

Multi-sensory in the conception of place in an urban cultural heritage environment

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ARTICLE INFO	ABSTRACT
<p><i>Article history:</i> Received March 08, 2023 Received in revised form June 30, 2023 Accepted July 25, 2023 Available online August 01, 2023</p> <p><i>Keywords:</i> Bandung city Multi-sensory Place Urban cultural heritage area</p> <p>*Corresponding author: Eggi Septianto Doctoral Student in Architecture, School of Architecture, Planning and Policy Development, Institut Teknologi Bandung, Indonesia Email: 35221007@mahasiswa.itb.ac.id ORCID: https://orcid.org/0000-0002-2910-2989</p>	<p><i>Individuals' multi-sensory experiences play an essential role in understanding a place of cultural significance. Understanding urban area/environment in the conception of a place is not limited to physical aspects alone. This understanding contradicts the common paradigm in cultural heritage conservation, which is still limited to improving physical quality based on visual senses. This study aims to discuss the role and potential of multi-sensory in understanding the concept of place, which is beneficial to the conservation of urban heritage areas. This study employs the content analysis method with data from library studies and field observations of cultural heritage areas in and around Gedung Sate, Bandung. The results demonstrate that multi-sensory perception plays a pivotal role and has the potential to facilitate the process of reading and understanding its sense of place. This discussion opened a new discourse to integrate non-physical aspects based on subject perceptions in discussions on urban heritage areas.</i></p>

Introduction

Environmental assessments based on sight, hearing, smell, and touch form the social construction of a place (Carmona et al. 2010; Poerbo et al. 2018). The social construction of a place is defined as an attempt to read, distinguish, and sense of place based on the subject's understanding and sensory perception, measured empirically (Carmona et al. 2010; Zube and Moore 1991; Lynch 1960; Abusaada 2020; La Malva, Verso, and Astolfi 2015; Canter 1983). Understanding of reading, distinguishing and sense of place combines physical quality

assessment, activity and meaning based on assessment of all human senses (Montgomery 1998), because what the human senses feel will not be the same as what it interprets (Relph 1976).

This multi-sensory discussion supports the development of ways of thinking about the management and conservation of cultural heritage that are more value, environmental, and social-oriented (Amin and Adu-Ampong 2016; Andreu 2017) as well as non-physical elements (Smith 2006), which are considered to represent more of the public's assessment of cultural heritage areas, especially in Asian countries (S. Chung 2016; Kwanda 2009; Torre 2002; Wells 2010). As



elsewhere expressed by [Smith \(2006\)](#), this is consistent with the paradigm shift in cultural heritage conservation, as previous models and discussions have been centered on the physical (tangible) and have yet to consider significant non-physical (intangible) aspects ([Jigyasu 1998](#); [Gutschow and Weiler 2017](#); [Taylor and Lennon 2012](#)). The current paradigm in cultural heritage management and conservation focuses not only on preserving the authenticity of historic city artifacts but also on developing high-quality urban spaces by incorporating historical identity into unique and enjoyable human experiences ([Martokusumo 2015](#); [Ouf 2001](#)).

Creating this humane cultural heritage environment aims to respond the model of cultural heritage management and conservation that pays little attention to the essential dimensions of humans as users with all of their sensors ([Orbasli 2000](#); [Nasser 2003](#)). Managing cultural heritage areas based on subject appreciation has been acknowledged as a new understanding in Asia within the last decades ([Kwanda 2009](#)). Before that, experts still determined the significance of heritage, indicating that heritage management extends beyond the community to which it belongs ([Gutschow and Weiler 2017](#); [Walter 2020](#)). Following this, it is considered essential for describing and appreciating the environment within its social and cultural context ([Martokusumo et al. 2019](#)). Appreciation of non-physical elements such as sound, smell, and taste appears to enrich and enhance visits while ensuring long-term development in cultural heritage areas ([UNESCO 2003](#); [2009](#); [Marto et al. 2020](#); [Pietro et al. 2015](#)).

The current management of cultural heritage areas must be able to accommodate current and future changes in activities, both cultural and economic, as well as the area's attractiveness ([T. Chung 2009](#); [Kubontubuh 2021](#)). As the spatial environment in urban cultural heritage areas changes, new ways of thinking and management systems for the built environment and its surroundings are eventually required ([Reyes et al. 2022](#)). The area around Gedung Sate Bandung is an area that has experienced many physical and functional changes. Undoubtedly, these physical and functional changes will affect the assessment of the area's quality when using traditional methods based on physical authenticity assessment without regard to how and why users actually value cultural heritage areas ([Wells](#)

[2010](#)). Several studies have revealed that authenticity is essential for visitors to cultural heritage sites as part of visitor satisfaction ([Gao, Lin, and Zhang 2020](#)). However, users of cultural heritage areas constantly seek new ways to satisfy their senses, translating into a more interactive approach ([Pietro et al. 2015](#)).

Given the context above, a multi-sensory understanding of place in managing urban cultural heritage areas still needs to be explored for its role, potential and benefits. Thus, question can be raised as follows: What are the roles and potentials of multi-sensory experience in managing urban heritage areas? This article investigates the emerging discussion on multi-sensory and address the concept of place to answer the question. Furthermore, this article also discusses multi-sensory in terms of potential contributions, and advantages in managing urban heritage areas.

Place and multi-sensory

Place is formed from three main attributes ([Montgomery 1998](#)). First, activity discusses the variety of life that makes space or place more vital. This vitality draws people to move around in these spaces. Second, form is concerned with the physical characteristics of a space or location. Finally, the image is linked to information or experiences about cognition, perception, symbolism, and memory that humans gain from space or place.

The image attribute is derived from the user experience of visually identifying space concerning the five physical elements of the urban environment, namely paths, edges, districts, nodes, and landmarks, to generate a negative or positive image of a location ([Lynch 1960](#)). Image is a cognitive process of gathering knowledge to understand the urban environment better to aid in the design process while enhancing the overall quality of a space ([Vasilikou 2019](#); [Nitidara et al. 2019](#)). Image itself is actually described as a way of processing and storing multi-sensory information in memory, creating mental images not only visual, but including all sensory impressions holistically ([MacInnis and Price 1987](#)). Multi-sensory is one component that forms a complete city image in the urban built environment ([Jarecka and Bidzińska 2021](#)).

The environment has a significant impact on the formation of the city's overall image. The individual's environment is a picture of sensory experience formed by the visual perception of

sound, smell, taste, and touch, all interconnected (Agapito, Mendes, and Valle 2013; Ba and Kang 2019). Multi-sensory perception is the process by which humans respond directly to stimuli from various sensory modalities, providing spatial understanding and insight into the integration of the human senses in experiencing an event in a place (Spence 2020; Piga and Morello 2015; Shahhosseini et al. 2013). The human senses also function to convey information to the human brain to be able to understand, communicate, and sense of place (He et al. 2022).

The ability to develop and create a sense of belonging to a place identity through long-term cultural interactions between users and the environment is defined as the process of understanding, communicating, and a sense of place (Relph 1976; Tuan 1977). Punter (1991) suggests a model of the relationship between activity, physical setting, and meaning to a sense of place (Lotfabadi 2013). The activity addresses land use, pedestrian systems, behavior patterns, noise and odors, and vehicle circulation flows. The physical setting is related to urban landscape views, building mass shape, and permeability. Finally, based on individual qualitative assessments, the element of meaning discusses readability, cultural associations, perceived function, and environmental attractiveness. Sense of place involves not only its constituent elements (activity, form, and meaning), but also the bonds and interactions between humans and places (Dameria et al. 2020) based on individual perception.

Individual sensory perception (senses) will significantly help in reading a built environment as part of the process of sense of place based on elements other than structural, visual, and physical aspects, all of which are equally important and influence a place's assessment (Carmona et al. 2010). The ease with which the public can read and understand the layout and identity of a built environment heavily influences its evaluation (Bentley et al. 1985). Readability based on sensory experience expands and develops the preferences of a built environment that is considered reasonable by the user (Bruce et al. 2015). As a result, a multi-sensory experience is required to appreciate and read non-physical aspects of the modern built environment, which is constructed without context, resulting in limitations in feeling such a place (Irwin 2019; Bentley et al. 1985).

Multi-sensory studies provide better opportunities to read, understand, and recognize the changing identities of cultural heritage areas and their social issues, thus influencing judgments (Jarecka and Bidzińska 2021; Lynch 1960; 1976) which contributes to the creation of a spatial "sense of belonging and integration" (Pallasmaa 2005; Bruce et al. 2015). Place attachment, which is defined as social, affective, cognitive, and emotional bonds between individuals and specific spatial settings, is also influenced by multi-sensory experiences (Hidalgo and Hernández 2001; Ponty 2002; Pallasmaa 2014; Spence 2020).

Multi-sensory in the conservation of cultural heritage areas

According to the 1972 UNESCO Convention, cultural heritage includes physical or tangible and non-physical or intangible heritage (UNESCO 1972). Gilmore and Pine (2007) added in Chen et al., (2020) that creating interactive experiences for visitors in cultural heritage areas will always be related to interactions between physical and non-physical aspects (Chen, Suntutik, and King 2020). Maintaining the authenticity of intangible heritage in Asia, multi-sensory includes immaterial or non-physical dimensions such as sound, smell, and taste (UNESCO 2009).

Exploration and analysis of cultural heritage sites through multi-sensory and visual qualities opens new avenues for understanding and experiencing a single place's history, function, and significance (Davis and Şenocak 2017). Creation of understanding in cultural heritage areas is a performance and negotiation of identity, values, and sense of place (Smith and Waterton 2008). The current understanding of cultural heritage is still focused on the physical and visual, with non-physical elements being overlooked in managing and protecting cultural heritage areas (Jigyasu 1998; Pickard 2002; Tawab 2012; Rahardjo 2013). Physical and visual aspects are not the only factors to consider when determining the importance of a cultural heritage site. Even if it is limited to prioritizing approaches in the physical domain, it will fall short of its objective of safeguarding values and meanings associated with people, social structures, and the landscape (environment) (Taylor and Lennon 2012).

Several studies and literature illustrate that the future shift and expansion of discourse on intelligent inheritance can anticipate an

environment's evolution (Batchelor, Schnabel, and Dudding 2021). This discussion highlights the concern for the public experience of buildings and spaces in urban areas to make them more relevant to public needs (Martokusumo 2011).

In the context of cultural heritage protection, management, and conservation, areas must be able to accommodate aspects other than physical as an attraction to support the economic and cultural activities of an urban cultural heritage environment (T. Chung 2009). Preserving the city's heritage is not just a matter of preserving and creating a harmonious constellation between historical buildings and new developments but rather an ongoing activity shaping the environment (Martokusumo 2011).

In Asia, the model for preserving cultural heritage areas has shifted from an object-based approach to an inclusive subject-based approach focusing on non-physical heritage (Kwanda 2009). Multi-sensory is considered as part of non-physical heritage, which refers to the quality of individual perception, which is a new and important thought in describing, appreciating and assessing urban cultural heritage areas (Martokusumo et al. 2019). The development of a multi-sensory paradigm in urban cultural heritage areas encourages the expansion of discourse and ways of thinking about conservation processes that are place or environment-oriented (area-based) and pay more attention to non-physical (intangible) aspects based on public assessment (subject/bottom-up) as a user.

Currently, developments and pressures of political ideology, economics, and globalization are greatly influencing the transformation of the built environment and culture of cities in Asia (Logan 2002). When infrastructure, architecture, functions, and activities are transformed in buildings and cultural heritage areas, it causes problems (Hmood 2019; Boudiaf 2019; 2016). This problem causes the character of cultural heritage areas to change so that the public cannot appreciate and evaluate them from the physical and visual aspects alone (Boudiaf 2016; Taylor and Lennon 2012). There are non-physical aspects based on positive human perceptions, which are equally crucial in appreciating and assessing cultural heritage and historic areas (Marto et al. 2020; Pietro et al. 2015).

The change in character also makes it difficult for the public to understand their environment (Bentley et al. 1985). Management of cultural heritage areas must pay attention to other aspects

that are more assessed and understood as positive in the appreciation and assessment of urban cultural heritage areas based on individual perceptions (Ouf 2001; Bentley et al. 1985; Carmona et al. 2010). Favorable sensory environmental configurations can foster a desire to come back to an urban cultural heritage area (Buzova, Sanz-Blas, and Cervera-Taulet 2021; Agapito, Pinto, and Mendes 2017; Lv, Li, and McCabe 2020).

Method

Two approaches are used in this study. The first step is to conduct field observations on the evolution of environmental management in the cultural heritage area surrounding Gedung Sate in Bandung. Second, a literature review will be conducted to gather developments in discussing the concepts of place and multi-sensory in urban cultural heritage environmental management from books and previous research articles. These data were analyzed using content analysis methods before being compiled and organized systematically to reveal patterns, findings, and information pertinent to the research objectives.

In the discussion on the management of urban cultural heritage areas, the analysis process is performed by examining the development of the units of analysis, such as theory and the concept of place, as well as multi-sensory. Furthermore, compares and summarizes environmental developments as a resulting from the Gedung Sate Bandung area management process. The role and potential of multi-sensory in the concept of place in urban cultural heritage environmental management are then described and explained in detail so that they are well understood.

Result and discussion

The Gedung Sate area is a sub-area of the cultural heritage area for residential villas and non-villages based on the Bandung City Spatial Plan of 2003-2013 and Bandung Mayor Regulation No. 921 of 2010. This area has the character of a single-type villa building with a courtyard in the form of a garden and the provision of urban green open spaces (garden cities) around the area. This distinct character of the area makes it vulnerable to changes generated by urban development

pressures. This area is unique in its view of the colonial city landscape surrounded by city landmarks such as the Gedung Sate, the

Geological Museum and the Dwiwarna Building, which can be seen in [figure 1](#).

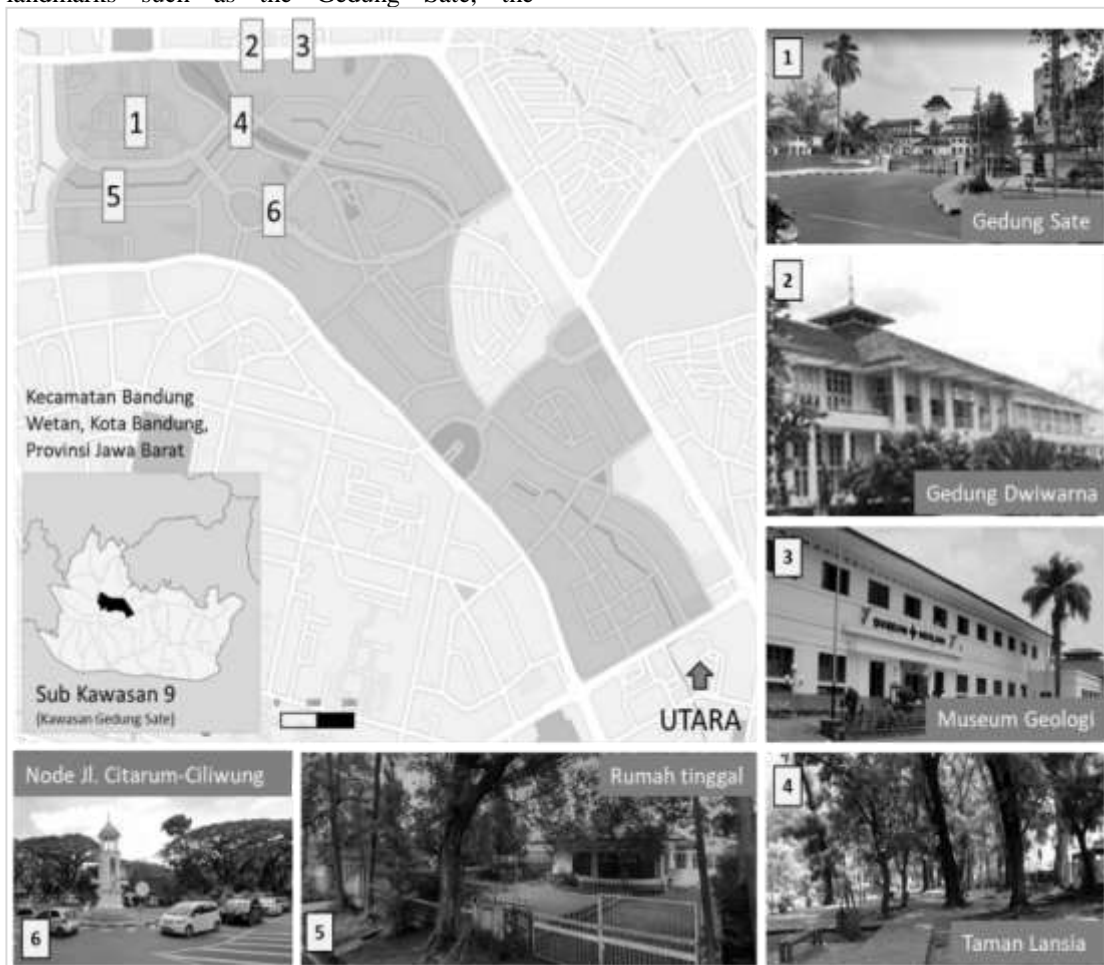


Figure 1. Condition and character of the area around Gedung Sate

Environmental development of the cultural heritage area around Gedung Sate

Changes in the area around Gedung Sate cause changes in the physical (tangible) environment around the building, such as the shape and design of open spaces in the form of courtyards, parks, and vegetation cutting, as shown in [figure 2](#). The public directly feels changes in the environment caused by these conditions. Conditions now occur, changing the soil surface from soft material (grass, soil) to hard material (concrete/asphalt) and reducing vegetation in green open spaces in the front and back yards of Gedung Sate. This change causes an increase in the temperature of the surrounding microclimate, glare due to the reflection of the sun's heat, and reduced shade areas from the shadows of vegetation.

Changes and additions to certain functions around Gedung Sate have made this area a popular gathering place for residents. As a result of this condition, many motorized vehicles passed or parked in various locations, causing air pollution from vehicle fumes and noise from vehicle exhausts and horns. Residents' activities have also resulted in an unpleasant odor from garbage piles in several public spaces and parks in and around Gedung Sate. This significantly negatively impacts the quality of the environment perceived by visitors in the vicinity of Gedung Sate Bandung.

Role and potential of multi-sensory in the cultural heritage area around Gedung Sate Bandung

The Gedung Sate environment has the character of an area with many green open spaces in the form of courtyards and public parks with a diversity of vegetation between historical buildings. This distinctive character provides an

exciting experience in the form of environmental quality visitors feel, such as shade and coolness as non-physical (intangible) aspects, thus creating comfort for visitors and residents.

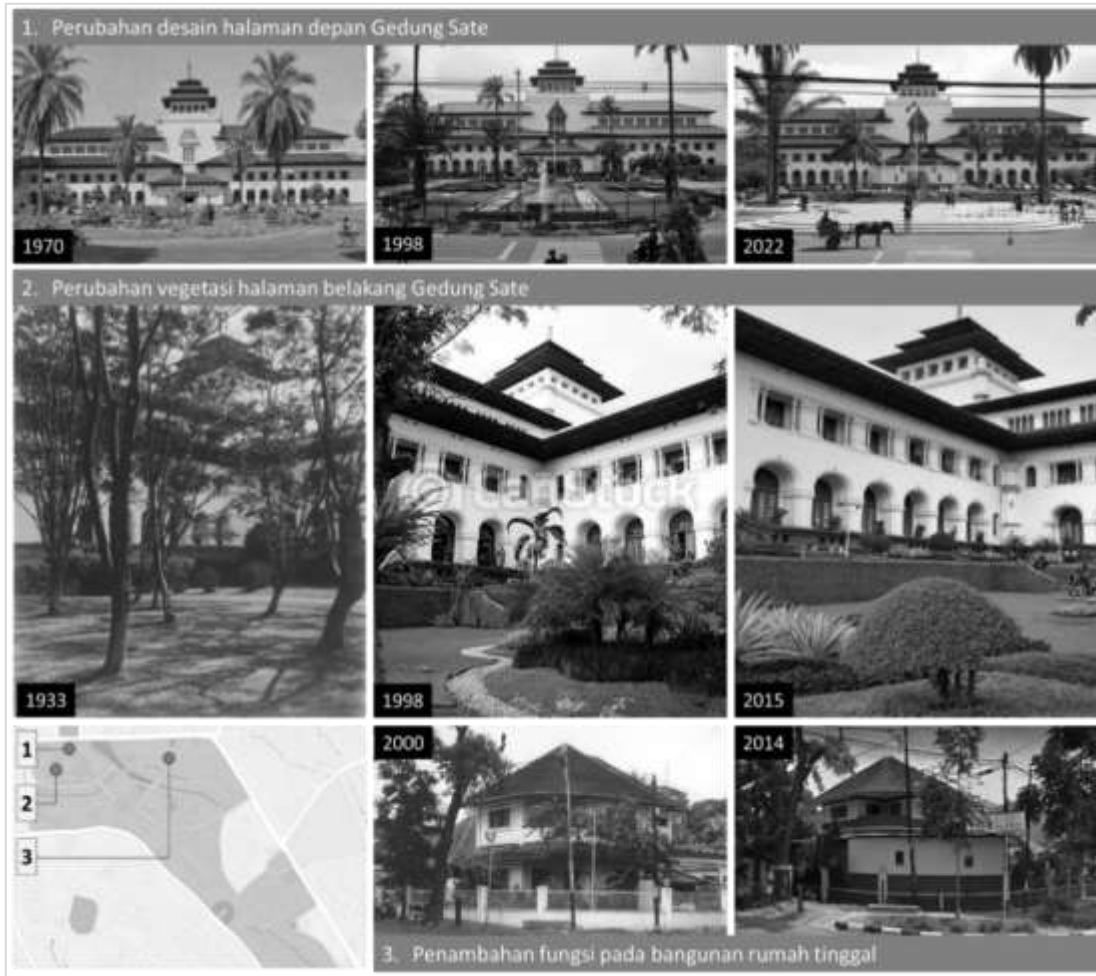


Figure 2. Physical changes (top row), vegetation (middle row) and function (bottom row) of the area around Gedung Sate

The experience experienced by visitors based on the unique characteristics of the non-physical (intangible) aspects of the cultural heritage area and the uniqueness of the area surrounding Gedung Sate, must be adequately managed and superior. The superiority and uniqueness of this distinctive character must be known and read by the general public in order for the general public to appreciate the area as part of the conservation of urban cultural heritage areas. The experience of sensing the environment through the five senses/human multi-sensory enriches understanding of the aconcept of city

management and conservation in Indonesia. Thus far, the concept of management and conservation in Indonesia has been defined as imposing strict limits on physical development, management, and utilization activities deemed harmful to cultural heritage (Rahardjo 2013).

Multi-sensory has two roles and potential for management and conservation in the Gedung Sate Bandung area, which is undergoing physical changes, activities, and development of area utilization. For starters, multi-sensory facilitates the process of reading and sense to form place and individual attachments, as well as assess the area

surrounding Gedung Sate Bandung. The ease with which the public can read, will help them to appreciate the area around Gedung Sate that has experienced changes in environmental quality, is heavily affected.

Ease of reading about cultural heritage areas can contribute to increase public interest in cultural heritage, which affects the willingness to protect and manage cultural heritage areas, as elsewhere argued by Jerpåsen and Tveit (2014). Since it is based on what is directly felt by the senses on non-physical aspects (light, temperature, sound, etc.), multi-sensory will facilitate the process of reading the environment. Readability based on positive sensory experience can provide good judgment and, in the end, create social, affective, and emotional attachments between the public and the Gedung Sate Bandung area.

Secondly, based on the subject's assessment, integrating other factors besides physical and visual aspects in describing, appreciating, and assessing the environment of the area around Gedung Sate. The public can interact better with non-physical aspects around Gedung Sate by using multi-sensory, such as the quality of temperature and lighting in the garden area with shady trees, sound quality, and environmental air. The interaction of these non-physical aspects will be felt directly and will significantly impact the public's perception of the area around Gedung Sate. The environment around us contains information and non-physical stimuli, and in order to better interact with the environment, it is necessary to recognize environmental characteristics based on different non-physical aspects using multi-sensory elements (Samadi, Sattarzadeh, and Asl 2020; Piga and Morello 2015).

Conclusion

This article examines the role and potential of multi-sensory perception in understanding urban heritage areas. Based on the analysis results, multi-sensory is an effective and practical approach in appreciating, reading, and understanding non-physical qualities in a urban heritage environment. The multi-sensory approach is also considered effective in appreciating and experiencing newly developed

place, such as the surrounding area of Gedung Sate Bandung.

This paper emphasizes the importance of sensory environmental quality as a non-physical factor in making sense of a better place. A better sense of place influences and increases people's willingness to protect and manage urban cultural heritage areas in a place. As a result, multi-sensory knowledge offers new opportunity in introduction of newly emerging conservation model, i.e. area-based conservation. Unlike the traditional one, this model requires a comprehensive approach in promoting intangible aspects based upon public perception or subject-based approach.

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Eggi Septianto contributed to the research concepts preparation, methodologies, investigations, data analysis, visualization, articles drafting and revisions.

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