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Cultural sites distribution based on **heritages status** as a **tourism destination** in Indonesia and Japan

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Abstract | Japan and Indonesia have culture as a tourism sector because both countries have old cultural civilizations. Japan and Indonesia have a lot of cultural heritage, especially architecture because it is used for trade and the spread of religion on the maritime silk route. The research of cultural heritage in the realm of geography is always related to the spatial distribution of heritage, but they have specific indicators that are different from others. This research has purpose to identify the distribution structure of heritage sites at the inter-city level (province or prefecture) and compare between 2 inter-city regions in Indonesia and Japan and their relation to the tourism destination. The paper uses analytical methods to examine the distribution of heritage sites and highlights the importance of cultural heritage in tourism. The results indicate that status granting in Indonesia based on the determination of the world heritage level, national, province, and regency makes Indonesia evenly distributed compared to the granting of Nara status based on designation, selection and registration. It is happen because the designation process in Indonesia can be done at the local level. In contrast, the granting of heritage site status in Japan is concentrated on the central government which makes the distribution more concentrated in one region.

Keywords | Cultural sites, distribution, heritages status, tourism

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1. Introduction

Japan and Indonesia have culture as a tourism sector because both countries have old cultural civilizations. Japanese and Indonesian culture has existed since before the common era. The oldest historical period of Japan is the Jomon period, oldest culture in the Japanese archipelago for more than 10,000 years. Jomon pottery production had existed approximately 16,500 years ago (Habu, 2004). The archaeological heritage in Indonesia is older than Japan. Homo erectus in Sangiran and Trinil sites had existed since 1,5—0,9 Ma (Larick & Ciochon, 2015). Indonesia and Japan's culture developed because Indonesia and Japan were on the maritime silk route -An important trade route through which the Mongol Empire attempted to invade Java, Indonesia in 1293 and Japan in 1274 and 1281 to control sea commerce in the maritime silk route (Weatherford, 2018). It makes Japan and Indonesia have a lot of cultural heritage especially architecture because not only trade but also the spread of religion on the maritime silk route. Architecture as one of the cultural heritage attribute attracts tourist and become tourist satisfaction (Gholitabar & Costa, 2018). Architectural features should possess distinctive qualities and an ambience that reflects the traditional way of life of the area in question (Chhabra, 2015).

The research of cultural heritage in the realm of geography is always related to the spatial distribution of heritage, but they have specific indicators that are different from others. The indicators are density patterns with spatial and temporal classification, type, and form of cultural heritage classification, and also factors influencing this distribution. Research on the distribution of heritage sites usually examines the character of the distribution based on the number per region or period. Where the number of cultural heritage sites is higher in Europe and North America compared to other regions that are not concentrated in the Middle Ages (600–1450) but the periods of Reformation and Exploration (1450–1700) and Progress and Empire (1850–1914) (Yongqi et al., 2021). The success of heritage tourism development is contingent upon several key elements, including community participation, partnership and collaboration between private and public stakeholders, an understanding of profit sharing and the preservation of natural and historical heritage, access to other markets and the implementation of well-coordinated economic strategies (Nomeikaite, 2010). The spatial structure of the distribution of heritage sites has been studied at the city, country and various intercontinental levels. If the study of the distribution structure of heritage sites is carried out at the level of a small area such as a city of spatial distribution, the structure of the heritage site will lead to random structures such as in the city of Nablus, Palestine (Abahre & Burqan, 2020). Heads to the random distribution pattern of spatial analysis showed that the direction of the geographical spread of most of the archaeological sites throughout the city, but if the distribution structure of heritage sites is studied over a wide area such as countries or even between continents, the cluster pattern will become the structure of the spatial distribution of heritage sites. As in heritage sites in China where the majority of the heritage sites were concentrated in the east–central regions of China (Che et al., 2022), as well as for larger areas such as the spatial distribution cultural heritage sites are densely distributed along the Mediterranean coast in Europe, Asia, and Africa (Yao et al., 2021). Research on the distribution of heritage sites has been studied by comparing two regions in China and Belgium which says the most density district distribution of their industrial heritage is located close to neighbors countries and the main categories are built by their historical stages of industrial development (Zhang et al., 2021). Abahre and Burqan (2020) focuses on finding out the structure of distribution studies carried out at the level of a small area such as a city of spatial distribution, the structure of the heritage site will lead to random structures.

Zhang et al. (2021) find out that the most density district distribution of their industrial heritage is located close to neighbors' countries.

However, the structure of the distribution of heritage sites between cities such as the provincial or prefecture level has never been carried out. Therefore, this paper identifies the distribution structure of heritage sites at the inter-city level (province or prefecture) and compares between 2 intercity regions in Indonesia and Japan.

2. Theoretical framework

2.1. Cultural Heritage Sites Distribution Pattern

The distribution pattern of the status of cultural heritage sites shows the policy of a country or UNESCO in managing cultural heritage sites. The distribution pattern of the status of cultural heritage sites is carried out to group cultural heritage sites based on differences in type and period, which concludes that there is an imbalance in the spatial distribution of types and periods of cultural heritage buildings due to natural, human, and socio-economic factors (Gao et al., 2023). As for instance, UNESCO's World Cultural Heritage sites are not concentrated in the Middle Ages (600-1450), but mostly in the periods of Reformation and Exploration (1450-1700) and Progress and Empire (1850-1914), which shows that there is an imbalance regarding the development of the World Heritage list because it was a period of colonialism and imperialism, which has the potential for world cultural heritage to contain elements of colonialism and imperialism (Yongqi et al., 2021). World architectural heritage sites are distributed in clusters with unequal patterns because differences in the spatial distribution of world architectural heritage are influenced by the power of national discourse so that countries with stronger economic power tend to have a greater voice in the international platform of architectural heritage conservation (Wang et al., 2021). Similarly, the presence of sites with cultural heritage status in a country is more dominantly influenced by socio-economic factors than geographical factors so the concentration of the list of cultural heritage sites is located in regions with high GDP per capita (Nie et al., 2023).

2.2. Classification Characterization of Heritage Sites

Indonesia and Japan share similar characteristics, which can be seen in their historical connections, geographic diversity, heritage, and tourism significance. Both countries have diverse geographic features, ranging from tropical islands to mountainous regions, resulting in a variety of cultural landscapes and heritage sites. Despite their geographical distance, Indonesia and Japan have historical connections through trade, migration, and cultural exchange. These historical ties provide a basis for exploring shared cultural influences and interactions. Both countries are major tourist destinations and are well known for their cultural attractions. However, they face challenges in preserving their cultural heritage amidst rapid urbanization, development pressures, and environmental threats.

UNESCO divided heritage into the natural heritage and cultural heritage. Natural heritage is a natural site such as physical, biological, and geographical formations which have cultural aspects. Cultural heritage consists of tangible and intangible heritage which have five values. The first value is symbolic value. This value presents as a cultural identity. Second, the historical value represents the fluorescence of a region's traditions, culture, and civilization in each era that has passed. Third is information value which cultural heritage can give how other cultures met challenges to their exis-

tence. Fourth is aesthetic value which provides an aesthetic, emotional experience, and creative inspiration for the viewer. The last, cultural heritage must have an economic value which attract the people to come as a pilgrim, adventurer, tourist, investor, business, etc (Costin, 1993). There are six basic types of cultural heritage sites consist of historic urban, industrial heritage, archaeological site, cultural landscape, underwater heritage and architectural heritage (Monument and Historic Buildings) (Yongqi et al., 2021).

Architectural heritage means all structures and buildings together with their setting and attendant grounds, fixtures and fittings not only in single but also sites and groups of such structures and buildings, which are of architectural, historical, archaeological, artistic, cultural, scientific, social, and technical interest (UNESCO, 1999). It means the type of architectural heritage not only a single monument or building but also sites, monuments, groups or buildings, cultural landscapes, heritage town and town centers, heritage canals, and heritage routes, besides architectural heritage, can overlap with other heritage types, such as endangered world heritage, industrial heritage, agricultural heritage, mining heritage, cultural landscape heritage, settlement heritage and religious architectural heritage (Wang et al., 2021). This paper classifies all types of architectural heritage based on (1) heritage sites status from Japan which used heritage site type (Kakiuchi, 2017) and Indonesia which used region level heritage status (Purwantiasning, 2021) and (2) Japan and Indonesia period.

3. Methods

The objects of this research are heritage and Historic objects in Yogyakarta Province and Nara Prefecture. There are 749 heritage objects in Nara Prefecture, 486 Heritage objects in Yogyakarta Province. This heritage sites not only world heritage but also national and local heritage. The resource data of heritage from:

1. BPCB Yogyakarta and website of `https://jogjacagar.jogjaprov.go.id/bangunan-warisan-cagar-budaya`
2. Geospatial Information Authority of Japan website `https://www.gsi.go.jp/common/000055325.pdf` and `https://kunishitei.bunka.go.jp/bsys/searchlist`

Every heritage makes a correlation with another heritage which generates 3 three categories, including: aggregated distribution ($R < 1$), random distribution ($R = 1$), and dispersed distribution ($R > 1$). This paper uses the Nearest Neighbor Analysis to measure the spread of heritage (Society, 2017):

$$R_n = \frac{D_{(obs)}}{0{,}5\sqrt{\frac{a}{n}}} \quad (1)$$

D(obs) mean value of the nearest neighbor distances, α means the area sampled, and n means the number of points (in this case retail buildings). Distribution Density to find the aggregation of heritages in an area is estimated using kernel density estimate value (Kuang et al., 2023).

$$f_n(x) = \frac{1}{nh}\sum_{i=1}^{n} k\left(\frac{x-X_i}{h}\right) \quad (2)$$

n represents the world architecture heritage amount, k is the kernel function, x–Xi means the distance from the estimated point to the measured point xi, and h is the search radius Lorenz curve and Gini coefficient The Gini coefficient is used to describe the differences in the distribution of spatial elements in discrete regions (Chen & Xie, 2018).

$$G = \frac{-\sum_{i=1}^{n} P_i l_n P_i}{l_n} \quad (3)$$

N is the number of regions, *Pi* refers to the percentage of the number of architectural heritage sites to the total in the region *i*, and Gini is between 0 and 1. If Gini is close to 0, it means that the distribution tends to be balanced, and the number of cultural heritage sites in each region will be equal. But if it is close to 1, it will indicate that cultural heritage sites are concentrated in a certain region.

Indonesia and Japan have differences in managing cultural property. In 1950 cultural property in Japan was divided into 3 namely tangible cultural properties, intangible cultural property, and monuments. In 1975 and 1996, three additional systems were used to give cultural property status (Kakiuchi, 2017), including:

1. Designation, indicates the important or national treasure status of tangible, intangible, monument cultural property. The designation status means that the cultural property is significantly indispensable for understanding the life of the community.

2. Selection, is the granting of status by a selection process but has the same level as designation specifically for preservation districts for groups of traditional buildings and cultural landscapes. This status began to be used in 1975.

3. Registry, which came into use in 1996, is aimed at protecting and passing on modern cultural properties of diverse social value that are in danger of extinction due to changes in lifestyle, as well as land and urban development.

Similar to Japan, Indonesia designation system is also set in three levels (Permuseuman & Kebudayaan, 2013), those are:

1. National Designation, is determined by the minister responsible for culture, currently the Ministry of Education, Culture, Research and Technology.

2. Provincial Designation, is determined by the Governor or leader of the province

3. Regency / City Designation, is determined by the Regent or Mayor who is the leader of the Regency and City area.

Indonesia and Japan have different periods, so to equalize the periods between Indonesia and Japan, this paper follows the division of the world period by (Yongqi et al., 2021).

Table 1 | Indonesian and Japan Period based on World Period

Period Start and End Time	Code Cultural	Japan Period	Indonesia Period
800.000 BCE–700BCE	Human Origin	Jomon (13000—400 BCE)	Paleolitikum (450.000—150.000 BCE) Mesolitikum (8000—4500 BCE) Neolitikum (4500—2500 BCE) old Megalitikum (2500—1500 BCE)
700–300BCE	Early Civilizations		New Megalitikum (1500—100 BCE)
300BCE–600CE	The Classic Age	Yayoi (400 BCE-250CE) Koffun / Yamato (250 – 710 CE)	Hindu-Budha Kingdom (400—1500 CE)
600–1450	Trade and Invention	Nara (710-794), Heihan (794-1185) Kamakura (1185-1333) Muromachi (1333-1568)	Mataram Hindu-Budha Kingdom (700-1000 CE)
1450–1700	Reformation and Exploration	Azuchi-Momoyama 1568-1600)	Islam Sultanate (1267—1755 CE) Mataram Islam (1584-1755)
1700–1850	Revolution and Industry	Tokugawa (1600-1868)	VOC Netherland Colony (1680-1799) Yogyakarta Sultanate (1755-Now) France/Netherland Colony (1808-1811) Great Britain Colony (1811-1816) Pakualam Dukedom (1811-now)
1850–1914	Progress and Empire	Meiji (1868-1912)	Netherland Colony (1816-1942)
1914–2011	Technology and Superpowers	Taisho (1912-1926) Showa (1926-1989) Heisei (1989-2019)	Japan Colony (1942-1945) Republik Indonesia (1945-now)

Source: by author (2023) based on (Hall & Zainu'ddin, 1971; Henshall, 2004; Yongqi et al., 2021)

The tourism popularity of a landmark can be measured based on the number of geo-tagged images (Sun et al., 2015). Photo data can be sourced from Flicker, TripAdvisor or Google map images (Kurashima et al., 2010; Kurata, 2012; Mor & Dalyot, 2020). This paper takes from the number of photos uploaded by visitors on Google Maps to see the popularity of heritage sites so that this popularity is used to classify tourism destination recommendations divided into 6 classes based on the number of photos uploaded. The first class represent 0-100 photos, class 2 represents 100-1,000 photos, class 3 represents 1,000-10,000 photos, class 4 represents 10,000-50,000 photos, class 5 represents 50,000-100,000 photos, and class 6 represents 100,000-150,000 photos.

This paper used to variation-find comparison seeks to establish in the character or intensity of a phenomenon by differences between instances. It used comparative differences analysis to explain the principle of variation. This research starts from observing and constructing differences in spatial heritage patterns between two regions in Indonesia and 2 regions in Japan.

4. Results and Discussion

4.1. Spatial Distribution of Heritage Sites based City

The area of Nara Prefecture and Yogyakarta Province are almost the same, with Nara Prefecture having an area of 3.691 km^2 and the Special Region of Yogyakarta Province having an area of 3.186 km^2. The division of cities between Yogyakarta Province and Nara Prefecture is different. D.I Yogyakarta is divided into 5 cities while Nara is divided into 38 cities. The pattern of distribution of cultural heritage sites between the two regions is similar in that the Capital has the highest number of cultural heritage sites compared to other cities, but Nara Prefecture has more inequality than Yogyakarta Province. Nara City is in class V with 262 heritage sites while Kashihara and Sakurai City as the second and third most numerous heritage sites are only in class 2 with 77 and 56 heritage sites respectively. The other cities are only in class 1 and 4 of them are without any cultural heritage sites. Although Yogyakarta City has the highest number of cultural heritage sites, the difference in the number of cultural heritage sites between cites is not too uneven.

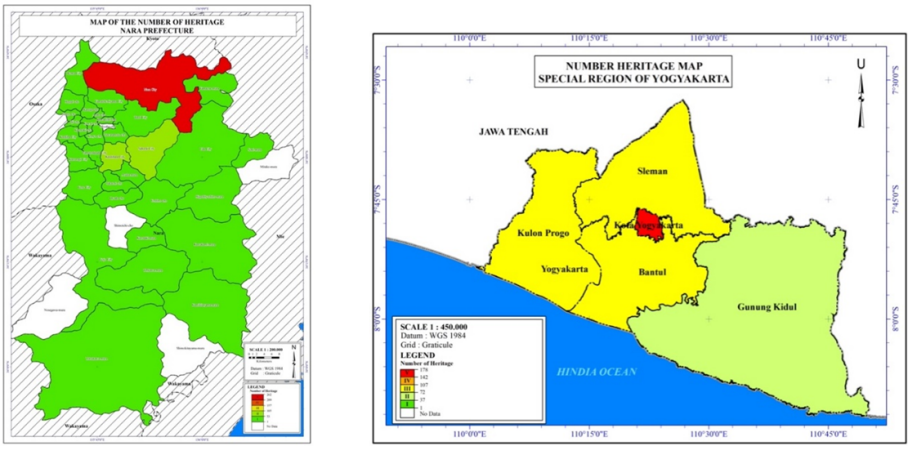

Figure 1 | Number of heritage sites in Nara and Yogyakarta
Source: author (2023)

The distribution pattern of cultural heritage sites between Nara and Yogyakarta is different, although the city centres of both regions have the highest number of cultural heritage sites compared to other cities. Figure 2 and Figure 3 show the difference in Lorenz curves between Nara and D.I Yogyakarta, the Lorenz line of D.I Yogyakarta (Figure 2) is approaching the equilibrium line, while the Lorenz curve of the Nara heritage site (Figure 3) shows that the Lorenz line is moving away from the equilibrium line. This indicates that the designation of cultural heritage sites in Yogyakarta, Indonesia is more distributed than the designation of cultural heritage sites in Nara, Japan. The Gini Index generated from Formula 3 shows that the distribution of cultural heritage sites in Nara, which has a coefficient of 0.73, is concentrated in one area, which is the city of Nara. Gini Index D.I Yogyakarta has a coefficient of 0.23 more tends to the value of 0 so that the distribution of cultural heritage sites experienced equal distribution in each region.

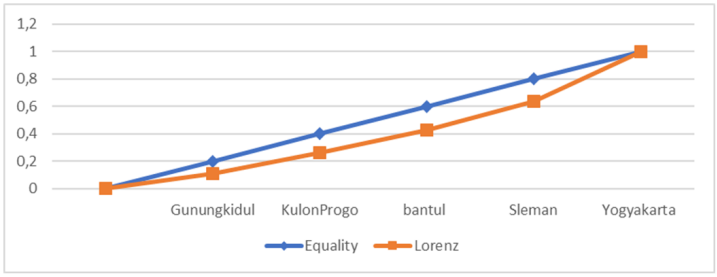

Figure 2 | Lorenz Curve of Cultural heritage sites in Yogyakarta province
Source: author (2023)

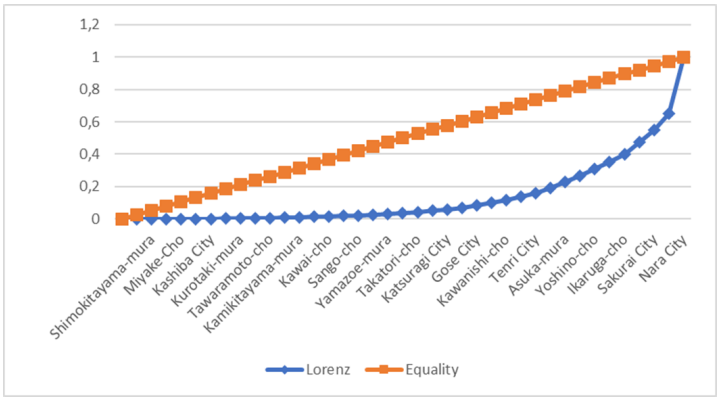

Figure 3 | Lorenz Curve of Cultural Heritage Sites in Nara Prefecture
Source: author (2023)

4.2. Spatial Distribution of Heritage Sites based Agglomeration Area

The distribution pattern of heritage sites in Nara and Yogyakarta is Aggregated distribution based on the average nearest neighbor analysis from ArcGIS10.7 software (table 2). The R-values of both regions are below 1, and the Z-scores and P-scores are also below 0.1 and 0.01, indicating that both regions have a strong spatial clustering distribution characteristic of heritage sites. The R score and Z score of Nara prefecture are much lower than those of Yogyakarta Province, which means that the concentration pattern of heritage sites in Nara is much stronger than that of Yogyakarta Province.

Table 2 | Result of average nearest neighbor analysis of heritage buildings

Project	D.I Yogyakarta	Nara
Nearest Neighbour Index (R)	0.333818	0.180256
Observed Distance di/m	7,391,019	173.4477
Expected Distance de/m	22,140,866	962.2307
Z-Score	-28,611,396	-50.281218
p-Score	0,0000000	0,000000
Distribution Characteristics	Strongly Clustered	Strongly Clustered

Source: author (2023)

This study also utilised the kernel density estimation tool of ArcGIS 10.7 to analyse the spatial clustering of heritage buildings in Nara and D.I Yogyakarta. Based on the kernel density map, the existence and status of cultural heritage sites in Nara Prefecture are distributed in the northern to central regions, especially cities in the northern region such as Nara City, Ikaruga Cho and Kashihara City have a high agglomeration of cultural heritage sites. In Yogyakarta Province, the existence and status of cultural heritage sites are scattered almost throughout the province but only in the city of Yogjakarta has a high agglomeration of cultural heritage sites.

4.3. Classification Heritage Sites Management

Japan existed in the Jomon period but Nara, the oldest heritage from the Yayoi Period spanning from c. 400 BCE to c. 250 CE (Uozu, 2019), Karako Kagi Ruins Archaeological Site is the oldest archaeological heritage in Nara, Japan. On the other hand, D.I. Yogyakarta Archaeological Heritage Braholo Cave and Song Bentar Cave included megalithic sites which have more than 30,000 years old. In the 4th century, the Tarumanegara kingdom began to rule in the western part of Java (Wessing, 2011) while the Central Java region was only started in the 7th-8th century by the Kalingga kingdom (Swain, 2021). D.I. Yogyakarta did not have a heritage site in The Classic Age (700 BCE - 600 CE). Heritage in Indonesia and Japan most built In 600-1450 CE, and world heritage also built in 600-1450 CE (Yongqi et al., 2021). The heritage of Asia grew significantly from the 6th century BCE to the 6th century CE (Wang et al., 2021), but Japan and Indonesia Grew significantly in 600-1450 CE. In 600-1450 Ce, both Indonesia and Japan were led by the Sailendra dynasty (Indonesia) and the Soga clan (Japan) which built many heritages especially Buddhist temples including Prambanan and Sewu temple and Hokki ji temple (Unesco World Heritage) (Mccallum, 2001; Santiko, 2013).

The oldest cultural heritage sites in Japan and Indonesia are archaeological sites of human habitats. Cave sites that are ancient human habitation and burial sites in Indonesia are cultural heritage at the district level and Provincial level but only 1 of these 4 cultural heritage sites has Provincial status. Three of the four cultural heritage sites are located in Gunung Kidul Regency, which has many karst caves. The Karako Kagi Ruins site in Tawaramoto-cho is the only cultural heritage site of the Yayoi period. The site is the ruins of a ring-moated village. The site is categorised as a Historic Site, Scenic Beauty, and Natural Monument selected by the designation process.

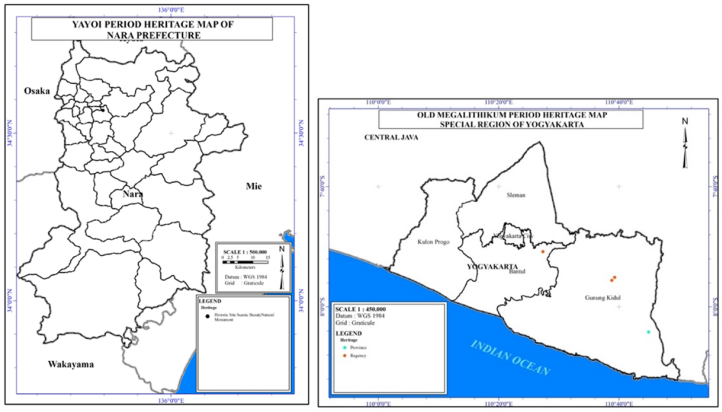

Figure 4 | Yayoi heritage sites in Nara (a) and Old Megalithikum heritage sites in Yogyakarta (b)
Source: author (2023)

The oldest period in Indonesia is the Human Period, while the oldest period in Japan is the Classic Age. In addition to the Yayoi Period, the Koffun or Yamato period is also included in the Classic Age period. The Koffun period is concentrated in the border area between Asuka-Mura, Kashihara City and Sakurai City. Just like the Yayoi period, the Koffun period is also still dominated by archaeological sites and natural monuments so that 63 out of 65 cultural heritage sites are still in the status of Historic Site, Scenic Beauty, and Natural Monument selected by the designation process. In this period, 2 cultural heritage sites were in the form of wooden buildings that are still actively used as Buddhist temples so that these two sites became UNESCO World Heritage status.

The Trade and Invention period was a golden age for Indonesia and Japan in the field of cultural heritage sites. In Indonesia, the trade and invention period or the Hindu-Buddhist Kingdom period was dominated by buildings or ruins of religious sites. These cultural heritage sites are concentrated in Sleman Regency, with 5 UNESCO World Heritage status, 11 National heritages, 2 provincial cultural heritages, and 13 district cultural heritages. the distribution pattern of National and provincial cultural heritage status is around UNESCO world heritage status in Sleman Regency, while all Hindu-Buddhist kingdom period cultural heritage sites found in other areas are still Regency cultural heritage status.

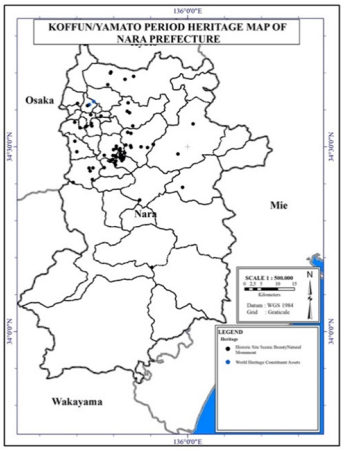

Figure 5 | Koffun/Yamato heritage sites in Nara
Source: author (2023)

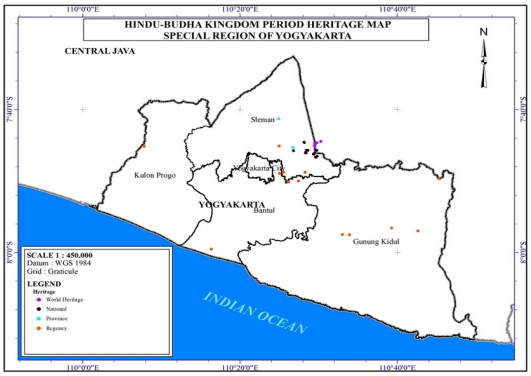

Figure 6 | Hindu-Budha kingdom heritage sites in Yogyakarta
Source: author (2023)

The period of Trade and Invention in Japan is divided into 4 periods namely Nara Period, Heihan Period, Kamakura Period, and Muromachi Period. In this period, the status of Important cultural heritage / National treasure is dominated by 180/241 cultural heritage sites. The Nara Period and Heihan Period have sites that have UNESCO World Heritage status, while in the Muromachi period, there are 1 district and 1 landscape that have Important Preservation District and Important Cultural Landscape status. It is this period that characterises the agglomeration of cultural heritage in Nara city.

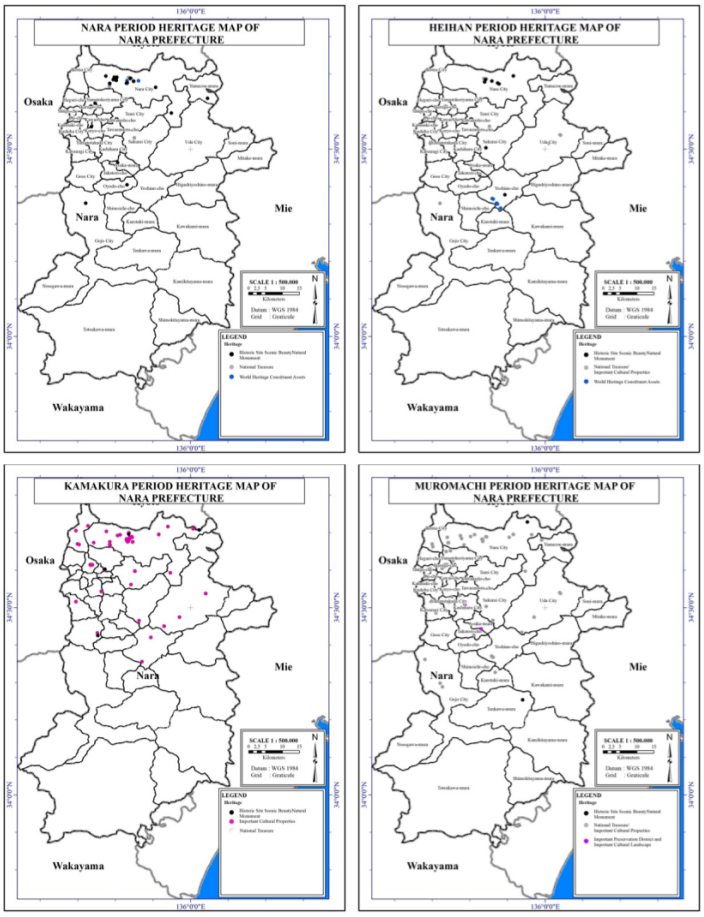

Figure 7 | Nara Period, Heihan Period, Kamakura Period, dan Muromachi Period Cultural Heritage sites
Source: author (2023)

The Reformation and Exploration era is the era that has the fewest heritage sites in both Yogyakarta and Nara. In Yogyakarta, this period is called the Islamic Sultanate period. In this period there are 29 cultural heritage sites, consisting of 8 provincial sites and 21 district sites concentrated in Bantul Regency. Cultural heritage sites of the Islamic Sultanate period in Yogyakarta are dominated by burial sites of Islamic kings and Sufis and ruins of palaces and religious buildings. The same pattern also occurs in Nara, this period is called the Azuchi-Momoya period, this period is also in the form of burial sites and ruins of palace and religious buildings totalling 12 cultural heritage sites consisting of 11 Important cultural property / National Treasure and 1 Historic site.

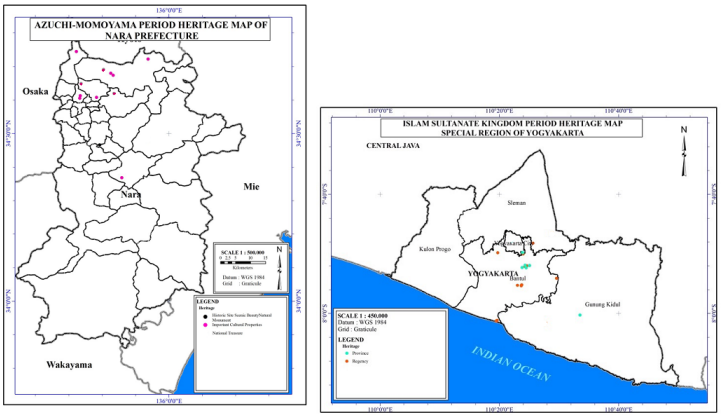

Figure 8 | Azuchi-Momoyama heritage sites in Nara (a) and Islam Sultanate heritage sites in Yogyakarta (b)
Source: author (2023)

Registered Cultural property status began to appear in the Tokugawa Period known as the Edo period and Registered Cultural property status began to dominate the status of cultural heritage sites in the Meiji period. Religious sites, educational sites, and other sites still become Important Cultural property or Historic sites/Scenic Beauty/Natural monuments, but traditional housing heritage in the Tokugawa and Meiji periods is categorised as Registered Cultural property status. Although traditional houses can be categorised as registered cultural property, the distribution of Registered Cultural property is still concentrated in the northern region, especially in Nara City, Kasihara City, Sakurai City and Yoshino-cho

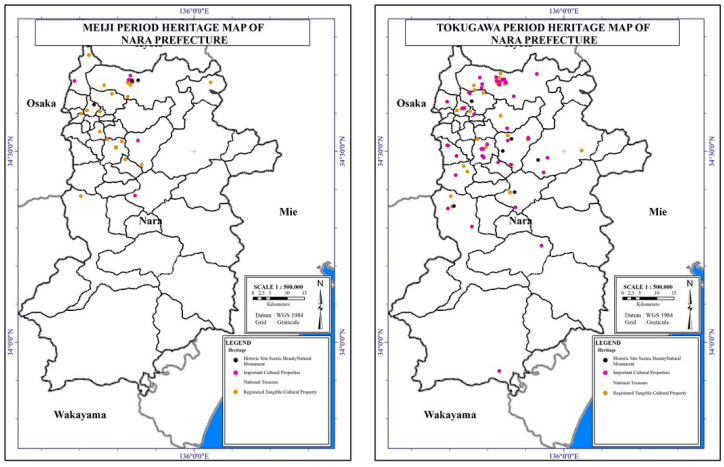

Figure 9 | Tokugawa and Meiji heritage sites in Nara
Source: author (2023)

Cultural heritage sites in the European colonialism period are the most numerous compared to other periods because in this period there are two cultures, namely the civilisation of the Sultanate of Yogyakarta and the civilization of European Colonialism, especially Nederland. The cultural heritage of this period has two characteristics, namely traditional Javanese architecture buildings and European architecture buildings. For the division of cultural heritage status of the Yogyakarta Palace

and several D.I. Yogyakarta Provincial government buildings located in the city of Yogyakarta into world heritage status, while other Javanese and European Architecture buildings also located in the city of Yogyakarta are dominated by national and provincial status. Other traditional buildings outside the city of Yogyakarta are still dominated by district cultural heritage status.

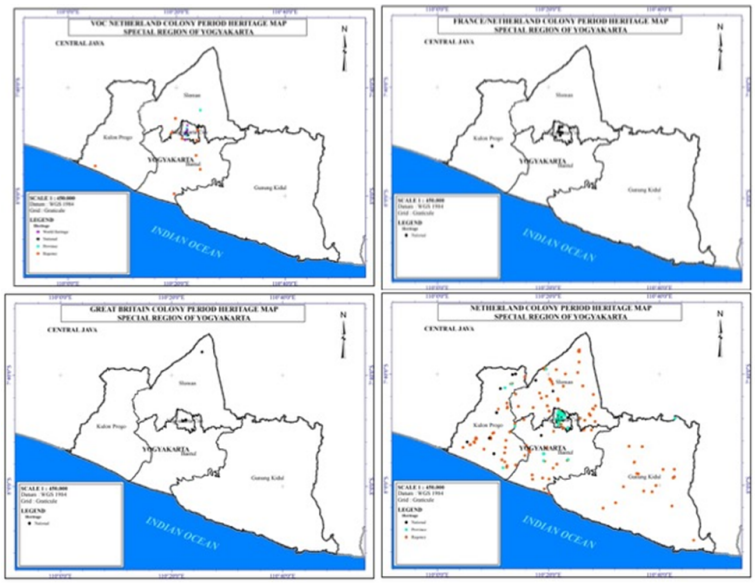

Figure 10 | European Colonialism heritage sites in Yogyakarta
Source: author (2023)

The period of Technology and Super Power in Indonesia occurred during Japanese colonialism and the Indonesian Independence Period. Buildings were dominated by district-level cultural heritage but cultural heritage located in the city of Yogyakarta retained its status as national and provincial cultural heritage. Cultural heritage in this period ended in 1949 when the Netherlands recognized Indonesia's independence so the youngest cultural heritage is the former school buildings built between 1949-1950.figure 16. Technology and Super Power period heritage sites in Yogyakarta.

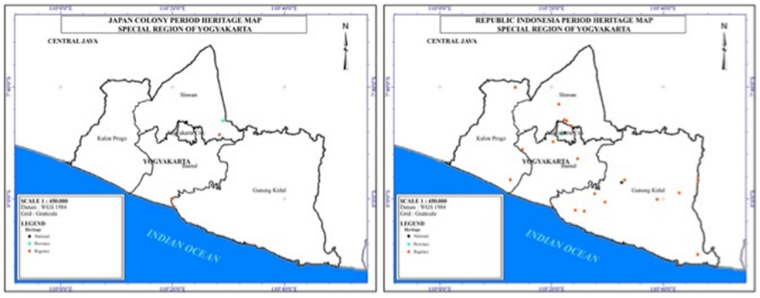

Figure 11 | The Technology and Super Power period heritage sites in Yogyakarta
Source: author (2023)

The Technology and Super Power period in Japan consists of 3 periods, Taisho, Showa and Heisei periods. All of the heritage sites from 3 periods are Registered cultural property, Japan Anglican Church of Nara Christian Church is the last important cultural property based on period. Japanese traditional buildings can be cultural property, in Nara the youngest building is the Ikegawa family main building which was built in 1967 and is the only registered cultural property in the Heisei period.

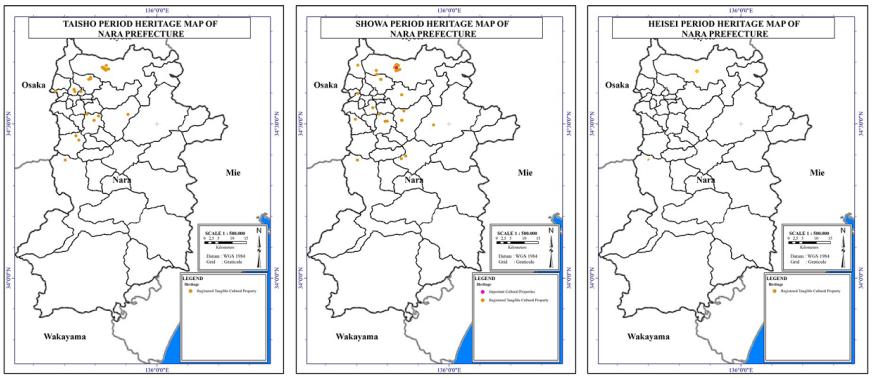

Figure 12 | The Technology and Super Power period heritage sites in Nara
Source: author (2023)

4.4. Character and distribution of heritage sites with potential as tourist sites

The relationship between the number of photos uploaded on the Heritage status Google map platform and the status of the historic site or building can be seen in Figure 13 and Figure 14. Both figures show that the higher the heritage status, the more photos are uploaded. Heritage sites that have more than 150,000 uploaded photos are only two sites in Nara and Yogyakarta. In Nara, one has World Heritage status, namely Todaiji temple and one has historic site status, namely Nara Park. While in Indonesia both sites have World Heritage status, namely Prambanan Temple and Taman Sari (water palace). This shows that the greater the status given, the greater the opportunity for heritage sites in Kelola as a tourist attraction.

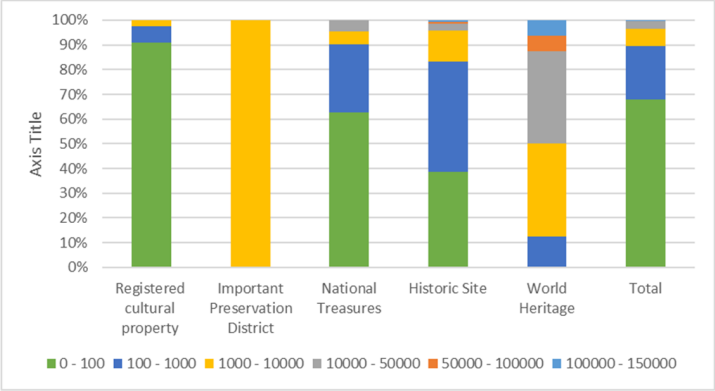

Figure 13 | The percentage of geotagged images of heritage sites by heritage type in Nara
Source: author (2023)

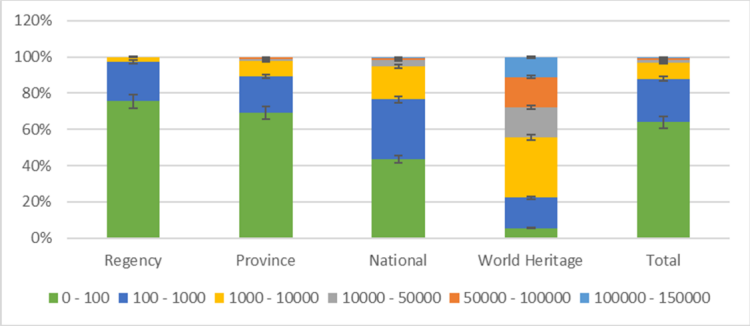

Figure 14 | The percentage of geotagged images of heritage sites by heritage type in Yogyakarta
Source: author (2023)

136/479 heritage sites in D.I Yogyakarta have no uploaded photos at all, consisting of 9.5% national cultural heritage status, 22.1% provincial cultural heritage and 68.4% district cultural heritage status. The same thing also happened in Nara where as many as 256/754 heritage sites had no uploaded photos consisting of 2% historic sites, 125 national treasures, and 87% Registered cultural property. The percentage of the absence of uploaded photos in each type of heritage can show the percentage of heritage sites that are not utilized as tourism destinations.

The distribution of Heritage Sites based on geotagged images can determine which regions have developed their heritage sites into tourist attractions. In D.I Yogyakarta, areas that have not developed their heritage into tourist attractions are Kulon Progo and Gunung Kidul. Only 27% of Gunung Kidul heritage sites have geotagged images totaling 100-1000 as well as Kulon Progo there are still many unknown heritage sites. More than 30% of Kulon Progo and Gunung Kidul heritage sites do not have geotagged images. Yogyakarta and Sleman are regions that have many geotagged images on their heritage sites and these two regions are also the centers of concentration of heritage sites in D.I Yogyakarta. This shows that the higher the concentration of heritage sites, the more heritage sites are visited. The same thing happened in Nara. Kashihara City, Uda City, Yoshino-cho, Sakurai City, Asuka-mura, Ikaruga-cho, Nara City are areas that have high geotagged images and are also the centers of concentration of heritage sites in the Nara region.

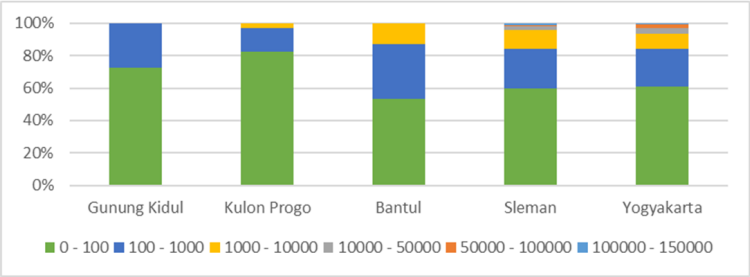

Figure 15 | The percentage of geotagged images of heritage sites by city in Yogyakarta
Source: author (2023)

Cultural heritage sites with low status will dominate the number of cultural heritage sites at the provincial level and have a more dispersed pattern than those with high status. The granting of cultural heritage status based on the designation, selection and registration processes carried out in Nara

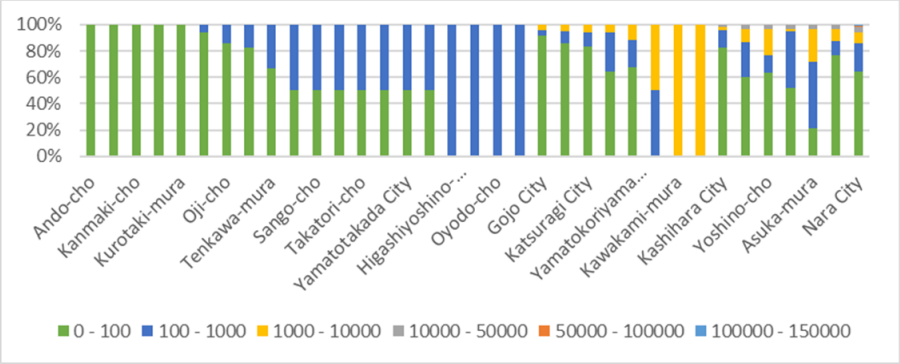

Figure 16 | The percentage of geotagged images of heritage sites by city in Nara
Source: author (2023)

has a pattern that designation and selection are carried out in the period dominated by cultural heritage sites of the Yayoi to Azuchi-Momoyama period, while the registration process is carried out for traditional building sites in the Tokugawa to Heisei period. This makes Nara's cultural heritage sites dominated by those of the Tokugawa, Meiji, Taisho, and Showa periods rather than those of the Yayoi to Azuchi-Momoyama periods. Similarly, in Indonesia, district cultural heritage status dominates over world heritage, national, and provincial levels. The pattern of giving cultural heritage status by level in Indonesia is not influenced by period so each period has a high to low level status. Similar to Nara, Yogyakarta is also dominated by younger cultural heritage sites, whereas Yogyakarta is dominated by cultural heritage sites of the Netherland Colony period.

5. Conclusion

This paper concludes that the application of status granting in Indonesia based on the determination of the world heritage level, national, province, and regency makes Indonesia evenly distributed compared to the granting of Nara status based on designation, selection and registration because the designation process in Indonesia can be done at the local level so that local governments try to conduct an inventory of cultural heritage sites. In contrast, the granting of heritage site status in Japan is concentrated on the central government which makes the distribution more concentrated in one region. The granting of high-level cultural heritage sites such as National status in Indonesia and or important cultural property status in Japan does not necessarily make them tourist attractions, but higher cultural heritage can increase the chances of them becoming cultural heritage. In addition, the concentrated location of cultural sites also increases the chance of becoming a tourist landmark.

The distribution pattern of heritage sites can be used in the planning and enhancement of heritage sites to identify areas with imbalances in the spatial distribution of cultural heritage buildings, allowing for more targeted preservation efforts and tourism development. Understanding the distribution of heritage sites can help in creating more inclusive and diverse cultural heritage preservation strategies. While in the management of tourist flows, the distribution pattern of heritage sites can be used by identifying popular tourist destinations based on the number of geo-tagged images, allowing for better planning of infrastructure, crowd control measures, and resource allocation. This can optimizing tourist experiences and minimizing negative impacts on the sites and surrounding areas.

The weakness of this research is the use of ge-

otagging photos that are only done on the Google Maps site because the data for retrieving the amount of photo data is taken based on the astronomical location of the heritage site not based on the name of the heritage, Retrieval from other sites is not done because it is based on the name of the heritage so that local and provincial heritage sites that are not yet well known will be difficult to find.

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