

# Cultural Landscape and Resources of Amarapura Old City, Mandalay Region, Myanmar

မြန်မာနိုင်ငံ၊ မန္တလေးတိုင်းဒေသကြီး၊ အမရပူရမြို့ဟောင်းရှိ  
ယဉ်ကျေးမှုအမွေအနှစ်ဆိုင်ရာ အရင်းအမြစ်များနှင့်  
အခင်းအကျင်းများ

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## ABSTRACT

The characteristics of historic cultural landscape in Amarapura are identifiable by the functions of agriculture, residential, water management and religious buildings. The ancient boundaries of Amarapura city were gradually transformed by changing landscapes between cultural elements and development plans. Depending on the archaeological sites and historical documents, the ancient urban pattern and settlement of Amarapura city can be traceable to know the original setting of cultural landscape. This study attempts to promote the cultural landscape and the historic socio-cultural aspects of ancient Amarapura Old City. The population growth and development plans are the challenges to maintain the cultural landscape.

## စာတမ်းအကျဉ်း

အမရပူရမြို့ဟောင်းဒေသရှိ စိုက်ပျိုးရေး၊ လူနေထိုင်မှု၊ ရေအသုံးချစီမံမှုနှင့် ဘာသာရေး ဆိုင်ရာ အဆောက်အဦများ၏ အခြေအနေများအရ သမိုင်းဝင်ယဉ်ကျေးမှုအမွေအနှစ် အခင်းအကျင်းလက္ခဏာ ရပ်များကို ခွဲခြားသတ်မှတ်နိုင်သည်။ အမရပူရမြို့၏ရှေးခေတ် နယ်နိမိတ်ဧရိယာများသည် ယဉ်ကျေးမှု အမွေအနှစ်အချင်းအရာများနှင့် ဖွံ့ဖြိုးတိုးတက် ရေးစီမံကိန်းများအကြား ပုံသဏ္ဍာန်အသွင်အပြင်များ တဖြေးဖြေးပြောင်းလဲခဲ့ကြသည်။ ရှေးဟောင်းသုတေသနနေရာများနှင့် သမိုင်းဝင်မှတ်တမ်းများ အပေါ် မူတည်လျက် အမရပူရခေတ်မူလရှုမျှော်ခင်းပုံသဏ္ဍာန်များကို နားလည်စေရန်အတွက် အမရပူရမြို့ပြ ပုံစံများနှင့် လူတို့၏အခြေချနေထိုင်မှုများမှ ချည်းကပ်လေ့လာသိရှိနိုင်မည်။ ရှေးခေတ် ဟောင်းအမရပူရ မြို့၏ ယဉ်ကျေးမှုအမွေအနှစ်ရှုမျှော်ခင်းများနှင့် သမိုင်းဝင်လူမှု ယဉ်ကျေးမှုမြင်ကွင်းများကို ဤလေ့လာမှု က ပိုမိုအထောက်အကူပြုမည်ဖြစ်သည်။ လူ ဦးရေတိုးတက်လာမှုများနှင့် ဒေသဖွံ့ဖြိုးရေးစီမံကိန်းများ၏ အကျိုးဆက်များသည် အမရပူရမြို့ဟောင်း၏ ယဉ်ကျေးမှုအမွေအနှစ်ရှုမျှော်ခင်းများကို ထိန်းသိမ်းစောင့်ရှောက်ရန်အတွက် အခက်အခဲစိန်ခေါ်မှုများအဖြစ် ရှိနေကြပါသည်။

**Keywords:** cultural landscape, natural resources, Amarapura, historical elements | ယဉ်ကျေးမှု အမွေအနှစ်အခင်းအကျင်း၊ သဘာဝသယံဇာတအရင်း အမြစ်၊ အမရပူရ၊ သမိုင်းဝင် အချက်အလက်များ

## INTRODUCTION

The cultural landscape of Amarapura during the reigns of Myanmar Kings (18-19th century CE) can be regarded by the current archaeological evidence, architectural monuments, and contemporary documents. The contemporary describes how the kings choose the location to build the new capital, and changes to the boundary of the city. Comparison between historical land-use and modern land-use can estimate how much the landscape in Amarapura has changed over the past 150 years. The archaeological evidence can help in revealing the cultural landscape of Amarapura with five main sections: (1) the historical background, (2) the concept of cultural landscape, (2) the natural landscape, (3) the reconstructed cultural landscape of Amarapura (4) boundary, and (5) utilization of landscape. Amarapura was built as royal capital in 18th -19th century CE and nowadays it has been known as Amarapura Township including Mandalay Region.

### Historical background of Amarapura

Archaeological evidence has indicated that the area of Amarapura Township located in the southern part of Mandalay has been a settlement for human occupation since the Neolithic period. The Taungthaman site is associated with the Neolithic settlement situated around the U Bein bridge in Amarapura Township. The Taungthaman site was excavated for two seasons in 1971 and 1972 by U Seing Maung Oo (Sein Maung Oo 1972: 1). The artifacts from these excavations are stone tools, bone tools, iron objects, animal bones, beads, pottery and human skeletal remains. Taungthaman is typically regarded as the context of Neolithic to Iron Age. Thermoluminescence dates on specimens of pottery and iron give the date on earliest to be 2660 B.P.  $\pm$  200, and the latest to be 2360 BP  $\pm$  235 (Aung Thwin 2002: 24).

Amarapura was the former capital city founded by King Badon of Konbaung Dynasty in 1782 CE (Moe Sat Wathan 2020: 43). King Badon moved the capital from Innwa (Ava) to Amarapura in 1783 CE (Than Tun 1986a: xxiv). King Badon built the capital city of Amarapura with these wishes: (1) for himself (2) for his generation and (3) for his people (Aung Nyein Chan 2007: 203). Amarapura was progressively developed in all cases such as social, economic, political, etc. Bagyidaw (Sagaing Min) ascended the throne when King Badon died in 1819 CE (Than Tun 1986a: xxxi). Unfortunately, the capital of Amarapura was destroyed by fire in 1821 CE (Than Tun 1986b: 364). The north city gate, Parliament buildings, the royal courtyard, Shwetawkyauung, Shwetaung monastery and pahocin (royal tower) were also destroyed by fire. Therefore, King Bagyidaw rebuilt Innwa (Ava) palace and returned to Ava in 1824 CE (Than Tun 1986c: xiii). King Tharawaddy, successor of Bagyidaw, ascended the throne and came back to Amarapura again in 1837 CE (Than Tun 1986c: xiii). Amarapura returned as the capital for the second time after 15 years. King Bagan was proclaimed as king after deposing his father Thrawaddy in 1846 CE (Than Tun 1986c: xiii) at the Amarapura palace. King Mindon ascended the throne from King Bagan in 1852 CE (Than Tun 1986c: xiii) and built up a new kingdom in Mandalay. When King Mindon moved to Mandalay palace, the Amarapura period ended and the city gradually degraded. However, it was still popular according to its historical elements. The valuable historical attributes are still existing in Amarapura Township.

## Materials and Methods

The study utilized three methods such as historical records, field survey and qualitative method. Literature survey of historical records can outline the previous research of Amarapura heritage. Field survey can support the intrinsic data of archaeological sites, monuments and the vulnerability of cultural landscape. To conduct a reconnaissance survey around the city, previous records would be useful with the help of historical maps. To discern between the past and the present landscape of Amarapura city, analysis of surveyed data can take a good result for authenticity of Amarapura heritage separated from other historical periods. The analysis of the landscape can provide the examination of ancient boundary through different periods.

## Concept of Cultural Landscape

Concerning the cultural landscape, it can be conceptualized as anthropology has culture and archaeology has sites; climatology has climate; ecology has system; and biology has community. (Dincauze 2000: 22). Geo-archaeological investigation of landscape context can explain the subtle reciprocal responses of settlement systems in the cultural landscape and their ecosystems through time (Butzer 1982: 156). Combining both their physical origins and the cultural overlay of human presence, often created over millennia, landscapes reflect a living synthesis of people and place that is vital to local and national identity.

Cultural Landscape can be realized that the study of the way in which humanity has changed the physical appearance of the environment in both present and past. Landscape generally refers to both natural environments and environments constructed by human beings. Archaeology should assert as a discipline that seeks to explain present-day physical and cultural landscapes and should be more actively engaged in ecosystem. (O'Connor 2001: 17) The environment including landscape, settlement and social organization will remain an important investigation for archaeology in dealing with biological and geological aspects (Albarella 2001: 11). The investigation of archaeological sites interrelates human behavior in terms of cultural systems within an environmental context (Driver 2001:47).

The World Heritage Committee identifies three categories of cultural landscape, ranging from (i) those landscapes most deliberately shaped by people, through (ii) full range of 'combined' works, to (iii) those least evidently shaped by people (yet highly valued). The three categories extracted from the Committee's Operational Guidelines, are as follows. 1. A landscape designed and created intentionally by "man"; 2. an "organically evolved landscape" which may be a "relict (or fossil) landscape" or a "continuing landscape"; and 3. an "associative cultural landscape" which may be valued because of the "religious, artistic or cultural associations of the natural element" (UNESCO World Heritage Centre 2019: 83).

The specialty and objectivity of cultural landscape and its formation are often rather difficult to interpret. Explaining by spatial and visual components of cultural landscape may usually change over time by the effects of social and cultural life, like space (Keceli and Kocaman 2014: 432). German geographer, Carl Sauer, defined in 1925s as "Culture is the agent, the natural area is the medium, the cultural landscape is the result. Under the influence of a given culture, itself changing through time, the landscape undergoes development, passing through phases" (Plumwood 2006: 121).

## Geographical Setting of Amarapura or Natural Landscape

Amarapura is located 6 miles from the southern part of Mandalay and 4 miles from northeastern part of the confluence of Ayeyarwady River and Dutthawaddy River. It lies between North Latitude 25° 54' and 22° 46' and East Longitude 96° 0' and 96° 3'. It covers an area of 81.11 square miles. It is locally known as Taungmyo (Southern City). Amarapura Township lies in the central lowland area. Two miles east of the township is the Shan plateau. (Cherry Win 2012: 8). Shwekyetyet and Shweyetkya hills which are the southern continuation of the Sagaing-Minwun range is in the western part of the city (Cherry Win 2012: 8). The topography of Amarapura Township is a level plain area.

As Amarapura Township is situated in the Mandalay Region, the temperature and rainfall data are taken from those of Mandalay. The average annual rainfall of the city is below 40 inches (Cherry Win 2012: 8). The average annual temperature of January, the coldest month is 70.67°F, while the average temperature of April, the hottest month is 88.33° F and the range of temperature is 17.66°F (Cherry Win 2012: 16). The plain area, where Mandalay and Amarapura are situated, is built up of Older Alluvium (Cherry Win 2012: 18). The eastern part of the township area is formed of alluvium that was laid down in the past millions of years (Cherry Win 2012: 18). In the western part, it is built up of newer alluvium deposited annually during flood times (Cherry Win 2012: 18).

## Cultural Landscape of Amarapura

Cultural landscape is a natural-anthropogenic system, whose main subsystems are men and nature (Andreychouk 2015: 5) (inanimate and natural). In the case of nature elements are constituted by environmental components (Rocks, air, water, soil, biota, etc.), whereas in the case of man by human being themselves, tools (techniques) and products of their activity (houses, cities, dams, roads, stations, power stations, etc.) (Andreychouk 2015: 5). The cultural landscapes of Amarapura period are 1. palace residential sites, 2. water management 3. agriculture and 4. religious monuments and the cemetery.

### 1. Palace residential area

It is important to note that the Palace was built simultaneously with the building of the seven auspicious structures<sup>1</sup> at seven places of the capital on 9 January 1783 CE (Than Tun 1986a: xxvi). The construction was completed on 5 May 1783 CE (Than Tun 1986a: xxvi). The ancient capital covered an area of 2000 tars (Khin Myint Swe 2016: 13). There were two merlons<sup>2</sup> (Thu-ye-Kho) at every tar<sup>3</sup> distance, therefore, it has totally about 4000 merlons. The height of it was 3 Taung (cubits) and 2 mites. The height of the city wall was 18 Taung (cubits) and 2 mites. There were three city gates on each side of the square palace city, and hence it has totally 12 city gates on all sides (Khin Myint Swe 1992: 3).

Altogether 30 million baked bricks were used in constructing the city walls. The length of the palace was 120 tars from north to south and 137 tars from east to west covering an area of 514 tars (Khin Myint Swe 1992: 4). On the palace platform were spacings -from the steps leading to the principal building called “Myay Nan” to the east where the Dagani (Red Door) was a spacing of 18 tars. It was a spacing of 24 tars from Dagani to Yway Taw Yu door and it was the spacing of 6 Tars from the city wall to the Thit that (wooden defense). Outside the Thit That, the moat was 10 tars in Taung (cubits) in depth (Khin Myint Swe 2016: 13). The brick walls, Thit Tat and the moat were built for the security

1 The Royal Palace, Capital, Moat, Cave, monastery, Library (Pitaka Taik) and Lake

2 A merlon is the solid upright section of a battlement in medieval architecture or fortifications.

3 1 tar=7 taung, 10 feet 6 inches

of the palace. An earthen wall was built in the east of the capital for the security of the capital. The Yarhu corner of city wall inclined inside because it was touched with the That Thay lake. Great stupas namely Shwe Saga, Shwe Lin Pin, Shwe Gon Aut and Shin kyo Shwe Gu were built on each side of the city corner according to astrological prescriptions. Today, it represents the most important points for the palace residential area.

The ancient capital city is now on the verge of extinction due to the arrival of new settlements, the construction of roads, railways and government offices. The moat can be seen only a little on the east side and vague on the other sides. The city walls can be seen only slightly on the south side and no longer on the other sides (Figure 1). Although it had the remains of the palace foundation, its complex is covered with the foundation of the school buildings.



**Fig. 1** The ruins of the southern city wall. Photo by Moe Sat Wathan.

## *2. Water Management*

Water management features are also expected to be definable in the peri-urban zone (Macrae and Iannone 2019: 307). In describing the water management of Amarapura, it was widely based on the map and the written record in Royal Order of Burma (ROB).

Firstly, ROB mentions the water management for the city moat:

“On 14 September 1781, water level in the city moat should be kept high by a constant flow of water through a canal from Zaung Kalaw reservoirs (Than Tun 1986a: xiii)”.

Secondly, it describes the water management for agriculture.

“Myo Wun (Town Officer), Madaya, shall take the example in water distribution from the irrigation system in Koe Khayaing (Nine Districts) of Kyaukse (Than Tun 1986b: 75)”.

The irrigation of Amarapura was described with the following five points (Than Tun 1986a: xi):

- Royal Lands have top priority to receive water distributed from reservoirs;
- Canal used for water distribution should be in good repair at all times;
- Water is to be shared among various fields strictly in accordance with the quota mentioned in old records; and
- Works at weirs in Kyaukse area are always given first preference; officers at Kyaukse have the authority to commandeer any man for any emergency (ROB 15 September 1787); and
- Enlarge the width of canals so that they can carry more water for distribution (ROB 24 September 1787).

The important natural and artificial irrigation features are Ayeyarwady river, Myitnge river, Mitsu creek, Kyichaung creek, Shwetachaung canal, Tamotso canal, Kindat canal and Taungthaman-Inn reservoir. Ayeyarwady river, running in a north-south direction, forms a natural boundary between Sagaing and Amarapura Township. The river flows along the western boundary of the Mandalay-Amarapura area. Myitnge river (Dokhtawady) known as Namtu originates from the Shan Highlands and finally joins with Ayeyarwady river near the ancient city of Innwa. It provides the southern boundary between Amarapura Township and Singaing Township, running from east to west. It is an important branch of Ayeyarwady river. Myitnge river passes through the southern boundary of Amarapura Township. The Myitsu creek is a small watercourse near the southern boundary. It flows within steep banks and enters the Ayeyarwady River.

Shwelaung canal is also known as “Yatananadi canal”. It is 28 miles long and commences from Chaungmagyi canal. It enters the Ayeyarwady River passing through Taungthaman-Inn reservoir in the western part of Amarapura Township. The purpose of this canal was to supply water to Aungpinle Lake, Nanda Lake and to supply domestic water. Taungthaman-Inn is situated in the south-western part of the township. It is an oxbow lake diverted from Ayeyarwady River. During the rainy season Ayeyarwady River water rises and enters the Taungthama-In through Taunggyi canal. During the hot season, the water level falls leaving a shallow muddy lake.

### *3. Agriculture*

Agricultural production plays an inherent role in peri-urbanism (Macrae and Iannone 2019: 306). According to the Royal Order of Burma, there was a written record of agriculture. ROB describes about cultivation on 8 June 1801 as below.

“Gardeners under U Dain Shwe Daung, U Yin Hmu - Chief Gardener, Nanda Wun gardens, shall extend their cultivation from Kauk Kyee Lè Daw - Big Paddy Royal Fields, in the north to Ashay Taw Lè Zu - Patch of Paddy Fields in the East Jungle, Taung Byon, but they should be careful not to transgress on other people’s plot of cultivations when they made the extensions”. (Than Tun 1986 b: 148)

It can be assumed that all of the cultivated land, cultivator and cultivation process are derived from Nanda Wun (The royal garden). There was the description about the agricultural practices and farming strategies on ROB as below.

“There have various cultivation plots, viz. *Lè* - land for rice, *Ya* - land for crops other than rice, *Kaing* - land subjected to yearly inundation, *Kaing* - Vegetable Garden subjected to Yearly Inundation, *Kyun* - Vegetable Garden subjected to Yearly Inundation on Riverine Island described in part of ROB 19 May 1801” (Than Tun 1986b: 132)

ROB in 30 May 1801 was

“On the east of Yè Mun Htaung Boatmen village, a hexagonal plot of land on the south of Thiri Nanda Wun gardens between Myitnge river on the southwest and south and an irrigation canal on the east” (Than Tun 1986b: 140).

In summing up, Processes of agriculture were systematically carried out at that time. The kings tried to increase the cultivation processes in all parts of the kingdom. It needs to explore systematically the land use of agriculture in Amarapura period with the help of technical support.

#### 4. Monuments and Sites

Archaeological monuments and sites of Amarapura period are approximately 100 including religious edifices, royal monuments, royal tombs and cemetery, urban structure, inscription houses, etc (Figures 2-9). According to the inventory of Department of Archeology and National Museum, there are three types of temples and stupa in Amarapura and they are as follows;

- Small temples and stupas lower than 12m in height.
- Medium temples and stupas between 13-25m in height.
- Large temples and stupas are between 26-50m in height.



Fig. 2 Location of palace site and religious monuments. Source: Google Earth.



**Fig. 3** Royal Monument inside the Palace. Source: Photo by Moe Sat Wathan.



**Fig. 4** Nagayone Temple.  
Source: Photo by Moe Sat Wathan.





**Fig. 5 Indigo factory. Source: Photos by Moe Sat Wathan.**



**Fig. 6 Exchequer. Source: Photo by Moe Sat Wathan.**



**Fig. 7 Library. Source: Photo by Moe Sat Wathan.**



**Fig. 8** Shwe Gu Gyi monastery. Source: Photo by Moe Sat Wathan.



**Fig. 9** Kwang Yin Si Chinese Temple. Source: Photo by Moe Sat Wathan.

## Historical Boundary

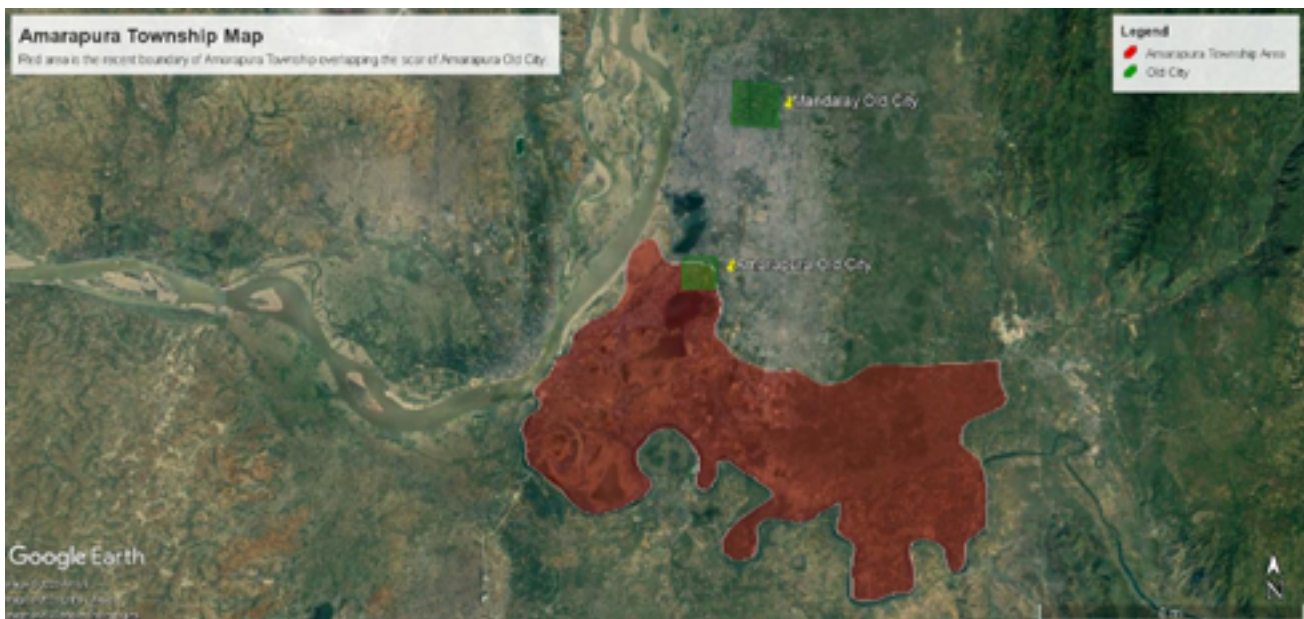
Boundaries are the final characteristics of the peri-urban zone (Macrae and Iannone 2019: 307). The boundary of Amarapura was formed by the natural topographic elements such as the Zaung Kalaw lake to the east, Taungmyint village to the southeast, Taungthaman Inn lake to the south, Shwe Kyet Yat Pagoda to the southwest, Thatthay Inn (lake) to the west, Mandalay Myinwin Min Gyi monastery to the north and Aungpin Le lake to the northeast.

The boundary of Amarapura Urban landscape can be realized by historical records such as historic royal orders, stone inscription, parchment and so on. King Badon chose the area of Hti Baung Ga for the new capital on 10 October 1782 (Than Tun 1986a: xxiv). The boundary of Hti Baung Ga described in *Zambudipausaung Kyan* (Chronicle of Geography and Administration of Myanmar Kings) is Kyaukmi Milatnwala Tang Yo (the name of mountain range) to the east, Shwe Kyat Yat pagoda to the south, Ayeyarwady River to the west and A Yat Ma Htwet pagoda of Madaya to the north (Than Tun et al. 2005: 97). The boundary of Amarapura City (1782-1853 CE) is Aung Pin Le lake to the east, Shwe Sar Yan Pagoda to the southeast, Ngayan Chanel inside Palace city to the south, Sagaing City to the southwest, Innwa (Ava) to the west, Sagaing City to the northwest, Madaya City to the north and base of Shan Plateau of Patheingyi Township to the northeast (Aung Nyein Chan 2007: 20).

Further, an important question is how these boundaries changed over time. One particular point is that the boundary of Amarapura before 1859 CE is larger than present boundary. It can be assumed that Amarapura became part of Mandalay city when King Mindon moved the new city to Mandalay in 1855 CE.

## Modern boundary

The boundary of Amarapura Township is of two kinds; the land boundary and the river boundary. River boundaries are found in the western and southern sides of the township with Ayeyarwady and Myitnge Rivers respectively. The Myitnge River flows from east to west along the southern township boundary to join Ayeyarwady River. The length of the Myitnge forming the township boundary is about 14 miles long. In the west of the township, Ayeyarwady River forms both of Singaing and Tada-U Townships as natural boundary. Ayeyarwady river, flowing from north to south along the boundary is about 6 miles long. Amarapura Township is bounded by Pyigyitagun Township on the east, Chanmyathazi on the north, Patheingyi Township on the north-east, Sagaing Township on the west and Singkaing Township on the south (Figure 10).



**Fig. 10 Modern Boundary of Amarapura. Source: Google Earth.**

### Historical land-use

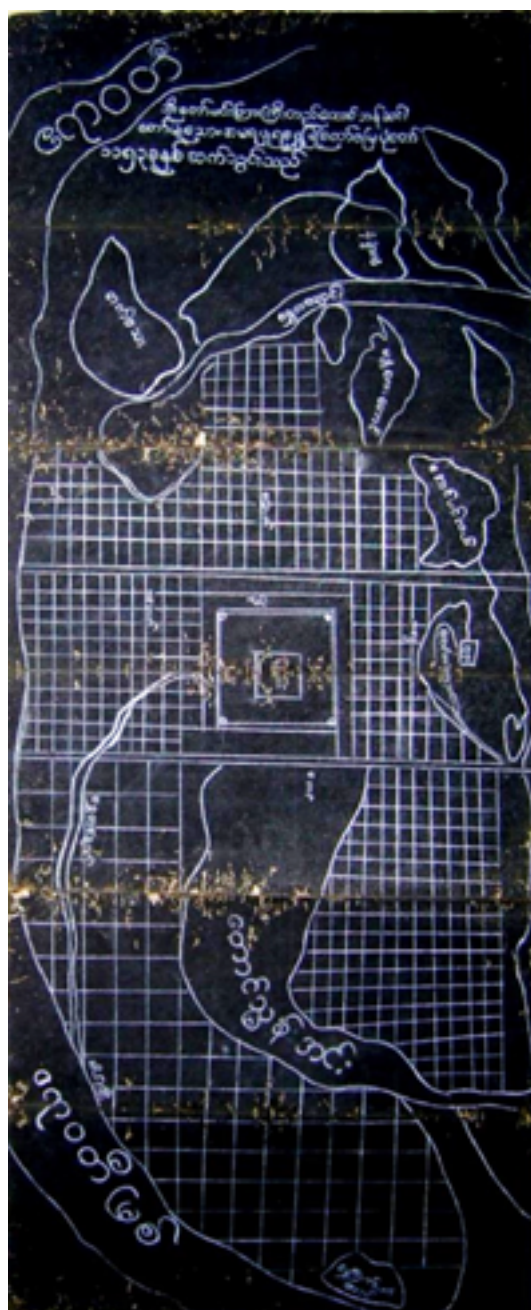
Land-use refers to the management and modification of natural environment or jungle into built environment such as fields, pastures, and settlements. It has also been defined as

“the arrangement, activities and inputs people undertake in certain and cover types to produce, change or maintain it” (Maung Maung Nyunt 2012: 59)

The historical land-use can be described in two points: land-use of the ancient capital city and land use of rural city or peri-urban area. The plan of Amarapura city is a square surrounded by a wall and moat and each side has three gates (see Fig 1 and Fig 11). It also has three roads running north-south and three running east-west dividing the royal city into 12 x12 blocks (Yamada 2019: 36). The royal palace is in the center of the royal city. Yamada (2019) suggested that the land use of Amarapura palace city can be divided into three major categories such as (1) Court, (2) Resident and (3) Utility with five sub-categories (Yamada 2019: 36). It can be assumed that the royal palace is in the center according to the figure of the land-use in the royal city of Amarapura. It was surrounded by 34 court buildings, 15 utility buildings, 7 buildings for religious monuments, 27 buildings for royal family and 38 buildings for officers. The largest quantity of the buildings is for officers and the second one is for the court. And the buildings for royal family tend to be in the southwest and northwest sections. The buildings for officers are in the east, west and south of the palace. And the buildings for court are in the north, east and south of the palace. A few buildings like the court, utility, the buildings for royal family and officers in the north part of the palace can be found. The buildings located in the northern part are less than other sides.

The rural land-use of ancient Amarapura can be counted depending on the ancient map of Amarapura that recorded on the original parchment (Parabeik) entitled *Amarapura Shwe Myo Taw nint Patwonkyin Pya Nalmyay Pon* (Map Showing Amarapura Golden Royal City and Its Environs) (Figure 11, Tun Yi 2019: 170, Tin Naing Win & Haling Hlaing Swe, 2020:229, 230, 233) Three points were described on this Parakeik map: (1) ancient capital, (2) sub-plots with numbering, (3) water bodies. Land-use

of ancient capital was narrow and elongated in the northeast, southeast and southwest of the walled city (Figure 12). There are residential areas and religious land. It described 136 sub-plots in the map; 54 sub-plots for religious land and 122<sup>4</sup> sub-plots for residential areas (Tun Yi 2019: 174). There are more sub-plots to the west and southwest of the capital city. Amarapura is located in the junction of Ayeyarwady and Dutthawaddy Rivers. Moreover, it has Thatthay Inn (lake) and Shweta Chang canal on the northwest Aungpinle lake on the northeast, Zaungkalaung lake on the east and Taungthaman Inn (lake) on the south of the city. There are some small islands nearby the water body.



**Fig. 11** The Original Black Parchment (Parabeik) entitled Bodaw Mintaragyi Thithaungphan Sin Taw Mu Thaw Amarapura Shwe Myo Taw Myay Pon Taw, 1153 Khu-nhit Set-thwinthi (Royal Map of Amarapura Golden City founded and created by King Bodaw, submitted in 1791 CE). Source: U Pyinnya Collection, Tin Naing Win & Haling Hlaing Swe, 2020:229, 231).

<sup>4</sup> According to the 136 lists listed in the book, non-religious wards are considered as residential areas.



**Fig. 12** Reproduction of original parchment (Parabeik) entitled *Amarapura Shwe Myo Taw nint Patwonkyin Pya Nalmyay Pon* (Map Showing Amarapura Golden Royal City and Its Environs) (Source: Tun Yi, 2019, Tin Naing Win & Haling Hlaing Swe, 2020:229, 230, 233).

The agricultural land-use can also be counted with the help of ancient parchments and chronicles like *Zambudipausaung Kyan* (Chronicle of Geography and Administration of Myanmar Kings). It describes the list of farmlands of Amarapura during the reigns of Myanmar Kings (Tun Yi 2019: 25). According to the table (1), it can be assumed that 3346 pe 18 lun were used for agriculture during the reign of Burmese/Myanmar Kings. The largest farmland is Thirinadar garden and smallest farmland is Athant Hintaw Set village.

No	Name of the villages	Area	Area of Farm land	Area of land in Sq-km <sup>5</sup>
1.	Bon-oh village	327 pe	2 lun	2.316 sq-km
2.	Latpansi village	134 pe	2 lun	0.949 sq-km
3.	Sinya village	53 pe	3 lun	0.375 sq-km
4.	Thaphayoak vilalge	403 pe	2 lun	2.854 sq-km
5.	Thirinadar U Yin Taw (garden)	567 pe		4.015 sq-km
6.	Myitlaung village	512 pe	2 lun	3.626 sq-km
7.	Danon village	104 pe	2 lun	0.736 sq-km
8.	Athant Hintawset village	42 pe	2 lun	0.297 sq-km
9.	Bayekyun village	105 pe		0.743 sq-km
10.	Chin village	136 pe		0.963 sq-km
11.	Shwekyatyat Village	185 pe	3 lun	1.310 sq-km
12.	Taungthaman village	310 pe		2.195 sq-km
13.	Thattay Inn	468 pe		3.314 sq-km
Total		3346 pe	18 lun	23.696 sq-km <sup>6</sup>

**Table 1** Agricultural land-use of Amarapura during the region of Burmese/ Myanmar Kings. **Source:** Based on the source of list of farmlands of Amarapura in U Tun Yi (2019).

### Modern Land-use

There are two main points for modern land-use: (1) modern land-use within the royal city and (2) modern land-use for overall boundaries. Firstly, there is one railroad and two motor lines inside the royal city. A rail line is cutting diagonally across the site and dividing the city into two equal parts. This runs between Mandalay and Sagaing and was built by the British Colonial Government between 1885 and 1910 CE (Florence University Team et al., 2016: 209). The Sagaing-Mandalay main road cuts diagonally across the site, mainly in the north-west corner of royal city. Then, the Taungthaman-Mandalay junction road (locally called Sa-ya-pha road), runs north-south and divides the city into unequal parts. The section of the royal city, north-west of the rail line maintains the characteristics of the urban site, in spite of lesser forms of a peripheral suburb. The other section, southeast of the railroad has regressed to an almost rural appearance because of the dense tree vegetation. Nowadays the military headquarters had taken place inside walled city wall of Amarapura.

Present land-use is classified as residential, agricultural, industrial, commercial, public and institutional areas, services, recreational, municipal services, transportation, unused land, and water lands. A table of land-use type of Amarapura Township in 2007 can be seen below.

<sup>5</sup> 100 pe=175 acres=70.8225 hectares that described in ROB V,p.140 (Therefore it can be assumed as 1 pe=1.75 acres=0.0070820 sq-km)

<sup>6</sup> It is not included “lun” because the term for converting lun to pe is unknown.

No.	Land-use Type	Sq.km
1.	Agricultural	144.09
2.	Water Land	26.45
3.	Residential	12.42
4.	Public and Institutional	9.28
5.	Transportation	8.65
6.	Unused Land	1.39
7.	Industrial	1.49
8.	Commercial	1.24
9.	Municipal	0.89
10.	Service	0.89
11.	Recreational	0.85

**Table 2** Area of Land-use type of Amarapura Township in 2007. **Source:** Maung Maung Nyunt (2012: 71).

The area under Village tract cultivation is 144.09 sq-kms (55.63 sq. miles) or 70 per cent of total township area (Maung Maung Nyunt 2012: 73). The total area of water is 26.45 sq-kms (10.21 sq. miles) or 12.74 per cent to total township area (Maung Maung Nyunt 2012: 81). Water land area is the second largest after agricultural use. Residential land-use area is 12.42 sq-kms (4.08 sq-miles) taking up 5.98 per cent to total area of the Amarapura Township (Maung Maung Nyunt 2012: 70). Most of the residential buildings in the township are one or two-stories (Maung Maung Nyunt 2012: 71). But recently three and four storey buildings appear along the Sagaing-Mandalay and Yangon-Mandalay Roads, as well as in Amarapura Township and Myitnge indicating the improvement in the social economic conditions of the people (Maung Maung Nyunt 2012: 71).

The area under public and institutional land-use is 9.28 sq-kms (3.58 sq-miles) which accounts for 4.47 per cent of the total township area in 2007 (Maung Maung Nyunt 2012: 76). Religious land-use such as monasteries and pagodas are in all towns and village tracts. Areas under roads, railway line and stations, jetties and wharves are classified as transportation land, totaling 8.65 sq-kms (3.33 sq-miles). An area is rectangular in shape in which major roads and railway (Yangon-Mandalay and Sagaing-Mandalay) are aligning north-south direction and feeder roads running east-west direction. In Amarapura Township, basalt roads, gravel roads and paved roads are found in 2007 (Maung Maung Nyunt 2012: 79).

Unused Land includes muddy areas. The total area of unused land was 1.39 sq-kms (0.54 sq-miles). Industrial land-use covered about 1.49 sq-kms (0.58 sq-miles). Myitnge town has the largest area with 0.62 sq-kms (Maung Maung Nyunt 2012: 74) (0.24 sq-miles) because of the extension of train repair industry, rice mill and cottage industries are located in this area. The total commercial land area covered considerably to 1.24 sq-kms (0.48 sq-miles). It accounted for 0.60 (Maung Maung Nyunt 2012: 75) per cent of the total area of Amarapura Township. The most important business area of the township lies on Sagaing - Mandalay Road and Yangon-Mandalay Road. These main business areas are Theingyazay market and Nandawyar Sanpya Bazaar and Laza Bazaar on Sagaing-Mandalay (Maung Maung Nyunt 2012: 75). These Bazaars with one-storey structures. The Sagaing-Mandalay business area possesses 0.2 sq-km (0.1 sq-miles) of commercial land and Theingyazay area has the largest commercial area of the township (Maung Maung Nyunt 2012: 75).



Municipal land-use accounts for 0.89 sq-km (0.43 sq-miles) or 0.43 (Maung Maung Nyunt 2012: 78) per cent of the total township area. This land-use is found in northwest part of Amarapura Township and beside Ayeyarwady River and Dutthawaddy (Myitnge) River (Maung Maung Nyunt 2012: 78). The area of land-used for services is 0.89 sq-km (0.34 sq-miles) or 0.43 per cent of the total township area (Maung Maung Nyunt 2012: 77). Services appeared in the township recently are Yadanabon University in Taungthaman village tract, Hotels in Lezu ward in Amarapura Town in the year of 2000 (Maung Maung Nyunt 2012: 77). The Township has 0.85 sq-kms (0.33 sq-miles) or 0.41 (Maung Maung Nyunt 2012: 77) per cent of recreational land in 2007 because some of the unused area has been transformed to provide the growing people with more recreational area. Parks and playgrounds come under this category. Along Ayeyarwady River in Yindaw and Shwekyetyet village tracts can also be designated as recreational areas (Maung Maung Nyunt 2012: 77).

## DISCUSSION

King Badon ordered the ministers to select land for new city under the sign of “Htee Paung Kar” (Khin Myint Swe 1992: 2). Htee Paung Kar is the word that derived from “Hti Baung Ga”. Htee Paung Kar means that the king who was ruling there was respectfully offered by a hundred other kings. Royal officials of King Badon pointed out that Amarapura was originally called Pat Pa and was included in the Htee Paung Kar border area (Khin Myint Swe 1992: 2). Moreover, its surface is also found to be smooth level. Therefore, Amarapura can be assumed as a prophesied land of ancient Myanmar. Khin Myint Swe (1992) stated that the establishment of the city of King Badon was due to three facts: (1) he did not want to live on the bloody land of Innwa, (2) Innwa is considered unreliable for the security of his throne and (3) he was about to receive the title of Mayor.

There is a written record of the consideration of choosing the capital Amarapura in Royal Order of Burma in 11 Nov 1837, during the reign of King Thayawaddy. “Princes, ministers, officers, etc. petitioned for considering Amarapura for Royal Residence. They gave two reasons. Firstly, it was the place where the king was born; secondly its founder King Badon (1782- 1819 CE) had had a long reign” (Than Tun 1986c: 206). Moreover, Dr Toe Hla gave a suggestion as to why King Thayawaddy left Ava and moved to Amarapura: “During the reign of King Bagyidaw (Sagaing Min), the first Anglo-Burmese War broke out and Rakhine and Taninthayi were ceded to the British. Due to the history of defeat, King Thayawaddy seized the throne from his successor Bagyidaw and moved to Amarapura again” (Than Tun 2019: 164).

Historically, King Badon may have chosen Amarapura to establish the new city from astrological and topographical points of view. It is believed that King Tharawaddy re-elected Amarapura as the capital, despite the longevity of King Badon and the displeasure of the defeat of King Bagyidaw in Innwa. The city is surrounded by four hills, and it is in the center of Taungthaman Inn and Myitnge River in the south, Ayeyarwady River in the west and Thattay Inn in the north and Aungpinle lake in the east. That natural landscape can provide not only physical aspects for palace security but also sufficient water supply for the city. These facts are reasonable reasons for the kings to establish a new capital at this place.

By comparing the present map and historic map, it is known that the Amarapura boundary is wider than the present boundary. Because Amarapura became the part of Mandalay city when King Mindom

moved the new capital to Mandalay in 1859 CE (Than Tun 1986d: xv). Today, the northern and eastern parts of Amarapura are included in the southeastern part of Mandalay.

The utilization and transformation of the landscape by humans is aimed at providing them with suitable conditions of living and development (Andreychouk 2015: 3). The change of land-use is directly proportional to the development of the city. Agricultural areas of Amarapura Township were 147.28 sq. km in 1987 and 144.09 sq. km in 2007 (Maung Maung Nyunt 2012: 81). The water body of Amarapura Township was 28.54 sq-km in 1987 and 26.45 sq-km in 2007 (Maung Maung Nyunt 2012: 81). The above land use comparison is in the same boundary situation. It showed that agricultural land and water land decreased over a period of 10 years (1987 to 2007). It is true that during the Amarapura Period, there was more water land than the present time. According to the map (Map-2), there was a lot of unused land during the Amarapura period. Due to the development process and infrastructure construction, unused land is expected to be smaller than the Amarapura Period.

According to the 1783 census, there were 3585 traders, 11472 service men, totaling 15457 (Khin Myint Swe 2016: 15), the biggest population for the capital. During the reign of King Badon, the 1795 census showed that there were 70000 (Khin Myint Swe 2016: 15) houses within the Capital. The increase in residential area is directly proportional to the population growth, it is accurate that the population increase in 1795 from 1783 CE. The total population of Amarapura in 2009 was 185,194 (Cherry Win 2012: 22). Therefore, it can be assumed that the present residential area will be more than that of 1795 CE. It should be considered that the boundary is different when comparing the present's land-use and land-use in the Amarapura Period.

## CONCLUSION

The cultural landscape of Amarapura can be determined by the socio-economic changes from agriculture and water-management. Amarapura is thought to have been more beneficial than Mandalay according to both of its recent historical remains and its longevity of the kingdom. There is a rail line and two main roads within city. The section of the royal city near the northwest corner maintains urban characteristics. It can be seen that the governmental offices, rural sub-plots and military facilities can be found in other sections of the royal city. The city still has much archaeological evidence, although the royal city and palace complex, a major symbol of the Amarapura period, are obscured by the development infrastructure. Development can be seen in the time perspective, implying a change from one state to another, or on other criteria. While encouraging the development process, management should be taken to ensure that the criteria of historical landscape are not compromised. Landscape management that effectively preserves the historical landscape should be studied in the future.

## ACKNOWLEDGEMENTS

We wish to express my sincere thanks to the organization of SEAMEO SPAFA for giving me this chance of publication. We deeply thank Mr. Nyein Chan Soe for helping in document finding and sharing his time to review my research. Special thanks to Mr. Saw Tun Lin for his valuable suggestions and sharing his time to review the research. My grateful thank is extended to Mr. Kong F. Cheong, PhD candidate of Anthropology Department of American University, for sharing his time to review this paper. Finally, I acknowledge to one and all who give some support physically and mentally.

## REFERENCES

- Albarella, U (ed.) (2001) *Environmental Archaeology: Meaning and Purpose*. Cham: Springer-Science + Business Media B. V.
- Andreychouk, V (2015) Cultural landscape Function. In: M Luc, U Somorowska and JB Szymańska *Landscape analyzing and Planning*. Cham: Springer International Publishing, 3-19.
- Aung Nyein Chan (2007) *Shwebone Shwenan Amarapura Khanan*. Yangon: Saryay Baikman Press.
- Aung Twin, M (2002) Origin and Development of Field of Prehistory in Burma. *Asian Perspectives* 40(1): 6-34.
- Butzer, KW (1982) *Archaeology as Human Ecology: Method and theory for a contextual approach*. Cambridge: Cambridge University Press.
- Cherry Win (2012) A geographical analysis on Socio-economic development of Amarapura Township. PhD Thesis, University of Mandalay, Mandalay.
- Dincauze, DF (2000) *Environmental Archaeology Principles and Practice*. Cambridge: Cambridge University Press.
- Driver, J (2001) Environmental Archaeology is not Human Paleoecology. In: U Albarella (ed.) *Environmental Archaeology: Meaning and Purpose*. Cham: Springer-Science + Business Media, B. V., 43-53.
- Keceli, A and Kocaman, S (2014) A comparative Study of Urban Cultural landscape. *International journal of Academic and Social Science* 4(6): 430-439.
- Khin Myint Swe (1992) History of Amarapura. MA Thesis, University of Mandalay, Mandalay.
- Khin Myint Swe (2016) Urban Structure of Amarapura (1782-1858). *Universities Research Journal* 6: 11-25.
- LaGes (Laboratorio de Geografia Sociale) (2016) *Sustainable Destination Plan for ancient cities of Upper Myanmar: Mandalay, Amarapura, Innwa, Sagaing, Mingun (2016-2021)*. Firenze, Polistampa. (<http://www.lages.eu/en/pubblicazioni/>)
- Macrae, S and Iannone, G (2019) Chapter 16, Settlement Transect Survey. *Report on the 2019 IRAW@ Bagan Field Season*. Peterborough, Ontario, Trent University Occasional Papers in Archaeology, 300-332.
- Maung Maung Nyunt (2012) A Geographical Assessment of the road Infrastructures and land-use changes in Amarapura. PhD Thesis, University of Mandalay, Mandalay.
- Moe Sat Wathan (2020) The Inscription 17 lines on the bronze bell donated by crown prince, one of the sons of King Bodaw. *The Proceeding of International Conference on Language and Humanities, YUFL*. 6-7 January 2020, Yangon.
- O'Connor, T (2001) Economic Prehistory or Environmental Archaeology? On Gaining a Sense of Identity. In: U Albarella (ed.) *Environmental Archaeology: Meaning and Purpose*. Springer-Science + Business Media, B. V., 17-27.
- Plumwood, V (2006). The Concept of cultural landscape: Nature, Culture and Agency of Land. *Ethic and Environment* 11(2): 115-150.
- Sein Maung Oo (1972) First excavation Report of the Taungthaman site. Mandalay: Archaeology Department.
- Than Tun (1986a) *Royal Order of Burma Part Four*. Kyoto: The center for Southeast Asian Studies, Kyoto University Press.
- Than Tun (1986b) *Royal Order of Burma Part Five*. Kyoto: The center for Southeast Asian Studies, Kyoto University Press.

- Than Tun (1986c) *Royal Order of Burma Part Eight*. Kyoto: The center for Southeast Asian Studies, Kyoto University Press.
- Than Tun (1986d) *Royal Order of Burma Part Nine*. Kyoto: The center for Southeast Asian Studies, Kyoto University Press.
- Than Tun (Editor) (2005) *Zambhudipausaung Kyan (Chronicle of Myanmar History based on Geographic Information)*. Yangon: Yangon, Myanmar Historical Commission Press
- Tun Yi (2019) *Collection of Sketch map during the reign of Myanmar Kings*. Yangon: Mibagon Press.
- Tin Naing Win and Hlaing Hlaing Swe (2020) An Initial Approach to the Parabaik-Maps of Amarapura Royal Capital. *University of Mandalay Research Journal*, 11: 219-234
- Toe Hla (2019) *Historical Pagodas from Pinya, Inva (672-1247 Myanmar Year)*. Yangon: Yarpae Press.
- Yamada, K (2019) Research on Spatial Structure of outer cities of Burmese capital from Analysis of Mandalay, The last royal city of Burma. *Urban and Regional Planning Review* 6:22-44.
- UNESCO World Heritage Centre (2019). Operational Guidelines for the Implementation on the World Heritage Convention. Paris: UNESCO.