

CHAPTER 3

Urban planning Dynamics and Historical Context

This chapter covers aspects of urban planning relative to comprehensive plan, especially Chiang Mai comprehensive plan that is detailed for the related content with Wat Ket area. The conflicts on the comprehensive plan in Wat Ket area are also described.

3.1 Urban Planning

Urban planning is measure of the government as a main guide to control physical development of urban areas for suitable and sustainable goals. Policies and development plan are formulated for optimizing land use, resource consumption and residential environment to maximize profits and conform to unique characteristics and identity of each city within resource limitation accompanying with concern public participation, economic development and cultural diversity.

Urban planning was firstly adopted in Thailand in 1935 by Country Planning Division, Department of Public and Municipal Work, Ministry of Interior. The 1st Town and Country Planning Act of Thailand was established in 1952. Then, the 1st National Economic and Social Development Plan for 1961-1966 was emerged and focused on infrastructure development (e.g. water, electricity, road and employment). After that, material prosperity was rapidly expanded throughout the country. However, the absence of urban planning in many provinces caused directionless and chaotic urban sprawl. Thus, City Planning Bureau was emerged as separated section of Department of Public and Municipal Work under Ministry of Interior. The bureau had responsibility to operate country planning through local participation and opinion. Later, the bureau was changed to Department of City Planning that had responsibility of urban planning activities. Then, the Town and Country Planning Act 1975 was promulgated (Department of Public Works and Town & Country Planning, 2006).

3.1.1 Town and Country Planning Act B.E.2518 (1975)

Main Points of Town and Country Planning Act

- 1) The act includes master and specific plans.
- 2) Authority on town and country planning is Department of Public Works and Town & Country Planning (DPT) and municipal government (i.e. provincial administrative organization, municipality, Bangkok and Pattaya).
- 3) Board of town and country planning consists of 7 committee members, 7 qualified persons and 7 representatives of independent institutes or organizations. All members of the board have duties to approve the plan, give advice, consider a complaint of stakeholders and appoint the subcommittee.
- 4) Ministerial regulations that are promulgated come into operation for 5 years and can extend for another 5 years or renewal within 2 times in each year extended. The structure of ministerial regulation includes:
 - Boundary map
 - Land use map
 - Road system lay-out plan
 - Specification of land use plan
 - Specification of road system plan
 - Land use regulation
 - List of factories

Types of Plan

Master plan or comprehensive plan is general guide that consists of plan, policy, project and measure of general control for supporting and maintaining physical, economic and social development of town and related areas. Comprehensive plan provides the main land use concept for local officials or land owners to arrange land correctly and created a specific plan that conforms to the comprehensive plan. However, comprehensive plan can be skipped in case of the specific plan can be rapidly accomplished. For unhurried specific plan, comprehensive plan should be served as a guide of land use plan in the area for methodical development by establishing under the ministerial regulation.

Beside comprehensive plan, the lower-level plans include regional plan and development plan that consists of provincial structure plan, urban plan, community plan and specific plan. The lowest-level plan is suggestion plan that consists of municipal plan, local plan and special plan. Development plan is important especially urban plan that is the model scheme of land use. Urban plan is created by DPT, which then Provincial Office of Public Works and Town & Country Planning appoints local administrations (i.e. city municipality, municipal district and local government) as plan authority. Specific plan is applied on specific area and affects the right of persons that why the plan has to promulgate under the act (Department of Public Works and Town & Country Planning, 2004). Specific plan was unable to proceed in the 1975 act of Thailand.

Preparation for Comprehensive Plan

Principle of preparing and making comprehensive plan is operated systematically that is determined in the law to achieve the defined policies, objectives and goals of the national development plan. The main steps for preparation that are provided in Town and Country Planning Act 1975 are shown below:

1) Analyzing community problems and requirements

Public problems on dissatisfaction with impairment and deficiency are considered, whereas public requirements are provided in the plan. Survey on the problems and demands can proceed by listening to opinion and complaint of local people, learning situation and trend change in the area, and considering development policy and goal in the country and regional plans. The apparent operation received from problem analysis.

2) Developing plan goals and objectives

Goals determine what happen from the plan, whereas objectives are accomplished following the goals. Plan goals and objectives have to response community needs on creating the new things or resolving the problems and have to clarify the requiring points. Formation of goals and objectives is sometimes operated as the first step in case of developing community plan following country plan.

3) Collecting and analyzing data

Collected data on the situation and environment are evaluated to develop the area and resolve the community problem according to the setting goals and objectives. Environmental data of community on both natural and artificial creations is needed for urban planning. Environmental condition determines economic and social habits. Existing statistics and reports including data from direct surveys are data sources. All data are evaluated and analyzed according to the procedure to understand current situations and predict future trend. Data collecting and analysis help finding the fact that leads to reconsidering the existing goals and objectives or creating the new clearer ones.

4) Generating comprehensive plan

To respond goals and objectives, the data are gathered, analyzed and involved for reasonable city planning that can be the possible operation when the plan includes public vision. Public concern helps ensuring community adoption and implementation.

5) Adapting the plan

Successful implementation of comprehensive plan has to specify the order of operation appropriately to succeed the setting goals and objectives, which help spending resources and budgets efficiently.

6) Monitoring and assessment

Because comprehensive plan bases on prediction and creates adoption plan by relative projects, monitoring is needed for updating the adoption plan and project and for assessing the outcomes of the plan, which may be proposed in the process for changing the plan.

3.2 Chiang Mai Comprehensive Plan

The 1st comprehensive plan of Chiang Mai was promulgated in 1984 and enforced for 5 years (1984-1989) to be a guideline for development and maintenance urban area and related or rural area in term of property use, transportation, public utility,

public assistance and environment to be the significant city in Upper Northern Thailand following the National Economic and Social Development Plan. Later, City Planning Department under Ministry of Interior created another Chiang Mai comprehensive plan in 1989, which the plan covered area of 100 km² in 3 districts with 19 sub-districts (Muang District: 16 sub-districts; Mae Rim District: 1 sub-district; San Sai District: 3 sub-districts). The comprehensive plan was developed according to the 7th ministerial regulation and was extended for a year twice until 1996. Later, another comprehensive plan was enforced during 1999-2004 in area of 429 km² (Figure 3.1), which then was extended for another 2 years and expired in December 19, 2006. The main point of the 2nd comprehensive plan is that the private sector caused land use change aside middle and outer ring roads including other areas from agricultural zone (green zone) to low-density residential zone (yellow zone; The Public Works and Town & Country Planning of Chiang Mai Province, 2004). The government desired to stimulate the important of Chiang Mai, which is the significant bastion and the hometown of the Prime Minister at that time, to be a capital city of northern region or be civilized as same as Bangkok. Therefore, many megaprojects were established in Chiang Mai, such as Night Safari and international exhibition and convention center. In addition, the areas aside middle and outer ring roads were used to support the urban growth according to the government policy because the center area of the city was conservation zone that the development was restricted. The real estate development in all over the Chiang Mai area affected highly rapid growth of the city (Department of Public Works and Town & Country Planning, 2008). The following government also emerged the same development policy.

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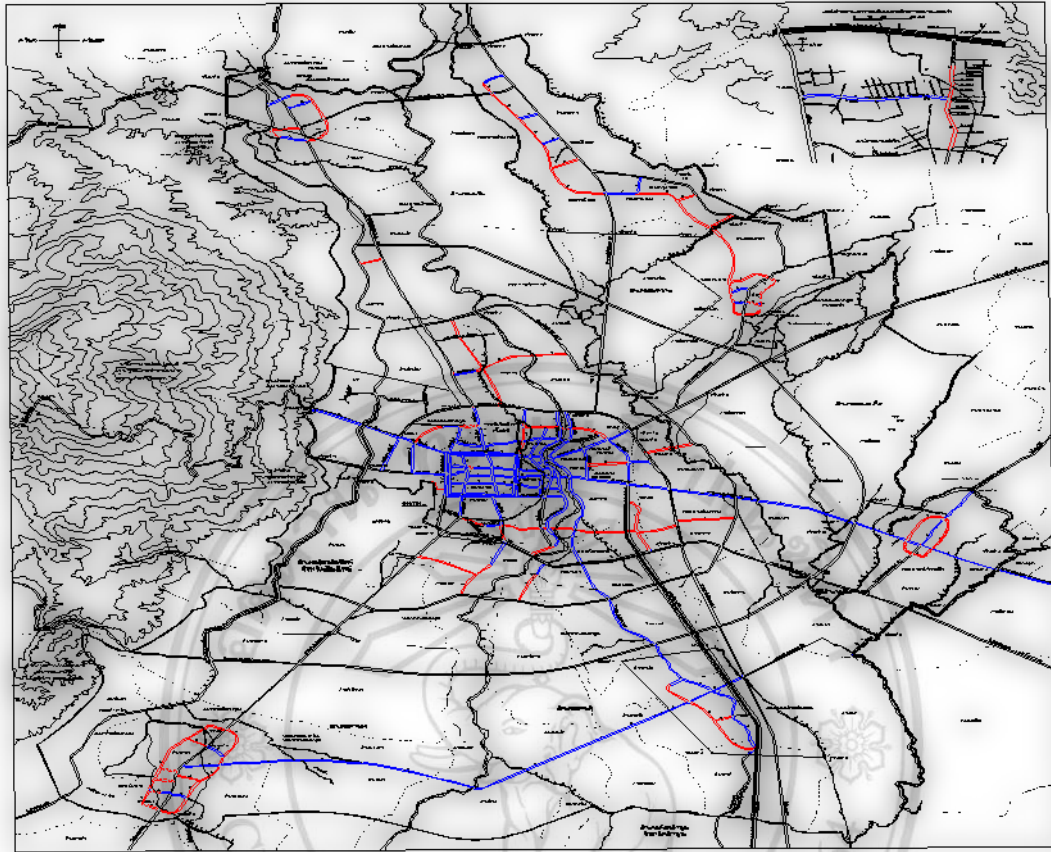


Figure 3.1 The area of the 2nd comprehensive plan (1999-2004) of Chiang Mai according to the 7st ministerial regulation 1999.

3.2.1 The 3rd Comprehensive Plan

The 3rd comprehensive plan is current plan of Chiang Mai that provides the detail of land use for Wat Ket area, which is the study site of this research. The plan differs from 2 previous revisions in term of 4 main points as follow:

- Chiang Mai is the old city (more than 700 years old) as a capital of Lanna, which the center area of the city has old wall and moat with many ancient remains. Development and construction of high buildings in the center area to create a smart city are unsuitable for the area that should be conservation zone.
- Chiang Mai can be the center of upper northern region because of its potential to be the hub for economy, transportation, education and health.

- Agricultural zone around the city center is used for real estate development, which new megaprojects on housing estate are constructed near three ring roads for mainly supporting economic development.

- Infrastructure and transportation network that connect all areas can support urban expansion to outskirts especially in the East of the city (Sarawut Lt. Lee Hughes, 2008).

Main Point of the Plan

The 3rd comprehensive plan was promulgated in the government gazette on May 21, 2013 for enforcing during 2013-2018 with covering area of 429 km². The goal and objective of the plan were creation of model scheme for clarity and unity of integrated development by emphasizing people participation, cultural identity of Lanna, strength of community and connection of infrastructure and transportation network that covered all area, were convenient, safe and save expenses. In addition, the plan aimed to conserve, protect and restore natural resource and tourist attraction for abundance and sustainability of nature, culture, tradition, architecture and way of life in order to support outstanding service, tourism, handicraft, industry and agriculture. Pollution-free agriculture that was accepted by international standard supported continuous activities to distribute income for maintaining limited valuable agricultural area and conserving unique lifestyle of local people. Moreover, the plan strengthened Chiang Mai to be the center of health, software industry and foreign trade including be the hub of economy and transportation with Mekong sub-region (GMS) and South Asia (BIMSTEC).

Conceptual Design of the 3rd comprehensive plan

1) Urban expansion tends to move through the East in the outskirts that is planned to construct new airport to shift urban growth from the city center for decreasing urban congestion, which currently makes Chiang Mai looks like Tokyo.

2) Land use zone that is categorized according to specific condition and suitability of the area includes residential, industrial, agricultural, recreational, environmental, economic, historical and building control zones. Development zone has to concern natural resource conservation and preserve the reserved forest, headwater and wetland

for ecosystem balance. In addition, development should conserve the ancient remains that refer to valuable history, culture and architecture. Agricultural zone should be protected and restored to suffice for community demands. Modern technology should be used to generate the highest efficiency of land use. Role of community should be strengthened and developed to perform the role effectively. Community system should be created to help generating group of community for benefiting investment, infrastructure fund, public assistance and public utility by constructing green zone in the community and managing residential zone to locate near working zone and adequate to people demand.

3) Transportation network connects and facilitates city access by acting as the aviation hub of the region and the logistic hub with Mekong Sub-region and South Asia. Water transportation should be developed for tourism. Land transportation system also should be developed and improved by supporting public transport or mass transit in the city, managing parking space system and connecting transport system among communities. Effective transport system help conserving natural resource, protected area, headwater stream and ecosystem balance to be healthy city.

4) Old town in the moat is categorized as a zone for conserving buildings and ancient remains, which construction of high building and inappropriate building with identity of old town should be restricted.

5) Logistic hub that is designed for land, water and air transportations to transfer the passengers and goods should has transition with the other transportations, such as trail transport system, high-speed rail system, the 3rd and 4th ring roads, and airport link system to new airport. Water transportation in Ping River should be enhanced by dredging the channel for convenience of navigation. Each zone should be combination of the strong point of each existing system that is connected as logistic network and supported by one another.

6) New economic zone and BRT around the 2nd and 3rd ring roads should be generated because the area is adequate for real estate development and can support new megaprojects on housing estate.

7) New tourist attractions in suburb area aside the 3rd and 4th ring roads should be promoted because the area were designed to support megaprojects, such as formula one circuit, science museum, Buddhist diocese, Water Park and aquarium projects, and new airport. The tourist attractions will locate near border of Lamphun Province and can use airport link system to transport passengers and connect with transport system in the city including high-speed rail system from other dominant provinces. All projects accompanying with public water transport system in Ping River will attract both Thai and foreign tourists including a lot of immigrant. However, large number of immigrant and hidden labor from ASEAN that have to share public utility, public assistance, transportation and communication should be concern in comprehensive plan.

Land Use Zone

Conceptual design categorized land use zone distinctly. Chiang Mai comprehensive plan separates area of 25 districts with provincial boundary into 5 zones according to level of development and conservation as in Figure 3.2.

1st zone (pink zone) is the urban area that covers residential zone near the 1st – 4th ring roads, which support real estate development and emerge many new megaprojects of housing estate. Economic zone specifies the area outside the moat as high-density residential zone that has many shops and large department stores. The area situates around Chareon Rat, Chotana and Nimmanhemindra Roads that will create new famous tourist attractions.

2nd zone (green zone) is agricultural area that is rural agriculture and locates in Mae Taeng, Mae Chaem, Mae On, Sa Moeng, Mae Rim and San Kamphaeng Districts.

3rd zone (white with green stripe zone) is the rural and agricultural conservation zone, which can be agricultural area, recreational area, conservation area or economic area. The zone covers Baan Tawai, Mae Rim, San Sai and Doi Saket Districts, and suburban districts that most of areas are in the mountain.

4th zone (forest green zone) is specific for forest under the National Reserved Forest Act. The areas of National Park, Wildlife Sanctuary and plant conservation have to control high-building construction. Mae On, Sarapee and suburban districts are

covered in the zone for conserving natural resources, maintaining conserved forest, headwater, stream and wetland, and protecting ecosystem balance.

5th zone (*open space area*) for preserving environmental quality may be headwater area, wetland, reservoir, river, canal or historical area. The area inside the moat that is old town is conservation area. The area outside the moat is also conservation area for buildings and ancient remains, such as Wiang Chetlin, Wiang Kumkam, Wiang Suandok and area of Wat Ket, Kad Luang, Kaew Naowarat, San Pakoi, Chang Phueak, Ban Den and Doi Saket including community of Luang Nuea, Buak Khang and Bo Sang.

Land Use Regulation

1) Land use classification as in land use plan consists of:

- Conserving for residence
- Low-density residential area
- Medium-density residential area
- Commercial area and high-density residential area
- Specific industrial area
- Rural and agricultural area
- Open space for recreation and environmental quality conservation
- Educational area
- Conserving for supporting identity of Thai tradition
- Institute of religion
- Government institute, public utility and public assistance

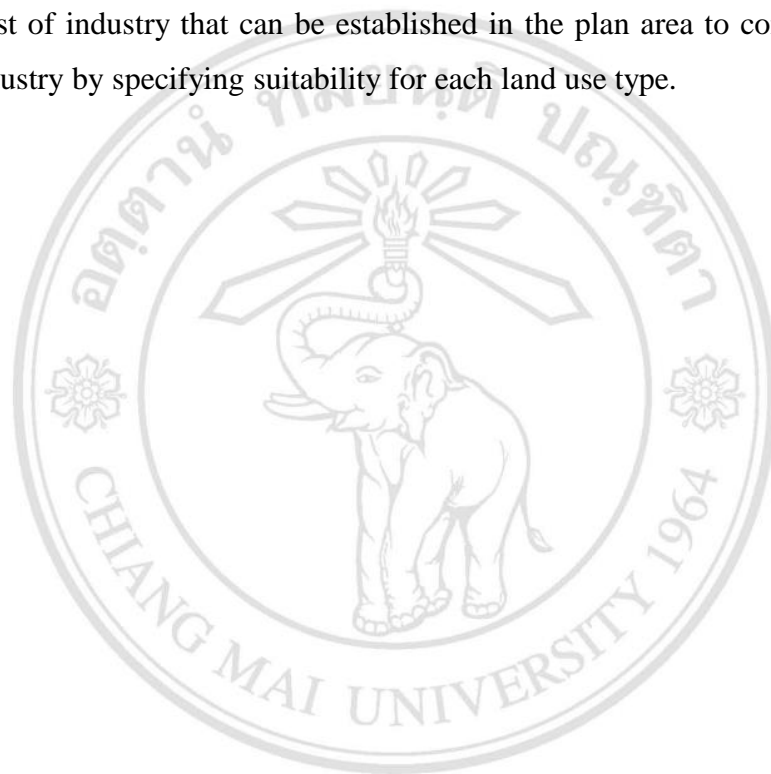
2) Level of building height restriction is varied (i.e. <6m, 9m, 12m, 15m and 23m) to conserve, maintain and protect city value, such as ancient city, old town, old temple, scenery and townscape.

3) Building size limitation for large building (>1,000 m²) in Wat Ket and Faham areas to control building and population density.

4) Open space limitation in land means control on land use and construction to have more than 50% open space per plot, which the regulation is for the area around Nimmanhemindra Road.

5) Control on distance from river, stream, canal and public waterway according to the law of Marine Department and urban planning. The distance of 3m and 6m is used for the area throughout Ping River.

6) Creating list of industry that can be established in the plan area to control type and size of the industry by specifying suitability for each land use type.



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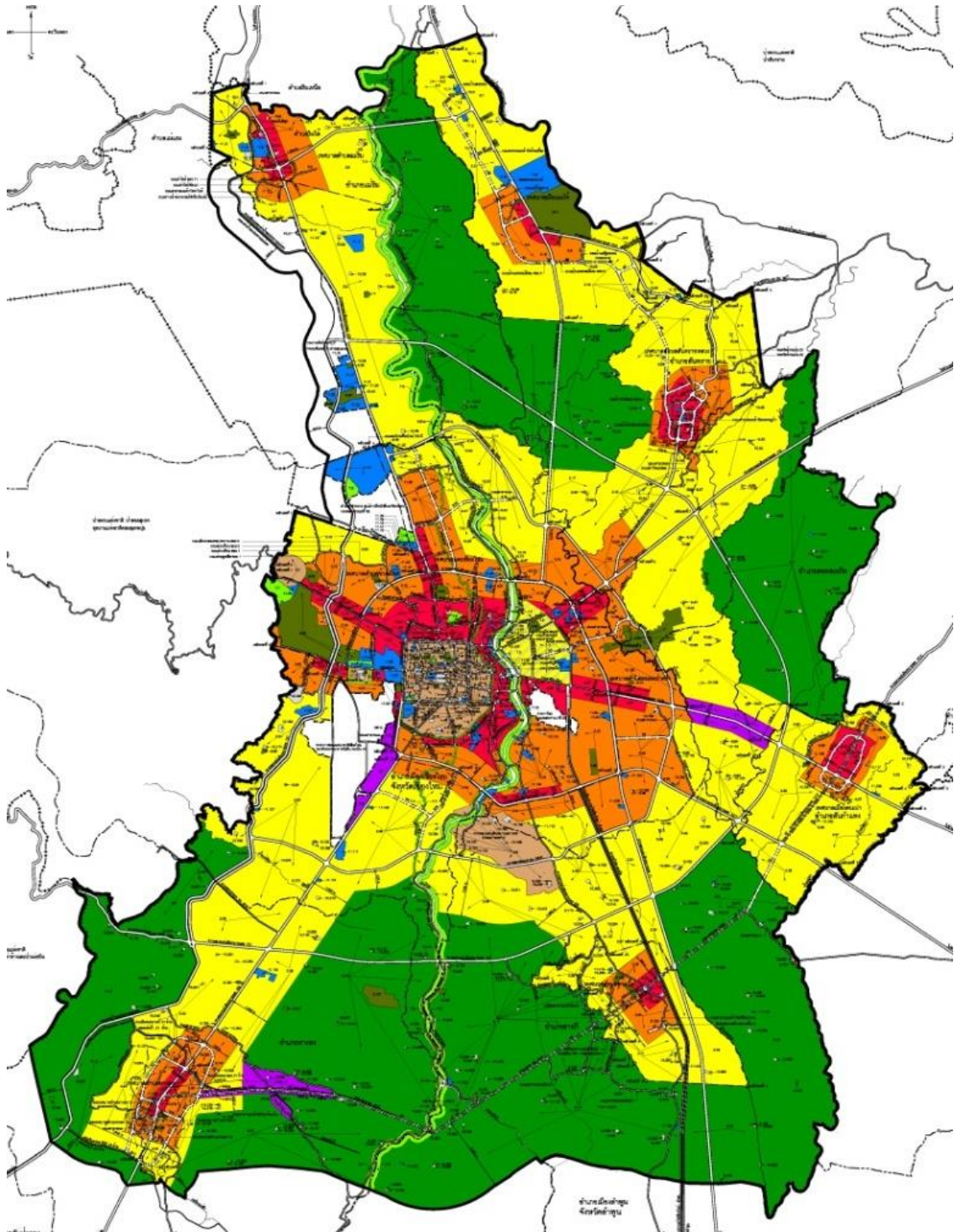


Figure 3.2 Chiang Mai comprehensive plan (3rd revision B.E. 2555) that is enforced during 2013-2018 (Department of Public Works and Town & Country Planning, 2008).

Data for Preparing the Plan

The data for preparing Chiang Mai comprehensive plan (3rd revision) as below were surveyed by asking stakeholder committee of the plan and reviewing literature.

1) Topographic map with UTM grid and scale of 1:4,000 was used as a base map for 2004-2007.

2) Digital orthophoto map was received from Land Development Department in 2002. Digital elevation model from digital aerial imagery was used with detail of 3D visualization from stereo photogrammetry. Every sign (e.g. building, transportation, water source and construction data) was created following digital aerial imagery.

UTM topographic map and digital orthophoto map with Geographic Information System (GIS) were used for planning many fields (e.g. land use, public utility, public assistance and measure of the plan) to support overview of effective water management.

3) Engineering data on transportation, survey, civil, electricity and water supply were collected and surveyed in actual area, which then the data were analyzed.

4) Transportation data were used to analyze the condition and requirement of each road. For example, car numbers at intersection of Chareonrat, Nakhonping, Bamroongrat and Charoenmuang Roads were recorded in 2005-2006 by using automatic recording tool and manual counting method to evaluate the use of each car from origin to destination of each road in planning area.

5) Data on physical geography and ecosystem included physical characteristics that were topographic feature, rock and soil structure, elevation, slope, natural draining system and air flow to Chiang Mai basin including natural disaster, such as flood, drought and smog. The data during 2005-2006 were recorded in maps and statistical reports of Royal Thai Survey Department, Thai Meteorological Department, Royal Irrigation Department, Land Development Department, Department of Mineral Resource and Royal Forest Department.

6) Data on land use and building from the past to the present were used, but the data had to be corrected and updated by survey and monitoring in actual area. The data

consisted of building location, height, size, condition of use and dominant buildings during 2004-2007. Source of the data came from DPT and local government.

7) Data from Ministry of Transport consisted of transport route map, public utility and assistance, electrical system, water supply system and communication system including land, air and water transport system. The data had details on location, size, service capability, current condition, problem, obstacle and extension plan. All data were showed on the map of land use in GIS to find the area that lack of public utility and assistance.

8) Population data during 2004-2007 came from boundary map (1:5,000 and 1:50,000) of National Statistical Office and Civil Registration Section that had online data on population number that was classified by village. The data included update and historical data (about 10-20 years ago). Data on hidden labor was used to predict demographic situation in the future.

9) Data on policies, programs and projects included transport development plan that related to comprehensive plan during 2004-2006 to specify land use in the future for development or change on the land according to the policies, programs and projects.

10) Economic data during 2004-2006 consisted of raw material, product, labor, occupation, income and outcome of people and locality, private and government investment projects and local economic problems. The data were received from office of provincial industry, provincial commerce, provincial labor, municipality, district and province.

11) Data on problem and requirement of people were collected before and after operation of comprehensive plan. The data were received from community meeting and forum on November 5, 2008.

12) Social data consisted of historical data of community, social characteristics and area data that have historical, cultural and architectural value. The data were established and mapped by Fine Arts Department on map of conserved old town and map of wall and moat.

Preparation of the 3rd Comprehensive Plan

Urban planner evaluated and promoted the collected data on GIS map to conclude causes of the problem, predict population number and analyze environment and potential. In addition, the data were analyzed by SWOT analysis as below to consider potential, problem, obstacle and opportunity on land development.

Strength was the result of internal factor that related to environment of suitable land for development, which included area aside the 1st - 4th ring roads, area outside the moat and the East of Ping River (area of Wat Ket, Kad Luang, Kaew Naowarat, San Pakoi and Chang Phueak). In addition, agricultural area around the city can be the food source for supporting people in the city and be the raw material for industrial sector.

Moreover, old town with more than 700 years old that had natural environment, forest and Natural Park as the attractions for tourists gave benefits for Chiang Mai economy.

Weakness was the result of internal factor that was limitation of development. Because the government policy planed Chiang Mai that is old town to be a center of development and hub, the conflict between local people and immigrants was occurred. Old town areas that should be conserved and were affected by development included Wiang Chetlin, Wiang Kumkam, Wiang Suandok and Ching Mai city wall and moat.

Opportunity came from external factor of development area that covered share border area between Sarapee District and Lamphun Province which still has more space and will be located new airport.

Threat was obstacle and unsuitable condition for development, which were economic influence and high purchasing power of Chinese tourists on Chiang Mai condominium and Zero Dollar Tour. In addition, mobility of labor in ASEAN community caused crime problem and increase on slum in Chiang Mai. Limitation of land use was also a threat because the foothill of Doi Suthep covers conservation area for natural resources and forest including Ratchaphatsadu land for military usage.

The analysis result was used for creating urban plan, comprehensive plan or land use plan. Data, analysis result and planning standard by DPT were considered to

generate comprehensive plan. Urban planning also included vision on development, role and land use pattern of municipality or District Administration Office. Creation of land use determination that specified permit and prohibit activities in each land use pattern supported development in municipal or sub-district area, public utility and assistance system, and transportation system.

Advantages of the 3rd Comprehensive Plan

1) 3D planning is used in building height restriction that has the details below.

- Green zone: maximum height is 12m measuring from base to top.
- Blue zone: maximum height is 15m measuring from base to top.
- Distance of 100m around area of temple, church or mosque: maximum height is 9m.
- Skyline: for Doi Suthep that is the area of natural resource conservation high building that block Doi Suthep view is restricted to support tourism and maintain image of historical city.
- Building height restriction supports air flow to relieve intensity of air pollution.
- Building height restriction help local people from light and wind obstruction and privacy disturbance.

2) Conservation area between earth wall and inner wall at Wiang Chetlin and Wiang Suandok is increased for preserve cultural heritage as historical and cultural learning center and new tourist attraction. Conservation area for environmental heritage is also increased by extending conservation area in Wat Ket from 2,000 land plots to 2,500-3,000 plots.

3) Wat Ket area is changed from red zone (commercial and high-density residential area) to yellow with white stripe zone (conserving for residence) for remaining well-being of community. In addition, expansion of Charoenrat Road is canceled.

Disadvantages of the 3rd Comprehensive Plan

1) Road expansion is planned for 35 roads to resolve traffic congestion in city municipal area.

2) The plan still uses percent of area in regulation. For example, in case of low-density residential zone that can use maximum area of 15% for other activities, if the area still has space for building, high building can be constructed that will cause the same conflict as in the past.

3) Enforcement of the plan is still responsibility of local government that cannot be checked and controlled by DPT.

4) Transportation planning bases on the use of car and private motorcycle, whereas motor transport (e.g. pedestal and bicycle lane) and public transport are absent (Department of Public Works and Town & Country Planning, 2008).

3.2.2 The Effects of the 3rd Comprehensive Plan on Wat Ket Area

The 3rd comprehensive plan causes many problems on Wat Ket area that has specific history, archaeology and culture. The area may be disappeared and remain only in the museum, old books and archives because the plan mainly focuses on economic importance that extremely changes way of life of Chiang Mai people. Although the plan states conservation area for many communities (e.g. Wiang Chetlin, Wiang Kumkam, Wiang Thakan, etc.) that local people in the area pay attention to maintain the value of their old towns, Wat Ket community that has the same characteristic with those areas is defined as commercial and high-density residential zone (or red zone; Figure 3.3). Establishment of red zone in Wat Ket may highly support economic building construction and investment expansion including change property ownership form local people to capitalist. Thus, Wat Ket people concern the impacts of changing Wat Ket area to red zone because Wat Ket community has long history and are integrated various cultures, traditions, way of life and architectures that are Wat Ket identity. Moreover, the comprehensive plan has road widening plan in Wat Ket area from 6m to 20m wide that will extremely affect local people and change Wat Ket area to urban area absolutely. In addition, the government tries to use the legitimacy on urban planning

and obstruct actual participation of the community in considering progress. Therefore, protestation on the plan by Wat Ket community was occurred on February, 2008 when DPT prepared to promulgate regulations and specification of the plan. The protesters gave an opportunity to interested people that included stakeholders and affected persons for requesting modification, alteration or cancellation of the plan within 90 days. Technocrats and Wat Ket local people that knew the details and impacts of the comprehensive plan took action on protecting the right of local people by forming a board of Wat Ket community to inform the impacts to other people. Then, a group of community leader, technocrat and private sector was formed and cooperated with Wat Ket villagers to use the human rights as tool for calling justice. Meeting of community and other people was managed on November 5, 2008 and collected the complaint to offer provincial authority for reconsidering the plan before enforcement of land use zoning (Department of Public Works and Town & Country Planning, 2008).

Wat Ket resistance had unity of committee and local people including knowledgeable persons that supported and operated without any payment. In addition, support fund was donated for operating activities that made handbill, brochure and billboard including managed meeting for community opinion to create main method of the resistance. Moreover, distinct scientific data was given by opposite group of urban planner of DPT, which the group focused on urbanization and the leader was from Raks Baan Raks Muang Group (Love the Home, Love the Town Group). Method of the group was the use of scientific data and research on urbanization or social and cultural landscape factors of the area that were collected from actual physical condition and local people requirement as evidence based data.

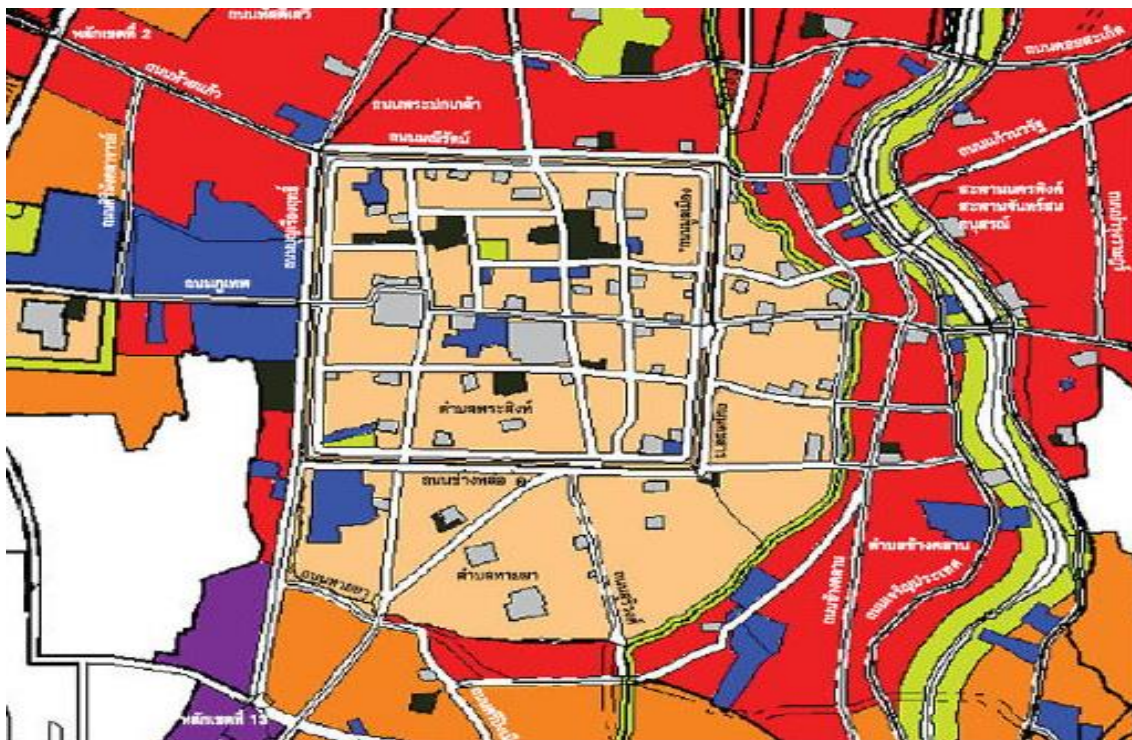


Figure 3.3 Map in Chiang Mai comprehensive plan (3rd revision) shows that Wat Ket area is in the red zone.

Community Argument on the 3rd Comprehensive Plan

1) Resistance committee on against the comprehensive plan collected research data on opinion of Wat Ket community that included:

- 359 persons (95% of all persons) disagreed on high building permit (height of 30 m or 8 floors)
- 80% of people needed to participate in urban planning with DPT
- 85% of people accepted ecofriendly construction that had no impact on way of life of local people and corporate social responsibility (CSR).

2) Data of Social Research Institute, Chiang Mai University that survey opinion of 300 people in Wat Ket area concluded that local people preferred the quiet residence, which had no high building and land use for other activities.

3) Research report on Chiang Mai sustainable city of Dr. Duangchan Aphawatcharut concluded that 87.9% of Wat ket local people agreed with the notice of Chareonrat Road as historical road and living history area leading to peaceful life of

community and conservation of natural resource and culture, which differed from the 3rd comprehensive plan (Duangchan, Aphawatcharut Charoenmuang, 2006).

4) The planner did not ask for the social and historical data from knowledgeable people of Wat Ket community that are a good primary data source for planning in spite of the data referred to the value of history, culture, architecture and social features.

5) Wat Ket area can be categorized as yellow with white stripe zone according to 3 criterions of DPT that include:

- Old town and traditional community
- Surrounding by area of ancient remain and significant historical area
- The area without industrial land use and has beautiful landscape

6) Conservation area can coexist with being regional hub on economy, transportation, education and health. Thus, Wat Ket area can be categorized as conservation area that did not go against with the policy. In addition, local people stated that Wat Ket area should be conserved because houses and old buildings are valuable. The study in 2010 by villagers and Local Units for Conservation of Natural and Cultural Environment that surveyed requirement of Wat Ket local people concluded that Wat Ket area should be conservation area for natural resource and art. Moreover, Wat Ket area was recognized by the Association of Siamese Architects by receiving the Architectural Conservation Award in residential category in 2005 from Her Royal Highness Princess Maha Chakri Sirindhorn. Therefore, Wat Ket area should be classified as cultural conservation area instead of commercial and high-density residential area. Public Policy Studies Institute of Chiang Mai University drafted municipal law that defined Wat Ket area as conservation area to concordance with the comprehensive plan. The law was planned for Chiang Mai Municipality to promulgate on July 18, 2010 by Ministry of Interior during the legal vacuum after expiration of the previous comprehensive plan on December 19, 2011. However, the law was unused and Chiang Mai was in legal vacuum for 5 years.

7) New-build houses have the unmatched pattern and color with old building and existing environment creating visual pollution and decrease on beauty of art. Increase on new houses was a result of changing social unit to nuclear family and

changing building usage from house to shop for rent and own operation. Although the house building was increased, population number in Wat Ket area during 1998-2010 tended to decrease because high education of young people increased a chance to work in other areas that may separate with their family in the hometown and remain only the old people in the Wat Ket area.

Information from DPT that Conflicted with Wat Ket Community

Every revision of Chiang Mai comprehensive plan stated that area of conserving building and ancient remain prohibited construction of high building and unmatched building with identity of old town inside the moat. Wat Ket area that formerly situates railway station and will be used as the main station of high-speed rail is possible to support commercial development. In addition, Chiang Mai was planned in development policy as the regional hub of economy, transportation, education and health that will benefit the community. Wat Ket area has been categorized as red zone or commercial and high-density residential zone since the 1st comprehensive plan in 1984, which five criterions for specifying red zone include:

- Area in the main center or secondary center for convenient transportation
- Area should be safe for flood and well drain
- Road is wide enough for convenience of vehicle use
- Area has common services completely
- Area does not locate in legal conservation area for natural resource and environment

Wat Ket area was categorized into red zone or commercial area according to the population density rule of DPT, which the database of population density from DPT indicated Wat Ket area with density of 36-53 person/rai, whereas data of Wat Ket community stated that the department presented the density of 108 person/rai.

3.3. Conclusion

DPT classified Wat Ket area as red zone according to procedure, data and rule of urban planner, whereas Wat Ket community had data for resistance. After comparing the method and data on land use zone classification, the main point of data from both DPT and resistant community is showed in Table 3.1.

Table 3.1 Comparison of method and data on considering land use zone in Wat Ket area form urban planner of DPT and Wat Ket community

Method and data of urban planner (DPT)	Method and data of Wat Ket's resistance
1. Use academic data that conform to urban planning of DPT before creating comprehensive plan (cover Wat Ket area). - Topographic map with UTM grid and scale of 1:4,000 and digital orthophoto map in GIS for creating large scale plan	1. Without official map but collecting data from the fact, experience, potential on land use and area problem, which are direct data. In fact, Wat Ket area is mix of old and new things, which are balanced and consistent, whereas Chiang Mai urban planning ignores this factor.
2. Collect necessary physical data for urban planning, i.e. engineering data on transportation, civil, electricity, communication and water supply.	2. Without engineering data on transportation, civil, electricity, communication and water supply but emphasizing on road widening from 6m to 20m because of red zone classification that extremely troubles local people.
3. Land use and public utility: 3.1 Data on land use and building both in the past and present 3.2 Transportation and traffic including capability of each road to support the traffic.	3. Potential of the area on diversity of different religion and tradition that can coexist for a long time and become the identity of community. Research data stated disagreement of high building permission (height of 30m or 8 floors), while had agreement of ecofriendly building that is unaffected way of life to former resident and has CSR.
4. Online population data in Wat Ket area from Civil Registration Section shows population density of 36-53 person/rai and hidden population that are used as database to predict population situation.	4. Watket population during 1998-2010 tended to decrease, while house number and hidden population as labor increased. Survey data found the population density about 7.5 person/rai less than criterion of DPT
5. Development policy on Chiang Mai as the regional hub of economy, transportation, education and health.	5. Being the regional hub on economy, transportation, education and health can coexist with conservation area. Thus, Wat Ket area can be categorized as conservation area that did not go against with the policy. In addition, Wat Ket area won the Architectural Conservation Award in residential category in 2005, which was ignored in the urban planning.

Table 3.1 (Continued)

Method and data of urban planner (DPT)	Method and data of Wat Ket's resistance
<p>6. Wat Ket area has to be red zone according to 5 criterions of DPT: (1) Area in the main center or secondary center for convenient transportation. (2) Area should be safe for flood and well drain. (3) Road is wide enough for convenience of vehicle use. (4) Area has common services completely. (5) Area does not locate in legal conservation area for natural resource and environment.</p>	<p>6. Wat Ket area can be categorized as yellow with white stripe zone according to 3 criterions of DPT: (1) Old town and traditional community. (2) Surrounding area of ancient remain and significant historical area. (3) The area without industrial land use and has beautiful landscape. Although it is the same criterions, the data usage is different leading to high difference of result of land use regulation.</p>
<p>7. Problem on requirements of the area</p> <p>7.1 Data on problem and public requirement before and after plan operation.</p> <p>7.2 Social and historical data of community that are historical, cultural and architectural value are collected from secondary data.</p>	<p>7. Survey community requirement in actual area, whereas urban planner did not operate seriously.</p> <p>7.1 Without data on problem and public requirement before urban planning.</p> <p>7.2 The planner did not ask for the social and historical data from knowledgeable person of Wat Ket area that will be a good primary data source for planning in spite of the data refers to the value of history, culture, architecture and social feature.</p> <p>7.3 The planner ignores research data that offers public participation on plan operation and agree announcement of Charoenrat Road as historical road and living history for peaceful live of the villagers and conservation of Chiang Mai natural resource and culture.</p>

Comparison of method and data for land use zone classification in Wat ket area as in Table 3.1 shows that the method an data of DPT focused on physical development and urban growth, which used supporting data from topographic map and digital orthophoto map in GIS for creating large scale plan by assessing engineering data on transportation, civil, electricity, communication and water supply and concerning the potential on transportation, traffic, public utility and public assistance according to the

policy on developing Chiang Mai as the regional hub. All data were considered with the data from Civil Registration Section that showed Wat Ket population density of 36-53 person/rai leading to classification of Wat Ket area as red zone (according to 5 criteria).

On the contrary, data of resistance group of Wat Ket community were not physical data but used data from direct experience. Some data on urban development, land use, transportation and communication were argued. For example, population density data from DPT that showed 36-53 person/rai differed from survey data of the resistance group, which stated density of 7.5 person/rai. In addition, some research data reflected the fact, such as disagreement of high building permission (height of 30 m or 8 floors) and road widening into 20 m wide that will extremely trouble local people. Moreover, the resistance group agreed with ecofriendly construction and unaffected way of life to traditional resident and would like to participate in plan operation because the previous operation by DPT just perfunctorily took the action on public participation according to the government regulation.

In summary, Wat ket area firstly was categorized as red zone for commercial and high-density residence but the resistance of Wat ket community introduced reconsideration land use zone of Wat ket area from red zone to yellow with white stripe zone for conservation and residence. Urban planning consisted of two groups of stakeholder. The first group was urban planner from DPT that used method, pattern and direction or conceptual design focusing on physical landscape for land use planning in Wat ket area. The second group resisted the operation of urban planner of DPT and focused on urbanization data that used academic and research data on urbanization and factor of social and cultural landscape as the main data. Because comprehensive plan has to be developed by integrating data that related to plan operation and caused the direct and indirect effects on urban planning, the data should be collected both primary and secondary data from both urban planners and Wat Ket community. New specific plan for Wat Ket area should be adapted from the collected data accompanying with suggestion of outside technocrats. A suitable method to manage and develop the specific plan is Hybrid Urban Planning that integrates the concepts of urban design and urbanization to increase resistance of Wat Ket community and enhance sustainable

development. The details on examination of Hybrid Urban Planning in Wat Ket area are presented in Chapter 4.

Chiang Mai problems of the 3rd comprehensive plan bothered Wat Ket area considerably. To solve the problem, urban planning should consider urban design that focuses on physical landscape in three dimensions: land use, transportation, and public utility and assistance. The conceptual design should manage urban growth following the National Economic and Social Development Plan, which is the country plan as the main policy. The following plans from main policy (e.g. regional plan) have to support one another because all plans are important for determining city role and function, which the development should enhance the potential of infrastructure, public assistance and transportation including convenience to access and be the center of economic activities (Lang, 2005).

The seal of Chiang Mai University is a circular emblem. In the center is a detailed illustration of an elephant facing left. Above the elephant's head is a traditional Thai umbrella (parasol). The entire central design is enclosed within a circular border. The border contains the university's name in Thai script at the top and 'CHIANG MAI UNIVERSITY 1964' in English at the bottom, separated by small floral motifs.

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