

Residential to Commercial Area Development: The Case of Nimmanhemin, Chiang Mai, Thailand

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ABSTRACT

Nimmanhemin is a significant shopping area in Chiang Mai, where shopping areas developed from long-distance trade transport and developed into merchant communities, but Nimmanhemin began as a residential area and was later developed for commercial purposes. Therefore, Nimmanhemin represents a unique development. This study focuses on the spatial transformation from a residential area into a commercial area and aims to discover the factors impacting the development of the residential area into one of today's most significant commercial areas in Chiang Mai, and study the adaptation of buildings which were not primarily created for commercial purposes. Even though the existing planning of the Nimmanhemin area does not provide public space, housing estate planning has the ability to adapt to the creation of new public spaces in commercial terms. In addition, architectural adaptation influences public spaces in the Nimmanhemin area.

Keywords: *residential area, commercial area, urban development, spatial adaptation*

INTRODUCTION

The formation and development of shopping areas in Chiang Mai often occurred before mixed use communities were established, as in the case of Thapea Road, the first shopping area in Chiang Mai. The market town was established due to trade on the Ping River and that affected Thapae Road. Located between the Ping River docks and the old city, Thapae Road became a transportation route. In addition, there was an exchange of space as

the temporary market developed into a merchant community when permanent structures were erected. These structures accommodated multi-purpose functions of living and selling. A temple was created as a central public space and represents the community.

Shopping areas that were established between 1900 and 1970 were planned according to the development of trains and public roads. Shopping areas became a transit area/connection route to

the city's boundaries. Charoen-Prated Road (1921), was established to connect the train station, east of the city, to Chang-Phuek Road (1961), linking it to the new "Super Highway Road" that connected to Bangkok. This affected Chang-Phuek Road which developed into a shopping community with shophouses. Chang-Phuek became a transportation hub connecting the outer districts and linking with the Super Highway. Therefore, for the old shopping area, its trade and commercial purposes occurred before it became a mixed use community. The architecture was originally created for commercial purposes.

In contrast is the case of Nimmanhemin, it had previously been a housing estate and developed into a commercial area after 2000. Currently it plays an economically significant role in Chiang Mai. The planning of Nimmanhemin created private, personal spaces with residential accommodations rather than spaces for commercial purposes.

Therefore, this study focuses on the planning of a housing estate which changed into a public space. In addition, the question of this study is: "Why do private personal spaces become significant commercial areas?"

OBJECTIVES

The study objectives are:

- 1) To discover the factors impacting the development of a residential area in Chiang Mai into a significant commercial space.
- 2) To study the adaptation of buildings not primarily created for commercial purposes.

REVIEW OF LITERATURE

This study is based on the spatial aspects to describe the transformation of residential space into a significant commercial area. Therefore, this review of literature concentrates on the development of a commercial area in Chiang Mai and the development of a shopping area, according to the ability of trading roles and its impact on the establishment of a merchant community (Hiroaki, Chompoorath, 2016). Theoretically, during the process of developing a residential community into a commercial area, there is the question of the characteristics of the community. Why did the residential area change into

a commercial space, and what factors impacted the development process? Therefore, this study is based on a spatial analysis of the neighbourhood space. This first involves the idea of the neighbourhood as a unit of real estate development, as in Nimmanhemin, where, for the first time in Chiang Mai, housing was allocated a specified space. The idea of a neighbourhood space (Randolph T. Hester, Jr., 1975) was to provide a quality environment with the characteristics of a new town concept. The public space contains a community centre and provides social facilities spreading to the residential area as a neighbourhood unit. In addition, in terms of a commercial area and public space, this study uses a theory based on the definition of a commercial public space as the criteria for primary analysis of the current planning for the Nimmanhemin area. The "Central City Mall" (Harvey M. Rubenstein, 1987) is strongly related to a city's public space and explains the relationship between commercial and public spaces. In addition, in terms of public space, (Moudon, 1987) agreed that the harmonisation of public space supports a walking environment and the city context encourages the fine urban grain.

METHODOLOGY

This study is based on the formation and development of a shopping area in Chiang Mai from its inception in 1884, until now, indicating that Nimmanhemin is undergoing a contradictory development process to become a commercial area. It differs from previous shopping areas in Chiang Mai in that its role was initially residential and later developed into a space for commercial purposes. Thus, it has affected the architecture of this area.

The primary methods used in this study are: 1) an analysis of the formation of Nimmanhemin to discover the factors impacting its development into a commercial area; 2) an analysis of the spatial characteristics of Nimmanhemin, considering the neighbourhood space, and providing an explanation for the analysis and factors impacting the direction of its development; 3) analysing the architecture in the study area for the adaptation of buildings to support its commercial role and the effects of planning on Nimmanhemin; 4) referencing the definition of commercial space to describe the importance of the relationship between commercial and public spaces as well as analysing the impact of current planning on building adaptation.

FUNDAMENTALS OF DEVELOPING A SHOPPING SPACE IN CHIANG MAI

This study considers the formation and transformation of a shopping area in Chiang Mai. The area is located within a transportation route for long-distance trade that developed into a shopping space. However, the original formation focused on the Chiang Mai River that had been the main trade route for long-distance transportation. Therefore, the exchange of goods occurred in areas providing connections between the docks and the city. Temporary installations, such as a flea market, were erected as selling spaces along transportation routes.

The first market to be placed outside the city area was located on Thapae Road, between the docks and city gates. It was originally a temporary market before developing into a merchant community and multi-purpose area for storage, living, and selling. The flea market operated concurrently with the market since the outside city area was not controlled as a sacred space. Foreign merchants from countries such as Myanmar, formerly Burma, first settled in the Thapae area, and this is still evidenced by the Myanmar-style Buddhist temple which was established as a community centre. In addition, the general flea market was located between the temple and the city, creating a public space, and playing a key role in trade, which according to "The City Assembled" meant that merchants could appropriate any public space for their own purposes.¹

With the arrival of the Chiang Mai to Bangkok train in 1921, the area was affected in commercial terms by the following factors: (1) it signaled the end of long-distance trade by river; (2) the Chinese merchant community to the east of the Ping River had become jaded due to the end of trade by river; (3) the establishment of a new shopping street in Charoen-Prated Road with similar characteristics to Thapae Road; and (4) the establishment of a bridge. The new shopping street is located between the train station and eastern city gate, which is a key factor in the trade route for long-distance transportation, resulting in a change from river to train. The spatial elements are also similar to the old shopping street, Thapae, with a passageway

and shophouses along two sides. The street has continued as a shopping space in the city with shophouses and retail units erected for mixed functions of living and selling.

From 1884 to 1960 the development was only on a building scale until the establishment of the Chiang Mai-Lampang Super Highway Road in 1961. The subsequent economic development policy resulted in urban scale expansion, creating a lack of harmony with old city planning as well as encouraging personal vehicles. The establishment of the Super Highway Road has been affected by (1) the establishment of a new shopping street connecting the new road to the northern city's area of Chang-Phuek Road; and (2) the outlying district area being appended to the western side of the city at Nimmanhemin Road.

The establishment of the Super Highway Road is a key factor in the development of Chiang Mai's rapid changes. These changes also include a disordered expansion that is incompatible with old city planning, especially in terms of form and scale. During the transitional period of city expansion, shopping spaces were regulated and the city's role in continual support for public transportation resulted in restricted private transit.² In addition to Chiang Mai's rapid expansion and the lack of public transportation and social facilities throughout the city, residents' mobility depends on personal vehicles. These are sub-factors that caused shopping spaces to annex public spaces. In the case of Chiang Mai, however, following the city's expansion, without a resolution plan, the old shopping streets became subdued due to their inability to harmonize with urban lifestyles. Public spaces became segregated. With Chiang Mai being established as the centre of Northern Thailand, the arrival of investors from Bangkok developed department store complexes.

Therefore, the city's shopping area was established as a result transportation development, e.g., the long-distance trade routes; river, train, and Super Highway Road. The city's original shopping area had first been used for trading purposes and then later developed as an established merchant community. The architecture distinctively represents the role of a shopping area.

¹ Kostof Spiro (1992), City Assembled

² Victor Gruen (1973), Centers for the urban environment survival of the cities

Fundamentals Of The Nimmanhemin Area

Nimmanhemin is located in the west section of Chiang Mai and originally belonged to the Nimmanhemin family. In 1960 the land was donated to the government for the creation of Nimmanhemin Street to connect Huay-Kaew Road and Suthep Road which run parallel to Sirimanklajan Road. This was once the route for the Japanese military during World War II.³ From 1961–1962, the area between Nimmanhemin Road and Sirimanklajan Road was allocated for residential purposes. The plans included small alleys connecting Nimmanhemin Road and Sirimanklajan Road. The alleys are subdivided to create housing spaces.

In 1961 the Economic Development Plan began to initiate a policy of infrastructure developments with the provision of public roads to connect cities. This is depicted by the construction of the Super Highway Road, linking Chiang Mai and Lampang at the east side of the Ping River and the north of Chiang Mai city, converging west of the city at Huay-Kaew Road and connecting to Nimmanhemin Road. The Nimmanhemin area comprises the main street, Nimmanhemin Road, which links to the Super Highway Road in the north and Suthep Road in the south. The east side of Nimmanhemin Road has been allocated for a housing area.

ROLE OF THE NIMMAHEMIN AREA

Nimmanhemin's Residential Role

The first Nimmanhemin Road was created to connect Huay-Kaew Road, which links to the front of Chiang Mai University, and Suthep Road, which links to the back of Chiang Mai University. The plan for the establishment of Chiang Mai University was prepared in 1950 by the Nimmanhemin family (Kimhor and Kim Nimmanhemin), who donated the area for the construction of Nimmanhemin Road in 1964. Chiang Mai University covers the area from Suthep Road to Huay-Kaew Road, close to Suthep Mountain. The area between Nimmanhemin Road and Sirimanklajan Road was allocated for residential purposes. With the establishment of Chiang Mai University, as the centre of education in Northern Thailand, and the expansion of the west side of the old city, residential areas were needed. This area was divided and sold to create housing for individual owners. In addition, residential developers invested in real estate to the west of Nimmanhemin Road, resulting in the area playing an obvious residential role.

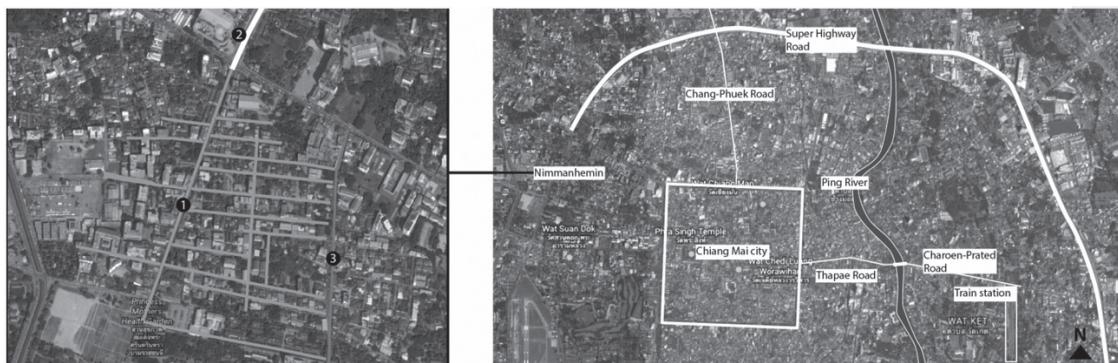


Figure 1:
Chiang Mai city map emphasising the formation of the Nimmanhemin area, Chiang Mai
(Source: Map from Google Earth)

Ability Of A Residential Community To Exist In The Nimmanhemin Area



Figure 2:
The characteristic of Nimmanhemin area which lack of community's public space
(Source: map from Google Earth)

Due to the formation of the Nimmanhemin area as a housing estate, the land was subdivided as a residential space according to a grid (Figure 2). The plan did not include community elements such as a central public space and social facilities. It did not accommodate the neighbourhood space idea which gives priority to community interaction. (Figure 3). The limitations of land allocation gradually separated the land for sale before appropriate plans for a housing estate were designed. Nimmanhemin was the first area allocated for housing and the characteristics of the community have gradually developed with other roles concurrently, depending on the landowner. This has impacted the Nimmanhemin area, which has the ability to be developed in commercial directions.

NIMMANHEMIN'S RESIDENTIAL ROLE

In 1961, as a result of the Economic Development Plan, the Super Highway Road was constructed to connect with Nimmanhemin Road. The highway provided space to support the service sector as well as encouraged tourists to visit Chiang Mai as the centre of Northern Thailand. For the first time, a "Night Bazaar" was established in Changkran Road, linking to Thapae Road on the south. The Nimmanhemin family used the profits from residential land allocation to invest in the "Rincom Hotel" located where Nimmanhemin Road connects to Huay-Kaew Road. This was the beginning of tourism in Nimmanhemin, but due to the area being primarily allocated for residential purposes, there was not enough space to support the tourist sector after the establishment of the Rincon Hotel. Shophouses were

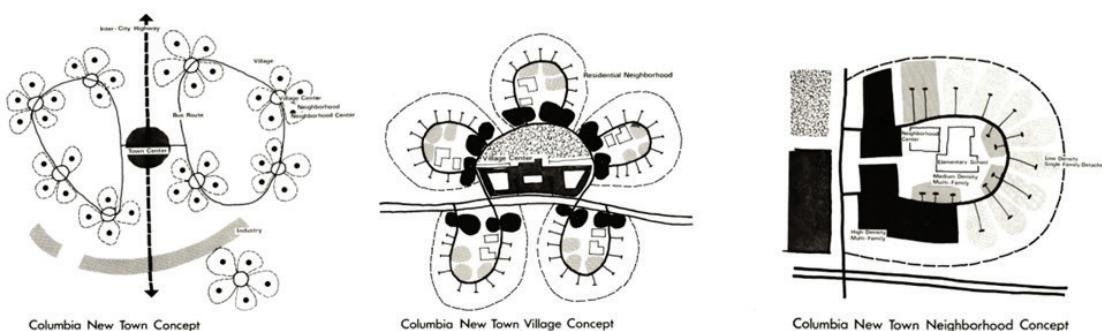


Figure 3:
Diagram of the Neighbourhood space concept which has public space as the centre of community, case of Columbia New Town (Source: Neighbourhood Space Community development series pp. 8-9)

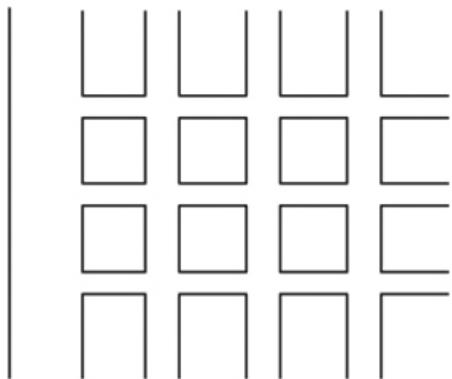
erected opposite the hotel, representing the main characteristics of shopping architecture in the 1990s. These shops emphasised locally designed products as souvenirs to target the high purchasing power of Rincon Hotel customers. The shopping space was subsequently expanded to include the back of the hotel (on Nimmanhemin Soi 1). The space sold products for artists, making Nimmanhemin famous for its arts and crafts until 1999, when a group of local artists organised the NAP Festival (Nimmanhemin Art and Craft Promenade). The success of the NAP Festival made a positive impact on Nimmanhemin's commercially in art and design terms. At the same time the residential area was developed from residential to commercial.

In terms of planning, the commercial area in Nimmanhemin consists of the main street in the west, expanding to the east side of Nimmanhemin Road (Figure 2). From a planning perspective, Nimmanhemin's commercial area has been subdivided into a grid, and therefore, continuity and

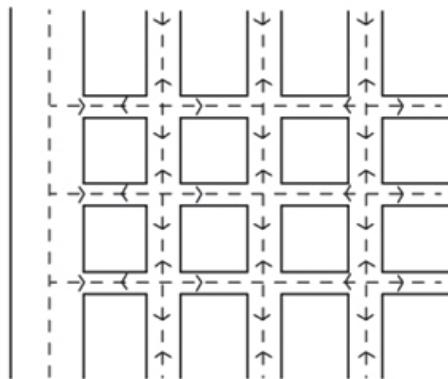
coherence (Figure 4), are adhered to according to the primary objective of improved pedestrian circulation of commercial space.⁴ In addition, the location provides easy access to the university's target group (Figure 5).

Ability Of A Residential Community To Exist In The Nimmanhemin Area

The field data for the Nimmanhemin area (Table 1) indicates that it consists of 356 residential and commercial buildings. Since the original function of this area was residential, most commercial buildings were converted from single houses after 2000. Residents tend to lease their houses to gain commercial rents. The economics of the area increased the amount of vertical living. This creates residential demands from newcomers moving into the Nimmanhemin area.



Planning including the main street and the land was subdivided as a grid.



Grid plan are continuity and coherence, the circulation are connecting all over area which support walking environment.

Figure 4:
The grid plan showing continuity and coherence to support the pedestrian environment

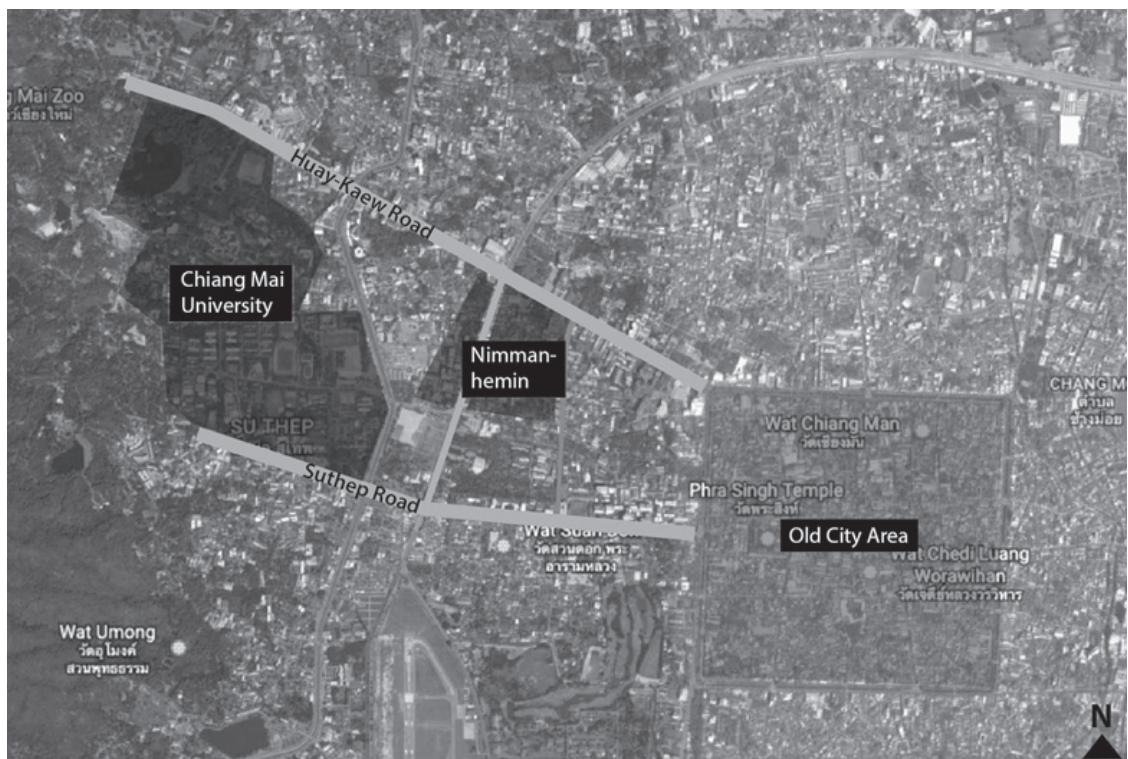


Figure 5:
Location of Chiang Mai University and the Nimmanhemin area
(Source: map from Google Earth)

Table 1-1: Characteristics of buildings in Nimmanhemin's main street, Nimmanhemin Lanes 1-5

Location	Characteristic of buildings in Nimmanhemin
Nimmanhemin Main Street	
Nimmanhemin Lane 1	
Nimmanhemin Lane 2	
Nimmanhemin Lane 3	
Nimmanhemin Lane 5	

Table 1-2: Characteristics of buildings in Nimmanhemin's main street, Nimmanhemin Lanes 7-17

Location	Characteristic of buildings in Nimmanhemin
Nimmanhemin Lane 7	
Nimmanhemin Lane 8	
Nimmanhemin Lane 9	
Nimmanhemin Lane 11	
Nimmanhemin Lane 12	
Nimmanhemin Lane 13	
Nimmanhemin Lane 15	
Nimmanhemin Lane 17	

ARCHITECTURAL TRANSFORMATION OF THE NIMMANHEMIN AREA

All 356 buildings consist of houses: houses with added shops, houses converted into a shops, townhouses, townhouses converted into shopvertical living, shophouse, hotel, building, single-floor shop units, and community mall. In Table 2, the characteristics of houses can be divided into three types: house (50), house with added shop (14), and house converted into shops (59). Townhouses can be divided into two types: townhouse (24) and

townhouse converted to shop (13). Vertical living: including condominiums and apartments (48), shophouse (53) and all types of commercial buildings (143). The data in the table indicates that buildings originally built for residential purposes number 160 or 45% (Table 2). This shows that the Nimmanhemin area was originally residential.

When considering only the commercial buildings, excepting hotels, out of 216 buildings, 85 are residential or 40%, 53 are shophouse for living and selling purpose or 24%, and compared to those for commercial purpose at 36%. This shows that the

Table 1-3: Characteristics of buildings in Nimmanhemin's Sukkaseam Lane, Horizontal Lane and Condominium Lane

Location	Characteristic of buildings in Nimmanhemin
Nimmanhemin Sukkaseam Lane	
Nimmanhemin horizontal Lane	
Nimmanhemin Condominium Lane	

Nimmanhemin area has changed from residential to commercial (Figure 7). In addition, the majority of commercial buildings are in the “house converted to shop” category (Figure 6), and therefore, the majority of commercial buildings in the Nimmanhemin area are in the “house” category.

ANALYSIS OF THE TRANSFORMATION PROCESS FOR BUILDINGS IN NIMMANHEMIN

Category Of Buildings In Nimmanhemin Area

The Field data collected (Table 1), indicates that 356 buildings are located along Nimmanhemin Street, including Nimmanhemin Alley, and can be categorised into four main types:

The Field data collected (Table 1), indicates that 356 buildings are located along Nimmanhemin Street, including Nimmanhemin Alley, and can be categorised into four main types:

1. Residential group

- 1.1 House: a single house used for residential purposes
- 1.2 Townhouse: a house with two levels, attached to a similar house by a shared wall and generally used for residential purposes.
- 1.3 Vertical Living: A group of residential real estate for commercial purposes, divided into

several units, each separately owned such as condominiums and apartments.

2. Mixed group: living and commercial

- 2.1 House with added shop: the house is a small building created in front of the housing area, connected to the fence for commercial purposes.
- 2.2 Shophouse: the characteristic mixed-use building, used as a shop and for residential purposes.

3. Commercial group

- 3.1 House converted into a shop: a house converted from residential to commercial.
- 3.2 Townhouse converted to shop: townhouse converted from residential to commercial.
- 3.3 Building: a complex of buildings with units for commercial purposes such as shop and office space for rent.
- 3.4 Single-floor shop unit (1FL units): a single-floor building with a small, separate unit for rent.
- 3.5 Other: various styles of building not categorised in any particular type such as sheds, temporary installations for restaurants, etc.
- 3.6 Community mall: a building combining the retail function of a shopping mall with leisure facilities.
- 3.7 Hotel

Table 2: Number of buildings in the Nimmanhemin Area separated from building characteristics

Building Characteristic		Number	
House	House	50	House Characteristics 160 (45%)
	House with added shop	14	
	House converted into shop	59	
Townhouse	Townhouse	24	91 (25%)
	Townhouse converted into shop	13	
Vertical Living		48	Vertical Living 48 (13%)
Shophouse		52	Shophouse 53 (15%)
Hotel		12	Specifically Commercial 91 (25%)
Building		15	
Single floored units		13	
Etc.		46	
Community mall		3	Not included 6 (2%)
Now construct		5	
School		1	
Total		356	

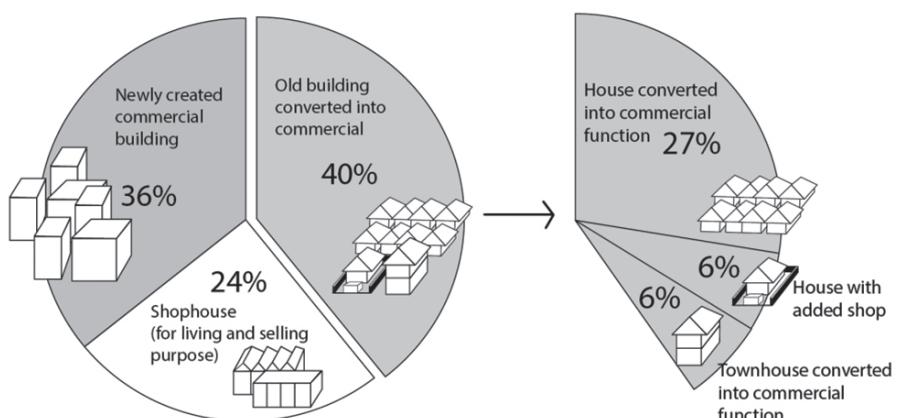


Figure 6:
Percentage of commercial buildings in the Nimmanhemin area separated from building characteristics

The majority of shop buildings in Nimmanhemin are houses adapted for commercial purposes (from private spaces to public) therefore this section studies the group of shop buildings consisting of this style

1. The adaptation of residential to commercial involves the creation of small buildings separated

from the house for business reasons. In this group, the landowner still uses the area for living accommodation but generates income from the potential commercial area by creating a small or single-floor building, divided into rental units, where the divisions are closed to the street and does not affect the area scale. (Figure 7)



Figure 7:
Characteristics of a house with added shop for commercial purposes

2. Often landowners, as a business arrangement, sell or lease their house. The rental fee is a business cost therefore, for new occupants generating a purpose built commercial space does not appear to be profitable due to the high investment. Consequently, the house is adapted by renovating the existing structure to accommodate a new function. In addition, the related inner and outer house areas are distinctly separated as private and public spaces. After adapting for commercial purposes, most landowners remove the boundaries linking the inside and outside to represent a public space. (Figure 8 & 9)

CURRENT COMMERCIAL ADAPTATION OF NIMMANHEMIN

The findings of this study concerning a shopping area in Chiang Mai indicate that the formation and development of it has been jaded since 1990, due

to city expansion, lack of public transportation, and a support for personal vehicles. It also noted that the characteristics of old shopping streets are not in harmony with new urban lifestyles. In the last decade of the twentieth century, new western style department stores included many products and shops in one building. They also provided parking areas to support the new personal vehicle transportation lifestyle. Even though Nimmanhemin is not a good example of public space in a city, it had the ability to continue as a shopping area after 1990. The following section focuses on the planned adaptations of Nimmanhemin.

1. The area closed to real estate on the west side of Nimmanhemin Road (Figure 14-no.1) was previously a green space for potential residential development but had been abandoned for a long time, with the area subsequently being sold to a big investor from Bangkok. It was gradually developed into a public space, accommodating the flea market and NAP Festival. It was then developed for greater economic benefit by the



Figure 8:
Characteristics of a townhouse converted for commercial purposes



Figure 9:
Characteristics of a house converted for commercial purposes

establishment of a hotel and community mall in 2015. This area has now become a public commercial space in the city.

2. Previously, the Nimmanhemin area was occupied by the Nimmanhemin family and subdivided for sale to create housing. The proprietary rights were therefore distributed to individual owners and some parts remained occupied by the Nimmanhemin family. The area where the Rincon Hotel (Figure14-no.2) is now located was sold to a big investor from Bangkok to create a hotel and community mall, in accordance with the current consumerism trend and has now become a public commercial space.
3. Expansion of shopping space in the nearby area included the establishment of a department

store called "Maya" (2015) in Huay-Kaew Road (Figure13-no.3) which connects to Nimmanhemin Road and has had an impact on the Nimmanhemin area as the lifestyle shopping hub of Chiang Mai city.

The Nimmanhemin area has the ability to support business expansion with the arrival of big investors to create a shopping space accordance with the urban lifestyle. Consequently, Nimmanhemin has become a significant economic area with the space to support consumerism and tourism. In addition, the university is located nearby, providing further economic opportunity for the area.

4. Regarding the adaptation of houses in the Nimmanhemin area, there are a lot of single

houses which have been changed into commercial premises by various owners. This has affected land prices, since residents have been releasing their houses for business purposes. The area has obviously been transformed, with public spaces increasing.

Therefore, Nimmanhemin has the ability to integrate many types of commercial activity within its community role, moving from the old residential function towards the increasing trend of vertical living.

CONCLUSION

Summary Of The Factors Impacting On Nimmahemin Being Developed Into A Commercial Area

Concerning the policy factor, with the inception of the Economic Development Plan in 1961, certain infrastructure developments, such as the construction of a public road, the Nimmanhemin area has been transformed into commercial spaces with a hotel constructed to support tourism. As a consequence, the development of the public roads has not directly affected Nimmanhemin commercially. According to Figure 10, it did not expand to the western side of the city. Unlike Chang-Phuek Road, Nimmanhemin is not linked directly to the centre of the city, there is no transportation hub. Therefore Nimmanhemin's role has been defined by its landowners, as with the establishment of a hotel to concurrently support both tourism and real estate. The Nimmanhemin area was developed through policy as a commercial space, in contrast to the old shopping area which developed as a result of transportation.

In addition, planning is another factor which has impact on the residential area being developed into a shopping area. The Nimmanhemin area was the first example of land allocation for housing in Chiang Mai and its planning was not designed according to the idea of neighbourhood space. At the start of the large-scale planned community, the land was subdivided and sold to individuals who developed it into small increments. Consequently, the new guidelines supported this idea as a neighbourhood unit paradigm to provide a solution to the problem. It is important to city society that local connections provide the key to a large social

and economic network.⁵ Although developers constructed townhouses, Nimmanhemin is regarded as a residential community where a large area was subdivided and sold. In addition, the spatial organisation of the area was divided into personal plots without a central public space and social facilities to represent being part of a community. Shared use of public spaces supports the existence of a community, and accordingly, Nimmanhemin was a fragmented society. Its commercial development provides greater opportunities for supporting users.

Adaptation Characteristic To Support Nimmanhemin's Commercial Role

Nimmanhemin originally played a residential role and has now developed into a successful economic area. This is in contrast to other shopping areas in Chiang Mai which were established according to their ability to trade and develop into merchant communities. Consequently, Nimmanhemin has been the subject of contradictory development from a residential community into a shopping area. The architectural characteristics of Nimmanhemin were created for residential purposes as can still be seen in the majority of buildings in Nimmanhemin. Subsequently, Nimmanhemin was affected by the development of a shopping area and the land having economic value.

Therefore, the buildings in Nimmahemin have been adapted to support commercial enterprises by converting existing structures under the land proprietary rights still held by the landowner. Consequently, the investment needed to create specific commercial buildings does not appear to exist in the area. If the landowner is still alive, there is the potential to create a small building closed to the street for business or to release for rent as a "house with added shop". The transformation the buildings did not affect Nimmanhemin's planning (Figure 11). However, the large area which belonged to the Nimmanhemin family was sold to erect the community mall; a large shopping space which transformed the scale of the area that has new commercial public spaces combined with an increased shopping area.

The land allocated in the east of Nimmanhemin was under multiple ownership and difficult for

⁵ Rofe, Yodan (1995) Berkeley Planning Journal, 10(1)



Figure 10:
Aerial photograph of Chiang Mai from 1931 to 1950 by William Hunt
(map reference from the Library of the Center for Southeast Studies, Kyoto University)

a big investor to occupy. There is a new spatial relationship, changing old private spaces into public areas by demolishing enclosures, levelling and creating linkage space to connect the outside of buildings directly, such as with stairs for pedestrians to the house and pathways approaching the house for direct access from the street. This transformation has affected the scale of the area where the new public spaces have arisen from architectural adaptation (Figure12). Concerning the planning of Nimmanhemin, public spaces have been designated according to the characteristics of a city mall, giving precedence to providing an improved physical and social environment⁶. Following Nimmahemin's

transformation into a commercial area, the existing plan has been divided as a grid line, whereby single houses have had to be adapted for commercial purposes by converting them into public spaces, creating an instant impact. Thus, in the area indicated by a continuous grid line, the increasing public space clearly supports the commercial characteristics and definitive elements of a pedestrianised city mall. Therefore, the adaptation of "houses" or personal private space for commercial purposes is a good way to increase public space for the community (Figure14). Public space is an important element of commerciality, and increases support for the commercial area.

⁶ Harvey M. Rubenstein (1987), Central City Mall

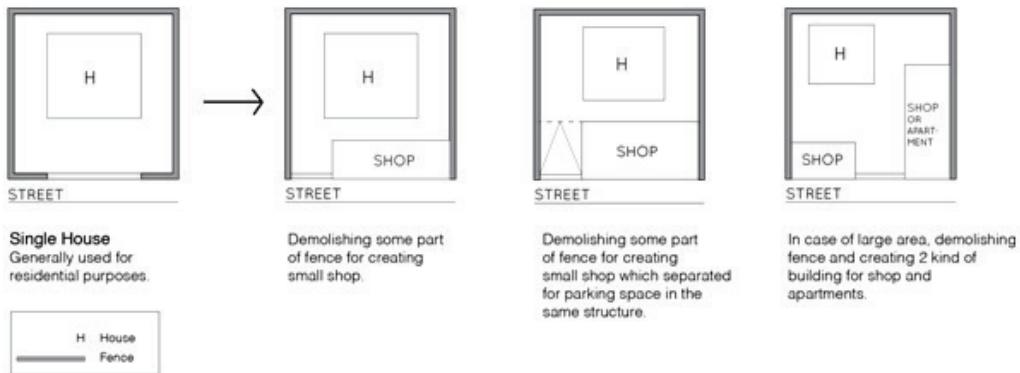


Figure 11:

The diagram of house created public space for commercial purpose but street (public space) could not be linked directly due to it was block by building.

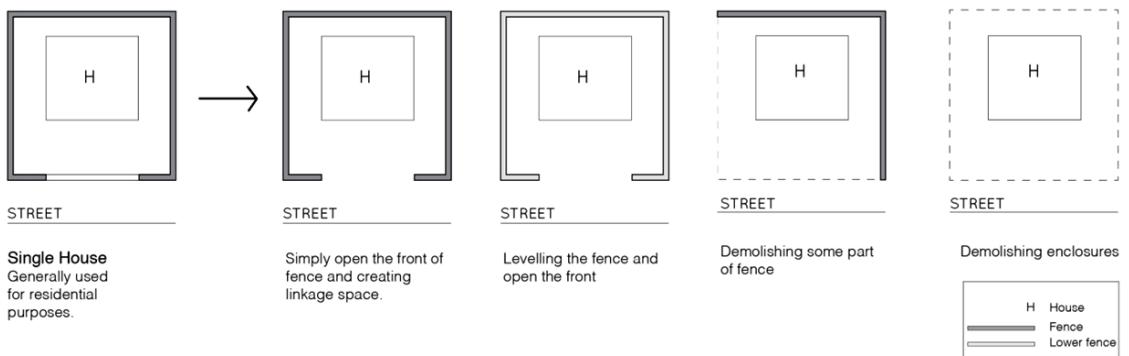


Figure 12:

The diagram of street (public space) could be linked directly to single house space from house adaptation

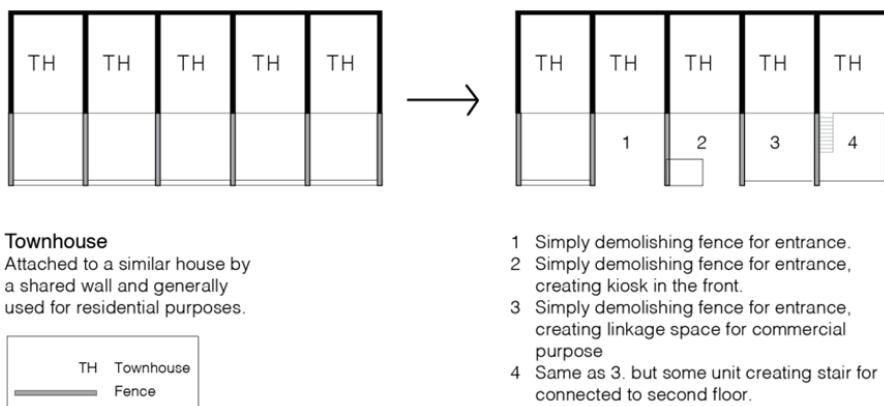


Figure 13:

The diagram of street (public space) could be linked directly to townhouse space from townhouse adaptation



Figure 14:

The diagram of the adaptation of "houses" for commercial purposes is a good way to increase public space for the community.

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