



Title	Geography Analysis on the Expansion of Panglong Town
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Abstract

This research focuses on four wards in Panglong Town and its environ Geography is the Scientific study of spatial pattern and process. Urban geography is a branch of geography that concentrates upon the location and spatial arrangement of towns and cities and their evolutions. Thus, the nature of loction and settlement pattern have been effect upon the expansion of Panglong Town is presented from geographical point of view. The data for this research were collected from respective departments, field observation and interviews. Then, the expansion of town was analysed by physical factors and human factors. The results that expansion of town were found in Ward (2) and (3). They can be extended from the fringe of them into new quarters.

Introduction

The paper research entitled "Geographical analysis on the expansion of Panglong Town" is presented from geographical point of view. Geography is the scientific study of spatial pattern and process. it seeks to identify and account for the location and distribution of human and physical phenomena on the earth's surface. Urban geography a branch of geography that concentrates upon the location and spatial arrangement of towns and cities and their evolutions. In simple words, urban geography is the study of urban areas. it seeks to add a spatial dimension to our understanding of urban places and urban problems.

Urban geographers are concentrated to identify and account for the distribution evolution of towns and cities, and the spatial similarities or contrasts that exit within and between them. They are concerned with both the contemporary urban pattern and with the ways in which the distribution and internal arrangement of towns and cities have changed over time. Urban geographers also look at the development of settlements. Therefore it involves planning of city expansion and improvement. Emphasis in urban geography is directed towards the understanding of those social, economic and environmental processes that determine the location spatial arrangement, the evolution of urban places.

A large settlement of Huetzu in Son Mu, one of the Northern-trans-Salween Shan States. it stands at a height of four thousand six hundred feet about sea level, in a hollow surrounded by abrupt low hills, or rather cliffs, with a singularly jagged outline. Panglong was founded about 1875 by fugitives from Tali after the Mahomedan rebellion was put down. At first, doubtless, it consisted exclusively of Huetzu, but there are a number of Chinese-Shans and others. The true Huetzu are all merchants, mule-owners and men of substance, and they employ numbers of hired men as mule-drives and to do the drudgery generally. These men come from Tali, Yong-chang, meng Hwa, Yun-cheo and Shun-ning.

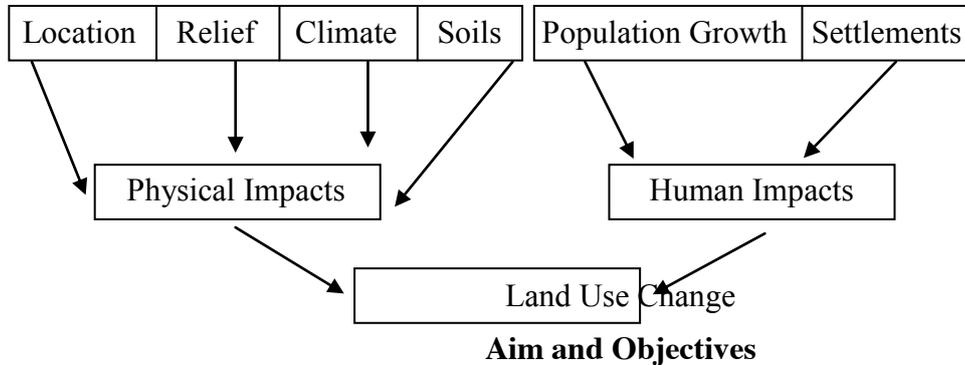
Panglong Town is located within the Panglong sub-Township which is situated in Loilem District in Southern Shan State. Panglong sub-Township was founded of July 16, 2002. It has an area of 271,67 squares miles or 173872 acres. Panglong Town has only 2.57 square miles or 1647 acres. Although the Panglong town has a small area, it is composed of infrastructures and urban functions because of the historical site and it has the national heritage of independence of Myanmar. It is also very important site for Myanmar Naing Ngan and for National unity. This research paper is organized in four parts.

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Chapter (1) examines the physical factors such as location, size, shape and boundary, relief and drainage, climate, soil and vegetation.

Chapter (2) studies the total population, population distribution and population density.

Chapter (3) Relationship between the nature of location and the settlements of Panglong town by quantitative method and then conclusion, summary, results and finding and suggestions were expressed.



The main aim of the research paper to analyze the expansion of Town with the physical factors and human factors by quantitative and qualitative methods. The main objectives of the study are;

- To study the geographic aspect of the study area that influences the location of town,
- To examine the demographic aspect of the study area,
- To examine the major forces that the composition of quarters,
- To analyze the concentration of settlement in the study area, and
- To find out the major factors influencing the constitution and condition of residential area expansion

Data and Methodology

Primary data and information are gathered by field observation. Secondary sources of data obtained from various departments namely: Township General Administrative Department; Settlement and Land Records Department; Meteorology and Hydrology Department, Loilem and Panglong Township Immigration and National Registration Department.

After computing the concentration of settlement, three different grades such as high, medium and low concentration levels will be analyzed by the combination of quantitative and qualitative methods.

Physical Factors of Panglong Town

Location, Size, Shape and Boundary

Panglong Town is situated in Loilem District and in the Southern Shan State. It lies between the Latitudes 19° 45' and 21° 27' North and Longitudes 97° and 98° 09' East. The total area of the Panglong is 1,678 acres or 2.75 squares miles. Panglong is an upland which is a compact shape. It is bounded on the north by Laechar Township, on the east by Nam San Township, on the south by Loilem Township and on the west by Hopong Township in the Southern Shan State (Map 1.1).

Relief and Drainage

The relief of Panglong is a plateau which has higher slopes in the north and south. Panglong lies 4,440 feet above sea level. The highest mountain range is "Loi Pha Lang" which rises in height in the north and which gradually becomes lower towards the south. The highest peak is Loilang which is over 6,334 feet. In the east and northeastern parts of the region lies Loilem which is a small mountain with a height of 5,605 feet.

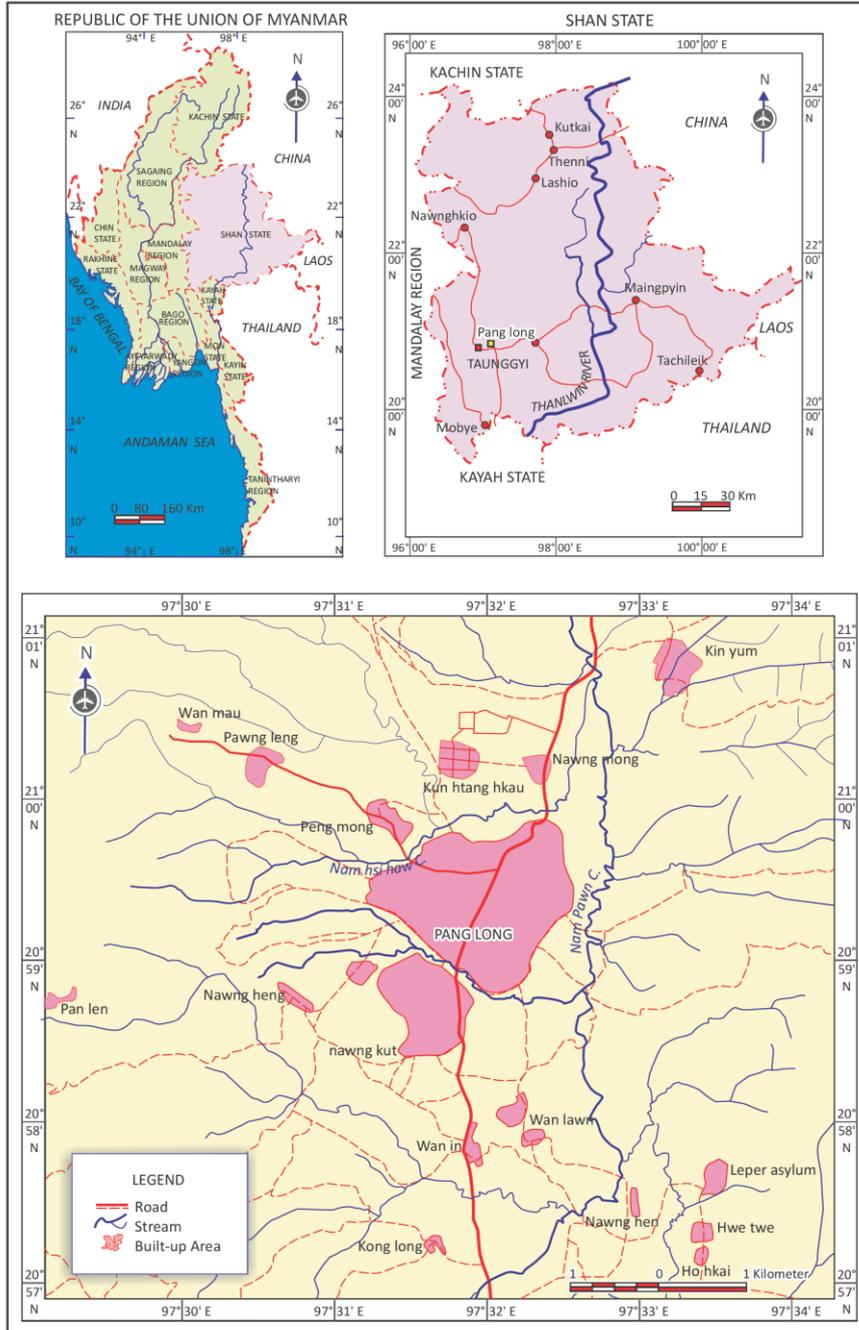
The source of water for the Panglong is Nam-hsi-haw spring which lies 3,000 feet away from Ward No (3) which lies over 5,000 feet above sea level. The stream which is the tributary of the Nam Pawn stream, flowing from west to east near the Ward No (2). The main stream is Nam Pawn stream with a length of 112 miles which rises in Kyeethi Township near Waman village in the south of Panglong. It is also a tributary of the Thanlwin river (Map 1.2).

Climate

Although Panglong lies in the low latitudes of the Tropical Zone yet as it lies above 4,444 feet above sea level, it receives the Sub-tropical Mountain Climate (Cwb) November, December and January are the months with the lowest temperature. April and May are the months with the highest average temperature of 80°F. As it is a hill region the daily range of temperature is high.

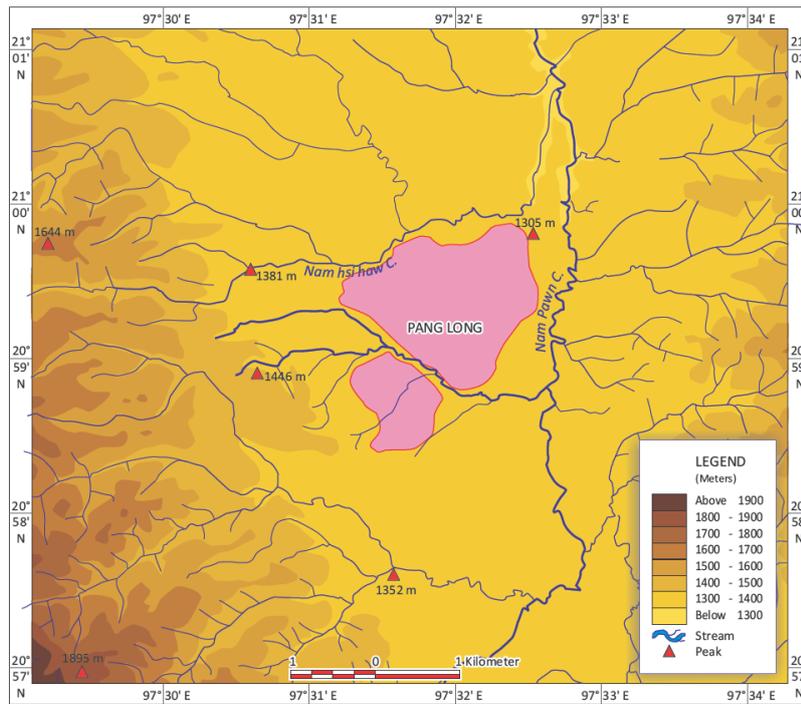
There are also variations in the amount or rainfall. From May to October are the 6 months with the highest rainfall. 90 percent of the total annual is being received during these months. January is the month with the least rainfall and it is the coldest month. The annual average rainfall for Panglong is about 56 inches (Fig. 1.1).

MAP 1.1 LOCATION OF PANG LONG IN SHAN STATE



Source: Topographic Map No. 2097_05, 2097_09, 2197_08, 2197_12.

MAP 1.2 TOPOGRAPHY AND DRAINAGE OF PANG LONG IN SHAN STATE

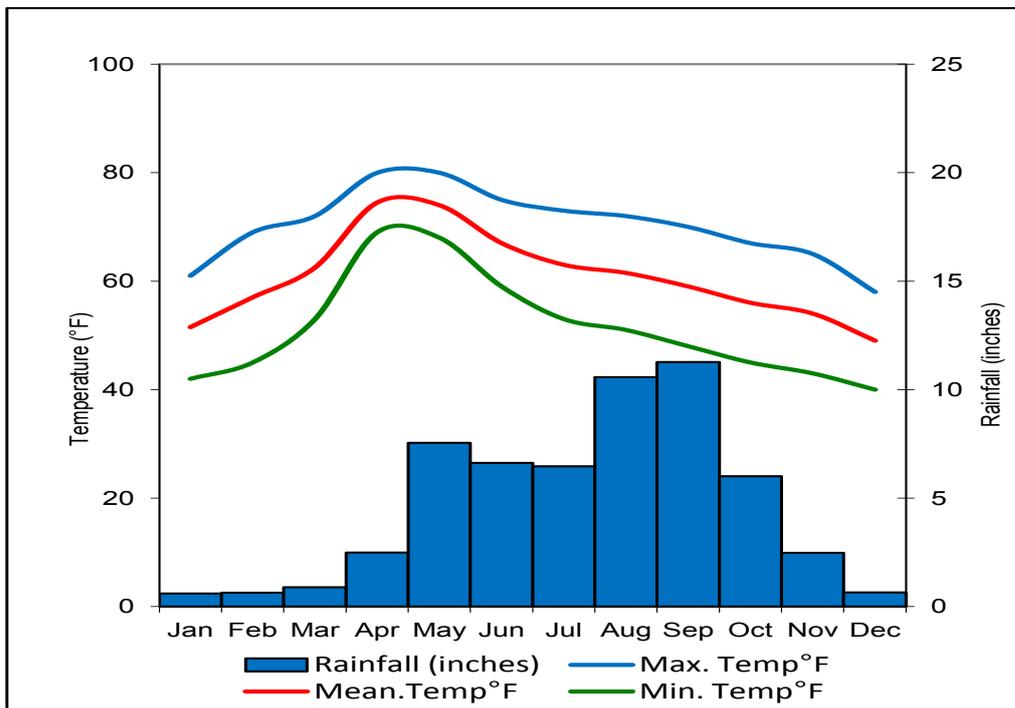


Source: Topographic Map No. 2097_05, 2097_09, 2197_08, 2197_12.

Soil and Vegetation

Mountainous Red Soil, red Brown Forest Soil and Meadow Soil are found in Panlong Town and they are overlying the limestone bed rocks. Very densely vegetated areas are not found in this area. The small parts of agricultural land are found. A few natural vegetations within the residential area and other is to be found as chestnut, pine, cherry, bamboo, oak and orchid.

Figure 1.1 Climograph of Pang Long (2002-2013)



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Aveg/ Total
Max. Temp°F	61.00	69.00	72.00	80.00	80.00	75.00	73.00	72.00	70.00	67.00	65.00	58.00	70.17
Mean. Temp°F	51.50	57.00	62.50	74.50	74.00	67.00	63.00	61.50	59.00	56.00	54.00	49.00	60.75
Min. Temp°F	42.00	45.00	53.00	69.00	68.00	59.00	53.00	51.00	48.00	45.00	43.00	40.00	51.33
Rainfall (inches)	0.60	0.64	0.89	2.49	7.54	6.62	6.46	10.57	11.27	6.01	2.47	0.65	56.21

Source: Meteorology and Hydrology Department, Ping Long.

Human Factors of Panglong Town

Total Population

The basic characteristics of population analysis will be made because population is interrelated with physical environment and settlements of any region. In terms of growth and development, the economic factors play a vital role in changing the shape and size of population. Population and settlements are also interrelated. When a settlement is established, it begins to attract population in sequence of time and subsequently there after many places, the nodal positions as markets or urban centers grow. Therefore, it may be deduced that physical environment and settlements are interrelated and complementary to population. In the regional geography, socioeconomic conditions are very much influenced and governed by the different basic characteristics of population; like growth, distribution and density pattern, etc.

The characteristics of population are conditioned by the attractive and restrictive physico-cultural environmental forces like geology, relief, climate, soil, minerals and other infrastructural facilities i.e. resources, transportation and means of communications etc. Further keeping in view the supreme role of physical environment in shaping the regional economy and its vital importance with the people and settlements, it becomes essential to study the basic characteristics of population.

The population of the Panglong Town according to the 2013 data is (23608). The male and female population constitute (11128) and (12480) having (47.14%) and (52.86%) of the total population respectively. During the field study it was observed that (Ward 4) is the biggest with the area (584) acres in the Panglong which possesses a population of (4864) according to the 2013 data. While (Ward 1) is the lowest with the area (251) acres in the Panglong which possesses a population of (4446) according to the 2012 data. The majority of the national races of Panglong were Shan. Many other races like Wa, Danu, Paoh, Taungyoe. Although there are many different religious faiths only minorities (Table 2.1).

Population Distribution

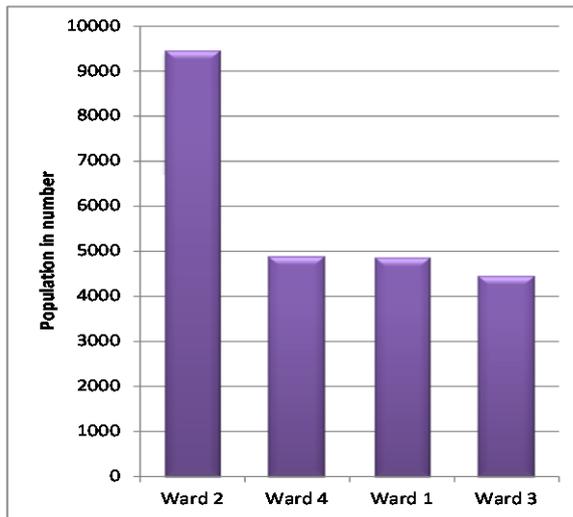
Population of a geographical region and its distribution pattern with respect to area, are closely associated with the process of social and economic development of the region. Generally, physical conditions like fertility of soil, the surface configuration, climatic conditions and spatial relation effect the pattern of population distribution, because the size of population determines the nature and pattern of human development, while in the distribution shows the varying nature of man's adjustments with physical resources. There is wide difference of opinion regarding the way in which the physical environment operates in shaping the distribution of population.

The influence of physical factors depends on the way of life of the people, the more complex is the society, the less is the influence of physical factors in the distribution and vice versa. Thus, the distributional pattern of population is in fact an eloquent expression of the syntheses of all geographical phenomena operating in the area.

In the Panglong Town population (23608), is distributed within an area of (2.573) square mile. Showing a density of (9175) persons per square mile. There is a most concentration of population in (Ward 2), because of the Ward 2 is the nearest of market and the extension of new town (Fig. 2.1).

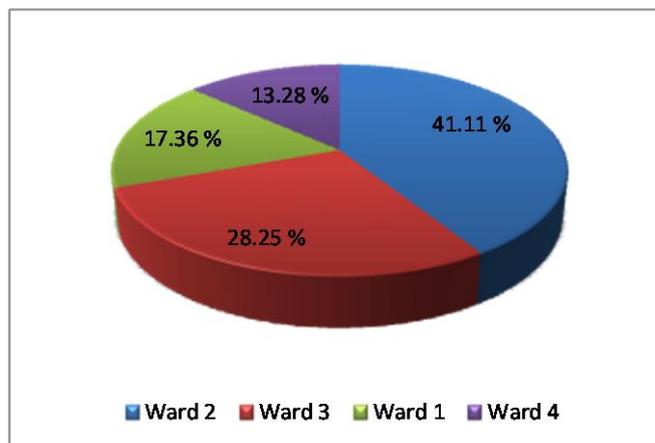
Population Density

The distribution of arithmetic density of population can also be explained by analyzing the density pattern. Population density is a useful abstraction, assisting in the analysis of diversity of man's distribution in space. The density may be defined as the average number of inhabitants residing in each square mile of the area. The table (2.1) and the figure (2.2) depict density distribution of the Panglong Town. It is clear that the high density area found in Ward (2) and (3), there may be the nearest market. The low density area is found in Ward (1) where are many offices and military quarter. Figure (2.1) Total Population of Pang Long by Ward in 2013



Source: Immigration and National Registration Department, Pang Long.

Figure (2.2) Population Density of Pang Long by Ward in 2013



Source: Immigration and National Registration Department, Pang Long.

Table (2.1) Area, Total Population and Its Density of Wards in panglong Town (2013)

Sr. No	Wards	Area (Acres)	Area (sq. miles)	Male	Female	Total Population	Density	Density %
1	Ward (1)	446	0.68	1938	2121	4059	7139	17.38
2	Ward (2)	366	0.56	4614	5057	9671	16844	40.99
3	Ward (3)	251	0.38	2285	2466	4750	11700	28.48
4	Ward (4)	584	0.90	2606	2865	5471	5405	13.15

Source: Settlement and Land Records Department, Immigration and National Registration Department, Panglong Town

Relationship between the nature of location and the settlements of Panglong town

Settlements and Composition of Quarters

Settlements represent one of the most dominant man made features on the earth in the process of habitation. In the genetic term settlements are more or less permanent abode of an organism. They also represent "An organized colony of human being together with the building in which they live and the paths and streets on which they travel". Every life style tended to inscribe itself into a typical settlements form. It has also been defined "As all forms of grouping of human habitations as well as the fact of peopling a community". Blasche defines them as "Human establishment add colour to landscape, sharper and building material as well as adaptation to a mode of life, rural or urban, agricultural or pastoral, all throw light upon man's materialistic, intellectual and technological advancement whereby they satisfy their environment". Thus, the settlement represents the spatial arrangement of various functional activities of man at local level including the place of residence, street pattern community places and others.

In the examination of the urban settlement of Ward (1) of Panglong Town, which composes of (9) quarters and (587) buildings with (645) house-holds and (4059) persons. According to the data of settlement and Land Record Department, Panglong Town, the residential area of ward (1) is 76.33 acres accounting for 4.63% of total area of Panglong Town. There are one Basic Education High School, one Basic Education Middle School one military quarter and nary offices one Basic Education Primary School are situated in Ward (1).

The urban settlement of Ward (2) of Panglong Town, which composes of (13) quarters and (1540) buildings with (1693) house-holds and (67) persons. According to the data of settlement and Land Record Department, Panglong Town, the residential area of ward (1) is 279.16 acres accounting for 16.94 % of total of Panglong Town. One Basic Education High School and three Basic Education Primary School are located in Ward (2). The Shwetigone Pagoda is located in the center part of Town.

In the examination of the urban settlement of Ward (3) of Panglong Town, which composes of (12) quarters and (756) buildings with (758) house-holds and (4750) persons. According to the data of settlement and Land Record Department, Panglong Town, the residential area of ward (3) is 136.14 acres accounting for 8.26 % of total area of Panglong

Town. There are one Basic education Primary School, Wayluwunn monastery and Hospital in Ward (3).

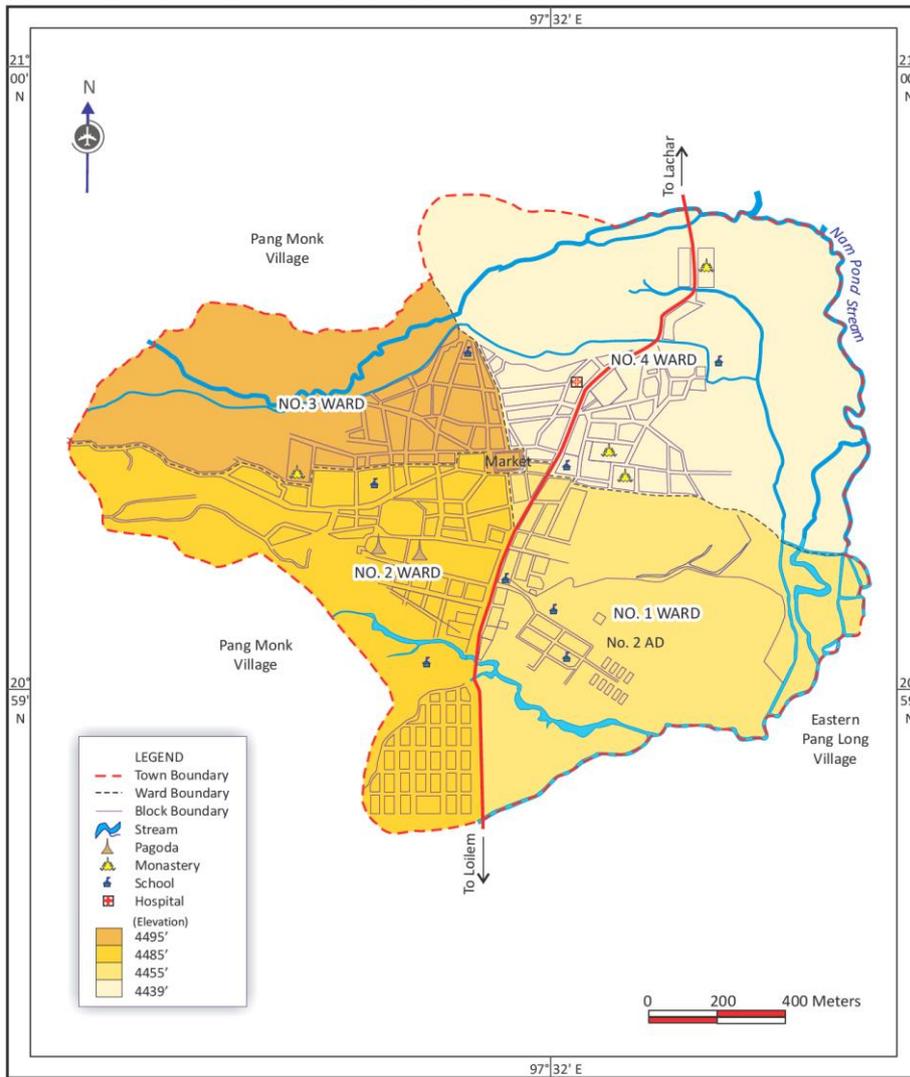
The urban settlement of Ward (4) of Panglong Town, which composes of (4) quarters and (876) buildings with (901) house-holds and (5471) persons. According to the data of settlement and Land Record Department, Panglong Town, the residential area of ward (4) is 250.24 acres accounting for 15.19% of total of Panglong Town. There are one Basic Primary School, three Buddhist monasteries and two Christian Church (Map 3.1).

Table (3.1) Land Use Patterns

Sr. No	Types of Land Use	Ward (1) (acres)	Ward (2) (acres)	Ward (3) (acres)	Ward (4) (acres)
1	Residential Land Use	76.333	279.163	136.141	250.242
2	Industrial Land Use	-	-	-	2.050
3	Commercial Land Use	-	4.113	-	-
4	Land Use for Public and Government	294.667	25.314	0.859	8.644
5	Religious Land Use	-	29.410	-	22.064
6	Transportation Land Use	8.000	8.000	7.000	7.000
7	Agricultural Land Use	66.000	17.000	104.000	288.000
8	Underground Water	1.000	3.000	3.000	6.000
	Total	446.000	366.000	251.000	584.000

Source: Settlement and Land Records Department, Panglong Town

MAP 3.1 WARD STRUCTURE OF PANG LONG IN SHAN STATE



Source: Land Records Department, Pang Long.

Concentration of Settlements

The table (3.2) can be analyzed through the formula of degree of concentration which is as follows:

$$C = \frac{NS + AU}{At} \times 100$$

Where, C = Index of concentration
 NS = Total number of settlement in each Ward
 AU = Unoccupied are in each Ward
 At = Total area of each Ward

Table (3.2) The degree of concentration by percentage

Wards	NS	AU (sq.miles)	At (sq.miles)	Concentration (%)
Ward (1)	587	0.57	0.69	9.38%
Ward (2)	1540	0.13	0.57	27.24%
Ward (3)	756	0.18	0.39	19.84%
Ward (4)	876	0.52	0.91	10.19%

The value of C has been calculated for the settlements in all the four wards of Panglong Town.

The table (3.2) gives the value of C varying from 9.38 % to 27.24 %. Higher values have been noticed in Ward (2) in Panglong. While lesser values observed in Ward (1) and Ward (4). The moderate value belongs to Ward (3). Higher the value of C, greater is the concentration of the settlement in a particular ward and vice-versa.

In the present case study of Panglong, three basic classes of settlement distribution, which are as follows:

1. Maximum Concentration
2. Moderate Concentration
3. Minimum Concentration

1. Maximum Concentration

The maximum concentration of settlement has been observed in the ward (2). It is attributed to the fact that this ward lies at the higher elevation and good drainage, are surrounded by the fields and nearest market in Town.

2. Moderate Concentration

The moderate concentration of settlement distribution is found in ward (3). This region represents undulating nature of topography and having the programme for the Educational and office sites. Due to these reasons, the moderate concentration of settlements has been observed here.

3. Minimum Concentration

The minimum concentration of settlement has been noticed in ward (1) and (4). These wards are characterised by hilly terrains and along the course of the Nam Pawn stream. Ward (1) is occupied by many offices. People who live in ward (4) do not permanent and they usually work to other regions.

Conclusion

Summary

Panglong Town is situated in Loilem District and in the Southern Shan State. It lies between the Latitudes 19° and 21° 27' North and Longitudes 97° 15' and 98° 09' East. The total area of the Panglong is 1,678 acres or 2.75 squares miles. Panglong is an upland which is a compact shape. It is bounded on the north by Laechar Township, on the east by Nam San Township, on the south by Loilem Township and on the west by Hopong Township in the Southern Shan State. Panglong town is composed of four Wards. On the other hand it is composed of (38) quarters.

The relief of Panglong is a plateau which has higher slopes in the north and south. Panglong lies 4,440 feet above sea level. The main stream is Nam Pawn stream with a length of 112 miles which rises in Kyeethi Township near Waman village in the south of Panglong. It is also a tributary of the Thanlwin river.

Panglong receives the Sub-tropical Mountain Climate (Cwb). Mountainous Red Soil, Red Brown Forest Soil and Meadow Soil are found in Panlong Town and they are overlying the limestone bed rocks.

The population of the Panglong Town according the 2012 data is (23608). The male and female population constitute (11128) and (12480) having (47.14%) and (52.86%) of the total population respectively. In the Panglong Town population (23608), is distributed within an area of (2.573) square mile. Showing a density of (9175) persons per square mile.

In the examination of the urban settlement of Panglong Town, Ward (1) composes of (9) quarters, Ward (2) composes of (13) quarters, Ward (3) composes of (12) quarters, and Ward (4) composes of (4) quarters.

Results and Finding

In the Panglong Town population (23608), is distributed within an area of (2.573) square mile. Showing a density of (9175) persons per square mile. There is a most population distribution in (Ward 2), because of where the nearest of market and the extension of new town.

According to a simple graphical method of distribution of settlements it will be seen that the number of quarter is related to the land use of area in each ward.

According to the levels of spatial concentration of the settlements in 2012, there are maximum concentration of settlements have been observed in the Ward (2) and Ward (3). These Wards having the percentage of concentration are 27.24 % and 19.84 %. They lie at the higher elevation and good drainage, are surrounded by the fields. Ward (2) and Ward (3) are

nearest market in Town. Ward (2) has the most settlements due to the consisting of the part of extension.

The Minimum concentration of settlement has been noticed in Ward (1) and (4). In ward (1), the settlements have been lived along the course of the Nan Pawn stream. Ward (1) is occupied by many offices. Ward (4) is characterized by hilly terrains and along the course of the Nam Pawn stream. People who live in this Ward do not permanent and they usually work to other regions.

Suggestions

Two streams which originate from the range situated west of town are flowing around the town. Ward (2) and Ward (3) lie at the higher elevation and good drainage and are surrounded by the fields. The maximum concentration of settlement has been observed in these Wards. They are nearest market and water resource are obtained from two streams. They can be extended from the fringe of them into new quarters. But Ward (3) has a little chance to extend because of having programmes.

Acknowledgements

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