



TRACKING THE LOCATIONS OF HINDU-BUDDHIST ARCHAEOLOGICAL REMAINS IN MAGELANG REGION BASED ON ROD 1914 AND GIS APPROACH

PELACAKAN LOKASI TINGGALAN HINDU-BUDDHA BERDASARKAN ROD 1914 DAN PENDEKATAN SIG DI WILAYAH MAGELANG

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ABSTRAK

Pulau Jawa pernah menjadi pusat perkembangan kebudayaan bercorak Hindu-Buddha sekitar abad ke-4 hingga ke-15 M. Tinggalan arkeologi dari periode ini sangat tinggi, baik berupa candi, petirtaan, maupun tinggalan lepas seperti arca, yoni, lingga, dan sejenisnya. Inventarisasi tinggalan tersebut sudah dilakukan secara sistematis sejak masa pemerintah Hindia Belanda melalui Dinas Purbakala (*Oudheidkundig Dienst*). Sayangnya sebagian besar tinggalan arkeologi tersebut sekarang tidak lagi diketahui secara tepat lokasi. Ada yang kemudian ditemukan secara tidak sengaja pada saat kegiatan pembangunan ataupun pengerjaan lahan pertanian. Penelitian ini berupaya untuk melacak ulang lokasi tinggalan arkeologi Hindu-Buddha yang pernah dilaporkan oleh Dinas Purbakala Belanda di Wilayah Magelang. Proses pelacakan dilakukan menggunakan pendekatan Sistem Informasi Geografis. Hasilnya berupa peta sebaran lokasi tinggalan arkeologi Hindu-Buddha. Peta ini menunjukkan bahwa di Wilayah Magelang, pada periode Hindia-Belanda, mengandung tinggalan arkeologi Hindu-Buddha yang padat. Hasil penelitian ini diharapkan dapat dimanfaatkan untuk kegiatan survei, reinventarisasi, hingga upaya pelindungan dan pelestariannya.

Kata Kunci: arkeologi Hindu-Buddha; ROD 1914; SIG; toponim; Magelang

ABSTRACT

Java was once the center of Hindu and Buddhist culture around the 4th until the 15th century AD. The number of archaeological remains from this period is infinite, both monumental remains such as temples and *petirtaan* (water shrines/ temple), and other remains such as yoni, linga, and statues. These remains are registered systematically by the Dutch East Indies government through its Archaeological Service (*Oudheidkundig Dienst*). Unfortunately, most of them cannot be identified for their exact present locations. Some of the remains were later discovered unexpectedly at the time of construction or agricultural work activities. Therefore, this study seeks to investigate the locations of archaeological remains as reported by the Dutch Archaeological Service in the region of Magelang using the Geographic Information System (GIS) approach. This study suggests that, during the period of the Dutch East Indies, Magelang region has a very high density of Hindu-Buddhist archaeological remains. The result of this study can be used for further surveys, re-inventory, as well as protection and preservation efforts.

Keywords: Hindu-Buddhist remains; ROD 1914; GIS; toponym; Magelang

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INTRODUCTION

The Hindu-Buddhist period in Indonesia is marked by the inclusion of Indian cultural influence on various aspects. The buildings and objects of worship set in Hinduism and Buddhism are material culture left from that period. The Hindu-Buddhist archaeological remains are found in many western regions of Indonesia, especially Java, Sumatra, and Kalimantan. The island of Java was even the location of the central government of several kingdoms, ranging from Tarumanegara around the 4th century AD, Mataram around the 8th century AD to the 10th century AD, to Majapahit in the 15th century AD (Cœdès, 1968, pp. 81-96; Hägerdal, 2016; Tichelman & Tichelman, 2011).

Magelang is one region with a high density of Hindu-Buddhist archaeological remains on the island of Java. The remains of places of worship for Hinduism and Buddhism such as temples, *petirtaan* (ritual bathing pool), and holy sites are often found in this region. This assumption is based on the survey and inventory that have been conducted since the Dutch East Indies period. In addition to the survey and inventory reports, several recent studies also indicate that this region has an important role in the Hindu-Buddhist period (Adi, 2012, 2016; Atmosudiro, 2001; Degroot, 2009; Tjahjono, 2000; Utomo, 1981).

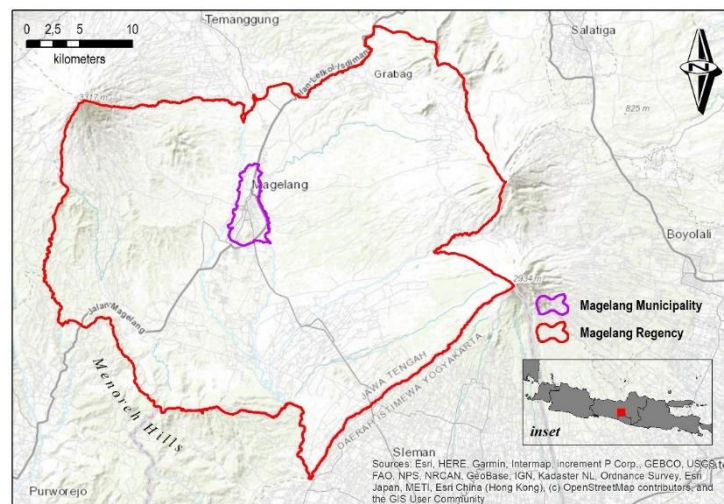


Figure 1. Map of the Research Region
(Source: RBI Digital, OpenStreetMap)

The region of Magelang currently consists of Magelang Regency and Magelang Municipality (Figure 1). It is located in the central part of Java Island and is in a strategic position because it connects two very important provincial capitals, i.e. the Special Region of Yogyakarta and Semarang (Central Java Province). In Hindu-Buddhist period, this region is believed to be the main access connecting the north coast of Java (ranging from Semarang to Pekalongan) with the administrative center of the Ancient Mataram Kingdom located on the Borobudur-Prambanan axis through Wonosobo and Temanggung (Darmosoetopo, 2003; Degroot, 2009; Degroot & Klokke, 2010; Noerwidi, 2007). This strategic location is supported by a high level of land fertility due to the

volcanism process of the surrounding volcanoes. In addition, water in this region is also abundant, both surface water sources such as springs and rivers and groundwater (Murtianto & Arifin, 1999; Yuliyanto & Sudibyakto, 2012).

Before the Independence of Indonesia, the Hindu-Buddhist archaeological report in Magelang can be found in several documents published by both *Bataaviaasch Genootschap* and *Oudheidkundigen Dienst* (Groot, 2009; Soekmono, 2002). After independence, the archaeological reports are generally published by the Indonesian Archaeological Service. However, after 1975, the Archaeological Service was split into two institutions, namely the Directorate of History and Archaeology and the Center of Archaeology and National Heritage (Soekmono, 2002). The two institutions then changed their names several times without changing their functions. After the separation, the archaeological inventory report then boils down to two types. The first is the inventory reports concerning preservation and restoration, which are mostly published by institutions engaged in the field of conservation, and the second is the reports concerning academic research and development, which are published by institutions engaged in research.

The survey and inventory activities of Hindu-Buddhist archaeological remains in Magelang since the Dutch East Indies Government have not made the remains well preserved. Most of the remains are actually not well maintained. This is because there is no further attention from the relevant institutions. Frequently, the Hindu-Buddhist archaeological findings, which are rediscovered by the local community, are considered as new discovery whose news is appalling. These 'rediscoveries' commonly occur accidentally when people are constructing a building or processing agricultural land. Some of the latest Hindu-Buddhist archaeological discoveries in Magelang include:

1. The discovery of a *petirtaan* (bathing structure) named Mantingan in Salam Subdistrict (Susanto, 2019);
2. The discovery of temple ruins in Ngandong Hamlet, Dukun Subdistrict (Ramadhan, 2017);
3. The discovery of temple ruins and some Hindu worship objects in Gendungan Hamlet, Dukun Subdistrict (Purnama, 2016);
4. The discovery of temple ruins, yoni, linga, and statues in Sangubanyu Hamlet, Bandongan Subdistrict (Fitriana, 2015); and
5. The discovery of yoni and linga in Wonokoso Hamlet, Pakis Subdistrict, and the discovery of giant linga in Tampir Wetan Village, Candimulyo Subdistrict (Hartono, 2013).

The neglected Hindu-Buddhist archaeological remains and the lack of public knowledge about the importance of such remains make the situation getting worse. Another threat comes from the massive regional development as part of the government's main program. Moreover, the rate of change in land use from green open land to constructed land in Magelang is also getting higher. This is the impact of regional economic growth based on optimizing local potential to increase community income (Winata, 2018).

One effort that can be done to minimize the threat and the level of damage of Hindu-Buddhist archaeological remains in Magelang is to conduct a complete

inventory. This inventory program can range from the identification of the locations of archaeological remains and potential remains to mapping the distribution. The process certainly is time-consuming and costly if it is directly performed in the field. Therefore, this study offers an effort to make an inventory using an approach that can shorten the time and save costs. This effort is a model to track down the locations of Hindu-Buddhist archaeological remains as reported by the Dutch East Indies Government using a geographic information system and toponym analysis.

The final result of this study is a model for creating a database and map of toponym distribution that has implications for the Hindu-Buddhist archaeological remains in Magelang in the Dutch East Indies period. The database and map can be used as a basis for the re-inventory and reference of field surveys to rediscover Hindu-Buddhist archaeological remains in Magelang. The offered model can also be employed to make a re-inventory of Hindu-Buddhist archaeological remains in Indonesia. The results of the inventory can be used to formulate the strategies for future research and preservation of archaeological remains.

The archaeological heritage tracking model with a toponym approach is performed by using the geographic information system (GIS) device. GIS has been widely used in archaeology, especially those related to spatial dimensions. GIS began to be used by archaeology along with the development of computer technology in the late 1980s (Scianna & Villa, 2011; Wheatley & Gillings, 2010). GIS has a very important function in various stages of academic research such as analysis, classification, calculation, combination, modeling, and visual representation of archaeological data (Yuwono, 2007). GIS is a useful device for combining geographic data with a database management system that aims to store and save important information contained in archaeological data. Some countries in Europe and America since the 1990s have even developed cultural resource management systems based on GIS (Verhagen, 2007, p. 17).

Studies on toponyms in relation to Hindu-Buddhist archaeological remains in spatial dimensions have been widely conducted. However, the existing studies focus more on discussing toponyms mentioned in the Hindu-Buddhist period only, especially those that originate from inscriptions. For example, Kusen (1991) conducted a study of the toponyms contained in the inscriptions found around Prambanan area. The toponyms are then linked to the toponyms that are still used around the current Prambanan area. The results of his study show that there are several toponyms in the inscriptions that are still used as the names of the hamlets and villages in Prambanan and surrounding areas, even though with different pronunciation and writing (Kusen, 1991).

Wulan Resiyani (2010) examined the toponyms found in the IX-X century AD inscriptions around Temanggung Regency. The used method is almost the same as Kusen's study (1991), i.e. matching toponyms that are still used in Temanggung Regency today. However, her study adds data from the folklore that develops in the community regarding the origin of place names. The results of her study suggest that there are still many toponyms in Temanggung Regency that have similarities to the names mentioned in the inscriptions. The names also have a background story that is still trusted by the community (Resiyani, 2010).

Agus Aris Munandar (2016) made eight toponym assessment models in archaeology. The focus of toponym analysis is the toponym found in inscriptions and manuscripts from the Hindu-Buddhist period. All the models link three aspects, i.e. the explanation of the meaning of a place name, the location of the current toponym, and the role of the toponym in contemporaneous culture. The toponyms mentioned in the written source in the Hindu-Buddhist period and the current locations are believed to have a role in the past so the Hindu-Buddhist archaeological remains are likely to be found there. Munandar further stated that generally, the discovery of Hindu-Buddhist archaeological remains takes place between the late 1800s to the early 1900s. The names of the locations of Hindu-Buddhist archaeological remains have survived since they are discovered until the present, even though there have been quite a lot of changing administrative regions (Munandar, 2016).

The study conducted by Kusen (1991), Resiyani (2010), and Munandar (2016) focused more on the toponym found in the inscription. On the other hand, the studies focus more on investigating aspects of spatial and inter-regional relations during the Hindu-Buddhist era. A toponym study concerning the location name of the Hindu-Buddhist archaeological remains in the report of the Dutch East Indies Government has never been conducted so far. Therefore, this study seeks to investigate the report of Hindu-Buddhist archaeological remains to create a tracking model using the toponym approach. The focus of this model is to identify the toponym location in the Dutch East Indies inventory report as well as the potential archaeological remains.

METHODS

Magelang was used as an initial example in this study model because, aside from being thought to have the potential for massive Hindu-Buddhist archaeological remains, studies in this region was also very less. The toponym that is still used in Magelang is also relatively the same as the toponym in the Dutch East Indies period. The comparison of the Indonesia topographical map published in 2001 with the Dutch East Indies topographical map published in 1915 in Magelang (Figure 2) shows that the majority of the names of hamlets and villages have not changed. For example, the 2001 topographical map writes Japan village Rejosari village, Klopo hamlet while the 1915 topographical map writes DJapan, Redjosari, and Klopo. The land-use patterns on the two maps also do not change much, except for a number of residential areas developing outwards. Therefore, it can be assumed that the locations mentioned in the Dutch East Indies Government report can still be traced down.

The report on the Hindu-Buddhist archaeological inventory published by the Dutch East Indies Government used in this study was the 1914 *Rapporten van den Oudheidkundigen Dienst in Nederlandsch-Indie: Inventaris der Hindoe-oudheden* or ROD 1914. It is a series of Hindu-Buddhist archaeological inventory reports published between 1913-1940 (Krom, 1914). ROD 1914 was chosen because only this report is the most complete one mentioning the locations of Hindu-Buddhist archaeological remains in Magelang. The reports on archaeological remains in this

region are mentioned in ROC 1911 (Knebbel, 1911), but they are not as complete as those found in ROD 1914. In addition, the publishing year of ROD 1914 is closer to the topographical map published by *Topographische Inrichting* in 1915, so that it would be easier in tracking the toponym mentioned in the report. Please note that ROD 1914 has no maps, but only a list of locations and the archaeological remains on the locations. The region of Magelang in ROD 1914 is called *Afdeeling Magelang* which is divided into seven *districts* namely: *District Magelang*, *District Bandongan*, *District Tegalredja*, *District Grabag*, *District Moentilan*, *District Salam*, and *District Salaman*. ROD 1914 also includes references to previous reports that mentioned archaeological remains in Magelang.



Figure 2. The Comparison of toponyms between the 2001 Indonesia topographic map (above) and the map published by Topograpische Inrichting in 1915 (below)
 (Source: *Digital Indonesia Topographic Map* pages 1408-521 of Tegalrejo published by BAKOSURTANAL 2001 scale 1: 25,000 and *Magelang Map en Omstreken* published by Topograpische Inrichting 1915 scale 1: 50,000)

A list of Hindu-Buddhist archaeological remains in Magelang as reported in ROD 1914 lies on pages 211 to 277. The Hindu-Buddhist archaeological remains as recorded in ROD 1914 can be divided into three categories based on the types of

the findings or conditions at the reporting time, i.e. the structure and building, the building ruins, and fragmentary remains. The structure and building category includes all the information of the so-called *fundamenten* (foundation/structure), *tempel* (temple), *tjandi* (temple), as well as *rijen steenen* or *rijen kalisteenen* (stone or river stone structure). This category is believed to be archaeological remains in the form of temples or Hindu-Buddhist religious buildings that are still intact in their basic structure. The category of building ruins includes all information reported in terms of *overblijfselen* (ruins), *tjandi-steenen* (temple stones), and *grote aantal tempelsteenen* or *tempelbaksteenen* (a large number of temple stones/bricks). This category is believed to be the ruins of worship buildings which are still concentrated in one particular location and allegedly still have an intact structure in it. The category of fragmentary remains includes all information reported in terms of *beeld*; *beelden*; *beeldje* (figure/statue), *steenen beeld* (stone statue), *yoni*, *lingga*, *nandi*, as well as the names of deities both in Hinduism and Buddhism.

The method used to track down the toponyms of ROD 1914 can be seen more clearly in Figure 3. All the toponyms listed in ROD 1914 were inputted in the database and sorted by administrative units in the Dutch East Indies period, namely the *districts*. Furthermore, all the toponyms in the database were identified by locating their names with the current toponyms obtained from the digital Indonesia topographical map. The data from the digital map included toponym point data and administrative data at the village/ward and subdistrict levels in a polygon form. The toponym equivalency tracking is performed using the query feature in the ArcGIS application. This is done because the use of query in some GIS applications is very helpful for selecting data based on attributes and spatial locations (Scianna & Villa, 2011).

The toponym tracking was also performed by using a topographical map from the Dutch East Indies period. This was needed to track the names of the locations which have no equivalent to the present toponyms. The used topographical map was a map published by Topographische Inrichting in 1915. The process was relatively simple, i.e. by superimposing the 1915 map on the digital Indonesia topographical map through georeferencing. After that, a toponym equivalency tracking was done manually on the old map.

The toponym in ROD 1914 which has an equivalent to the toponym on the digital Indonesia topographical map and the 1915 map was determined by the location coordinates. As a note, the location coordinates resulting from this process were toponym coordinates which were reported to have potential archaeological remains, not the coordinates of the site. The toponym equivalency process as intended above was also filtered based on the area of each *district*. The *district* administrative unit has the same level as the current sub-district. The toponym equivalency with the *district* area was done to avoid mistakes in determining the coordinates of locations that have the same name between *districts*. For example, the toponym *Tjandi* was found in almost all *districts*. Until now, almost every location in Magelang which has Hindu-Buddhist archaeological remains is named *candi*, either for the administrative name or place name only so the query process generated a very large number of *candi* words. The toponym of a place is always associated with the existence of physical features in the place, for example, flora,

fauna, historical events, names of figures, and geographical conditions (Mashadi & Zuharnen, 2014; Munandar, 2016).

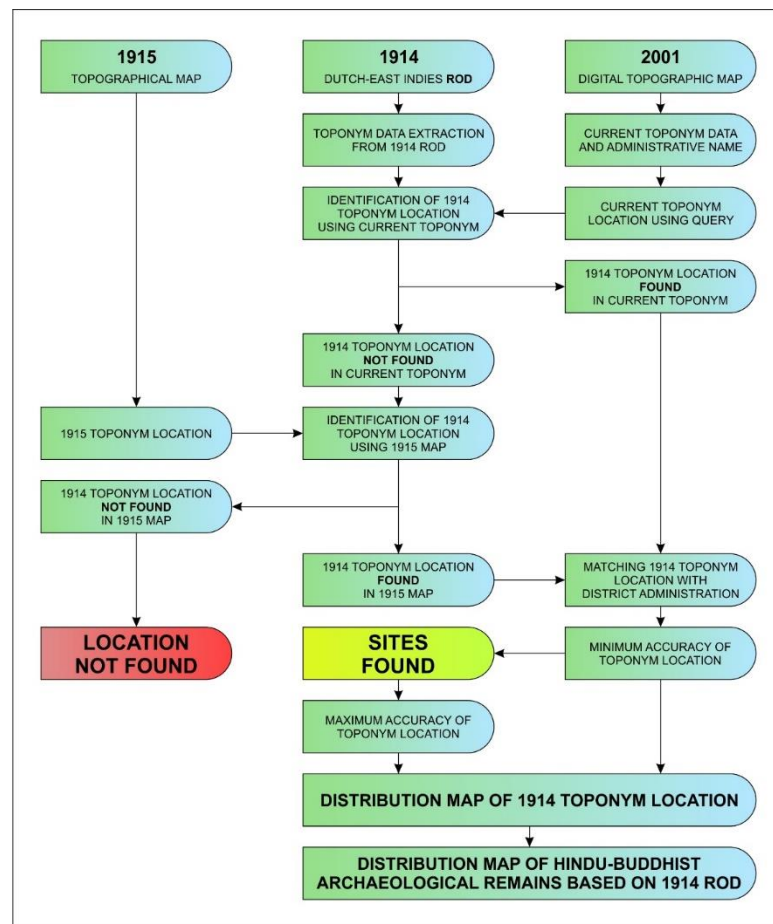


Figure 3. Model of Hindu-Buddhist Archaeological Remains Tracking in ROD 1914 (Source: Ari Mukti Wardoyo Adi)

RESEARCH RESULTS

ROD 1914 contains 219 names of Hindu-Buddhist archaeological sites scattered in seven *districts* in Magelang. These location names are under inventory numbers 679 to 897 and only 216 location names can be estimated as sites. Three names that cannot be categorized as site locations include the preservation locations of objects found from the sites, such as Magelang Museum, Resident House, and Wedana House.

Most of the locations of the Hindu-Buddhist archaeological remains listed in ROD 1914 have not been rediscovered at the present. Nevertheless, the coordinates of the locations can still be mapped. Almost all of the location names mentioned in ROD 1914 can still be found today or can be traced through ancient maps. These locations are only estimates plotted through the query and overlay analysis on the maps so the accuracy is low (minimum). Not all locations of the Hindu-Buddhist archaeological remains can be determined because there are several location names that cannot be traced through current or old maps like the map published

by Topographical Inrichting. Some of the rediscovered Hindu - Buddhist archaeological sites can be plotted on a map with higher accuracy (maximum). The rediscovery of these sites are generally made through archaeological research and surveys, both by the author and by related agencies such as the Central Java Cultural Heritage Conservation Center and Yogyakarta Archaeology Center. Of the 216 archaeological sites reported, only the locations of 204 sites can be traced (Figure 4).

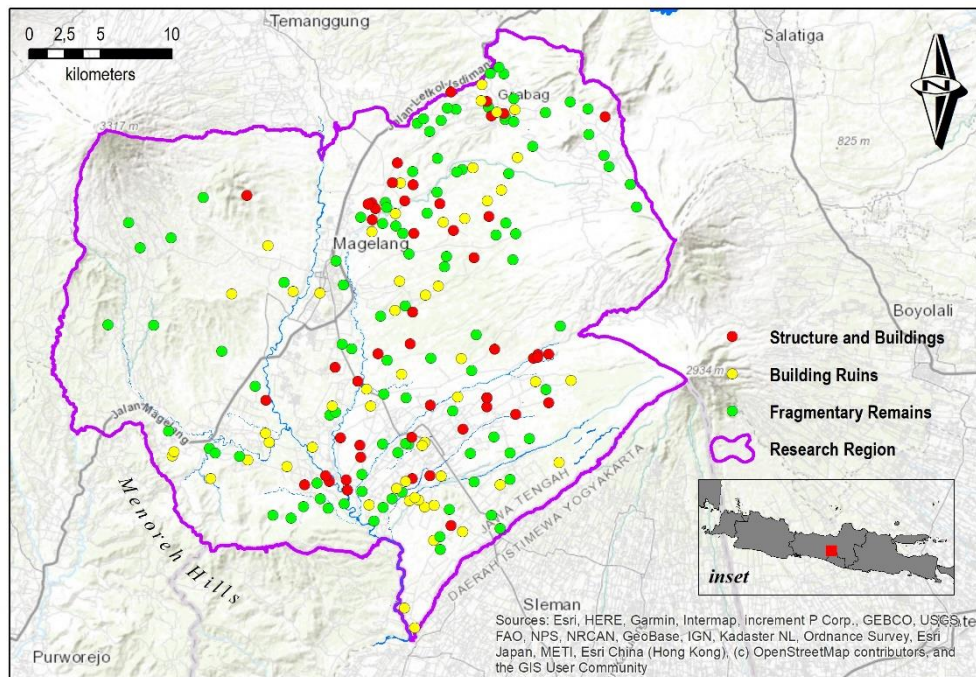


Figure 4. The Distribution of Hindu-Buddhist archeological remains based on ROD 1914 (Source: ROD 1914, OpenStreetMap, Digital Indonesia Topographical Map processed by Ari Mukti Wardoyo Adi)

Based on the analysis results, there are 50 location toponyms of Hindu-Buddhist archaeological that contain the temple finding both in the form of intact buildings and structures when reported. One toponym cannot be identified with the current toponym or in the ancient map. These findings imply the massive temple buildings in the region of Magelang during the Hindu-Buddhist period. In addition, the conditions are still relatively intact when surveyed by the Dutch Archaeological Service. Some names of Hindu-Buddhist archaeological remains that are included in the structure and building category can be seen in Table 1.

Table 1. List of the names of structure and building locations in ROD 1914 and the possible current locations

No	Location (ROD 1914)	Current Hamlet	Current Village	Current Subdistrict	Coordinates*	
					X*	Y*
1	Kledokan	Legokan	Danurejo	Mertoyudan	414309	9167157
2	Selagriya	Selagriyo	Kembangku ning	Windusari	408139	9179210

No	Location (ROD 1914)	Current Hamlet	Current Village	Current Subdistrict	Coordinates*	
					X*	Y*
3	Batoe Gana	Gunung Gono	Banyubiru	Dukun	424932	9165027
4	Gijombong	Giyombong	Surodadi	Candimulyo	424039	9174837
5	Gaduh	Gaduh	Banyusari	Tegalrejo	419835	9176539
6	Gana	Gono	Gejagan	Pakis	425089	9177712
7	Tjandi	Candi	Kebonagung	Tegalrejo	422611	9176739
8	Kretek	Beji	Tampirkulon	Candimulyo	417319	9168120
9	Bolonglor	Bolong Lor	Tegalsari	Candimulyo	419578	9168824
10	Kembaran	Kembaran	Kembaran	Candimulyo	419734	9171030
11	Nglangon	Plumbon II	Grabag	Grabag	424937	9185783
12	Tjandi Panas	Candiumbul	Kartoharjo	Grabag	422426	9186426
13	Poentingan	Puntingan	Grabag	Grabag	425266	9184760
14	Kaponan	Kaponan	Grabag	Grabag	426115	9184931
15	Bengkoeng	Bengkung	Candiretno	Secang	416899	9178683
16	Tjetohan	Cetokan	Candiretno	Secang	417141	9178274
17	Tjandiredja	Candiretno	Candiretno	Secang	416643	9178592
18	Setan	Bandungan	Setan	Secang	416925	9177507
19	Pirikan	Pirikan	Pirikan	Secang	419202	9178835
20	Poetjang	Pucang Gunung	Pucang	Secang	418323	9180082
21	Tjandi	Candi	Sidomulyo	Secang	419763	9179939
22	Kalangan	Kalangan	Candisari	Secang	418674	9181477
23	Tjandi Renteng	Candi Renting	Pandean	Ngablak	433205	9184716
24	Lebak	Dakawu	Lebak	Grabag	421652	9178628
25	Ketaron	Ketoran	Tamanagung	Muntilan	419684	9162266
26	Wates	Kwayuhan	Wates	Dukun	426958	9163893
27	Tjandi	Candigelo	Sengi	Dukun	424947	9164402
28	Goenoeng Gana	Gunung Gono	Banyubiru	Dukun	424947	9165050
29	Geblok	unknown	unknown	unknown	-	-
30	Koewilet	Kuwilet	Ketunggeng	Dukun	423271	9162834
31	Kalibening doewoer	Kalibening	Kalibening	Dukun	429247	9164677
32	Seketi	Babadan	Butuh	Sawangan	425479	9168430
33	Tjandi Loemboeng	Candi	Krogowanan	Sawangan	428179	9167808
34	Tjandi Pendem	Candi	Sengi	Dukun	428516	9168070
35	Tjandi Asoe	Candi	Sengi	Dukun	428495	9167875
36	Tjandi	Candi	Ngadipuro	Dukun	429258	9168100
37	Goenoeng Lemah	Gunung Lemah	Gondowangi	Sawangan	420971	9164521

No	Location (ROD 1914)	Current Hamlet	Current Village	Current Subdistrict	Coordinates*	
					X*	Y*
38	Gedongan	Gedongan	Blondo	Mungkid	415911	9166183
39	Ngawen	Ngawen	Ngawen	Muntilan	419727	9159389
40	Ngradjek	Ngrajek	Ngrajek	Mungkid	416114	9160891
41	Rambianak	Rambeanak	Rambeanak	Mungkid	414698	9162240
42	Kendal	Kendal	Rambeanak	Mungkid	416061	9161711
43	Mendoet	Mendut	Mendut	Mungkid	415089	9159303
44	Keparen	Paren	Progowati	Mungkid	415193	9158562
45	Kadiloewih	Gunung Wukir	Tirto	Salam	422418	9156102
46	Goenoeng Sari	Gunung Sari	Gulon	Salam	420958	9159599
47	Bata	Botoh	Sumberarum	Tempuran	409472	9164870
48	Borobudur	Borobudur	Borobudur	Borobudur	412182	9158949
49	Tjandi Pawon	Wanurejo	Wanurejo	Borobudur	413928	9159175
50	Tjandi Banon	Brojonalan	Borobudur	Borobudur	413666	9159573

Source: ROD 1914 and the author's data processing by.

Note: * Coordinates in UTM Zone 49 S

In addition to the temple buildings which are still relatively intact in their structure and foundation, ROD 1914 also reports 57 toponyms containing the ruins of the temple buildings. Three toponyms cannot be identified for the current equivalent of their names on the 1915 Dutch map so the locations cannot be determined. The ruins referred to in ROD 1914 are strongly believed to still have a structure in it. Nevertheless, since most are found in residential areas, it is believed that the structure and parts of the building have been deformed and transformed. The deformation, in this case, is damage to the structure or the original form of the building, while transformation is a change in the aspect of the location. The discovery locations are generally reported to be in residential areas (*gehucht, dorpje*) and graves (*kerkhof, begraafplaats*). The development of settlements, agricultural land use, and the construction of public facilities such as tombs and places of worship are thought to be the main factors of the deformation and transformation of the archaeological remains. ROD 1914 also reported on the displacement of archaeological remains such as the ruins of temple rocks. For example, some temple stones in Gijombong are reported to be moved to Tembelang-Lor (Krom, 1914, p. 221). The names of Hindu-Buddhist archaeological remains that are categorized as building ruins can be seen in Table 2.

Tabel 2. List of the location names of building ruins in ROD 1914 and the possible current locations

No	Location (ROD 1914)	Current Hamlet	Current Village	Current Subdistrict	Coordinates*	
					X*	Y*
1	Dejangan	Deyangan	Deyangan	Mertoyudan	412748	9161590
2	Plaosan	Plaosan	Donorojo	Mertoyudan	414134	9164474

No	Location (ROD 1914)	Current Hamlet	Current Village	Current Subdistrict	Coordinates*	
					X*	Y*
3	Bajeman II	Bayeman	Kemirirejo	Magelang Selatan	413252	9172369
4	Tjandi Goenoeng	Candi Gunung	Banyuwangi	Bandongan	411389	9172465
5	Batoe rong	Paren	Ketangi	Kaliangkrik	407096	9172313
6	Djangkoengan	Jangkungan	Gandusari	Bandongan	409608	9175674
7	Gales	Gales	Sidorejo	Tegalrejo	418821	9173208
8	Koripan	Kuripan	Dawung	Tegalrejo	418525	9177915
9	Toemboe	Tumbu	Purwodadi	Tegalrejo	416892	9176654
10	Sabaradja	Sobodukuh	Japan	Tegalrejo	421872	9177330
11	Tegaron	Garon	Mangunrejo	Tegalrejo	423377	9177580
12	Sotitjeboengan	Soti	Surojoyo	Candimulyo	418503	9171147
13	Ngleses-wetan	Ngleses	Candimulyo	Candimulyo	420640	9172224
14	Tembelang lor	Tembelang Lor	Tembelang	Candimulyo	421544	9172847
15	Gejer	Medayu	Sidogede	Grabag	424587	9186951
16	Ploembon	Plumbon	Grabag	Grabag	424521	9185817
17	Klateron	Kleteran	Kleteran	Grabag	426891	9185194
18	Kalangan	Kalangan	Grabag	Grabag	425627	9185027
19	Randoekoening	Radukuning	Gondosuli	Muntilan	422883	9165089
20	Tembalang	Bener	Sidomulyo	Secang	418867	9180069
21	Gegerweroe	Geru	Sugihmas	Grabag	425943	9179574
22	Andongsari	Pucungsari	Pucungsari	Grabag	424969	9178831
23	Salam	Salam	Salam	Grabag	423961	9181135
24	Ngandong	Ngandong	Banaran	Grabag	427083	9181844
25	Padan	Padansari	Pucungrejo	Muntilan	420571	9161916
26	Growong-kidoel	Growong	Pucungrejo	Muntilan	420408	9161699
27	Gondangan	Gondangrejo	Keningar	Dukun	430816	9166234
28	Tjandi Soember	Candi	Sumber	Dukun	428333	9166154
29	Moengkidan	Mungkidan	Butuh	Sawangan	423152	9167762
30	Soetadereppan	unknown	unknown	unknown	-	-
31	Sekroewetengah	Srikuwe	Ambartawang	Mungkid	416810	9164471
32	Soedimara	Sudimoro	Gondang	Mungkid	418980	9166694
33	Pare	Pare	Blondo	Mungkid	416510	9165636
34	Nganten	Nganten	Ngawen	Muntilan	419261	9159182
35	Gedjagan	Gejagan	Sriwedari	Muntilan	418614	9158687
36	Slokopan koelon	Slokopan	Sokorini	Muntilan	416683	9157525
37	Mantingan	Mantingan	Mantingan	Salam	423231	9155661

No	Location (ROD 1914)	Current Hamlet	Current Village	Current Subdistrict	Coordinates*	
					X*	Y*
38	Tombrep	unknown	unknown	unknown	-	-
39	Medangan	Medangan	Tersangede	Salam	420570	9157392
40	Bobosan	Bobosan	Tersangede	Salam	421243	9157521
41	Sirahan	Sirahan	Sirahan	Salam	419523	9157821
42	Berokan	Berokan	Sirahan	Salam	420144	9157882
43	Tjandi Salakan	Candi Salakan	Sirahan	Salam	419897	9158046
44	Djlegong	Jlegong	Gulon	Salam	421726	9159554
45	Trasahan	Trasahan	Jamuskauman	Ngluwar	421213	9155047
46	Bligo	Bligo	Bligo	Ngluwar	419164	9150329
47	Kadjoran Kidoel	Kajoran	Bligo	Ngluwar	419887	9148934
48	Kradenan	Kradenan	Kradenan	Srumbung	425851	9158943
49	Kemiren II	Kemiren	Kemiren	Srumbung	429991	9160499
50	Mlanggen	Mlangen	Menoreh	Salam	402935	9160960
51	Lipoersari	Mulyosari	Kalisalak	Salaman	403045	9161259
52	Gombong	Gombong	Paripurno	Salaman	405625	9159375
53	Bowongan	Bowongan	Ringinanom	Tempuran	409703	9161932
54	Tjandi	Candi Ringinanom	Ringinanom	Tempuran	409462	9162566
55	Tegalwangi	Tegalwangi	Tegalarum	Borobudur	408202	9160678
56	Kanggan	Kanggan	Wringinputih	Borobudur	410945	9160226
57	Krasakkidjan	unknown	unknown	unknown	-	-

Source: ROD 1914 and the author's data processing

Note: * Coordinates in UTM Zone 49 S

Magelang is also reported to have fragmentary remains. The region is believed to have 109 locations of fragmentary findings and only 102 locations are identified to be today's equivalent toponyms (see Figure 4). The remains are identified as worship media that are not related to buildings such as statues, linga, and yoni. However, it can be assumed that the remains are the components of temple buildings that were detached or intentionally moved, such as statues or relief statues (*beeld, beeldje, steenen beelden*), ornament relief (*steenen ornament, baksteenen ornament*), the head of Kala (*monsterkop*), statue pedestal (*voetstuk*), *Makara*, temple stones (*tempelblokken*), antefix, and *Kemuncak* (*top stuk, tempeltopstuk*). The ROD 1914 also has many terms related to object displacement such as *overgebracht, gebracht, gebrachten*, and *afkomstige*. This displacement could be part of a preservation effort or even the desire of officials at that time to collect antique objects. Other remains allegedly not related to worship media such as metal objects, jewelry (*bronzen armringen*), inscriptions, and household utensils in the form of trays (*presenteerbladen*), bowls (*kommetjes*) and containers (*bakje*) are also reported.

DISCUSSIONS

The toponyms reported in ROD 1914 in Magelang cannot be separated from the historical process so as to cause a change in the names of the locations. As stated above, the change of toponym from the Dutch East Indies period until now is not very significant. Tracking the toponym locations mentioned in ROD 1914 can still be done using the current toponyms and old maps published by Topographische Inrichting. This condition certainly facilitates the location tracking process. Even so, there are also a number of toponyms that cannot be traced because they are strongly believed to have changed. The changes in the administration system from the Dutch East Indies period to the independence era seem to have an influence on the change in the toponyms. One of them is the administrative changes that took place after the Indonesian Independence. In the Dutch East Indies period, the *district* administrative unit, which is currently a subdistrict level, amount to seven but then change to 22 subdistricts at this present. Certainly, this expansion of administrative units also occurs at the village or ward level.

The expansion of administrative units will of course also cause a change in name. Despite the change, the toponyms can still be identified for their locations. For example, a change in the name of a village occurs to Candiretno village in which Retno temple site is located. In ROD 1914 and the 1915 map, the name of this village is Tjandiredja (Krom, 1914, pp. 235–236). Another example is the name *Gondangan* which is now Gondangrejo. In ROD 1914, *Gondangan* toponym belongs to *District Moentilan*, while it currently belongs to Dukun Subdistrict. From these two examples, it can be assumed that the toponym that cannot be traced on the Indonesia topographical map or the ancient map may be the name of a location known only by the local community. Therefore, further tracking by exploring in the field need to be performed to find out the existence of the toponym.

In addition to the lack of toponym changes in Magelang, the efforts to trace the existence of Hindu-Buddhist archaeological remains are also supported by the systematic archaeological inventory reports. The descriptions of each archaeological record are sorted by administrative-territorial units, starting from *resident*, *afdeeling*, to *district*. The report began to be arranged systematically when an official archaeological institution was formed by the Dutch East Indies Government in 1901. This institution was originally named *Commissie in Nederlandsch-Indië voor Oudheidkundig Onderzoek op Java en Madura* or often referred to as *Oudheidkundige Commossie* (Archaeological Commission) with J.L.A. Brandes as the chairman. The main work was to make an inventory of collections and lost ancient objects in Java. The results were published in a series of reports entitled *Rapporten van de Commissie in Nederlandsch-Indië voor Oudheidkundig Onderzoek op Java en Madoera* (ROC) from 1901 to 1912. On June 14, 1913, the *Oudheidkundige Commissie* was officially changed to *Oudheidkundige Dienst in Nederlandsch-Indië* (Archaeological Service). This institution did not only handle ancient objects from the Hindu-Buddhist era, but also prehistoric and Islamic archaeological objects throughout the Dutch East Indies territory. The archaeological reports from this institution were published in *Rapporten van den Oudheidkundigen Dienst in*

Nederlandsch-Indie: Inventaris der Hindoe-oudheden or often referred to as ROD (Degroot, 2009, p. 4).

In the period of 1912 to 1949, another report entitled *Oudheidkundig Verslag* or known as OV was published. This report is more complete compared to ROC and ROD because it contains a more in-depth description of the excavation and restoration of archaeological remains. OV also contains descriptions of the remains, sketch drawings, and includes photographs of ancient remains. In addition, OV does not only focus on reporting ancient remains on the island of Java but also on the island of Sumatra.

The systematic inventory reports can be prepared more comprehensively after the establishment of government agencies that handle ancient remains independently. These reports can also be printed and published on a broader scale. The widely reported archaeological heritage protection was strengthened by the new regulations issued by the Dutch East Indies government. In 1931, *Monumenten Ordonantie* number 19 of 1931 (Staatsblad, 1931 Number 238) was issued. This was then updated with *Monumenten Ordonantie* number 21 of 1934 (Staatsblad, 1934 Number 515).

The inventory reports from the Government of the Dutch East Indies which are already quite systematic can actually be used for various purposes and strategies for the research and preservation. In the field of research, until now, Hindu-Buddhist archaeological research in Magelang has always focused on locations that have large temples, such as Borobudur and Sengi areas although the number reported in ROD 1914 is far greater. The prospect of Hindu-Buddhist archaeology research in Magelang can be opened more broadly and of course, the historiographic and archaeological coherence in the Hindu-Buddhist period in this region will be more organized. Furthermore, the density of Hindu-Buddhist archaeological remains in the form of temple buildings and fragmentary remains can show how the spatial structure and hierarchy of Magelang in the Hindu-Buddhist period. In addition, the distribution pattern can also indicate the pattern of community settlements at that time.

An interesting research theme that can be developed from the results of this tracking includes temple building materials. Besides the considerable number, the types of temple building materials reported in Magelang are also varied. Some temple buildings are reported to be made of stone (*steen*), both processed stone (*steenblokken*) and bare stone or river stone (*kalisteen*). However, some temple buildings are reported to be made of bricks (*baaksteen*, *baak*). This is quite interesting considering that so far brick temple buildings are only found in East Java, Batu Jaya, and Sumatra. Studies on brick temples in Magelang and around Borobudur are already conducted (Tjahjono, 2002a, 2002b, 2003) but they do not explain all brick temples reported by the Dutch.

Concerning the unique types of reported archaeological remains, ROD 1914 on page 236 also mentions a temple building that is quite unique. This site is reported with the name *Setan*. At present, Setan village belongs to Secang Subdistrict. The location is quite close to Retno Temple. The temple building in Setan is reported to be located in Bandoengan hamlet (*in het gehucht Bandoengan*). It is a long temple foundation (*fundamenten*) which has seven rooms lined to the side (*zeven tempelkamers naast elkaar*). The middle room is the most spacious one (*een*

grote in het midden), so it can be described as if the largest room is flanked by each of the three rooms next to it. In this temple building, as many as 14 Ganeça statues (*daarbij werden veertien Ganeca's gevonden*) were found. Of the 14 statues, 4 statues were taken to the Batavia Museum (*waarvan vier opgenomen in het Museum te Batavia*) (Krom, 1914, p. 236).



Figure 5. The Excavation of Setan Temple with the photo number OD-1888:
Opgegraven fundamente van Tjandi Setan bij Magelang
(Source: kitlv.nl)

The description of Setan Site can also be found in OV. In OV 1914 pages 56 and 189, it was reported that around 1914, an excavation was done at Setan Temple near Magelang. This excavation found a floor plan of a brick building. Each flanking building has a square floor plan with a side of 4.85 m, a distance between rooms of 1.40 m, and a depth of 1.2 m below ground level. This brick structure is combined with the composition of river stones on the inside (stuffed stone). From the photo archives, it can be seen that Setan Temple is located on a rice field bordering a bamboo garden, which is likely to have a source of water in both the spring and river. The excavation of the temple is documented in the photo archives of OD-1888 (Figure 5), OD-1889, and OD-1890. The numerous findings of Ganeça statues indicate that this temple is a place for worshipping Ganeça. In 1914, the excavation at Setan Temple is reported to be completed (*Oudheidkundig Verslag* 1914, 1914, pp. 56-57; 189-190).

The structure of Setan Temple is thought to be buried again after the excavation in 1914, whereas according to Degroot, this temple is lost (Degroot, 2009, p. 44) due to possibly being dismantled like Banon Temple near Borobudur. Until now there is no modern research or literature that discusses more this

temple. In fact, according to the Dutch East Indies reports, Setan Temple is a very unique temple and is probably the only one in Indonesia, referring to the architectural design and statues. Therefore, an in-depth study is necessary to rediscover this site before it is affected by regional development projects.

ROD 1914 also reported a place of worship in the form of a cave. It is possibly like Sentono Cave found around Abang Temple in Yogyakarta. This cave site is reported as Batoe Rong and located in Paren hamlet precisely between Beser and Tersmi Hills. It is a temple cave (*tempelgrot*) or hermitage cave with an altar, linga, and yoni in it. This cave is said to have a similar character to Seplawan Cave in Purworejo (Krom, 1913, pp. 156–157). Based on various archaeological studies performed to date, this type of worship place has never been found in the region of Magelang.

In addition to Hindu-Buddhist archaeological remains in the form of temple buildings and ruins, ROD 1914 also reported fragmentary remains. In Java, especially in the regions of Magelang, Kedu, Sleman, and Klaten, remains of worship facilities in the form of statues, linga-yoni, and yoni that is not part of the holy buildings are commonly found. This is usually associated with locations that are considered sacred. Yoni is even often found without linga. The tradition of using yoni without linga illustrates that yoni still has a role as a symbol of fertility (Utomo, 1981). Therefore, in Magelang, many yonis are discovered on agricultural land, either one or two or three yonis in a row. The fragmentary remains, besides standing as the objects of worship, can also be said of being part of a wooden worship building. This is reinforced by the presence of some sites which are reported to contain remains in the form of *umpak* (*oempaks*) such as in *Tjandi* and *Goenoeng Gana*, both of which belong to *District Moentilan*.

In the field of preservation, tracking down Hindu-Buddhist archaeological remains from the Dutch East Indies reports can be listed in the priority scale. The data can be used for conservation purposes first, as stated in the Law of the Republic of Indonesia Number 11 of 2010 Concerning Cultural Conservation. This will certainly minimize the loss of data due to the impact of regional development projects. Frequently, stakeholders who have concern and authority over archaeological remains, including the government, academics, and cultural observers always feel cheated when there are discoveries of archaeological objects. Especially when the archaeological discoveries occur in a construction project site as happened at Sekaran Site, Malang Regency during the construction of Pandaan-Malang toll road Section V in the mid of March 2019 (Yanuar, 2019). Similar events can also occur in Magelang when construction projects are increasingly being performed. For example, Petirtaan Mantingan in July 2019 was discovered by local people when they were making a fish pond (Sugondo, 2019). This site is reported in ROC 1911 on pages 241-243, ROD 1913 on pages 137-138, and ROD 1914 on page 263. In these reports, even the types and number of findings along with records of remains and locations of their removal are mentioned.

Another example can be found at the Liyangan Site, Temanggung Regency, which was first discovered in 2008. This site is the most complete and rarely found settlement site in Indonesia (Tanudirjo, Yuwono, & Adi, 2019). In ROD 1914 page 294, this site is reported as *Poerbesari*. The report mentions the findings of several metal objects in Liangan Hamlet (*in het Gehuct Liangan*) such as bronze containers

(*bronzen pot*) along with fragments that are predicted to be the bottom or lid (*fragment van een bodem of deksel*), bracelets (*armbaden*), and some rings (*een paar ringen*). The findings in the form of bronze containers and fragments were brought to the Batavia Museum, while the bracelets and rings were brought to Leiden (Krom, 1914, p. 294).

Some of the case examples above show that the tracking model of Hindu-Buddhist archaeological remains in the Dutch Indies reports can help determine the potential of archaeological remains in a region. Furthermore, this potential can be used for future policymaking. The Hindu-Buddhist archaeological research will further develop and, on the other hand, the preservation and utilization of the archaeological remains found will be comprehensive. Borobudur Temple is a concrete example of the archaeological finding which, in the process of research and preservation, always refers to reports from the Dutch East Indies period, even before. Therefore, it is not impossible that this method can also be applied to other Hindu-Buddhist archaeological remains in the region of Magelang.

The tracking model application of the Hindu-Buddhist archaeological remains as reported by the Dutch East Indies Government in Magelang show satisfactory results. The locations in ROD 1914 whose findings are temples amount to 107 locations. The temples can be in the forms of an intact building, an identified basic structure, or ruins. When 109 locations containing fragmentary remains are added, this total number can show the level of density of Hindu-Buddhist archaeological remains in the region of Magelang.

Most of the remains in the form of temple buildings are located in the eastern part of Magelang. The highest density is found around *District Grabag*, which currently becomes Grabag Subdistrict and Secang Subdistrict, and around *District Moentilan*, *District Salam*, and *District Salaman*. This distribution pattern shows that Hindu-Buddhist sites are mostly found at the foot of Mount Merbabu and in the valley between Progo River and Elo River. These areas currently belong to the Strategic Regional Development of Magelang, Muntilan, and Borobudur which is part of the Yogya - Solo - Semarang - Strategic Regional Development (Ministry of Public Works & Housing, 2015). Therefore, it is very clear that the level of threat to the preservation of archaeological sites in Magelang is very high. Further efforts need to be made immediately and one of them is to detect archaeological remains as reported by the Dutch East Indies Government.

As a model, of course, it is necessary to apply to regions that are believed to have important positions in the Hindu-Buddhist period, especially Java and Madura which are the focus of the majority of the Indies-Dutch reports. This process must also be followed up by verifying and validating data in the field so that it can provide feedback in making a model that is more accurate and relevant. The cultural characteristics, physical environment, and historical setting of each different region will determine the continued use of toponymy and today's conditions of Hindu-Buddhist archaeological remains.

CONCLUSIONS

The inventory reports from the Dutch East Indies period show that Magelang has a very high potential for the existence of Hindu-Buddhist archaeological remains. However, this is not realized in the form of a distribution map so that the data can only be viewed quantitatively. This potential needs to be explored more in-depth using modern methods so that all data previously disclosed by the Dutch East Indies Government can still be utilized for various purposes. The use of toponym and spatial approaches with the GIS device can support representing the distribution map in the reports. The density and distribution pattern of Hindu-Buddhist archaeological remains in the Dutch East Indies period can be more clearly illustrated. This representation can certainly be employed to formulate strategies for future research and conservation. The archaeological remains that have been reported can be lost at any time because there are no follow-up actions such as security and control measures after being reported. Moreover, the fact that there are various projects of regional development that threaten the preservation of Hindu-Buddhist sites in this region.

The toponym analysis model for tracing the existence of Hindu-Buddhist archaeological remains in the Dutch East Indies Archaeological Service report can be tried out in other regions of Java and Madura. These two regions are the focus of several reports issued by the Dutch East Indies Government. Furthermore, the activities of protecting and preserving the locations reported by the Dutch East Indies Government can be performed. The application of the model is not only limited to one report document, but can be developed in similar reports such as OV, ROC, or even the older ones such as TBG (*Tijdschrift Bataviaasch Genootschap*). Each of these reports can contain different levels of information and region coverage so a comparison is needed in the tracking process. Thus, all reported archaeological remains can be followed up at the present time to accommodate various interests in the future.

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