Sustainable Urban Development of Chiang Mai Metropolitan

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ABSTRACT

1. Purpose
This paper aims to study about the sustainable development of Chiang Mai metropolitan. It looks at three aspects: land use plan, metropolitan regulation, and transportation.

2. Design/methodology/approach
The secondary data is mainly used to achieve this project.

3. Findings
In term of land use plan, it was found that the future land use plan is not suite with the city's characteristic. The cooperations among local people, private sector, and government sector are very necessary to solve the problem. In case of metropolitan regulation, the regulations are legislated variously in different areas for diverse purposes. For transportation, the obviously problem is traffic congestion. The suggestion is a good management of public transportation.

4. Research limitations/implications
Our limitations are that using secondary data, preciseness of secondary data is not known, and some data might be outdated.

5. Practical implications
With all these result, Chiang Mai should manage the good urban patterns which not ruin initial economy and local lifestyle.

6. Social implications
If the interest people or organization accept our suggestion, there will be a big change and there will help the city reaches sustainable growth.

7. Originality/value
This paper has study the city in three aspects, finds out the problems, and gives the suggestion to reach the sustainable growth

Keywords: Chiang Mai, Land use, Metropolitan regulation, Transportation
JEL Classification: R14, R41, R52
1. Introduction

There are many definitions of sustainable development, including this landmark one which first appeared in 1987:

"Development that meets the needs of the present without compromising the ability of future generations to meet their own needs."


There are many factors that lead to the sustainable growth such as economy, urban planning, urban structure, transportation, pollution, standard of living, regulations and many more. These factors cannot be developed alone; all of it should be developed together in order to have sustainable growth cities.

Chiang Mai is the second most important city of Thailand. It is the capital of Lanna Kingdom which has its own culture and tradition. This big city is different from the others in Thailand in the way of living and local wisdom. Chiang Mai’s per capita GPP is ranked as the third of North region Thailand (National Statistical Office of Thailand, 2010). With globalization, Chiang Mai had changed from sufficiency economy to be more capitalism (Charoenmeung, 2007). It had effected local people way of living; more building reduce the value of scenery, congested traffic, the replacement of pub, bar and new businesses in residential area etc. The vision of the city is the city of live and prosperity. This means the city of happiness and valuable life for resident and the visitor as the top global tourist destination and gate way to trade and investment.

The three topics that we concern in sustainable Chiang Mai development are land use, metropolitan regulations and transportations. These three topics are mostly concern because Chiang Mai is the old town with many valuable traditional places and live style. The great management of land use, transportation and regulations could lead to modern and stable development along with the cultural reservation.

In this paper, we refer Chiang Mai Metropolitan to Muang District (Urban).

2. Land Use

As Chiang Mai is a center of the North of Thailand, many activities are running around the city, and as it is the old city which full of historical areas. There are conflicts of interest among these, newcomers and local people. One of the most important conflicts is land use. Nimmanhemin, for example, used to be the road that the local people and the business lived happily together. That is an identity and attractive thing for Chiang Mai. But, nowadays, the local people and businesses are not getting along well anymore; too many new businesses make problems to local people. Some local people decided to move out of the area because businesses make pollutions which disrupt their daily lives. Some people who still live there face many problems, such as noise pollution at night or traffic jam during rush hour. From this problem, it obviously shows that something has to be done to solve this problem. Otherwise, the original of Chiang Mai will disappear.

According to the statistic below (Figure1.), the land use of Chiang Mai city does not have much change while the city has been changed so much, more population, more
high buildings, and more traffics. Only in the area of residential, agriculture and undeveloped, those have much change. It is good that a forest area does not decrease much over time and an undeveloped area decreases obviously. For a residential area which largely increases, it cannot be identified whether it is good or bad. It depends, likes a commerce area. An increasing in the area of commerce might seem to be good for the economic growth of the city. In fact, it has negative effects in some cases, like the case of Nimmanhemin. So, the land use plan is very necessary for the city in the case of sustainable development.

**Land in Use Chiang Mai City during 1965-2004**

<table>
<thead>
<tr>
<th>Year</th>
<th>Residential</th>
<th>Commerce</th>
<th>Education</th>
<th>Government</th>
<th>Religion</th>
<th>Military</th>
<th>Recreation</th>
<th>Agriculture</th>
<th>Forest</th>
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<td>15.08</td>
<td>3.51</td>
<td>3.19</td>
<td>4.23</td>
<td>0.62</td>
<td>0.53</td>
<td>0.58</td>
<td>43.65</td>
<td>68.90</td>
<td>46.57</td>
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</tr>
<tr>
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<td>4.57</td>
<td>3.19</td>
<td>5.98</td>
<td>0.85</td>
<td>0.53</td>
<td>0.84</td>
<td>35.47</td>
<td>68.43</td>
<td>42.17</td>
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<tr>
<td>1994</td>
<td>29.91</td>
<td>5.36</td>
<td>3.22</td>
<td>6.00</td>
<td>0.69</td>
<td>0.53</td>
<td>1.77</td>
<td>61.93</td>
<td>65.45</td>
<td>11.86</td>
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</tr>
<tr>
<td>2004</td>
<td>46.24</td>
<td>8.75</td>
<td>3.47</td>
<td>7.61</td>
<td>0.87</td>
<td>0.53</td>
<td>1.59</td>
<td>43.96</td>
<td>65.10</td>
<td>8.60</td>
<td>2.94</td>
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</tbody>
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Figure 1. Land use in Chiang Mai City during 1965-2004

Source: Rajadhon, n.d. and designed by author

There are future land use plans of Chiang Mai city created by the government sector. The first future land use was promulgated in 1984 and the latest one was announced in May 2013. However, there are not many people know about this. The
The purpose of this plan is used to be guidelines for the development and maintenance of the city for using the property, transportation and logistics, utilities, public services and the environment.

This future land use has a huge impact on the private sector because the 95% of the areas designated as green space, limited for agricultural development, residential, ecotourism. Especially in Huay Kaew and Nimmanhemin Road, they are affected the most. The land price of these area is quite high, 100,000-200,000 Baht per square wah, but the future land use limits the building height no more than 12 meters. Even the private sector tried to offer the government to increase the limit to 23 meters, the government denied and gave a reason that it would cause traffic congestion in that area. (Thansettakij Editor, 2013: online) While the old economy area, the Night Bazaar, that is already crowded, the building height is not limited. For the area inside the moat or the conservation area for residential, the construction modifications are strictly prohibited. This is because it is a historic district.

![Figure 2. The future land use of Chiang Mai City](image)

Source: The Building Control and City Plan Authorities

**Opinion**

Having a future land use is good for city's sustainable development; however, the applicability of the results is the most important thing. The regulation should be force seriously and the loopholes should be fixed so that no one can use it for their own interest. In addition, the successful future land use needs participation among local people, private sector and public sector. The next future land use should study more the possibility of using area and ask more opinions from local people.
3. Metropolitan Regulation

With an outstanding universal value of Lanna tradition, Chiang Mai is now promoted to be a Lanna world’s heritage. There are lots of old Lanna style architects in town and suburban. Nevertheless, Chiang Mai is also a growing city that is enhanced in many dimensions of the city. In order to remain an old identity of Lanna style in Chiang Mai along well with new property investment and economic growth in a sustainable way, we have to focus on possible long term consequences rather than short term consequences, along with every support from all sectors. It is also necessary to give precedence to sustainable development for meeting the need of present generation without compromising the ability of future generation meeting their own needs (Oxford: Oxford University Press, 1987). One way that can cause Chiang Mai sustainable progress which we can do under the limited fund is regulation of city. The most considerable of Chiang Mai regulation is “Metropolitan Regulation”. To have a sustainable Chiang Mai regulation, three core contents policies: Economy, Society, and Environment must be considered.

Firstly, in term of economy, Chiang Mai is a junction of northern Thailand’s economy, it is a source of investment opportunity. According to Planning Law and Regulation of Chiang Mai, Chiang Mai is divided into several areas, and one of those is a Land for Commerce (Figure 3; Red area). As follows, Building Control Division of Chiang Mai’s local administration be beneficial by regulate advantageous criteria for investors. A Commercial Land (such as Tapae and Suthep), where is abundance of population, have a special regulation for constructions. There is a prohibition of another purpose more than 15 % of land uses besides commerce in order to accommodate investment in Chiang Mai.

Secondly, social concern, Chiang Mai is a special city that local heritages can be compatible with modern businesses. However, being a source of current investment tend to cause overabundance for legacy area. Therefore, Chiang Mai Municipality legislated building and construction ordinance in order to preserve Chiang Mai Lanna identity for many Chiang Mai’s heritable lands of art and culture. In light brown area (Figure 3) such as Wiang Jed Rin, Wiang Suan Dok and the ancient city of Wiang Gum Gam, there are permits to use these lands for identity of Lanna preservation. In addition, due to a cooperation among villagers and represents of Buddhism Christianity and professionals of many fields, there are also a regulations of any construction such as buildings height limit to a maximum 12 metre for specific district (e.g. Sripoom, Changmoi, Phrasing, Chang Khlan, and Hai Ya), buildings height limit to a maximum 6 metre for 200 metre around the temples and religious places (e.g. Wat Umong Suan Buddha Dhamma, Wat Padaeng), and property Lanna format enforcement.

Thirdly, in term of environmental awareness in environmental purpose of land uses area in light green area (Figure 3) such as Ping riversides and Mae kha canal,
locations of some business (Industrial wastewater treatment, filth elimination, and farming) are not allowed, in order to maintain the long-term quality of environment. Moreover, being a city that is located in high-risk of earthquake area (urban development institute foundation and Health systems research institute, 2003), Chiang Mai misfit for structuring any kind of high-rise building.

Figure 3. The future land use of Chiang Mai

Source: Association Siamese Architects

Opinion

In author opinion, Chiang Mai Metropolitan regulation should force people to obey the regulation. Even though there are metropolitan regulations, sustainability could not exist without continuation. The government should pay attention on issue that already happened and new issue in the future. Neglect of an obvious violation in the past, that caused overdue building in the past, should not be done anymore.
Opinion (continue)

My suggestion is providing seminars or educations, for populace, to make them more clear and understand the regulation of land management rationally. Moreover, the government should be rigid for punishment for anyone who breaks the law.

As mentioned earlier, the metropolitan regulation is very important for entire city called “Chiang Mai” in order to integrate variety dimensions of urban progress rebounding that could go along well with cultural heritage.

4. Transportations

There are many types of transportations in Chiang Mai; Taxi, Air plane, Tuk Tuk, Rent car, Train, Red car, Private car, Motorcycle and Bus. These help economic activities inside and outside the city run smoothly. However, there are many problems come after this convenient such as car accidents, traffic congestion, low quality of public transportation, an increasing in the transportation price etc. In this paper will mention the most obvious problem of public transportation in Chiang Mai which is traffic congestion. Normally, the traffic congestion problem occurs in every city, especially in the big city, and affects citizens’ daily life. The good management can reduce problem like the late clock in, being late for some important appointment or the accident.

There are some groups of people who commute from one place to another place every day. First are the workforces who go to work. Second are the students who go to school or university. These two groups tend to commute often in the same period of time 6.00 am. - 9.00 am. and 3.00 pm. - 6.00 pm. That is why some roads in Chiang Mai do not allow passing or parking in this period of time, for example, Nimmanhemin road, Chareon pratet road, Radvithi road etc. In addition, in the area of market and shopping center, the crowded of vehicle happen almost all day. Nowadays the vehicle in Chiang Mai is increasing, which make the traffic congestion problem become severe.

Figure 4. Numbers of vehicles registered by type, 2008-2012

Source: Chiang Mai Transportation Office
Figure 4 shows an increasing of the vehicles for over five years, which is the main cause of the traffic congestion problems. The other cause of the traffic congestion problem is the bad management of the public transportation, in this case is the red car. According to the study of Social Research Institutions of Chiang Mai University, they compile the data in the year 2008 about the issued urban plan and urban structure from Chiang Mai land use planning office, which is the way to solve traffic congestion problem. The plan states that they will expand 35 roads and the size of the road will maximum at 20 meters they think expanding the size of the road in urban area can help solving this problem. As the expanding plan has to pull down many of old buildings and resident’s houses in the old city of Chiang Mai, there are many protestations. Therefore, this question comes up with this difficulty; “Can we solve the traffic congestion problem without expanding road”. The answer of this question are controlling the amount of vehicle, adjust the road for urban area with help from urban people, measure of land using relate to transportation, proper public transportation, support the use of bicycle and travel by feet, the possibilities of applying traffic technique, parking management, speed management and traffic restrict zone.

In my opinion, the answer of the question above can reduce the problem of traffic congestion but seems to be not sustainable. This is the way that I suggest about the improvement of the transportation in Chiang Mai.

Figure 5. Chiang Mai city separate into four zones in the year 2010

Source: Designed by Phanthasu, A and Petcharanon, created by author, and source from Google Maps, (2013)
Since, there are a lot of red car as a main public transportation in Chiang Mai. The whole public transportation talk in all next paragraphs refers to red car.

According to the research; Travel Behavior in Regional City: A Case Study of Chiang-Mai City of Khon Kaen University, the researcher had divided Chiang Mai into four zones. Zone A is the historical city area. It has a square shape with 1,600 meters on each side. There are temples, houses, pubs, bars, hotels and others; my suggestions are the transportations in this area should be public transport and limited amount of private car and bicycle. There should be pathway and the road in this area should separate one for bicycle, one for public transportation vehicle and one for private car. In the small road in the middle of the town and the old road like PraPokKlao road and the road of “Si Yak Klang Wieng” should allow only public transportation and bicycle.

Zone B, C and D should have public transportation with a clear line of travelling and separate the road; one for the public transportation and others for the private cars. In zone D, we can use another color of public transport car to separate the destination that they drive to, for example yellow car for Hang Dong, Green car for Doi Sa-Ked, and Blue car for LamPhun etc. (as same as we have in present).

So, there should be a clear line for red car to do the public transport in every zone. In addition, controlling amount of vehicle is also needed. By the way, if an increasing of the red car service quality is possible, the public transportation in Chiang Mai would be better.

If we combine all answers of questions above with my suggestion, we could have a stable and sustainable development of transportation in Chiang Mai.

5. Summarize

According to the case study of Portland and Curitiba, both cities are urbanized for more than two hundred years. Both citizens and leaders of these two cities saw the problem of using cars, so in the year 1950, they had the aim for the two cities which stated that “City for people, not vehicle”. At first there were many problems, but the time had proved that cities for people were good for economy and lives than the cities with plenty of vehicles. The keys of this successful are strong united people, great vision leader, and participation of cities’ businessmen (Charoenmuang D. A., 2002). Therefore, Chiang Mai can also follow this successful by using these keys.

However, Chiang Mai is a city which has too many dimensions to follow. It might confuse people and businesses. So, the land use plan is necessary for the urban development. It helps the city to develop in the right direction. When the land use plan works, it would make transportation plan works as well. In the past, at that time, Chiang Mai’s future land use expired for seven years since 2006, causing legal loopholes. As a result, many high buildings shown up in the city and caused the congestion problem to be more severe.

To solve this problem, Chiang Mai city needs the good land use plan which suit the city’s geography, tradition, culture, and economic. In this present future land use, it
still has many problems. For the next future land use, it should be participated by many more sectors in the city.

Moreover, participation of local people is another important thing. Previous studies have found that many people do not know that there is the future land use in Chiang Mai. So, serious persuasion and education about the future land use to local people should be done in order to increase the participations of local people to preserve their own city. In order to develop Chiang Mai in variety dimensions at the same time, having a good plan and the serious regulation enforcement is regarded.

REFERENCES


Phanthasu, A and Petcharanon, M. *Travel Behavior in Regional City: A Case Study of Chiang-Mai City*, Khon Kaen University.

Rajadhon, T. A. *The study of Chiang Mai City: An appropriate local government structure for a livable city*, Chulalongkorn University.


### Table: Work Summary

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<td>Brain Storm and choose the City</td>
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| 01/07/2013   | Econ Library          | All group members   | Work division                                 | - Tuangporn Janthok working on crime topic  
    - Chamaiporn Rungsaprangsee working on urban structure topic  
    - Phraewnapha Thakaew working on land use topic |
| 08/07/2013   | Class                 | All group members   | Present the main and sub topics to the class  | Receive the comments from teacher and classmates.                                                                                                                                                      |
| 09/07/2013   | Econ Library          | All group members   | Search more information and discuss           | Chamaiporn change the sub topic from urban structure to metropolitan regulations because most of the details related to land use.  
    Tuangporn change the topic from crime to transportation because it is difficult to get raw data of crime.                                                                                       |
<p>| 10/07/2013   | Social Research Library | All group members   | Search more information from books and internet and then have a discussion. | Finish introduction part and get information for three sub topics.                                                                                                                                     |</p>
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