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# A Systematic Literature Review (SLR) on the Development of Sustainable Heritage Cities in Malaysia

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**Abstract.** *This article highlights previous studies on the development of sustainable heritage cities using the Systematic Literature Review (SLR) method. Data obtained through various search methods, such as (1) a rigorous search of leading major journal databases (Scopus, Web of Science (WOS), Science Direct) and additional journal databases (Google Scholar and My Cite), and (2) handpicking/manual searching. Once the data was obtained, it was analysed through systematic searching strategies (SSS) to obtain accurate and precise material in the field studied. The obtained material was screened in three SSS steps, namely: (1) identification (2) screening, and (3) eligibility. As a result, a total of 42 materials and documents were successfully found and summarized for highlighting. Next, the findings of the analysis were broken down into: (1) the frequency of sustainable urban heritage development studies conducted by country, (2) sustainable urban heritage development constructs (economic prosperity, social well-being, environmental well-being, cultural heritage, government, and community), and (3) study areas (heritage cities, heritage buildings, and historical sites). The findings of this study can contribute to a new paradigm for studies that involve the sustainable development of heritage cities in Malaysia in achieving the 2030 Agenda.*

**Keywords.** *Sustainable development, heritage city, Systematic Literature Review, Malaysia.*

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**Abstrak.** *Artikel ini menyoroti studi sebelumnya terkait pengembangan kota warisan berkelanjutan menggunakan metode Systematic Literature Review (SLR). Data diperoleh melalui berbagai metode pencarian, seperti (1) pencarian dari basis data jurnal terkemuka (Scopus, Web of Science (WOS), Science Direct) dan basis data jurnal tambahan (Google Scholar dan My Cite), dan (2) pencarian manual. Setelah itu, dilakukan analisis melalui strategi pencarian sistematis (SSS) untuk mendapatkan materi yang akurat dan tepat pada keilmuan yang diteliti. Materi yang diperoleh disaring dalam tiga langkah SSS, yaitu: (1) identifikasi, (2) penyaringan, dan (3) tingkat kelayakan. Hasilnya, terdapat total 42 materi dan dokumen yang berhasil ditemukan dan dirangkum untuk disorot. Selanjutnya, temuan analisis dibagi menjadi: (1) frekuensi studi pengembangan warisan kota berkelanjutan yang dilakukan oleh negara, (2) konstruksi pengembangan warisan kota berkelanjutan (kemakmuran ekonomi, kesejahteraan sosial, kesejahteraan lingkungan, budaya cagar budaya, pemerintah, dan masyarakat), dan (3) kawasan*

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*studi (kota cagar budaya, bangunan cagar budaya, dan situs sejarah). Temuan penelitian ini dapat berkontribusi pada paradigma baru untuk studi yang melibatkan pembangunan berkelanjutan kota warisan di Malaysia dalam mencapai Agenda 2030.*

**Kata kunci.** *Pembangunan berkelanjutan, kota warisan, Systematic Literature Review (SLR), Malaysia.*

## **Introduction**

The Sustainable Development Agenda (SDG), introduced in 2015, sets 17 goals that need to be achieved to ensure that the SDG is implemented. One of the agendas is related to cities and communities under the 11<sup>th</sup> goal; this goal requires all member states to improve inclusive and sustainable urbanization through integrated and sustainable human settlement planning and management, and strengthening their efforts to preserve and protect cultural and natural heritage and resources globally by 2030 (United Nations Human Settlements Program (UN-Habitat), 2020). These efforts are also supported by the New Urban Agenda in making cities and human settlements inclusive, safe, resilient, and sustainable (Habitat III, 2016).

As a result, responsible bodies like the United Nations Educational, Scientific, and Cultural Organization (UNESCO), the International Centre for the Study of the Preservation and Restoration of Cultural Property (ICCROM), the International Council on Monuments and Sites (ICOMOS), and the International Union for the Conservation of Nature and the Environment (IUCN) have urged all member states to ensure long-term sustainability. This movement started when the 1972 World Heritage Convention was held. All member states must ensure that all aspects of cultural heritage in heritage cities are safeguarded and protected (UNESCO, 2019b). Therefore, as a member country committed to implementing the 2030 Agenda, Malaysia also participates in the development of sustainable heritage cities. However, there are still many aspects that have not been considered yet in the context of sustainable urban heritage development in Malaysia, such as cultural heritage indicators for measuring the level of sustainability.

The study of sustainable development of heritage cities is different from that of ordinary cities. Many cultural heritage elements are not present in ordinary cities, for example, tangible and intangible cultural heritage such as the architectural design of buildings that reflect the unique living culture of the local community, dialects used in daily speech, and lifestyle practices in cities based on certain ethnicities and sub-ethnic groups. These elements of cultural heritage make a city unique because they cannot be formed arbitrarily. Instead, these elements of heritage have been preserved and inherited from generation to generation until the present, eventually forming a unique urban appearance that has an aesthetic value that can be experienced today (Syed Zainol, 1992).

Therefore, the main purpose of this study was to determine which indicators should be used in measuring the level of sustainability of heritage cities, to see in which countries sustainable urban heritage studies are most performed, and to find trends and study areas related to this research topic. Especially the selection of indicators and study areas is crucial. After all, countries do not use all sustainability measurement instruments as cultural heritage indicators. Furthermore, the selection of study areas also determines the level of research effectiveness as required by the SDGs. Therefore, the final results of this study indicate elements that need to be focused on and

the knowledge gap that must be filled by future research, especially in the context of Malaysia, to move towards the development of sustainable heritage cities.

## **Methodology**

The first step of this research consisted of a Systematic Literature Review (SLR), which involves a thorough search of major journal databases, namely Scopus, Web of Science (WOS), and Science Direct. At the same time, ancillary journal databases were also searched, such as Google Scholar and My Cite (Malaysian database) to diversify materials and support the main database. The second step involved searching for additional materials by handpicking/hand-searching. This step involved materials of which only the title, the author's name or the source was known.

### *Identification*

Identification is the process of finding synonymous words, related terms, and variations of the study's main keywords, namely 'sustainable development', 'heritage cities', and 'cultural heritage'. This was intended to have more options in addition to the selected databases in finding relevant materials for review. The determination of appropriate keywords for the study was done based on recommendations from an online thesaurus service, keywords used by previous studies, keywords suggested by Scopus, and keywords recommended by experts (see Table 1). The search process was conducted on leading databases and selected support databases based on the main keywords using advanced search techniques such as Boolean operators, phrase searching, field code functions, truncation, and wild cards combined in one search (Table 2). In addition, manual search techniques such as handpicking/hand-searching were also used.

To search for related articles and documents, three databases, namely Scopus, WOS, and Science Direct, were selected as the main databases; this is in line with the proposal made by Gusenbauer & Haddaway (2019), who confirmed the ability of these three sources to find resources. In addition, these databases offer several advantages, such as the availability of earlier and comprehensive search functions, controlling the article quality, and having a multidisc focus, including environmental management-related studies (Martin et al., 2018; Gusenbauer & Haddaway, 2019).

Two sources were used as auxiliary databases: Google Scholar and My Cite. These databases were used primarily to obtain additional resources such as journals without indexing and any articles missing from reputable databases. In addition, the auxiliary databases were used since no database is perfect (Xiao and Watson (2017)) and the sensitivity of the main databases towards the keywords used to find relevant articles did not reach 100%. The search on the main databases and the auxiliary ones produced a total of 1189 materials.

### *Screening*

This study screened all 1189 materials obtained by choosing article selection criteria that were performed automatically based on the highlighting functions available in the selected database. The same criteria were used in the auxiliary databases and whenever highlighting functions were not available the material was screened and/or removed manually.

**Table 1.** Keyword Identification Decision.

Purpose	Main Keywords	Enriched Keywords
The development of sustainable Heritage cities	Sustainable development	Sustainable development = sustainable development, sustainable regeneration
	Heritage city	Heritage city = heritage city, old town, culture town, cultural landscape
	Heritage	<i>Warisan</i> = cultural heritage, tangible, intangible

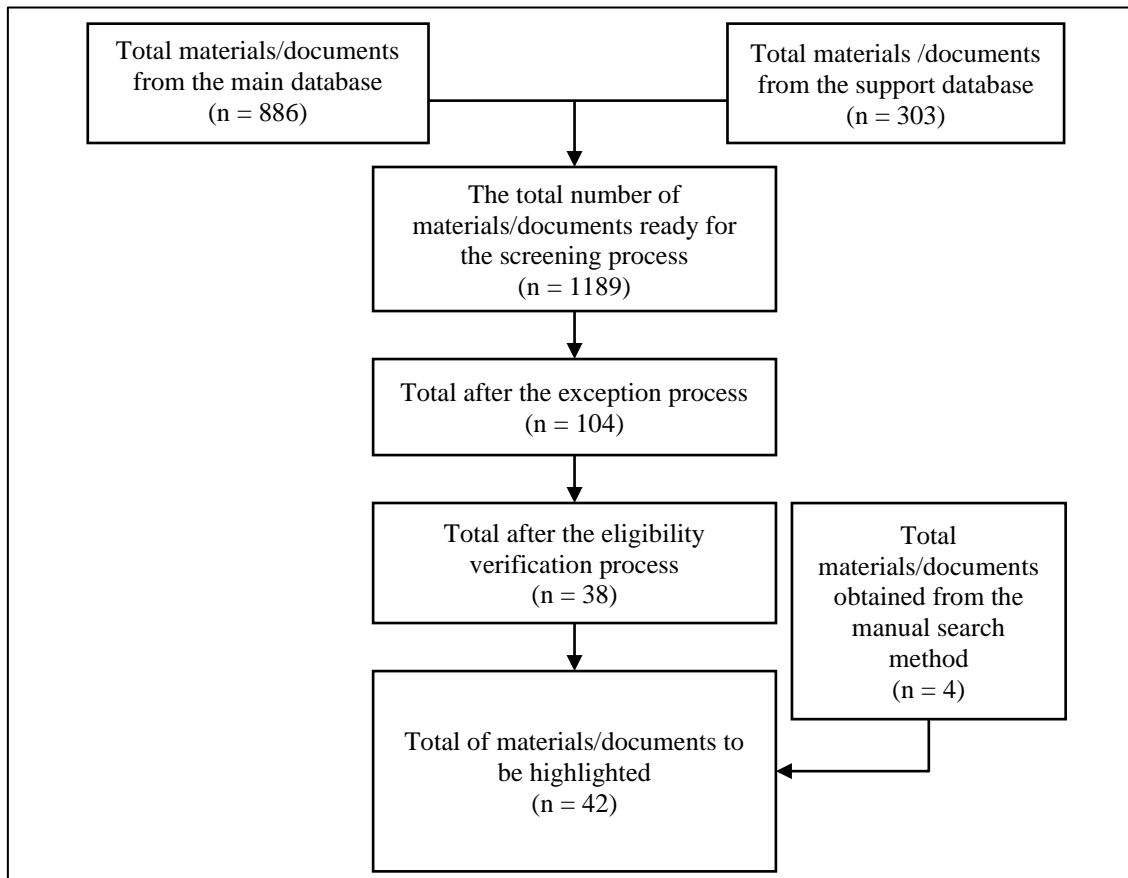
**Table 2.** Search Strings Used in the Selected Databases

Data Base	Search String
Scopus	TITLE-ABS-KEY ( ( "sustainable* development*" OR "sustainable* regeneration*" ) AND ( "heritage* city*" OR "old town*" OR "culture town*" OR "cultural landscape*" ) AND ( "cultural heritage*" OR "tangible*" OR "intangible*" ) )
WOS	TS=( ( "sustainable* development*" OR "sustainable* regeneration*" ) AND ( "heritage* city*" OR "old town*" OR "culture town*" OR "cultural landscape*" ) AND ( "cultural heritage*" OR "tangible*" OR "intangible*" ) )
Science Direct	TITLE-ABS-KEY ( ( "sustainable development" OR "sustainable regeneration" ) AND ( "heritage city" OR "old town" OR "culture town" OR "cultural landscape*" ) AND ( "cultural heritage" OR "tangible" OR "intangible" ) )

To facilitate the screening process, Okoli (2015) suggests that researchers should limit the search to a specified time period. Based on the results of the search in the selected database it was clear that the number of studies related to sustainable urban heritage development has increased since the concept of sustainable development was introduced in 1987 (World Commission on Environment and Development (WCED), 1987). However, only papers published since 2016 were included to ensure a high level of relevance. Thus, the specified time period spanned five years until 2020; the year 2021 was not included because it had not yet reached its end. This time period was chosen based on the recommendations from Shaffril, Samsuddin & Samah (2020). In addition, only studies with empirical data that were published in journals were considered (see Table 3). The process excluded 104 articles because they did not meet the initial criteria. These 104 articles were passed on to the eligibility verification process.

### *Eligibility*

Verification of eligibility is the third process of the systematic searching strategies method, where the researchers assess the articles remaining from the screening process. This process was performed by reading the title and abstract of the articles. If there still was no clear understanding of the relevance of the selected article for the study, the content of the article was examined. This process removed material from review papers, duplicate database entries, and articles that do not focus on sustainable development. The total outcomes of this process resulted in the selection of 42 printed materials to be reviewed and used as materials. The procedure is depicted in detail in Figure 1.



**Figure 1.** Flowchart of the selection process of materials to be reviewed.

### Frequency of Sustainable Urban Heritage Development Studies Conducted by Country

A total of 42 previous studies conducted worldwide were selected. Table 5 shows that many studies related to sustainable urban heritage development have been performed in Italy. A total of seven studies were conducted from 2016 to 2020, namely by Calabro, Meduri & Tramontana (2016), Gigliarelli, Calcerano & Cessari (2017), Micelli & Pellegrini (2017), Gravagnuolo & Girard (2017), Nocca (2017), Russo & Giusti (2019) and Rovelli, Senes, Fumagalli, Sacco & De Montis (2020). These studies involve heritage cities, sites, and historic buildings in Italy. Apart from Italy, studies on sustainable heritage cities have also been widely conducted in other Western or European countries, such as the United Kingdom (four studies), Belgium (three studies), the Netherlands (three studies), as well as Austria, Norway, Athens, Poland, Lithuania, Cyprus, and Spain (each with one study). Research trends in the West and Europe show that researchers there have a high awareness of the importance of conducting research related to the development of sustainable heritage cities. This is influenced by the abundance of elements of cultural heritage in the West.

This contrasts with Asia, which still lacks research concerning sustainable heritage city development. The only Asian country that has conducted a great deal of research like this is China (four studies). China is also a country rich in elements of cultural heritage from ancient dynasties.

Among them are the Great Wall of China, palaces, traditional clothing, food, and unique community cultures (UNESCO, 2019b). Other Asian countries that also store a lot of cultural heritage treasures still lack research on this topic. Indeed, only one study has been conducted in countries such as Malaysia, Indonesia, Sri Lanka, and Vietnam in the past five years. This trend is similar in Middle Eastern countries such as Iran, Bahrain, and Kuwait, where only one study was identified for each country.

The conclusion that can be drawn for Asian and Middle Eastern countries is that awareness of the importance of highlighting aspects of cultural heritage in modern development is still lacking. This is because Asian countries, especially most developing countries, are actively planning the development of skyscrapers that do not reflect the local cultural identity, because existing elements of cultural heritage do not stand out and are obscured by the skyscrapers. Thus, many elements of cultural heritage are marginalized in order to make way for more modern development, as mentioned by Moon (in Wiktor-Mach, 2019) due to a lack of awareness of the importance of cultural heritage. Moreover, cultural heritage elements such as historic buildings and sites are often located in strategic areas of city centers with high commercial value; if a new development is planned, cultural heritage elements will be sacrificed in pursuit of high profits. This situation is a dilemma for developing countries as they must choose whether to preserve their cultural heritage or undertake development for local economic growth. In addition, awareness among the community of the importance of cultural heritage is also coupled with lax enforcement and policies in many developing countries such as Malaysia, resulting in studies concerned with measuring sustainable urban heritage development being given less attention (Saleh, 2010).

**Table 4.** Frequency of Sustainable Heritage Urban Development Studies Conducted by Country

Country	Author	Total
Italy	Rovelli, Senes, Fumagalli, Sacco & De Montis (2020)	7
	Russo & Giusti (2019)	
	Nocca (2017)	
	Gravagnuolo & Girard (2017)	
	Micelli & Pellegrini (2017)	
	Gigliarelli, Calcerano & Cessari (2017)	
	Calabro, Meduri & Tramontana (2016)	
United Kingdom	DeSilvey & Harrison (2020)	4
	Rodwell (2018)	
	Ripp & Rodwell (2016)	
	Claudia & Luigi (2016)	
China	Wiktor-Mach (2019)	4
	Su, Bramwell & Whalley (2018)	
	Martinez (2017)	
	Martinez (2016)	
Belgium	Leus & Verhelst (2018)	3
	Ginzarly, Houbart & Teller (2018)	
	Ginzarly, Roders & Teller (2018)	
Netherlands	Patiwael, Groote & Vanclay (2018)	3
	Guzman, Pereira & Colenbrander (2018)	
Australia	Guzman, Pereira Roders & Colenbrander (2017)	2
	Gentry & Smith (2019)	
	Perez & Martinez (2017)	
Austria	Foster (2020)	1
New Zealand	Wang & Gu (2020)	1

South Korea	Kim & Kwon (2020)	1
Hong Kong	Lawrence (2020)	1
Norway	Guzman (2020)	1
Indonesia	Asy-Syahid, Kurniawan, Jahja, Putra & Subandrio (2020)	1
Vietnam	Pham et al. (2019)	1
Athens	Karoglou et al. (2019)	1
Thailand	Poon (2019)	1
Iran	Zandieh & Seifpour (2019)	1
Bangladesh	Hossain & Barata (2019)	1
Poland	Paprzyca (2019)	1
Sri Lanka	Poon (2019) **	1
Algeria	Benslimane & Biara (2019)	1
Kuwait	Khalaf (2018)	1
Lithuania	Seduikyte, Grazuleviciute-Vileniske, Kvasova & Strasinskaite (2018) **	1
Cyprus	Seduikyte, Grazuleviciute-Vileniske, Kvasova & Strasinskaite (2018)	1
Malaysia	Tan, Tan, Kok & Choon (2018)	1
Spain	Egusquiza, Prieto, Izgara & Bejar (2018)	1
Ecuador	Perez & Martinez (2017) **	1
Bahrain	Fredheim & Khalaf (2016)	1
Cuba	Algeciras, Consuegra & Matzarakis (2016)	1

### Sustainable Urban Heritage Development Constructs

The results of the SLR based on terms of sustainability constructs are summarized in Table 5. Five main constructs are commonly focused on by scholars from around the world.

**Table 5.** Heritage City Sustainability Indicators

Reference	Sustainability Indicators				
	Economic	Social	Environmental	Cultural heritage	Government and community
1. Foster (2020)	√	√	√	√	
2. Wang & Gu (2020)		√		√	
3. DeSilvey & Harrison (2020)	√		√		√
4. Kim & Kwon (2020)			√		√
5. Lawrence (2020)				√	√
6. Rovelli, Senes, Fumagalli, Sacco & De Montis (2020)					√
7. Guzman (2020)				√	√
8. Asy-Syahid, Kurniawan, Jahja, Putra & Subandrio (2020)				√	
9. Pham et al. (2019)			√	√	
10. Karoglou et al. (2019)			√	√	
11. Poon (2019)		√		√	



12.	Zandieh & Seifpour (2019)	√	√		√	
13.	Wiktor-Mach (2019)	√	√	√	√	
14.	Gentry & Smith (2019)		√		√	√
15.	Hossain & Barata (2019)				√	
16.	Paprzyca (2019)	√	√	√	√	
17.	Russo & Giusti (2019)		√		√	
18.	Benslimane & Biara (2019)	√	√		√	
19.	Rodwell (2018)			√	√	
20.	Leus & Verhelst (2018)	√	√	√	√	√
21.	Ginzarly, Houbart & Teller (2018)		√		√	√
22.	Su, Bramwell & Whalley (2018)	√			√	√
23.	Khalaf (2018)				√	
24.	Patiwael, Groote & Vanclay (2018)				√	
25.	Ginzarly, Roders & Teller (2018)				√	
26.	Guzman, Pereira & Colenbrander (2018)	√	√	√		
27.	Tan, Tan, Kok & Choon (2018)		√	√		
28.	Seduikyte, Grazuleviciute-Vileniske, Kvasova & Strasinskaite (2018)	√	√	√	√	
29.	Egusquiza, Prieto, Izgara & Bejar (2018)			√	√	
30.	Nocca (2017)	√	√	√		
31.	Guzman, Pereira Roders & Colenbrander (2017)	√	√		√	
32.	Gravagnuolo & Girard (2017)	√	√		√	
33.	Perez & Martinez (2017)				√	
34.	Micelli & Pellegrini (2017)	√	√	√		√
35.	Martinez (2017)				√	√
36.	Gigliarelli, Calcerano & Cessari (2017)					
37.	Ripp & Rodwell (2016)	√	√	√	√	√
38.	Martinez (2016)				√	

39.	Fredheim & Khalaf (2016)				√	
40.	Calabro, Meduri & Tramontana (2016)	√				
41.	Algeciras, Consuegra & Matzarakis (2016)		√			√
42.	Claudia & Luigi (2016)				√	
Total		16	20	16	32	13

### *The First Construct: Economic Prosperity*

The economy is the most important aspect of a city and a country. Economic status at the household or the individual level determines the extent of the economic strength of a city and country. The advancement or backwardness of a city is assessed based on the per capita income and gross domestic product (GDP). The ability of a city to provide supply proportional to demand depends on its level of economic sustainability. A sustainable city will meet all consumer needs (supply/demand) where the production and demand curves reach equilibrium. To upgrade the economy, the government needs to ensure that every relevant element is at its most sustainable level. In this discussion, the economy of heritage cities should be related to elements of heritage cities (Foster, 2020; DeSilvey & Harrison, 2020; Paprzyca, 2019).

The three most important sub-constructs in this construct are economic growth, business activity or investment, and human mobility (Zandieh & Seifpour, 2019). These three sub-constructs look at heritage-related employment opportunities such as providing traditional massage services, paid exhibitions, antique business, heritage tourism and so on, which can contribute income, human inflow and capital to a heritage city area. The selection of criteria must be based on the needs of each resident to obtain a source of income for daily living. Therefore, an assessment is done to determine to what extent the three economic elements exist in a heritage city and can meet the population's needs, making the local community prosperous and resilient (Ripp & Rodwell, 2016; Calabro et al., 2016).

In addition, heritage landscapes must be resilient and competitive with the current increasingly challenging environment. For example, are detached buildings and shophouses still able to contribute to local economic activities? The old appearance of heritage and technology in a heritage city needs to be nurtured for the benefit of future generations, but it also needs to be competitive in contributing to economic growth.

### *The Second Construct: Social Well-Being*

The goal of sustainable urban development is to create a prosperous society and a social environment. This construct is the main essence of the Healthy City Movement, which aims to create healthy, safe, inclusive, and livable cities for the community. Social well-being must refer to the provision of basic amenities, safety, public order, and communications and utilities. The Local Agenda 21 clarifies that local government has a role to play in ensuring that every city has access to all aspects of social well-being (Poon, 2019; Gentry & Smith, 2019; Benslimane & Monastery, 2019).

All the sub-constructs in this section are especially important to local social environments with a cultural heritage background. First, a sustainable heritage city needs adequate basic facilities such

as health services, education services, supermarkets, facilities for the disabled (OKU), and recreational areas. This aims to facilitate the ability of the local community to go about their daily lives. Next, a sustainable heritage city must have a high level of security and public order. Areas with low crime rates, accident rates, social symptoms and public threats are sustainable and safe. Therefore, assessing this aspect is highly important as it involves the lives and safety of the public, not only of locals but also of tourists (Guzman et al., 2018; Tan et al., 2018). Urban heritage areas with a clean record in terms of safety and public order will be a destination of choice for people to live in and travel to (Samad, Shaharudin & Hadi, 2004). Lastly, a sustainable heritage city must provide access to communication and utilities. The accessibility of the communication in question depends on the physical condition of the roads and the public transportation network. The utilities include water resources, electricity, and the Internet (Seduikyte et al., 2018; Nocca, 2017).

Efforts to achieve social well-being in heritage cities need to achieve good scores and evaluations on all these sub-constructs. Each sub-construct is related to the other. Although efforts to preserve a heritage city must be taken more seriously, social facilities according to the current needs must also be provided to ensure that the local community has the same facilities as communities elsewhere in the country. The preservation and conservation of cultural heritage should not be used as an excuse for material development in the local society. The preservation of cultural heritage, without denying the currents of social development, is the key to the sustainability for heritage cities.

### *Third Construct: Environmental Well-Being*

The environment is the third construct, with environmental health and land use as sub-constructs. Consideration of the environment in assessing sustainability is particularly important because nature is the habitat of all beings. Therefore, ensuring that the environment in urban heritage areas is in a perfect condition is the involved parties' responsibility. A disturbed environment will have a detrimental impact on local economic and social development as well as on heritage elements. Thus, the early theory of sustainability stated that the condition of the environment corresponds to a city's economic and social level. To get a conducive area in a heritage city, human beings must not 'quarrel' with nature.

The assessment of environmental quality should be undertaken using two research methods. Firstly, data related to domestic and river water quality, rainfall quantity, soil nutrients, temperature, noise, and PM10 content in the air should be collected (Kim & Kwon, 2020; Pham et al., 2019). Secondly, the environmental assessment should be conducted by considering the opinions and views of the local residents. The need to acquire the views of local people is related to understanding their level of adaptation to the environment (Tan et al., 2018). This is because the population's adaptation is important for determining whether the environment in their area is safe or not. For example, residents who live in extreme weather areas, such as areas that are regularly flooded, are used to these phenomena, while for outsiders they are something extraordinary.

The things touched upon by considering the environment are the frequency of air, water, soil, odor, noise, and vector-borne diseases (Nocca, 2017). In addition, the urban saturation aspect should also be included in this section. This is because urban saturation affects rainwater flow, the percentage of green area coverage, temperature changes, water quality, and soil fertility. When a city has reached its maximum urban saturation, the presence of green vegetation is reduced and the land surface is more paved. This situation will cause flash floods to occur more easily if the drainage system is inefficient and urban temperatures increase, resulting in increased water

pollution and the rapid spread of vector-borne diseases. Therefore, a sustainable heritage city must balance green areas and developed areas to ensure that the environmental ecosystem is not disrupted. If green and non-green areas in a heritage city records are not in balance, it should be categorized as an unsustainable city (Micelli & Pellegrini, 2017; Ripp & Rodwell, 2016).

#### *The Fourth Construct: Cultural Heritage*

According to Rana & Piracha (2007), apparent conceptual shortcomings of the cultural heritage construct cause the involvement of this construct to be insufficiently accepted in sustainable development. However, this construct has been introduced and explicitly explained by Appendino (2017), who states that cultural heritage needs to be equivalent to the element of sustainability if one wants to do study heritage cities. Cultural heritage is an extremely sensitive and exclusive urban element because of its aesthetic value (Wiktor-Mach, 2019). Specifically, cultural heritage can be divided into three categories, namely tangible cultural heritage, intangible cultural heritage, and natural cultural heritage (Asy-Syahid et al., 2020). However, in the context of heritage cities, natural elements such as forests, waterfalls, limestone caves, and so on, are not involved. Therefore, only two elements of cultural heritage are involved, namely tangible cultural heritage and intangible cultural heritage.

Thus, the first and second sub-constructs are related to tangible cultural heritage and intangible cultural heritage. The study of the sustainability of tangible cultural heritage is concerned with the level of functionality, existence, and conservation of architectural features, their originality, and the influence of heritage buildings on the economic, social, environmental, and community aspects of a city. Meanwhile, the study of intangible cultural heritage sustainability involves investigating in how far the culture is still relevant among the local community and the outside community. For example, do taboos, entertainment, food, medicine, and heritage rituals still meet the wants and tastes of today's modern society? If the level of functionality and relevance is still high, it can be concluded that the tangible and the intangible cultural heritage are sustainable (Karoglou et al., 2019).

The third sub-construct is related to the preservation and conservation of cultural heritage. This sub-construct is also very important in determining whether or not a cultural element is sustainable. Every heritage city needs to carry out conservation and preservation activities to ensure that the cultural heritage is not destroyed and extinguished. In addition, an assessment should also be made of the extent to which the processes of preservation and conservation in a heritage city have a positive impact on the economy, society, environment, and community. Mutually giving relationships with each other are key in urban heritage sustainability efforts (Patiwael et al., 2018; Su et al., 2018; Khalaf, 2018; Appendino, 2017).

#### *The Fifth Construct: Government and Community*

The construct of government and community is also referred to as institutions. This construct involves a clearer study of the roles, responsibilities, actions, and commitments of the government, non-governmental organizations (NGOs), and the society toward the sustainability of the environment and cultural heritage in a city. According to Tan et al. (2018), the government's role in the sustainable development of heritage cities through formulating policies, programs, and providing funds related to cultural heritage as well as the role of communities in receiving and implementing government policies are critical. Without contributions of the government and the community, cultural heritage elements cannot survive. In more detail, the role of the government and the community can be divided into several sub-constructs, namely

environmental management, risk management, heritage management, and community involvement (Kim & Kwon, 2020; Lawrence, 2020).

The environmental management sub-construct relates to the role of the local government in carrying out environmental care activities such as 3R practices (Reduce, Reuse, Recycle), environmental awareness and education campaigns, the implementation of policies, and compliance with laws related to the environment in urban heritage areas. Efficient environmental management will make a cultural heritage area sustainable and resilient. This is because good environmental management efforts will affect the level of environmental sustainability in the third construct. Environmental management in heritage cities needs to be conducted in more detail than in other cities to avoid extreme weather events such as flash floods, sudden temperature rises, and so on, which will affect the structure of buildings (Ni'mah, Wibisono & Roychansyah, 2021). Buildings that are decades or even hundreds of years old are more sensitive to weather disturbances (Wang and Gu, 2020).

Risk management must be considered to ensure that extreme weather events do not disrupt a city's heritage treasures and good environmental management. Risk management is more focused on the safety aspects of either heritage buildings or the public. Most heritage buildings have been built hundreds of years ago, so it is obvious that safety is highly important. The authorities need to ensure that heritage buildings are safe for public use. Periodic inspections should be carried out to ensure that there are no signs of cracking, tilting, or corrosion. Although the heritage buildings should preserve their original state and it is forbidden to make alterations to them, they must be equipped with safety equipment such as fire extinguishers, secure wiring systems, fire alarms, fire plans, and so on. Authorities must ensure that all buildings comply with the established safety measures (Leus & Verhelst, 2018).

The third sub-construct is related to heritage management and tourism (Lawrence, 2020; Guzman, 2020). This aspect is closely linked to heritage cities since heritage cities depend largely on tourist activities. People either from within the country or from abroad come to a heritage city to see the remnants of the history of a culture. Therefore, heritage management and tourism in heritage cities are vital. Management should be efficient to ensure that tourism activities can run smoothly without affecting the aesthetic value of the cultural heritage (Ginzarly, Houbart et al., 2018).

The final sub-construct in this section is community involvement in ensuring the survival of cultural heritage. Community involvement is essential because locals have a better understanding of their environment and are directly involved in the area (Leus & Verhelst, 2018). Community involvement needs to be seen in terms of the readiness of the new generation to accept the cultural heritage left by their ancestors. The readiness of this new generation can be seen from the level of participation in cultural heritage-based activities such as silat, dance, singing, and lifestyle. In addition, the role of members of cultural associations in each heritage city should also be assessed by the extent to which they contribute to the survival value of the cultural heritage. The coupling between the roles of individuals, associations, and the community as a whole will make the cultural heritage indestructible.

### **Categories of Study Areas**

Previous empirical studies can be grouped according to three categories of study areas, namely heritage cities (holistically), heritage sites, and heritage buildings. The details are based on the empirical studies shown in Table 6.

**Table 6.** Analysis of Study Areas

	Author	Study Area		
		Heritage cities	Heritage sites	Heritage buildings
1.	Foster (2020)			√
2.	Wang & Gu (2020)	√		
3.	DeSilvey & Harrison (2020)	√		
4.	Kim & Kwon (2020)	√		
5.	Lawrence (2020)	√		
6.	Rovelli, Senes, Fumagalli, Sacco & De Montis (2020)	√		
7.	Guzman (2020)	√		
8.	Asy-Syahid, Kurniawan, Jahja, Putra & Subandrio (2020)			√
9.	Pham et al. (2019)		√	
10.	Karoglou et al. (2019)			√
11.	Poon (2019)			√
12.	Zandieh & Seifpour (2019)			√
13.	Wiktor-Mach (2019)	√		
14.	Gentry & Smith (2019)		√	
15.	Hossain & Barata (2019)	√		
16.	Paprzyca (2019)	√		
17.	Russo & Giusti (2019)		√	
18.	Benslimane & Biara (2019)			√
19.	Rodwell (2018)	√		
20.	Leus & Verhelst (2018)	√		
21.	Ginzarly, Houbart & Teller (2018)	√		
22.	Su, Bramwell & Whalley (2018)	√		
23.	Khalaf (2018)	√		
24.	Patiwael, Groote & Vanclay (2018)	√		
25.	Ginzarly, Roders & Teller (2018)	√		
26.	Guzman, Pereira & Colenbrander (2018)	√		
27.	Tan, Tan, Kok & Choon (2018)	√		
28.	Seduikyte, Grazuleviciute-Vileniske, Kvasova & Strasinskaite (2018)			√
29.	Egusquiza, Prieto, Izkara & Bejar (2018)	√		
30.	Nocca (2017)	√		
31.	Guzman, Pereira Roders & Colenbrander (2017)	√		
32.	Gravagnuolo & Girard (2017)	√		
33.	Perez & Martinez (2017)	√		
34.	Micelli & Pellegrini (2017)	√		
35.	Martinez (2017)		√	
36.	Gigliarelli, Calcerano & Cessari (2017)			√
37.	Ripp & Rodwell (2016)	√		
38.	Martinez (2016)		√	
39.	Fredheim & Khalaf (2016)	√		
40.	Calabro, Meduri & Tramontana (2016)			√
41.	Algeciras, Consuegra & Matzarakis (2016)	√		
42.	Claudia & Luigi (2016)	√		
	Total	28	5	9

### *Heritage City*

A heritage city consists of a complete urban ecosystem according to the city concept introduced by scholars such as Detwyler & Marcus (1985) and Fatimah & Katiman (2016), who state that a city is a dynamic ecosystem consisting of economic, social, and environmental aspects. Nevertheless, the dynamics of heritage cities are slightly different from those of other cities. A heritage city is a city that has all the elements that other cities have but which is augmented by cultural heritage elements (tangible culture and intangible culture). These elements of heritage make a heritage city unique and different from a modern city. In addition, the age of a city also distinguishes heritage cities from modern cities. According to Yazid (2010), the definition of a heritage city based on its age is dependent on the understanding of this concept by the country in question; in some countries a heritage city is a city that is at least 100 years old, while in other countries it is 50 years old or more.

Nevertheless, age does not play a decisive role; what distinguishes heritage cities from modern cities are unique design features that reflect the local culture and the aesthetic values embodied in the city (UNESCO, 2019a). Thus, based on the SLR a heritage city can be defined as a city with a complete ecosystem coupled with cultural heritage elements (tangible heritage and intangible heritage). The city has elements of tangible cultural heritage such as groups of old buildings, monuments, monument heritage sites, traditional foods, and others, as well as intangible heritage such as local culture, music arts, beliefs, festivals, and so on.

Based on the highlights of previous studies conducted from 2016 to 2020, a total of 27 studies (see Table 5) were conducted on heritage cities holistically based on the definition discussed above. Among the heritage cities that have been used as study areas for sustainable heritage city development are Camagüey (Cuba) (Algeciras et al., 2016), Northern Italy (Italy) (Micelli & Pellegrini, 2017), Cuenca (Ecuador) and Ballarat (Australia) (Perez & Martinez, 2017), Nanjing (China) (Su et al., 2018), Georgetown and Melaka City (Malaysia) (Tan et al., 2018), Santiago de Compostela (Egusquiza et al., 2018), Khalifatabad and Barobazar (Bangladesh) (Hossain & Barata, 2019), Oswiecim (Paprzyca, 2019), Hong Kong (China) (Lawrence, 2020), and Piedmont (Italy) (Rovelli et al., 2020). These studies measured all the elements present in these heritage cities to obtain their level of sustainability. This makes the accuracy of the studies' findings higher and more relevant when used as guidelines for all parties involved.

### *Heritage Site*

The second category of study areas identified in the SLR are heritage sites. A heritage site is defined as any site discovered and identified as a historical area, such as an archaeological site, an early human settlement site, an abandoned building site with historical value, a war fort, an underground tunnel, and others. These areas may be found inside a heritage city or far away from it. Among the areas categorized as heritage sites that are designated as World Heritage Sites by UNESCO are Palmyra (Syria), Lembah Bujang (Malaysia), and Taxila (Pakistan) (UNESCO, 2011). Five studies from the SLR focused exclusively on heritage sites as study area for sustainable development, namely Martinez (2016), Martinez (2017), Russo & Giusti (2019), Gentry & Smith (2019), and Pham et al. (2019).

### *Heritage Buildings*

The third category of study areas identified in this study encompasses heritage buildings. Some researchers only looked at heritage buildings to measure their level of sustainability. Heritage buildings may be found inside heritage cities or isolated from them. They may consist of detached buildings (towers, museums, mansions, houses of worship, offices, lighthouses), groups of buildings (shop houses, settlements, multi-story buildings), and monuments. All buildings categorized as heritage building site possess distinctive architectural design features, reflecting the local community's culture, and have outstanding universal value (UNESCO, 2011). Nine studies focused exclusively on heritage buildings as study area for sustainable development, namely Calabro et al. (2016), Gigliarelli et al. (2017), Seduikyte et al. (2018), Zandieh & Seifpour (2019), Poon (2019), Karoglou et al. (2019), Benslimane & Monastery (2019), Asy-Syahid et al. (2020), and Foster (2020).

### **Discussion: Development of Sustainable Heritage Cities in the Malaysian Context**

No study has been conducted yet on the development of sustainable heritage cities holistically in Malaysia. Most of the studies related to this field have been performed in European countries and very few in Asian countries, especially Malaysia, in the past five years. Malaysia is a unique country that is full of cultural heritage and has a diverse society. Various tangible and intangible cultural heritage elements can be found in Malaysia, such as ones relating to ethnic and sub-ethnic diversity, traditional food, folk songs, traditional dances, buildings, handicrafts, artifacts, and others. Apart from that, UNESCO has also designated four areas in Malaysia as World Heritage Sites in the World Heritage List, namely Kinabalu National Park (Sabah), Mulu National Park (Sarawak), Lembah Bujang (Perak), and Melaka City (Melaka), as well as Georgetown (Penang) (UNESCO, 2011). In addition, as many as 146 cities throughout Malaysia have been classified as heritage cities because they were built before World War II (1941); these have a unique appearance and architectural design features due to cultural adaptation by local communities (Syed Zainol, 1992). All cultural heritage elements in Malaysia are protected by the National Heritage Act 2005 to protect them against disruption or destruction (Saleh, 2007; Saleh et al., 2014; Saleh, 2014). However, it would be a great loss if these cultural heritage sites are not assessed systematically and holistically for their sustainability.

The assessment of the sustainability of heritage cities in Malaysia can be implemented by measuring the level of sustainability using certain indicators (Saleh, 2010). Although Malaysia already has a sustainability measurement instrument, namely the Urban-Rural Sustainable Development Indicator Network (Murninet 2.0) developed by the Department of Town and Country Planning, the constructs and sub-constructs used by Murninet 2.0 are not comprehensive and do not involve cultural heritage indicators. Based on the SLR performed, cultural heritage indicators are an essential element in measuring the level of sustainability of heritage cities. The use of cultural heritage constructs as significant constructs besides economic, social, and environmental constructs has been argued at length by Appendino (2017). This is because the uniqueness and diversity of heritage cities are constituted by elements of cultural heritage that are not present in other cities (Appendino, 2017; Syed Zainol, 1992). Several countries in Europe (e.g. Italy) have applied cultural heritage constructs in measuring sustainability. This also stems from the call through the SDGs for cities to become sustainable by 2030, and one of the things that need to be considered in sustainable city development is the inclusion of cultural heritage elements in the assessment of sustainability (United Nations, 2019).



Therefore, for Malaysia to support the development of sustainable heritage cities it needs additional sustainability constructs to the existing sustainable city measurement instrument, Murninet 2.0. The sustainability constructs in Murninet 2.0 involve (1) economic, (2) social, and (3) environmental ones only. Based on the SLR conducted here, the measurement of sustainable urban heritage development should also involve the constructs of (4) cultural heritage, and (5) government and community. The justification for the addition of these two constructs is that heritage cities are unique and different from conventional cities. Hence, their management is also different, requiring specific government and community roles, especially in ensuring their survival (Wiktor-Mach, 2019; Leus and Verhelst, 2018). According to Ban Ki-Moon (Wiktor-Mach, 2019), the main cause of the failure of sustainable development of most cities since the beginning of this decade has been the marginalization and removal of cultural heritage elements in sustainable development. Cultural heritage elements are part of local environments that human beings should not erase or forget.

Moreover, according to Tan et al. (2018), the failure of sustainable urban development is also due to the reluctance of the younger generations to inherit the cultural heritage left by their ancestors. They have often refused to adopt and preserve elements of cultural heritage, especially intangible ones. This will lead to the failure in shaping the self and the spirit of patriotism in the younger generations. Therefore, it is appropriate for Malaysia to use two additional constructs to measure the level of sustainability of heritage cities.

Finally, as mentioned above, Malaysia hosts 146 heritage cities recognized by the local government, and two of them, namely Melaka City and Georgetown, are recognized by UNESCO. Therefore, the measurement of the sustainability of a heritage city needs to involve the city itself holistically. All elements present in the heritage city should be considered. In the Malaysian context, the major elements, namely heritage buildings and historic sites, occur mostly within the city. Therefore, the assessment can be carried out holistically without breaking it down into specific types, as shown in Table 6. Thus, measuring sustainability holistically will have a more significant and more effective impact, especially for urban management in the future.

## **Conclusions**

In conclusion, research into sustainable urban heritage development still needs to be intensified to meet the requirements of the SDGs in making cities safe, inclusive, and resilient for all communities. The results from the SLR show that studies of sustainable heritage city development have been primarily conducted in Western countries and applied to heritage city areas holistically. These studies need to be expanded throughout the world, especially in Asian and Middle Eastern countries, to ensure that the 2030 Agenda is achieved. Based on the SLR, many areas can be categorized as heritage areas. However, no study has been conducted to measure the level of sustainable development of heritage cities in countries such as Malaysia. Although Malaysia is committed to responding to the call for sustainable development brought by the SDGs, the current urban sustainability measurement instrument is not comprehensive. There are 146 heritage cities in Malaysia alone, but so far no effort has been made to measure the level of sustainability of these cities by using cultural heritage constructs. Apart from that, based on the SLR conducted, in the last five years, only one study has been conducted to measure the sustainability of cultural heritage in Malaysia. Therefore, it is proposed to conduct more sustainability studies in Malaysia using five main constructs to measure the sustainability of heritage cities, namely economic,

social, environmental, cultural heritage, and government and community. Ultimately, the findings of the SLR in this study introduce opportunities and provide ideas for efforts to be made towards sustainable urban heritage development in the Malaysian context. That is, to be able to analyze trends in the study of urban heritage development that occur in the country, to explore more constructs and sub-constructs of sustainability, and to highlight heritage elements more in designing urban development in the future.

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