

Dimensions of Public Open Space Uses in Muang Phayao Municipality, Phayao, Thailand

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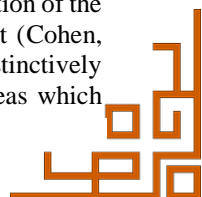
Abstract

The study of dimensions of public open space uses in Muang Phayao Municipality aimed to: 1) examine the patterns of public open space in Muang Phayao Municipality, 2) analyze the multi-use of public open space and 3) explore the unique characteristics of public open space in Muang Phayao Municipality. The methodology of this research were: surveying 34 public open spaces, analysis the multi-use of public open space under the conditions of human diversity, time diversity and activity diversity by matrix analyze and considering the aspects related to the public open space utilization. According to the results of this research, the public open space of the study area were divided into 4 categories: 1) public open space for recreation, 2) public open space of the building, 3) public open space for commercial, and 4) waterfront public open space. All of public open spaces were different in various functions: recreation, tourist attraction, foot path, street area, and social activity center. It also revealed that the effective multi-use of public open spaces depends on human diversity, time diversity, activity diversity and unique characteristics of public open spaces. In details, the unique characteristics were urban morphological structure namely convenient transportation networks, mix land use and building mass. In addition, social aspect such as population density, festivals, national and traditional events and economic aspect involving in commercial, recreation and travel were also influence to multi-use of public open spaces in Muang Phayao Municipality. Therefore, the development of public open space in Muang Phayao Municipality based on the unique characteristics of public open space was promoted in appropriate guidelines for good design to multi-use public open spaces.

1. Introduction

Public open space is a place for living in neighborhood, community, urban and regional levels. It is the common ground where civility and our collective sense of what may be called “public scenes” are developed and expressed. Public environment serves as a reflection of individual behaviors, social processes and our often conflicting public values (Carr et al., 1993). Its successful can provide the significance to the area in various terms. Firstly is physical aspect. The public open space that involved in attractive activities can accelerate the tendency for a land use change especially the developing area (Douglass et al., 2002). It can attract other activities in the area such as trade, services and urban revitalization. Secondly, in terms of social aspect, it is considered as a cultural space that reflects and sustains the community identities such as architecture and arts as well as local lifestyle (Crawford, 1999). Moreover, open space is also an area for urban festivals. In the last significant, public open space can enhance the investment, tourists and

the small informal local economy which subsequently stimulates the formal economy growth (Project for Public Spaces, 2000). In the context of Western in the past, Kato (1980) stated that urban areas used many public open spaces in various roles. The public open spaces were created as a tool to improve the quality of life in urban areas (Moughtin, 1999 and Zucker, 1959). However, the present development has dramatically diminished the open space roles due to urbanization and motorization. Many public open spaces have disappeared and lost their function or changed their outlook (Carmona et al., 2003). Various factors that influence the formation of visual identification of the place are: economic, social, industrial, cultural, political, historical, and individual. Modern architecture and urban design practice that faced with the trend of globalization has resulted in the transformation of the visual identity of many urban environment (Cohen, 1999). Some buildings are constructed distinctively from the environment and surrounding areas which



reduces the opportunities for people to interact with public open spaces. Thus, focusing on renewal and preservation of public open space is essential for current urban lifestyle (Whyte, 1980,). To create the public open space for high benefits, the dimension of physical, social and economic should be integrated into the areas because the successful spaces is not only the idealistic public open spaces but also the area that affects social interaction (Thompson, 2002).

Phayao is the city located in the North of Thailand. The city plays various important roles in agriculture, education, tourism as well as art and culture. At present, the city has been invaded by a great number of cars, so that lack of human oriented urban public space is felt in this city. The rapid growth of Phayao has affected on public open space. Public open space is scarce at urban level due to the urban and building expansions which destroy the old area. For example, the expansion of commercial area poaches into the original public open space, the temple court transforms to parking lot and the pathways within community are reduced and turned into passageways. In addition, the changing of population structure, social relationship and the way of life have brought about disaccord of local activities

and interaction of the people (Aeusriwongse, 2005). This study explores the dimensions of public open space to understand the existing situation affecting on multi-use of public open spaces and the relationship between public open space and unique characteristics which are urban morphological structure, social and economic in Muang Phayao Municipality. Therefore, in the future, the development will be valuable, effective and accordance with the public needs in terms of activities and time. Furthermore, this study contributed the public open space for multiple uses or variety of purposes. The research objectives involve in the following areas: 1) the pattern of public open space in Muang Phayao Municipality, 2) dimension of public open space multi-use and 3) dimension of unique characteristics of public open space.

2. Methodology

The research employed both quantitative and qualitative research methods. The structure of methodology was divided into three main parts; each part applied the research method that achieved the aims of research as demonstrated in Figure 1. They were described as follows:

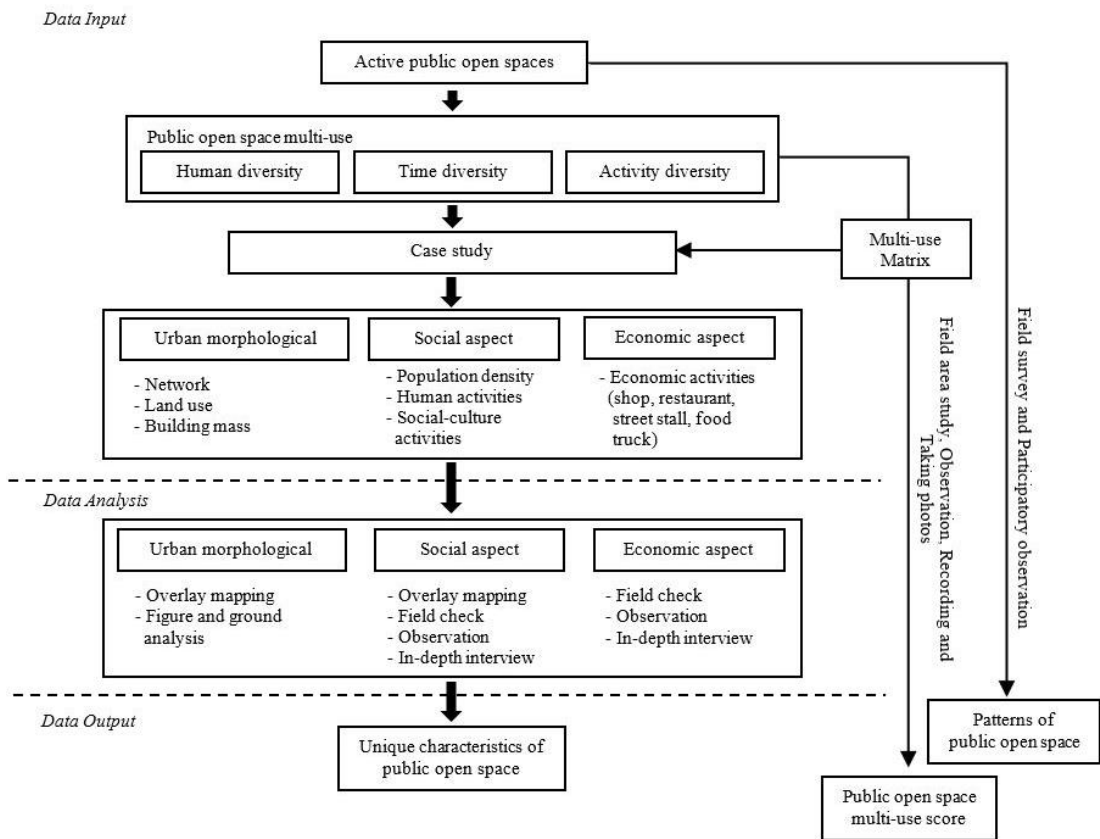
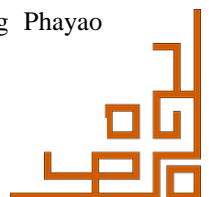


Figure 1: Flowchart of research method for dimensions of public open space uses in Muang Phayao Municipality, Phayao, Thailand



The First Part: The pattern of public open space in Muang Phayao Municipality draw precise understandings of configurations and pattern of public open spaces in study area, the primary data collection was carried out by field survey and participatory observation to adjudge the active public open spaces based on the intensity of human activity and to gain an overall understanding of all public open spaces. The result of this action obtained the primary data as physical characteristics, activity, usage pattern of public open space and current situations of study area. Meanwhile, the classification of public open space also arranged to the group of public open space. In this research, the public open space categories were divided into 4 groups: 1) public open space for recreation, 2) public open space of the building, 3) public open space for commercial, and 4) waterfront public open space. At this stage, a tentative analytical framework for designing the multi-use matrix was developed.

The Second Part: Dimension of public open space multi-use, the concept of a conditional matrix was used for the analysis and evaluation of multi-use. A conditional matrix was an analytical aid, useful for considering a wide range of public open space multi-use conditions related to phenomenon under study. The concept of matrix and tracing of action or interaction through the various conditional and consequential level will make it possible to link the findings of the study to phenomena. In this study the matrix of multi-use public open space with twenty-eight conditions under three diversities was addressed by field area study, observation, recording and taking photos.

The matrix gave information about human diversity (age, sex, personality and status), time diversity (day and time) and activity diversity (every day and special day). The details based on these diversities were described concerning how intensive people used public open spaces and their activities in the spaces. The multi-use matrix was recorded in order to find out the score and level of multi-use in each public open space which categorized into 5 levels as the lowest (1-6 scores), low (7-12 scores), medium (13-18 scores), high (19-24 scores) and the highest (25-30 scores). The levels of multi-use in each public open space were illustrated by mapping.

The Third Part: Dimension of unique characteristics of public open space emphasized on the urban morphological structures, social aspect and economic aspect. In terms of urban morphological structures, they consisted of network, land use and building mass (Hillier, 1987). As for social aspect, population density, human activities and social-culture activities

were considered. Regarding economic aspect, economic activities such as shop, restaurant, street stall, food truck were examined. In this part, the comparison among public open spaces in Muang Phayao Municipality was done. The active public open spaces where received the highest level (25-30 scores) in each category were selected to be a case study to investigate the unique characteristics. It found that Wat Srikomkam Temple (public open space of the building), Muang Phayao Culture Square (public open space for recreation), Chaykwan Pathway (waterfront public open space) and Nonglabu Night Market (public open space for commercial) were all selected.

For assembling each case study, the analysis of urban morphological structures, social aspect and economic was obtained. Based on urban morphological structures, the spatial analysis concerning network, land use and building mass were analyzed by applying geographic information system (GIS) which have been used along with its various add on modules and customization tools for spatial analysis technology and mapping (Karmakar et al., 2011). The analysis was to find the relationship between network, land use and public open space multi-use that adopted by map overlay technique. On the other hand, figure and ground analysis was addressed. In the context of planning and architecture, is a visualization that highlights the distinction between built and open space. The built space is the figure, and the empty space the ground. This analysis was to consider the relationship between the building mass and public open space multi-use.

To achieve the social aspect and economic aspect, the qualitative analysis was applied by field check, observation and key-informants interview. The rational for field check and observation was to verify the data collected and to understand the relatively complex situations of the case studies. Field check and observation indicated as becoming an active tourist, taking part in festivals and watching and note-taking while the people used the open spaces. In addition, the social aspect related to population density was examined via overlay mapping to describe the relationship between population density and public open space multi-use. According to in-depth interviews, the face-to-face with 7 community leaders and 3 Muang Phayao Municipality officers was conducted. The questionnaire consisted of several sections follows: 1) the respondents' profile, 2) the perception about unique characteristics of public open space and 3) the appropriate guidelines to develop the public open space in Muang Phayao Municipality.



The information represented an overall understanding of their attitudes towards developing the potential and quality of public open space in Muang Phayao Municipality.

3. Result

This section was a part with the concerns on the study area.

3.1 Public Open Space in Muang Phayao Municipality

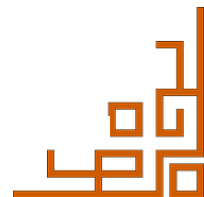
The patterns of public open space in Muang Phayao Municipality were conducted by surveying, observation and multi-use public open space recording. There were 34 public spaces in Muang Phayao Municipality that classified into 4 types: 1) public open space for recreation, 2) public open space of the building, 3) public open space for commercial and 4) waterfront public open space (Figure 2). Public open space for recreation was one of the places provided by municipality in order to facilitate, recreate and support the recreation activities. There were 7 public open spaces for recreation in Muang Phayao Municipality. Public open space of the building was used for various activities and multi purposes such as government activities, politics, religion, society, commerce and national and local events. In Muang Phayao Municipality, there were 19 public spaces of the building in total. Public open space for commercial aimed to support economic activities. It was the place for exchanging goods, distributing consumer products and other business activities. There were 5 public open spaces for commercial in Muang Phayao Municipality. Waterfront public open space was the terrain area where water was a natural element. It symbolized the boundary of the area and had high potential for urban atmosphere and scenery. There were 3 waterfront public open spaces in Muang Phayao Municipality. Most of public open spaces in the municipality were used by various groups of people at different times and activities whereas some public open spaces were rarely used. The significant of multi uses was illustrated in the next section.

3.2 Dimension of Public Open Space Multi-use

The multi-use of public open space was analyzed based on human diversity, time diversity and activity diversity. The information was derived from site survey, participatory observation, matrix recording and photographs. The multi-use matrix consisted of 28 elements under 3 diversities as shown in Table 1. The matrix recording was conducted during the week, holiday and special day which separated into 4

periods: 1) morning (6 AM to 10 AM), daytime (10 AM to 2 PM), evening (2 PM – 6 PM) and night-time (6 PM to 10 PM). Based on the recording of multi-use public open space table, it illustrated the multi-use scores which referred to accessibility and level of public open space utilization related to human, time and activity. According to human diversity, 1) the age of people who mostly used the public open space in study area was the adolescent. There were 31 spaces from 34 areas whereas children took part in 27 areas, working age and old age used only 23 places, 2) the gender diversity was both male and female, 3) personality consisted of passer-by, area users, buyers, and vendors and 4) status diversity were local people, outsiders and tourists respectively. Regarding time diversity, the site survey showed: 1) day diversity comprised weekday, holiday and special day and 2) time range diversity was morning, noon, evening and night. In terms of activity diversity, 1) daily activities included recreation, shopping, market, eating or drinking and journey and 2) special day related with sacrifices, festivals and amusements.

According to 28 elements of public open space multi-use, the total score was 28 points which classified into 5 levels as: the lowest (1-6 scores), low (7-12 scores), medium (13-18 scores), high (19-24 scores) and the highest (25-30 scores) in Figure 3. The study revealed that there were 4 areas of public open spaces with the highest level where greatly affected the multi-use open space. The public open spaces with high, medium and low level were 8, 16 and 6 places, respectively. The group of the lowest scores was not found in study area. Concerning the highest level as: 1) Wat Srikomkam (public open space of the building) with 28 points, 2) Muang Phayao Culture Square (public open space for recreation) with 27 points, 3) Chaykwan Pathway (waterfront public open space) with 26 scores and 4) Nonglabu Night Market (public open space for commercial) with 25 points representatively, they reflected that the religious place and modern public open space in Muang Phayao Municipality consisted of public parks and waterfront mainly used for recreation and relaxation. The first three places are along the side of Kwan Phayao. Wat Srikomkam or Wat Phrachao Ton Luang is a historic landmark of the province. The famous seated statue has a 14-meter lap and a height of 16 meters, casted approximately 500 years ago. Wat Si Khom Kham is a third-class royal temple and has been honored for being a role model for the development of religious sites. The important is not only a Muang Phayao signature sight, but also typifies the Lanna Thai Kingdom style.



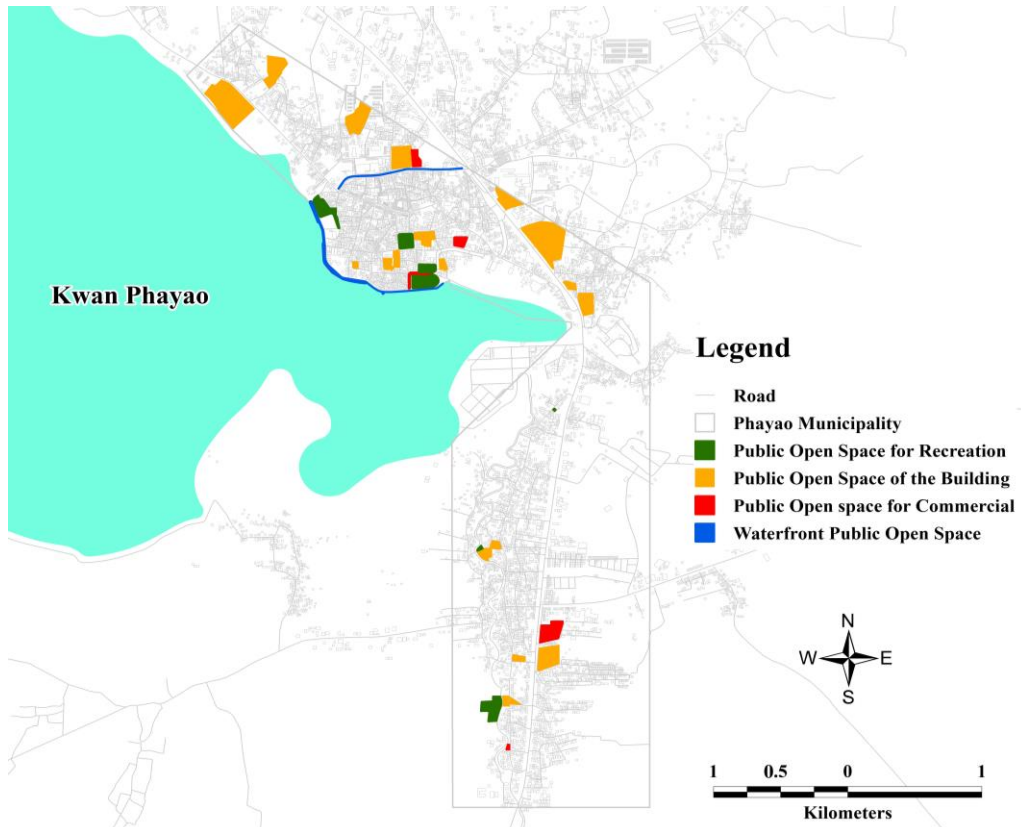


Figure 2: Public open space in Muang Phayao Municipality

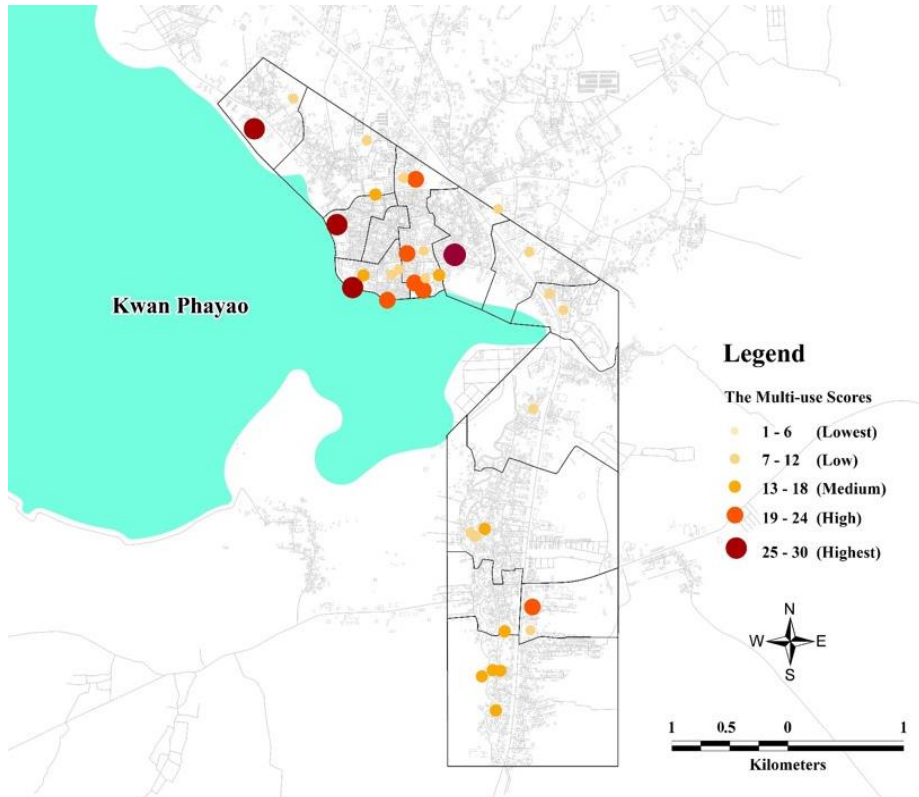


Figure 3: Public open space multi-use scores in Muang Phayao Municipality

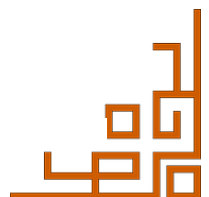
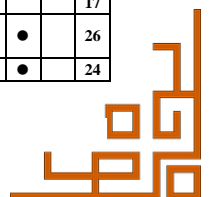


Table 1: Matrix analysis of the multi-use public open space in Muang Phayao Municipality

Public Open Space	Multi-use																										Multi-use Score		
	Human											Time						Activities											
	Age				Sex	Personality			Status				Day		Time				Everyday					Special Day					
	Childhood	Adolescent	Working Age	Old Age	Male	Female	Passer by	Area User	Buyer	Vender	Local People	Outsider	Tourist	Weekday	Holiday	Special day	Morning	Noon	Evening	Night	Recreation	Shopping	Market	Eating	Journey	Sacrifice		Festival	Amusement
Public open space for recreation																													
1	Muang Phayao Culture Square	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	27
2	Ban Mae Tam 1 Yard		●	●	●	●	●	●	●		●		●	●		●		●		●									13
3	Ban Mae Tam 2 Yard	●		●	●	●	●	●	●		●		●	●		●		●		●									13
4	Rungarun square	●	●	●	●	●	●	●	●		●		●	●		●		●		●				●	●				15
5	Shrine of the City-god	●	●	●	●	●	●	●	●		●	●	●	●	●	●	●	●	●	●	●					●	●	●	22
6	Phayao Stadium	●	●		●	●	●	●			●		●	●				●		●	●			●				13	
7	Phayao Health Park	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●			●		●	●	24
Public open space of the building																													
8	Municipality School 1	●	●			●	●		●	●	●	●				●	●	●		●									12
9	Municipality School 2	●	●			●	●		●	●	●	●	●			●	●	●		●									13
10	Municipality School 3	●	●			●	●		●	●	●	●	●			●	●	●		●									12
11	Municipality School 4	●	●	●		●	●		●	●	●	●	●			●	●	●		●				●					14
12	Municipality School 5	●	●			●	●		●	●	●	●	●			●	●	●		●									12
13	Municipality School 6	●	●			●	●		●	●	●	●	●	●			●	●	●		●		●						14
14	Bunsithwittaya School	●	●			●	●		●	●	●	●	●			●	●	●		●				●					13
15	Phayaophithayakhom School	●	●			●	●		●	●	●	●	●			●	●	●		●									12
16	Phinitprasart School	●	●			●	●		●	●	●	●	●			●	●	●		●									12
17	Ratchakrutwittaya School	●	●			●	●		●	●	●	●	●			●	●	●		●					●	●			13
18	Anubanphayao School	●	●			●	●		●	●	●	●	●			●	●	●		●									12
19	Wat Phalankam Playground		●	●	●	●	●	●	●		●					●	●	●		●				●		●			15
20	Health Center Playground	●	●	●	●	●	●	●	●		●	●	●	●			●	●	●		●				●				18
21	Wat Jeansamakom Phayao		●	●	●	●	●		●	●	●	●	●			●	●	●	●		●				●	●	●		17
22	Wat Srikomkam	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	28
23	Wat Palankham	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	17
24	Wat Phumin		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●			●	●	●			19
25	Wat Srijomruang			●	●	●	●		●	●	●	●	●	●	●			●	●		●				●	●			13
26	Wat Inthan			●	●	●	●	●	●	●	●	●	●	●	●			●	●		●				●	●			15
Public open space for commercial																													
27	Phayao North Hotel Stall	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	21
28	Nonglabu Night Market	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	25
29	Ban Mae Tam Market		●	●	●	●	●	●	●	●	●	●	●			●		●		●									15
30	Kwanphayao Walking Street	●	●	●	●	●	●	●	●	●	●	●	●	●			●		●				●	●	●	●	●		22
31	Maethongkam Square	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	22
Waterfront public open space																													
32	Moat Walkway	●	●	●	●	●	●	●	●		●	●	●	●	●	●	●	●	●	●	●				●				17
33	Chaykwan Pathway	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	26
34	Wat Tilokaram	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	24



It is an important place to serve the special ceremony which held annually during the Buddhist Visakha Puja Day to pay homage to the image. Many people have attended to the event, both at the urban and provincial level. As for foreigners, it is a tradition to go and pay their respects to Phrachao Ton Luang when they visit Phayao.

Muang Phayao Culture Square is a center of historical significances (Damrikun, 2005). It is also an important area to support the annual festivals, celebration events and cultural traditions of the city, for example, the worship of the King Ngam Meuang and New Year's Eve Lanna Cultural Show. In addition, activities of daily living occur in this place such as recreation, walking, fitness and trading of various kinds of food. Moreover, there are beautiful sceneries and many old building surrounding Muang Phayao Culture Square. Chaykwan Pathway is a big waterfront public open space where located close to Kwan Phayao. The Chaykwan Pathway was improved and developed by municipality to be a beautiful landscape and sylvan. This place can support the recreational activities, tourism and the city festivals. It is a center of human diversity such as local people, outsider and tourists. The activities occur throughout the weekday, holiday and special day. Most activities are sightseeing, walking along Kwan Phayao, Songkran festival and Loy Krathong festival.

As for the last public open space, Nonglabu Night Market is located in inner urban area. It is one of the major commercial center in municipality. It offers a carnival like atmosphere with a huge array of goods to browse, and snacks to taste. The surrounding area is easily accessible because there are two main roads encircling the place as Donsanam Road and Ngam Meuan Road. There are plenty of people both local and outsiders, especially in the evening and at night.

3.3 Dimension of Unique Characteristics of Public Open Space

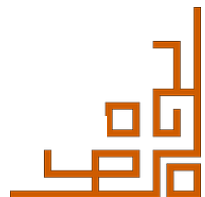
The searching for unique characteristics of public open space by applying GIS techniques was addressed to demonstrate the relationship between the multi-use public open space levels and the urban morphological structures, social aspect and economic aspect. Based on the urban morphological structures, the hierarchy of road networks in regional, province, urban and city levels were analyzed to explore the potential of accessibility in urban level. Land use patterns were identified by current land use and building use in order to recognize the diversity of land use and the distribution of urban activities. The figure and ground analysis technique was applied in

order to analyze the relationship between the building mass and open space. This technique was used to describe the area layout, shape of area and the difference among the building blocks, spaces, land uses and networks. The social aspect, urban activities and population density explained the opportunity to access in public open spaces. The economic aspect linked to the commercial activities in study area.

Due to 34 public open spaces evidenced in Muang Phayao Municipality, it was necessary to select the case study in-depth information for unique characteristics of public open space. The selection was done by choosing the highest multi-use scores in each category of public open space. The public open spaces with the highest score were chosen as representative in order to reflect the specific characteristics of areas regarding urban morphological structures, social aspect and economic aspect. As shown in Figure 4, four representative areas in each public open space group were: (1) Wat Srikomkam (public open space of the building), (2) Muang Phayao Culture Square (public open space for recreation), (3) Chaykwan Pathway (waterfront public open space) and (4) Nonglabu Night Market (public open space for commercial). The analysis aimed to achieve the specific characteristics of public open space. The results were described below:

3.3.1 Urban morphological structures

Network: Network is a key role in the urban spatial structure. It is the main city social-economic activities and transportation carrier (Mostafa and Ihab, 2011). The result detected that the public open space with the highest and high level of multi-use were located in well-connected and convenient access areas as shown in Figure 5. The main road is an important factor to access the public open space as The Old Phaholyothin Road which crossed in front of Wat Srikomkam (1). The road had high access potential and connected to urban level and province level. Chay Kwan Road (2) (3) was the route in urban and district level located along Kwan Phayao. This thoroughfare was easily accessed and linked to commercial center or inner city comfortably via Rachabut Road, Tha Kwan Road and Rachawong Road. Furthermore, Nonglabu Night Market (4) was surrounded by Donsanam Road and Ngam Muang Road. They facilitated the public open space for inner people and outer people to shop, eat, drink and so on. In urban level, the public open spaces with high accessible potential and the ease to connect with outer area contributed people connection and human diversity (Lynch, 1960).



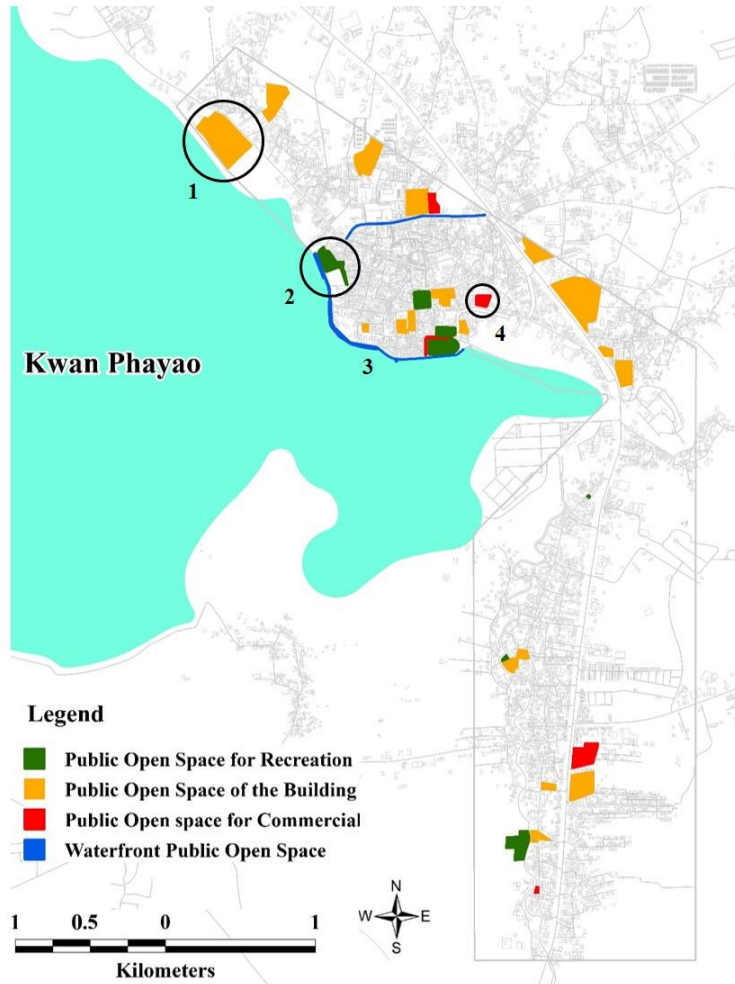


Figure 4: Study areas selection

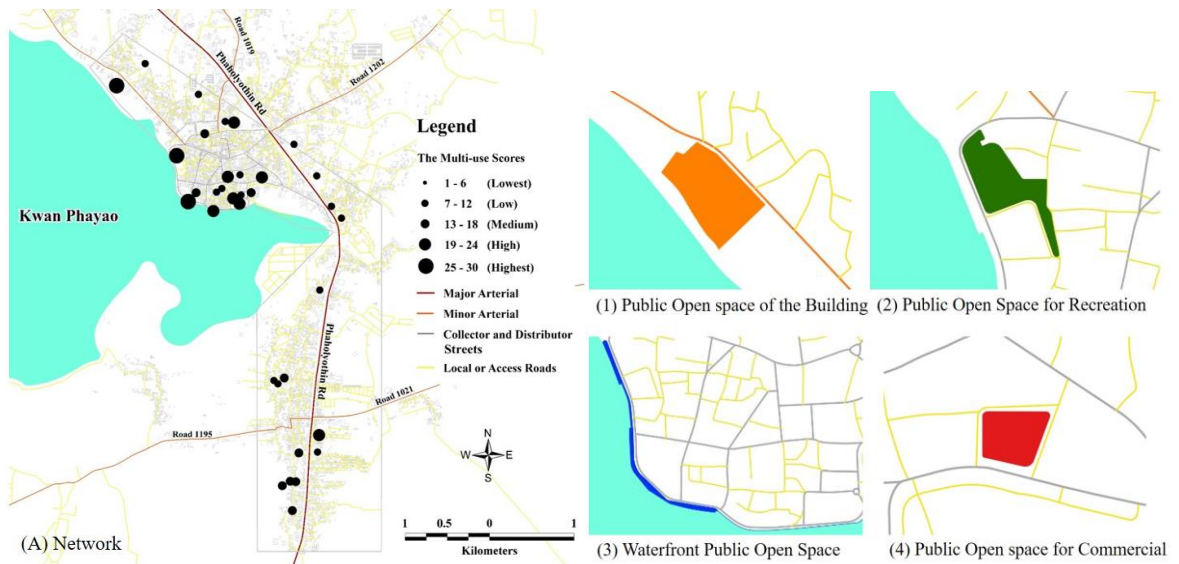
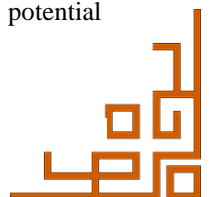


Figure 5: Network in case study areas. As for district level, the public open spaces with high access potential were suitable for the center of urban activities.



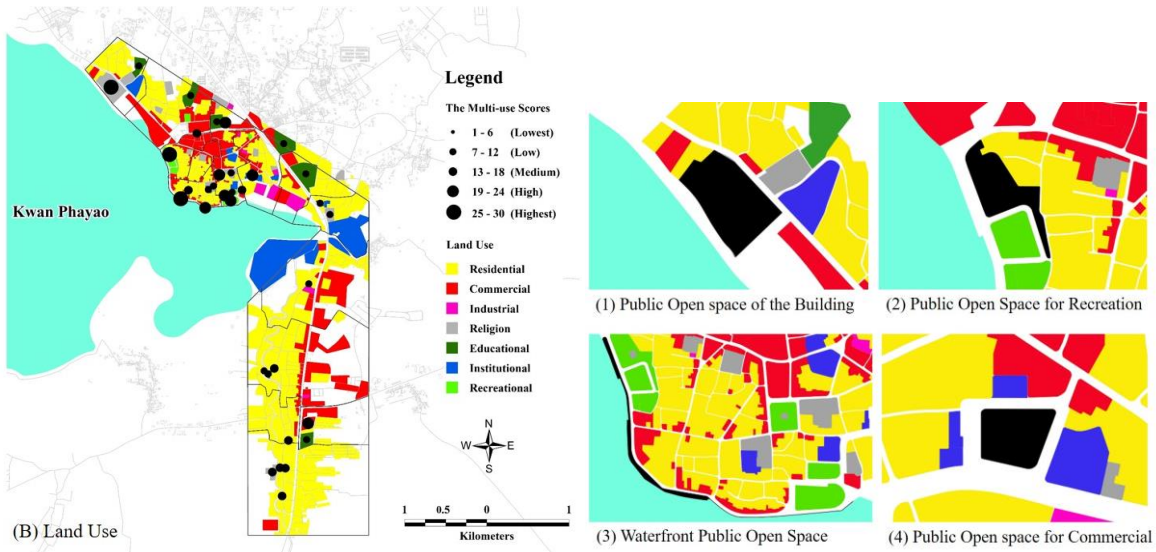


Figure 6: Land use in case study areas

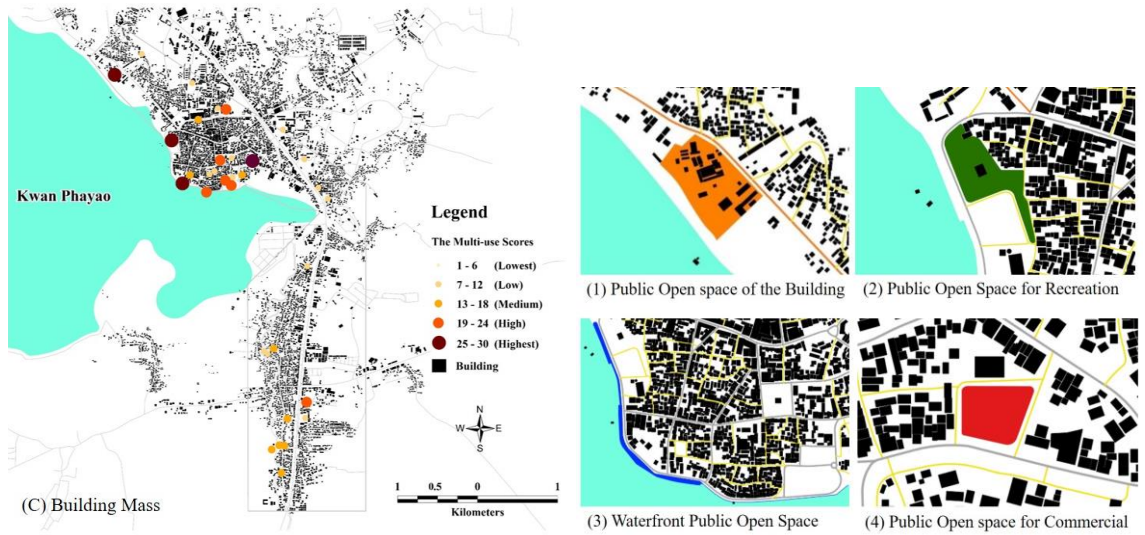
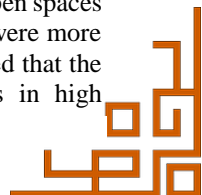


Figure 7: Building mass in case study areas

Land Use: Based on the study of land use patterns, the mixed land use in Muang Phayao Municipality demonstrated that it had a high influence on the public open spaces (Figure 6). Area (1) located in religious place and surrounded by various land use such as residential, commercial, and institution area. In the west of the area, there was a major natural water resource in Phayao province which was calm and sylvan peaceful suitable for relaxing activities. Area (2) closed to Chay Kwan Road. The residential area appeared in the east and the park was in the south of this area. It was an area where activities continue throughout the day. Area (3), commercial area placed along the main road whereas the residential located in the alley or behind the commercial area. The street served local products, food, beverages, spaces for biking, and sightseeing to a lot of people. Area (4),

land use and surrounding buildings were diverse such as residential, commercial, and government institutions which located in the west and east of the market. Besides, it revealed that the most valuable public open space appeared in the mix-use such as religious area, recreation area and mixed-use area for example residential, commercial institution and education areas (Hillier, 1989). In conclusion, public open spaces that surrounded by various types of land use and activities had effected hugely to human diversity, time diversity and activity diversity.

Building Mass: According to figure and ground analysis technique in Figure 7, the public open spaces surrounded by high building mass (2) (4) were more utilizable than low building mass. It showed that the highest level of multi-use often appears in high



density of settlement and tight building mass. The areas were cluster in the urban center where attracted a wide range of activities including trade, meeting, journey, recreation and urban festivals (Paksukcharern, 2005). However, some public open spaces located in low building mass (1) (3) were also in the high level of multi-use because they were significance places as religious and natural resource areas. Both areas were adjacent to the wide open areas of Kwan Phayao, they had good characteristics of leisure space, nice atmosphere and beautiful urban aesthetics. The result was consistent with the in-depth interview finding that the satisfaction level with public open space can be an indicator of satisfaction with the urban environment. Trees, gardens and waterfronts as one of public open space features may give relaxation and restoration effect which has a significant benefit to quality of life.

3.3.2 Social aspect

The social aspects included cultural activities, urban events, urban identities and population density. In this study, cultural activities and urban events were the most effective to visitors and local people whereas urban identities attracted only visitors or outsiders. It was because cultural activities and urban events which supported by municipality made spaces colorful, lively and had a story. In Muang Phayao, there were many festivals throughout the year such as Buddhist Visakha Puja Day (1), Pay Respect to Phrachao Ong Luang festival (1), the worship of the King Ngam Meuang festival (2), Songkarn festival (1) (2) (3), Loy Krathong festival (1) (2) (3), Winter and Red Cross Fair (4), New Year's Eve Lanna Cultural Show (1) (2) (3). Street life (3) (4) where activities related to work, appointment to meet acquaintances or traveling along the streets and Kwan Phayao. It contributed the urban identities because it complied with every activities that people can do at the public open space (Hillier et al., 1993) for example eating, drinking service seeking, selling goods and offering services. A public open space in the neighborhood provides an opportunity for neighbors to communicate as a friendly chats in a fenced garden or public meetings in local parks. It can be the common gathering places and social-cultural interactions (Tansukanun and Bejrananda, 2008). This finding was consistent with the interview that people in this area did most activities together in a group, either family or friends group. Most people stated that they even involved in a social interaction with strangers or other people they met in the public open space.

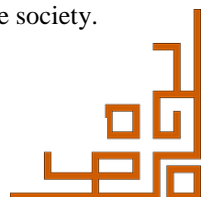
The fact indicated that public open space could have accommodated social interaction well. The fulfillment of this need would relate to the psychological health of people. Furthermore, the public open spaces where distributed in different level of population density and utilization pointed that the spaces with high population density were successful with a lot of users. Thus, public open space development should consider the size of population and response fully to people's requirement because people in high density area need more recreation area (Figure 8).

3.3.3 Economic aspect

The economic activities are important to the use of public open space. The urban areas with intensive economic activities will increase the opportunity for multi-use public open space. The fact from interviewees also confirmed this statement that attractive public open space could promote economic development such as providing a comfortable setting for outdoor dining and expanded retail sales space and giving an attractive and flexible space for events like farmers, markets, entertainment, which create a direct source of commercial revenue while also stimulating the district and city-scale economy. In terms of the influence of the economic activities, it varies in different degrees, for example, wholesale and retail trade, restaurants, pub, coffee shops and travelling business have more influence on the multi-use than do schools, government offices. In study areas, they consisted of activities such as shops (1) (2), restaurants (3), street stalls (2) (3), food trucks (3) (4). The commercial on public open space especially markets became attractive factors to people because the products such as food, fruit, vegetable, clothes were arranged openly and labeled with cheap price tag. This sphere could make colorful and lively city. In addition, public open space provided career opportunity and better economy (Jacob, 1961). The peripheral of public open space as commercial, residential, recreation area had promoted these spaces for more significance roles.

4. Discussion

The public open space defined their meaning with physical role, humans' presence and activities. They are important for creating social interactions among citizens and urban planning (American Planning Association, 2006). As Whyte (1980) stated that the good public open space should have the high level of multi-use. The spaces are available for everyone regardless of race, age or gender so they are democratic social places for citizens and the society.



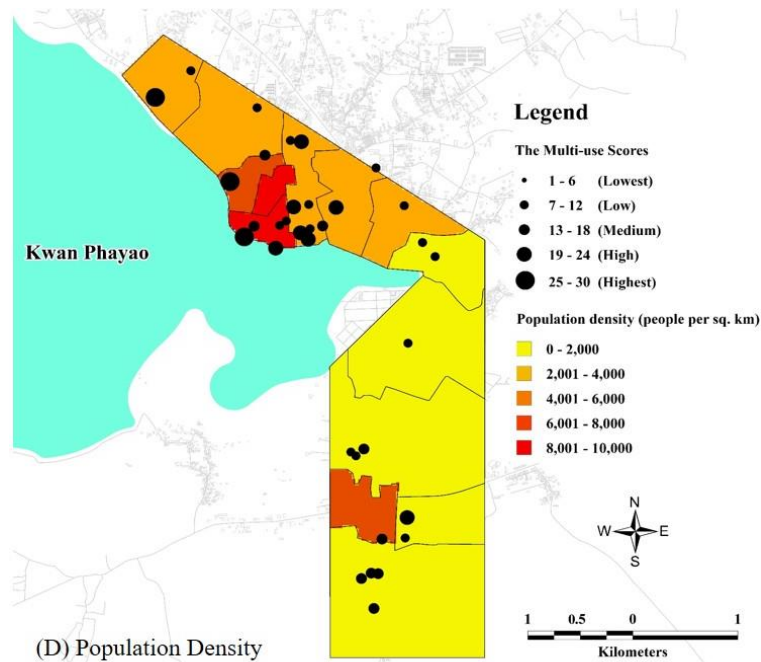
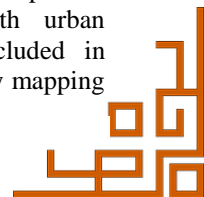


Figure 8: Public open space multi-use scores and population density in Muang Phayao Municipality

They also present a cultural identity for the area and as a unique feature declare a fixation among the locals. However, good design and management are central to making good public places uses. Based on the result, the proposal to develop public open space in Muang Phayao Municipality is to emphasize on promoting the potential and quality of public open space. First, *accessibility*, it is related to the quality of circulation, space connections and access along with space visibility and accessibility to the space. The most fundamental elements in the minds of citizens, appears as lines which provide connections between different parts of the city (Appleyard, 1981). Physical and visual access affects security and performance of the space. Hence, the municipality should provide the direct physical access to the space and the visual or the ability to see into an open space. Second, *safety*, to feel safe and secure in a space is also a prerequisite for space multi-use. Urban environmental not only contributes to one's sense of security and safety but also effect in attracting people to a specific place and their mental comfort. Thus, the shape of public spaces with proper infrastructure facilities of the people must be granted to attract and relate to its environment for safety, clean and harmonious place. Third, *uses and activities*, social events, different activities and usages inside the space and their potential to attract individuals and different groups are the most important factors in public spaces dynamics and their activity in various hours and seasons. Muang Phayao Municipality should encourage activities or events both province level and

local level throughout the year to attract a large number of tourists which will generate economic turnover. The evaluation criterion for this dimension is the level and number of people's reference to such places and participation in various activities. Forth, *sociability*, one of the most important dimensions of public spaces is to create opportunities needed for social interactions. Interaction with other people of the society leads to creating a stronger relationship with the place and society. This action can be measured by determining the level of different social group's presence, formation of social societies and living in different hours of day and night (Daneshpour and Charkhchian, 2007). Finally, *ownership*, as sense of ownership in public open space uses, it is a more common way users feel part of public place. There are several direct benefits of ownership in community settings. Real or symbolic ownership of community gardens has been found to result in important psychological benefits such as increased self-esteem and satisfaction with significant aspects of people's live. In addition, the guideline to create appropriate design of public open spaces should involve the direct participation of users in the design and management process (Standard Development Bureau, 2006). Participation can increase the perceived attachment of people to environments they have input in designing and managing. The ability to participate is an important ingredient in resident satisfaction with urban planning projects. They should be included in workshops, user consultancy, participatory mapping



and surveys. Participation is also a useful device in articulating and negotiating between the often conflicting values of different groups in public open space plan.

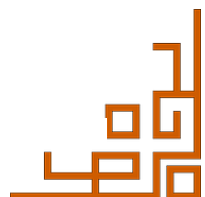
5. Conclusion

The dimensions of public open space uses in Muang Phayao Municipality reveals that there are 34 public open space which classify into 4 groups: 1) public open space for recreation, 2) public open space of the building, 3) public open space for commercial, and 4) waterfront public open space. These public open spaces not only have social and cultural values, but also a container for utilization and its necessities. These utilizations based on a classification include three different diversities: human, time and activities. In this research, the multi-use demonstrated that the highest level in each public open space is: 1) Wat Srikomkam (public open space of the building), 2) Muang Phayao Culture Square (public open space for recreation), 3) Chaykwan Pathway (waterfront public open space) and 4) Nonglabu Night Market (public open space for commercial). In the evidence of unique characteristics of public open space: urban morphology structure, social aspect and economic aspect illustrate to create the connection and interaction with the public open space. In terms of urban morphology, network is defined as relation and connection between urban areas covering the most collective life compared with other city spaces. In other words, they manifest themselves as roads, streets, alleys, dead ends and highways. The amount of open spaces for active recreation must be dependent upon the proposed or anticipated densities. The public open spaces should be placed in high density of building mass and located near residential, commercial and institutional land uses such as temples, schools, and cultural halls without disturbance by thorough traffic. When open space is located closer to the city center, it provides a more favorable tradeoff between access to open space amenities and costs of commuting (Wu and Plantinga, 2003). Concerning social aspect, the most important characteristic of public spaces is to create opportunities needed for social interactions (Garnham, 1985). The spaces are collective and have cultural and environmental values formed in different times for access and social life (Pakzad, 2005). Interaction among people in community leads to creating a stronger relationship with the place and society. This is confirmed the statement that urban open space must provide a place for the meeting of strangers and a place where one can transcend the crowd and be anonymous or alone. And in all of this, the urban park will continue to serve a central function in society's self-definition (Thompson,

2002). Good public open space should have the highest level of social activities (Gehl, 1996). Besides, making an opportunity for establishing some great social events is one of the advantages of qualified public open spaces. Festivals, national and traditional events can affect the urban environment if managed appropriately. In addition, a sufficient density of people has animation and vitality creating and sustaining viable mixed use that comply with Jacobs (1961) considered that density is essential to public open space and urban life. High population and building density significantly influence human ability to adapt to the environment. Factors influencing the ability of people to adapt to the environment are: the existence of spatial functions in every building that can accommodate basic necessities of space and public facilities in the form of an open space place can serve as a place to interact (Siti et al., 2015). Regarding economic aspect, the markets are likely to be the most attractive area to use the public open space. Markets are being introduced into public open space, such as downtown streets and park, and give people an opportunity to have greater control over the quality of food they purchase. As Hillier and Hanson (1984) states, a market renaissance is taking place in many communities. Public open spaces as parks and plazas in small towns and large cities are being redesigned to include markets. Moreover, a good public open space also offers benefits to the local economy in terms of stimulating increased house prices, since house-buyers are willing to pay to be near the spaces. Thus, the contribution of this study is that the overall element effects of public open space are identified on the basis of subjective evaluations, which can serve as guidelines for the revitalization of existing and design of current and new open spaces of the city. To achieve a successful usability public open space, it is necessary to consider all characteristics of public open space which based on the integrity of all its parts. Furthermore, Muang Phayao Municipality has to be aware of the value of the public open space for quality of life and urban life, and should be accountable to the local people for prevention and maintenance of these areas for moving toward liveable cities in the future.

Acknowledgements

This study was supported by grants funded from the Thailand Research Fund (TRF).



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