

Physical Influence on Population in Mandalay District

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Abstract

This research paper is “Physical Influence on Population of Mandalay District”. The study area is Mandalay District which is located at/near the confluence of the Ayeyarwady and the Myitnge rivers. Population is interrelated with physical environment and settlements of any region. The different basic characteristics of population like growth, distribution and density pattern, sex composition, etc depend on socio-economic condition within a region. Population is described the attractive and restrictive by physic-cultural environment factors. Thus, research works will be needed in analyzing and solving some problems concerning physical environment. This research paper measures the concentration of population and analyzes the regional differences from the study area.

Key words: physic-cultural environment, attractive and restrictive, and settlements.

INTRODUCTION

Population is interrelated with physical environment and settlements of any region. The different basic characteristics of population like growth, distribution and density pattern, gender composition, etc depend on socio-economic condition within a region. Population is described the attractive and restrictive by physic-cultural environment factors. Thus, research works will be needed in analyzing and solving some problems concerning physical environment. This research paper measures the concentration of population and analyzes the regional differences from the study area.

Aim and Objectives

The main aim of this research paper is to analyze the regional differences of Mandalay District.

The main objectives of this research paper are:

1. To study the basic characteristics of population in Mandalay District
2. To examine the factors affecting the concentration of population in this study area.

Data collection and Method

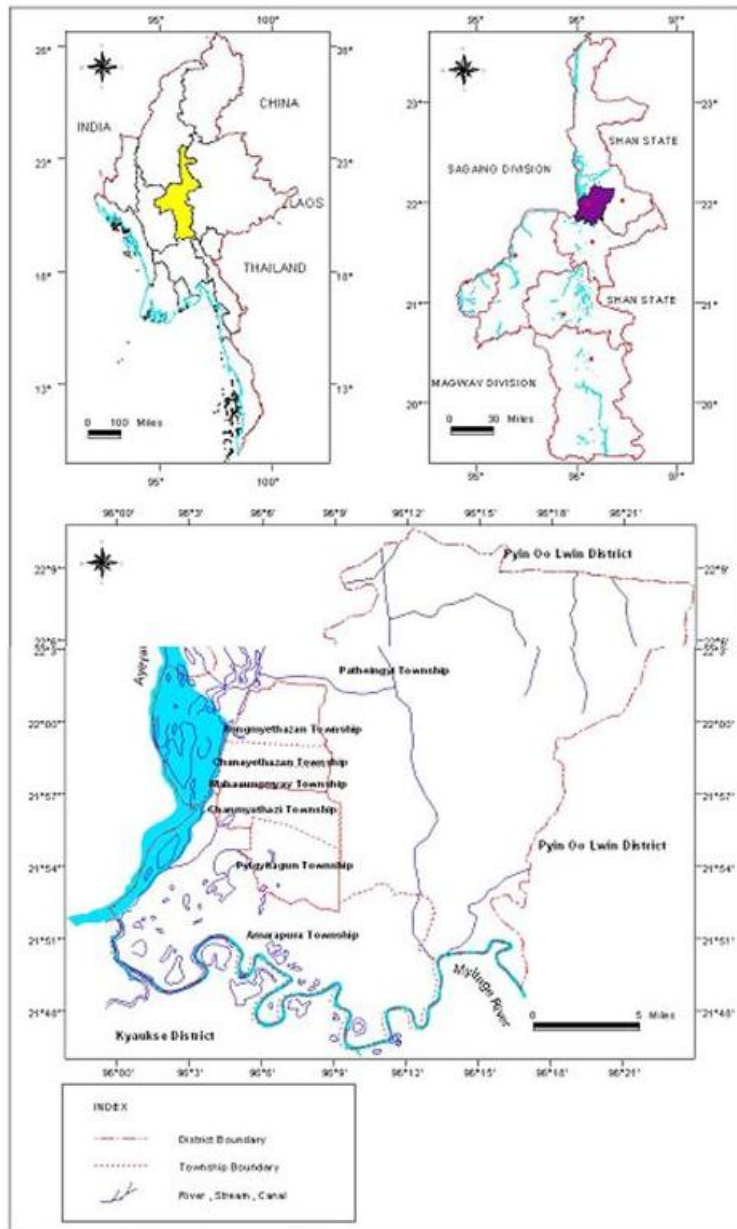
First, base map of Mandalay District is produced from Myanmar UTM maps. Then necessary secondary data are collected from various departments, and written records, and primary data by field observation. Analysis of concentration of population is used by the method of GINI in this research paper. (GINI = a statistical measure of distribution developed)

Study Area

The study area is Mandalay District which is located at/near the confluence of the Ayeyarwady and the Myitnge rivers. It is situated on the Mandalay plain in the Central Dry Zone of Myanmar and coordinates of latitude 21° 58' N and longitude 96° 05' E. It is bounded the Ayeyarwady on the west, the Myitngeon the south, and the western escarpment of the Shan Highland on the east.

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Map 1 LOCATION MAP OF MANDALAY DISTRICT



Source: Department of Geography, University of Mandalay

Analysis and Discussion

Before the analyzing the concentration of population in the study area, a general study on the basic characteristics of population should be carried out. Generally, the basic characteristics of population of the study area include growth, distribution and density pattern gender composition, etc.

Distribution and Density of Population

Population and its distribution pattern are concerned with the process of social and economic development of Mandalay District. The pattern of population distribution is interrelated with the physical conditions like surface configuration, climate conditions and spatial relation.

In Mandalay District population (1285955) in 2014 is distributed within an area of 353.32 square mile including a density of 3640 persons/ sq-mile. The most population in Mandalay District is Maharaungmyay and Chanmaythzi Township. It is found that the most

population areas are the chief places of transportation, communication and Business center District. Therefore, Pyigyitagon Township is the less distribution of population. The population of Mandalay District in 2017 is about 1431227 persons and the density of 4056 persons / sq-mile. Aungmyaythazan, Chanayethazan and Maharaungmyay Township are the most population in Mandalay District. Pyigyitagon Township belongs to less population.

The population of Mandalay district from 2014 to 2017 has been increasing. The distribution of arithmetic density of population can be explained by analyzing the density pattern. Population density is used in the analysis of diversity of man's distribution in space. Table (1) in 2014, (2) in 2017& figure-(1) are followed density distribution of population.

Table 1 Distribution of Density of Population in Mandalay District (2014)

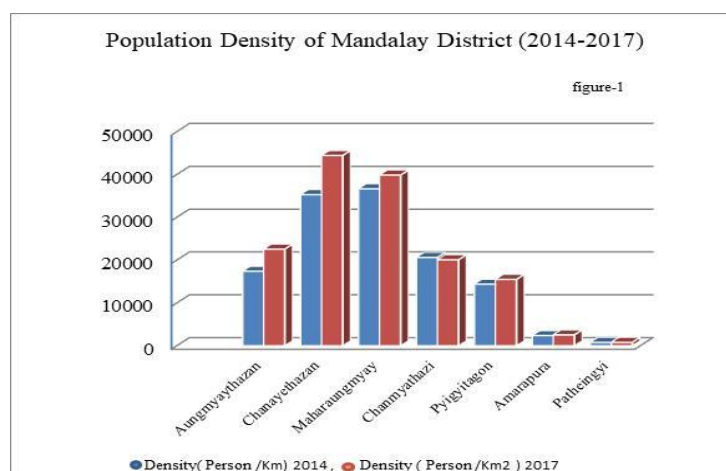
No	Township	Area (Sq- mile)	Population	Density (Person / sq-mile)
1	Aungmyaythazan	11.03	191,780	17,387
2	Chanayethazan	5.05	178,176	35,282
3	Maharaungmyay	5.72	209,611	36,645
4	Chanmyathazi	9.7	200,033	20,622
5	Pyigyitagon	9.9	142,141	14,358
6	Amarapura	80.11	188,849	23,57
7	Patheingyi	231.81	175,365	757
	Total	353.32	1,287,645	3,640

Source; Department of Labour, Immigration and Population, Mandalay

Table 2 Destruction of Density of Population in Mandalay District (2017)

No	Township	Area (Sq- mile)	Population	Density (Person / sq-mile)
1	Aungmyaythazan	11.03	248,746	22,552
2	Chanayethazan	5.05	224,300	44,416
3	Maharaungmyay	5.72	227,920	39,846
4	Chanmyathazi	9.7	194,703	20,072
5	Pyigyitagon	9.9	153,272	15,482
6	Amarapura	80.11	202,666	2,530
7	Patheingyi	231.81	181,610	783
	Total	353.32	1,438,970	4,056

Source; Department of Labour, Immigration and Population, Mandalay



It is found that the highest densities are (36,645 persons / sq-mile in 2014) in the Maharaungmyay Township and (44,436 persons / sq-mile in 2017) in the Chanayethazan Township. The low density of population is 757 persons / sq-mile in 2014 and 783 persons / sq-mile in 2017 in the Patheingyi Township. The low density area is the developing region. The high density area is found in the economic activity. Generally, it is found that the more the population density, the less this area.

Physiological Density

The density of population is described generally the only man-land ratio. A more realistic measure of population concentration is the physiological density in cultivable area. The following table (3) in 2014, table (4) in 2017 & figure-(2) reveal distribution of physiological density of the Mandalay district.

Table 3 Distribution of Physiological Density in Mandalay District (2014)

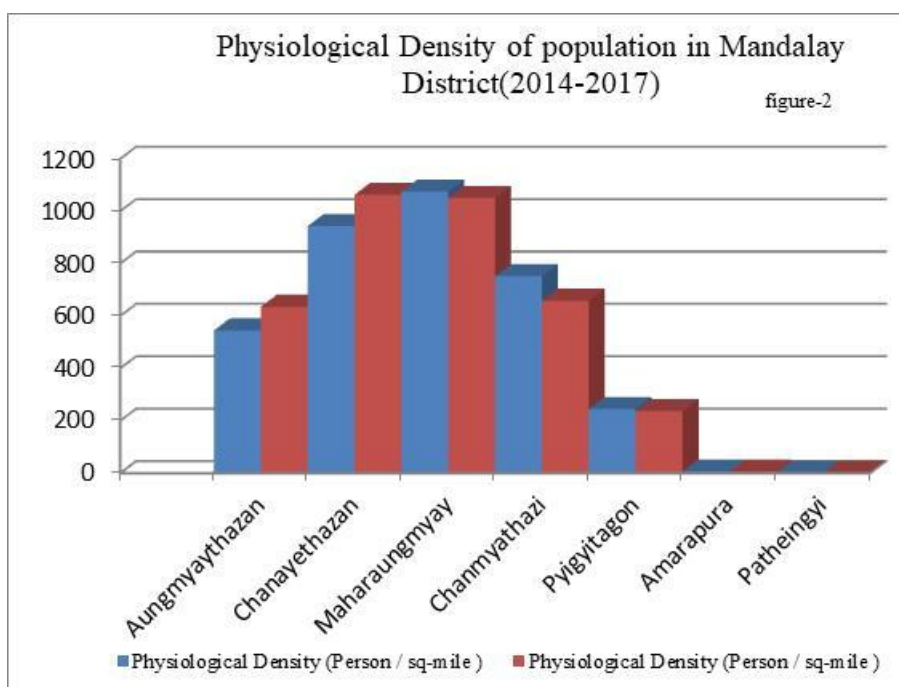
No	Township	Cultivated Area (sq-mile)	Population	Physiological Density (Person / sq-mile)
1	Aungmyaythazan	352	191,780	545
2	Chanayethazan	189	178,176	943
3	Maharaungmyay	195	209,611	1,075
4	Chanmyathazi	266	200,033	752
5	Pyigyitagon	581	142,141	245
6	Amarapura	31,308	188,849	6
7	Patheingyi	57,923	175,365	3
	Total	90,814	1,287,645	14

Source; Department of Labour, Immigration and Population, Mandalay

Table 4 Distribution of Physiological Density in Mandalay District (2017)

No	Township	Cultivated Area (sq-mile)	Population	Physiological Density (Person / sq-mile)
1	Aungmyaythazan	392	248,746	635
2	Chanayethazan	211	224,300	1,063
3	Maharaungmyay	217	227,920	1,050
4	Chanmyathazi	296	194,703	658
5	Pyigyitagon	648	153,272	237
6	Amarapura	34,893	202,666	6
7	Patheingyi	64,557	181,610	3
	Total	101,214	1,438,970	14

Source; Department of Labour, Immigration and Population, Mandalay



Physiological density ranges between 1,075 persons /sq-mile and 3 persons / sq-mile in 2014 and then between 1,063 persons / sq-mile and 3 persons / sq-mile in 2017 of Mandalay District. In 2014 the highest value 1,075 persons / sq-mile is found in the Maharaungmyay Township while the lowest value 3 persons / sq-mile is in the Patheingyi Township. The highest value 1,063 persons / sq-mile and 1,050 persons / sq-mile in 2017 is found in the Chanayethazan and Maharaungmyay townships. And then the lowest value is 3 persons / sq-mile in Patheingyi Township .It is found that the physiological density exhibits on the spatial variations. The high density occurs in city block of Mandalay district and the low density in hilly region.

Concentration of population

To find out the concentration of population location quotient formula has been used. Table (5) in 2014 and table (6) in 2017 reveal the distribution of concentration in Mandalay district.

Table 5 Concentration of Population in Mandalay District (2014)

No	Township	Density (Person / sq-mile)	L.Q	Concentration
1	Aungmyaythazan	17,387	4.78	Medium
2	Chanayethazan	35,282	9.69	High
3	Maharaungmyay	36,645	10.07	High
4	Chanmyathazi	20,622	5.67	Medium
5	Pyigyitagon	14,358	3.94	Medium
6	Amarapura	2,357	0.65	Low
7	Patheingyi	757	0.21	Low
	Total	3,640		

Source; Department of Labour, Immigration and Population, Mandalay

Table 6 Concentration of Population in Mandalay District (2017)

No	Township	Density (Person / sq-mile)	L.Q	Concentration
1	Aungmyaythazan	22,552	5.56	Medium
2	Chanayethazan	44,416	10.95	High
3	Maharaungmyay	39,846	9.82	High
4	Chanmyathazi	20,072	4.95	Medium
5	Pyigyitagong	15,482	3.82	Medium
6	Amarapura	2,530	0.62	Low
7	Patheingyi	783	0.19	Low
	Total	4,056		

Source; Department of Labour, Immigration and Population, Mandalay

From demographic point of view the distribution of population can be divided into the three concentrations:

1. High Concentration,
2. Medium Concentration, and
3. Low Concentration.

1. High Concentration

The high concentration (L.Q 10.07 & 9.69) in 2014 is found in Maharaungmyay and Chanayethazan Township .In 2017 Maharaungmyay and Chanayethazan Township found L.Q (9.82 and 10.95) of high concentration .High concentration of population is the chief economic area of people. Similarly, the maximum density of population varies from 35,282 to 36,645 person / sq-miles in 2014 and from 39,846 to 44,416 person /sq-miles in 2017. It is found that high concentration of population is the same with the maximum density of population in the Maharaungmyay and Chanayethazan Township.

2. Medium Concentration

The value of medium concentration ranges from 3.94 to 5.67 in 2014 and from 3.82 to 5.56 in 2017 (L.Q values). The calculated values are: Aungmyaythazan (4.78), Chanmyathazi (5.67), and Pyigyitagong (3.94) in 2014 and then Aungmyaythazan (5.56), Chanmyathazi (4.95), and Pyigyitagong (3.82) in 2017 .Like medium concentration of population, the medium population density which varies from 14358 to 20,622 persons / sq-mile in 2014 and from 15,482 to 22,552 person / sq-mile in 2017 has been exhibited within these three townships.

3. Low Concentration

The value of low concentration is less than 1.00. The low concentration of Population has been exhibited by the Amarapura (L.Q-0.65) and Patheingyi (L.Q 0.21) in 2014 and then Amarapura (L.Q . 0.62) and Patheingyi (L.Q-0.19) township in 2017. Due to the reasons the concentration of population is also very low; the minimum density of population which varies between 757 to 2357 persons / sq-miles in 2014 and between 783 to 2,530 person /sq-miles in 2017 has been exhibited in these region of Mandalay district.

Gender Ratio

Gender ratio mentions the socio-economic conditions prevailing in Mandalay district and is a useful tool for regional analysis. Socio-economic relationship is concerned to balance

the disparity between males and females. For Mandalay District, the distribution of male-female population and gender ratios are described in the following table (7) in 2014 and (8) in 2017.

Table 7 Gender Ratio Change of Mandalay District (2014)

No	Township	Population		Gender Ratio
		Male	Female	
1	Aungmyaythazan	940,46	977,34	96.23
2	Chanayethazan	856,01	925,75	92.47
3	Maharaungmyay	106,970	102,641	104.22
4	Chanmyathazi	101,514	98,519	103.04
5	Pyigyitagon	72,710	69,431	104.72
6	Amarapura	104,499	84,350	123.89
7	Patheingyi	88,765	86,604	102.50
	Total	565,340	545,250	103.68

Source; Department of Labour, Immigration and Population, Mandalay

Table 8 Gender Ratio Change of Mandalay District (2017)

No	Township	Population		Sex Ratio
		Male	Female	
1	Aungmyaythazan	120,601	128,145	94
2	Chanayethazan	106,199	118,101	90
3	Maharaungmyay	112,505	115,415	97
4	Chanmyathazi	95,800	98,903	97
5	Pyigyitagon	77,578	75,694	102
6	Amarapura	107,839	94,827	114
7	Patheingyi	89,713	91,897	98
	Total	710,235	722,982	98

Source; Department of Labour, Immigration and Population, Mandalay

The highest gender ratio (124) in 2014 and (114) in 2017 has been found in the Amarapura Township. And then the lowest gender ratio (92) in 2014 and (90) in 2017 found in the Chanayethazan Township.

Regional distribution of population

The physical and cultural environment with tribal population and its distribution, general population distribution, density of population, physiological density of population and sex – ratio has been considered the difference of geomorphic region with the correlation between the physical factors and population. It can be divided into two parts of the geomorphic region in Mandalay district. There are the western region and the eastern region.

The Western region

This plain occupies 75% of the district area, extending from the foot of the eastern hills to the Ayeyarwady in the west. It is a flat plain of alluvium deposited by the Ayeyarwady. The plain stands at about 250 feet above sea level. Although it is a plain, a few

isolated hills are found in its northern part and three Ayeyarwady river terraces in the western part of Mandalay City. This region is more or less flat. The concentration of population in Mandalay city varies from 3.82 to 10.95 L.Q in 2017. The density of population varies from 15482 to 44416 persons / sq-mile in Mandalay city. And then Amarapura Township included in Mandalay city in March 2017. Now-a-day, it can be found the distribution of population concentration and density of population.

The Eastern Hills

The eastern hills are the western foothills of the Shan Highland and cover 25%, lying in the eastern part. Topography is rugged and is about 3,000' above sea level. Population of this area is 181,610 according to 2017. It includes 12.67 per cent of population of Mandalay District. This township exhibits minimum value 783 persons /sq-mile of population density. The physiological density of population has been found 3 persons / sq-mile in this geomorphic region. It is obviously found that population of Patheingyi Township is thinly distributed. The concentration of population is (0.19) L.Q in this geomorphic region. The physical factors such as slope, relief, drainage density, and stream frequency support a direct impact on concentration of population and density of population.

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