” activities: providing proper footpaths and carving out spaces for community engagement (e.g., playgrounds and performances)</p>
Memorialisation and sustainable compromises	<p>Accessible footpaths. Provision of contextual signage that highlights history and stories and guides users through its communal relevance</p> <p>Digital memorialisation</p>
Everyday sustainability	<p>Daily use as daily parks, enablers of social sustainability</p> <p>Greening of urban cooling contributors</p> <p>Eco-gardens outlets for city residents</p> <p>Respectful urban farming addressing food security concerns</p>

New engagements with the familiar space are thus allowed to flourish. This approach enables green and cultural heritage contexts with more chances to survive. The above-mentioned Singapore’s vast *Bukit Brown Cemetery* is a candidate for implementing these solutions. Condemned to disappear in the upcoming years due to scheduled developments in the area, particularly the building of housing, roads, and mass transportation facilities, the cemetery can benefit from some of the alternatives outlined here. As a notable green space and a source of valuable cultural heritage for the community, some cemetery sections can be transformed into serene gardens, where visitors can respectfully appreciate nature and cultural heritage in tranquil and peaceful environments. This adaptation would also open the door to more educational interactions with the cemetery, which is currently limited due to its inaccessibility and lack of facilities. Sitting and reclining benches, picnic tables, bins, water dispensers, and sunshade canopies could be installed to fit this role. Other cemetery sections could be designed to serve as active parks, suitable for higher-impact activities such as sports, horse riding, concerts, and performances, with designated paths, water ponds, and playgrounds as possible facilities.

The second typology, memorialisation as a compromise to retain some vestiges of the cemetery, whether as formal documentation or as elements from it accompanied by narratives, is currently mainly explored in Singapore and specific postcolonial contexts and is not common in other Asian contexts. When development prevails, and exhumation is the only option, memorialisation can help preserve some recollections associated with a cemetery. In the last few decades, as part of plans to allow space for the fast-expanding cities in the region, dozens of cemeteries and graveyards have been exhumed, allowing little or no room to conserve their nature and cultural heritage features. In most cases, all traces of the cemeteries and graveyards have vanished,

and there is no acknowledgement of the site’s former function. In Singapore, the location of many of these obliterations, we also find alternatives to complete oblivion. The centrally located Armenian Church collected some of the most notable and visually appealing tombstones belonging to community members interred in disappearing cemeteries and created a memorial garden. The memorial was used as a point of departure for creating a narrative that acknowledges, highlights, and respectfully honours the contributions of generations of Armenian Singaporeans. This tangible and intangible association generated by the memorial is enhanced with a prominent location as part of the church’s beautiful garden and appropriate information signage. Other cases, such as the memorial sections at popular *Fort Canning Hill*, show less desirable approaches, where the lack of contextualisation, suitable location and proper signage removes the impact of the effort, ‘tokenising’ preservation and reducing its meaning. In the last few years, digital documentation has emerged as an alternative compromise to emerging challenges, particularly in dealing with spaces whose tangibility cannot be guaranteed. In this regard, in the face of destruction and subsequent oblivion, an investment to digitally memorialise cemeteries and graveyards using the possibilities offered by the new technologies seems like a reasonable compromise to make by local authorities and policymakers.

Some already disappeared urban cemeteries could have benefited from this alternative. For instance, the large and prestigious former *European Cemetery* (Cimetière Européen) or *Mạc Đĩnh Chi Cemetery*, in Vietnam’s central Saigon (Ho Chi Minh City), was cleared to create the *Lê Văn Tám Park*. The remains were exhumed and removed, and mausoleums and tombstones were bulldozed to make space for a children’s park and playground. Today, there is no vestige or acknowledgement of the location’s former

importance, majesty, and grandeur as the largest and best-kept cemetery in the city (Doling 2014). Similarly, Huimin Park (惠民公园), today a neighbourhood community park in Shanghai, was a notable cemetery in Shanghai, something mainly unknown to the hundreds of residents that visit it daily. While it is too late for these and many other cemeteries exhumed in the region's cities in the last few decades, some currently under-threat ones can still benefit from this approach.

The third typology, complementing a cemetery's green and cultural values and central role as a necropolis with new functions that can support local communities daily, can be a springboard to exploit the space's ecology better, understanding its potential but also its vulnerability and the need to act in the face of climate change and food shortages. For instance, transforming cemeteries' non-burial sections into edible gardens can be a novel option to explore in endangered sites. While increasingly popular in cities in Europe and the USA, the scarcity of cases in the Asian context speaks of a societal hesitation and yet opens prospects for future developments in this area. Connecting the past, present, and future communities by maximising the use of the available space appears increasingly to be a necessity in busy and densely populated cities. Local communities aspiring to retain the heritage linked to their ancestors will increasingly need to do so by adapting to new circumstances, for instance, supplementing their self-sustaining capabilities via urban farming. Maintaining cemeteries' cultural heritage and preserving their natural environments as cooling agents and green lungs will be crucial for decision-makers facing drastic climate transformations that trigger increased temperatures in the heart of cities and rising sea levels in coastal areas. It is, therefore, relevant to understand how modern cemeteries are navigating the challenges and how, particularly private operators, focus on practicality in their design of the 'heritage of the future'. In Indonesia, the *San Diego Hills Memorial Park*, located near Jakarta, is a natural and cultural complex that includes sports facilities such as a bicycle track, a swimming pool, a camping ground, boutiques, a minimarket, an upscale Italian restaurant, a small-scale replica of Istanbul's Blue Mosque, games such as table tennis and billiards, and even a lake dotted with rowing boats. The cemetery also hosts wedding parties and has sections for Buddhists, Christians, and Muslims (San Diego Hills Memorial Park n.d.). Unlike cemeteries' traditional unfunctionality, an assortment of functions can ensure a diversity of stakeholders and visitors, which can positively impact long-term preservation. Similarly located on the outskirts of a busy city but well-connected and easily accessible is *Yongxianghe Memorial Park* (永祥和纪念公园) in Shenzhen, China. Described as different from "traditional" cemeteries, which "feel eerie", it is designed

to be a cemetery merged with a park, placing tombstones among garden paths, natural greenery, and garden decorations (Eternal Harmony Park 2023).

The authors of this analysis are aware of certain limitations encountered by this study. For instance, the flexible use of the term Asia in the study allows for a higher concentration of cases in the sub-regions of Southeast Asia, North-east Asia East, and South Asia. These intentional choices respond to the authors' better understanding of the socio-cultural and geopolitical specificities of the sub-regions mentioned above. The authors believe, however, that a study that includes cases from cities like Tokyo, Shenzhen, Shanghai, Kolkata, Bangkok, Manila, Hong Kong, Taipei, Singapore, Ho Chi Minh City, Kuala Lumpur, the Indonesian cities of Medan and Jakarta, and urban areas in the Maldives is representative of considerable parts of the complex geo-strategic and cultural space broadly defined as Asia, although more studies will be necessary to investigate other sub-regions like Central and West Asia. The applicability of the alternatives suggested above can be challenging in some regional environments: some of our observations are highly contextual, and what applies to modern large cities like Hong Kong or Bangkok might not be suitable for others. Even in scrutinising local city dynamics, there are a variety of religious and socio-cultural contexts that potentially feed into their receptiveness and acceptance towards change. We recognise that certain taboos and superstitions, long-standing perceptions of death, body disposition, and cemeteries as its most visible manifestation, are still present in many Asian communities. Beyond that, some faiths prescribe specific rituals and expectations to mortuary traditions, for example those where exhumation is not considered a viable option for burial. In addition, the intricacy of entanglements in modern Asian cities, beyond the nature–culture approach proposed in this paper, also needs to be considered, including interconnections with historical trauma and identity politics (Rugg 2022). For example, Zakaria's (2022) exploration of urban Mandailing cemeteries in Medan, Indonesia, spotlights how contemporary conservation strategies can interweave with long-gone politics, inadvertently becoming exercises in diplomacy and negotiation. In Medan, the communal graveyards represented not just the urban assimilation of Mandailing communities away from their previous highland traditions, but also served as a claim for legitimate recognition in the eyes of colonial institutions under the administration of the Dutch East Indies. In consideration of culturally diverse perceptions of death and mortuary spaces like cemeteries, the multiplicity of entanglements emphasises the necessity of contextualisation for suitable conservation strategies.

Conclusion

Custodians of tangible and intangible heritage, connectors of past and present, and sources of memory and identity—urban cemeteries can also be the sites for significant natural environments, flora and fauna, sometimes rarely found in other locations. In the last decades, Asia's growing cities and populations have put pressure on cemeteries, often exhumed and cleared to allow room for new facilities. The framing of this development approach often presupposes that the needs of the 'living' supersede the 'dead' and their need for resting places in the form of cemeteries. However, this categorical view of cemeteries denies not just the present reality that cemetery spaces very much serve the needs of the living for grieving and memorialisation, but also denies the complex futures cemetery sites may develop if given the time to foster entangled relationships of care with human and non-human actors alike.

Nature and cultural heritage entanglements are common in our landscapes. Less frequent are formal representations of their synergies when it comes to formulating preservation strategies, particularly when the natural and cultural heritages to preserve are those of cemeteries or graveyards. In large Asian cities, these synergies are exceptionally scarce due to the intensity and speed of landscape transformations. The absence of safeguarding systems and mechanisms and the sensitivities associated with death matters in some Asian cultures.

This paper provides a holistic investigation of contemporary nature–cultural heritage preservation strategies in the context of urban cemeteries, notably those under pressure. With sustainability at heart, the analysis casts light on different processes explored today worldwide that aim at providing novel or even unconventional community interactions with urban cemeteries and graveyards, ensuring, in that process, a certain level of protection and preservation of the spaces. Through rarely explored perspectives, it focuses on Asian contexts, often truffled with superstitions and taboos, and unveils three major typologies that today encapsulate current nature–cultural heritage preservation approaches in the region: sustainable alternatives, memorialisation and sustainable compromises, and everyday sustainability. Aimed at regional policymakers and communities and considering the specific nature of Asian societies, it distils respectful alternatives for these spaces to be better integrated into the modern textures of the cities and the lives of their communities.

A myriad of proposals has been presented: from well-informed commemorative memorial gardens, curated memorial parks that propose visitors low-impact interactions with the space (e.g., readings and strolling), memorial parks that allow or even encourage higher-impact interactions (e.g.,

running and other sports, picnicking, and music concerts), to mixed-used shared spaces (e.g., with sections for edible gardens, responding to increasing food security concerns). Despite their different forms, all proposals offered are in the spirit of a speculative and optimistic future for cemetery sites and other death spaces as landscapes for functional and sustainable interactions with the nature and cultural heritage resources of Asia's last surviving urban cemeteries.

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Declarations

Conflict of interest No potential conflict of interest was reported by the authors.

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