Mapping of Bandung Cultural Heritage Through The Historic Urban Landscape (HUL) Approach

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Abstract. Bandung is the capital city of West Java Province and is also included in Cekungan Bandung Area. The term Cekungan Bandung refers to its geomorphological condition in the form of a basin surrounded by hills and mountains. Bandung, which is located in the highlands, has attracted the Dutch Colonials to develop plantations (e.g. quinine, coffee, tea) and also as a resort town. The progress of the colonial economy has made Bandung city a famous tourist destination in the Dutch East Indies (i.e. Indonesia), with its rapidly growing European culture and architecture, making Bandung known as Europa in de Tropen. In the early 20th century, Bandung city was planned as the replacement Capital of Batavia, with the construction of central government buildings along with the European settlements, which were thick with a mixture of tropical architecture and European architecture styles which are still commonly found in this city. This study uses the Historic Urban Landscape (HUL) method, which consists of seven stages, the process of identifying and mapping the layers of the heritage landscape of Bandung city is the initial stage of HUL. The aim of this research is to obtain a complete perspective of natural, cultural, and human resources as the elements that form the Bandung Cultural Heritage, which can be used to study the next stages of HUL.

Keywords: landscape, heritage, bandung, HUL, mapping

1. Introduction

Cities are products of human processing in response to natural landscapes, which are then developed according to their needs (Izzati & Ikaputra, 2022). These various efforts to process urban areas take place over a long period of time and continuously so that some experience changes and others continue according to the current context, where previous developments will become the basis for subsequent developments. There are times when developments from one time continue to become an identity attached to a city. Therefore, it is important to include references to the past history of an urban area so that the development process that occurs is not simply separated from its past roots. Urban areas are formed by various layers of activity both by residents (culture) and nature itself, which can be used as study material to study the landscape of a city (UNESCO, 2013); (Taylor, 2018).

Heritage urban landscapes are a valuable asset for a city, where managing any urban environment requires an understanding that a city develops dynamically in all aspects, which also shapes the city. The development from time to time of a city cannot be separated from the historical context and developments which interact with each other to form a heritage urban landscape (Adishakti, 2017). Mapping is an inventory technique that has been used in various studies by looking at patterns of change on maps continuously and comparing them over time. Mapping in the context of architectural conservation has been widely used as a research approach, such as research on mapping and identification of historic buildings, mapping of cultural heritage buildings, mapping of the distribution of residential areas, mapping of
ecological zones, etc. The conclusion that can be drawn regarding this mapping method is that everything is still carried out separately according to the desired object or the researcher's scientific domain (Taylor, 2013); (Arch. Dennis L. Estacio et al., 2021).

Mapping using the HUL method is more complex, considers all aspects that influence the urban landscape, and is carried out systematically. The layer-by-layer mapping carried out previously at HUL was used as part of identifying layers of the city's natural, cultural, and human resources in a comprehensive manner. The problem that arises in mapping using the HUL method is that in the process of comparing the layers, sometimes the data for each layer has a different depth, so it is necessary to sort the description of the data so that all layers can be compared consistently (Taylor et al., 2015).

The development of urban planning in the 20th century was the basis for a modern conservation approach in urban areas, where there was a development of comprehensive urban area conservation theory. There has been a growing concern about urban conservation due to worries about the increasing threat to urban cultural heritage. This heritage is a significant part of the history of city life and the collective memory of the people within it. Neglecting it can result in the city losing its unique character and becoming uniform in appearance. Bandarin & van Oers, (2012) explained that conservation principles in Europe had been made in the form of national laws since the early 19th and early 20th centuries, although they were still limited to monument conservation and had not yet touched urban areas. In the early decades of the 21st century, UNESCO, conservation organizations, and the professional world have become increasingly active in opening discussions on the principles of urban conservation. The emergence of the Vienna Memorandum (2005) is an initial step to revise the modern urban conservation paradigm, which is based on concerns over the high number of cases of modern construction that threaten the boundaries of historic cities as world heritage. The Vienna Memorandum defines a historic city as a system that integrates natural and man-made elements in a historical sequence that represents layers of expression throughout that history. Awareness of the challenges facing urban heritage is discussed through possible new recommendations on HUL in the UNESCO document (2009). Recommendations regarding HUL continued to be presented and discussed at meetings of representatives of UNESCO member countries, until the final draft of these recommendations was completed and adopted at the UNESCO General Conference on 10 November 2011 by consensus.

2. Methods

The method used in this research is the HUL (Historic Urban Landscape) method by conducting a complete study of the layers that make up the Bandung heritage urban landscape. According to Adishakti, (2017), the complete study in question is conducting a comprehensive survey and mapping of Bandung City resources. The results of the mapping are equalized in scale and then a comparison of the layers can be made using the map overlay technique. HUL's approach is carried out by looking at the city as a series of intertwining processes of cultural and natural values from time to time. Cultural heritage, economics, environment, and society complement each other and move dynamically into a series of events that change or make an urban landscape survive (UNESCO, 2013).

Data collection techniques use a historical qualitative approach and literature review. The historical method is used to document historical maps of the development of the city of Bandung, which is then divided into periodization based on developments in the historical layers of Bandung and the cultural layers of Bandung society. The literature review method was used to document the geomorphological and hydrological layers of Bandung City.
According to Danial and Warsiah (2009), in Salmaa, (2021) the literature review was carried out by collecting a number of references related to the problem and research objectives, meanwhile, according to Supranto, (Ruslan, 2008) in Salmaa, (2021) literature review is the activity of searching for research data and information through scientific journals, reference books and publication materials available in libraries.

The analytical method used is a descriptive qualitative method, which can describe and explain in detail the results of the overlapping layers that form the Bandung heritage urban landscape. The data contained in each landscape layer is analyzed for changes based on time series and then compared to obtain an equivalent depth of analysis between the layers discussed. The results of this analysis then draw conclusions that can be used to study the next stages of HUL and can also be used as a reference for Bandung City development plans.

3. Discussion

Bandung cultural heritage includes aspects of natural, cultural, and human resources which together form the character of the city of Bandung. The various layers that influence the Bandung cultural landscape can be described as follows:

3.1. Geomorphicological Layers

According to Voskuil, (2017), researcher R. W van Bemmelen (1936), one of the Dutch geologists, revealed how the Bandung plateau was formed, this opinion is also reinforced by Indonesian geological researchers, among others Brahmanityo & Bahtiar, (2009) states that the Bandung Basin was formed by a depression caused by the uplift of the island of Java during the Quaternary era. The dynamic and continuous movement of the earth triggered changes with the uplift of western Java followed by the emergence of a series of volcanoes. A very large eruption from an ancient volcano, according to Indonesian volcanologist Kartadinata (2005), resulted in Mount Tangkuban Parahu Purba. The eruption from Mount Tangkuban Parahu Purba is believed to have stemmed the flow of the Citarum River to form Lake Bandung. Research by M.A.C Dam (1996) in Brahmanityo & Bahtiar (2009) also shows that there was a large eruption that affected the flow of the Citarum and the existence of Lake Bandung Purba. Among the remnants of the activity of Mount Tangkuban Parahu Purba then emerged the young Mount Tangkuban Parahu, Mount Burangrang, and a series of elongated ridges in the northern part of Bandung, which stretched to Mount Manglayang in the east. Together, the combination of changes in the earth's crust and volcanic activity formed large sedimentary basins surrounded by mountains and ridges. The position of the Bandung basin, which is surrounded by mountains and hills, can be seen in the following picture:

![Figure 3.1. The position of the Bandung basin is surrounded by mountains (Source: illustrated from Spatial Data of the Bandung City sub-region, 2015)](image-url)
The development of the morphological layers of Bandung City can be explained in the following table:

Table 3.1. Bandung geomorphological layers (Source: Izzati, 2022)

<table>
<thead>
<tr>
<th>Geomorphological Background</th>
<th>Present Condition</th>
<th>Preservation</th>
</tr>
</thead>
<tbody>
<tr>
<td>The shallow seabed is lifted, and a series of volcanoes appear (Sunda Volcanoes)</td>
<td>Bandung Basin on a national scale: National Strategic Area (second largest metropolitan area in Indonesia), national economic driving sector (3.3% of national GDP)</td>
<td>Saving and structuring the Bandung Basin area through Presidential Regulation No. 45 of 2018 concerning Spatial Planning for the Bandung Basin Urban Area</td>
</tr>
<tr>
<td>A basin is formed</td>
<td>The role of the environment through water and soil conservation</td>
<td></td>
</tr>
<tr>
<td>The volcanic activity produced the Tangkuban Parahu Purba Mountain</td>
<td>Volcanic activity formed Lake Bandung, a series of hills and mountains</td>
<td></td>
</tr>
<tr>
<td>Bandung Lake receded to form the Bandung Basin</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3.2. Hydrological Layers

According to Brahmantyo & Bachtiar (2009), Citarum River or Cı Tarum (in Sundanese: ci = river and tarum/ nila (Indigofera tinctoria) = a plant that grows a lot on the left and right of the river flow) is the longest river in West Java which originates from Situ Cisanti at the Wayang Mountain pass, south of Bandung. The Cı Tarum flow passes through the Bandung Basin area towards the Java Sea in the north. Cı Tarum is an ancient river, which was formed simultaneously with the geomorphological activity of the Bandung Basin. From the data of
BBWS (River Region Hall) Citarum, Ci Tarum has an important meaning and plays a role in the development of Tatar Priangan (now West Java), among other things:

1. Ci Tarum was chosen as the name of the old kingdom in Sunda Land at that time (Kingdom of Tarumanegara). According to Carita Parahyangan, King of Tarumanegara, Purnawarman, gave a piece of land to the Galuh Kingdom, with the area between the two kingdoms being bordered by Ci tarum in the upstream part.

2. The capital of Tatar Ukur, Krapyak, is located on the edge of Ci Tarum. Along Ci Tarum there was most likely a village where Ci Tarum was the main transportation route at that time. This was explained by Kunto (1985, in Rusnandar, 2010) that Bandung in the mid-18th century was known by the Dutch as “Paradise in Exile”, because it is an area where convicted government employees from Batavia were dumped, using river transportation to reach the remote area of Priangan which is still a forest. The morphological condition of the Bandung Basin means that the Krapyak area almost always experiences flooding, thus prompting the relocation of the district capital to Bandung City, but it still maintains its location on the edge of Ci Tarum’s subsidiary, namely Ci Kapundung.

3. Ci tarum currently has an important role in the sustainability of river ecosystems and infrastructure, especially in West Java. There are Mount Gede Pangrango National Park (15,000 Ha) and Mount Halimun (40,000 Ha) around the Ci Tarum area. Apart from that, there are five dams, three of which function as hydroelectric power plants (PLTA), namely Jatiluhur Dam (1967), Saguling Dam (1985), and Cirata Dam (1988).

Figure 3.3. The Ci Tarum stream flows into the north of Java and its main tributary the Ci Kapundung passes through the city of Bandung (Source: BWWS Citarum, 2014)

The development of Bandung hydrological layers can be explained in the following table:

<table>
<thead>
<tr>
<th>Hydrological Background</th>
<th>Present Condition</th>
<th>Preservation</th>
</tr>
</thead>
<tbody>
<tr>
<td>The river was formed at the same time as the Bandung Basin</td>
<td>Ci Tarum plays an important role in the sustainability of the ecosystem and infrastructure in West Java</td>
<td>Accelerating Control of Pollution and Damage to the Citarum River Watershed (Presidential Regulation No. 15, 2018)</td>
</tr>
</tbody>
</table>
3.3. History Layers

The development of the city of Bandung can be divided into several periodizations: the pre-colonial (empire) era, the early colonial era, and the modern colonial era. Bandung Regency was formed by the Mataram Kingdom, which was previously known as Priangan (Yulianto et al., 2020). In 1670 a new capital city was founded at the location where Ci Kapundung and Ci Tarum joined, namely Krapyak, with the consideration that Ci Tarum was the main transportation access to the Mataram area on the north coast. In 1677, Mataram handed over Priangan to the VOC (Vereenigde Oostindische Compagnie), which was marked by the start of the era of forced cultivation (Preangerstelsel) with the main commodities: coffee, tea, and quinine in the Priangan highland.

After the bankruptcy of the VOC, the colonial government under the leadership of Governor-General Daendels, built de Groote Postweg in order to strengthen defenses on the island of Java, whose route passed through the Bandung highland. The capital of Bandung Regency was also moved to the side of de Groote Postweg which is also on the edge of Ci Kapundung in 1810. Andries de Wilde’s writings in the magazine De Preanger Regentschappen reveal main places such as the Alun-Alun which is surrounded by the government center and mosque, and several residential areas clustered around it. The map of Bandung in 1825 entitled Plan Der Negorij Bandong depicts the development of the traditional city of Bandung at that time (Voskuil, 2017).

The city of Bandung developed into the capital of the Priangan Residency with an increase in population, area, and infrastructure in the form of roads and railway lines. The opening of the Cianjur-Bandung railway line, which connected with the Batavia – Sukabumi – Buitenzorg line in 1884, encouraged an increase in plantation entrepreneurs taking weekend holidays in Bandung. Bandung developed into a Municipality (Gementee) in 1906, a special government that handled European citizens, led by a mayor. The development of the city of Bandung encouraged the Colonial Government to plan Bandung as a political, economic, and defense base for the Dutch East Indies, marked by the construction of government buildings, residential areas, entertainment centers, hotels and restaurants, military buildings, offices, and banking (Yulianto et al., 2020).

In the tourism sector, the city of Bandung is a holiday destination for European residents around Bandung, Batavia, and even Java. The Jaarbeurs Exhibition is an event to introduce the products of Dutch East Indies entrepreneurs to the public, held every year with the number of visitors increasing every year. Recreational facilities for European citizens also continue to be developed, including city parks, bathing pools, zoos, geological museums, postal museums, performance buildings, and recreational shopping for European luxury goods on Jalan Braga, which is known as De Meest Europeesche Winkelstraat Van Indie (Kustedja, 2008).

In its development from a traditional city to a modern colonial city, Bandung experienced several territorial expansions. From the maps in the collections of the Leiden University library and the national archives, the development of the city of Bandung can be seen in the following overlay of maps:
The development of Bandung historical layers can be explained in the following table:

Table 3.3. Bandung History Layers (Source: Izzati, 2022)

<table>
<thead>
<tr>
<th>Historical Background</th>
<th>Present Condition</th>
<th>Preservation</th>
</tr>
</thead>
<tbody>
<tr>
<td>The pre-colonial (empire)</td>
<td>Bandung is a cultural tourism city (art, architecture, culinary, fashion, lifestyle)</td>
<td>Bandung City Regional Regulation No. 19/2009 concerning Management of Cultural Heritage Areas and Buildings regarding cultural heritage</td>
</tr>
<tr>
<td>VOC Era</td>
<td></td>
<td>Conservation Communities/Associations</td>
</tr>
<tr>
<td>Traditional - colonial city (Early Bandung)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Modern colonial city</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
3.4. Residents and Culture Layer

Based on research by a Dutch geologist in the 1930s, van Bemellen, the first humans to inhabit the area around Lake Bandung were hunters, with evidence of the discovery of Neolithic tools. The concept of settlement is thought to have started in 2,500 BC with cave findings in North Bandung and southeast of Mount Malabar in South Bandung. The next prehistoric human culture was megalithic, with the discovery of the remains of sacred temples and Punden Berundak in the hills. von Koenigswald in 1935, containing the findings of stone tools scattered around the shore of Lake Bandung (Brahmantyo & Bachtiar, 2009). The prehistoric period ended formally with the discovery of the writings of Buddhist priests from China who came to Java in 414 BC and wrote about the Tarumanegara Kingdom (Voskuil, 2017).

In 1031 the Priangan area came under the Sunda Kingdom, based on the inscription “Sanghyang Tapak”. The early Priangan community had a farming livelihood using shifting cultivation techniques (ngahuma), before finally under the Mataram Kingdom in 1750, wet farming (rice fields) and semi-permanent dry land farming techniques (tipar) were introduced. (Yulianto et al., 2020). Many people’s residences are found on the edge of the plateau and mountain slopes around because the Bandung area at that time was still mostly swamp. (Voskuil, 2017). Records about the first people who inhabited Priangan were obtained from Yulian de Silva’s report (1641), regarding the existence of an area called “Bandoeng” which has around twenty houses with a population of around one hundred and twenty people and all of them are Sundanese (Rusnandar, 2010). In 1741, the VOC placed a soldier as local military commander in Bandung. In 1742 the European population in the Bandung area increased by three people (brothers Ronde and Jan Geysbergen, and one corporal who was exiled from Batavia), who began to develop Bandung by clearing forests and developing sawmills (Kunto, 1985). Priangan under the VOC began to impose high plantation taxes, as a result the regents forced the people to clear forests and plant coffee, starting a period of forced cultivation known as Preangerstelsel (Yulianto et al., 2020). The period of forced coffee cultivation only ended at the beginning of the 20th century, accompanied by the opening of Bandung as a plantation investment area for Europeans, with the development of tea and quinine plantations in the mountains north and south of Bandung.

Simultaneously with the relocation of the capital of Bandung Regency to the Ci Kapundung side, the community also moved to the new capital, several parts of the swamp were filled in to build settlements, and other wetlands were used as rice fields and fishponds. In 1906, when Bandung became the capital of Priangan, the population doubled, including an increase in the number of Europeans and the number of Chinese (Yulianto et al., 2020). The position of the pavilion and Alun-Alun which is south of de Groote Postweg marks the regent's territory with indigenous settlements in the southern area, while the northern part is occupied by colonial facilities and Dutch settlements with hilly landscapes and beautiful views to the south. This position naturally divides the Bandung region based on social position, political position, welfare, and ethnicity (Tarigan et al., 2016).

The development of the city of Bandung as a modern colonial city is marked by the completeness of various infrastructure and entertainment to support a European lifestyle. The indigenous people, known as Bumiputera, have weekly recreational activities that imitate European habits, although the location is different. Recreation is carried out around the Alun-Alun, a cinema specifically for Bumiputera, and culinary outlets around Pasar Baru (Yulianto et al., 2020).

The development of the residents and culture layers of Bandung City can be explained in the following table:


### 3.5 Cosmology Layers

The name Priangan comes from the word "Parahyangan" (the place where the gods reside), from various legends, it is said that this place which is believed to be sacred is in the area of the highest mountain peaks (Yullianto et al., 2020). This is in line with the condition of the Tatar Priangan landscape, which consists of a plateau surrounded by mountains. Sundanese believe that mountains are protectors, protect people, and protect them from disasters. Kabuyutan or sacred places are related to mountainous landscapes, and hill ridges, with a north–south orientation facing the mountain peaks (Arief Johari, 2016).

When the capital city of Bandung Regency was moved to the edge of Ci Kapundung, Bandung Square was planned using cosmological principles, which were considered to have magical powers because they were the sacred boundary between the pavilion and the village. In accordance with traditional spatial concepts, the Alun-Alun and Pendopo (microcosm concept) face Mount Tangkuban Perahu (macrocosm concept) (Falah et al., 2019). The sacredness of Mount Tangkuban Perahu is closely related to the legend of Sangkuriang, which is told of making a boat on a lake (Bandung Lake) because of the request of Dayang Sumbi (his mother whom he wanted to marry). Failure to make a boat made Sangkuriang angry and he kicked the boat until it lay face down. The lesson that can be learned from the story of Dayang Sumbi and Sangkuriang is that freedom of choice will lead to actions and decisions taken, and human obligations to act and be responsible (Rahayu, 2018).

Sundanese people in their philosophy of life still adhere to the teachings of their ancestors (tatali karuhun), which teaches how humans act and understand obligations while living in the world. Sundanese people's beliefs are more directed towards positive teachings, including preserving the environment, Sundanese people respect and protect water sources and protect sources of livelihood, (Dewi Sri Legend) which is believed to bring fertility, because of the livelihood of an agricultural society (Wulandari et al., 2019).

The development of Bandung's cosmological layers can be explained in the following table:

<table>
<thead>
<tr>
<th>Cosmological Background</th>
<th>Present Condition</th>
<th>Preservation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Legend of the sacredness of Mount Tangkuban Perahu</td>
<td>The north-south axis is maintained (government buildings, open spaces, green corridors and sculptures)</td>
<td>Control of buildings in North Bandung and the Gedung Sate axis area</td>
</tr>
</tbody>
</table>
4. Conclusion

Based on the discussion of the layers that make up the Heritage Landscape of Bandung, namely the geomorphological layer, hydrological layer, historical layer, resident and cultural layer, and cosmological layer, overlapping is carried out which can be explained as follows:

a. Bandung is a highland city surrounded by hills and mountains, which gives the city its character like a basin (giant bowl). This geomorphological form influences the current development of the city of Bandung, which extends east and west due to limited topography in the northern area.

b. Bandung is a city that was formed during the Dutch colonial period where its central location was influenced by the existence of de Grootepostweg and the presence of the Cikapundung River. This old city center developed into an area that received a lot of colonial influence, especially from the typology of its heritage buildings.

c. Bandung is traversed by several tributaries that originate in the northern mountains and empty into the Citarum River. The Cikapundung River is the largest river that passes through the city, as well as the starting point for the development of Bandung City. Population density and urbanization have turned these riverbanks into dense and unplanned residential areas.

d. The original population of Bandung comes from Sundanese ethnicity, which still adheres to the culture passed down from generation to generation, including architecture. In line with its development as a metropolitan city, Bandung has become a multi-ethnic big city with local Sundanese cultural wisdom that can still be found in everyday life, such as the use of the Sundanese language which is still strong, Sundanese cultural attractions, and ways of life followed by both Sundanese and non-Sundanese residents.

The different historical and cultural elements that contribute to the unique Heritage Landscape of Bandung City can be used as a guide for future development plans. As the city continues to grow and modernize, it is important to preserve its distinct character and identity. By incorporating these elements into urban planning concepts, the city can maintain its authenticity while still progressing forward. The results of the overlapping analysis of the Heritage Landscape of Bandung layer maps can be used to study the next stages of HUL.

5. References


