Research and practice in harmonising nature and culture in Jaipur City, Rajasthan, India

Harmonising nature and culture in Jaipur City

467

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Abstract

Purpose – Planning for Jaipur City in Rajasthan, north-western India, which was added to the World Heritage List in 2019, considers the surrounding hills and water systems. Rapid urbanisation is currently placing strain on the area, and natural resources and city green spaces are deteriorating. A multidisciplinary team of academicians, researchers and practitioners was assembled under the Heritage Place Lab (HPL) initiative with the aim of developing a research agenda to complement the city's Special Area Heritage Plan (SAHP) that is currently in development.

Design/methodology/approach — Given the complicated urban structure of Jaipur, an interdisciplinary approach involving experts from various fields and engagement from all levels of the city's stakeholders was necessary. The partnership proceeded following the parameters provided under the HPL to jointly build a research agenda focussing on the management challenges of the World Heritage Site.

Findings – The co-produced research programme narrowed its initial emphasis on documenting of the natural heritage of the city to reflect the functions it served in a social setting. It was also revealed that the conflicting nature of activities within the World Heritage Site is caused by overlapping jurisdictions of several administrative and legislative components.

Originality/value – Jaipur, examined here by an interdisciplinary Research-Practice Team, provides a valuable and unique case study for heritage management, particularly given that most historic cities in India are facing comparable concerns surrounding urbanisation with rising pressures on natural resources.

Keywords Historic urban landscape, World heritage, India, Sustainability, Urban management **Paper type** Research paper

Introduction

Description of the World Heritage property

The World Heritage Site of Jaipur City represents one of the first planned cities in India, located in the north-western state of Rajasthan with a semi-arid climate. The city's grid pattern, which accommodated public buildings, royal spaces and other infrastructure, was



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designed with a focus on trade and commerce. The city was established on the plains in 1727 CE by Sawai Jai Singh II, the Rajput ruler of the Kachwaha dynasty, in contrast to the military forts of the past built on mountainous terrain.

The Jaipur City property covers 710 ha comprising the historic walled city and a buffer zone of 2,205 ha that includes the natural terrain around the planned town (Figure 1). Jaipur is located to the east of the Aravalli Mountains, bounded to the north by the Ganeshgarh Hills, Galtaji to the east, Nahargarh to the west, and Shankargarh to the south.

Jaipur City was inscribed on the World Heritage List in 2019 under criteria (b), (d) and (f). As a newly designed capital, the city incorporated urban design and ideas from a variety of sources including cities from around the world and the prevailing Mughal architecture of the time. During its planning, there was a strong focus on the water supply system, designed around the catchment areas of the surrounding hills, canals and aqueducts from nearby streams, the public wells of the walled city and the stepwells of Amer Fort (Chandna, 2019). The plans also incorporated traditional design elements and served as a model for neighbouring cities and, later, cities across India. Notably, Jaipur City marked a significant change from the existing medieval towns that had developed more randomly, largely owing to its ordered structure with broad right-angled streets; earmarked locations for palaces, "havelis" (traditional houses of noblemen) and gardens; and demarcated neighbourhoods for particular professions. The "chattis karkhaane" (comprising 36 industries of artisanal production) was set up by the founding monarch and encouraged skills involving gemstones, lac jewellery, stone idols, miniature paintings and others. Because the neighbourhoods for these products were identified in the original plans, artisans were able to ply their trade and encourage skilled workers from around the country to move into the city. The nineteenth-century special exhibitions held in the United Kingdom helped these local arts gain international recognition. The city has been built over three main periods in the eighteenth, nineteenth and twentieth centuries (Roy, 1978; Sachdev and Tilotson, 2002; Borie et al., 2020), and each of these periods contributed distinctively to defining the city today.

Jaipur is the largest city in north-western India and the economically vibrant capital city of the state of Rajasthan. Originally designed for 50,000 people, the walled city of Jaipur itself now has approximately 280,000 residents with a total population of 3,040,000 in the modern city that has expanded around it. Tourism, trade and commerce, and the local handicraft industries have been identified as the city's key strengths by the Jaipur Development Authority (JDA, 2012). With 175,000 people employed by 53,500 workshops for crafts and folk arts within the Jaipur district area, the city has the status of being the "City of Crafts and Folk Art" under the United Nations Educational, Scientific and Cultural Organization (UNESCO) Network of Creative Cities. In addition to the World Heritage Site of Jaipur City, two other World Heritage Sites (Jantar Mantar and Amer Fort) are also located within the same urban region. The city is part of the very popular "Golden Triangle" circuit along with Delhi and Agra, with a pre-pandemic annual tourist inflow as high as 2,700,000 (Paryatan Vibhag Rajasthan, 2019) (Plate 1).

Main management issues and challenges

For the inscription of Jaipur City on the List, the State Party, represented by the Jaipur Municipal Corporation (JMC) Heritage and its Heritage Cell as managers of the World Heritage Site, committed to working on the following plans and actions.

(1) A Special Area Heritage Plan (SAHP), currently under preparation, which will assess, among other things, built and cultural heritage; land use; socio-economic factors; infrastructure and risk management with the aim of protecting and managing the Outstanding Universal Value of the World Heritage Site.

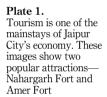


Figure 1.

Map of the Jaipur city
World Heritage
property (pink) and
buffer zone (yellow)
with the inset showing
the site's location in the
Indian state of
Rajasthan

(2) A detailed heritage inventory, based on a document previously prepared by the Indian National Trust for Art and Cultural Heritage (INTACH) and another inventory

470





Source(s): Author (2020)

- currently being prepared by the Heritage Cell, which will help create inspection standards as required in the byelaws.
- (3) Strengthening the legal protection as part of the JMC's commitments under the 2020 Nagar Nigam Jaipur Heritage (NNJH) Walled City Heritage Conservation and Protection Byelaws, which were announced on July 6, 2020.
- (4) Improving the management system to ensure decentralisation based on a three-tier system consisting of the State Heritage Committee, the Technical Heritage Committee, and, at the level of urban local bodies, the Heritage Cell (JMC).
- (5) Undertaking Heritage Impact Assessments (HIAs) and reviews for projects within the Walled City with the condition that all major projects within the property are to be reported to UNESCO.
- (6) Developing an interpretation and presentation policy through the State Department of Archaeology and Museums and the Ministry of Tourism to create a complete tourism, interpretation and presentation policy for Jaipur City.

This list broadly summarises the key requirements of the World Heritage Site in terms of the management and preservation of its Outstanding Universal Value. The Heritage Place Lab (HPL) Pilot Phase, under the World Heritage Leadership (WHL) programme led by the International Centre for the Study of the Preservation and Restoration of Cultural Property (ICCROM) and the International Union for Conservation of Nature (IUCN), consisted of a series of six incubator online workshops held in 2021 and 2022. As part of the HPL, practiceled research agendas for eight World Heritage properties from across the world were framed by teams from each of the sites. The participating teams were multi-disciplinary and represented research, practice, academic and administrative perspectives. As was raised in the HPL sessions, Outstanding Universal Value represents just some of the international,

national and local values of the site, and a comprehensive review was required to identify these other values to fulfil the HPL objectives.

As part of the initial workshops organised as part of the HPL, Research-Practice Teams were established—including for Jaipur City—who jointly presented their respective World Heritage Site's "Management Issues and Research Needs". These issues and needs were then further refined and modified as the HPL programme progressed, as presented here for Jaipur City in the Results section. First, the following management challenges of common interest to the Research-Practice Team were identified.

- (1) Rapid urbanisation and overexploitation of available resources including natural resources: Jaipur City was originally designed for 50,000 but the current population of the expanded city now exceeds 3,040,000 along with a high tourist inflow. The rapid growth of the city, without sufficient consideration being given to heritage and natural aspects, is a critical management challenge.
- (2) A lack of a comprehensive vision in ground-level planning: there is a lack of co-ordination at the ground level between a large number of actors, line departments and agencies. The ineffective application of laws and regulations is also a result of the lack of understanding among managers and local communities.
- (3) Conflicts arising from multiple ownership and the sub-division of properties: the primary responsibility and authority for heritage management rest with JMC Heritage, but certain areas of the property are also under the jurisdiction of the Jaipur Development Authority (JDA), Tourism Department, Department of Archaeology and Museums, Forest Department, the Archaeological Survey of India (ASI), and various trusts and private planners. This has frequently made reaching agreements on plans across all the different stakeholders challenging.
- (4) A desire for modern amenities that is at odds with retaining heritage characteristics: heritage construction guidelines often have a negative impact when it comes to local stakeholder engagement. Any proposed modification of personal property classified to be in the heritage area is automatically subject to a process of restrictions and checks. For example, the addition of modern amenities like electricity and water supply inside heritage structures may benefit the homeowner but is at odds with the heritage construction guidelines. The development of modern infrastructure also means that culturally and historically valuable features, such as approximately 820 wells and the stepwell in Amber, are now disused (Chandna, 2019).

Main research interests

As previously noted, an initiative to develop a SAHP is underway. This will be a comprehensive heritage management plan for the Jaipur City World Heritage Site and this is where an eventual repository of the heritage of Jaipur will be available (scheduled for release in December 2023). Through the HPL process and with the inputs from the multi-disciplinary team for Jaipur comprised of representatives from town planning, architecture and cultural and natural heritage, the following main research interests were defined with a view towards incorporating the gathered information and learning into the SAHP.

(1) Jaipur City is in close proximity to the Thar Desert with a semi-arid, inland landscape. The impact of climate change, deforestation, soil erosion, desertification and silting of waterbodies are important subjects of study from a town planning point of view. Interventions that analyse local geography and historical planning in water conservation will help increase stakeholder interest and revive public spaces centred on the city's water resources (Chandna, 2019).

- (2) Two major eco-zones can be identified within the Jaipur City World Heritage Site and its buffer zone—a thick mantle of arid soils and sand in the south and west, and the Aravalli Hill outcrops with their scrub forests to the north and east. As the urban area has expanded, the hilly areas have been reduced in size with serious impacts on their associated micro-environments. It is essential to study these changes using Geographic Information Systems (GIS) tools and on-the-ground surveys.
- (3) The adjacent Reserve Forests (RFs) of Amer, Nahargarh, Kilangarh and Jhalana Dungar must be carefully managed and their biodiversity needs documentation. This includes the semi-tropical vegetation with mixed xerophytic and mesophytic species along with the relevant fauna typical of the region.
- (4) Jaipur City was planned with the surrounding hills in mind, including the use of natural slopes and catchments for water management (Plate 2). As modern methods of water supply took over in the latter half of the twentieth century, many of the traditional water systems have fallen into disuse or disappeared completely. An important avenue of research would be to obtain a complete picture of the traditional water management systems within the city and consider their relevance in a modern context.
- (5) The role of surface water sources, including rainwater from the surrounding hills and seasonal rivers such as the Banganga, Dhundh and Bandi, constitutes an important area for research.
- (6) It would be advantageous to better understand the facades and signature designs of Jaipur City across its three major phases of growth to provide specific guidelines on traditional conservation practices for development and/or change in the World Heritage Site.
- (7) Throughout Jaipur City and its buffer zone, there are many green and blue spaces including educational campuses, orchards, gardens, parks and lakes, the biodiversity,









Plate 2.
Jaipur was constructed with reference to its surrounding landscape. These images show the wider landscape contexts of Amer Fort, Sisodia Garden and Jaigarh Fort

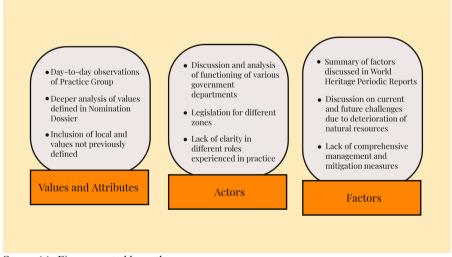
Source(s): Author (2020)

Methods

The members of the Research-Practice Team included conservation architects, academicians, researchers and experts in town planning and urban management. The methodology was both qualitative and quantitative, based on data already gathered by the Heritage Cell and the Jaipur Municipal Corporation, although information shortages were identified on the natural heritage, ecosystem services and traditional knowledge. The adapted tools 1, 2 and 4 from the Enhancing Our Heritage Toolkit 2.0 proved sufficient to perform a detailed analysis of the values, attributes, factors affecting the site and actors in Jaipur City (Figure 2). Through Assignment 2 ("Tool 1, Worksheet 1a: Values and attributes" of the EOH Toolkit 2.0), the fundamental process of identifying values and attributes was carried out by the interdisciplinary team. For Assignment 3 ("Tool 4 – Worksheet 4a: Identification of actors with recognised authority and responsibilities to manage the property or parts of it"), the list of involved departments was obtained from the Nomination Dossier prepared for the nomination of Jaipur City as a World Heritage Site with some enhancements based on the practical experience of the members of the team. In Assignment 4 ("Tool 2 – Worksheet 2: Analysis of factors affecting the property"), the factors affecting the property were obtained from the recently completed Periodic Reporting exercise, although further discussion with the project team resulted in a deeper understanding of the severity and impact of these factors.

Due to the geographically dispersed locations of the Research-Practice Team members, the collaborative work method necessitated several online meetings prior to each workshop to conceptualise, enhance and validate the data for use within the HPL tools. Due to the members' diverse expertise in natural heritage, municipal planning ideas, heritage regulations and guidelines, etc., the issues and opportunities at hand could be thoroughly analysed.

The Research-Practice Team had many useful interactions with other HPL teams, focusing on different World Heritage Sites, which further helped identify additional specific problems sometimes missed in intra-team discussions. Specifically, Ballarat in Australia,



Source(s): Figure created by author

Figure 2. Values, attributes and actors and influencing actors identified for Jaipur City

which became the first known local government authority globally to begin implementing the Historic Urban Landscape (HUL) Recommendation (UNESCO, 2011) within its strategic processes (Buckley *et al.*, 2015), served as an important example for Jaipur City. Lastly, extensive mapping was encouraged as part of the existing SAHP draft and further GIS-driven work is needed to meet the objectives emerging from the research agenda.

474

Results

Key findings

As many actors and factors impact the property, through its assignments, the HPL process provided a defined structure to analyse the management issues and research priorities. The practice group further appreciated the use of the assignments as this aligned with the ongoing work on the SAHP being created as a management plan for the property.

The analysis of values and attributes based on the Statement of Outstanding Universal Value was relatively straightforward given the recently created (2019) Nomination Dossier, and discussion on additional international, national and local values also revealed some important considerations hitherto left out. This included traditional cuisine, which makes the city stand out at a national level, and the significant royal heritage of the city, which besides having local value, is another key differentiator adding to the site's uniqueness. Thus, this assignment provided clarity in defining the lesser-known values and attributes of the property that add to its unique character.

With the analysis of the actors and governance arrangements, even though the primary responsibility of the World Heritage property was assigned to the JMC with a part of the buffer zone managed by the JDA through their Master Development Plan 2025 (MDP-2025), the concurrent roles of the Tourism Department, Forest Department, Archaeological Survey of India (ASI), Amber Development and Management Authority (ADMA), and trusts and private owners were brought into focus. In the case of Nahargarh Fort, which is located inside a wildlife sanctuary, understanding the interplay between authorities was very important. The large number and variety of actors were further highlighted in the mapping exercise, emphasising the urgent need for improved coordination to ensure the efficient management of the property.

The Jaipur Municipal Corporation gives high priority to the following mitigation measures that focus on those factors identified as having the greatest impact on the property: (1) community engagement, (2) urban development pressures, (3) deterioration of natural resources and (3) management systems. When reviewing these factors, the project team identified that the development of a detailed Environment and Landscape Plan, as envisioned among the research priorities, and a Disaster and Risk Management Plan could lead to additional factors being identified. The implementation of the SAHP in pilot areas for initial feedback and correction may also be necessary. This assignment also highlighted the complexity of the factors affecting the site and, at the same time, provided a useful framework for understanding all of the urgent issues as well as a means of prioritisation for implementing corrective measures.

The main shift in perception based on the collaborative work concerning the role of natural heritage in the management of the World Heritage Site was the type of information being documented. Initially, the focus was on the scientific documentation of nature as it exists, but through the HPL process, this shifted to a focus on nature's cultural utility in the urban landscape. Building on this, the project team recognised and developed the understanding that the natural attributes of Jaipur City should be linked more directly to relevant cultural/ecosystem services. This could be done not only by filling data gaps through research but also by better organisation of existing data.

The project team agreed with the HUL Recommendation that it is important "to manage physical and social transformations and to ensure that contemporary interventions are harmoniously integrated with heritage" in cities like Jaipur based on an analysis of the concerns and challenges of managing the World Heritage Site (UNESCO, 2011, p. 3). Considering this, the review and documentation of the historic architectural control guidelines were considered especially important so that present-day changes can be legislated and controlled more accurately to preserve the historic character of the city (Plate 3). This is key to making effective revisions to the conservation guidelines for Jaipur City.

Indigenous and local knowledges are important in many respects, but the HPL process showed that the information available on traditional water management techniques could prove most useful for managing current water demands. Methods to increase the amount of water available would foster broad community support and draw on local expertise in a rapidly expanding city with a semi-arid landscape and persistent water problems. The team concluded that the practice-based research agenda needed to focus on traditional water management techniques, addressing an urgent need of the local communities.

As the property's actors, variables and heritage values became evident, the project team recognised that more interdisciplinary expertise was required in addition to cultural and natural heritage experts and planners. For example, beyond the original Research-Practice Team, input from sociologists, hydrologists and archivists/local historians was considered essential for good management planning in the rapidly developing historical landscape and semi-arid environment (Figure 3). In the specific case of Jaipur City, the potential contribution of expertise in hydrology and traditional water conservation techniques was highlighted.

The analysis of the attributes linked to the property's Outstanding Universal Value helped develop a more comprehensive picture of their interdependencies as well as additional forms of value. This included the Outstanding Universal Value expressed through living traditions and artistic works and locally important values of traditional planning and continuity. Even if not explicitly mentioned as aspects of Outstanding Universal Value, these kinds of values are critical to the identity of Jaipur City, with additional examples including the importance of royal heritage, religious associations and city festivals at the local level. The importance of oral histories and other dialogue-based interactions with the local community was particularly highlighted during this process.

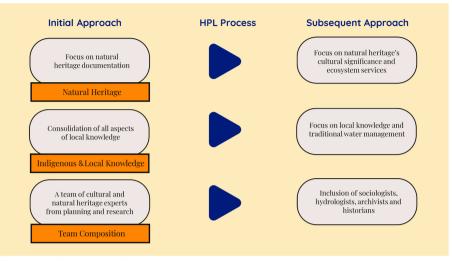


Source(s): Author (2021)

Plate 3. View of a market street in Jaipur City

476

Figure 3. Changes in approaches to understanding, valuing and managing Jaipur City through the Heritage Place Lab research-practice collaboration



Source(s): Figure created by author

Results of the process

Through the discussions at the Heritage Place Lab workshops, the Research-Practice Team noted that the natural heritage of Jaipur City had not been given due consideration in key guidelines including the Master Development Plan. The lack of consolidated data on natural heritage and traditional knowledges of water bodies/structures could be a contributing factor to this. The project team felt that closing these information gaps would further help ensure a comprehensive SAHP for Jaipur City. Indeed, the three key outputs that would best capture the proposed research agenda's focus on the natural heritage and traditional knowledge of Jaipur City are.

Outbut 1: a robust Environment and Landscape Plan

An Environment and Landscape Plan must take into account the larger context in which Jaipur City is located and the social functions served by its natural elements. The Practice Group noted that construction projects were having a considerable negative influence on green and blue spaces within the city, which increases the urgency of developing such a strategy. Given the semi-arid climate of Jaipur, the benefits of mature green cover, including maintaining the hydrological balance and well-being of its citizens, cannot be overstated. Likewise, urban wetland identification and restoration could slow rainwater runoff while also providing filtration and purifying functions. The project team also concluded that the use of GIS in combination with historical maps would yield important data on temporal changes in the green and blue spaces of the city. In particular, the potential for connecting fragmented pockets of the Aravalli Range with areas in the west and south-west of the city was highlighted, where interventions to combat desertification are currently being implemented.

Output 2: heritage-sensitive construction guidelines

Based on discussions throughout the HPL process, the Research-Practice Team concluded that well-defined construction guidelines with an emphasis on heritage values would considerably improve the management and reuse of buildings within the World Heritage Site

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(Plate 4). As indicated to the World Heritage Committee, the Nagar Nigam Jaipur Heritage (IJNH) Cell is already in the process of preparing detailed architectural construction guidelines for each of Jaipur City's areas, which will form part of the SAHP. Built across three main periods (eighteenth, nineteenth and twentieth centuries), the key styles and town planning features of Jaipur City have been well studied (Roy, 1978; Sachdev and Tilotson, 2002; Borie et al., 2020); however, the Research-Practice Team noted that the archives of the Royal Family Foundation and the State Archives of Rajasthan have yet to be fully examined, including the city's construction drawings that record instructions in Dhundhari, the local language at the time of the city's establishment.

Output 3: comprehensive documentation and mapping of the water systems in Jaipur City According to surveys undertaken by the Practice Group prior to the HPL project, knowledge of historical water infrastructure and traditional techniques to conserve water is extensive among local stakeholders and residents of the World Heritage Site. After careful consideration during the HPL process, the Research-Practice Team concluded that such information must be efficiently and promptly catalogued to revitalise the traditional water systems and support modern systems. For example, old methods, like stepwells, can help lessen flooding incidents and ease the city's ongoing water deficit given their traditional design, utilising the slopes and elevation of natural terrain for storm-water storage (Plate 5).

Discussion

The initial research interests of the Research-Practice Team were to address specific issues mostly connected to the natural heritage of the property and its protection. Through the workshops, the primary focus evolved into the enhancement of management frameworks.



Source(s): Author (2020)

Plate 4.
Heritage structures in
Jaipur City are in active
use as schools, shops,
restaurants, hotels and
medical clinics

478



Plate 5.
Water-storage
infrastructure and the
use of natural slopes
and depressions in
Jaipur City's traditional
architecture

Source(s): Author (2020)

The case study of the Firenze Greenway in Florence (Francini, 2021) and the Hampi Muya proposal by the Machu Picchu HPL Research-Practice Team offered examples of how to integrate the natural and cultural aspects of Jaipur City. Like Florence, Jaipur is a city with multiple World Heritage Sites, and the successful development of alternative green routes in Florence has promoted the exploration of Jaipur's natural setting as a potential means for developing "slow tourism", sustainability and enhancing the well-being of visitors. In the case of Hampi Muya, Peru, the proposed route protects mixed heritage values as well as intangible indigenous heritage values including traditional medicine based around a medicinal plant orchard. In the case of Jaipur, designing a route that draws on heritage structures in natural settings in addition to the historic structures related to water management in the walled city may offer a unique heritage experience to visitors and residents alike.

Through the HPL process and completion of different assignments, the project team clarified the values, attributes and influencing factors and drivers within the World Heritage Site, which gave a foundation for a deeper understanding of its significance and potential solutions to the challenges in the city. Because the management issues within the city are so complex, input from various departments and an understanding of multiple legislative components were required to fully establish the existing scenario. A draft version of the now-released Guidance and Toolkit for Impact Assessments (UNESCO, 2022) acted as a valuable additional resource during this work.

The project team concluded that more thorough and structured research would be useful for identifying all the issues facing the property, which will need to be considered in the proposed management system and frameworks. Involving the community in all aspects of the development and implementation of a sustainable management plan is without doubt the most effective strategy. The heritage of Jaipur City is very complex and dynamic; key management decisions need to be adapted based on the diverse views and needs of various stakeholders (Plate 6). Equally, the management plan must also be dynamic, requiring periodic review and updating.

Plate 6.

A variety of traditional crafts and products are already a strong component of Jaipur City's economy, including gemstone painting, brass and copper metalwork, lacquer artwork, marble sculptures and traditional jewellery

Harmonising nature and culture in Iaipur City





Source(s): Author (2020)

Conclusions

The initial trajectory of interest of the Jaipur City Research-Practice Team was focussed on the links between nature and culture. The HPL workshops and discussion processes ensured that the team members examined the site from viewpoints other than their own. The assignments helped streamline and organise the investigations of current problems, their root causes and catalysts, which was essential to develop the proposed management system and frameworks for the property.

The Jaipur City World Heritage Site has a complex setting by virtue of its continuous habitation and function as an economic hub for the metropolis of Jaipur, with overlapping jurisdictions of various administrative departments and legislative components. The prioritisation of a lucid management framework to address the myriad issues and often conflicting nature of activities within the World Heritage Site is paramount.

The ultimate success of the collaboration between a broad spectrum of practitioners and researchers from Jaipur was underpinned by "a willingness to accept the need for change" (Buckley *et al.*, 2015, p. 105). The initiative of developing a SAHP is the first such attempt in South Asia for an urban landscape, paving the way for many other historic cities to follow.

To encourage the active participation of local stakeholders, the advantages of heritage and environmental conservation must be made evident. This can be accomplished by gathering comprehensive and pertinent data in accordance with the research priorities, which can then be presented as a means of improving both the quality of life and the availability of sustainable economic prospects. Reviving the traditional water systems as decentralised solutions that supplement central supply would, for example, be of particular interest to local stakeholders (Chandna, 2019). A detailed study of the city's construction guidelines and documentation of existing indigenous knowledge would yield valuable information in this regard.

The most crucial next step is the incorporation of the identified research priorities and resulting information into the SAHP, with the aim of significantly improving how its heritage is managed. Due to the HPL programme being conducted online (largely due to travel restrictions imposed in response to the COVID-19 pandemic), a collaborative field visit to the Jaipur City World Heritage Site by the interdisciplinary project team is being planned for the future. This will no doubt reveal new perspectives on how research findings can be integrated into on-the-ground management.

References

- Borie, A., Françoise, C. and Rémi, P. (2020), Jaipur: A Planned City Of Rajasthan, Altrim, Barcelona.
- Buckley, K., Cooke, S. and Fayad, S. (2015), Using the historic urban landscape to re-imagine Ballarat: the local context in Labadi, S. and Logan, W. (Ed.s) Urban Heritage, Development and Sustainability. 1st ed., Routledge, London, pp. 93-113.
- Chandna, A. (2019), "Re-hydrating Jaipur", available at: https://repository.tudelft.nl/islandora/object/uuid%3Aab9cf1d6-dcd3-4ff3-b237-372f81a4a2c9 (accessed 15 August 2022).
- Francini, C. (2021), "Firenze Greenway: ecological itineraries connecting World Heritage sites and neighbourhoods in Florence, Italy", available at: https://panorama.solutions/en/solution/firenze-greenway-ecological-itineraries-connecting-world-heritage-sites-and-neighbourhoods (accessed 20 April 2022).
- JDA (Jaipur Development Authority) (2012), Master Development Plan-2025 Jaipur Region, Vol. 1, JDA, Jaipur.
- Paryatan Vibhag Rajasthan (2019), "Prashashanik Pragati Prativedan 2018-19", available at: https://www.tourism.rajasthan.gov.in/hi/annual-progress-report.html (accessed 15 May 2022).
- Roy, A.K. (1978), History of the Jaipur City, Manohar, New Delhi.
- Sachdev, V. and Tilotson, G.H.R. (2002), Building Jaipur: The Making of an Indian City, University of Chicago Press, Chicago.
- UNESCO (United Nations Educational, Scientific and Cultural Organization) (2011), Recommendation on the Historic Urban Landscape, UNESCO, Paris.
- UNESCO (United Nations Educational, Scientific and Cultural Organization) (2022), Guidance and Toolkits for Impact Assessments in a World Heritage Context, UNESCO, Paris.

Further reading

- Bandarin, F. and van Oers, R. (Eds) (2012), The historic urban landscape: managing heritage in an urban century. The Historic Urban Landscape: Managing Heritage in an Urban Century, Wiley-Blackwell, Sussex.
- DRONAH (Development and Research Organisation for Nature, Arts and Heritage) (2017), Nomination of the Walled City of Jaipur, Rajasthan, India for Inclusion on World Heritage List, Jaipur Nagar Nigam (JNN), Jaipur.
- DRONAH (Development and Research Organisation for Nature, Arts and Heritage) (2022), "Jaipur world heritage", available at: https://www.howandwhentoreference.com/ (accessed 27 May 2022).
- DRONAH and JVF (Jaipur Virasat Foundation) (2007), *Jaipur Heritage Management Plan*, Government of Rajasthan, Jaipur.
- ICLEI (International Council for Local Environmental Initiatives) South Asia (2020), Local Biodiversity Strategy and Action Plan for Gangtok Municipal Corporation, ICLEI South Asia, Gangtok.
- ICOMOS (International Council on Monuments and Sites) (2019), Jaipur City (India) No 1605' in 2019 Evaluations Of Nominations Of Cultural And Mixed Properties - ICOMOS Report For World Heritage Committee, ICOMOS, Baku. Paris, pp. 122-132.

Harmonising

nature and

Jaipur City

culture in

INTACH (Indian National Trust for Art and Cultural Heritage) (2018), Naturalizing Jaipur: A Plan for Enhancing Climate Resilience, Urban Biodiversity and Habitats, INTACH, Jaipur.

IPCC (Intergovernmental Panel on Climate Change) (2019), Sixth Assessment Report - Regional Fact Sheet - Asia, IPCC, Geneva.

RSPCB (Rajasthan State Pollution Control Board) (2010), Urban Forests and Open Green Spaces: Lessons for Jaipur, RSPCB, Jaipur, Rajasthan.

UNESCO (United Nations Educational, Scientific and Cultural Organization) (2013), New Life for Historic Cities: The Historic Urban Landscape Approach Explained, UNESCO, Paris.

UNESCO World Heritage Centre (2019), "Jaipur city, Rajasthan", available at: https://whc.unesco.org/en/list/1605/(accessed 01 May 2022).

Vidyarthi, S. and Singh, P. (2018), Jai Jaipur, Altrim, Barcelona.

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482