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## **Land Use and Land Cover Changes in Lewe Township, Nay Pyi Taw Union Territory (Mandalay Region)**

Thin Thin Myat<sup>\*</sup>

### **Abstract**

This research paper intends primarily to investigate the land utilization in rural area, with emphasis on the spatial pattern of land use and land cover changes; its relationship with the agricultural areas and forest areas in Lewe Township. Land cover changes which respects to environmental deterioration and economic development are studied. Changes in cultivated lands are studied by Remote Sensing and GIS, showing that there are changes between 1990 to 2007 and 2007 to 2015. The increase of cultivated land areas in Lewe Township is mainly due to the availability of water from the constructed dams and reservoirs. It is the main supporting factor on land cover changes in Lewe Township. Land use and land cover changes are studied from primary data and secondary data. According to these results, agriculture in Lewe Township is a satisfaction of farmers which maintains economic growth and degradation of farm lands for the long term. Most of the people are satisfied with the present status of economy based on agriculture in Lewe Township in Nay Pyi Taw Union Territory, Mandalay Region. So, land utilization and land cover changes are very important for local farmers.

Key wards: Land use, Land utilization, Land use changes

### **Introduction**

In Myanmar, the basic economy is agriculture. Since Lewe is one of the townships of Myanmar, the basic economy of Lewe Township also depends on agricultural land use. The land use and land cover changes are very important in the geographical study of a region. At present, Lewe Township is one of the townships of Capital Nay Pyi Taw Union Territory of Myanmar. Most of the village tracts and the town are located in the central part of Lewe Township which is bounded by highland areas in the east and west. Lewe Township is located in the region of transitional climate zone. It receives moderate amount of annual rainfall. The central plain area of Lewe Township has alluvial soils, meadow alluvial soils and meadow soils favourable for agriculture.

### **Study Area**

Lewe Township is situated between Latitudes 19° 25' to 19° 55' North and Longitudes 95° 43' to 96° 30' East. Lewe Township has an area of 598,845 acres (935.69 square miles, 2,423.43 square kilometers). Yetarshe Township of Bago Region is in the south, Thandaung Township of Kayin State is in the east, Pyinmana Township of Mandalay Region is in the north, Taungdwingyi Township of Magway Region is in the west and Aunglan (Myede) Township of Magway Region is in the southwest (Figure.1). The Pyinmana-Bagan railway line passes through Lewe Township from east to west. The Yangon-Mandalay railway line also passes through Lewe Township from south to north. After 2005, the government had demarcated Lewe, Pyinmana, Tatkone Townships as part of the new capital, "Nay Pyi Taw", of Myanmar (Myanmar Ahlin and Kyemone Newspapers, 27, March, 2006).

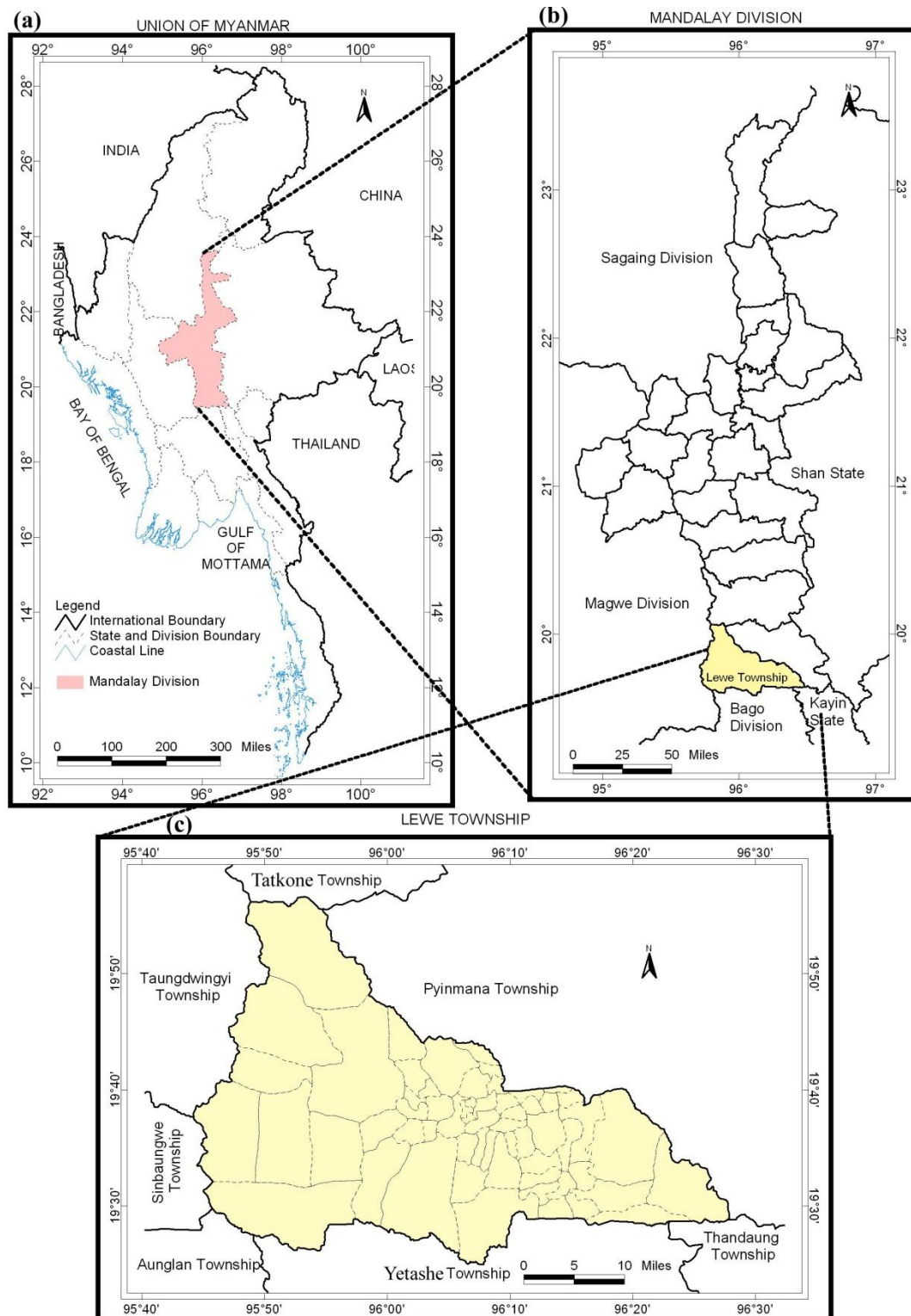
### **Objectives**

Major objectives of this study are;

1. to show the actual land utilization of study area,
2. to discover the role of land utilization and land cover changes,
3. to study the relationship between forest land and agricultural land

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<sup>\*</sup> Dr. Associate Professor, Department of Geography, Pyay University



Source: Land records department, Lewe Township

(a) Location of Lewe Township in Mandalay Region of Myanmar Naing Ngan

(b) Location of Lewe Township in Mandalay Region

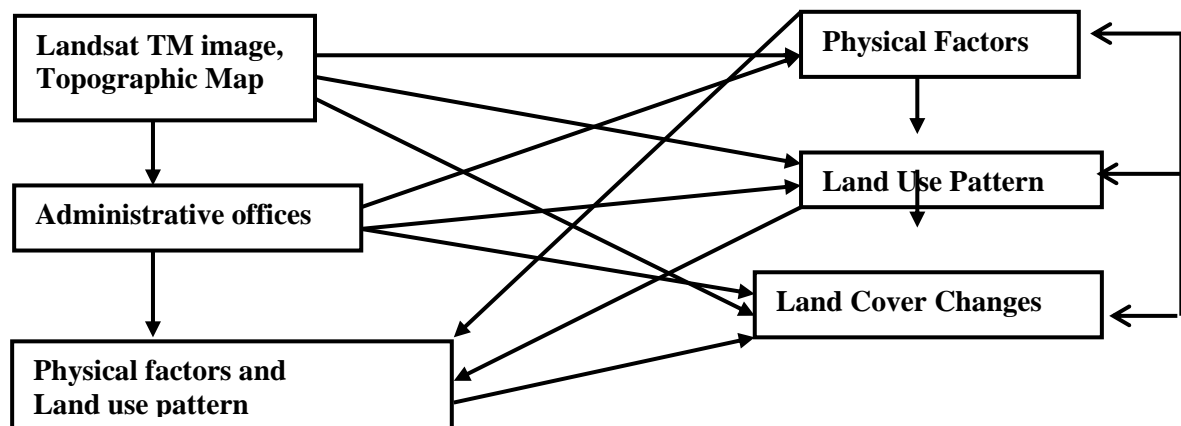
(c) Location of Lewe Township

**Figure1 Location of Lewe Township**

## Methodology and Sources of Data

This study analyses forest areas, occupied areas, culturable waste land areas and others land areas within Lewe Township (Nay Pyi Taw Lewe Township). These data are investigated by using secondary data. Major sources of secondary data collection are obtained from the Settlement and Land Records Department, the Ministry of Agriculture and Irrigation, and Township Peace and Development Council.

For data analysis, quantitative analysis and qualitative assessment are used to express the land use conditions in Lewe Township. After that, Geographic Information Systems is applied for drawing maps and analyzing land cover changes.



Source: Author, 2007.

**Figure 2 Work flow of the study area**

### Definition

Agriculture is the main economy and very important for human life. There are many definitions of agriculture for this study.

### Agriculture

Agriculture means the practice of cultivating the soil. The present-day interpretation is wider and includes not only the growing of crops but all forms of livestock raising, including the use of natural vegetation for feeding the animals and the gathering-in of crops, whether for subsistence or exchange (The Facts On File Dictionary of Human Geography, 1987).

### Land

“Land is the sum total of the natural and human-made resources over which possession of the earth’s surface gives control. It includes the earth surface, not only the ground but also water and ice. In addition to building sites, farm soil, growing forests, mineral deposits and water resources, it also includes such natural phenomena as access to sunlight, rain, wind and changing temperatures and location with respect to markets and other areas” (ibid.).

### Land use/Land utilization

As defined by R.H. Best, the term land use deals with the spatial aspects of the human activities on the land and with the way in which the land surface is adapted, or could be adapted, to serve human needs (ibid.).

### Forest

A large area of land covered with trees and plants, usually larger than a wood, or trees and plants themselves.

## Geographical Assessment of Land Use and Land Cover Changes in the Study Area

### General Land Use of Lewe Township

The general land use of Lewe Township depends on its physical and social-economic factors. According to the data from Land Records Department of Lewe Township, the general land use of the township can be divided into four types;

- (1) Forest Areas,
- (2) Occupied Areas,
- (3) Culturable Waste Land Areas, and
- (4) Others Land Areas,

**Table 1 Types of Land Utilization in Lewe Township (1987 to 1996 and 2006-2007)**

Years	Occupied Areas		Forest Areas		Culturable Waste Land Areas		Other Land Areas	
	Acres	Percent	Acres	Percent	Acres	Percent	Acres	Percent
1987 to 1996	96,267	16.08	462,320	77.2	3,922	0.65	36,336	6.07
2006-2007	98,752	16.5	409,501	68.4	2,631	0.4	87,961	14.7

Source: Settlement and Land Records Department, Lewe Township

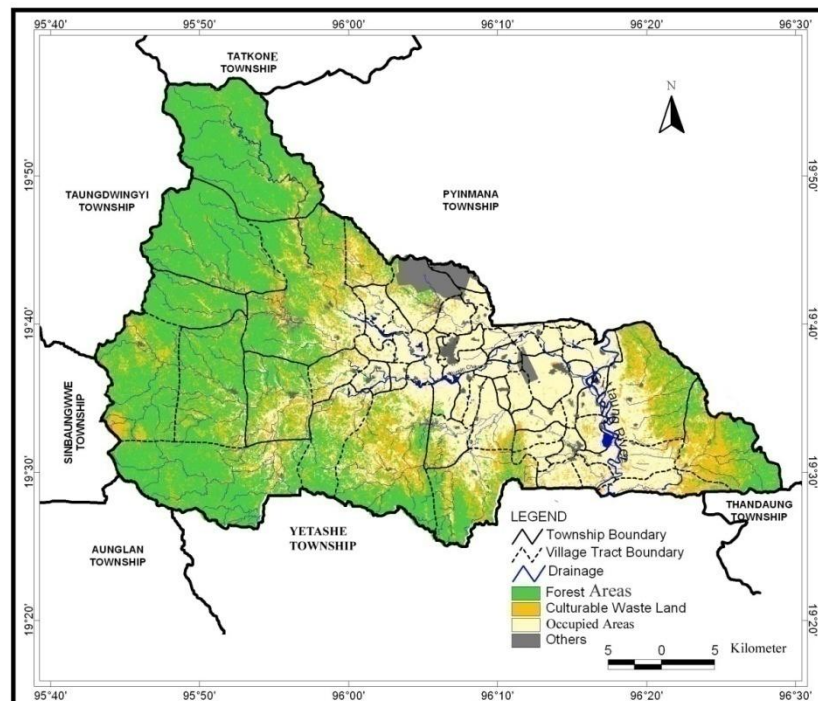
### Forest Areas

In this region, forest cover is found in the western rim of Bago Yoma and eastern rim of Shan Highland and it occupied about two-third of the township. Within a decade from 1987-86 to 1995-96, forest land of the Lewe Township decreases from 462,320 acres or 77.2 percent, to 409,501 acres or 68.4 percent of the total area of the township in 2006-2007. Three-Fourth of the township is covered by forests. Most forests in Lewe Township are Reserved Forests, with different names.

The names of the forests depend on the nearby streams or rivers or villages such as Minbyin Reserved Forest, Yanaungmyin Reserved Forest referred to the name of nearby villages; Palaway Reserved Forest, Yonbin Reserved Forest took their names from the name of nearby streams.

### Occupied Areas

The economy of Myanmar depends on agriculture and the economy of Lewe Township also depends on agriculture. According to data from Land Records Department, within a decade from 1985-86 to 1995-96, the average area under agricultural lands is 96,267 acres or 16 percent of the township area. In 2007, the average agricultural land is 98,752 acres or 16.5 percent. Agricultural lands are increased at the expanse of forest land and culturable waste land, attributed by dams and reservoirs are constructed in Lewe Township and these can supply water for agriculture. Over 50 percent of the population of the township earns their living by agriculture, and related work.



Source: Landsat ETM-7, 2005

**Figure 3 General land use of Lewe Township**

Occupied areas of the township can be subdivided into two types; the net sown area and the current fallow land area. In 2007, occupied areas of the township are 98,752 acres. All these acreage are net sown areas, with no fallow lands.

### **Culturable Waste Land Areas**

According to data from the Settlement and Land Records Department, in 1985-86 to 1995-96, the average culturable waste lands are 3,922 acres or 0.65 percent and decrease to 2631 acres or 0.4 percent of the total area of the township in 2007. Almost all of these lands are cleared, prepared and used for agriculture. As a result, the amount of cultivable waste land declines year by year. It is changed to agriculture land, urban extension and build to dams and reservoirs.

The culturable waste lands are found mostly in the eastern and western part of the township where the lands are rather gentle, like the foothills of the mountains, and unreserved forests are found in these places. In every village tract of the township, there are culturable waste lands, but their acreages are small.

### **Other Land Areas**

Other lands include transportation lands, water bodies, mining area, factory land, town and villages, religious land, cemetery and other unclassified land. Other lands also increase in acreages (such as airport, settlement areas, dam and reservoirs). Government built dams and reservoirs to control the water flooding, and to protect cultivated lands and settlement areas. The dams and reservoirs of Lewe Township are mainly intended for irrigation. Increased number of the dams and reservoirs provides irrigated water to croplands of Lewe Township. In 2007, their most others land use in Lewe Township area increase the due to the extension of town area Nay Pyi Taw City (Nay Pyi Taw Union Territory) and new established of airport in Ela Village Tract. Within a decade from 1985-86 to 1995-96, the total area of other lands is 36,336 acres or



6.07 percent, and in 2007, about 87,961 acres or 14.7 percent of the total area of Lewe Township (Table1 and Figure 3).

#### **Land Use Changes between 1990 to 2007 and 2007 to 2015**

The satellite images used from Landsat 7 ETM+7 Bands were obtained from UNEP (United Nations Environmental Programme, 2007) and NCEA (National Conservations of Environmental Association) through the Forest Department. Major steps of the image interpretation are;

1. Digitizing on topographic maps,
2. Data collection and preliminary field observation,
3. Digital image pre-processing,
4. Field observation,
5. Digital image final-processing, and
6. Data analysis and results.

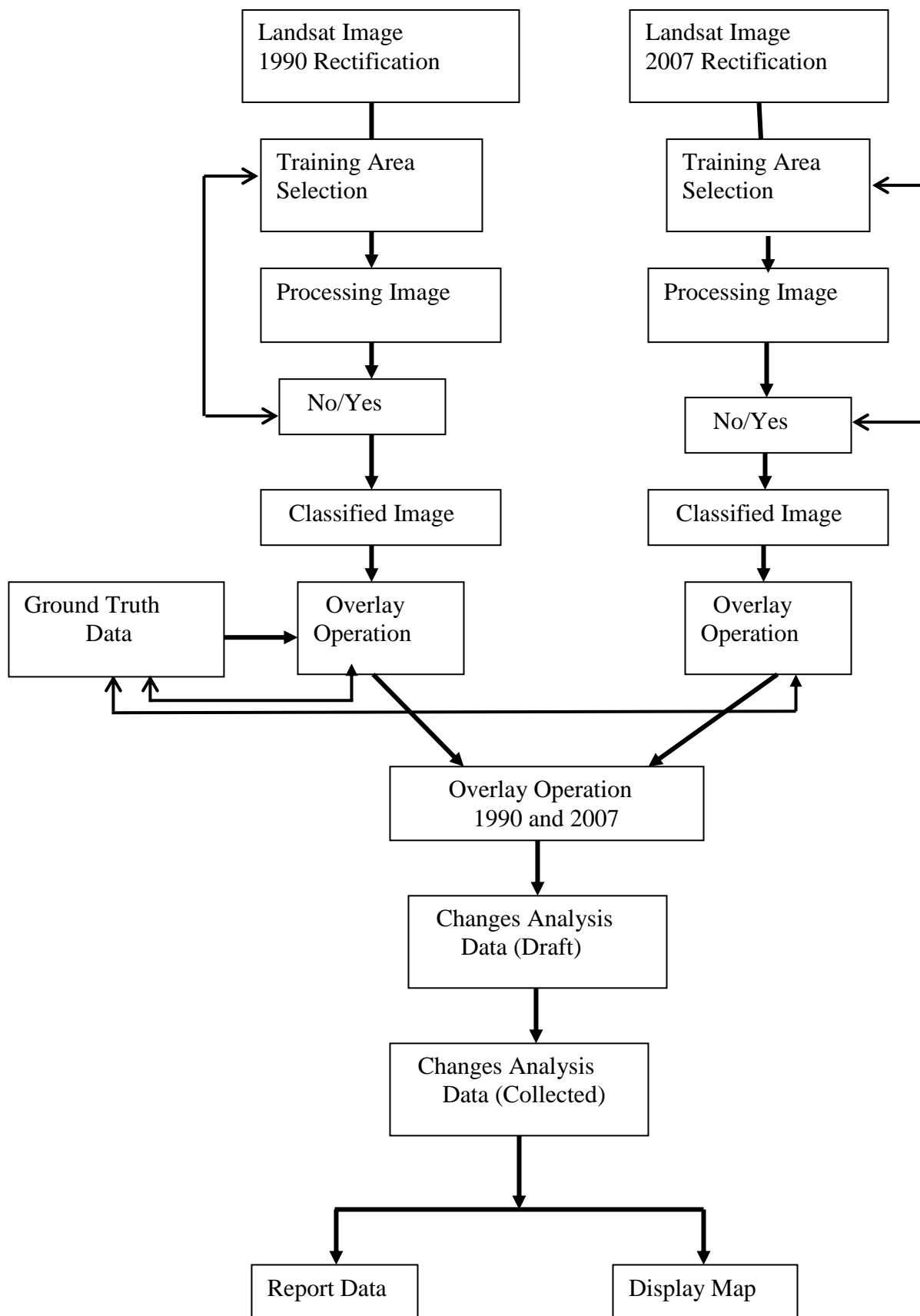
This study also applies RS (Remote Sensing) and GIS (Geographic Information Systems) techniques by using some GIS software such as Geo-Media, Arc View and TNTSTART software. The study measures images for two periods (1990 and 2007). Main data sources are;

1. Topographic maps with the scale of 1 inch to 1 mile (1:63360),
2. Satellite images with Landsat ETM+7 Bands, acquisition date for January 1990 and 2007, with 30 meter resolution, and
3. Secondary data from Settlement and Land Records Department, Ministry of Agriculture and Irrigation, Meteorological Department and Forest Department.

Firstly, topographic maps with scale of 1:63360 were converted into digital format and registered with geo-referencing by Geographic Lat/Long and digitizing on Geo-Media Software. After the digitizing, as a second step, the satellite image was analyzed on Remote Sensing technique with standard false colour composite (FCC) 4, 3, 2 Bands combination. It was used in preliminary field survey in this study area.

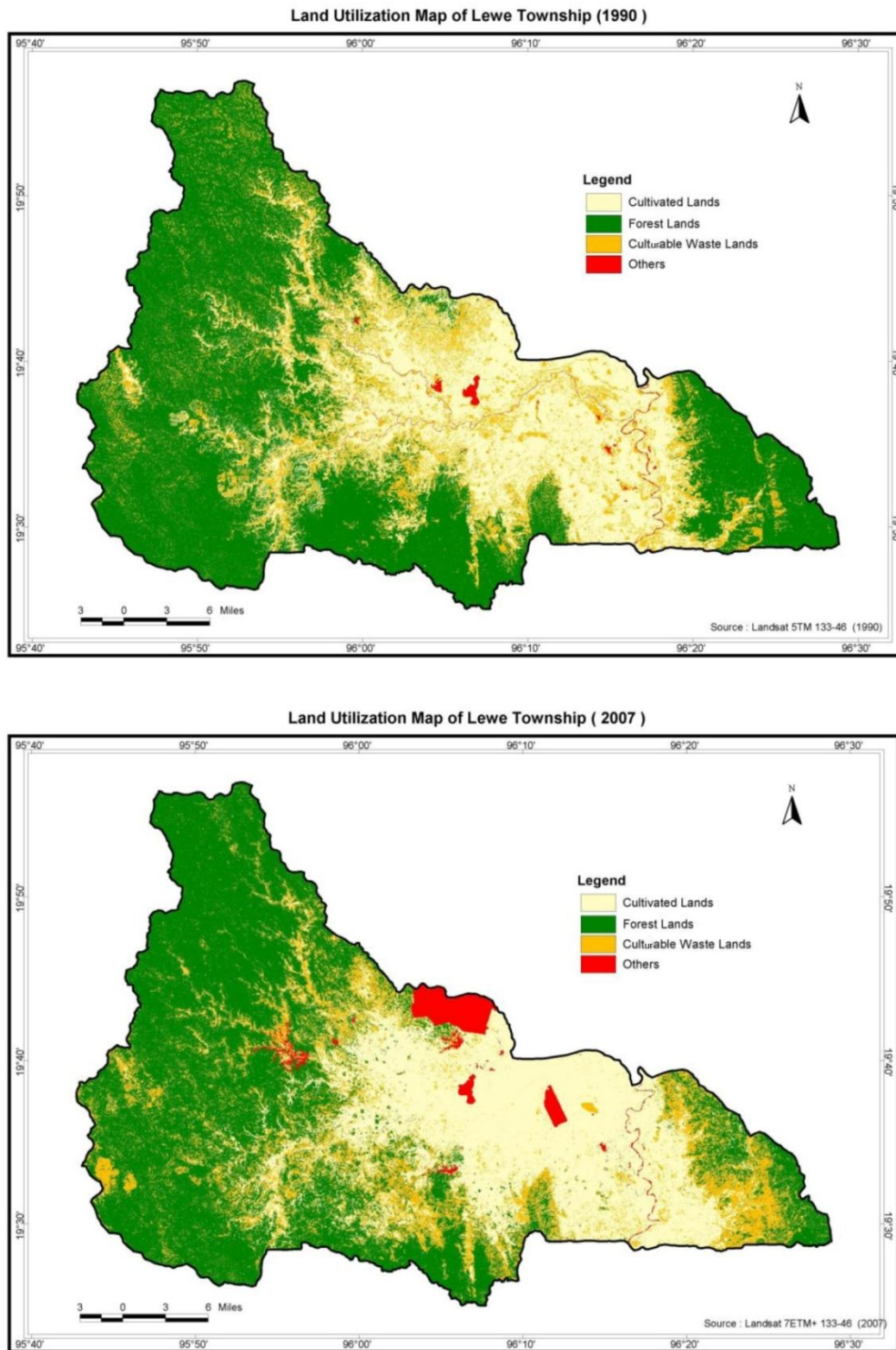
In the third step, with the use of false colour image, the general conditions of land cover and forest type were checked by ground survey in this study area. Land cover classification was done by TNTSTART Software with supervised classification based on information from field observation. Images classifications can be done by two methods such as;

1. Unsupervised Classification and
2. Supervised Classification



Source: Author, 2007

**Figure 4** Work flow for images processing and data generation for land cover



Source: Landsat 7ETM+133-36 (1990-2007)

**Figure 5 Land use changes between 1990 and 2007**

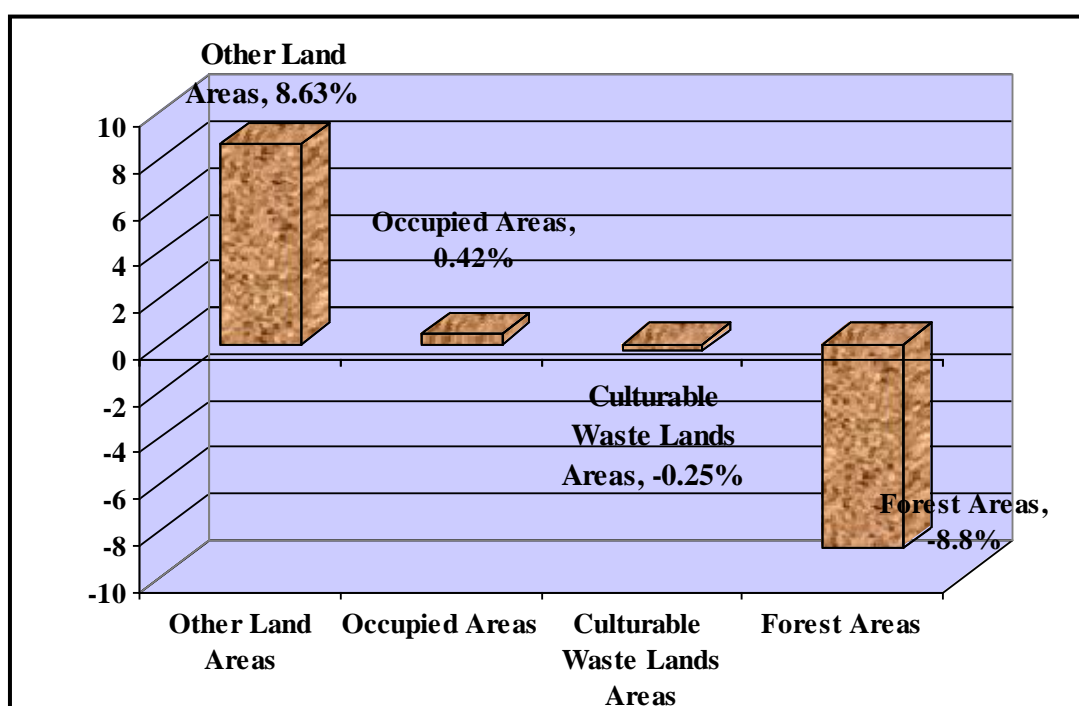
By studying the output of Land Cover Classifications, the study area is checked by second field observation. Cultivated land changes can be studied as shown in figure 4 and output map in Figure 5 and Table 2.

According to the above mentioned, analysis cultivated land changed between 1990 and 2007 in Lewe Township was as follows;

**Table 2 Cultivated Land Use Changes in Lewe Township**

Type of Land Use	1990			2007			Changes
	Acres	Sq.mile	Percent	Acres	Sq.mile	Percent	Percent
Occupied areas	96,267	150.4	16.08	98,752	154.1	16.5	0.42
Forest areas	462,320	722.4	77.2	409,501	639.9	68.4	-8.8
Culturable waste lands areas	3,922	6.1	0.65	2,631	4.2	0.4	-0.25
Other land areas	36,336	56.8	6.07	87,961	137.5	14.7	8.63
Total	598,845	935.7	100	598,845	935.7	100	

Source: Landsat ETM-7(1990 and 2007).



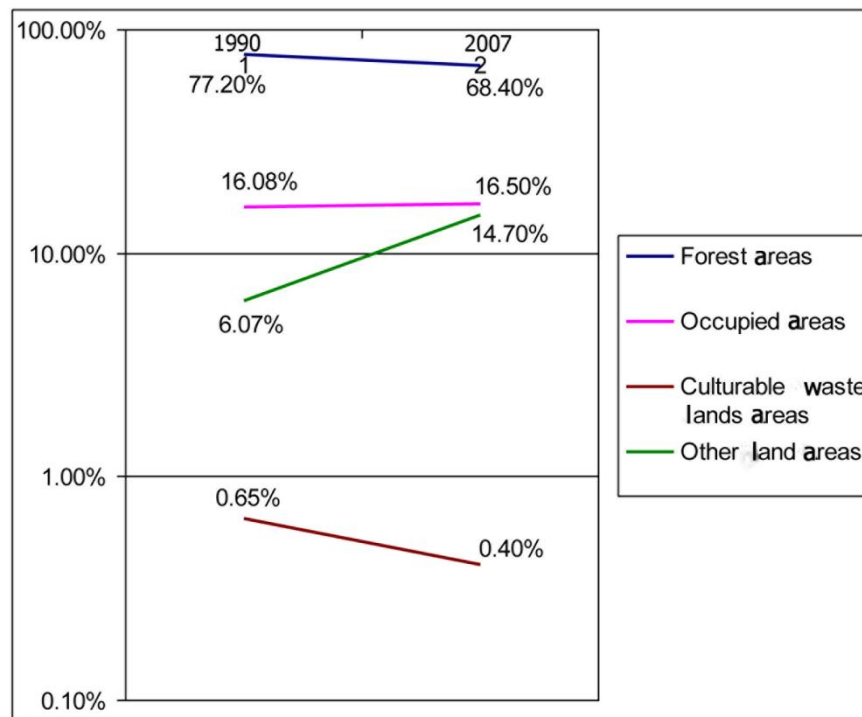
Source: Base on Table 2

**Figure 6 Land cover changes in Lewe Township**

In Table 2, most of other land areas have positive changes with 8.63 percent between 1990 and 2007, such as rural area, cemetery, reservoirs and dams, roads, factories and Nay Pyi Taw Airport. Cultivated lands also increase with 0.42 percent change in this area. Negative land use change occurs in forest lands (-8.8 percent) and culturable waste lands (-0.25 percent).

### Findings, Suggestions and Conclusion

In this study “Land utilization and land cover changes in rural area” is viewed from both quantitative approach and qualitative assessment. The study is mainly emphasized on forest areas, occupied areas, culturable waste land areas and others land areas. According to these results:



Source: Calculated Results in 2008

**Figure 7 Land cover changes in Lewe Township (1990 to 2007)**

In 1990 to 2007, Forest areas of Lewe Township decreased from 77.2 percent to 68.4 percent of the total land areas. Forest areas are changed to new settlement, international airport, built dams and reservoirs.

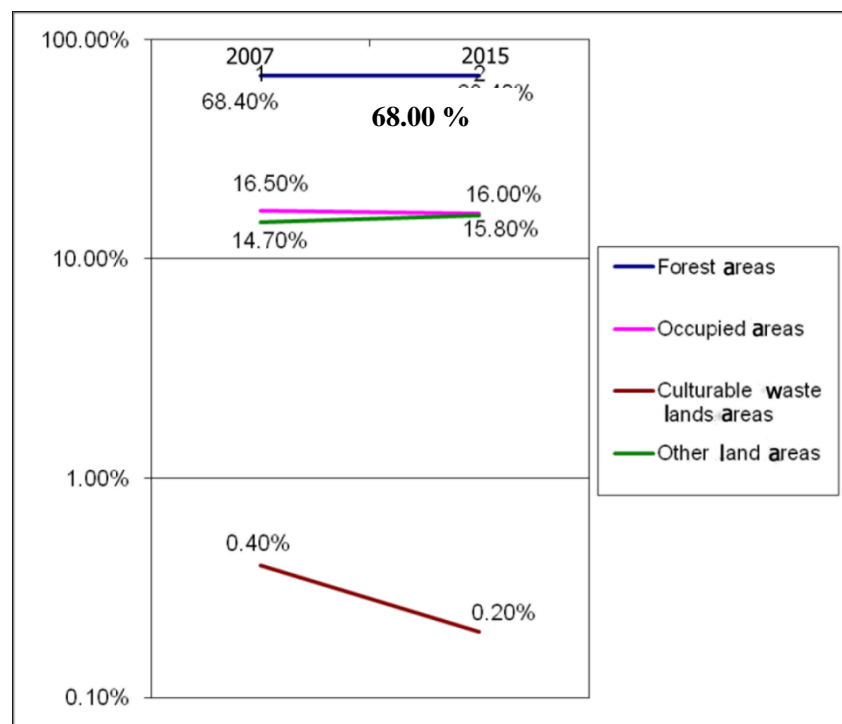
In 1990 to 2007, occupied areas of Lewe Township increased from 16.08 percent to 16.5 percent of the total land areas. Occupied areas are increased cultivated lands.

In 1990 to 2007, culturable waste land areas of Lewe Township also decreased from 0.65 percent to 0.4 percent of the total land areas. Almost all of these lands are cleared, prepared and used of agriculture. As a result, the amount of culturable waste land area declined year by year.

In 1990 to 2007, other land areas of Lewe Township also increased from 6.07 percent to 14.7 percent of the total land areas. Others lands also increased settlement area, agriculture land, and dams and reservoirs.

**Table 3 Cultivated Land Use Changes in Lewe Township**

Type of Land Use	2007			2015			Changes Percent
	Acres	Sq.mile	Percent	Acres	Sq.mile	Percent	
Occupied areas	98,752	154.1	16.5	88,984	139.04	16.0	-0.5
Forest areas	409,501	639.9	68.4	376,587	588.42	68	-0.4
Culturable waste lands areas	2,631	4.2	0.4	1,040	1.63	0.2	-0.2
Other land areas	87,913	137.5	14.7	87,423	136.60	15.8	+1.1
Total	598,845	935.7	100	554,034	865.68	100	



Source: Calculated results in 2015

**Figure 8 Land cover changes in Lewe Township (2007 to 2015)**

In 2007 to 2015 data, Forest areas of Lewe Township decreased from 0.5 percent of the total land areas.

In 2007 to 2015, occupied areas of Lewe Township increased from 0.4 percent of the total land areas. Forest areas and occupied areas are changed to new settlement, new international air port, new built dams and reservoirs.

At the same years, culturable waste land areas of Lewe Township also decrease from 0.2 percent of the total land areas. Almost all of these lands are cleared, prepared and used of agriculture. As a result, the amount of culturable waste land area declines in year by year.

According to this year, other land areas of Lewe Township also increase from 1.1 percent of the total land areas. Others lands only increase cultivated land, new settlement, new international air port, new roads and irrigated land areas.

According to this analysis, land use and land cover changes are studied from primary data and secondary data. Both the primary data and secondary data are employed to measure land utilization and land cover changes of Lewe Township. These secondary data results are also coincided with the primary data results. By studying these results, it controls the land use conditions and is also important for agriculture in Lewe Township, Nay Pyi Taw Union Territory (Mandalay Region).

Increasing of agricultural lands is necessary to modify agriculture works for local people. Moreover, extension of urban areas is a good way to give urban development and improve to living standard of local people. But decreasing of forest areas will be expected to increase environmental deterioration for long term.

Finally, Most of the people are satisfied with the present status of economy base on agriculture in Lewe Township, Mandalay Region. So, land utilization and land cover changes are very important for local people.

### Acknowledgements

I am greatly indebted to Rector Dr Khin Thidar, Pyay University and Rector-in-charge Dr Aung Aung Min, Pyay University for their permission to conduct this research. I would like to thank for Dr Lei Lei Win, Professor, Head of the Department, Pyay University and also would like to express my deepest gratitude to Dr Saw Pyone Naing, Rector, Sagaing Educational University for their genuine encouragement and suggestions on this research work. This acknowledgement cannot be completed without expression in a debt of gratitude from Land Record Department, Irrigation and Agriculture Department, Township Peace and Development Council in Lewe Township and all respondents of farmers. I also would like to thank all my teachers who have taught me throughout my student life. Finally, the last but not the least great thanks goes to all my family, especially to my parents and my sister Dr Myat Myo Myo Aye, Associate Professor, Department of Physics, Pakokku University.

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## **A Geographic Study of Agricultural Land Use Change in Pyay Township**

Khin Sandar Moe<sup>\*</sup>

### **Abstract**

Like other township of Pyay District, agriculture is a major economic activity of the area. Area of agriculture land increased because agriculture land encroached into the forest area and area of culturable waste land was changed into agriculture land. Among four types of agriculture land: le, ya, garden and kaing-kyun land, area of le and ya land increased. To present field observation was thoroughly done and interviews was done with local farmers, staff of agriculture department and authorities concerned. The questionnaires were distributed to 10 village tracts selected as samples to understand the increase in area of agriculture and their uses. The objectives of the paper are to find out existing geographical factors that affect agricultural land use change, to explore the pattern of agricultural land use change and to predict future prospect on agricultural land use.

Key words: agriculture land, culturable waste land, le land, ya land

### **Introduction**

Land utilization is a form of human activity as an effort to give certain purposes in result or service and realized space design in keeping the environment function survives (Soefa, 1997, p- 76). Land utilization change over time is an inevitable phenomenon occurring globally due to both temporary and permanent interest of the inhabitants in a particular area (Eludoyin, 2010).

Pyay Township is located in Bago Region. Although there are many economic activities, agriculture plays an important role in economy of the area. In the area, le, ya, garden and kaing-kyun land are found and le land and ya land are major agricultural land use and people mainly engage in it.

In Pyay Township, land utilization change is mainly caused by government policy. Among land use types of Pyay Township, area of agriculture land changed and area of le and ya land increased due to encroaching into forest area and decreased in culturable waste land.

### **Study Area**

Pyay Township is one of the townships which are located in Bago Region (west). It has an area of 788.41 sq. kilometres and comprised 14 wards and 55 village tracts. Total population was 226,306 in 2018 (Jan). Pyay Township is 179 miles away from Yangon City.

### **Research Problem**

In the area, areas of agricultural land uses increased. Therefore, research problem of the paper is:

Why do areas of agricultural land uses change in Pyay Township?

### **Aim and Objectives**

There are four types of land uses in Pyay Township. Among them, area of agricultural land use is the largest and it plays an important role in economy of the area. The aim of the paper is:

- to give suggestions that support the agriculture of the study area.

The objectives of the paper are:

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<sup>\*</sup> Daw, Lecturer, Department of Geography, Pyay University



- To find out existing geographical factors that affect agricultural land use change
- To explore the pattern of agricultural land use change
- To predict future prospect on agricultural land use

### **Data and Methods**

Primary data were collected by interviewing with the local people. Pyay Township is composed of an urban area comprising 14 wards and 55 village tracts. Among 55 village tracts, 10 village tracts were selected to distribute questionnaires and 15 questionnaires were distributed to each village tracts to know the causes and consequences of agricultural land use change. Staff of government office and residents are also interviewed to get detailed understanding on it.

Secondary data are obtained from books, office such as Settlement and Land Records Department, online sources, maps and satellite images. GIS methods were used in preparing and producing maps.

### **Results and Findings**

#### **Physical Background**

Pyay Township is one of the townships in Bago Region (west). It is located between north latitudes 18° 43' and 19° 6' and also between east longitudes 95° 9' and 95° 24' (Figure 1 & Figure 2). It has an area of 788.41 sq-kilometer (304.4102 sq-miles). It is composed of 14 wards and 55 village tracts (Figure 3). The shape of township is roughly square shape.

Pyay Township is located on Yangon- Pyay Rail road and Motor Road at a distance of 179 miles away from Yangon City. Therefore, agricultural products from the Pyay Township are easily carried to Yangon.

Most of the northern part is the highest with an elevation of 150 m (492 feet) in Pyay Township. Then, elevation gradually decreases into the southern part (Figure 4). There are two lowland areas: Ayeyarwady and Nawin valleys. The low land has an elevation of 50 m (164 ft) above mean sea level and annual crops are widely grown in the area.

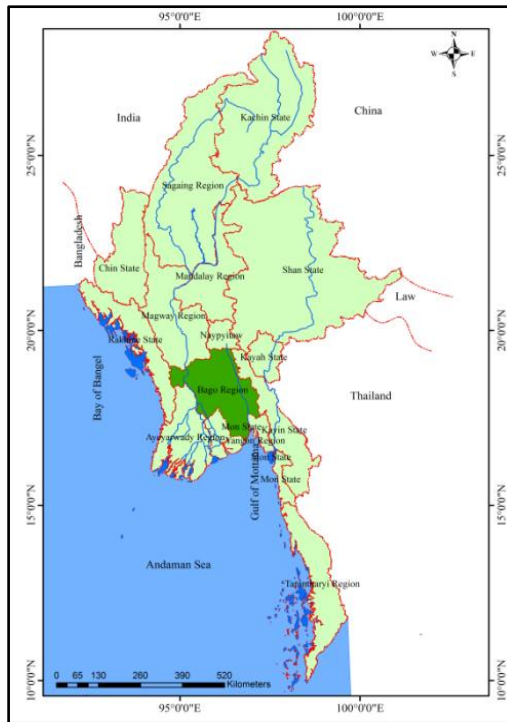
Pyay Township lies in the transitional climatic zone. According to climatic data (1995-2015), April was the hottest month and its average maximum temperature is 43.1° C and average minimum temperature was 22.1 °C. January was the coldest month with a maximum temperature of 35.9°C and minimum temperature of 15°C (Figure 5).

The annual rainfall within 20 years of 1995-2015 was 1147.6 mm. Pyay Township experiences the Tropical Savanna Climate (Aw) type.

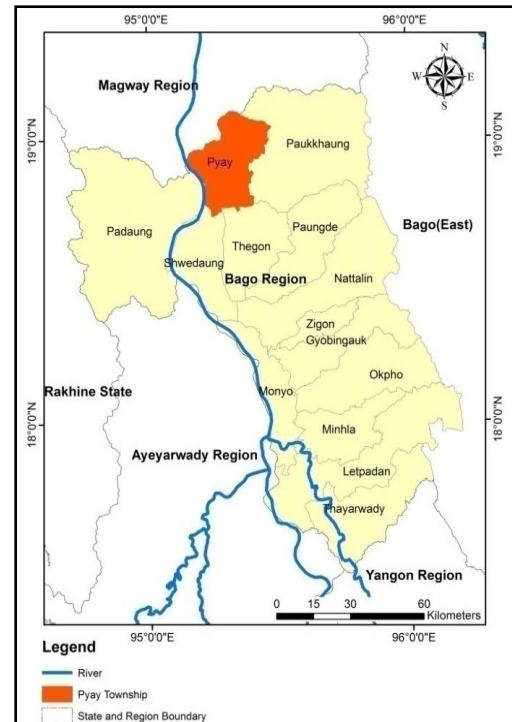
The climatic conditions, especially temperature and rainfall, support the economic activities including agriculture.

#### **Soils**

Although there are six types of soils of which brown meadow soils (Gleysols), light brown meadow soils (Gleysols) and meadow alluvial soils (Fluvisols) support



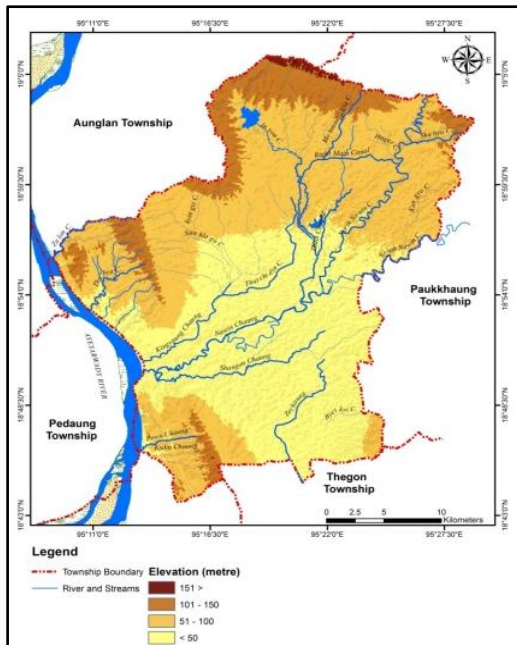
**Figure 1 Bago Region in Myanmar**  
Source: Agriculture Atlas (2002)



**Figure 2 Pyay Township in Bago Region**  
Source: Agriculture Atlas (2002)

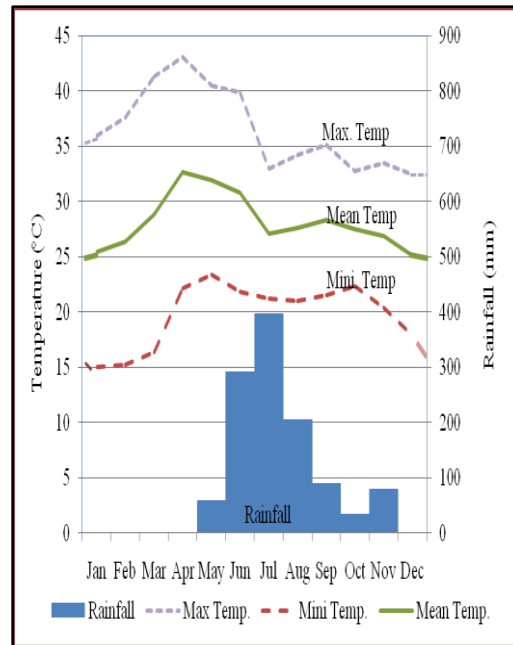


**Figure 3 Village tracts of Pyay Township in Bago Region**  
Source: MIMU

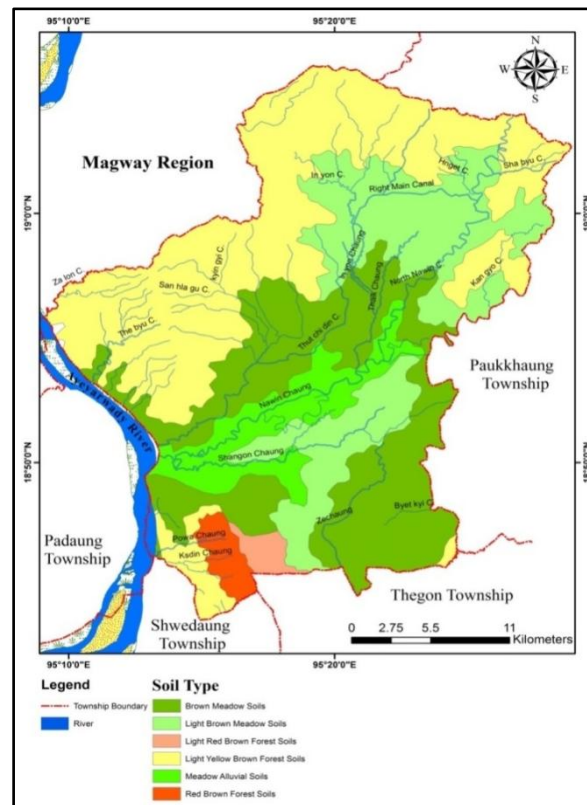


**Figure 4 Relief and drainage of Pyay Township**

Source: SRTM DEM 90m and UTM Map, 2004  
1:500000 Scale



**Figure 5 Climograph of Pyay Township (1995-2015)**



**Figure 6 Soil types of Pyay Township**

Source: Land use Department, Yangon (2016)

agriculture especially, annual crop cultivation, in Pyay Township (Figure 6). Red brown forest soils (Xhodic Ferrosols), light yellow brown forest soils (Xanthic Ferralsols) and light red brown forest soils (Xanthic Ferralsols) are favourable for perennial crop cultivation. Generally, existing soils in the area support crop cultivation.

Therefore, generally, such existing physical conditions as location, topography, drainage, climatic conditions and soils support agriculture especially annual crop cultivation in Pyay Township.

### **Social Factors**

According to 1973 census, the population of Pyay Township was 148,556 persons. The population increased by 40,548 persons or 37.5 per cent within 10 years. The population was 179,756 persons according to the 1983 census and population increased to 185,621 persons in 1990. The number of population was 219,947 persons in 2014 and 220,280 persons in 2015 and 222,856 persons in 2016 and 226,306 in 2018 (Table 1 & Figure 7). Due to good transportation and communication and productive agricultural lands and economic condition, and the number of population may continue to increase.

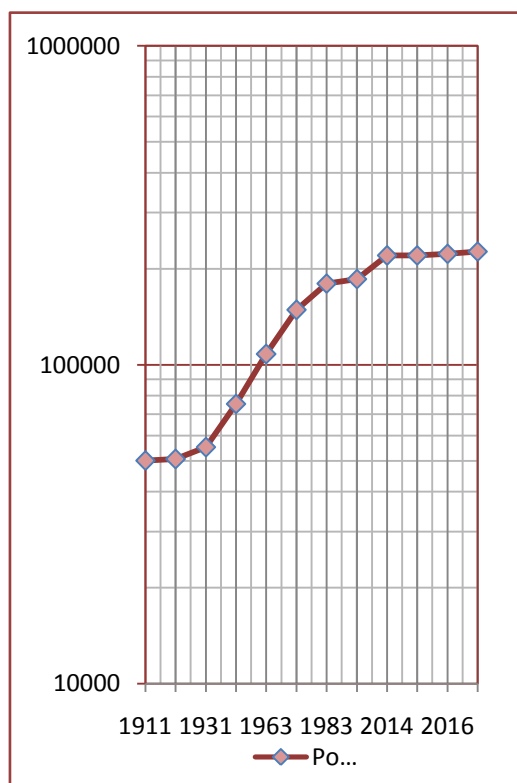
There were 12 village tracts with population between 2001 and 4000, 31 village tracts with 1001-2000 and eight village tracts with less than 1000, including Maautaw, Ahnauk Ywathit, Bokone, Laba, Myoma, Thakhwetsauk, Konezin, and Thuhtay, etc (2018). (Figure 8). These areas possess large cultivated areas and the lands in the areas are suitable for crop cultivation.

The dense population village tracts are Wethteekan, Paungdale, Zeeoak, Ngaywar, and Hmokeshey. Hmokeshey, Zeeoak, Ngaywar village tracts are located adjacent to Pyay City and the main road and rail road run across these village tracts and thus population concentration is relatively high. The most populated areas are found on the flat plain of Nawin Creek which is suitable for agricultural activities.

**Table 1 Total Population of Pyay Township (1911-2018)**

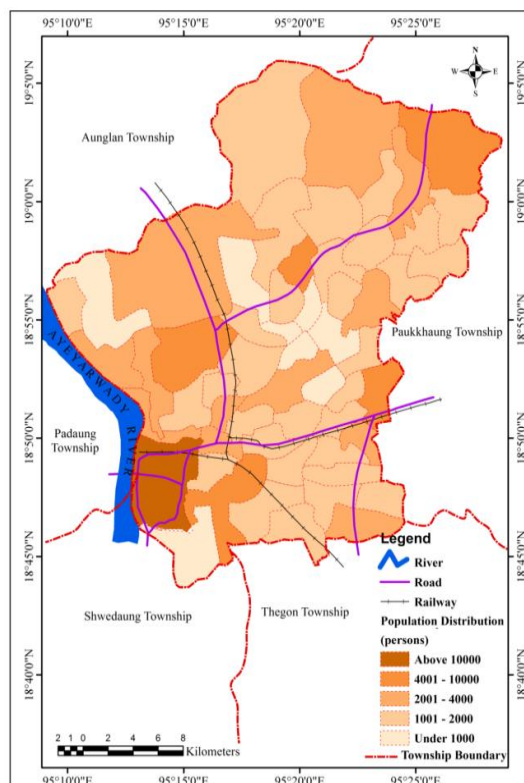
<b>Sr. No.</b>	<b>Year</b>	<b>Population</b>
1	1911	50,024
2	1921	50,602
3	1931	55,100
4	1953	75,418
5	1963	108,008
6	1973	148,556
7	1983	179,756
8	1990	185,621
9	2014	219,947
10	2015	220,280
11	2016	222,856
12	2018	226,306

Source: Immigration and National Registration Department, Pyay



**Figure 7 Total population and population growth in Pyay Township (1911-2018)**

Source: Immigration and National Registration Department, Pyay and Table 1



**Figure 8 Population distribution in Pyay Township (2018)**

Source: Immigration and National Registration Department, Pyay

### Economic Factors

The Primary Sector mainly includes agriculture. The total cultivated area was 114,159 acres in Pyay Township in 2017-18. The main crops are paddy, sesame, groundnut, pulses and sugarcane.

Secondary sector includes rice mills, saw mills, oil mills, flour mills, paper factories, ice and soft drinks factories, purified drinking water factories, breweries, clothing, food processing, electrical appliance, leather and cottage industries. Saw mills, rice mills, and oil mills also can be found in some villages of Pyay Township. Existing agro-based industries somehow support agriculture in the area.

### Land uses of Pyay Township

General land use of Myanmar is classified into four types.

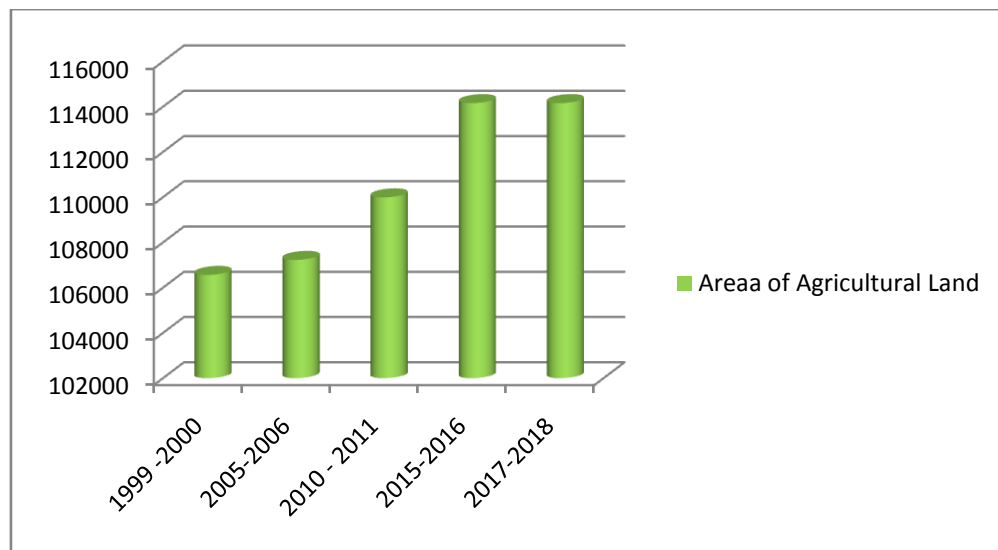
1. Agricultural land use
2. Forest land use
3. Culturable waste land
4. Uncultivable land.

Agricultural land use of Pyay Township is generally classified into four types and these are: (1) *le* land (paddy land), (2) *ya* land (dry farm land) (3) *kaing-kyun* land (riparian land) and (4) gardenland.

Area of agriculture land use increased in the study period and it unfolds the importance of agricultural sector in the areas. (Figure 9).

In 1999-2000, the agricultural land area was 106,565 acres which accounted for 54.7 percent of the township area. The area of agricultural land was composed of 73,211 acres of *le* land, 26,325 acres of *ya* land, 23,544 acres of *kaing-kyun* land and 8,252 acres of garden land.

In 2005-2006, the area of agricultural land increased to 107,229 acres which represented 55 percent of the township area. During the period from 1999-2000 to 2005-2006, the area of *le* land was increased by 210 acres and *ya* land by 470 acres, but *garden* land was decreased by 16 acres. The increase in *le* land and *ya* land was due to the extension of such lands over the culturable waste land which reduced from 29,036 acres to 25,386 acres.



**Figure 9 Changes of area of agriculture land in Pyay Township (Between 1999- 2000 and 2017-2018)**

Source: Based on data of Land Records Department

The area of agricultural land further increased to 109,993 acres (56.5%) in 2010-11. *Le* land was increased by 2,590 acres and *ya* land by 182 acres, but *garden* continued to decrease by 8 acres. Due to the increase in *le* and *ya* land and by the conversion of other types of land use, the area of culturable waste land further decreased by 2,838 acres. The increase of cultivated land area somehow helped benefit the local inhabitants. The village tracts with increased area of agricultural land in 2010-2011 were Bokone(*le* and *ya*), Konetharlin (*le*), AnuakLetkokepin (*le*), Hmawzar (*le*), Mokehtaw(*le*) and Taungkhwayye (*le*).

According to the data of 2005-2006, Bokone village tract had only 29 acres of *le* land and it increased to 129 acres in 2010-11, and *ya* land area also increased slightly from 890 acres to 894 in the same period. Likewise, the *le* land area increased from 128 acres to 528 acres in Konetharlin village Tract, from 331 acres to 805 acres in AnaukLethkokepin, from 843 acres to 1343 acres in Hmawzar, from 839 to 1339 in Mokehtaw and from 922 acres to 1786 acres in Taungkhwayye (Figure 10).

In 2015-16, the area of agricultural land continued to increase to 114,176 acres (58.6%). Therefore, a little more than half the area of the township is used for agriculture. According to the data available, 2,057 acres of *le* land and 2,129 acres of *ya* land have increased in the 5-year period from 2010-2011 to 2015-2016, but the *garden* land area further decreased by 3 acres, while *Kaing-kyun* land area remains unchanged.

In 2015-2016, some village tracts gained more agricultural land, including Kankyikone (*ya*), Waryoneseik (*ya*) Kyawthar (*ya*), Bokone (*ya*), Konetharlin (*kaing-kyun*), North Nawin(*le*), AnaukLetkhokepin (*ya*) and Kwingyi (*garden*).

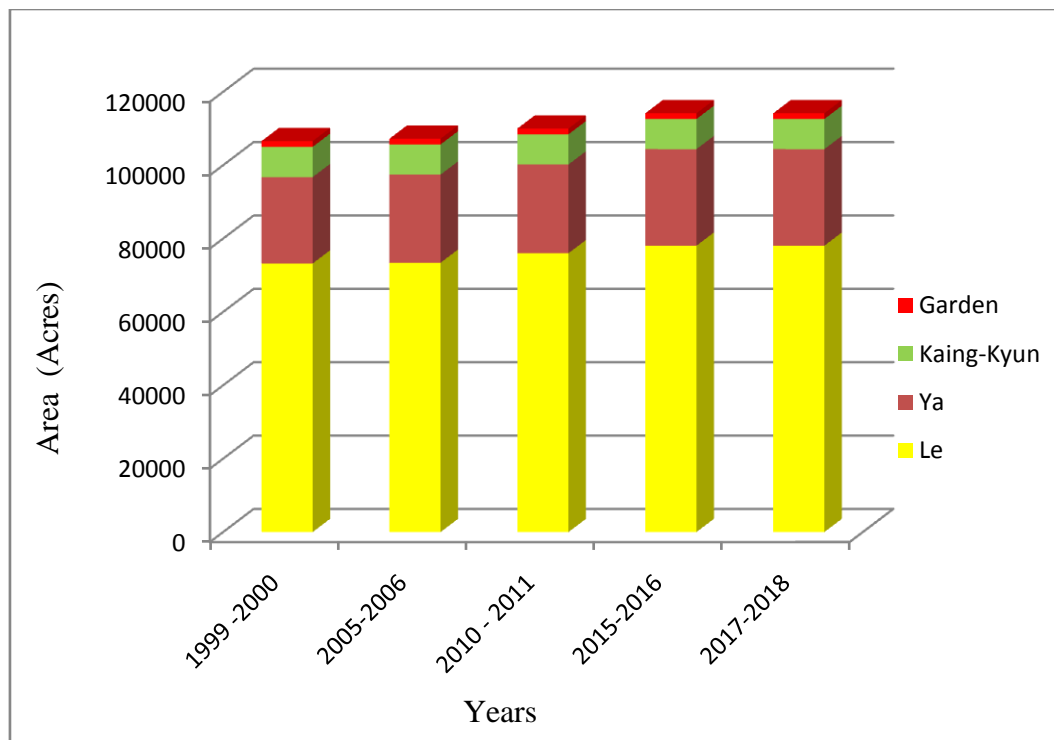
North Nawin village tract had no agricultural land in 2005-2006, but 2,201 acres of *le* land in 2015-2016, due to the conservation of the degraded forestland with low elevation (<50 meter) into *le* land.

The increase of *ya* land in Kankyikone, Waryonseik and Kyanthar village tracts was in account of the reclamation of virgin and waste lands into agricultural land and of having irrigation water from Kankyikone Reservoir.

In 2017-2018, the area of agricultural land increased to 114,159 acres which represented 58.6 percent of the township area. This period, some village tracts gained more agricultural land (Figure 11) (Figure 12).

The increase of *ya* land in AnaukLetkhokepin village tract was at the expense of *ya* land in HtanmakaukVillage tract located close to it. In the period from 2010-2011 to 2015-2016 culturable waste land area was decreased by 1,272 acres and the reserved and non-reserved forest areas by 2,386 acres. The decrease in the culturable waste land area was due to conversion into agricultural land. The depletion and degradation of forest land enhances the intensity of flooding and the impact of global warming.

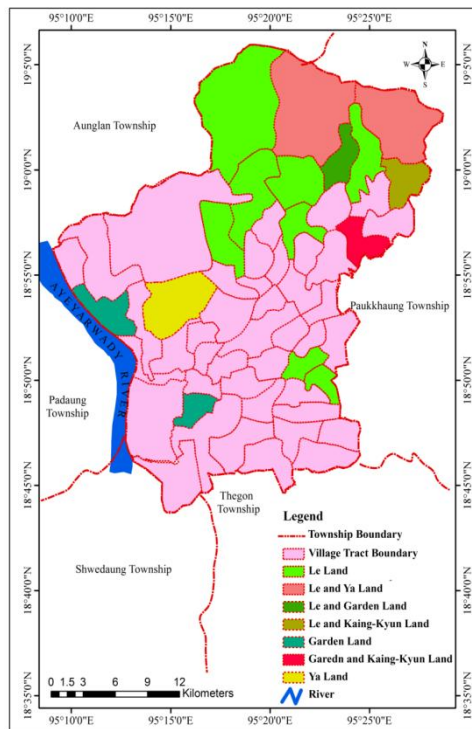
Land use is mainly related to the optimum use of the limited land between the alternative major types of land use (R.B Mandal, P-3, 1981).



**Figure 10 Increase in agricultural land**

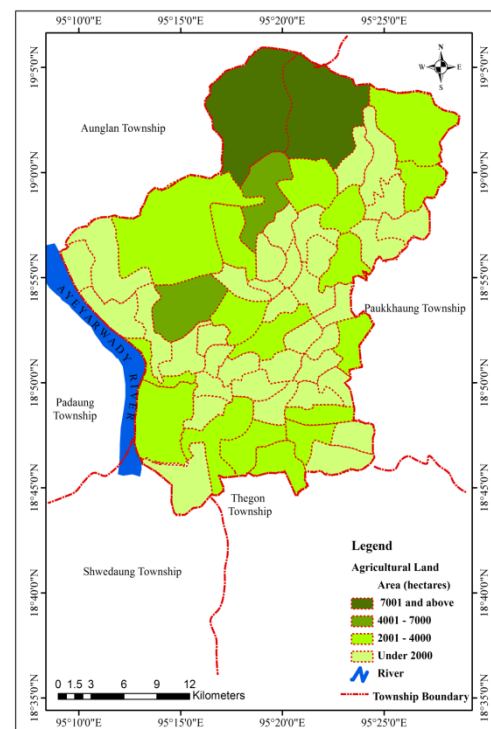
Source: Based on data of Agricultural Land Management and Statistics, Pyay





**Figure 11 Village tracts with increase in agricultural land**

Source: Based on data of Agricultural Land Management and Statistics, Pyay



**Figure 12 Spatial Distribution Pattern of agricultural Land use in Pyay Township (2017-18)**

Source: Based on data of Agricultural Land Management and Statistics, Pyay

### Culturable Waste Land

According to 1999-2000 data, Pyay Township had 29,036 acres of culturable waste land which accounted for 14.9 percent of the township area and in 2005-06, it decreased to 25,386 acres (13.03%). It continued to decrease to 22,548 acres (11.57%) in 2010-11. The village tracts with decreased culturable waste land area were Bokone, Konetharlin, AnaukLetkhokepin, Hmawzar, Mokehtaw, and Taungkhwayye, but these village tracts gained more agricultural land by reclamation.

In 2015-16 and 2017-18, the culturable waste land area continued to decline to 20,401 acres (10.47%), particularly in the village tracts of Kankyikone, Waryonseik, Kyawthar, Maautaw, Hlwazin, Mokehtaw and Taungkhwayye. The culturable waste land area is likely to decrease in the future in response to the increasing population pressure and stagnant industrial development momentum.

The agricultural land area has also somewhat increased due to the expense of forest land. Moreover, area of culturable waste land decreased and area of *le* and *ya* land increased in the study period. Such change has both positive and negative impact on the local inhabitants.

In land utilization encourage extending *le* and *ya* cultivation, consequently *le* and *ya* cultivated areas increased to a great extent. In some areas, the farmers and their associated families and groups grow more natural vegetation such as mango, lime, sugar cane and pine trees near their farms as windshields. This trend gave much advantage to the area with greening scenarios as well as protection for soil erosion.

Nowadays the farmers have much knowledge on the cropping pattern, they carefully chose the crop according to demand, market and prices. Some crop expert farmers are now



considered for grouping or consolidated ways for secure condition in the future. In Pyay Township, Trader Association gave much advice and guidelines for promotion of more profitable crops in the area.

The demand and market in inland and abroad, the specialization of crop would be prospects in the area. Some crops, such as mango (*sein-ta-lone*) become an export item and the area's production will be increasing in the future.

### **Suggestions**

The location and shape of Bago Region, unlike other regions of the country, is manifested by the extension towards the west from the north, separation of the region between the east and western parts by BagoYoma which runs as barrier from north to south, the transition zone between the upper and lower Myanmar, the major entrance gate to Rakhine State, and the existence of ancient Srikshetra Zone inscribed on the list of World Heritage in July, 2014. All these conditions more or less affect the land use change of Pyay Township located in the northwestern part of Bago Region, and are also supportive to the socio-economic development of the township.

The population of Pyay Township gradually increased from 148,556 in 1973 to 179,756 in 1983, 219,947 in 2014, 222,856 in 2016 and to 226,306 in 2018 (Jan). More shelters and more food as basic needs are needed for the increasing population which resulted in the increase of residential and agricultural land mostly at the expense of culturable waste land and unclassified land. Due to not only population growth but also government policy and economic potentialities, the utilization of land is changed throughout the study periods both in amount and pattern.

The decrease of forest land in North Nawin Village Tract in 2010-2011 was due to the extension of agricultural land and settlement land over the degraded forest land. Talokepin village tract has lost some of its agricultural land.

Like most other townships of the country, the culturable waste land area has been declining, as it is mostly converted to agricultural land. There are still some culturable waste land in village tracts located in the upland area of the east and they may be turned into *ya* land in the near future in response to population pressure.

In the land type of other lands, pasture land area has remained constant, while the unclassified land has somewhat increased. The change in the area of other lands has little or no effect on the socio-economic condition of the local inhabitants.

### **Conclusion**

Pyay Township is one of the townships in Bago Region (west). It lies on the eastern bank of Ayeyarwady River. Astronomically, it is located between north latitude 18° 43' and 19° 6' and also between east longitude 95° 9' and 95° 24'. It has an area of 788.41 sq- kilometres (304.4102 sq-miles).

This research work is studied by classifying four different types of land use from the geographical stand point. During the period under study, i.e. from 1999-2000 to 2015-2016, the changes are observed in agricultural land use, residential land use, forest land use, recreational land use, governmental land use, as well as culturable waste land and other lands. Based on these land use types, the utilization of different lands were described and explained.

The agricultural land area has somewhat increased, but at the expense of forest land. Such change has both positive and negative impact on the local inhabitants. As the population of the study area has been increasing steadily, the local populace needs more food and land for

residing. However, the extension or encroachment of settlement land over the forest land can render such negative effects as environmental quality deterioration, widespread and serious flooding, intense heat due to lack of moderating and cooling effects of forest and limited availability of timber and firewood.

The decrease of recreational land is undesirable, as the urban children has no ground to play freely for their enjoyment and healthy body growth. For the elders, they need places for recreation, particularly for relaxation of stress caused by urban congestion. Lack of suitable places for stress relaxation may lead to the increase in the number of alcoholics and drug addicts, as well as the crime rate.

The notable decrease in the land area used by government office was due to the recombination of administrative headquarter of Western Bago Region to a single regional headquarter at Bago City in 2011, leaving only offices at district level. This can somehow retard the dynamic force that initiates and gives impetus to socio-economic growth of the city in the foreseeable future. The location of Pyay City, its physical layout, tourism development potential with ancient Pyu City and high accessibility, all enhance its development potential which is somehow related to the best means of land use. The pattern and the changes of land use, in fact, are largely the manifestation reflected by the decisions of government or the responsible persons of the departments concerned. Very little change has been caused by the local inhabitants. Therefore, the authorities concerned should learn the comprehensive understanding of the entire physical and social attributes of the township and intelligibly weigh the pros and cons of the change in the land use types before making decision. There still remains a limited area of culturable waste land and unclassified lands. They can be changed into any other useful land, but great care should be taken in the change of already used land into other types to maximize the benefit that may come out of a unit area of land.

In order to gain better insight of the different land use types of the study area, other fields of study such as forestry, urban planning, transportation, industry and tourism should conduct further researches, for the multi-disciplinary approach is indispensable to achieve the best means of land use.

#### Acknowledgements

First and foremost, I would like to express my heartfelt thanks to Rector Dr Khin Thida, Pyay University and Rector-in-charge Dr Aung Aung Min, Pyay University for their permission to conduct and suggestions on this research paper. I am greatly indebted to Pro-Rector Dr Thwe Linn Ko, Pyay University, for her proper guidance and valuable advice on this research. Thanks are due to Dr. Lei Lei Win, Professor, Head of Geography Department, Pyay University, for her encouragement on this research work. I am deeply indebted to U Win Maw, Assistant Officer, Department of Agricultural Land Management and Statistics, and Daw Khin Htay Kywe, Deputy Staff Officer, Ministry of Agriculture, Livestock and Irrigation Department of Agriculture Pyay, for their ready help in rendering the relevant data and information. My greatest thanks are due to the concerned personals from various offices and all local people during the field survey.

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### မြန်မာကျမ်းကိုးစာရင်း

ပြည်မြို့စီးပွားရေးအချက်အလက်များကိုလေ့လာခြင်း သုတေသနစာတမ်း ဦးသိန်းထွဋ်နှင့်အဖွဲ့၊ ၂၀၀၁

ပြည်မြို့နယ်အတွင်းရှိရပ်ကွက်/ကျေးရွာအုပ်စု/ကျေးရွာအလိုက်အိမ်ခြေ/အိမ်ထောင်စုနှင့်အသက်(၁၈)နှစ်အောက်/အထက် လူဦးရေစာရင်း၊ ၂၀၁၆

ပြည်မြို့နယ်၏ ဒေသဆိုင်ရာအချက်အလက်များ၊ ၂၀၀၉

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## **Geographical Study of Socio-Economic Activities in Ywabe Ward, Pyay City**

Nwe Yin Min<sup>1</sup>, Yin Yin Kyaw<sup>2</sup>

### **Abstract**

Pyay City is located on the east bank of the Ayeyarwady River in Bago Region (West). Ywabe Ward is one of the ten wards of Pyay. The total area of Ywabe Ward is 4.5 square kilometres (1.74 square miles or 1113 acres) and it has a total population of 32520 persons in 2018. This paper tries to present the socio-economic activities in Ywabe Ward. Ywabe Ward is an accessible area in Pyay City. Secondary and tertiary economic activities are found in this area. Economic activities were grouped into two: large scale activities and small scale activities. The variation of settlement patterns, housing types and economic activities within the area are analyzed to suggest the good points and weak points of the study area. Secondary Data are derived from official data, and field surveys are done to examine and analyze socio-economic activities of Ywabe Ward from geographical point of view.

Key words: Socio-economic activities, secondary and tertiary economic activities

### **Introduction**

Socioeconomic or Socio-economy is the study of the relationship between economic activity and social life (Wikipedia encyclopedia, 1.8.2010). Socio - economic condition is one of the most important factors in Social Science phenomena. Human beings are related to the social and economic conditions. Urban sector development reveals part of the development of the country. The prominent factor of urban sector development is the growing population. Moreover, other socio-economic factors such as job opportunity, education, health, transportation, communication, water supply system and sewage system are also the indicators of urban sector development.

This research work is an assessment of the relationship between social conditions and economic activities. Ywabe Ward is one of the 10 Wards of Pyay. The study area is situated near Central Business Area (CBA) and located in the central part of Pyay urban area. The number of households and population increased in this ward. In 1990, the number of three storied and two storied building was lower than that of wood and bamboo buildings roofing with dhani. But in 2018, the numbers of three storied and two storied building have increased distinctly in Ywabe Ward.

### **Study Area**

Ywabe Ward is located near the Central Business Area in the central part of Pyay. It is bounded in the north by Nawin Ward, in the east by Khittayar Myothit Ward, in the south by Nawaday Ward and in the west by Sandaw Ward. In 1990, Gandamar Industrial zone (1) occupies 83.27 acres (0.87 sq. km) in Ywabe Ward. In 1997, Nawaday Bridge linking Pyay and Rakhine State across the Ayeyarwady River was built. Easy and direct flow of commodities across the bridge supports growth of retail shops, stores and branch companies in Pyay. Pyay College was upgraded as the Pyay Degree College in 1997 and Pyay University in 1999 on Shwetachaung road in Nawin Ward. Based on the university, population growth has escalated the emergence of a private hospitals, clinics and retail shops.

### **Research Problem**

The research problem is:

Social and economic activities are unevenly distributed in Ywabe Ward.

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## Aim and Objectives

The aim of this paper is:

- To highlight the relationship between social conditions and economic activities in Ywabe Ward.

The objectives of this paper are:

- To classify distribution pattern of socio-economic activities
- To find out controlling factors on distribution of socio-economic activities

## Data and Methodology

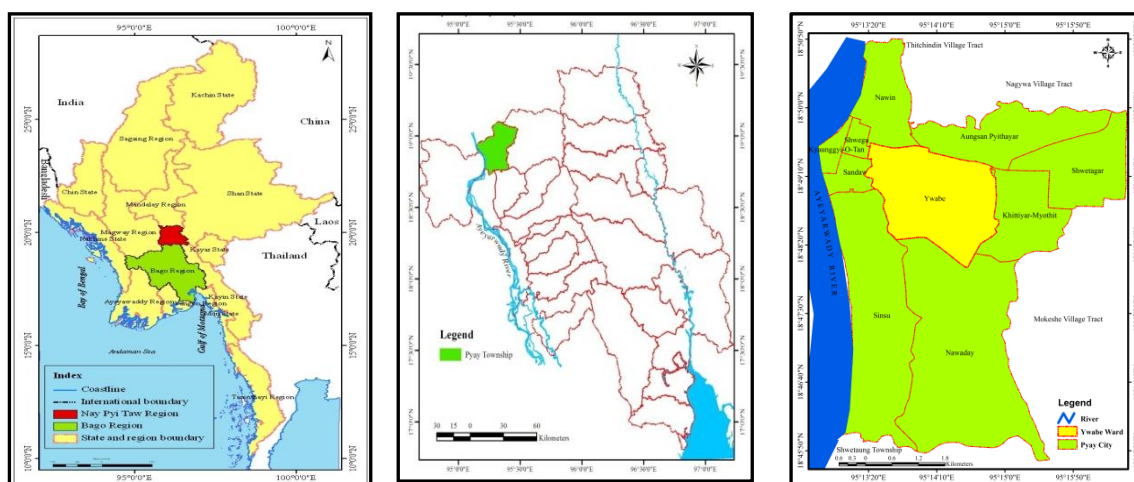
The primary data and secondary data were collected in the study area. The primary data were acquired by doing interviews, and field observation to present distribution patterns of land use and socio- economic conditions.

The secondary data were collected from Pyay Township Administrative Office, Ward Administrative Office, Department of Agricultural Land Management and Statistics, and Population and National Registration Department. Data processing was done from extracting geographic objects such as ward boundaries, roads, and streets by using Geographic Information System. The secondary data were also obtained from articles and books concerning socio- economic development.

## Background of the Study Area

### Physical Factors

Ywabe Ward is one of the 10 Wards of Pyay City and it is in the Pyay Township of Bago Region. Ywabe Ward lies between latitudes 18° 48' 0" and 18° 49' 40" North and longitudes 95° 13' 15" and 95° 15' 0" East. Ywabe ward is situated at 100 feet (30.48 m) above sea level. It has an area of 5.44 sq-km (2.1 sq.miles or 1344 acres). It is bounded by Nawin and Aungsan Pyitharyar wards in the north, Khittayar Myothit wards in the east, Nawaday Ward in the south and Sinsu and Sandaw wards in the west. The study area is situated near CBA and it is located in the central part of Pyay urban area (Figure 1).



**Figure 1 Location of Ywabe Ward in Pyay City**

Source: Land use department of Yangon

Being situated in Lower Myanmar, temperature is generally high. According to temperature records during 34 year period from 1983 to 2016, the average maximum temperature was 35.63°C (96.13°F) and the average minimum temperature was 21.33°C (70.39°F). Therefore, the annual mean temperature was 28.59°C (83.3°F) and the range of annual temperature was 7.7°C (45.86°F). During the 34 year period from 1983 to 2016, the average annual rainfall in Pyay City was 1255.72 mm (49.36 inches). Therefore, Pyay City has Tropical Savanna Climate (Aw), according to Koppen's Climatic Classification Scheme. Human settlements are not found in too hot, dry, wet and cold areas. Pyay possesses suitable climate for human settlement and urban growth.

### Population Factors

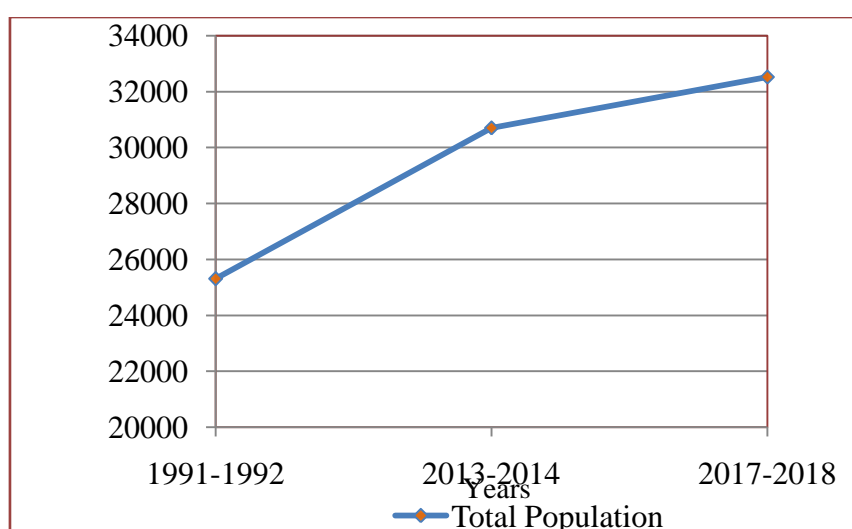
In Pyay City, there were 22,357 households in 2017-2018. Ywabe Ward, the total number of households was 8,028 households in 2017- 2018.

Total population of Pyay City was 115, 847 persons in 2017-2018 and total population of Ywabe Ward was 32,520 persons (28.07 % of Pyay City) in 2017-2018. Total numbers of male and female were 15,559 persons or 48 percent and 16,961 persons or 52 percent respectively. According to the year of 1991 - 1992 population record, total population of Ywabe Ward was 25,306 persons in which male 12,208 and female 13,098 persons and the total population increased 30,701 persons with male 14,847 persons and female 15,854 persons in 2013 -2014 (Table 1 & Figure 2). In the study period, the population has increased gradually because of natural increase and migration from other wards or other regions.

**Table 1 Total Population of Ywabe Ward (1991-1992, 2013-2014 and 2017-2018)**

Years	Area (sq-km)	Male	Female	Total population
1991-1992	5.44	12,208	13,098	25,306
2013-2014	5.44	14,847	15,854	30,701
2017-2018	5.44	15,559	16,961	32,520

Source: Administrative Office, Ywabe Ward, Pyay City



**Figure 2 Total population of Ywabe Ward (1991-1992, 2013-2014, and 2017-2018)**

Source: Table 1

According to Administrative Office's record, the age groups of Ywabe Ward are categorized into under 18 years and over 18 years. In 2017-2018, Ywabe Ward had total population of 32,520 persons. There were 7,587 persons including male 3,748 persons and

female 3,839 persons under 18 years and 24,933 persons including male 11,811 and 13,122 female persons over 18 years of the total population. Therefore, the number of population over 18 years was three times greater than the number of population under 18 years. The majority of the work force is pursued by urban occupational opportunity such as manufacturing, retailing, and construction workers, etc.

Theravada Buddhism was predominant religion with 27,414 persons or 84.28 percent. There were also 2,381 Christians (7.32 percent), 1,757 Muslims (5.4percent), and 976 persons Hindus (3 percent).

In Ywabe Ward, there were 130 monasteries, 53 Pagodas, four Churches, one Hindu Temple and a Mosque.

### **Social Welfare**

Social matters are taken care of by the Myanmar Maternal and Child Welfare Association, Women's Affair Association, Fire Brigade Association, Red Cross Society, and Moemyittar Funeral Help Association. Moemyittar Funeral Help Association helps the funeral occasion not only in Ywabe Ward but also in Pyay City.

### **Housing Sizes**

Housing sizes vary in Ywabe Ward. Generally, the housing sizes can be divided into three groups: large, medium and small sizes. 65 percent of total houses are medium in size, 15 percent large size and 20 percent small size.

Most of the houses are two-storey buildings but three and four stories are also found in this ward.

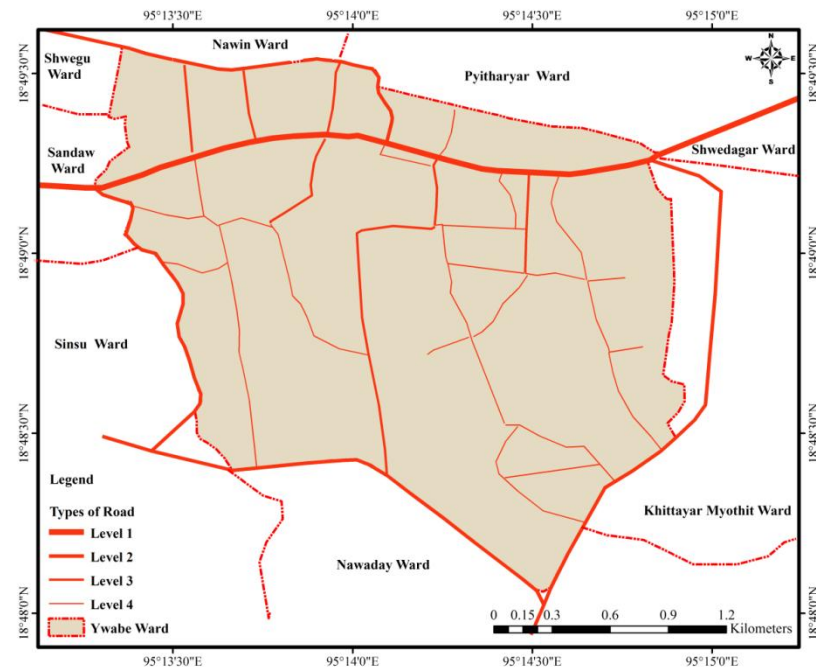
### **Economic Activities**

Ywabe Ward is a densely populated area because it is close to the urban center. Economic activities concentrated in the area are retail shops, beer stations, phone accessories and electrical shops, hardware shops, rice mills, robe, stationeries, fashion shops, textile shops and other bicycle repair shops.

### **Types of Roads**

Transportation means the movement of commodities, people and ideas from one place to another. Transportation routes play an important role in the socio-economic development of the township. The roads in this area are classified into four groups such as level one, level two, level three and level four roads. Level one or main road is four lane (bituminous) roads and it is the busiest road. Commercial land use is situated along the road. Level two or secondary roads are two lane (bituminous) roads, and lie as the western, northern and southern boundary roads. Level three or street means (metal) streets, which run within the Ward and level four or Short Street means small (metal) roads and located in the residential wards is only five feet width.

In Ywabe Ward, there are a main road, three secondary roads, nine streets and 25 short streets. The main road is Bogyoke Road on which 55 percent of total economic activities existed. The famous secondary roads are Shwetachaung Raod, Nawaday Bridge Approach Road, and Pyay-emergency Road (Figure 3).



**Figure 3 Distributions of road types in Ywabe Ward**

Source: Based on Field Survey

### Socio-economic Pattern

Socio-economic conditions include education, health, religion, house types, economic, road types, etc. But, in the paper, education, house types, and economic activities are only presented for the purpose of getting detailed facts that illustrate socio economic conditions of Ywabe Ward.

### Education Sector

Education is an important indicator of social conditions because knowledge and idea depend on the education level of people. In Ywabe Ward, all children above five years of age attend primary school by the encouragement and supports of the government. The government has planned to build high, middle and basic educational schools for regional development after 1988. Level of education of local people is related to the economy and intellectual knowledge of people. In Ywabe Ward, there are Basic Education High School, Basic Education High School (Branch), three Basic Education Primary Schools, two Basic Education Primary School (Branch), two Basic Education Post Primary Schools, two Nurseries, and two Monasteries Education School. In 2018, there are 4,993 students attending in this school and 190 teachers. The teacher and student ratio were 1:26 in 2017- 2018 academic year. The ratio of teacher - student was relatively high and teaching is effective.

### House Types

Ywabe Ward is located in the central area of Pyay City. Generally the present housing types can be divided into four groups: reinforced concrete houses, knocking-brick houses, wooden building, and bamboo houses. In 2018, there were 6117 houses in Ywabe Ward, where 587 or (10% of the building) were reinforced concrete houses, 2034 or 33% knocking-brick, 1505 or 25% of the wooden building, and 1987 or 32% of the building bamboo houses. According to Table 2 and Figure 4, the largest number of knocking-brick is distributed in the central and in the northern part of Ywabe Ward. Bamboo houses are the second largest group and they are found in the southern part of the areas. Most wooden buildings are scattered in

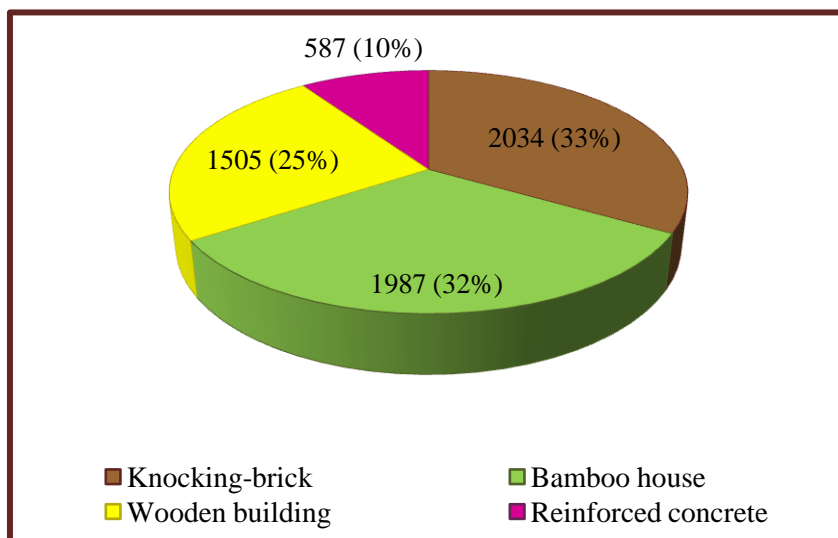


southern part of the study area. Most reinforced concrete houses are still found along the Bogyoke Road that is main commercial area of the Ywabe Ward.

**Table 2 Number of House Types in Ywabe Ward (2018)**

House Types	Number
Reinforced concrete	587 (10%)
Knocking-brick	2034 (33%)
Wooden building	1505 (25%)
Bamboo house	1987 (32%)
Total	<b>6117 (100%)</b>

Source: Field Survey (April, 2018)



**Figure 4 Number of house types in Ywabe Ward (2018)**

Source: Table 2.

### Economic Condition

Ywabe Ward has moderately compact in shape. It is situated central part of the Pyay City. Although there are a little primary activities, tertiary economic activities and secondary activities are also concentrated in the study area.

According to Boyce (1978), secondary economic activities are divided into fourteen groups: 1. Food and Beverages Industries, 2. Clothing and Apparel Making Industries, 3. Construction Material Manufacturing Industries, 4. Consumer-goods Manufacturing Industries, 5. Household Goods, 6. Printing and Publishing Industries, 7. Industrial Raw Material Manufacturing, 8. Mineral and Petroleum Products Processing Industries, 9. Agricultural Equipment Industries, 10. Machinery and Equipment Industries, 11. Transport Vehicles Manufacturing Industries, 12. Electrical Appliances Manufacturing Industries, 13. Workshops and Dockyards, and 14. Miscellaneous. Secondary economic activities of Ywabe Ward were classified by using Boyce's categories. In Ywabe Ward, four secondary economic activities such as food and beverages industries, construction material manufacturing industries, consumer goods manufacturing industries, and miscellaneous are found.

Tertiary economic activities include retail and whole sale trade and personal and professional services (Fellmann, J., Getis, A. & Getis, J., 1985). In Ywabe Ward, trade embraces household and building materials shops, food and beverage shops, personal shops, textile and garment shops, grocery shops, motor cycle showroom, others, etc. Personal and

professional services contain hotel and tourism, photo studio and photo copying services, beauty parlour and tailor services, computer and electronic services, education services, health care services, banking, motor cycle and vehicles workshops and other services.

In 2018, Ywabe Ward has 39 secondary activities and 307 tertiary activities (Table 3). As the ward is situated along the Bogyoke Road (main road) and southern part of Pyay University, northern part of Nawaday Warehouse and Cargo Track Compound, and industrial zone, trade and services activities are well developed. All of these economic activities are mostly found on the sides of the Bogyoke Road (level 1 Road) and industrial zone. Some of the activities are found along the secondary road (level 2 Road). Economic activities are sparsely found within the central area of tertiary road (level 3 Road). Tertiary and secondary activities are found in commercial land use along Bogyoke Road, Shwetachaung Road, and Nawaday Approach Road in Ywabe Ward. These activities are unevenly distributed in the whole Ywabe Ward.

**Table 3 Distribution of Economic Activities in Ywabe Ward (2018)**

No.	Economic Activities	Types	Number
1.	Secondary activities		39
2.	Tertiary activities	Services	14
		Trade	16
Total			346

Source: Field Survey (April, 2018)

### **Secondary Economic Activities**

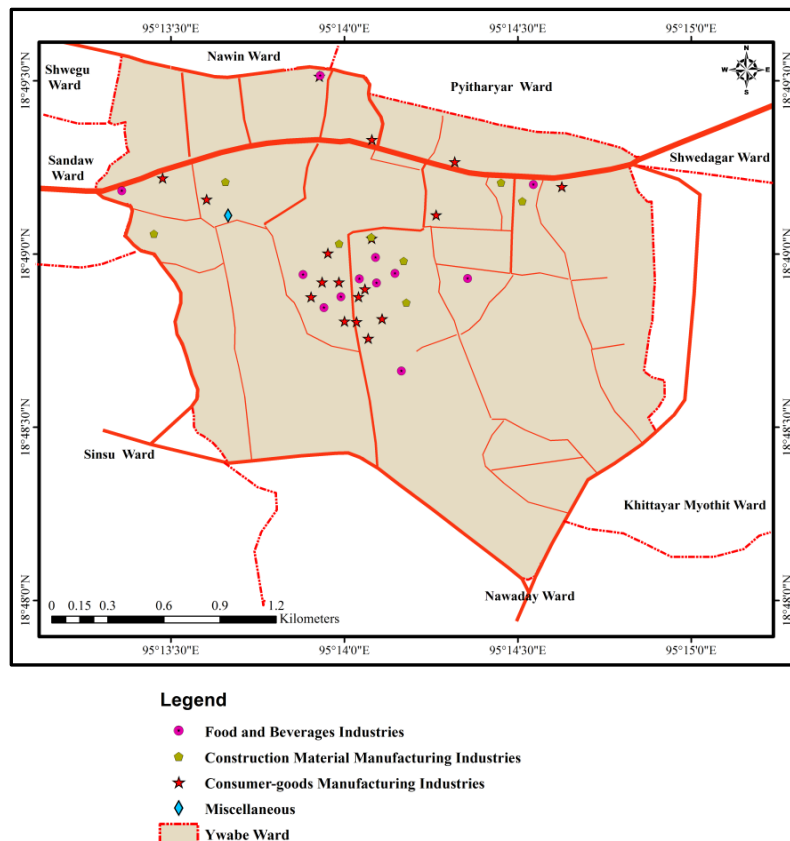
Secondary economic activities in Ywabe Ward are grouped into four types such as food and beverages industries, construction material manufacturing industries, consumer-goods manufacturing industries, and miscellaneous (Figure 5). Food and beverages industries include bakery, grinding mills, and purified drinking water. Saw mill is found in Ywabe Ward as construction material industries. Consumer-goods manufacturing industries include rice mill, and oil mill. Miscellaneous are traditional cottage industries like goldsmith.

Bakery is found in western part, grinding mills are situated on the Shwetachaung Road, and purified drinking water factories are located near the industrial zone of the Ywabe Ward.

In construction material manufacturing industry, saw mills are mostly found in Industrial Zone in 2018.

Among consumer-goods manufacturing industries, there are 11 oil mill, two rice mill, and four pulses splitting mill in 2018. They have situated in the industrial zone.

There is a miscellaneous found western part of the Ward.



**Figure 5 Distribution of secondary activities by types (2018)**

Source: Based on Field Survey (April, 2018)

### Tertiary Economic Activities

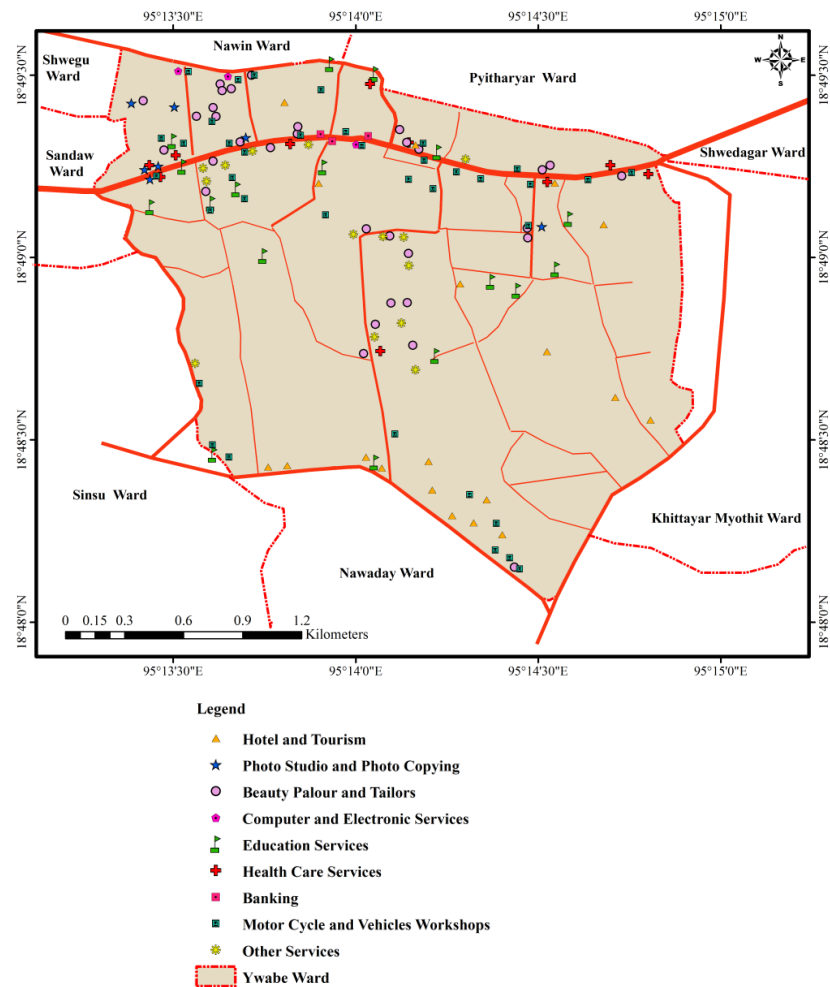
Tertiary economic activities are the largest economic activities in this area. Tertiary activities are mainly located along the Bogyoke Road and Shwetachaung Road because of good accessibility. These activities are divided into two types such as services and trade. Services activities are grouped into nine types such as hotel and tourism, photo studio and photocopying activities, beauty parlour and tailors, computer and electrical services, education services, health care services, banking, motor cycle and vehicles workshops and others. There are altogether 142 services in 2018. They are mostly found in area in which people having the highest living standard along the Bogyoke Road. There are 19 hotel and tourism related activities in 2018. These activities are mostly seen near the Nawaday Warehouse and Cargo Truck Compound. Seven Photo studios and photocopying activities are found in 2018. They are found in western part of the area, especially along the Bogyoke Road. Total number of beauty parlour and tailor services is 32 in 2018. They are found near the Pyay University, along the Bogyoke Road, and densely populated area of the ward. There are three computer and electrical services in 2018. These services are found near the area of Pyay University and No (4) Basic Education High School. Moreover, the number of education services are 17 in 2018. Among the education services in Ywabe Ward, PEC Private High School, DTTM Private High School, and Shining Star Private Middle School are most prominent. Total number of health care services is ten in 2018. They are distributed along the Bogyoke Road. A banking service is clustered along the Bogyoke Road. 37 motor cycle and vehicle workshops are found along the Bogyoke Road and in the central area of the ward. Others services such as book and VCD hire, internet and game shops, watch repair and bicycle repair shops are found. In 2018, the total number of others services was 14 in the Ywabe Ward. A bicycle repair shop

is located along the level 4 Road and a watch repair shop is found along the accessibility area of Bogyoke Road (Table 4 & Figure 6.).

**Table 4 Distributions of Services Activities by Types (2018)**

No.	Types	Number
1.	Hotel and tourism	19
2.	Photo studio and photo copying services	7
3.	Beauty palour and tailor services	32
4.	Computer and electrical services	3
5.	Education services	17
6.	Health care services	10
7.	Banking	3
8.	Motor cycle and vehicle workshops	37
9.	Others	14
	Totals	142

Source: Field Survey (April, 2018)



**Figure 6 Distributions of services activities by types (2018)**

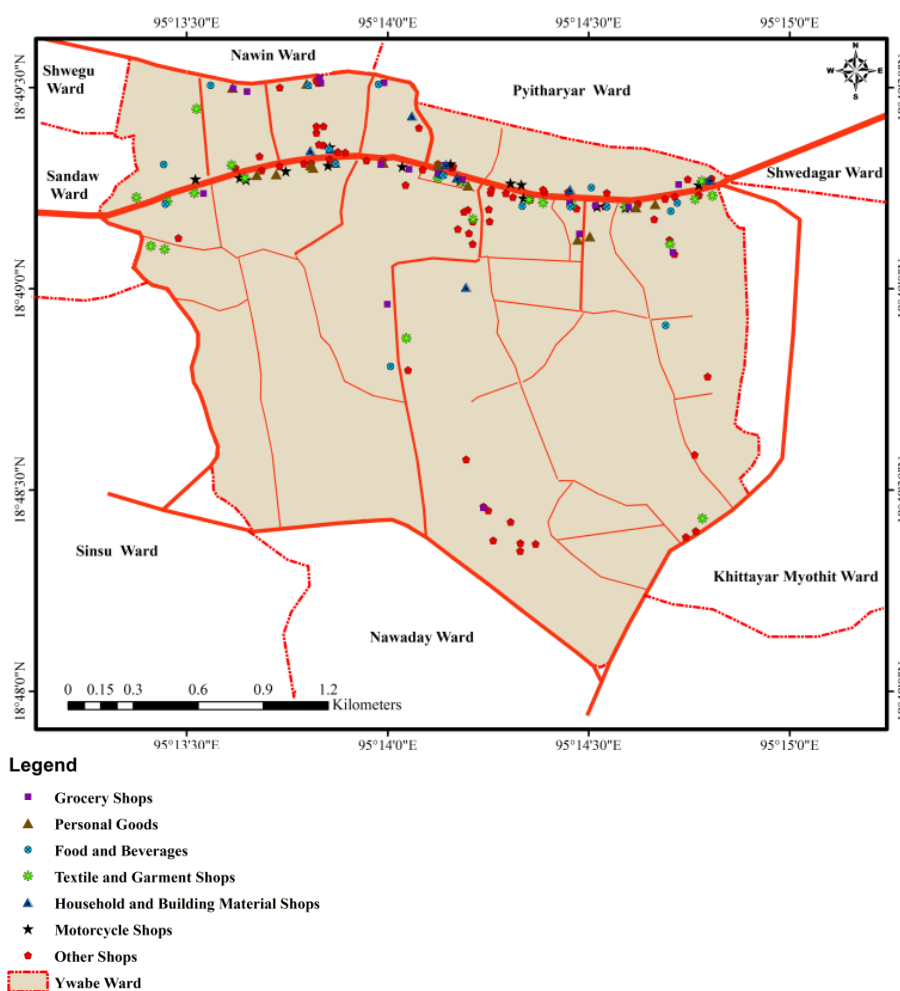
Source: Based on Table 4.

165 trade activities are found in 2018. Trade activities may be grouped into seven types such as grocery shops, personal goods shops, food and beverages, textile and garment shops, household and building material shops, motor cycle and others. Grocery shops found in Ywabe Ward include general stores, dry goods stores, snack bars and rice and oil shops which are widely distributed in the study area. The number of grocery shops is 20 in 2018 (Table 5 and Figure 7).

**Table 5 Distributions of Trade Activities by types (2017)**

No.	Types	Number
1.	Food & beverages	16
2.	Household and building material shops	9
3.	Personal goods	15
4.	Textile & garment shops	21
5.	Grocery shops	20
6.	Motor cycle shops	15
7.	Others	69
	Totals	165

Source: Field Survey (April, 2018)



**Figure 7 Distributions of trade activities by types (2018)**

Source: Based on Table 5.

Personal goods shops include pharmaceutical shops, electrical good shops, mobile phone sale shops, bag shop, video disk shop, toy shop and footwear shops located along the Bogyoke Road and distributed in other parts. Item sold in these shops are not included in daily used items. They are concentrated near the Koethaung Market and especially at accessible areas. The number of this shop was 15 in 2018.

Types of food and beverages shops include restaurants, tea shops and cold drink shops and beer station found mostly in accessible area, especially along the Bogyoke Road and Shwetachaung Road. These shops need large amount of capital on their works. Foodstuff shops needed little investments include Myanmar cuisine, monhinga and Shan noodles shops. They are widely distributed within the study area. The number of shops is 16 in 2018.

Textile and garment shops include monk's robe shop and fashion shops. Monk's robe shop is situated near the Shwesandaw Pagoda and Yone Min monks robe shop is in the western part of the study area. As the nature of textile shops need the attention of the customers, fashion shops as well as special wear shops for men, women and children are beautifully decorated along the main road (Bogyoke Road). There are 21 textile and garment shops in 2018.

Household and building material shops are located along the Bogyoke Road, especially near the Koethaung Market. These shops include water pipes selling shops, plastic material shop, timber shop, bamboo and dhani shop, brick and sand shop, ceiling plate shop, cement shop, etc. The total number of the shops is nine in 2018.

Motor cycle shops are mainly found along the Bogyoke Road because of accessible area. The number of shops was 15 in 2018.

Other shops include signboard shops, animal food shops, car spare parts shop, bicycle and motor cycle spare parts shop, machinery shop, beetle shops, aluminum and steel shops. They are found throughout the area.

Various types of shops are concentrated in northern and central part of the study area because of high population density and accessibility. Most shops are concentrated along the main roads rather than in the small streets of the ward. The small number of shops are found in eastern and southwestern part which is mostly occupied by monasteries and cemeteries. The area is sparsely populated and possesses the small number of retail shops due to less population density.

In Ywabe Ward, the largest number of shops are found in Bogyoke Road, and followed by Shwetachaung Road. Bogyoke Road is the most important road within the ward and various types of shops are found along the road.

The major economic activities and different social conditions are found in the northern, southern and central part of the area because of better accessibility. The high class (Reinforced concrete) residential houses occupy in the northern part of the study area. Therefore, it shows that distribution of economic activities is directly related to social conditions in Ywabe Ward.

### **Findings and Suggestions**

Ywabe Ward is located near the Central Business Area in the central part of Pyay City. The physical factors such as location, topography, drainage, climate and soil are also the supporting factors for human inhabitant and economic activities. In Ywabe Ward, most of the area is less than 30.48 meters (100 feet) above sea level and extensive plains support human settlements.

The total population of the study area was 25,306 persons in 1992. It increased to 32,520 persons in 2018. The density was 14,543 persons per sq. miles in 1992 and increased up

to 18,689 persons per sq. miles in 2018. The population density of this area increased after 1997 due to construction of Nawaday Bridge and better accessibility.

The number of population over 18 years was three times more than the number of population under 18 years.

Because the number of working population increased in the area, the majority of the work force support jobs within urban area such as manufacturing, retailing, and construction workers, etc.

According to field survey, there were Basic Education High School, Basic Education High School (Branch), four Basic Education Primary Schools, and a nursery. The distribution patterns of government school were found throughout the ward. Three Private High Schools, a Private Middle School, a Private nursery school, and three monastic Education Schools are also found in this ward. The private schools are found in dense populated area and along the main roads such as Bogyoke Road.

There are Aungthayarphu private hospital and eleven private clinics are evenly distributed the whole area.

In Ywabe Ward, there are one main road, three secondary roads, nine streets and 25 short streets. The main road is Bogyoke Road (55 percent of total economic activities existed along this road). The famous secondary roads are Shwetachaung Road, Nawaday Bridge Approach Road and Emergency Road.

Most of the houses are four-storey brick building, three - storey, two - storey and one - storey buildings, and buildings with timber and brick and wooden buildings. There are few reinforced concrete (R.C) houses. Large houses and high standard homes are mostly found and they are 65 percent of the number of total houses. Along Bogyoke Road, Shwetachaung Road and other main streets, upper floor of the houses is used residential and ground floor as for commercial land use and land used for services.

As Ywabe Ward is located near the Central Business Area of Pyay City, except primary activities, secondary and tertiary economic activities are well developed. All of the economic activities cluster on both sides of the Bogyoke Road (level 1 road). Economic activities are sparsely situated along the tertiary road (level 3 road). Secondary and tertiary activities are also found in accessible area along Bogyoke Road, Shwetachaung Road in Ywabe Ward. These activities are unevenly distributed in the whole Ywabe Ward.

Various types of shops area clustered in northern and central parts of the study area because of existing Bogyoke Road, Shwetachaung Road, and industrial zone. Most shops are concentrated along the main roads rather than in the small streets of the ward. The small number of shops are found in eastern and southwest parts of the ward where most areas occupied by monasteries and cemeteries.

The major economic activities and higher social conditions are found in the northern, southern and central part of the area. The high class (Reinforced Concrete) residential houses are found in the northern part of the study area. Therefore, it is found that distribution of economic activities is directly related to social conditions of the people lived in Ywabe Ward.

Due to nearest to the Central Business Area, a little commercial land use are found along the level-3 and level-4 roads. Therefore, these roads should be upgraded and expanded for the purpose of increasing the economic activities in this area. In industrial sectors, industrial zone in Ywabe ward developed a little compared to other industrial zones of Myanmar, because the electricity supply is not received fully. Therefore, the necessary electricity supply should be provided to develop the industrial zone, and to provide job

opportunities to local people and to upgrade the socio-economic conditions of the area.

### Conclusion

Ywabe Ward, one of the wards in Pyay City, lies between north latitudes 18°48' 0" and 18°49' 40" and also between east longitudes 95°13' 15" and 95°15' 00". Pyay City was an exchanged center between Upper and Lower Myanmar as well as Rakhine State at a junction point. Existing locational factors support to develop as a settlement area. Its elevation is 100 feet (30.48 m) above sea level. Ywabe Ward experiences a Tropical Savanna Climate (Aw). Total population of Ywabe Ward is 32,520 persons (28.07 % of Pyay City) in 2017- 2018.

Two types of major economic activities found in this area are secondary, and tertiary. Tertiary activities are the largest group followed by secondary. Various types of economic activities are located along Bogyoke Road.

High class residential houses are located on the northern part of the Ward. The distribution pattern of economic activities was uneven and it is controlled by accessibility. Among these types of activities, retail trade is the largest in number. It is clear that the socio-economic conditions are high for a northern part of the Ward.

In the near future, the areas along Bogyoke Road and Shwetachaung Road will be more occupied by fashion, electronic sale centers and shopping mall than cottage industries due to higher accessible location.

### Acknowledgements

We would like to express heartfelt thanks to Rector Dr Khin Thidar & Rector-in-charge Dr Aung Aung Min, and Pro-Rector Dr Thwe Linn Ko, for their kind permission to conduct this research paper. We are deeply indebted to Dr Lei Lei Win, Professor and Head, Department of Geography, Pyay University, for her advice and guidance on this paper. Finally, we also thank to our colleagues for their helping hands.

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### Internet Source

<https://en.m.wikipedia.org/wiki/Economy>



## **Tourism as a Tool for Potentials Development of Socio-Economic Conditions in Pyay Area, Bago Region**

Hla Yin Nu<sup>1</sup>, Khin Sandar Moe<sup>2</sup>

### **Abstract**

This paper attempts to analyse the contributions of the tourism sector in Pyay Area, Bago Region, Myanmar. Pyay and its surrounding area exists a wide range of unique potentials for a diversified tourism development. It confirms that tourism has positive socio-economic impacts on their livelihoods. The research survey found that social and economic potentials conditions of the Pyay Area, tourism-related socio-economic activities comprised about perception. Recommendations are suggested the provision of knowledge and skills related to the tourism business to the community in order to improve well-being of local from which the entire area and many parts of the society can benefits. The paper analysis based on primary data as field observations and expert interviews, secondary data and GIS analysis mapping explores for the touristic locations in the Pyay Area, Bago Region. The paper identifies the contributions of the tourism sector of cultural potentials attempts to analyse socio-economic benefits of the tourism industry.

Key words: attraction sites, potentials socio-economic factors, regional improvement factors

### **Introduction**

Tourism development is currently a key issue for many developing countries including Myanmar. Many governments and development practitioners increasingly consider tourism as a tool for potentials development of socio-economic strategy in Less Developed Countries (LDCs). With proper interventions, socio-economic benefits brought about by tourism can play an important role in socio-economic benefits. In general, tourism has become a significant tourism industry in both poor and rich economies because of its important impacts on socio-economic, livelihoods and socio-cultural development (Shah, 2000, p.9).

Now, tourism becomes one of the most Myanmar's most important sectors that benefit to the communities if it is properly managed and developed.

Development of a tourism industry plays an important role in the contribution of foreign income sources and creation of many jobs. However, there is a relationship between tourism and potential development of socio-economic conditions. To understand the relations between tourism development and socio-economic development processes, empirical analysis is required. The question of how tourism development impacts on development of socio-economic conditions in Myanmar has not yet been explored. Especially, this paper is intended to ask the questions of how tourism affects socio-economic development in Pyay Area, Bago Region, what are the effects of tourism development on potential development of socio-economic activities in Pyay Area and in what ways tourism can improve the well being of locals in Pyay. The objectives of the study area are to analysis the effects of tourism on unique factors and development of socio-economic conditions and to find out factors which can help tourism in the Pyay area in maximizing economic gains from tourism and in minimizing economic losses from it.

As tourism provides income for local people, the economic development of the Pyay(Cultural heritage site –*Sri Kestra* = unique in SE Asia) Area profits substantially from tourism be it directly through employment in the production of goods or services or indirectly via rising demands of agricultural, handicraft or industrial products, linking cultural products, environmental and human resources with tourism. However tourism also has negative impacts,

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such as environmental degradation and social impacts. To lessen these, special care in tourism development planning is needed. Thus, the ministry of hotel and tourism of Myanmar is trying to potential develop the tourism sector by adapting new policies, such as “Responsible Tourism Policy” or “Policy on Community Involvement Policy”. However to be able to operate properly in line with these policies, distinct based research is needed, especially in the main touristic areas. (Frauke Kraas, 2015, MAAS.Vol. XIII, No.6).

A key to resolve negative impacts is to make the tourism business aware of the importance of incorporation sustainable development principles into planning and operations.

The world Tourism Organization defines sustainable tourism as:

“Sustainable tourism development meets the needs of present tourists and host regions while protecting and enhancing opportunities for the future. It is envisaged as leading to management of all resources in such a way that economic, social and aesthetics needs can be fulfilled while maintaining cultural integrity, essential ecological processes, biological diversity and life support systems” ( United Nations, 2001:12).

Against this background, the overarching aim of the study is to contribute to a more sustainable touristic development by applying basic principles of international sustainable tourism development .Therefore, the research based on present situation of tourism business in the Pyay Area and its controlling factors and impacts, the article is seeking for better tourism planning and management in future. (Frauke Kraas, 2015, MAAS.Vol. XIII, No.6).

The study will serve as a reference for further research in these dynamic areas of the tourism industry. The research results will also contribute to the anti-poverty policy formulation on development of socio-economic conditions of the Civilian Government of Myanmar and the Ministry of Hotels and Tourism through review and formulation of policies and strategies that can reduce the poverty level on potential development of socio-economic activities in study area and Myanmar as well.

The guiding research questions are:

- (a) Which potential development of socio-economic factors and ecological factors are there an Pyay Area?
- (b) How can these potentials be developed in a sustainable tourism and practical way?
- (c) Which potential development of socio-economic factors can be chosen to achieve a more sustainable tourism development from which the entire area and socio-economic can benefits for many parts of society?

### **Definitions of Terms**

#### **What is Tourism?**

To understand the linkage between tourism, poverty and development of socio-economic conditions it is important to define what tourism is. Although the definition is problematic, this study adapted the tourism defined by World Tourism Organization (WTO), which states that tourism is the set of activities engaged in by persons temporarily away from their usual environment, for a period not more than one year, and for a broad range of leisure, business, religious, health and personal reasons, excluding the pursuit of remuneration from within the place visited or long- term change of residence (WTO).

#### **What is Development?**

The definition of development is an ambiguous term since development can take on many different meanings. According to Sharpley, development can be thought of as

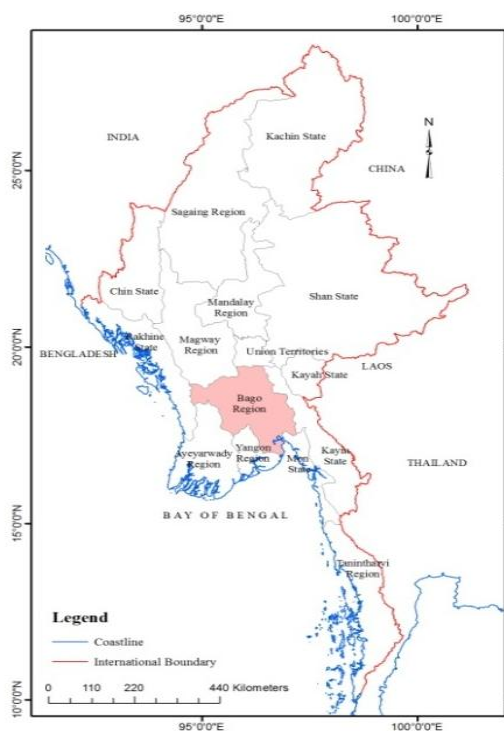
philosophy, a process, the outcome or products of that process and a plan guiding the process towards desired objectives. Development is also considered to be virtually synonymous with positive progress, implying positive transformation or good change (Sharpley, 2002, p.23).

The purpose of this study is to develop, the term “development” refers to—socio-economic change and progress in a positive direction, embracing indicators which include increase in per capital incomes, a reduction in the poverty level, higher levels of employment and literacy, and improvement in and wider access to medical treatment.

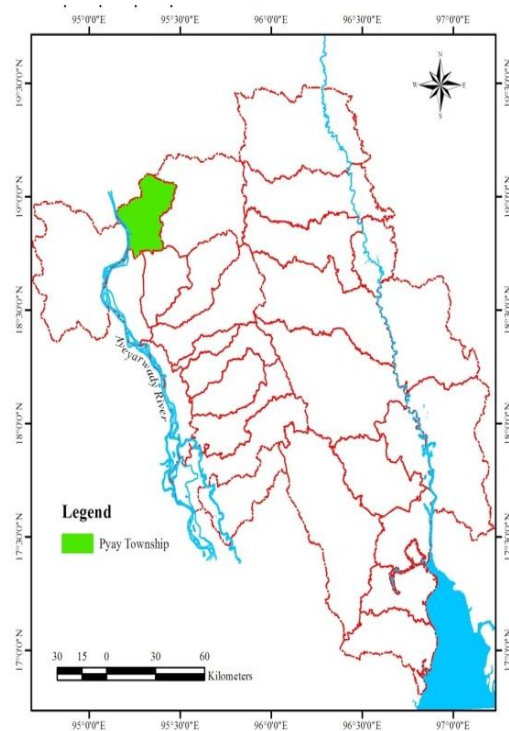
### Material and Research Methodology

#### Study Area

Pyay area lies in the western Bago Region and is located on the eastern bank of Ayeyarwady River. It lies between north latitude  $18^{\circ} 43'$  and  $19^{\circ} 6'$  and also between east longitude  $95^{\circ} 9'$  and  $95^{\circ} 24'$ . The total area of Pyay Township is about 788.4183 (sq kilometer), 194820 acres (78841.18 hectare). The shape of the township is roughly in square shape. Therefore, it can be said that the shape of Pyay Township is in compact shape. Pyay Township is bounded by Paukkaung Township in the north east and east, Thegon Township in the south, Shwedaung Township in the south west, Padung Township in the west and Kanma and Aunglan Township in the northwest. In the west, the Ayeyarwady River forms about 13 miles as the boundary between Padaung and Kanma Township and Pyay Township. Generally Pyay Area is a flat lowland area. It is transitional zone between the Central of Myanmar and the Wet Deltaic Zone. Average temperature is ( $28^{\circ}\text{C}$ ) and average rainfall (1244.98 mm). Therefore, Pyay Township experiences Tropical Savanna Type of Climate (AW). Ten wards and 55 village tracts are composed of Pyay Township in figures (1), (2) and (3).

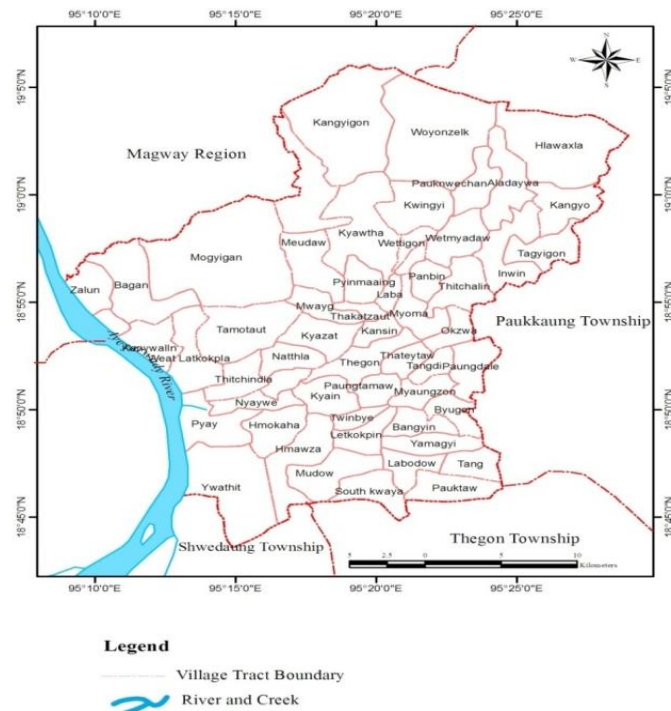


**Figure 1 Location of Bago Region**



**Figure 2 Location of Pyay Township**

Source: Topographic Maps No.85 N/5, 85N/6



**Figure 3 Location of village tracts in Pyay Township**

Source Topographic Maps No.85 N/5, 85N/6

### Sources of Data and Methods

Data for the analysis were derived from field observations and interviews conducted in December 2014, May 2015, June 2016 and March 2017. The secondary data were gathered from publications of tourism statistics and township records. The research is conceptualized based on a mixed - methods approach, combining and triangulating different kinds of data in order to gain a complete overview on the topic from the perspectives of quantitative and qualitative socio-economic research.

Primary data derived foreigners, domestics, mostly in-depth interviews with key experts persons focus group discussions were conducted between December 2014 and May 2015, June 2016 and March 2017, allowing a deeper understanding of tourism situation of Pyay Area. Secondary data including tourist arrival, number of hotels according to their standard or potential development figures, have been provided by Hotels, Motels and Tourism Enterprise and the Ministry of Hotel and Tourism, General Administrative Department of Pyay Area. Perceptions of various stakeholders and local people on tourism were collected. And then including transects walks a path along which a researcher moves, counts, records and participant observations.

The analysis and assessment of the tourism development of the Pyay areas is based on four basic requirements, known as “4As” namely attraction, accessibility, amenities and administration (khin Swe Myint, 2007.p.4). On the other hand, the supply components of tourism in the Pyay areas and its potentials of socio-economic conditions to sustainable tourism development is assessed by a “classical” of SWOT (strength, weakness, opportunities and threats) method analysis.

## Results and Findings

### Attraction Sites in the Pyay Area

Pyay Township is bounded in the north east and east by Paukkhaung Township, in the south west by Shwedaung Township, in the west by Padaung Township, in the south by Thegon Township and in the northwest by Aunglan Townships (Fig 4.a,b,c,d). The boundaries of Pyay Area are administrative and physical boundaries. In the west, the Ayeyarwady River forms as the natural or physical boundary between Padaung and Kanma townships and Pyay Township and it is about 13 miles long. In the north and west, Bago *Yoma* (mountain range) and Ayeyarwady River are used as physical boundaries. In Pyay Township, an urban area is composed of one city and one town, and rural area includes 55 village tracts (Khin Sander Moe, 2016).

Pyay Township is located on Yangon- Pyay Road and 179 miles away from Yangon City. Therefore, products from the Pyay Township are easily carried to Yangon, the most densely populated area of Myanmar. In Pyay Township, the economic opportunities and population increased in the study period due to its locational advantage and government policy and then as the ancient city of Sriksetra which has been recently inscribed on the list of World Heritage by UNESCO. Total population also increased from 185621 in 1990 to 222856 in 2016. As a consequence, potential development of socio- economic conditions in Pyay Township, which are in respect to tourism in the following addressed as Pyay Area.

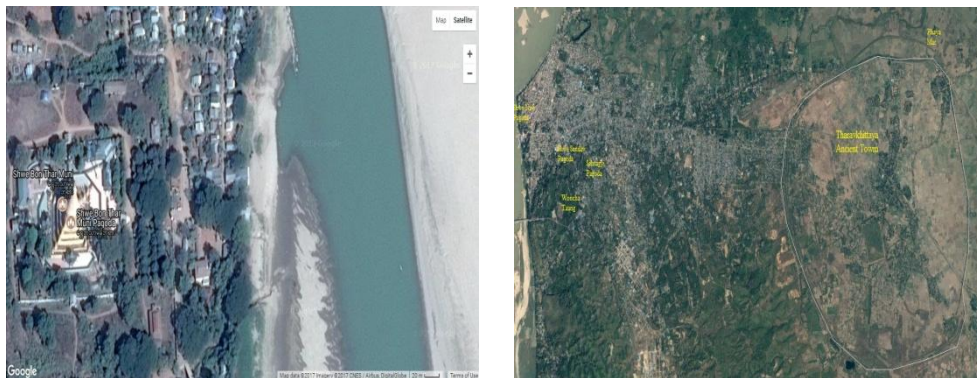
Without doubt, ancient city of Sriksetra which has been recently inscribed on the list of World Heritage by UNESCO( June 22,2014), the most important tourist attraction site in the near Pyay Area, long history of ancient pagodas in Pyay Areas. Well-known are the local people (Pyau) whose economy is based on agricultural, traditionally on handicrafts like weaving, bamboo and wood production. And then the cultural attractions of the Pyay areas are long history famous pagodas and monasteries, among others Shwe Pyay San Daw Pagoda and Shwe Bone Thar Muni Pagodas, Sal Htat Gyi pagoda and so on with its pagodas festival.

The second most important tourist areas, A Kaunk Taung ( Mountain) Area, offers nearly surround area of Pyay, with its location at ( over 1000 feet ) above sea level, it has mountainous surroundings with attractive views, favourable climatic conditions, hills resorts and some hiking trails. And then as the capital of Pyay City, urban profiles attractions and major cultural including long history pagodas, with its breath –taking view over the whole City and the Nawaday Bridge, the Pyay cultural museum, Sal Htat Gyi Pagoda, Myo Ma Market which mainly attracts domestic tourists and where ethnic people from the vicinity sell their agricultural products.

Third, the former long history hill station and resort of Pyay Areas( Phoe Oo Taung, Yone Phyu Taung, Kyet Kin Taung and other mountainous area) and its surrounding offers not only favourable climatic conditions and environmental conditions but is famous for its hiking tourism. The mountainous terrain, its natural scenic beauty, the traditional rural settlement pattern and green areas of agricultural patterns, and the traditional life style of the local people make it attractive for domestic and international tourism. Also, Shwe Pyay San Daw Pagoda and Shwe Bone Thar Muni Pagodas, Sal Htat Gyi pagoda festivals are famous from field observation in 2015 and 2016. Moreover, other mountain Ranges areas, it is an attractions of growing importance due to about 700 pagodas from the 16<sup>th</sup> century of the Pyay Area and within natural forests on ranges and slopes.



**Figure 4.a & 4.b Attractions sites in the Pyay area**



**Figure 4.c & 4.d Attractions sites in the Pyay area**

Source: Image 2017CNES/Airbus, Digital Globe, Landsat/Copernicus

### **Arrival of Tourists in the Pyay Area**

The characteristics of tourism arrivals in the Pyay Area is a regionally and seasonally imbalanced demand as well as a clear distinction between a strong domestics and relatively stable international tourism at medium level-compared to other Southeast Asian destinations. Even through international tourist and domestics arrival in the Pyay area were expected to rise already five years ago in see table (1). The tourists 5524 persons arrived in 2011-12, 6502 persons in 2012-13(15.04%), 9951 persons in 2013-14(34.66%), the tourists 29348 persons increased for 2014-15 (66.09%). International and domestics tourists in the Pyay area expended substantially and rose –up, according to the data from Ministry of Hotel and Tourism. This caused high level income during the peak tourism season from October to March in see Table 1. As a consequences, rising rates in hotel and guesthouses and subsequent construction of new accommodation capacities lead to touristic impacts.

**Table 1 Arrival of International and Domestic Tourists to the Pyay Area**

Year	Tourists	Income Level
2011-12	5524	1,044,100
2012-13	6502 (15.04%)	1,213,100
2013-14	9951(34.66%)	1,873,500
2014-15	29348(66.09%)	5,586,900

Source: Myanmar Hoteland Tourism Enterprises, Pyay (June, 2016)

. It can be said that ***“income level improved on the tourism factors with the economic development”*** year by year. These tourism improvements are also supported by the government. ***“This development process (touristic factors) is greatly helped for the***



***development potential of economic activities to the most of the residents is living in there***". Which are more accessible or can exploit the numerous long history images than other areas. It can be used to trace the future study if it is needed. But these cultural infrastructures can be used and if it is sustained to as long extent, ***"It will benefit both potential chance of socio-economic conditions depend on touristic factors, there is need to maintain and conservation for historic sites in there"***.

The ancient city of Sriksetra, A Kauk Taung (mountainous) area and Pyay City is not yet much connected with the other tourist destination. Until today, high numbers of domestics & international tourists visiting to Pyay area and surrounding area .Among the domestic tourists, their activities are mostly connected with the capital function of Pyay, as many government employees visit offices and attend meetings. Beyond this limit Pyay is an attractive location as Myoma market place for the people of adjacent villages and thus functions as regional trade centre for domestics tourism. Moreover, religious sites, local festivals and cultural centre and organizations are visited, therefore making Pyay Area an important cultural destination.

### **Accommodation for Tourists in Pyay Area**

The accommodations for tourists, the Ministry of Hotel and Tourism adopted clear rules and regulations for hotels and guest houses of the area. A hotel must have 20 rooms at least and permission (license) is given based on six recommendations from different government departments, including the Township's health department and the fire-fighting department. Without or with incomplete recommendations, hotel and guesthouse licenses are not permitted. There is also a regular check of the quality of hotels and guesthouses. Proper rules on ratings of "status" on hotels and regular checks are strictly obeyed.

The total number of hotels and guest houses in the Pyay Area adds up to 40 with the total number of rooms of over 1200 in 2016. Within the Pyay area, only one 3 stars hotel can be found in Pyay Township, they have a total of room about 35. Moreover, the hotels concentrate at Pyay Township. In Pyay City, the highest standard of available hotels offer 2 stars hotels with two hotels and total number of 45 rooms.

In respect to the quality standards, according to interviews, private hotels and guest houses improved much during the last four years, generally hotels facilities, services provision and touristic offers were upgraded. However, WiFi and internet connection are still difficult and unreliable which hinders a further expansion of the tourism business.

According to employment opportunities, the ancient city of Sriksetra, due to high and rising arrivals of domestic and international tourists, face rising income generation opportunities, transportation sector and within the hotels construction sector, food and beverages supply and services are within the hotels. The opportunities are still comparatively weak. Partly, this is connected with the facts that local festivals create seasonal and events-oriented demand only. For instance, in Pyay, local festivals such as Shwe San Daw pagoda and Sal Htat Gyi pagoda and Shwe Bone Thar Muni pagoda festival attract many domestics.

Moreover, international tourist visits in the area during the tourist season between October and March. Beyond the peak season, a few amount of international tourist visits in the area.

### **Accessibility of the Pyay Area**

The Pyay Area can be accessed by road and rail. Due to increased arrivals, particularly of international & domestics tourists .The regional and local roads have been upgraded and improved in recent years. Also, the connectivity via distant bus connections has much

increased and improved with a number of high classes bus lines which air-conditioned transportation for relatively reasonable prices. Only the railway connections were not upgraded yet. As one can reach from Yangon to Pyay via Yangon and from Mandalay and Magway to Pyay via Aungmye, with the daily commuting connections by roads, the beautiful natural landscape between the lower Myanmar and the central Myanmar plains and Bago mountainous highlands can be appreciated via road and railway.

### Discussion

In order for further development of domestic and international tourist in the Pyay Area, two ways of growth need to be considered (a) an increase of the length of stay visitors and (b) an increase number of short of stay both international tourist and domestic tourists. Thus, in order to provide sound baseline for decision making processes, and in-depth supply and demand analysis was undertaken. The tourism potential is evaluated with the “4As approach” in Table (2), a SWOT method analysis as follows.

#### Potential for New Attractions

The Pyay area has high potential for new tourist attractions of various types, Unlike other areas, many places within the area can be created and upgraded as popular tourist destinations without much effort as almost all potential attraction sites are already within accessible distance from Pyay. Of these are natural and environmental views, long history pagodas sites can further be developed. Many environmental areas are suitable for mountainous tourism, including those based on hiking and bicycle trails, forest areas and green mountainous ridges created into new tourist destinations. Moreover, ethnic settlement, offer unique potential, different agricultural patterns, traditional housing styles, local nun and monasteries of Pyay Area and village culture can be connected to tourism sites. And the locational advantages; on highway and railroad, On the Bank of Ayeyarwady River, Strategic place – A City in the western part of Bago Ranges, Close to Yangon, Node on north-south corridor – enhance accessibility, Natural assets: Hilly regions – interesting topography, physical conditions – Transitional Zone, Ayeyarwady River – natural scenic beauty and Cultural assets: Many famous pagodas, long history area, Cultural heritage site – *Sri Kestra* = unique in SE Asia, interesting Handicrafts and unique food products( e. g. Taw Tea leaf, Daw Oo traditional rice package, Fruit of Mya Kyauk mangoes and Fruits Gems and Milk sticks and other tradition foods) and etc.

Moreover, due to its favourable climatic conditions and environmental situation and the special functions which are connected with Pyay as regional capital and Pyay can be developed as a centre first of domestic and later of international conference tourism in Bago Region. Sufficient investment on infrastructure is needed by private sector. And then Pyay also has the potential to become the national trading centre of Myanmar, connected with business facilities for trading centre because of climatic conditions are favorable for cultivation and agricultural products and tourism education connect as a unique potential e.g. In organizing summer schools during holiday season or special language courses (e.g. English, Chinese, Japan, Korea, Thai) for government offices and the private sector. Besides, specialized health and wellness tourism will, in the mid and long run, be a unique option for Pyay's development, as already today, the existing health facilities are offering better services than other destinations in own interview, 2014, 2015 and 2016).

Therefore, Tourism must respect and support of local people but not harm the rural culture. Moreover, careful planning and management is needed, at best through the communities themselves.



### Potential for Better Accessibility

In comparison to other areas in Bago Region, Pyay Area offers better transport facilities. However, further improvement is needed. Especially the rail connection bears potentials. If more comfortable, reliable and not too slow, for the further tourists such as via day trips from Yangon to Pyay, from Mandalay to Pyay can be attracted, as rail traffic can be a comfortable alternative to highway buses. Thus, railway tourism, in authentically traditional but renovated coaches, is growingly becoming a specialized segment of international tourism.

### Potential to Provide Amenities

From the above mentioned tourist attraction sites are located in quite some distance from Pyay, improved connections are needed. This includes attractive restaurants and cafes, ethnics markets and special authentic events. Moreover, an urban image campaign, coupled with better information about Pyay's long historic and its facilities and attractions to be visited are needed.

### Potential for Better Administration (Planning and Management)

Although the government had adapted general tourism laws and regulations since 1992, on the regional and local level, upgraded tourism related management and planning needs further improvements. Tourism related local governance and management thus requires a systematic investigations and improvement.

Analysis of SWOT Assessment on Perceptions of Tourism development: the SWOT analysis is used as a structured planning method to evaluate the strengths, weaknesses, opportunities, and threats in social and economical changes to competitive position. Then the SWOT method analysis of the identifying based on the favourable and unfavourable factors to achieve that objective. The following research focus on;

- **Strengths:** characteristics of intend tourism factors that give advantages for others.
- **Weaknesses:** characteristics of intend tourism factors that place of private hotels, motel and other restaurant at a disadvantage relative to other area.
- **Opportunities:** elements that the agriculture activities with fruit and food products, handicrafts, traditional weaving of Innma longyi could exploit to its advantage on tourism business for future sustainable tourism development.
- **Threats:** agriculture elements (traditional food products) not yet systematic package in the case that could cause trouble for the purposes.

The SWOT method analyses base on internal factors as strengths or as weaknesses. That generate meaningful information for each category (strengths, weaknesses, opportunities, and threats) depending upon their effect on the organization's objectives. They are divided into four groups, such as Attractions, Accessibility, Amenities and Administration. The mention criteria designate above actual field observation for their purpose. They are (1) Strength, (2) Weakness, (3) Opportunities, (4) Threats.

Of these, it is potential for new attraction on tourisms toward potential development of socio-economic conditions.

Therefore, it is clear in Table 2, that conditions are Attractions, Accessibility, Amenities and Administration from the above facts as a finding of perceptions remark on tourism types in see Table 2.

**Table 2 Rapid Appraisal on Tourism Business of Pyay Area in the “4As” Context**

<b>4 As</b>	<b>Strength</b>	<b>Weakness</b>	<b>Opportunities</b>	<b>Threats</b>
<b>Attractions</b>	Numerous Hill environments & long history images	Less attractiveness	Hiking, biking , built hotel& motel on the bank Ayeyarwady & mountainous area	Deterioration of environments
	Ayeyarwady River	Silting up	Jetty, Scenic beauty	Lost of water way(esp; Transport)
	Favourable climate	Sometime flood	Resort tourism	Pollution
	Surround by many attractive long history images, mountainous sites	Lack of knowledge about attraction and amenities in Pyay Area	Possibility to create new attraction sites in order to extend length of stay	Improper provision of infrastructures and maintenance
	Long history and Cultural activities	Altitude Awareness	Local trade area Attraction to tourists	Lost of originality
	Local Handicrafts	Quality Skill-labour shortage	Attraction/ Employment	Competition with foreign products,
<b>Accessibility</b>	North-west corridor	Bad road condition	More famous	Introduce situation
	Easy access vis roads and railways	International upgrading necessary to rail transport	North-west corridor to China and Bangladesh increasing trade	Security issue, Foreign migrants
	Trade centre of Bago Region	Road quality is poor Narrow space for transport Weakness of land mark Weakness Bus Terminal	Employment in tourism related business conference and business tourism	Over congestion of existing infrastructures
<b>Amenities</b>	Hotel, Guesthouse Open space & good services	few restaurants and cafes, bars ,internet, expensive prices	Chance of Employment , new recreational land	Create causal labour force
	A lot of Mountainous environment	Insufficient maintenance, lack of funds A lot of garbage	Both Walking and Hiking trails and Urban areas, New hiking routes in rural areas, man made natural green space	Transformation to urban land use, threat to natural ecosystems
	Compact shape areas	weakness of urban infrastructures , public transportation	Enough time consumption	Increased investment needed, short of stay visitors

<b>Administration</b>	Being capital town at the western part of Bago Range	Poor overall planning to regional development	Under transformation. Introduce to better management of tourism issues	Weak in gov. setting
	Headquarters of all government institutions	Poor tourism management and weak integration of department in respect to interview	Potential to connect local ethnic communities	Poor planning of tourism sector

Source; Own field observations and interviews 2014 to 2017

### Conclusion and Suggestions

The high potential for sustainable tourism development in the Pyay Areas has not been systematically developed yet. Touristic sites currently exist in a spot- like manner and thus not yet integrated in an overarching regional concept. Environmental over- congestion (degradation, pollution, declining functionality of ecosystem services) is growing and threatening to destroy to the natural environments. Although economic potential interesting Handicrafts and unique food products( e. g. Taw Tea leaf, Daw Oo traditional rice package, Fruit of Mya Kyauk mangoes and Fruits Gems and Milk sticks and other tradition foods), not yet systematic package and income disparities and then weakness of social communities is threatening , economic overheating-rising land prices to destabilize the existing socio-economic balances. But domestic's tourism can be increased than favoured international tourism. So, favoured international tourism can grow to improvement of further sustainable tourism development.

While infrastructures capacities have been upgraded constantly during the last one decade, the interaction between the administration, the private sector, public institutions and civil society deserve further improvement.

Many potential locations and opportunities for the promotion of tourism improvement and systematic and regular supply and demand analysis is required for an improved planning and management. And then which to be carry out by government in connection of administration with universities. Moreover, potential economic factors seek with special and socio-economic risk - related analysis for tourism development necessary.

Suggestions for the further development of tourism business in the Pyay Area, potential economics key factors of traditional foods and natural beauty of mountainous area which may lead to a “ Pyay Area Mountain Park” concept to sustainable tourism development.

- It is necessary to organized a destination management organization (Public, Private and Partnership), which bring together the tourism related business. The lead of the organization could be given to an independent body and the process monitored and reviewed regularly on check.
- Needs that can be maintained ancient monuments and natural beauty of mountainous views( sports- related and hiking tourism) for avoid further environmental congestion with include citizen's knowledge and awareness to sustainable tourism development.
- Needs that can be fulfilled enhancement of tourism-related events and natural resources, traditional ethnic culture with its authentic and rich diversity.

- Needs that can be fulfilled for tourism development in Pyay, can be integrated with undertaken by governmental administration to improvement of Strand Road as a walk-way. Improvement of internal roads within Pyay , Cleanness of the city (wastes, spitting, etc.), Provision of bus lines within areas of Pyay .
- The Pyay Area can be established as one of Myanmar's leading cultural heritage centre, long history of culture (arts, literature, customs) of ethnic groups, Creation of museum on culture and heritage supported by open air museums, handicrafts centres and cultural events.
- With the establishment of Pyay can be integrated into existing offers, namely education-oriented tourism as English language course to youth groups and Summer school camp for school children, medical and wellness tourism, training courses on tourism for skill development of labours which also offers new opportunities for small and medium enterprises as raising awareness of the local people and tourism business owners (e.g specialized on handicrafts, traditional foods and local products)
- Enhancement of tourism related events that need to be fulfilled for tourism development in Pyay, Distribution of pamphlet and information on Pyay , Establish tourist information centre in peak tour season, Tourist police in tour season , Proper town map which easily available to tourist, . Proper sign-board for street names in Pyay, Better services from hotels and guesthouses with reasonable price.
- A long term place –based integrated tourism development plan should be developed with different government institutions and private sectors and public sectors as provision of infrastructure (electricity and water supply), Proper and clean toilets in main touristic sites, Creation of events/activities (local food cooking, special pagoda festival), Provision of taxi service and Create more attraction sites in Pyay to attract tourists.
- A hotel proper zoning for the further construction of new and high quality hotels and related facilities is required with improvement of the basic IT infrastructure and telecommunication is inevitable.

From the above facts if that can be fulfilled for tourism development in Pyay, a regional integration of a “systematic tourism system” can grow constantly, that can be obtained the best potential development of socio-economic conditions on the phases of tourism sectors in Pyay Area.

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