

**SPATIAL FORM AND URBAN ELEMENTS
DEVELOPMENT OF CHANGKLAN ROAD,
CHIANG MAI**



KUNLANUN SUKPINIJ

MASTER OF ARCHITECTURE

IN ARCHITECTURE

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**GRADUATE SCHOOL
CHIANG MAI UNIVERSITY
AUGUST 2019**

**SPATIAL FORM AND URBAN ELEMENTS DEVELOPMENT OF
CHANGKLAN ROAD, CHIANG MAI**

KUNLANUN SUKPINIJ

**A THESIS SUBMITTED TO CHIANG MAI UNIVERSITY IN PARTIAL
FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF
MASTER OF ARCHITECTURE
IN ARCHITECTURE**

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Kunlanun Sukpinij

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หัวข้อวิทยานิพนธ์ พัฒนาการของรูปที่ว่างและองค์ประกอบเมืองของถนนข้างคลาน เมืองเชียงใหม่

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บทคัดย่อ

งานศึกษานี้มุ่งเน้นที่จะอธิบายกำเนิดและพัฒนนาการของการก่อรูปที่ว่างและองค์ประกอบเมืองของถนนข้างคลานตั้งแต่ พ.ศ. 2339 จนถึงปัจจุบัน ผ่านการศึกษาแผนที่ในแต่ละยุคและค้นหาสาเหตุปัจจัยที่ส่งอิทธิพลต่อกระบวนการพัฒนาของโครงสร้างถนนและองค์ประกอบสถาปัตยกรรมเมืองบนถนนข้างคลาน การเข้ามาอยู่อาศัยของชาวอังกฤษ พม่า อินเดีย จีนยูนนาน และชาวไทยที่เข้ามาใช้ประโยชน์พื้นที่ จนกระทั่งเข้าสู่การเป็นแหล่งท่องเที่ยวในฐานะของถนนค้าขายของฝากของที่ระลึก ยามค่ำคืนที่มีชื่อเสียงของเมืองเชียงใหม่ ความหนาแน่นของการใช้พื้นที่ถูกซ้อนทับลงไปบนพื้นที่ในแต่ละช่วงสมัยทำให้เกิดเป็นองค์ประกอบเมืองที่หลากหลาย ซึ่งเป็นลักษณะพิเศษของถนนข้างคลานประกอบไปด้วยวัด มัสยิด โรงแรม ห้างสรรพสินค้า อาคารพาณิชย์ โรงเรียน ตลาด และบ้านพักอาศัย เช่นเดียวกับการค้าขายที่มีตั้งแต่ ห้างร้านขนาดใหญ่จนถึงร้านแผงลอยขนาดเล็ก ซึ่งการศึกษาการใช้พื้นที่ของแผงลอยที่มีรูปแบบเฉพาะนั้นนำไปสู่การอธิบายการก่อรูปที่ว่าง พัฒนาการของเมืองและความสัมพันธ์ระหว่างองค์ประกอบเมืองในทั้งสองฝั่งถนน ผลลัพธ์ที่เห็นในปัจจุบันยังคงปรากฏให้เห็นร่องรอยในอดีต ผ่านลักษณะการใช้พื้นที่ โครงสร้างถนน รูปร่างและขนาดของแปลงที่ดิน อย่างไรก็ตามพัฒนาการของถนนข้างคลานในปัจจุบันได้ชะลอลง เนื่องจาก เกิดคู่แข่งจากย่านการค้าและการท่องเที่ยวแห่งใหม่ ซึ่งล้วนแต่ค้าขายและทำธุรกิจบนแปลงที่ดินขนาดเล็ก ด้วยเหตุนี้แนวทางการพัฒนาของถนนข้างคลานในอนาคตจึงมีแนวโน้มที่จะเกิดขึ้นบนแปลงที่ดินขนาดใหญ่ ซึ่งเป็นจุดเด่นของถนนข้างคลาน

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ABSTRACT

The purpose of this study is to explain the development processes on Changklan Rd.'s spatial form and urban elements since 1796. The development of Changklan Rd.'s influence was not only by Thai, but also the British, Burmese, Indian and Yunnan Chinese. The advent of tourism in Chiang Mai City over the past 60 years made Changklan Rd. famous as a souvenir shopping street. The long and closely packed usage of spaces which are superimposed into the area from time to time form a distinctive townscape fashioned by the various typology of buildings and urban facilities on the street: Buddhist monasteries, a mosque, hotels, shopping malls, shophouses, schools, markets and houses. Various patterns of trade from large department stores to small street stalls also generated a unique pattern of space usage and townscape. Stalls were also studied to explain characteristics and relationship with urban structures and elements. The urban configuration of Changklan Rd. at present still shows some traces from the past through the usage of space, religious facilities, road structures and the configuration of land plots. However, the current development of Changklan Rd. has been affected by new business districts and walking streets. These businesses typically run on small land plots, which make them adaptable to new requirements of tourists in each period, which compete with the development of Changklan Rd. As a result, future development of Changklan Rd. tends to take place on large scale land plots which is a strong advantage of spatial characteristics of the road.

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CHAPTER 1

Introduction

The purpose of this study is to explain the development processes on Changklan Rd.'s spatial form and urban elements since 1796. The development of Changklan Rd.'s influence was not only by Thai, but also the British, Burmese, Indian and Yunnan Chinese. The advent of tourism in Chiang Mai City over the past 60 years made Changklan Rd. famous as a souvenir shopping street. The long and closely packed usage of spaces which are superimposed into the area from time to time form a distinctive townscape fashioned by the various typology of buildings and urban facilities on the street: Buddhist monasteries, a mosque, hotels, shopping malls, shophouses, schools, markets and houses. Various patterns of trade from large department stores to small street stalls also generated a unique pattern of space usage and townscape. Stalls were also studied to explain characteristics and relationship with urban structures and elements.



Figure 1.1 Changklan road daytime (left) and nighttime (right)

The urban configuration of Changklan Rd. at present still shows some traces from the past through the usage of space, religious facilities, road structures and the configuration of land plots. However, the current development of Changklan Rd. has been affected by new business districts and walking streets. These businesses typically

run on small land plots, which make them adaptable to new requirements of tourists in each period, which compete with the development of Changklan Rd. As a result, future development of Changklan Rd. tends to take place on large scale land plots which is a strong advantage of spatial characteristics of the road.

1.1 Objective

1) To explain the development process of spatial form and urban elements on Changklan Rd. from 1796 until the present day, and to explore influences and factors that control the development processes of the road and its urban elements, up and until the present configuration.

2) To analyze the spatial form of the road and the usage pattern of the elements along Changklan Rd. which make the area remarkable.

1.2 Study Scope

1) An overview of the development of Chiang Mai City since its inception to the present.

2) Study area, starting from the intersection of the Thapae road and Changklan road along the sides of the Changklan road to the intersection of the Sri Chai road and Changklan road (distanced approximately 750 meters)

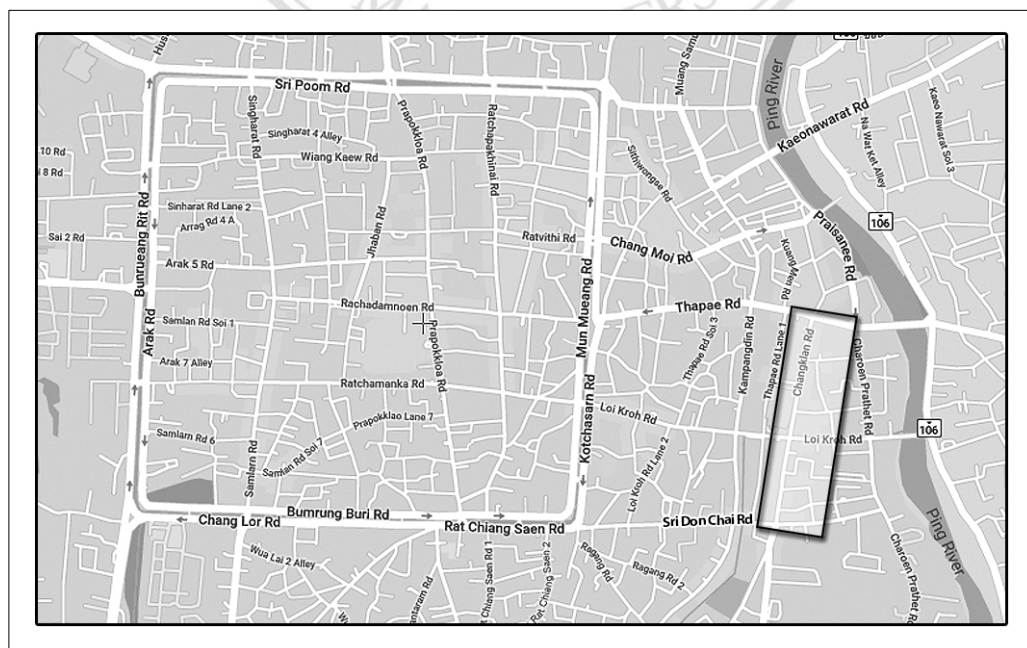


Figure 1.2 Changklan road, the study area

3) Study the development of road structure, urban elements and utilization of space. From the year 1828 (the year when the map of Changklan Road is clearly visible) - 2018 (current year).

4) Study of urban features and spatial form. On Changklan Road (study area) currently consists of roads structure, buildings type, and space usage.

5) Study the current activities and elements that are moving. Located on Changklan Road (study area) from day-night (13.00 - 23.00)

Interviewed 10 traders in the study area for additional information. For an overview of the activities that occur. And stall management in the area.

1.3 Expected results

1) Know the factor or influence that effect or control the Changklan road in formation and transformation process of road system, the block, and the development of urban element along Changklan road.

2) Understand the spatial organization and spatial form of the area. And how the people in the area or owner of the building along both sides of Changklan road use the space.

1.4 Duration

Table 1.1 Duration of research study

NO.	Activity	1 st Month	2 nd Month	3 rd Month	4 th Month	5 th Month	6 th Month	7 th Month	8 th Month
1	Define research topics								
2	Literature Review								
3	Data Colleting & Field Survey								
4	Data systematize								
5	Data Analyze and Conclusion								
6	Complete report study.								

CHAPTER 2

Literature Review

2.1 History

2.1.1 Chiang Mai history

Starting from 1296, Chiang Mai is the center of the power of Lanna. Chiang-Man temple inscription indicates that the canal was excavated and 4 sides city walls were built. Later in 1558-1774, Chiang Mai was under the rule of Burma. As a result, Chiang Mai has been influenced by Burmese culture and art. Such as architectural shapes. Later in the year 1774 Chiang Mai and Lanna became colonized of Thonburi. At that time, Chiang Mai was deserted. The city was damaged and people were forcibly evicted. Later in the year 1782, Chiang Mai became colonized of Rattanakosin with Divine Right of Kings rule. Later in the 1790s, Phraya Kawila has accumulated manpower to restore Chiang Mai. Then appointed as Chiang Mai governor and took people to Chiang Mai during 1804.

Later, in 1864, British Borneo Company, Ltd. entered the forest industry in Lanna. In 1870, the British government in India sent Lieutenant Lowndes to see Teak wood trade possibility with Chiang Mai. Same period as Kawilorot Suriyawong was passed away. Three years later, Siam appointed Inthawichayanon as Chiang Mai governor. 1874, Siam was signed with the British in the Chiang Mai Contract No. 1; empowered the Thai court to solve the problem of forest industry or lawsuits, also appointed a governor to oversee the dispute between the northern rulers and those under the Burmese forest concession. Subsequently, the signing of Chiang Mai Contract No. 2 in 1883. for increased Thai jurisdiction. And the British have the right to establish the British Consulate in Chiang Mai. Later in 1889, Siam set up Lanna belong a part of Payap region, with its headquarters in Chiang Mai. And set new tax system, have to pay money instead of crops. Which causes a lot of trouble for the villagers. In the same year, Bombay Burma And Siam Forest have entered the forest industry in Lanna. In 1895, the

established a forest department with its first office in Chiang Mai. In addition, the finished goods that were once in the hands of western merchants became the business of the Chinese people. During the years 1899-1967 people in the north migrated constantly because they wanted to find arable land. In the late 19th century, Chinese merchants from Bangkok were important in the Chiang Mai-Bangkok trade. Over a thousand merchant boats per year travel up and down the Ping river.

Later in 1899, Chiang Mai was decolonized. And abolish the Serfs system, which is the abolition of the feudal system of Lanna. And destroy the fostering system relationship between govern people and ordinary people. to cart-way for travel and transport conveniently. Later in 1901. Siam issued land ownership certificates, making land prices and trading like other goods. Then in 1916, many roads were constructed to link the city with the countryside or between the districts. In 1921, the railway arrived in Chiang Mai. The rice exported from Chiang Mai station is 4,300 tons, of the total of 7,214 tons of all in Lanna. In 1927 there were cars between town or district or between provinces, partly driven by the expansion of trade. And began the policy of reducing opium smoking.

Later in 1932, Thailand changed from absolute monarchy to democracy, and the villagers started to develop their cultivation system to focus on selling. Then one year later, Chiang Mai was reduced to being one of Thailand's provinces. In 1934, the state established the school is located in the northern part of Thailand, which is Maejo Institute of Agricultural Technology and Maejo University nowadays. In 1935, Chiang Mai became the first municipality in Thailand. 1,300,000 buckets of rice were delivered by rail which doubled from 1925. Later, in 1936, the first building law was enacted. That is the first mention of the city plan. In 1940, Prince Kaew Nawarat was passed away. Siam collapses the last govern. In 1956, the Chiang Mai Waterworks started operating. First 4-5 year, The population is very less interested in the tap water supply. ,because there is well of their own.

In 1957 a Railway Hotel building was constructed, then finished in 1961, which is the first 5 floors building of the city. Later in 1964. Chiang Mai University was founded. So Chiang Mai became a center of education in the northern part of Thailand. There was also an International Travel Conference (PATA), which is the first time in

Chiang Mai. As a result, Chiang Mai has been known by foreigners. One year later, Chiang Mai was given a modern city plan called "Chiang Mai Urban Planning B.E. 2533," which was completed in 1969.

That description of the community in Chiang Mai at that time. The characteristics of the population are densely populated in the congregational area. Trade sources, located along the length of the road, are both retail and wholesale. The densely populated retail area on the west side of the Ping River. Thapae Road, Chang Moi Road and Wichayanon Road, where were a busy trade community. For the wholesale district. There is a dense population on the east bank of the Ping River. It is located in the center of the trade of the Upper North. Moreover, it is the destination of the railway and the center of land transport. Which makes Chiang Mai is the center of trade in agricultural products and finished goods from Bangkok.

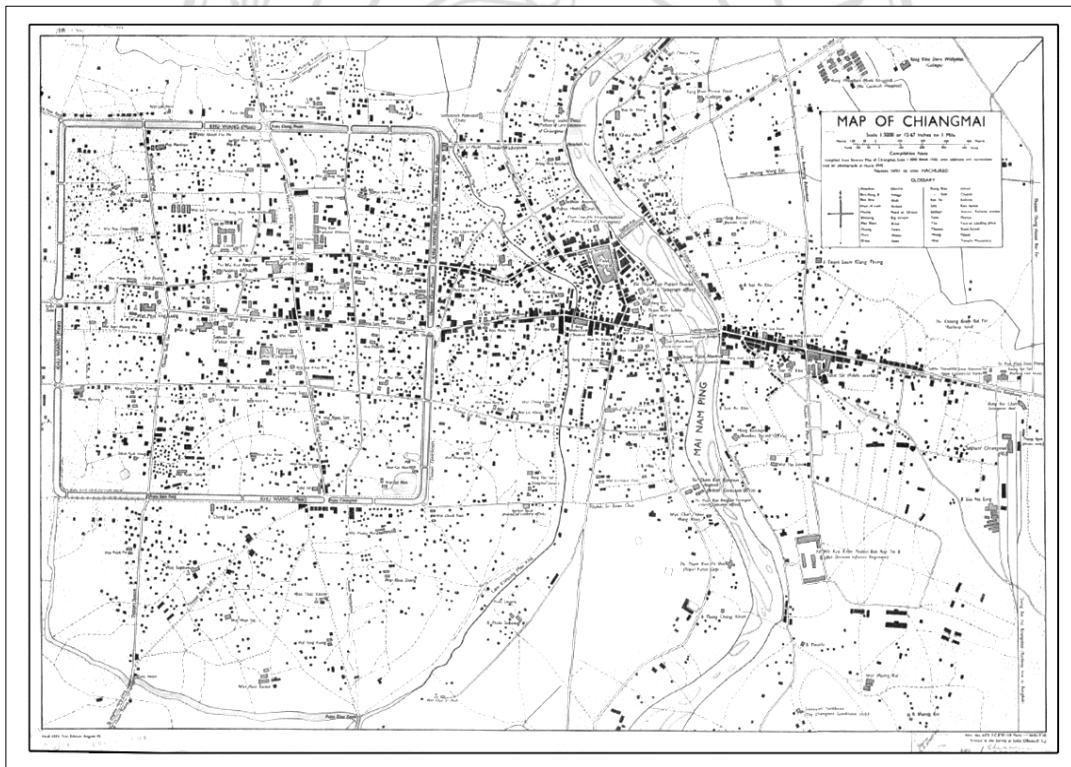


Figure 2.1 Chiang Mai old map in 1945 showing density of buidling.

(Source: UW-Milwaukee Libraries)

Later, during 1967-1971, the construct of highway road linking Chiang Mai-Lampang. was completed. That makes the importance of the Chiang Mai-Bangkok Railway decreased. Until 1972-1976, the night bazaar on Changklan Road has been set

up to promote tourism. The Anusan market area was an assembly of bus companies on Chiang Mai- Bangkok route. The land for commercial development was expanded on the road Changklan. Until 1985, the service sector value was higher than the agricultural sector value. minor was the manufacturing sector value, that as the first time and it was down to the present.

Later, in 1986, a high-rise building was erected within a 100-meter radius of religious places, schools, and rivers. which no retroactive effect. At that time, there was rapid economic growth. Urban expand in a directionless and uncontrolled way, that undermine the city's overall tourist attractions. The expansion of the real estate business has led to the change of land use, from agriculture to housing and trading. The vertical growth of the city has created conflicts between entrepreneurs and local people. Later in 1988. Chiang Mai Municipality has set out the old inner city area within the moat square as a conservation area. Do not build buildings higher than 12 meters. Until the end of 1991, there were two large shopping centers: Central Kad Suan Kaew and Tan Trapan Airport Plaza (now Central Robinson Airport Plaza). Later in 1992-1996 Chiang Mai was designated as an international tourism center. Historic sites in the old town were not properly restored. In preparation for the 700th Anniversary of the Chiang Mai City celebration in 1996, the atmosphere of the old city was reduced. In 1995, Chiang Mai hosted the 18th SEA Games, shortly thereafter in 1997-2001, Chiang Mai was experiencing a recession economy. Inflation and the unemployed. Buses that have been in service for more than 25 years stopped because of lack of passengers. Chiang Mai people need only private vehicles. Later in 2005, Chiang Mai was heavily flooded in 40 years round. The area around the Ping River and nearby areas have been greatly affected.

2.1.2 Changklan history

The Research of The Multi-Layered Districts of Chiang Mai by Pranom, Wittaya (2012) discuss the history of Chiang Mai, divided into four phases. The first period is the period of the city settlement until the period of losing independent (1296-1796). The second period is the period of reconstruction of the city during the reign of King Kawila (1796-1854). The third was Rama IV Dynasty changed the political and end of the war. The city began to stabilize (1855-1939), and the fourth was the period of modernity (after 1939). History of Changklan Road during the founding of the city. This area is

located east of the city wall, which is believed to be the eastern direction for human settlements and close to the Ping River. This area was residence for a growing population of people living in the city wall and agricultural areas. Later, during the Siam revival after under the rule of Burma for over 200 years. Phraya Kawila revived Chiang Mai from a deserted city by forcibly evacuating people from various cities to Chiang Mai, as well as various artisans. Including the Wua-lai villagers, who are artisans of silverware.

From the publication of the Market and Ethnicity: The Origin and Rhythm of Chiang Mai Night Bazaar by Pairote (2010), mentioned the trade that occurred on Changklan Road. Starting in 1951, the Tantrapan mall was opened at Thapae Road nearby the intersection of Upakut temple, where the transfer area was built from Thapae Road to the beginning of Changklan Road. There is also a group of merchants from San Kam-phaeng to sell clothes at Warorot Market. But some parts of cloth were not purchased, leftover clothes need to be returned back. As a result, merchants try to sale leftover clothes by paved fabric on the sidewalk space in front of a closed store at night and use battery power to provide lighting. Some of them are from Pa-sang, Lamphun. when the number of merchants increased. It began to expand to Changklan Road, then coming of trading by ethnic people. Later, Suriwong Hotel was built in 1962, the first hotel on Changklan Road. After that, in 1967, the Super Highway Chiang Mai-Bangkok completed. This makes the importance of train transportation decreases. Compiled three years later, in 1970, the government announced Chiang Mai airport to be the international airport. Therefore, foreign tourists come to Chiang Mai continuously. Shortly thereafter, in 1971, The Chiang Mai Cultural Center, located on Wua Lai Road, was opened. Later, in 1973, a number of bus companies used the area around Changklan Road, where connects easily to Wua Lai to be a bus hub for passengers and tourists. And used the abandoned yard area of the Wiang-ping movie theater which had been demolished as a first souvenir market. They were paving fabric on the ground and sidewalk, then began to spread to the southern direction along the Changklan road till the front of the Chong-fah school. Later in 1977, the courtyard of the school was converted into a concrete courtyard and divided into space blocks for merchants to lease for sale. Until 1981, It has started to build the Chiang Mai Night Bazaar instead of the Chong-fah school that was moved out.

At that time, the land opposite was Sri-tokyo hotel. When the hotel moved away. Merchants were used abandoned yard area to sell their goods. Later it was developed to be the Kalare Night Bazaar in 1989.

2.2 Related Theory

From Urban Architecture by Nawit, (2014) describe the urban's morphology study is the understanding of the development process is a city that should have been aware of the formations of the city before. The study of the formation and the development of the city would better understand the relationship between the elements of urban architecture in the area. Which describe formation the city in a wide range of 4 forms.

1) The community or city that originated from the unification of people because of the good topography, abundant resources, suitable for basic living such as water resources, forests, food sources, medicines and materials for housing construction. This kind of community often occurs in alluvial plains, such as Nakdong, South Korean or Nomes villages along the banks of the Nile River plain Later, land transport was created. Causing water transport to decrease, which the convenience of transport is an important factor affecting settlement.

2) Communities with settlements live together for some purposes. Such as mining, farming or trading because it is a junction or a position that can travel or transport products to other areas easily. Communities that occur in this reason will have important urban architecture elements such as mountains that are used in stone mining, planting area, raising animals, berths, terminal, and etc. This kind of community often grows or deteriorates rapidly according to the thriving or sluggish activity in each period, which makes the architecture of the city grow or deteriorate rapidly, such as Hallstatt town, which grew from a small village where people settled together to make salt mines in ancient times, until becoming a market town.

3) Communities or cities caused by forcibly or enlisted people to live in the area. Either voluntarily or forced. For example, forcibly evacuate people into workers, artisans or soldiers to live together in a particular area due to war or disaster. Elements of architecture, important cities in this community or this type of city, such as a courtyard or building that allows people in the city to share activities. And the religious

building that the leader is the initiator to create to be a spiritual center and perform rituals of people in communities. Such as the Ogimachi village, Shirakawa-go, Gifu province, Japan. Caused by the demolition of large farms that will be flooded, were re-planted together in the same area. Or Singapore that developed into a modern city from the British colonies that people were enlisted and voluntarily migrated to live in order to engage in trading and labor for the colonists.

4) Community or city that has a design plan at one time by a person or group of people with power. When the city has been designed during construction or when construction is completed, people are assigned to live in areas that have been designated for various activities in each area, such as military, economy or labor. The important urban architectural elements include the city wall, the moat, the palace, the plaza and the main religious place of the city. Which the old capital of various countries are usually set up in this way, such as Beijing, Seoul and Kyoto.

However, the formation of each community may be caused by a combination of many of the above mentioned steps together, because each community will develop into a stable city must have a variety of factors that affect the shape of the city that is currently. Therefore, the composition of the city architecture, which means architecture, including other elements of the city that are located within a certain area of the city or community, which are an element that is related to the structure, shape, shape of the city and the use of space and buildings in each era of the city. Which creates the form and feature of the space both in terms of perception and physical at various levels, from the boundaries of the city, the road structure, the city blocks, the pattern of land plots, the location and shape of the buildings and structures unique characteristics in each city.

2.2.1 The elements of the urban architecture consist of the following:

1) Architecture and buildings Which can be divided into 3 levels: major level, minor level and sub-minor. Major level; an element that defines the shape, the morphology of a city, such as moat, city wall, city courtyard or main road. Minor level; such as sub roads, alleys, community courtyards, walkways linking home groups, community places, etc. Elements of the urban architecture at this level are linked to the main level of elements for the city system in terms of urban planning, transportation, economy, society, and governance is effective. Sub-minor; an element of the smallest building. But can be linked to other elements, such as shop and house.

2) The structure which controls and links of various elements together, including road networks, alleys, city plazas, road networks, waterways, agricultural plots. Including identifying the boundaries of the structure at the same time, such as the city wall, the aqueduct or the bridge.

3) Natural elements. Which influences the structure and shape of the city Is often a large element with a wide area such as mountains, rivers, forests, estuary. etc., Chiang Mai city, with Doi Suthep Located to the west and the Ping River on the east side, which is a good example that shows the influence of natural elements.

4) Elements that only exist for a period of time. Can be divided into two major categories. First, tangible elements, which the group of tangible elements that are obvious but always moving, including trains, cars, various vehicles, and hawker stalls etc. Which these factors affect to the difference of the feature of the route, building for parking, elements, and facilities along both sides. The author explained that hawker stall, which uses temporary or semi-permanent public areas of the city. When a large number of them set up together, will change the boundaries of the urban architecture, shapes, and morphology of the area. Second, intangible elements include traditional festivals, various activities, parades, ceremony, lantern floating, concerts, which are a characteristic of the urban phenomenon. In addition to the elements of the above phenomena, another intangible element is 'urban landscape', which is composed of many tangible urban elements in many areas, both near and far, until becoming an intangible and constantly changing feature.

The author also illustrates the relationship of the ritual or festival and the structure of the city through Takayama Festival In the festival, there will be a movement of Yatai, which is a large ornate floats roam along various important routes of Takayama City. Yatai was created with the donations of that community member and the decoration of the top craftsmen inherited from their ancestors. When the festival ends, the floats will be stored at a storage house called Yatai-gura, which appearance different from residential houses and general shophouses. Which is an element of the urban architecture that insert in some area of each community. Then become to the relationship between the ritual or festival and the structure and elements of the urban architecture, specifically for Takayama City. Elements of urban architecture that can be moved or visible for a period of time can create relationships that link elements of other urban

architecture in the area and also influence the structure and shape of the city in many dimension. Both while in the festive period, moving, and after the end. In addition, it also affects the use of space as well.



Figure 2.2 Street stall on Changklan road which is moveable urban architecture element

2.2.2 Development of Urban Structure and Element

The development of settlements, living and human occupation, makes the morphology of the city gradually increased. The first is the expansion of the small villages or communities of foreign or religious groups that live independently in remote areas until becoming the same city (fig.2.3 left). Such as Songkla or Pattanee. The second, the growth of the trading community or service community, adjacent to the palace, the territory, the temple or the walled city, with gravitational attraction, economic prosperity (fig.2.3 mid). such as Baghdad and Chiang Mai. The third, the people who have the power to rule or direct the design, plan, build a new administrative or religious center on the area, previously used as an independent settlement of the original inhabitants (fig.2.3 right). such as Spilt, Croatia. The morphology of the city has been primarily based on the relationship between the elements of urban architecture and the various structures on the city that are appropriate to the conditions, factors and influences in the context of the landscape, climate, and society. Always happens because the city is always dynamic. In the urban process into a city, physical changes occur all the time, which the occupation of people from gradually changing the residential city. These process can be felt only when it comes to the results, as seen in the development process as a city. Changes in small points in small numbers when combined will have enough power to move the city morphology to change.

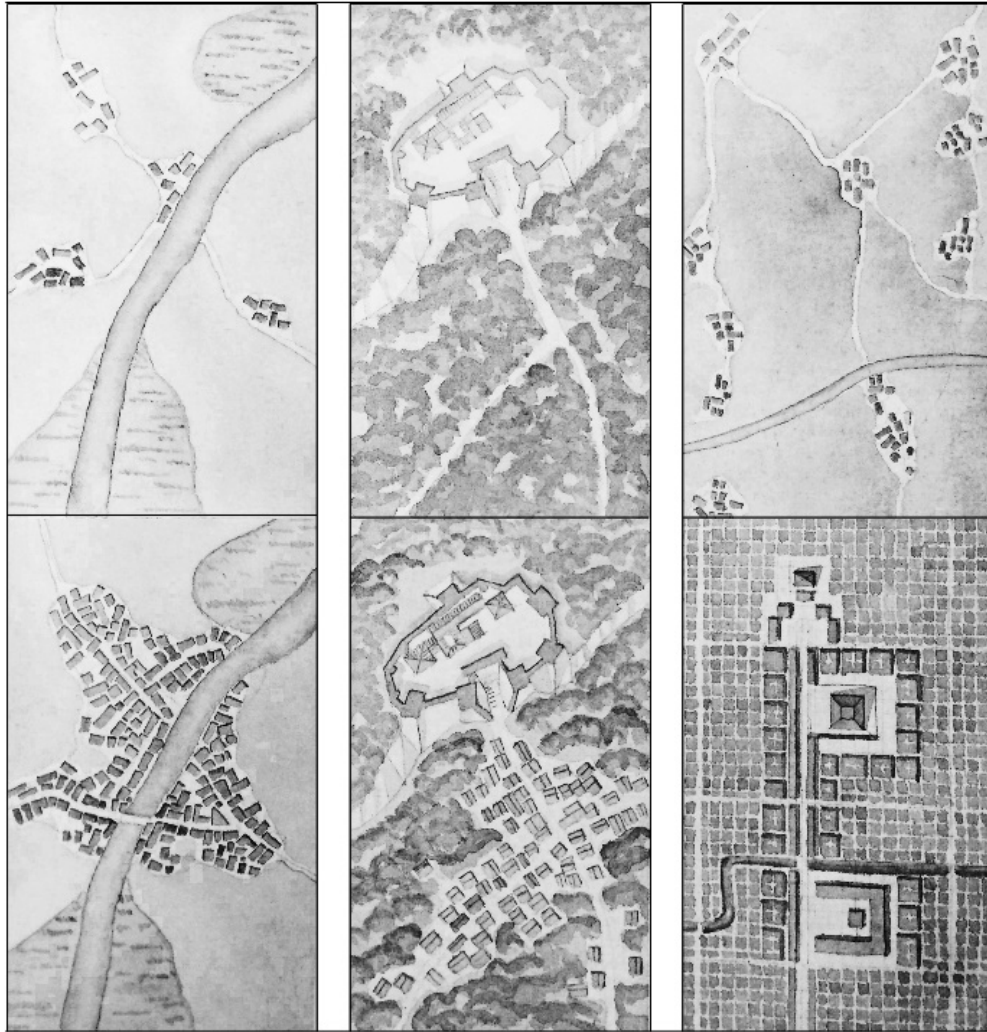


Figure 2.3 Different direction of city developed

(Source: Kostof, S. (1999), *The City Shaped*.)

For example, Rome, in the Campus Maritus square, compares the changes of the city from the beginning to the Middle Ages, which has only a Pantheon with the domed roof remain unchanged, while the Stadium of Domitian has developed into a Piazza Navona, wherewith, leaving traces of the original stadium along the lines of the square building. Road network or road structure, which is the basic structure of the city. The pattern of linking between the same level of roads is transmitted to a lower level. Causing the coordination of the network and dividing the area of the city into sections, forming a block of the city, which within the block consists of many sub-land plots. And on each land plot, buildings will be built. M. R. G. Conzen, which is considered to be an element of the urban fabric, consists of 3 elements: town plan, land use pattern and building fabric. The urban plan also includes street pattern, plot pattern and building

arrangement. Therefore, between the two cities that have the same road network system, the land is divided in the same way, but with different land uses, there will be buildings that open space around different buildings, which makes both cities have different morphology.

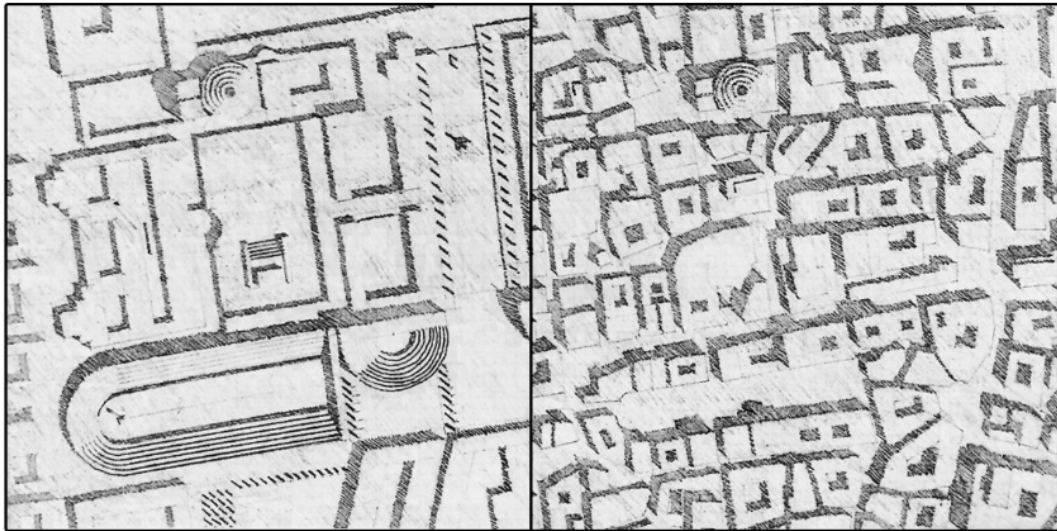


Figure 2.4 Development of Piazza Navona
(Source: Kostof, S. (1999), The City Shaped.)

If considered on the architectural level. Each city has different architectural features. Including legal terms, such as the control of building height and the building setback. Moreover, the formation of the three elements is still under the influence of other factors such as culture, religion, beliefs, ethnic groups, politics and economic driving forces which have resulted in each city being special in the form of morphology is even more different.



Figure 2.5 town plan, land use pattern, building fabric (left to right)
(Source: Kostof, S. (1999), The City Shaped.)

Analyze of the development of the city in morphology, always focusing on the road system as the main issue, because the changes that occur to the road system will have an impact on the city at all levels. The author gives an example that is easy to understand: grid road network, grid that when changing, can easily see the alienation from all directions. The grid road system is also a system that restricts freedom walking for human. Therefore, the grid system is always reduced to strictness in the development of the city. Such as adding a road to find the shortest route to travel from one place to another. The transformation of the cities in the Roman Empire to be under Muslim rule from the city plan is a large square with large public buildings when Muslims occupy the area, changing these buildings for personal use until the grid system is destroyed.

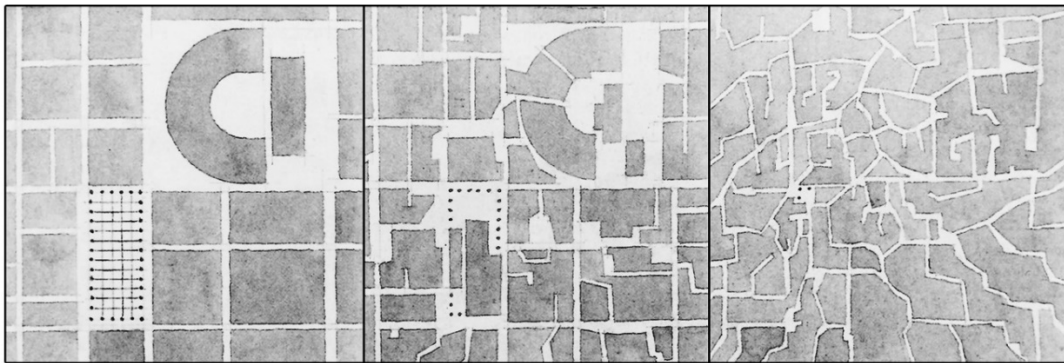


Figure 2.6 transformation of the cities in the Roman Empire to be under Muslim rule
(Source: Kostof, S. (1999), *The City Shaped*.)

From the theory mentioned above, understand and use as a guide in this study, as a tool to analyze all data synthesized lead to understand the shaping of the city by organizing the community and organizing the community. Which developed, formation and transformed. Describe the causes, factors and influences that affect the shaping of the city, to understand the process of development and change of the community that appear on the present structure and the summary of the system, the relationship structure, the feature for space usage of the community and the community urban element.

2.3 Related Research

Changes of Canal Networks and Canal Spaces of Suzhou. This paper examines the Changes of Canal Networks and Canal Spaces of Suzhou. Focus in the structure and canal area of the Old Town area, which gradually evolves into the present, by analyzing

and presenting changes from the past to the present. Starting from collecting information and reviewing related literature, they found that almost all mentioned about the dwelling and buildings in the urban area. But there is no research that discusses about the canal spaces of the water-oriented city, which are the beginning and the significance of this study. The results of the study can be useful for old city's redeveloping solutions to retain the historic feature and recreate new characteristic of the water-oriented landscape.

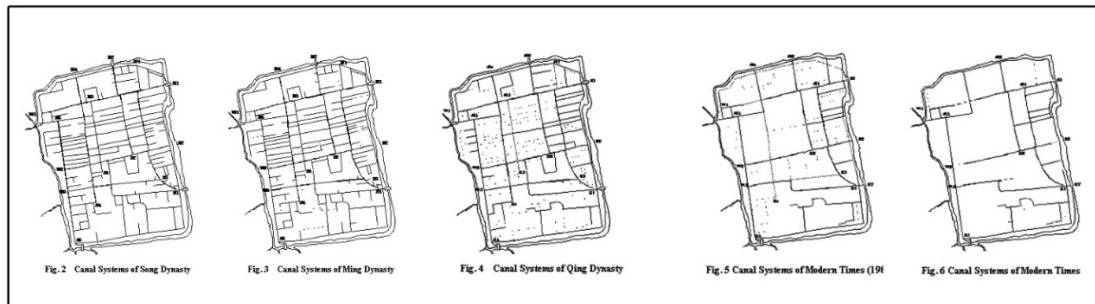


Figure 2.7 Canal network in each era of Suzhou

(Source: Li Yan, Seiji.(1999).Changes of Canal Networks and Canal Spaces of Suzhou.)

After reviewing the history and literature, they studied the old map and mapping the canal network into layout drawing. By using data from a review of research in each period, and analyze occurrence. Then divided into four periods, leading to the conclusion of what has happened in the past, transforming it into what it is present. From the summary and analysis of what happened to the canal network from the past to the present. Can understand the processes and influences that affect the formation of the city, such as government control and administration. Then, study the formation of canal space based on the relationships of elements in the study area, including with canal, street, and building.

The data is presented by section cut in each area and describing the relationship between composition and usage. After that, show the position and characteristics of each kind of space on the canal layout plan periodically. This will show an overview of what's happening for comparative analysis next. In one canal, there are variety of usage pattern or appear only one. These changes can be described and lead to the conclusion of this paper.

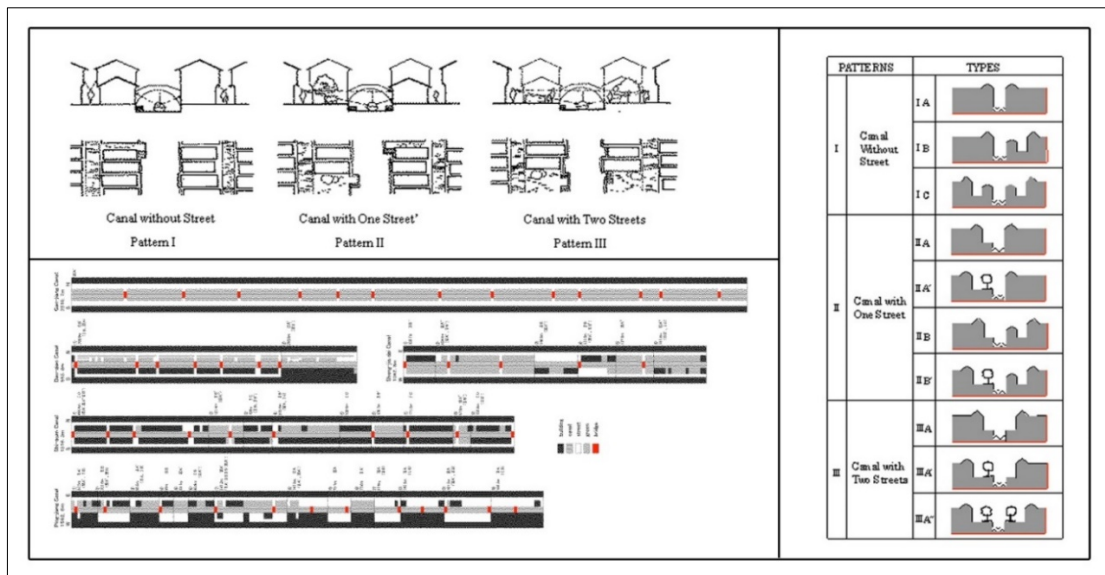


Figure 2.8 Canal space in each area of Suzhou in present
(Source: Li Yan, Seiji.(1999).Changes of Canal Networks and Canal Spaces of Suzhou.)

From this research, Changes of Canal Networks and Canal Spaces of Suzhou, there is study of the elements on both sides of the canal which has physical characteristics posed as a strip, similar to the research area of Changklan Road. But different, which is a canal network and a road network. However, both the same purpose of urban structure, but different types, which can learn the way to synthesize data in the study. Such as writing a road map in each era to analyze or section cut to see the area and usage thoroughly.

CHAPTER 3

Methodology

3.1 Collecting Data & Literature Review

Collect relevant information, including old photos, old maps, research papers and related documents. Then check the accuracy of these resources.

Photos - Specify the source of the photo. And the period of the photo.

Old maps - Specify year of produce or year of publication, also the source or the manufacturer.

Research and related documents - Review by 3 topics.

- 1) History - Chiang Mai History
- Changklan History
- 2) Related Theory
- 3) Related Research

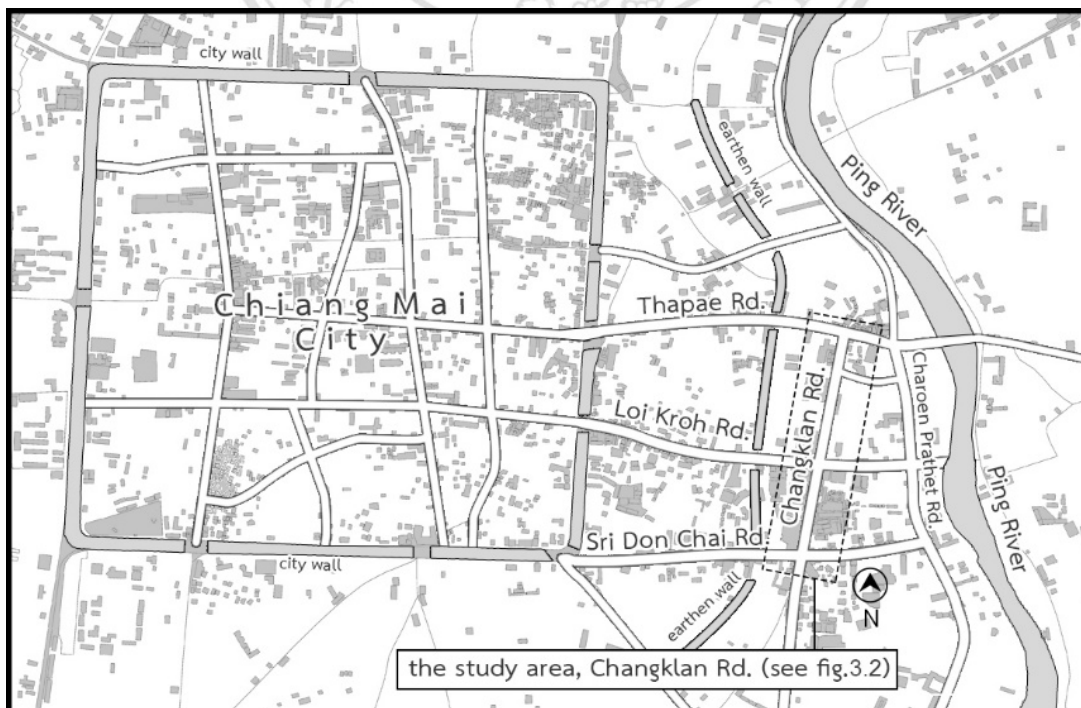


Figure 3.1 Changklan Rd. the study area

3.2 Old Map and Old Aerial Photo Analysis

To understand the physical development process that occurs in the study area. Making a base map by using the map in the year 2015 as a current map comparing the others 3 old maps and the others 9 aerial photos both old and new. After that, superimpose all aerial photos and maps by mapping into urban layout drawing to see what kinds of process have been occur in the area. And making a large map for understands the development process before going to site survey.

- 1) Old Map - Year 1828, 1933, and 1945
- 2) Old Aerial Photo - Year 1944, 2002, 2003, 2010, 2012, 2014, 2015, 2016, 2017, and 2018

3.3 Field Survey

Walking survey start from the intersection of Thapae road and Changklan road along both sides of Changklan road till intersection of Sri Don Chai road and Changklan road (distanced approximately 750 meters)

- 1) Road Structure – Main Road, Sub Road, Walkway
- 2) Type of Building
 - Shop house; Façade Design, Building storey
 - House; Style, Old/New
 - Temple/Mosque/Church
 - Market
 - Bank, School, Department store/Shopping mall
- 3) Stall
 - Location
 - Type of Stall
 - What they sell
 - Where they keep

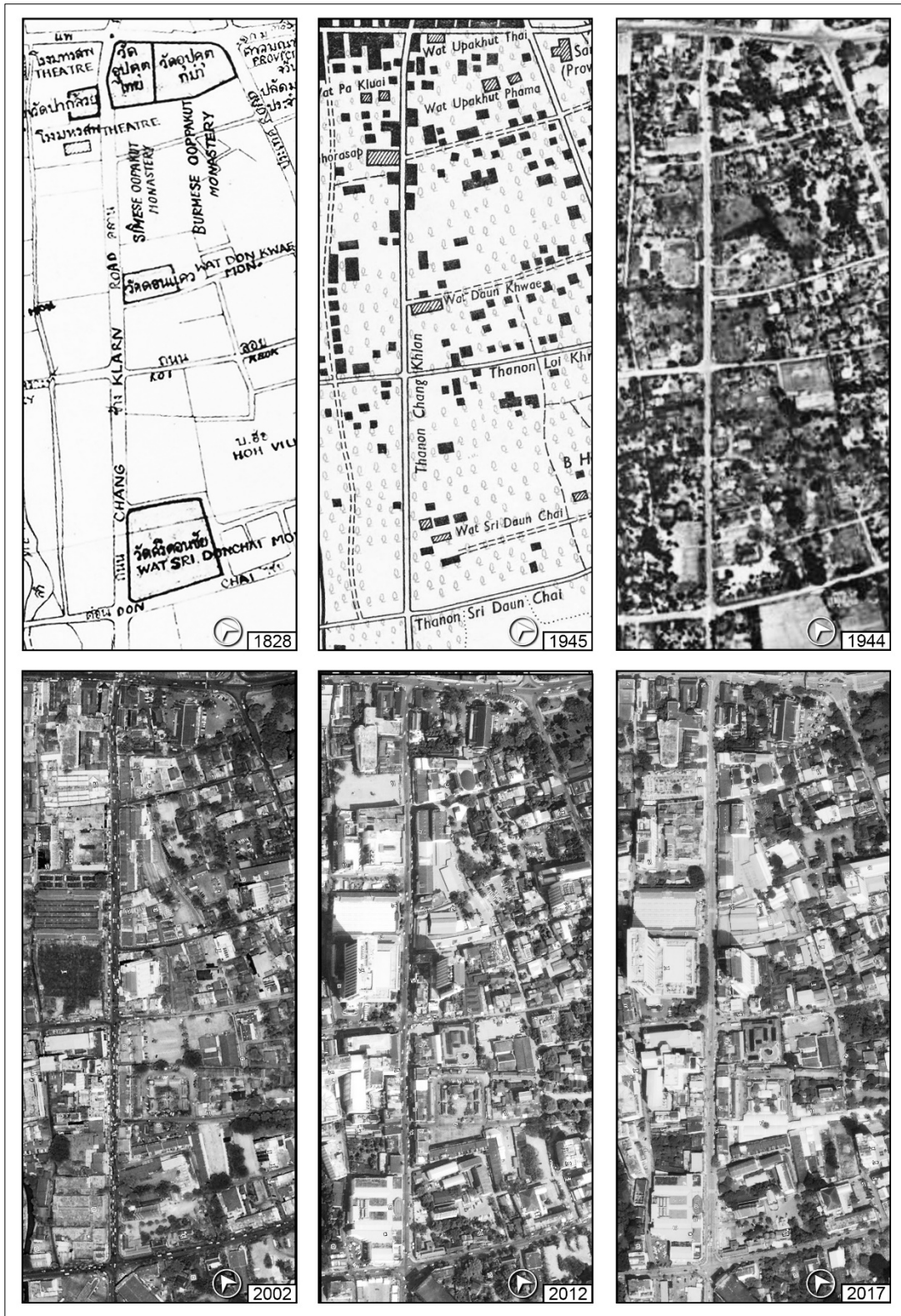


Figure 3.2 Aerial photos of Changklan Rd. in each period
 (Source: (left to right) Chiang Mai Municipality, UW-Milwaukee Libraries, CRMA Research Center, and 2002 2012 2017 Google Earth)

3.4 Analysis of document data and field data.

The document data and field data are compiled together to analyze together. To make the comparative map showing the physical appearance of the city from the development of changes in the composition of the community in each period. Analyze all data synthesized by creating a diagram describing relationships through a systematic physical map. Then describe the results of an analysis of the physical map of the city in each period to understand the shaping of the city. Since the first period is the period of the city settlement until the period of losing independent (1296-1796). The second period is the period of reconstruction of the city during the reign of King Kawila (1796-1854). The third was Rama IV Dynasty changed the political and end of the war. The city began to stabilize (1855-1939), the fourth was the period of modernity (after 1939) and current period. For describe urban morphology from the physical characteristics of the road structure, land plots and buildings that are part of the community in the study area.

3.5 Synthesis, discuss the results

Analyze all data synthesized by creating a diagram describing relationships through a physical map. First, describe the results of a comparison of maps showing the physical characteristics of the city in each period, to understand the shaping of the city by organizing the community and organizing the community. Which developed and transformed to present physical appearance. Second, synthesize group relationships to describe the patterns of community elements through diagrams, following the community composition of large units to small, to movable elements, which can explain the morphology of the community. Third, discuss the results of the analysis and synthesis of the data, describe the causes, factors, and influences that affect the shaping of the city. Spatial management of the stall was also investigated to explain spatial forms, urban element developments, and its relationship between the elements along the road. The relationship of these elements upon the structure of the road formed along the development process will be discussed and explained as to how we can see these configurations in the present day.

3.6 Research Design

3.6.1) Program analysis, according to the previous research paper data. Area requirement analysis to select the site project, and describe problem statement from the existing area, also the main function of the program, which suitable to the context.

3.6.2) Architectural Design

- 1) Function and space requirement.
- 2) Conceptual idea
- 3) Function diagram and zoning creation.
- 4) Building Form and Plan creation.
- 5) Mass model creation

3.6.3) Summary work presentation and evaluation.

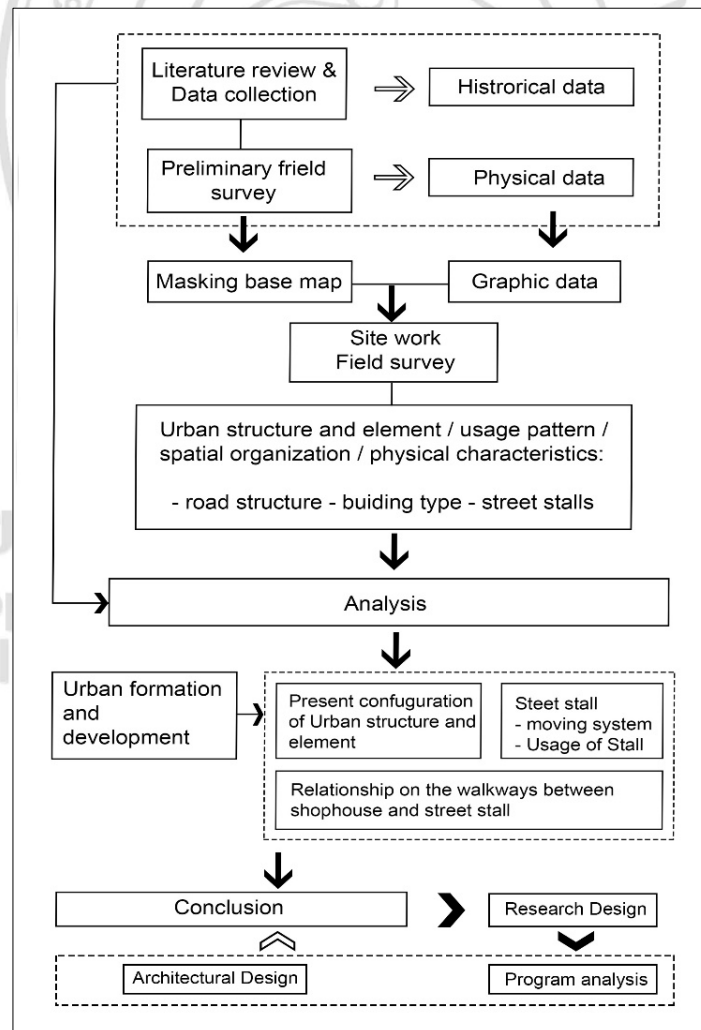


Figure 3.3 Research and Design Methodology

CHAPTER 4

Spatial Form and Urban Elements Development of Changklan Road, Chiang Mai

4.1. Formation and development of Changklan Rd.

The analysis of formation and development of Changklan Rd. can be divided into 5 periods. The first 3 are under the administration in Chiang Mai. The latter 2 are the flourishing period of Changklan Rd. and the present day.

4.1.1 Period of city settlement from founding until losing its independence (1296-1796)

Changklan Rd. was an agricultural area on the outer parts of the old city. It connected to the transportation route from the Ping River through the outer city wall to the inner city at Thapae Rd. This was the first main arterial structure and further led to the commencement of Changklan Rd. An important urban element in this area was the Wat Upakhut, as it was the spiritual center not only locals, but also for the Burmese people who had ruled the city from 1558 to 1774. Wat Upakhut was built in 1757 and Chiang Mai was recolonized by Thonburi soon afterward, upon where Chiang Mai was then deserted. Later in 1790, Phraya Kawila accumulated sufficient manpower to begin to restore Chiang Mai. There was no evidence whether Changklan Rd. had been cut yet it is assumed that there was no settlement outside the city walls in general. There were still some parts along the main road that were connected between the city and the Ping River and around the important elements, such as Wat Upakhut, where social life occurred in the area along and around the main road.

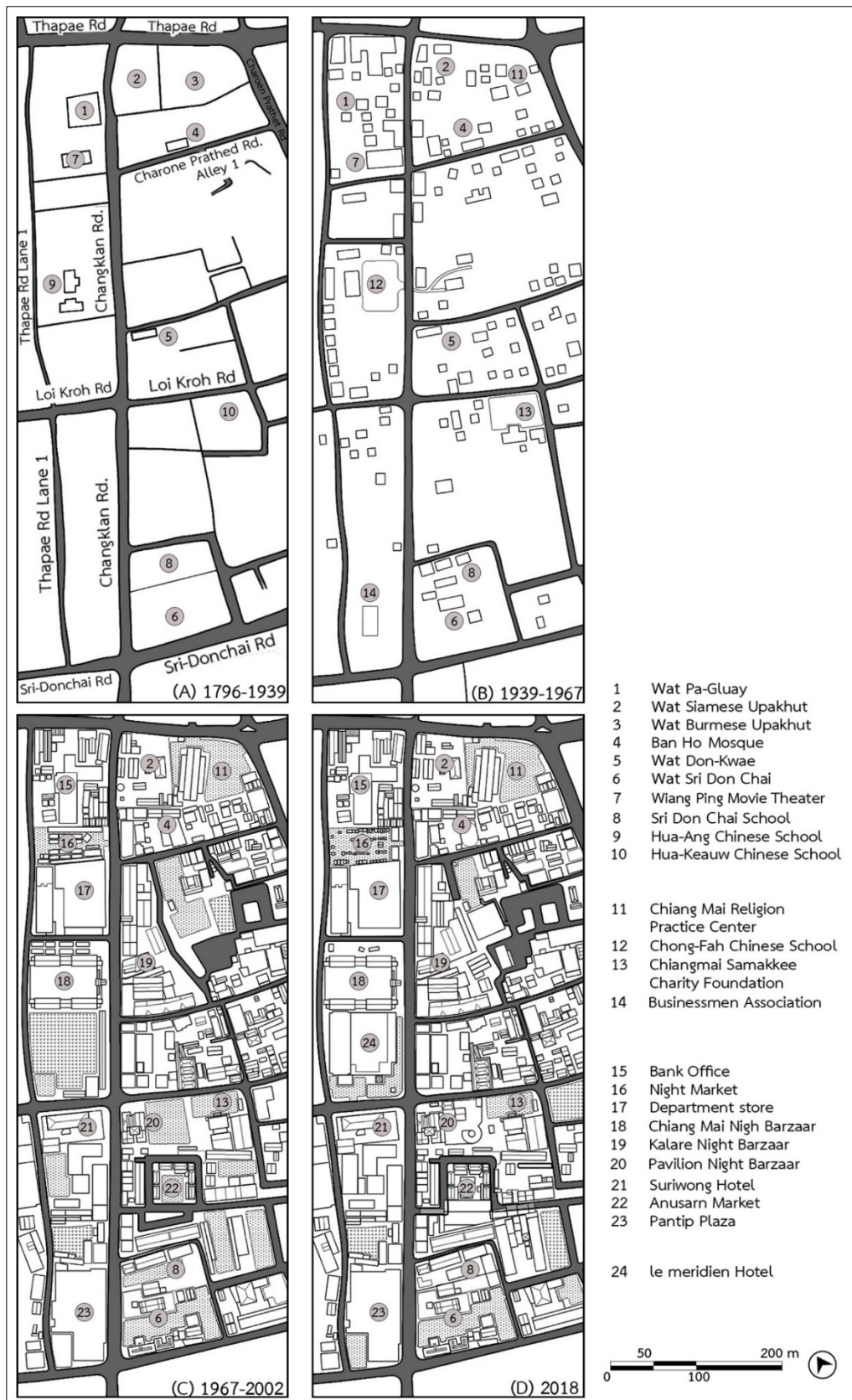


Figure 4.1 Maps of Changklan Rd. in each period

4.1.2 Period of reconstruction during the reign of King Kawila up and until modification of the political administration when Chiang Mai became a province and the city was stabilized. (1796-1939) (fig.4.1A)

The beginning of this period started with the development of the forestry industry in Lanna. The forestry industry concessions were run by British companies in 1864. Until 1883, the British Embassy was built on Charoen Prathet Rd. near the intersection of Sri Don Chai Rd. and Changklan Rd. The arrival of the British directly impacted and affected the development of Charoen Prathet Rd, with some influence spreading to Changklan Rd. Especially, the Burmese Tai Yai (Shan people) and Indians who were under the British rule. They were entrepreneurs in most of the business. At that time, Chinese merchants were very few (Sant, 2016: 238). Changklan Rd. appeared on the map with Charoen Prathet Rd. where it curved along the Ping River, and Thapae Rd, lane 1 on the other side also curved along the outer city wall, whereas Changklan Rd. traveled in a straight line from Thapae Rd. to Sri Don Chai Rd. and continued to the south. This suggested that Changklan Rd. was built later to make better use of the area by following the shortest route, along with minor roads and sub-minor roads on the edge of land plots that connected to the network which made the area itself more accessible. Furthermore, on the old map showing the grid of Wat Upakhut, it had a Thai side (fig.4.1A, no.2) and a Burmese side (fig.4.1A, no.3), where architecture and art that were influenced by Burmese rule for over 200 years was evident.

As well was Ban Ho mosque, (name in the present as MASJIDHIDAYATUL ISLAM BANHAW, Chiang Mai) where it was located on Charoen Prathet 1 Alley. (fig.4.1A, no.4) It was first built by a group of Chinese people, called Chin Ho, mostly who came from Yunnan to cater to the Muslim Yunnan Chinese community that had settled in 1915 and had built a brick mosque. (Suchart, et al., 1996) Before that, the Yunnan Chinese and Tai Yai merchants who came to trade would stopover at the outer northern city gate. Around this time also Thapae area became a large mixed community, and the Yunnan Chinese and Tai Yai caravans changed their location from the Northgate and then gathered at Wiang Ping area, near the current Ban Ho Mosque. This group of Chinese people were mainly involved in brass, herbs and non-timber forest products (Sant, 2016: 237). Establishment of Changklan Rd. linked the two communities and thus at Wat Upakhut community it had begun to be densely populated by the Yunnan Chinese

Muslim, Thai Buddhists, and Indians. Wat Sri Don Chai community is located nearby a Thai school (fig.4.1A, no.6,8) linked to Charoen Prathet Rd. which was once the location of the British Embassy, French Embassy, and the Royal Forest Department. Changklan Rd. was the main structure connecting both communities until they assembled into one, known as the Ban Ho community.

Business growth of trade in Chiang Mai had encouraged many Chinese merchants to settle, and they later became Chiang Mai permanent residents. This sparked the step-up of Hua-Ang Chinese School (Teochew Chinese teaching); it was originally located west of the Ping River where there was the mooring area and some warehouses that belonged to Chinese merchants from Bangkok. The land was small and the number of students was more than expected, so the school was moved to land on Changklan Rd., where the land was obtained from a Chinese businessman's donation in 1917, (the land of the current Chiang Mai Night Bazaar Building fig.4.1A, no.9).

Upon completion of the railroad was built in 1921, business growth in Chiang Mai dramatically rose and as a consequence reduced water transport and cart transport. As a result, cart transporting for the overland trading with Burmese came to an end, and Chinese merchants from Bangkok bought the Burmese businesses. As a result of the train, Chinese traders were more likely to trade and contact directly with their Chinese traders in Bangkok. East Indians were still able to continue trade because of British support in trade and merchandise shipping. Subsequently, Hua-Keauw Chinese School (Mandarin Chinese teaching) was established in 1927 on the current site of the Chiang Mai Samakkee Charity Foundation (fig.4.1A, no.10). This was considered a Chinese School in Chiang Mai, and at that time there were only 2 Chinese schools, both were located in the Changklan Rd. area.

Development of Changklan Rd. from (1796 to 1939) is described as dense by the inhabitants of the area. Important city elements such as Wat Upakhut and Wat Si Don Chai, as well as a Thai school and two Chinese schools, and a mosque epitomized the diverse cultural backgrounds that have now morphed into unique features along Changklan Rd.

4.1.3 Period of modernity before being developed into an international tourist city (1939-1967) (fig.4.1B)

After Thailand changed from an absolute monarchy to a democracy, Chiang Mai became a province. The continuous growth of its economy affected physical features, which also occurred along Changklan Rd. The main road remained the same, but some minor roads disappeared and new ones took their place. Sub-minor roads occurred at the edge of land plots where it was not prominently developed. During World War II from 1941-1945, the two Chinese Schools were closed, then reopened, and renamed “Chong Fah School” in the same area in 1949. (fig.4.1B, no.12) Until the last group of Chinese Muslim immigrants sailed to Chiang Mai in 1948 (end of WWII), it was an end of the Chinese immigration era.

This period showed steady modernization of both water supply upgrades, and building construction technology, therefore space usage was required to accommodate these upgrades. Chiang Mai Religion Practice Center was constructed in 1958. (fig.4.1B, no.11) It replaced the Wat Burmese Upakhut where it had deteriorated and was no longer in use. Suriwongse Hotel was built in 1962 as the first hotel located on Changklan Rd. (same position with fig.4.1C, no.21) Changklan Rd. was not overcrowded compared to Thapae Rd, Ban Ho Mosque community and Charoen Prathet Rd. where many small buildings had sprung up. Empty land remained the same on both sides of Changklan Rd, including large land plots that had been used for Chong Fah Chinese School, Unity Charity Area, Wiang Ping Theatre area (fig.4.1B, no.7) and the Chiang Mai Businessman Association. (fig.4.1B, no.14)

4.1.4 Period of development as an international tourist destination when both sides of Changklan Rd. grew rapidly to support the boom in tourism. (1967-2002) (fig.4.1C)

In 1967, the Tourism Authority of Thailand (TAT) developed Chiang Mai as the second international tourist city after Bangkok. At an International Travel Conference (PATA), held for the first time in Chiang Mai, foreign awareness of Chiang Mai was now and increasing tourist destination. Later that year, the Super Highway from Bangkok to Chiang Mai was completed. Until 1972, there was an expansion of the commercial district towards Changklan Rd., especially where there were two popular hotels, Suriwongse Hotel (fig.4.1C, no.21) and Sri Tokyo Hotel (fig.4.1C, no.19 had been Sri Tokyo Hotel before). Both of these were located near Chong Fah School. Changklan Rd. was the access road to the Chiang Mai city center, and was on the west

side of the Ping River where the highway and railway were located. Until 1973, Anusan market was used as a parking lot for passengers. (fig.4.1C, no.22) As a consequence, it became the first souvenir shopping place, starting from Wiang Ping vacant land (fig.4.1C, no.16) to Chong Fah school field (fig.4.1B, no.12). During that time, Changklan Rd. was two-way traffic, so it was dense and lively in growth within this area. As an effect the Charoen Prathet Rd. was then a lifeless regress, until 1978 when one-way traffic was allowed, one-way access to Changklan Rd., then drive one way through Charoen Prathet Rd. (Anu, 2011: 5), as a result of these road changes from Changklan Rd. to Charoen Prathet Rd. the number of crossroads increased.

Therefore, the developments according to tourism were expanded from Changklan Rd. along the road cut through to Charoen Prathet Rd. The rise of tourism businesses resulted in the construction of shophouses, large shopping centers; Chiang-In Plaza (fig.4.1C, no.17), Chong-fah schools was replaced by Chiang Mai Night Bazaar (fig.4.1C, no.18), Sri Tokyo Hotel was replaced by Kalare Night Bazaar (fig.4.1C, no.19), Chiang-Inn Hotel (behind Chiang-In Plaza building), a large vacant land plot was replaced by Anusan market (fig.4.1C, no.22), and the Chiang Mai Businessman Club was demolished to be replaced by a large department store, but it was an unfinished construction until later. (fig.4.1C, no.23) Additionally, houses with small land plots were modified into restaurants and guesthouses, or were sold to entrepreneurs at exorbitant prices. Land was consolidated into larger areas also became a setting for markets and food centers. During this period, Wat Pa-Gluay and Wat Don-Kwae on Changklan Rd. became deserted. Wat Pa-Gluay was replaced by a bank office building (fig.4.1A, no.1) to (fig.4.1C, no.15) and Wat Don-Kwae was replaced by shophouses (fig.4.1A, no.5). The original size of these 2 land plots can still be seen.

Main road structures remained in the same position but were improved to accommodate large buses. There were new paths to the market, also new roads around buildings to facilitate goods transfer, and convenient access to the buildings. Furthermore, small traders saw trading opportunities, after they had traded on their street stalls. These stalls were the beginning of the souvenir shopping street on Changklan Rd, as we know today as the "Changklan Night Bazaar" where was fully utilized on both sides for trading and businesses that supported all forms of tourism.

Until 2002, Chiang Mai Municipality held an event "10 Lanna wonders" on Thapae Rd. from Thapae gate, to Wat Upakhut, which was the first official walking street in Chiang Mai and this was full of liveliness (Suranaree, 2014: 29). According to an inspiring feedback of the walking street event, it has continued until now. However, the high-voltage underground cable project was decided to be improved for the scenery on Thapae Rd. and Changklan Night Bazaar. This caused the Walking Street to be moved to Rachadamnoen Rd. inside the city wall temporarily. The relocation of the Walking Street that year had led to the beginning of a new souvenir shopping venue in Chiang Mai. In contrast, the construction on both sides of Changklan Rd. brought an inconvenience to the businessmen and businesses themselves. Moreover, there was a massive flood in 2005, this caused the areas along the Ping River to be heavily damaged. At Changklan Rd. and Night Bazaar they were also heavily affected, both the buildings and the trolley stalls were damaged and the construction had been delayed.

Until 2010, the when construction was completed. It took 8 years to complete the construction, and it had a massive negative impact to Changklan Night Bazaar. Both the Sunday and Saturday Walking Street markets caught more of the tourists attention and have grown ever since. The beginning of the walking street was one of the factors that made Changklan Rd. less popular, especially on weekends, where tourists targeted to go shopping at both Saturday and Sunday Walking Streets. The vendors themselves had to sell their products on weekends at the walking street markets, and run their normal businesses in Changklan Rd. on the weekdays.

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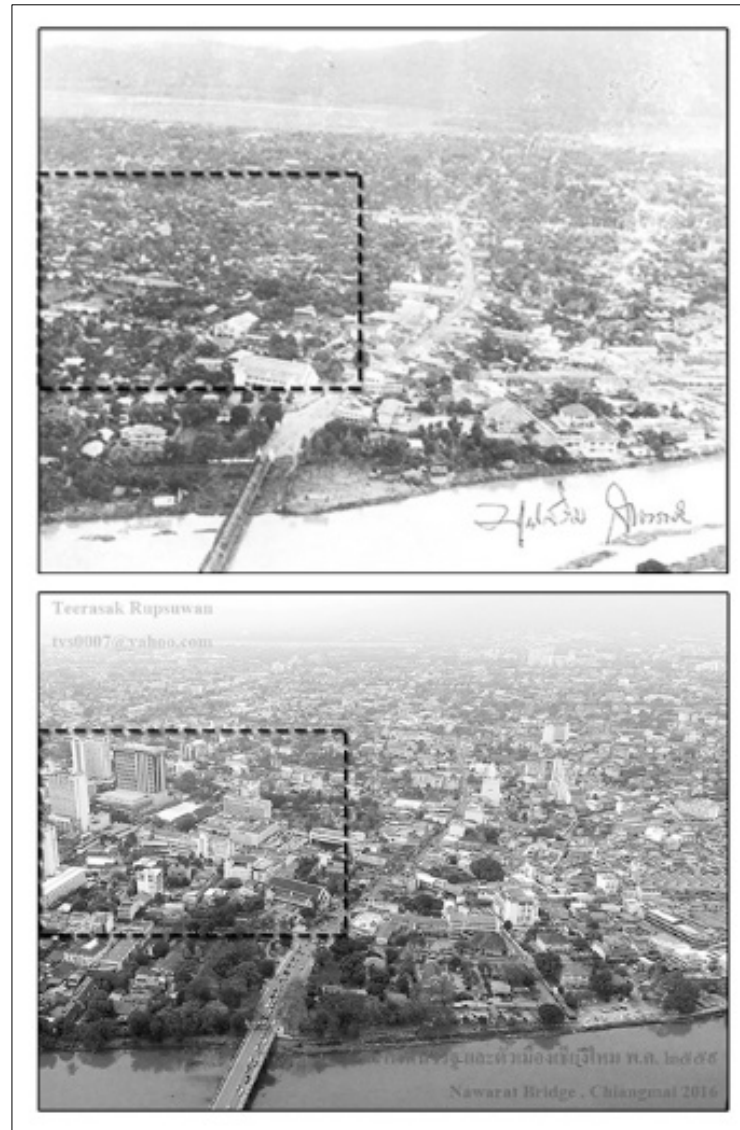


Figure 4.2 Changklan area old photo in 1969 (up) and present photo in 2016 (down)
 (Source: Up from CMU library and Down from Teerasak Rupsuwan)

4.1.5 Present day Chiang Mai (2018) (fig.4.1D)

In this period, the development of road structures has changed its direction. From the original road cuts into the land to gain access more thoroughly, over this period some of the minor roads have been converted into covered walking streets to attempt to bring back the tourist, where now the entire area of the original thoroughfare area covered. The passageway can no longer accommodate buses or cars, and these have been replaced by stalls accessible only by foot. Especially, The Anusarn Market and Kalare Night Bazaar, these areas are packed with street food restaurants which are not moveable. Moreover, open spaces, vacant land, and road area have decreased significantly. Large

pieces of land that used to be open spaces are now built up as a Pavilion shopping center (fig.4.1D, no.20), and Le Meridien Hotel comprising of large structures that fill the land plots. (fig.4.1D, no.24) In addition, Kalare Night Bazaar and Anusarn markets former parking lot is now food centers, expanded from the original area. Following what is mentioned above, the impact caused to open spaces and passageways around the buildings have thus decreased.

The development of the usage on both sides of Changklan Rd. in this period is noticeable in the changing on large land plots. In contrast, the shophouse buildings still remain the same as in the past. However, some ownership and businesses type have changed. For example, Chiang-In Hotel has become a B2 hotel, and Chiang-In shopping center was renovated into - The Plaza Shopping Mall, and ownership was taken over by Thai Beverage Plc., a huge entrepreneur of Thailand after that. (Supatta, 2010). Night Bazaar building stays the same, yet the building has not had any upkeep, and as a consequence popularity has been greatly reduced. As mentioned above, the prior owners and the land were important pioneering businesspeople of Chiang Mai, but modern time entrepreneurs of Thailand are becoming a new larger land plot owner, in that have the opportunity to gather large land plots into one piece of land, and then, larger buildings could be built on Changklan Rd.

4.2 Structure and Elements (fig.4.4 and fig.4.5)

The study area on Changklan Rd. has 6 main roads. 3 roads are placed north-south direction and 3 main roads are placed east-west and cross with other 3 north-south roads. The first north-south road is Charoen Prathet Rd. which runs parallel to the Ping River on the east side of Changklan Rd. The second is Thapae Lane 1 on the west side of Changklan Rd., and the third is Changklan Rd. in the middle between those two roads. The first east-west road is Thapae Rd. at the beginning of Changklan Rd. The second is Loi Kroh Rd. in the middle of Changklan Rd, and the third is Sri Don Chai Rd. at the end of the area being study along Changklan Rd. The routing of these main roads created four large blocks, each with its own minor road to enable more effective access and use of the area. The eastern block area exists with a lot of minor roads, and has more walkway roads than the west side, because of the early development from the old Chinese Yunnan Muslim community where there are many small land plots and houses.

As a result of this, the straight trunk road of Changklan Rd. was formed by these sub-minor roads, and cul-de-sac walkways formed in this organic pattern. This urban structure has influenced the spatial configuration of the area and usage of space on the land plots, until the present.

During the 1970s, Changklan Rd. was developed into a tourist area, which involved the merging and development of some land areas into markets and trading areas. The commercial space is continuously dense until it overlaps the minor roads around Kalare Night Bazaar and Anusan market, subsequently making the minor roads unable to connect with the other roads, although it is possible to walk through the buildings and market to access these other roads. In addition, walkways are present on both sides of Changklan Rd. and on the west side of Loi Kroh Rd. The areas next to the walkway are made up of shopping malls and hotels. There are monasteries at opposite ends of Changklan Rd. which itself appears to not be aligned with residential buildings on either side, however some of the upper floors of the shophouses are used as residences. Detached houses are located along the east side of Changklan Rd. towards Charoen Prathet Rd., and these can only be accessed by minor roads and walkway paths. Due to commercial developments being limited to extending out from Changklan Rd to the sides of Charoen Prathet Rd., the area remains made up of small plots of land that have been developed into a combination of houses, guesthouses, and small restaurants.

What is more is, that there are still some storage buildings and areas that were previously used to store steel frames for the stalls that appear in four places: the first is at the beginning of Changklan Rd. on the ground floor of an abandoned building, the second is in the middle west side on the ground floor of the Chiang Mai Night Bazaar, the third is on the middle east side of Changklan Rd, in a storage area available for rent behind a restaurant on Loi Kroh Rd., and the fourth area is an open area space on the side of small lane, next to Sri Don Chai School. The four areas provide storage for the market stalls that set up along both sides of Changklan Rd. and the west side of Loi Kroh Rd each night. The steel frames of the stalls are then carried out in the afternoon to begin evening trading in the pedestrian areas in front of hotels, the shopping centers, and shophouses on Changklan Rd., which best represent the characteristic urban streetscape of Changklan Rd.

Shophouses on both sides of Changklan Rd. are mostly used for trading. Clothing goods are highest in numbers, followed by souvenirs, including dried food, local handmade clothing and products that represent Chiang Mai City. Business services such as traditional Thai massage parlors and photography shops, account for 17% of the total number of commercial building units. Businesses which support tourism as souvenir shops and service centers amount to 26%, comparable to the category of general clothing, footwear and bags at 24%. The business model originated from the unique characteristics of the area such as, custom tailor shops and Indian craft shops at 8% and 6%, respectively. These are operated by East Indian entrepreneurs who embody the pioneers of Changklan Rd. In addition, other products and businesses found include convenience stores and pharmacies, which account for 9%, unused building units comprise of 9%, and food and beverage restaurants at 4%. All types of businesses are distributed along Changklan Rd., but food and beverage shops are located in a small area around Anusarn Market.

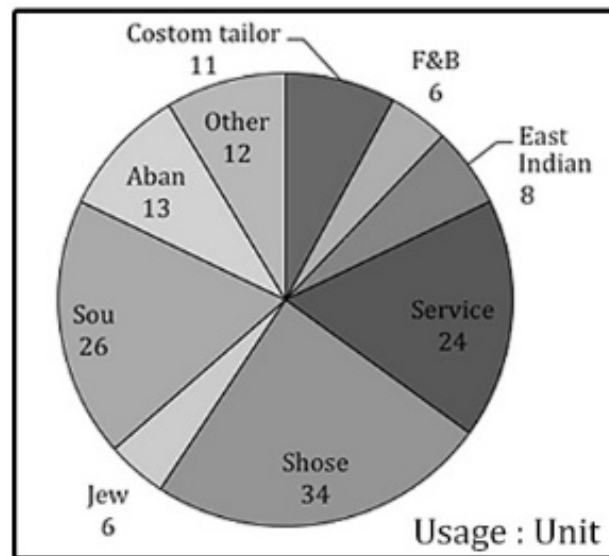


Figure 4.3 Number of stall unit and usage of each stall.

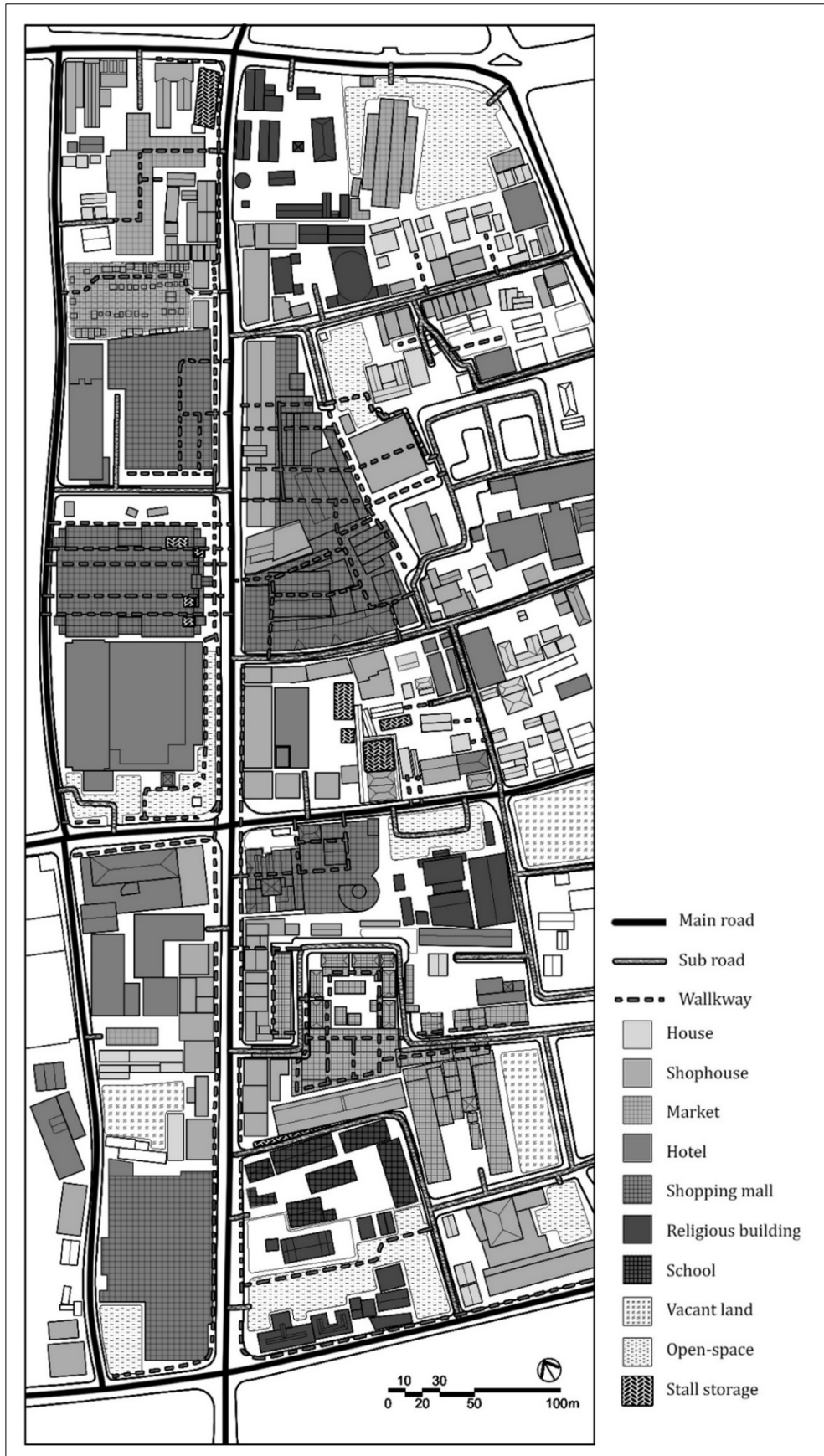


Figure 4.4 Space usage and urban structure of Changklan Rd.

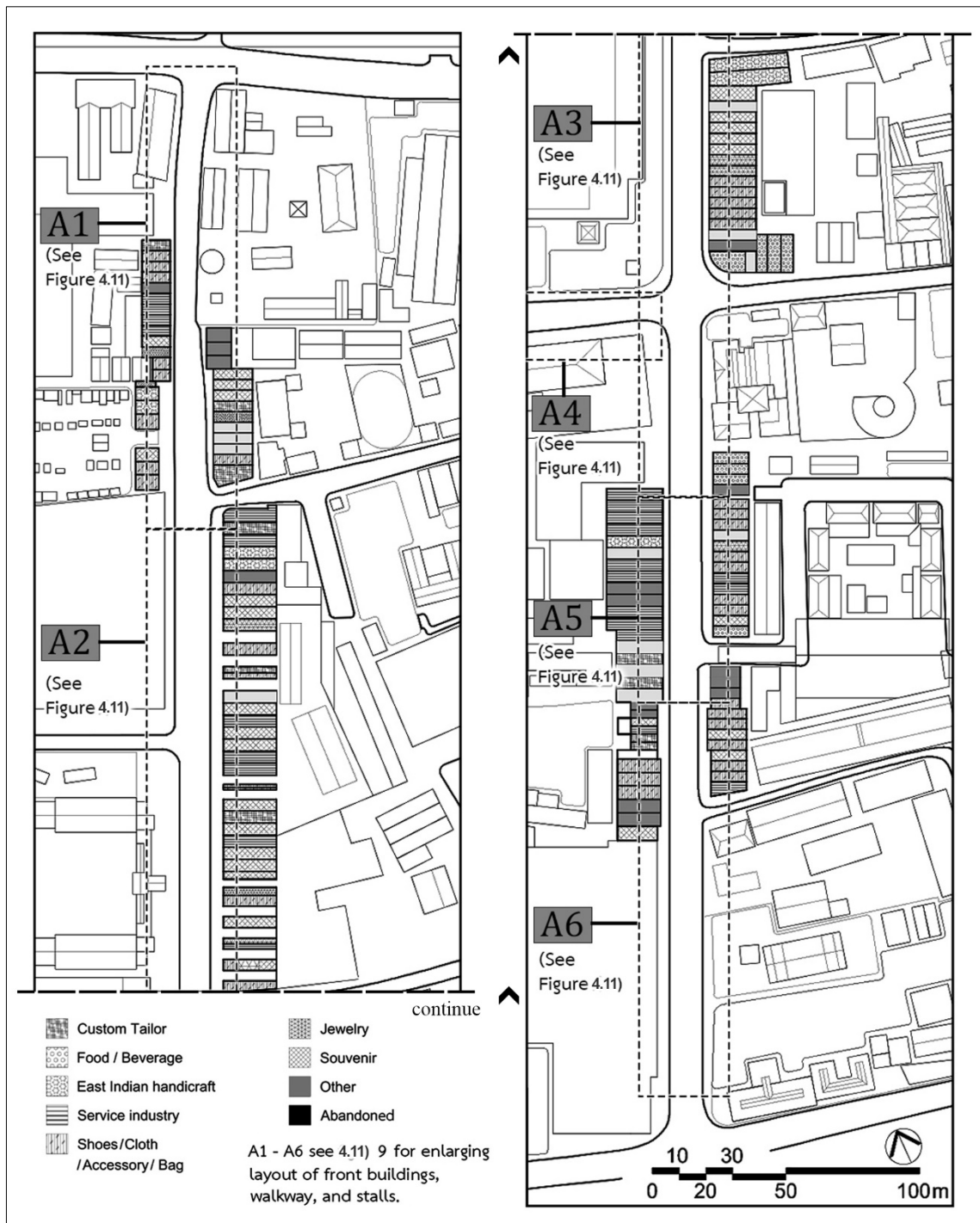


Figure 4.5 Usage of shophouse unit, Changklan Rd.

From the original Changklan Rd. where it was once full of educational institutions and religious places, the area has been practically replaced by tourism businesses. Minor roads and sub-minor roads on the borders of land plots have expanded to support car size transport. The density of trade on Changklan Rd. continues to increase, not only for entrepreneurs, but also for low-income earners who seek the opportunity to make money. This has growth has resulted in many closely packed stalls

on the sidewalk. The number of stalls has increased steadily through organizing and extending of the trade areas on the sidewalk many times, with numbers of traders fluctuating according to the organizational structure. These stalls are become a fascinating unique activity of Changklan Rd.

4.3 Stalls as moving elements

4.3.1 Background

Stalls epitomize the unique feature of the trade on Changklan Rd. in the Night Bazaar. They were also the catalyst for market sales of souvenir products. Early traders moved from Thapae Rd. to this area to sell their cloths or goods, and as tourism grew they changed the target of their sales. Much later other traders were attracted to this area by the large numbers of tourists were now accessing the pathway along these roads to the Wualai Rd Chiang Mai Cultural Center, and being where tour bus were bringing this increased tourist groups to the traders adjusted to meet the growing tourist demands. As a result of this change, the areas in front of closed shops then became an open courtyard for trade at night. Over time, the use of land increased with fewer open spaces being available, and the area became increasingly congested. Chong Fah School Foundation renovated the land in front of the school next to Changklan Rd. into a concrete open courtyard, with marked areas dividing compartments into areas of approximately six square meters. Merchants rented these spaces to sell their goods. Later in 1981, the area developed into the Chiang Mai Night Bazaar as a tourist attraction of souvenir street shopping. There is also a permanent building to support vendors who want to rent space to trade their goods. However, the number of stalls on the walkway increased steadily until they obstructed the passageway.

In 1997, a law was passed to declare an area along this road to sell products on the sidewalk on both sides of Changklan Rd. The size of the stalls was set at width: 0.9-meter, length: 1-meter, and height: 1.8-meter. By 2005, the number of stalls reached 922 from humble beginnings of only 320 in 1993 (Duangchan, 2005: 534). An announcement regarding control and reorganization was imposed in 2016. This stated the requirement to leave 1 meter of the pavement free for public circulation. Size of the stalls was increased to a width: 1.4-meter, length: 1-meter, and height: 1.8-meter and 663 licenses were issued. Each merchant required a stall license in which cooking of food, street hawking, hassling of people walking, and loud music was prohibited.

4.3.2 Moving system management

Stalls on public sidewalks on both sides of Changklan Rd. were prohibited during the day but allowed to be set up at night. Many stalls were mobilized with larger wheels attached to their base and a storage area beneath the sales shelves as seen in (fig.4.7, left). Some parts of the area of Changklan Rd. used to store steel trolleys during the daytime. However, massive flooding damaged the steel trolleys destroying in large numbers and thus reduced their presence as stalls. This brought about mixed styles of stalls being set up until the stall area management and organization in 2018, resulted in the steel trolleys being abandoned because stall positioning would now allow need to follow the guidelines for pedestrian space of 1 meter, which the large old trollies did not meet the new guidelines. Stalls were then built from steel frames that can be disassembled (fig.4.7, right). They are flexible and easy to install, resulting in significantly reduced storage space.



Figure 4.6 Changklan Rd. Daytime (left), Nighttime (right)



Figure 4.7 Steel trolleys (left), Steel frames (right)

(Source: The left from Google Street View)



Figure 4.8 Steel trolleys in storage land
(Source: From Google Street View)



Figure 4.9 Old storage land was replaced by new hotel
(Source: The left from Google Street View)

The vacant space that was used to park the steel trolleys during the daytime became an open courtyard area at night (fig.4.8). Later, when the stalls were progressed to using only a steel frame system that can be easily installed and disassembled, the storage space required was greatly reduced. From the original steel trolley could only transport one stall at a time but, when changing to a removable steel frame, they could transport 6 stalls at a time. The trolley storage area was reduced and has been converted to hotels and shops which are open from daytime to nighttime (fig.4.9). Therefore, adaptation to the current configuration of stall management improved space usage and increased the density of the urban element, both in facilities and stalls.

4.3.3 Usage of stalls (see fig.4.10 and fig. 4.11)

Most of the products at up to 58%, are souvenirs, followed by clothing 36%, types of paintings 3%, electronic products 2%, and jewelry 1%. When focusing on the

types of souvenir products, results showed clothing at 42%, accessory types including shoes and bags 21%, handicrafts as wood carvings, silk fabric, and handmade products 31%, small souvenirs made from China with messages showing Chiang Mai as magnets and metal key chains 4% and the last 2% as food goods such as dried fruit, spices, Thai food and general snacks. Souvenir products are sold by more than half of all stalls followed by clothing products which are regarded as the main sale items of the stall market. In the past, types of products on sale were handicrafts and souvenirs, especially fruit pickles, handwoven fabrics, wood carvings, silverware, and local clothing as well as ethnic clothing and accessories. Nowadays, traditional products are mixed with finished products. Product types are of different sizes and characteristics but prices generally do not exceed 400 baht per piece. Silverware and jewelry make up around 10 stalls with higher prices than the others. Prices are generally uniform and an important factor that determines the product types on sale.

In addition, stall shops do not have reliable product quality in the eyes of tourists; therefore, trading is not acceptable for expensive products. Traders prefer to sell many cheap products and profit from sales at low prices. High-priced products are not as popular as cheaper alternatives. Moreover, most merchants operate two stalls and sell general ready-to-wear clothing products and folk clothing. Clothing needs to be arranged attractively to show off the items using more space than for other products on 395 stalls, representing 59% of the total numbers.

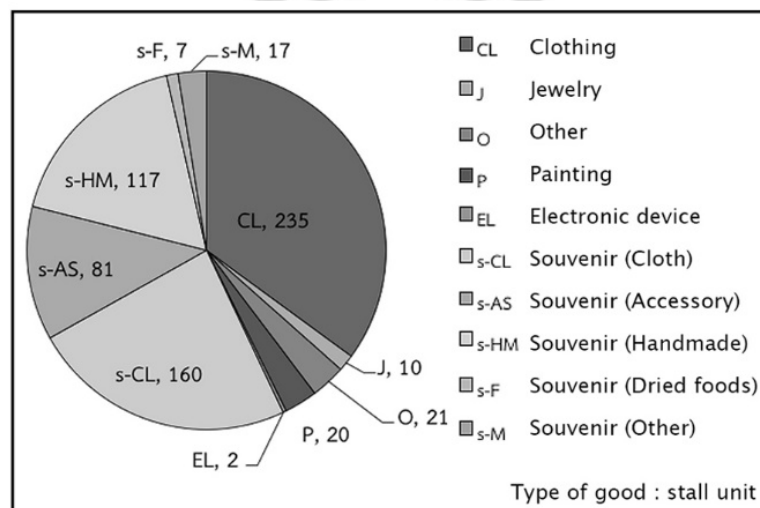


Figure 4.10 Type of good of each stall.

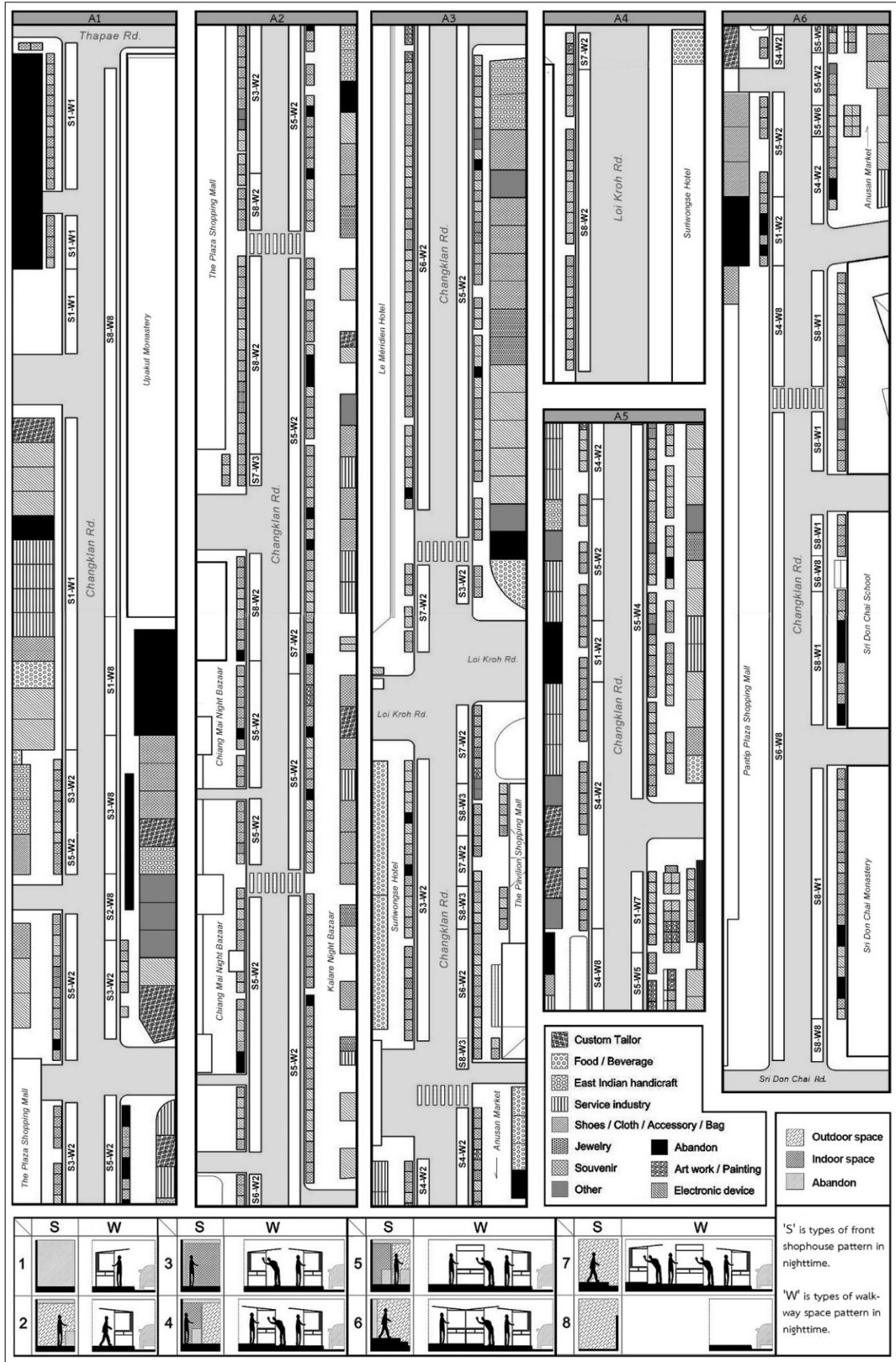


Figure 4.11 Layout of stalls and various space sections along Changkian Rd.

4.3.4 Relationship on the walkway between shophouses and street stalls

(see fig.4.11 and table 4.1)

Table 4.1 Relationship of walkway space - shophouse.

Frequency table of relationship pattern between front of shophouses (S1-S8) and walkway spaces (W1-W8)								
	S1	S2	S3	S4	S5	S6	S7	S8
W1	••							••••
W2	••	•	•• ••	•• ••	••••• ••••••••	• •	••• ••	••••
W3							•	•••
W4					•			
W5					•			
W6					•			
W7	•							
W8	•	•	•	••	•	•• ••		••

The most commonly used walkway area is W2 which winds through the middle of Changklan Rd. W2 is characterized by just one row of stalls with their fronts to the buildings and rears facing Changklan Rd. Thus, W2 has relationships with the shop fronts, including any open spaces and wall lines. The most common type of building front is S5, where shops extend their displays of goods on sale to the edge of the walkways.

Building fronts in the form of S5 are related to many types of walkway usage with at least 1 meter of free passageway. Walkway usage also depends on the width of the sidewalk along Changklan Rd, mostly about 2.5 meters, with the opportunity to set up stalls in one row and keep 1 meter free as a passageway, allowing tourists to walk effortlessly and see products from stalls and front shops. Walkway W1 has a single stall setting similar to W2, but only occurs in the front of abandoned buildings (S1), or solid walls (S8). W1 is the only walkway space with stall fronts facing Changklan Rd, with a street frontage that has a road and backs up adjacent to the wall or buildings. This allows tourists to see products from either side of the street as they walk, where shop front displays attracts those who are on the sidewalk to the other side of the road from a distance. This type of layout increases interest in the stall products, and compensates for the disadvantages of W1 stalls that are located at the ends of the road where trading is

more sparse than along the middle section of the road length. In contrast, S8 is able to use W2 on the area of Loi Kroh Rd, where there is a sidewalk of at least 2-meters in width, which requires the stalls to be set up contrary to a W1 setup. With the stalls backing onto the traffic surface area leaving then a 1-meter passageway which takes away the interaction and relationship to over the road shophouses and stalls.

Utilization on the sidewalk area W3 involves a set of two rows of stalls, and an offset area in front of the building that is wide enough and does not obstruct the building entrance. There is a passageway between the two stalls of at least 1 meter, and the distance of the walkway to the building is at least 3 meters. This area is found only in front of the solid wall at the edge of the shopping center. In addition to the W3 pedestrian area, another pedestrian area has been set up with two-row stalls as W4 and W5. This area is different from W3 with more passageways between the front of the building and middle row stalls. This requires more pedestrian space as a minimum of 4 meters of sidewalk. Stalls in the middle can be accessed from both sides of the road, and stalls run parallel to the passageway (W4) and perpendicular to the passageway (W5), corresponding to the dividing line as specified (1.00x1.50 meters). Walkways on the W5 pedestrian area are wide enough not to obstruct pedestrian traffic, even when goods are used for promoting in front of the stall, such as mannequins, hanging banners, or whilst setting up the stalls beyond the specified stall line. In spite of this, the area is not wide enough to set up another stall row. The width of the sidewalk combined with building distance at more than 3 meters is only found in Anusarn market area.

The shophouse buildings located on the Anusarn market land were built with an offset distance from the edge of the land plot. This is different from other shophouse buildings built along the land edge within the area researched. In some stall areas in Anusarn Market area, they are up to 3 rows as shown in W6 and W7 form. W6 is a set of stalls in a parallel direction to the passageway. The middle stall row is created by setting up two stalls attached to each other to create more product space, resulting in the outcome where these 2 stalls backing onto each other are accessible by both passageways. Similarly the area on the sidewalk in the W7 pattern is characterized by 3 stall rows, but the midway stall is created by setting up stalls perpendicular with the passageway on the two blocks of parallel stall space. This causes the stalls to have more trading space and tourists can walk freely to see the products and connect to the other

passages. The third row of stalls are at the back, adjacent to the building and facing the front to the passageway. This W7 is found only in front of abandoned building (S1). The total width of the sidewalk is more than 5.50 meters and appears only for a short distance in the Anusarn Market area.



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CHAPTER 5

Research Design

The research design part is the architectural design work using the knowledge and understanding gained from such studies. Moreover, this study shows the development of Changklan Road in the modern period since the past to the present, and also supporting a variety of nationalities such as Yunnan Chinese, Burmese, and Thai. It's is also a tourist attraction for both Thai and foreign tourists, which appears as urban facilities and various applications, from large buildings to small stalls.

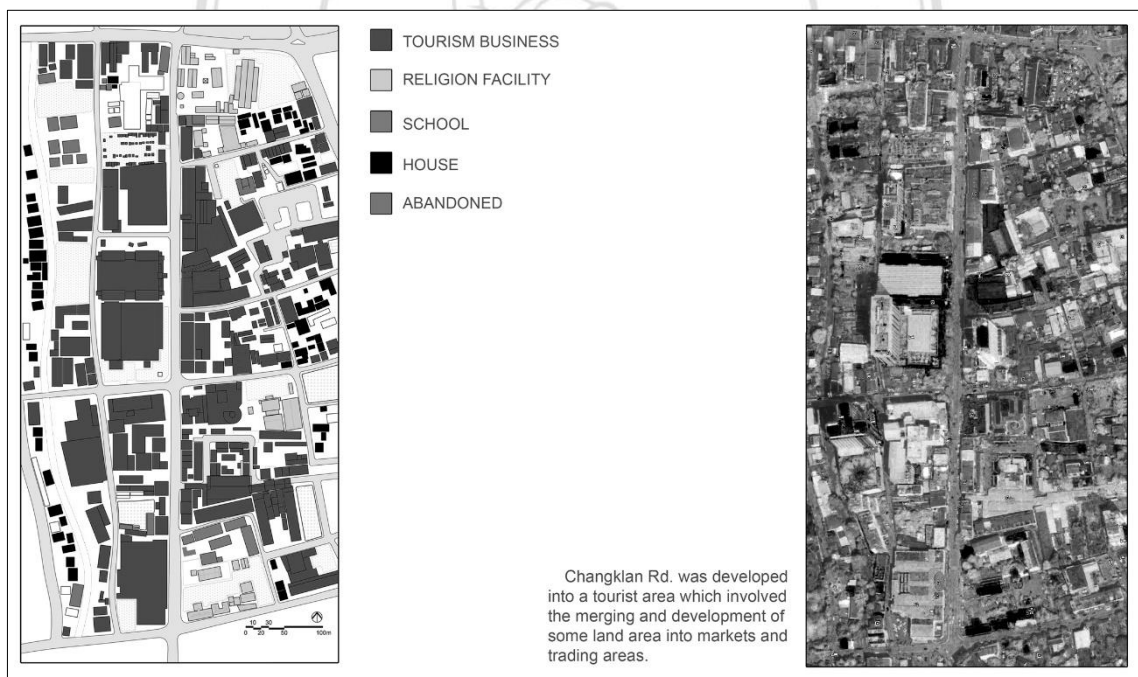


Figure 5.1 Usage of area along Changklan Rd.

5.1 Area Selection

At the present, the emergence of new shopping and tourism districts such as Sunday Walking Street causing the number of tourists that come shopping at Changklan Road is decreasing and resulting in a large number of abandoned buildings, especially Chiang Mai Night Bazaar. The building has been built since the first time at Changklan

Road to support the commercial growth of Chiang Mai city, which has not been adjusted to meet the needs of the modern era. Furthermore, the goal is to focus on supporting only tourists.

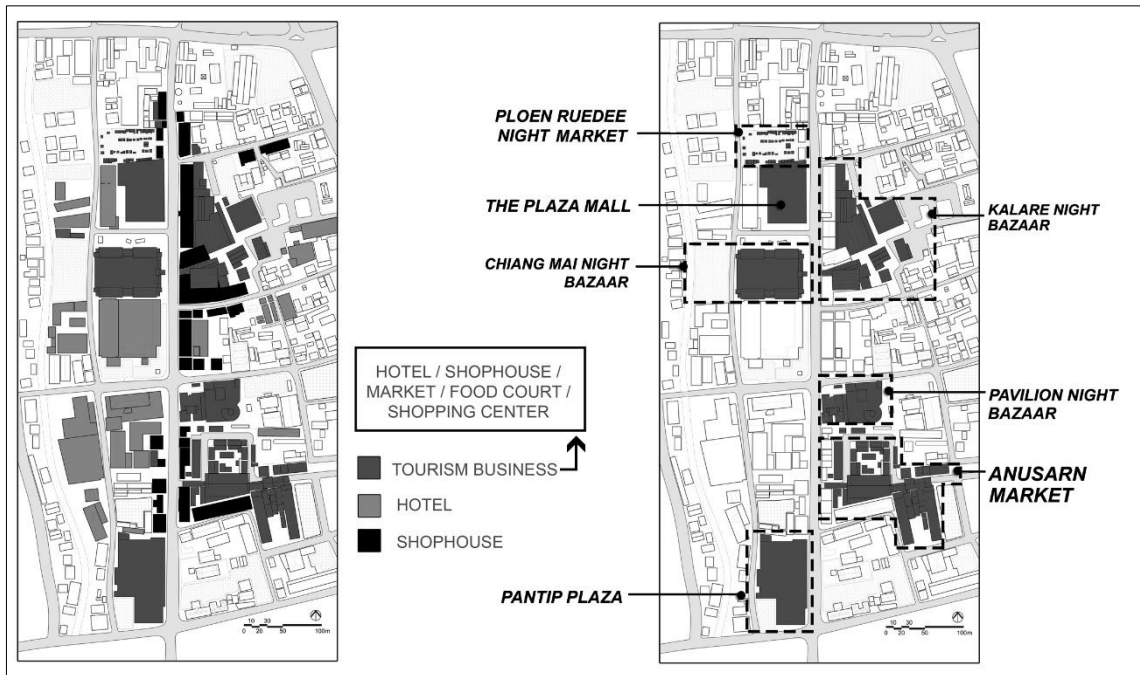


Figure 5.2 Location of large projects along Changklan Rd.

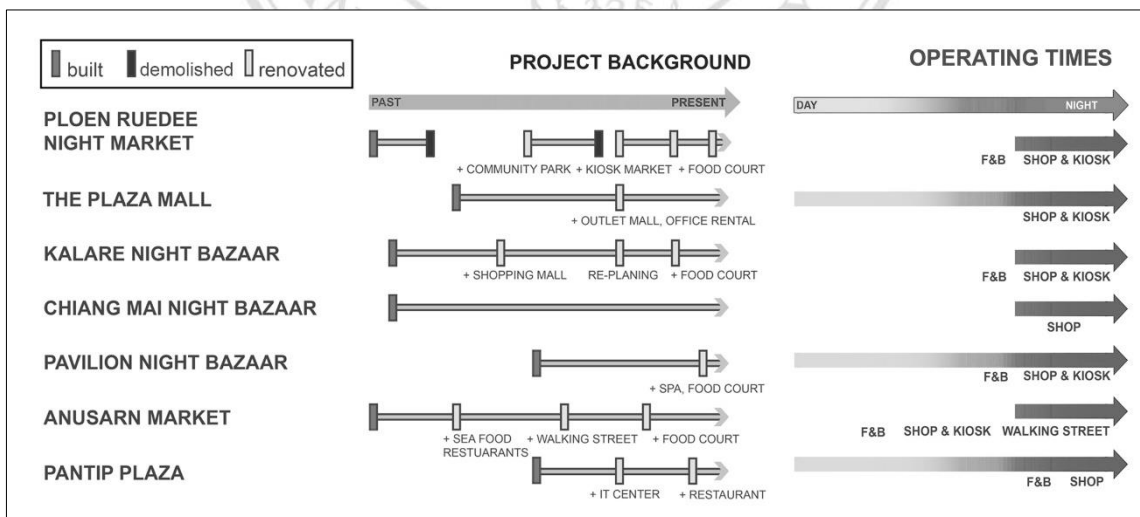


Figure 5.3 Timeline and operating time of large projects on Changklan Rd.

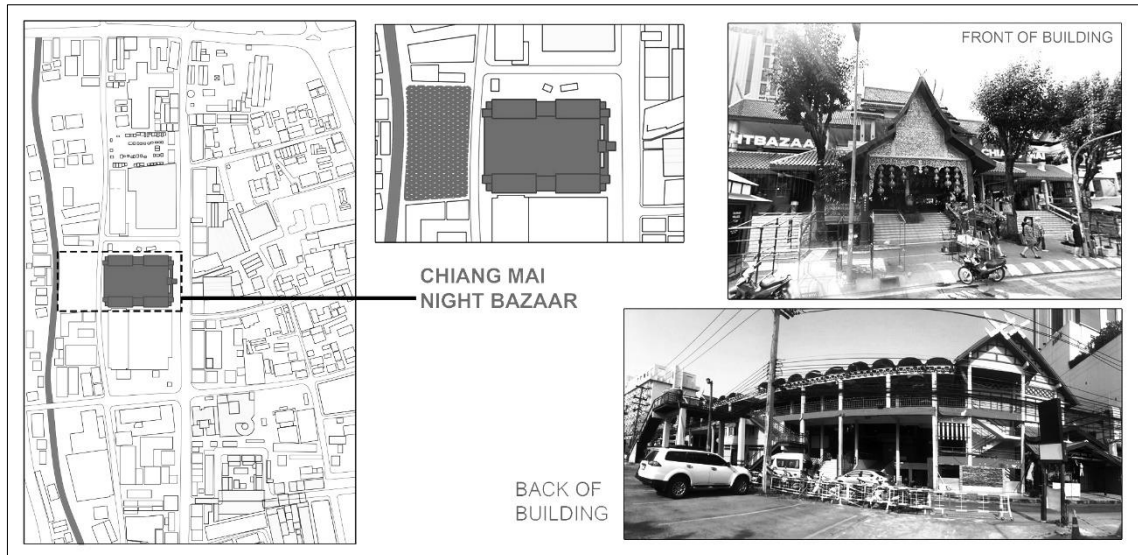


Figure 5.4 Location of Chiang Mai Night Bazaar



Figure 5.5 Existing of Chiang Mai Night Bazaar

5.1.1 Existing Problem Statement

- 1) Old fashion shopping mall, without air conditioner cooling system
Large scale building, hard to renovate for support other functions
- 2) Enclose space floor
- 3) Lacking of connectivity from Changklan Rd., front of the building to back of the building.

4) Large rental unit, and far from main entrance.

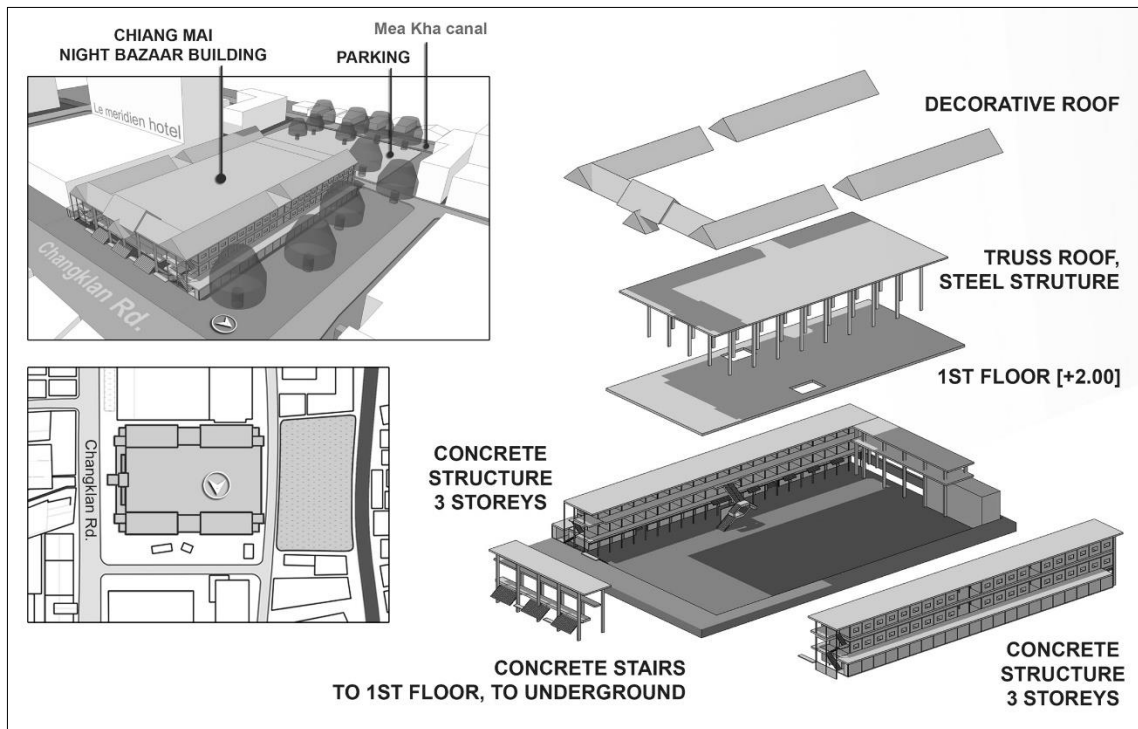


Figure 5.6 Existing of Chiang Mai Night Bazaar

5.2 Conceptual idea

To create space void to link lively activities from Changklan Rd. to Chiang Mai Night Bazaar by using unique urban characteristic of Changklan Night Bazaar.

5.2.1 Identify characteristic of Changklan Night Bazaar.

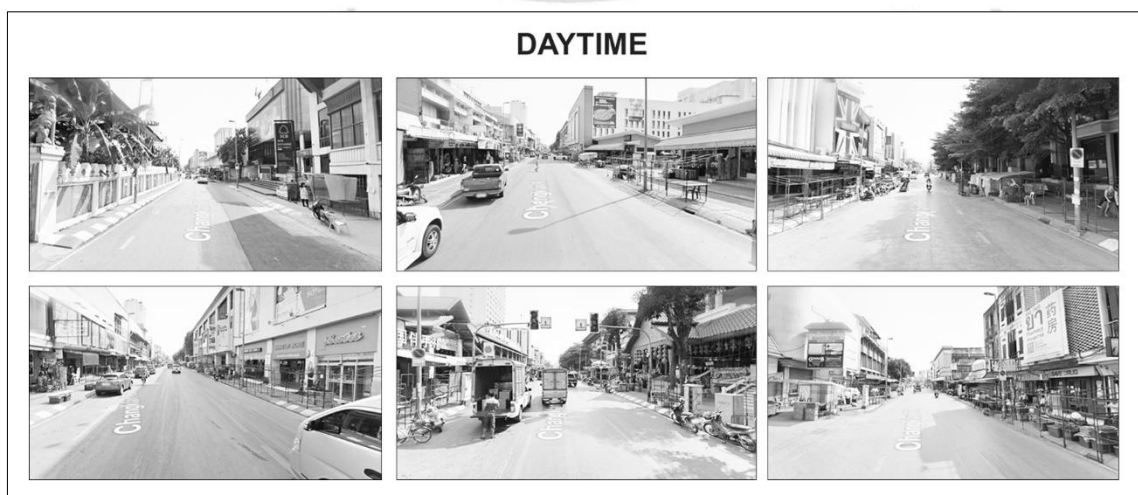


Figure 5.7 Daytime of Changklan Rd. urbanscape

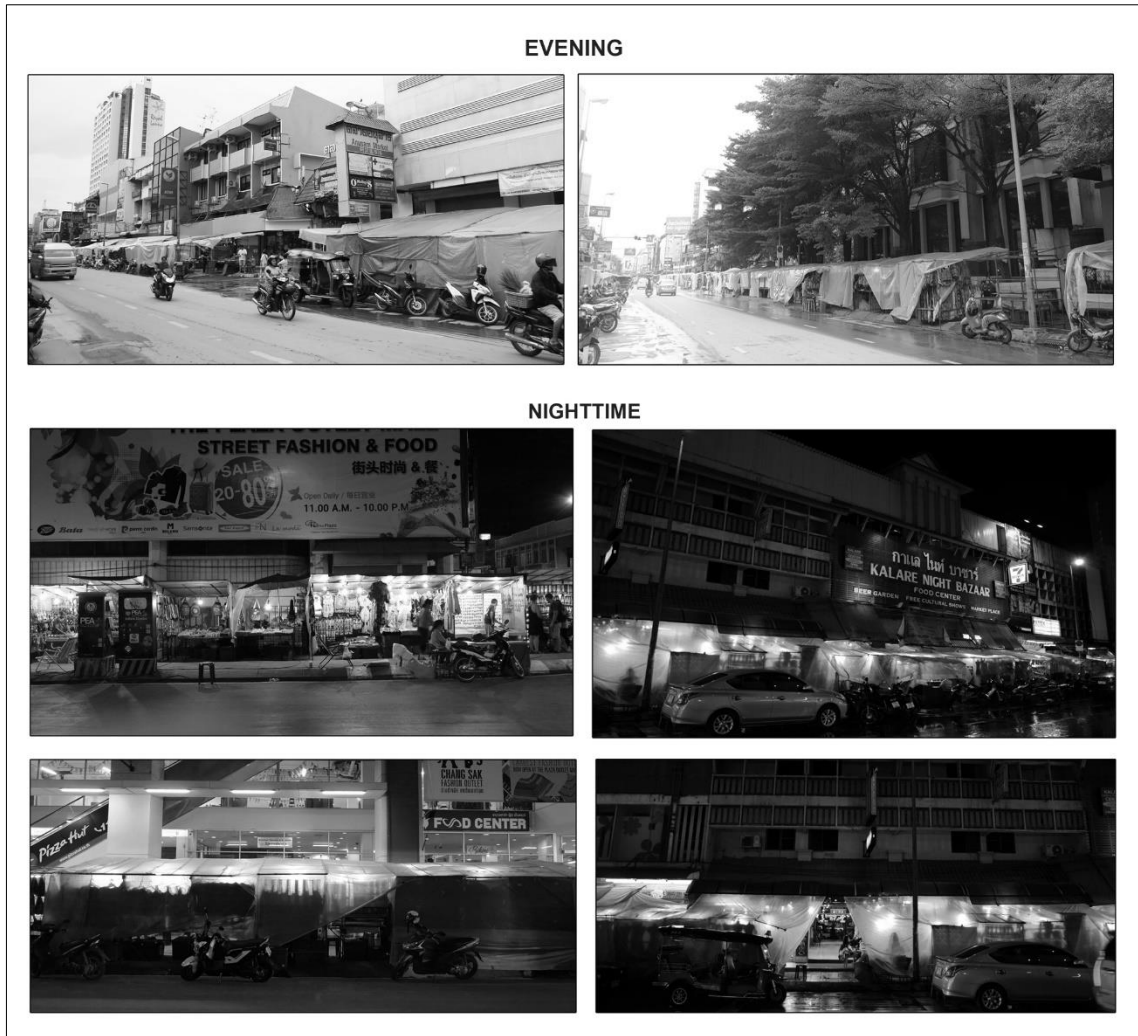


Figure 5.8 Evening and nighttime of Changklan Rd. urbanscape

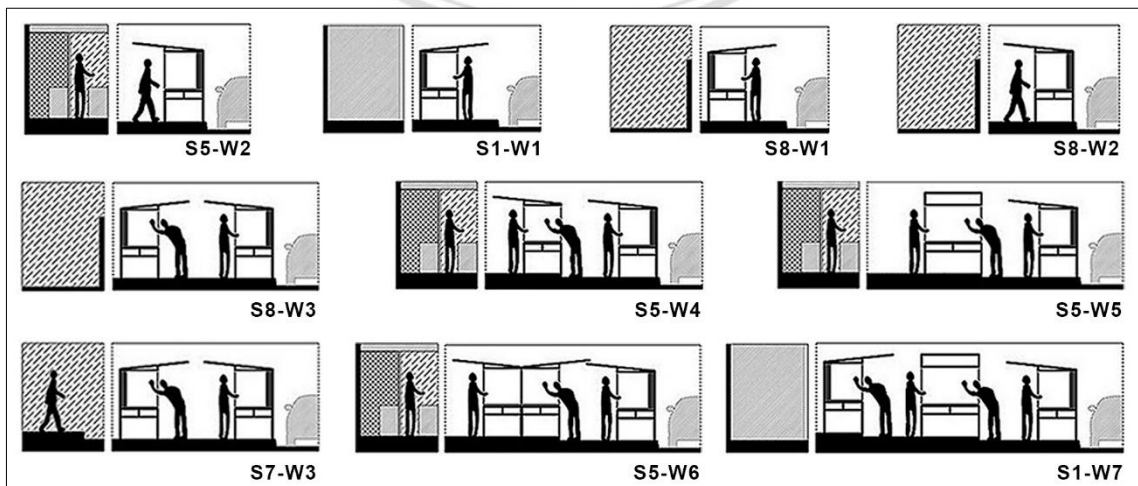


Figure 5.9 Space section of Changklan Rd. walkway at night

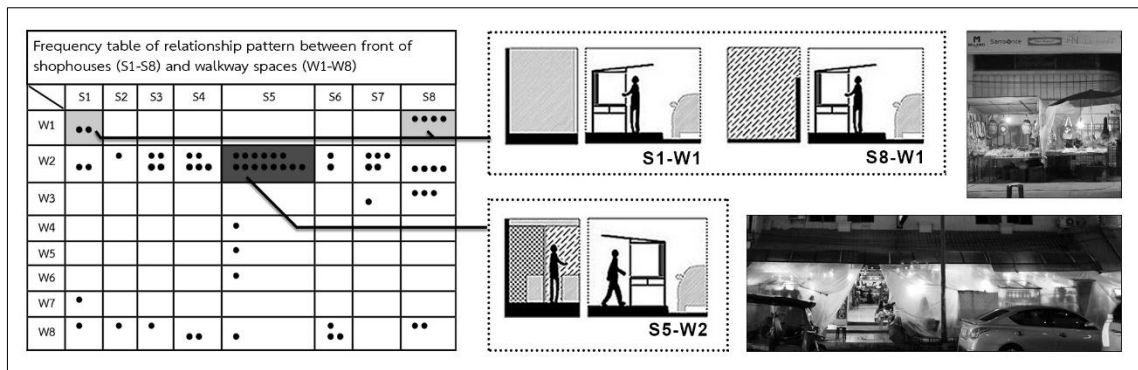


Figure 5.10 characteristic of Changklan Night Bazaar

The most commonly used walkway area is W2, which shown various illumination feature and shaped nighttime townscape of Changklan Rd. Furthermore, W1 is the only walkway space with stall fronts facing Changklan Rd, with a street frontage that has a road and backs up adjacent to the wall or buildings. This allows tourists to see products from either side of the street as they walk, where shop front displays attracts those who are on the sidewalk to the other side of the road from a distance.

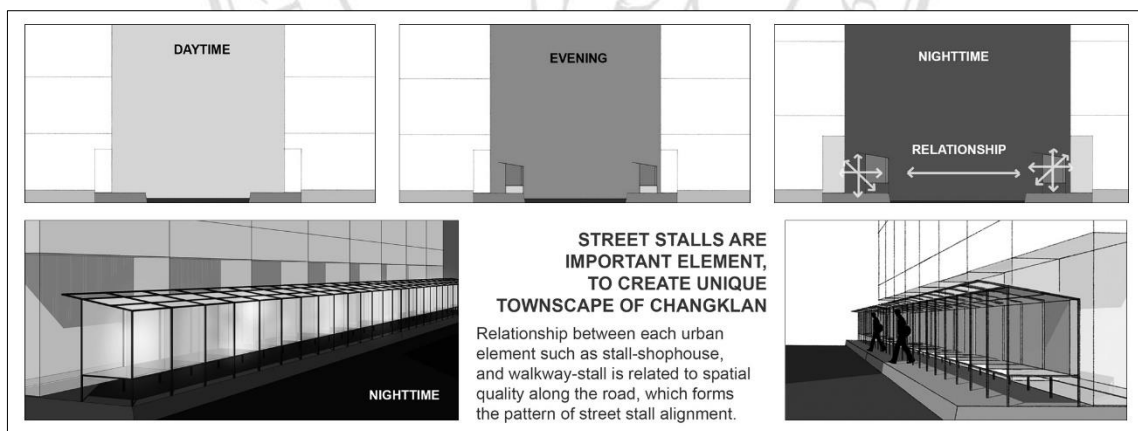


Figure 5.11 Evening and nighttime of Changklan Rd. urbanscape

Both feature of walkway pattern W2 and W1 are represent the strong unique from evening time to nighttime townscape of Changklan Night Bazaar. These also create a special trading activities along the Changklan strip road, which the origin of the first souvenir shopping street of Chiang Mai City. By using systematic and of stall placement according to the physical of urban structure and element as a concept to create space for the project design can give the solution of lacking connectivity from front to back of the project. At the same time, this concept be able to represent creativity to develop large

scale building by creating open space and urban void, to create new public spaces for sharing new experiences or cultural variety between local people and tourists, is another strong and appealing point of Changklan Rd. In addition, to be able to use suitable for the context and can show the characteristics of the townscape of Changklan Night bazaar.

5.3 Function requirement

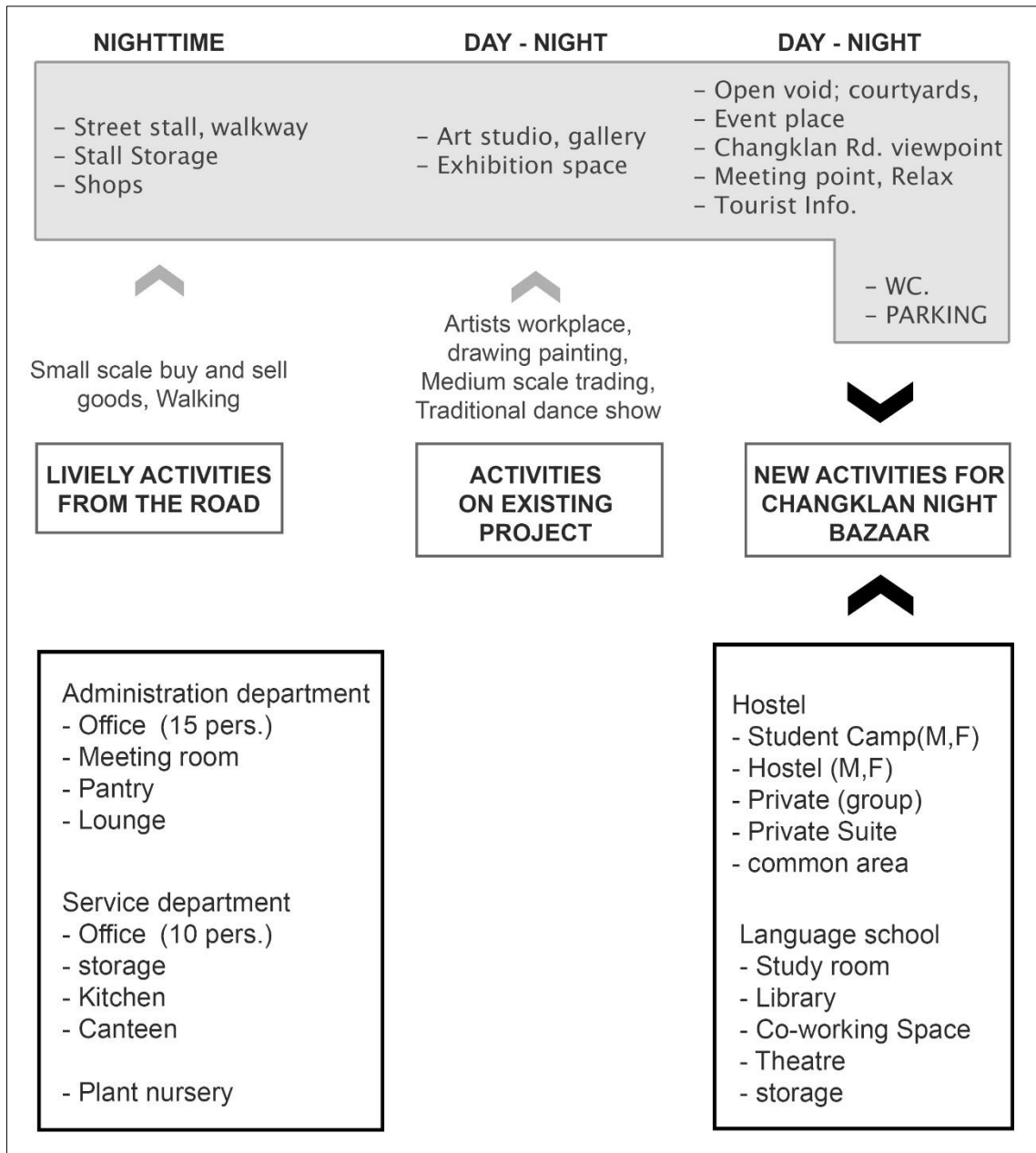


Figure 5.12 Function requirement

5.4 Architectural Design

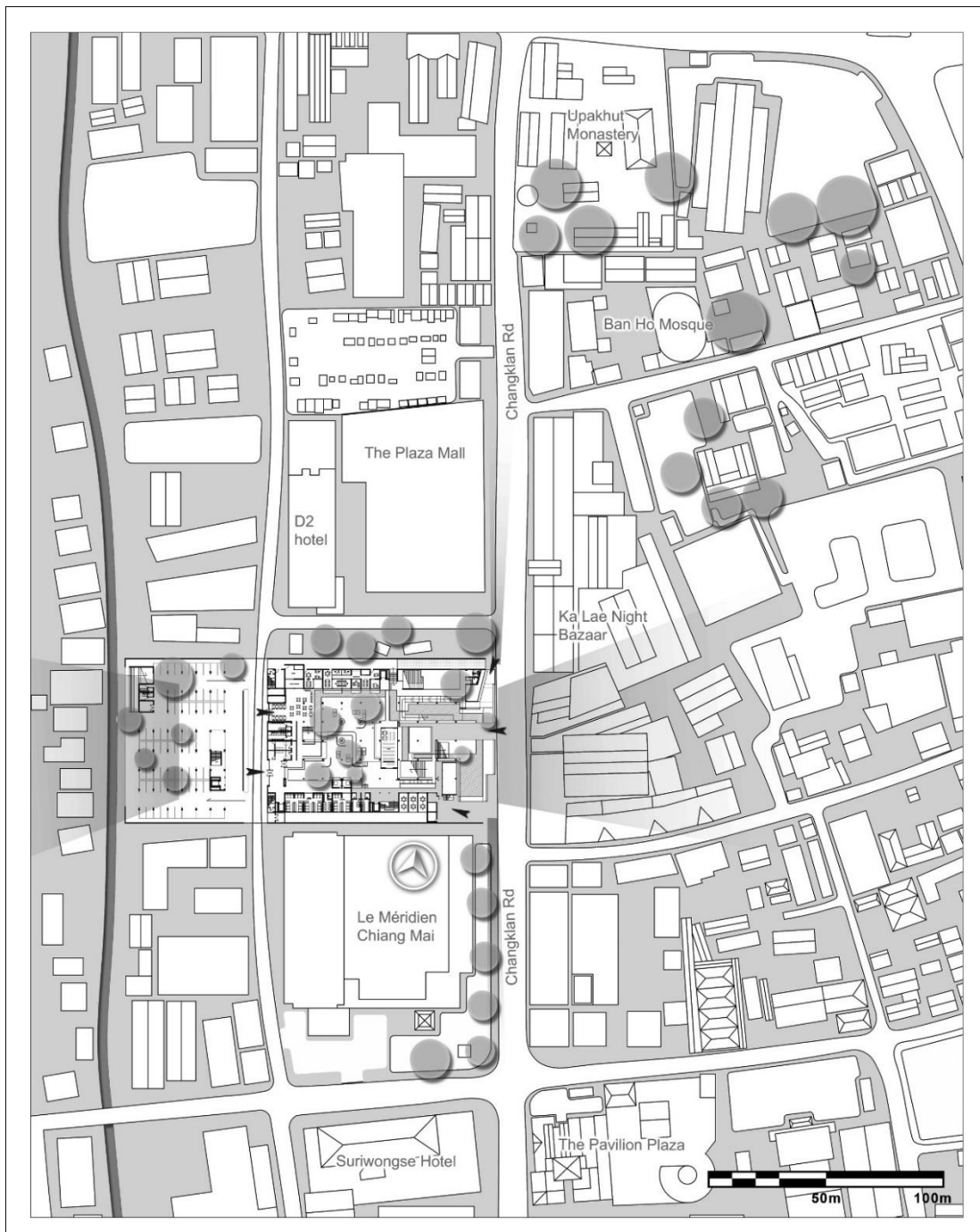


Figure 5.13 Layout of project site on Changkian Rd. map

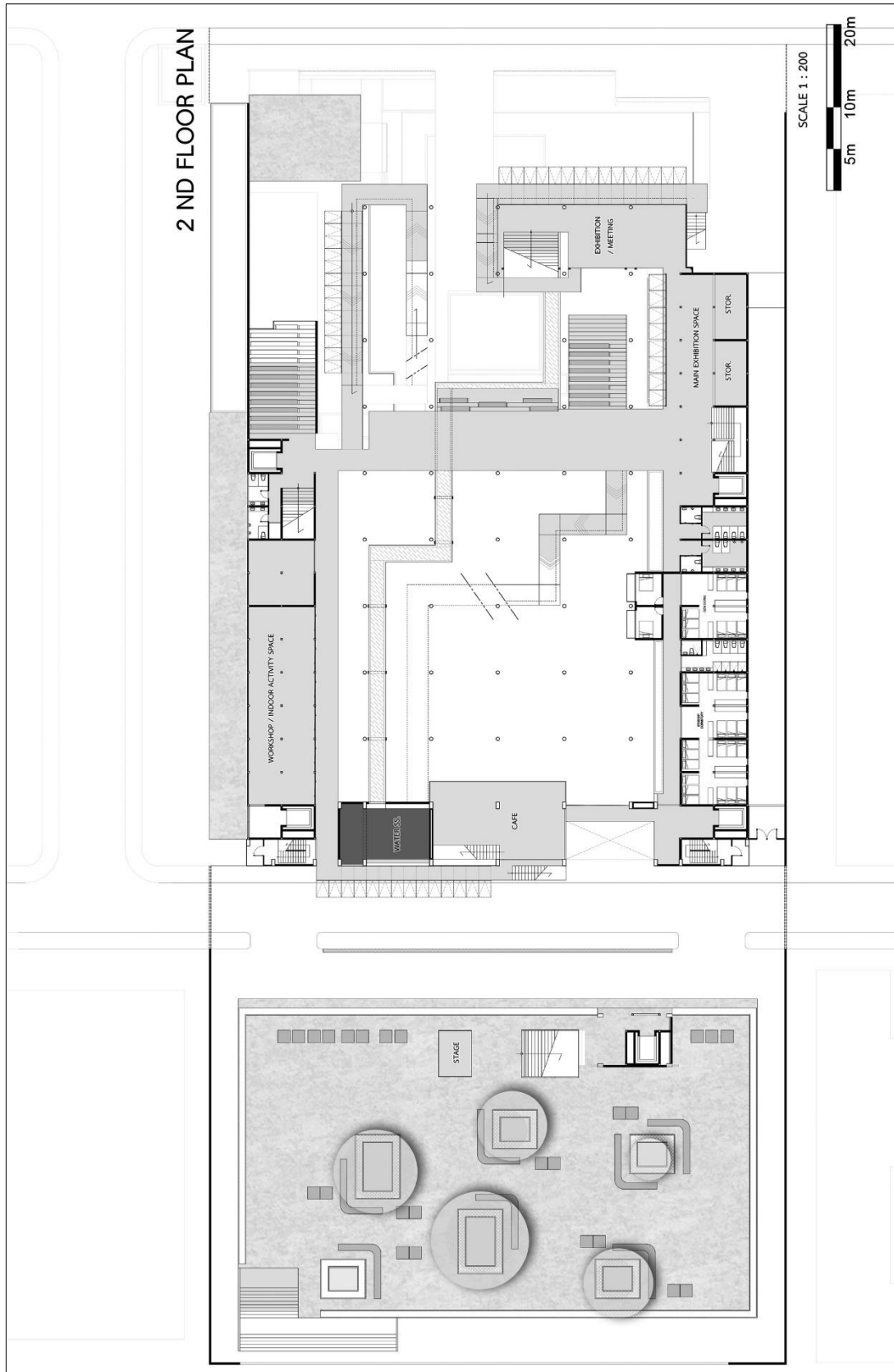


Figure 5.15 2nd floor plan

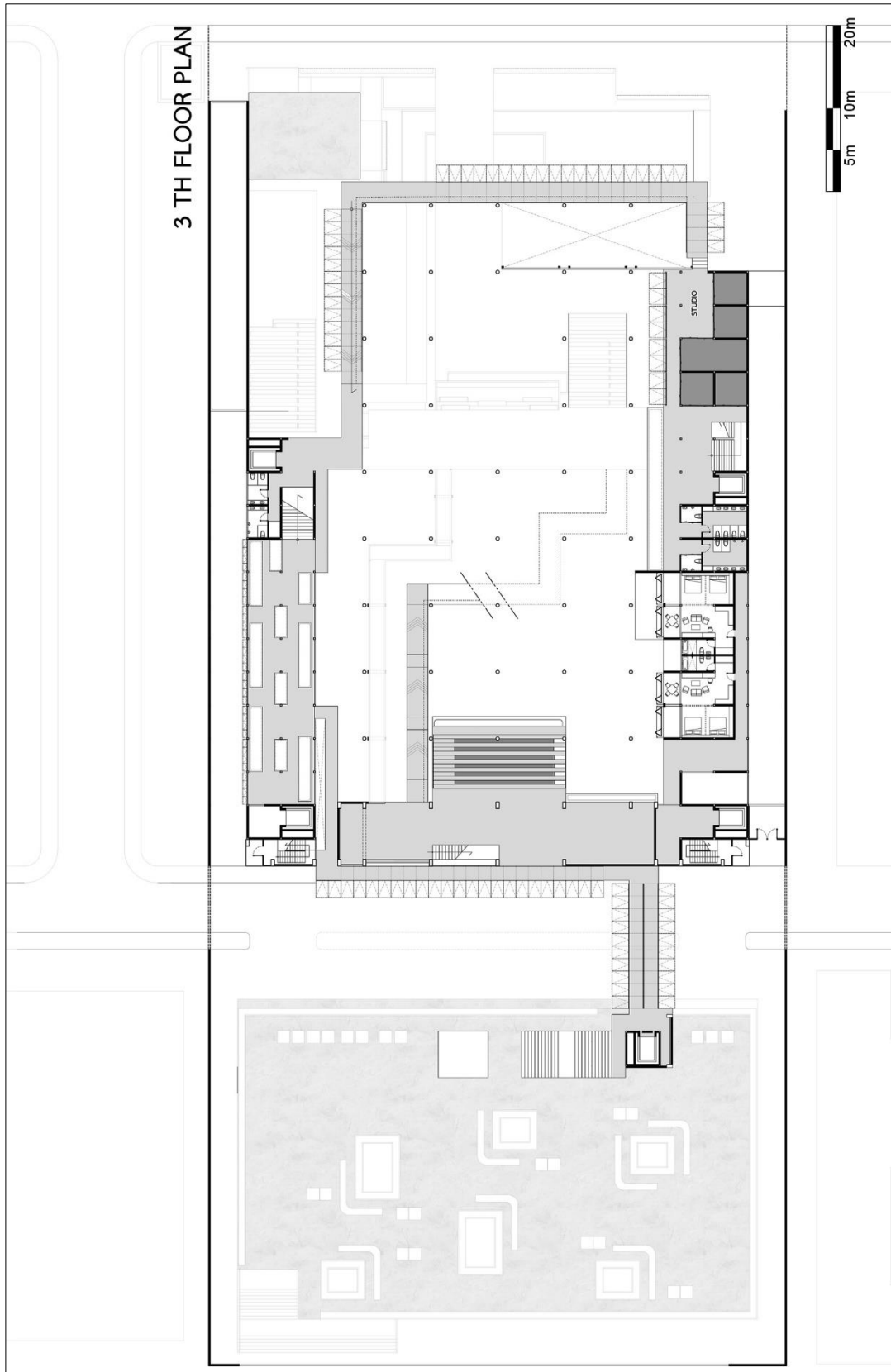


Figure 5.16 3th floor plan

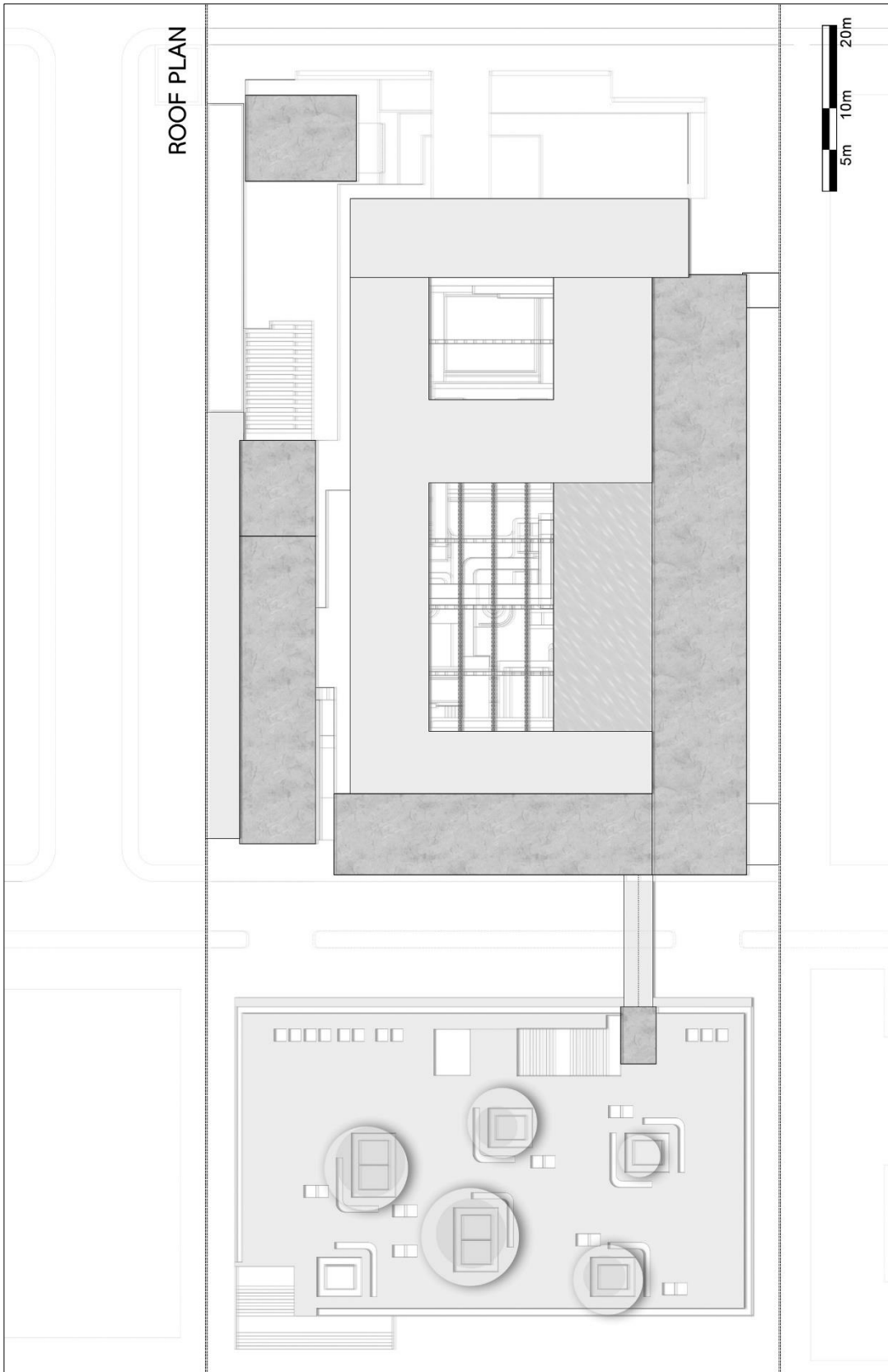


Figure 5.17 Roof plan

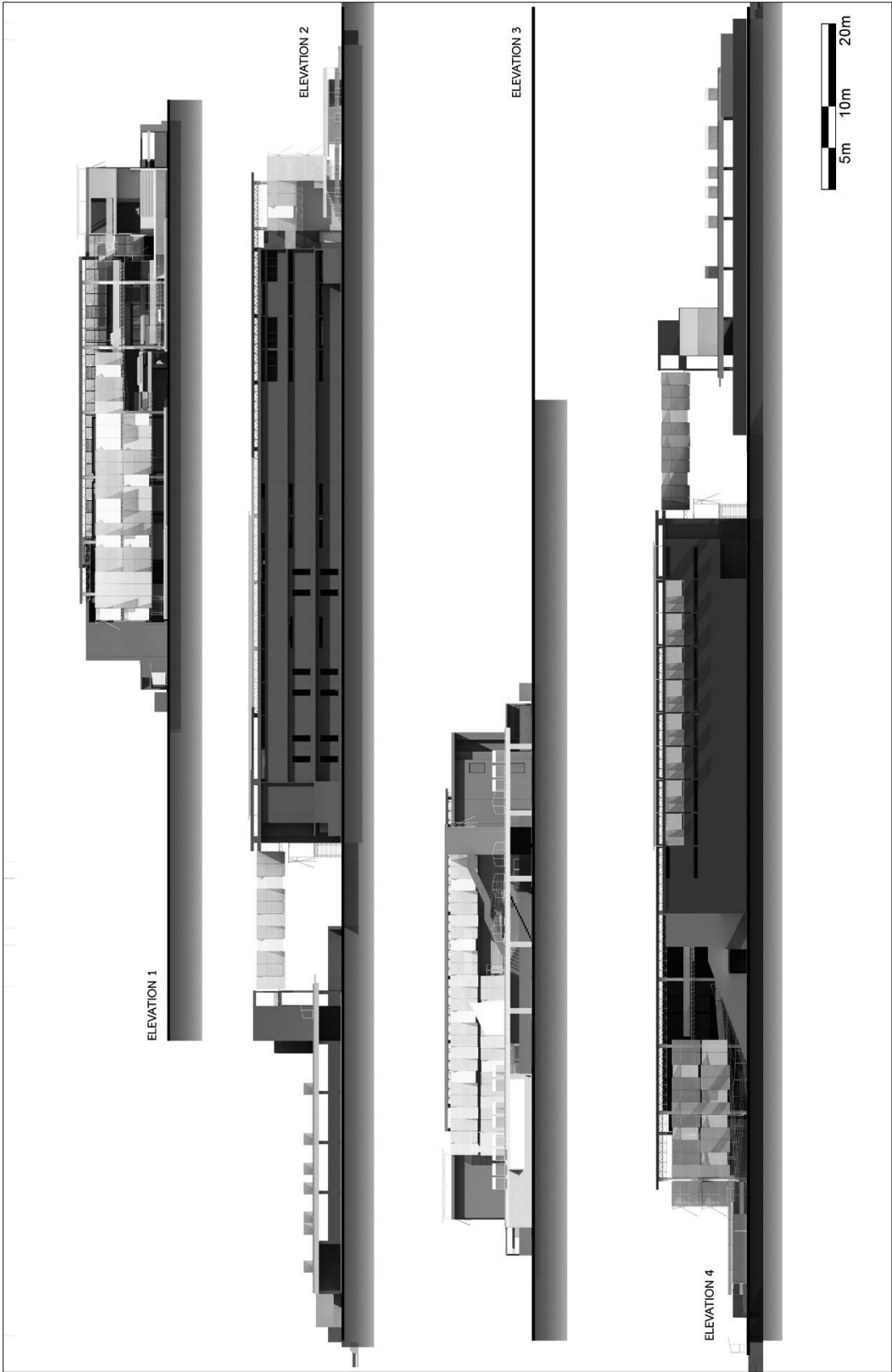


Figure 5.18 Elevations

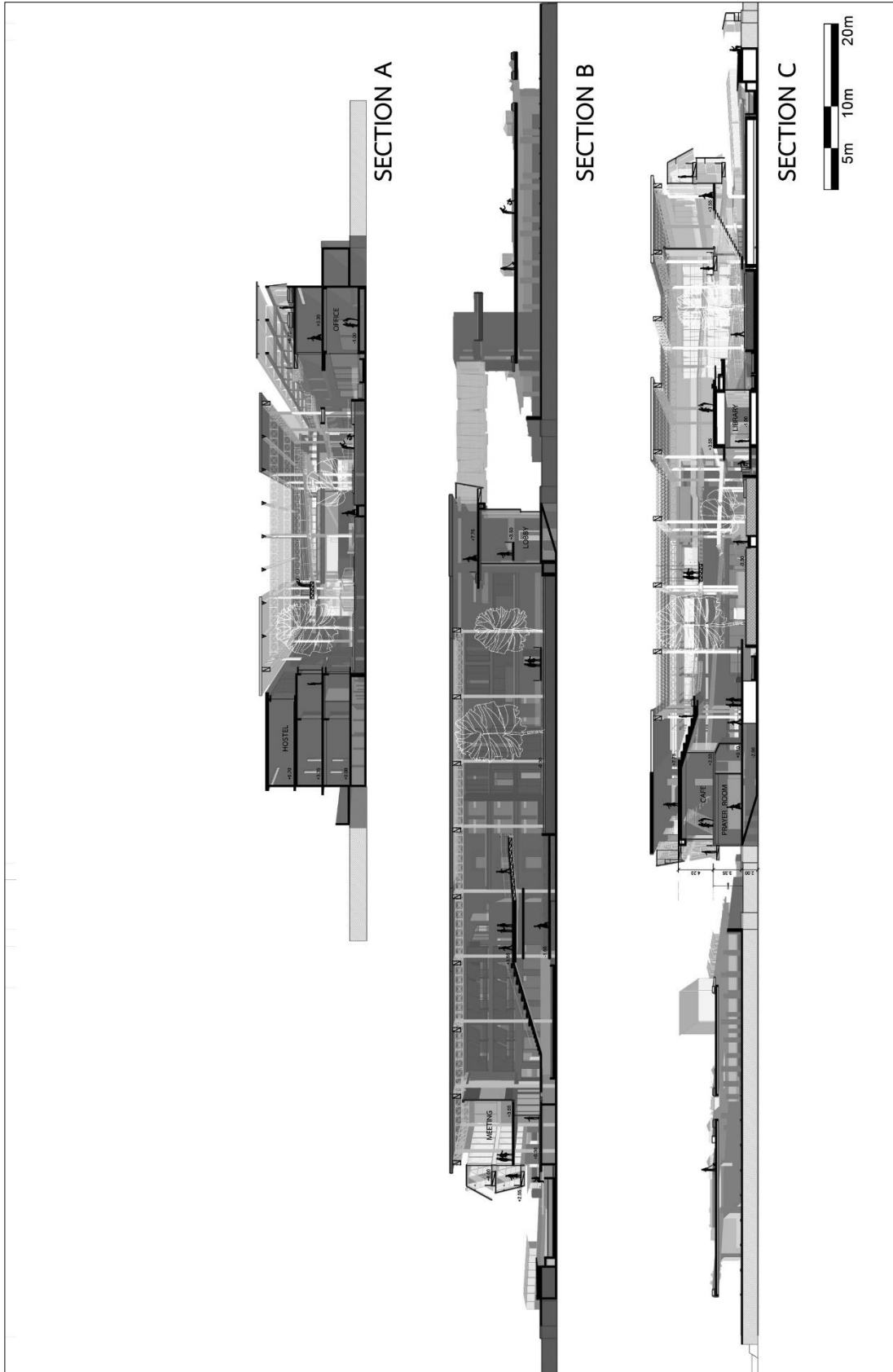


Figure 5.19 Sections



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Figure 5.20 Perspective view



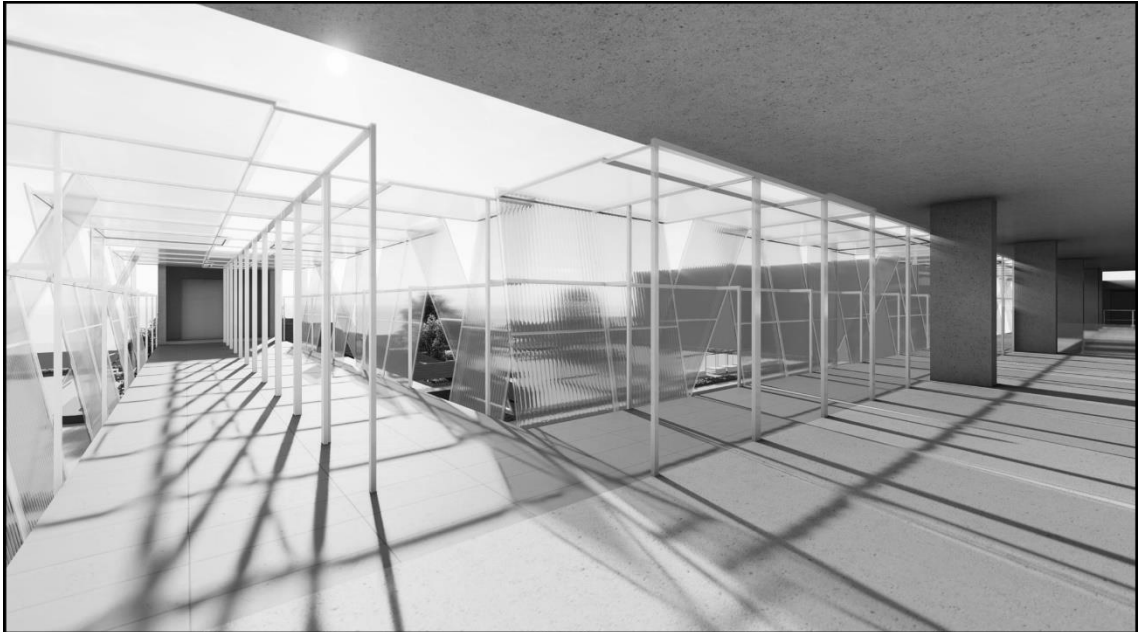
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Figure 5.21 Perspective view



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Figure 5.27 Perspective view

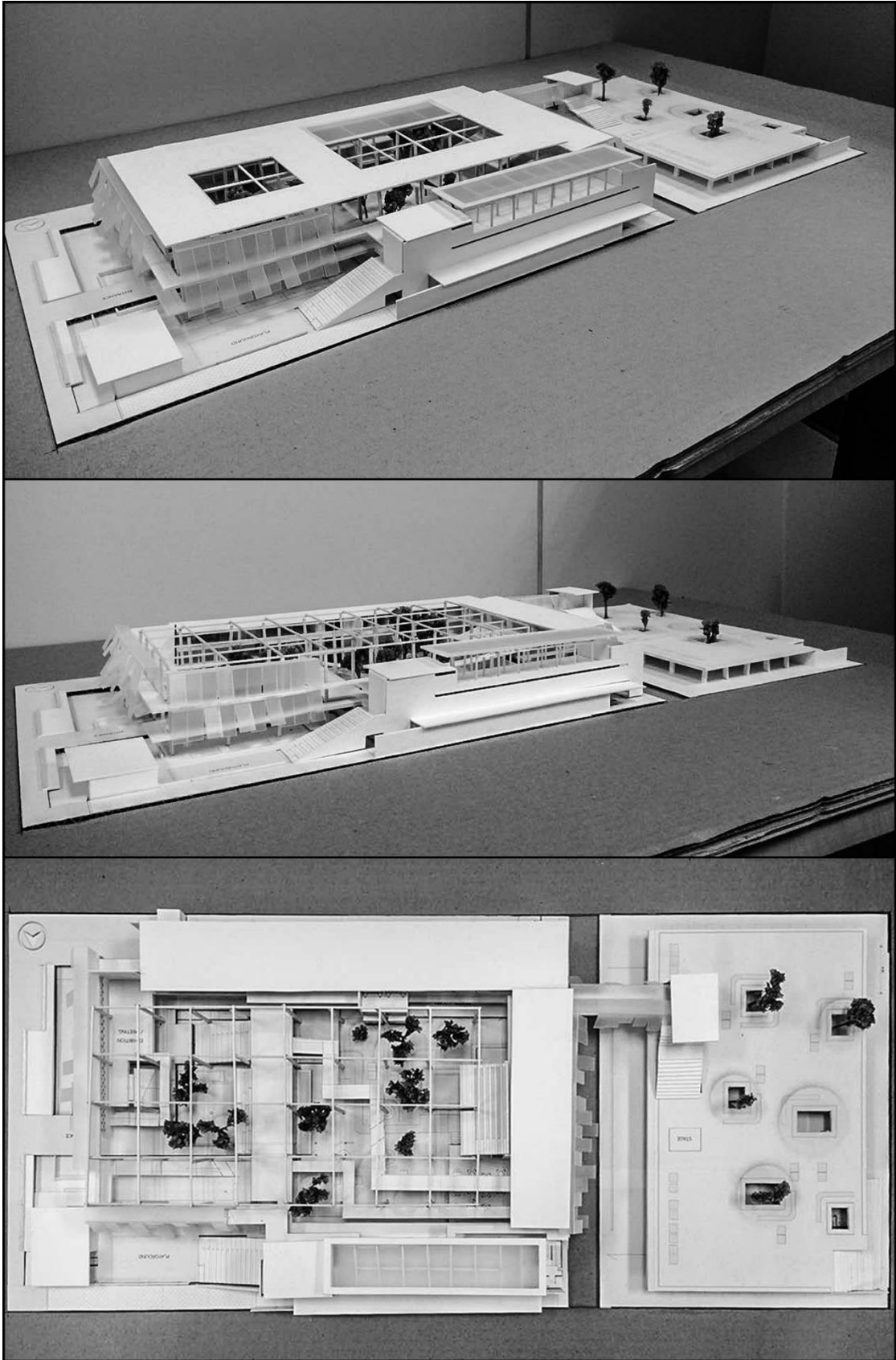


Figure 5.28 Mass model

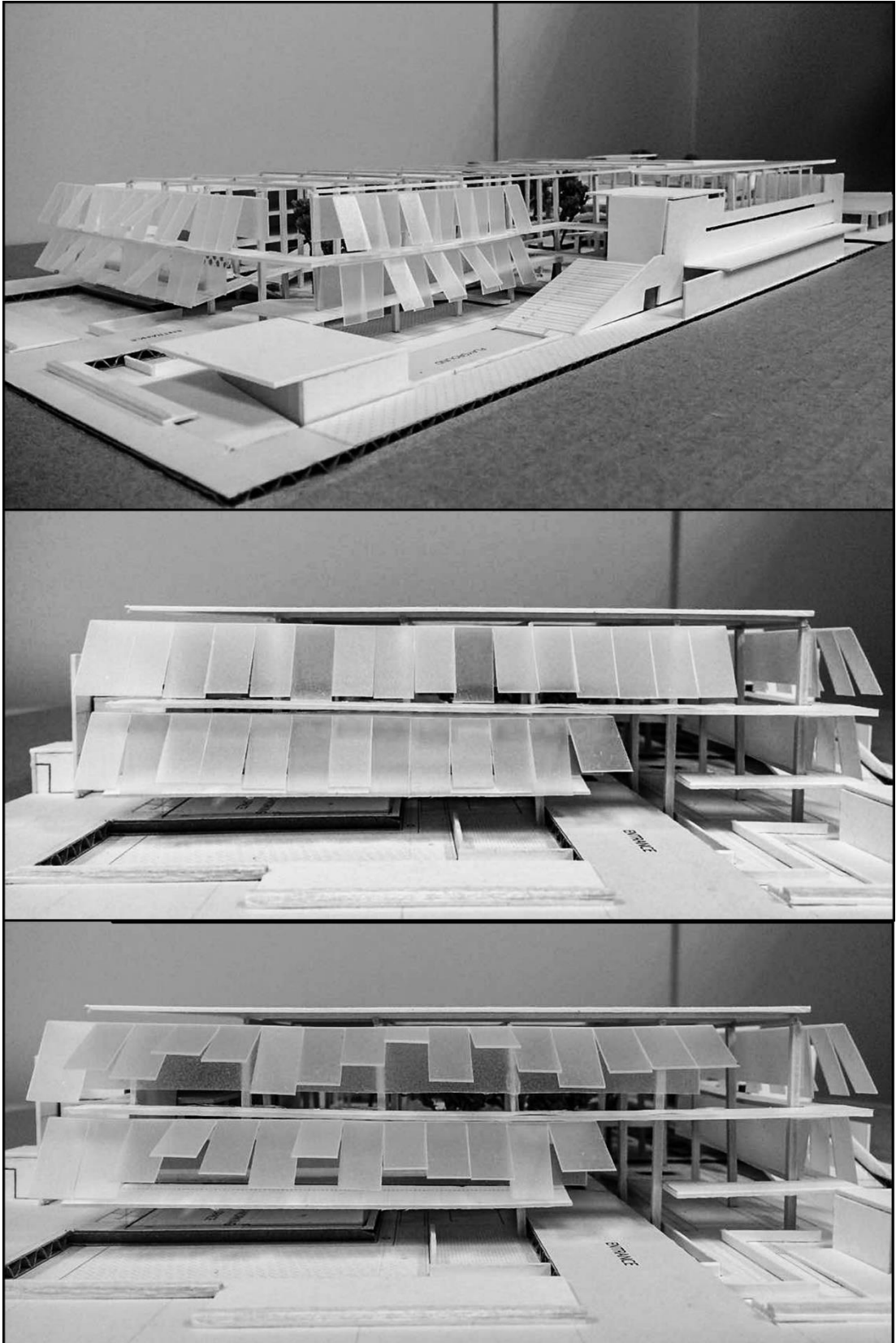


Figure 5.29 Mass model



Figure 5.30 Mass model

CHAPTER 6

Conclusion

Development of spatial form and structures of the Changklan Rd. started from the arrival of the British forestry industry with the Indians and Burmese as subjects and employees in 1864, who started their settlement and trade on Thapae Rd. and Changklan area respectively. Later in 1915, with the arrival of Muslim Yunnan Chinese this resulted in denser living environment, while commercial activity gradually expanded from Thapae Rd. to Changklan Rd. This was the beginning of Changklan Rd. Eventually, Changklan Rd. became the most diverse neighborhood and famous souvenir shopping street area in Chiang Mai. It still shows some traces of the past through the use of space, religious places, road structures and the size of land plots. The density of usage superimposed into the area caused various elements that coexisted to become the origin of the unique characteristics of Changklan Rd. that continues to exist today, such as Buddhist monasteries, mosques, hotels, shopping malls, shophouses, schools, markets, houses, trading from large department stores, and small stalls. The small stalls that were considered the moving elements originally originated on the walkways during the night. They are related to the urban structure and can be described as a form of relationship between the building front space and the walkway. The growth of trade on Changklan Rd. had encouraged many merchants to trade using these stalls. Subsequently, Changklan Night Bazaar became the most flourished commercial area in the early 2000s into late 2005, the massive flood hit the area, damaging many stalls and building, which resulted in the walking street markets being established in the old city, making Changklan Rd. a less important tourist venue since then.

Therefore, the current popularities of the weekend walking street which are the competitors of Changklan Rd, have caused Changklan Rd. development to proceed at a slower pace. Because of the increased business growth of these new commercial sites, where trade and business are run on small land sites, which is the difference from Changklan Rd. this outcome as a result for future commercial development plans may

cause leverage on the large land plots to be developed, taking away a feature inherited from the past, as a strong selling point of Changklan Rd. However, Changklan Rd. area in the present day is dense by big buildings, so, existing building renovations to create new public spaces for sharing new experiences or cultural variety between local people and tourists, is another strong and appealing point of Changklan Rd.

At the present, the emergence of new shopping and tourism districts causing the number of tourists that come shopping at Changklan Road is decreasing and resulting in a large number of abandoned buildings, especially Chiang Mai Night Bazaar. The building has been built since the first time at Changklan Road to support the commercial growth of Chiang Mai city, which has not been adjusted to meet the needs of the modern era. Furthermore, the goal is to focus on supporting only tourists. Therefore, it is the source of the work to be issued as architecture that requires the development of Chiang Mai Night Bazaar. That is neglected to be able to support activities both in support of tourists and the needs of people in the community. In addition, to be able to use suitable for the context and can show the characteristics of the townscape of Changklan Night bazaar.



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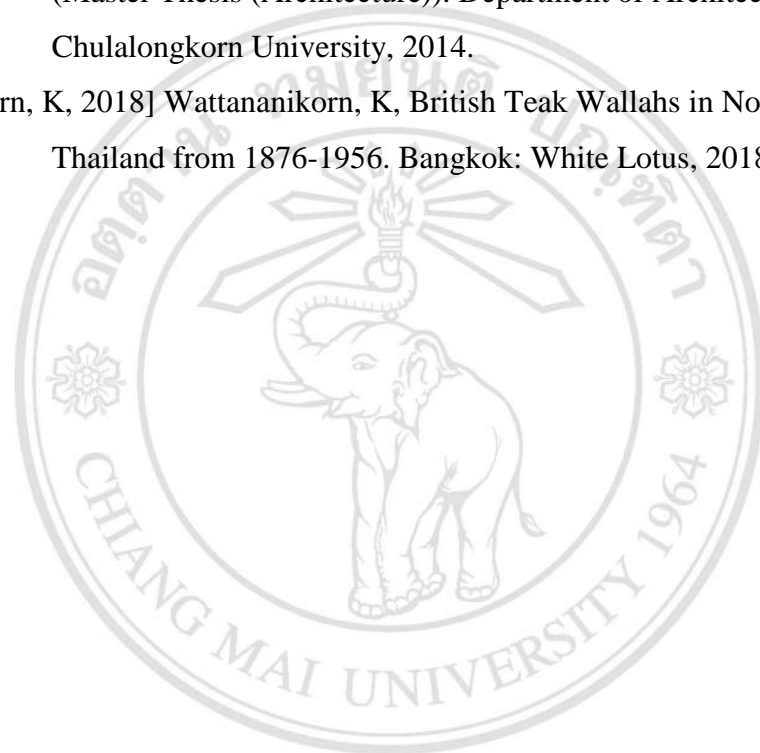
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