

Cottage Industries as Mean Supporting Local Economy of Zalun Town

Moh Moh Khaing¹, Le' Le' Win², Hwmy Hwmy San³

Abstract

Zalun Town is one of the townships located in Hinthada District. Nearness to Hinthada Town is locational advantage for Zalun Town and the existence of cottage industries which supports local economy in the study area. The cottage industries are efficient in order that they can earn regularly for their families. Many types of cottage industries such as food and beverages industries, clothing and wearing apparel, construction materials, household goods, printing and publishing, workshop, etc., are found in the area. Population of the study area supports the cottage industries and the growth of cottage industries in Zalun Town area. Among the cottage industries in Zalun Town, food and beverage, construction materials and workshop industries are the largest number. Cottage industries are unevenly distributed and there is a relationship between population and number of cottage industries in this area. The distributions of cottage industries are analyzed by Pearson's Product Moment Correlation Coefficient, Mean Center and Standard Deviation Ellipse method. Existence of these industries depend on accessibility of the area, availability of labour, raw materials, market demand and electricity.

Keywords: Geographical background, cottage industries, Mean Center and Standard Distance

Introduction

Cottage industry is home-based system of manufacturing. In Myanmar and other ASEAN countries are hoping to get higher economic and industrial role through small and medium-scale enterprises, including cottage industries.

Zalun Town is located on the delta of the Ayeyarwady in the Southern part of Myanmar. It is in Zalun Township, Hinthada District. It is about 120.75 kilometers (75 miles) away from Yangon and 25.75 kilometers (16 miles) away from Hinthada Township.

These industries are relayed from generations to generations and mostly cottage industries based on their home site. Most of the industries are used by traditional methods. The increase in population is one of the controlling factors in the growth of cottage industries. The educated persons and younger generations change their products' quality and extension of market areas.

Zalun Town is one of the cottage industries developed town in Hinthada District. A different types of industries concentrated but the distribution patterns are uneven. Some products of small-scale industries in Zalun Town are famous.

Study Area

Zalun is situated on the Ayeyarwady deltaic area in the southern part of the Myanmar. It has an area of 11.9 square kilometers (4.61 square miles). It is composed of 5 wards. It is bordered by Lamaing Village Tract in the south-east, Thayettapin (south) Village Tract and Ahshokekwin Village Tract in the west, Yinmault and Kywaman village tracts in the south, Bynnyar and Yintaikkone village tracts in the north.

¹Associate Professor, Department of Geography, Hinthada University

²Associate Professor, Department of Geography, Hinthada University

³Student, Department of Geography, Hinthada University

Research Problem

The research problem of the paper is – that Cottage industries in Zalun Town are unevenly distributed due to some factors such as physical, social, and economic factors.

Aim and Objectives

The main aim is to find out the spatial distribution patterns of cottage industries in Zalun.

Objectives

- To analyze the spatial distribution of the various types of cottage industry in Zalun.
- To examine the controlling factors on spatial distribution of cottage industries in the study area.

Sources of Data and Methodology

Primary data were collected by field survey, questionnaires and structured interviews. Data on locational choice, raw materials, labour, electricity, market, transportation, conditions, difficulties were interviewed. In Zalun Town, some wards possess some types of cottage industry. Totally, there are 183 cottage industries in Zalun, in which 34 are food and beverage industries. Nine out of 34 food and beverage industries were selected and questionnaires were distributed. There were 27 clothing and wearing industries, in which 7 industries were chosen as samples and distributed questionnaires. Total number of printing and publishing industries is 21 in which 5 printing and publishing industries are picked to distribute questionnaires. The number of household goods industries is only 6. Therefore, 2 household goods industries were selected and questionnaires were distributed. Owners and leaders of cottage industries were mainly sources to get detailed information on cottage industries in Zalun.

Secondary data such as population data, number of cottage industries were obtained from departments concerned. Quantitative and qualitative methods were also used in presenting this research.

The Pearson's Product Moment Correlation Coefficient (r) and Student's t Test were applied to analyze. The trend and orientation of industries are analyzed by mean center and standard deviational ellipse method.

Results and Findings

Geographical Background of Zalun Town

Location

Zalun Town is located in Zalun Township within Hinthada District of Ayeyarwady Region. Zalun Township is situated on the Ayeyarwady deltaic region in the Southern part of Myanmar. It is composed of 5 wards of urban settlement and 66 village tracts. Zalun Town is situated between $17^{\circ} 10'$ and $17^{\circ} 50'$ North latitude and $95^{\circ} 20'$ and $95^{\circ} 40'$ East longitude. It is composed of 5 wards of urban settlement. These are Kanarr Ward, Lammataw North Ward, Lammataw South Ward, Santan Ward and Nyaungbinzay Ward.

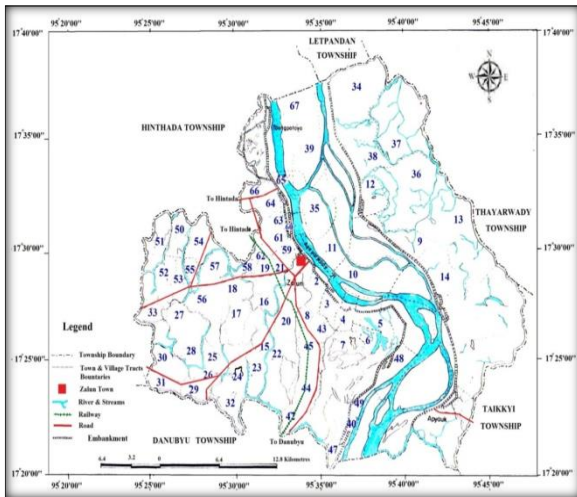


Figure (1) Location of Zalun Township
Source: Myanmar Survey Department, Yangon

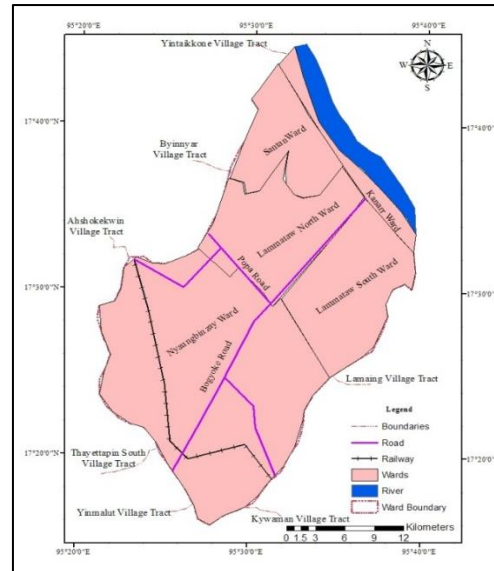


Figure (2) Location of Zalun Town
Source: Myanmar Survey Department, Yangon

The area of Zalun Township is 640.9 square kilometers (247.44 square miles) (Fig. 1). But the area of Zalun Town is only about 11.9 square kilometers (4.61 square miles). (Fig. 2) The Ayeyarwady River divides Zalun Township into two almost equal halves. Zalun Town is located in the western bank of the Ayeyarwady River. Generally, Zalun Town is compact in shape.

As vicinal location, it is bounded by Binnyar and Yintaikkone village tracts in the north, Lamaing village tract in the south-east, Yinnalut and Kywaman village tracts in the south, Thayetapin South and Ahshokekwin village tracts in the west. The distance from Yangon is 120.75 kilometers (75 miles) away by road. (Figs. 1 and 2)

Relief

All areas are perfectly flat alluvial plain below 15.23 meters (50 feet). The general topography of the area is gradually slopping down from north to south. All land within the Zalun Town is at an average elevation of 11.0 meters (36.14 feet) above the sea level. The Ayeyarwady River passes through beside of Zalun. It is situated in the western bank of the Ayeyarwady River. The length of the Ayeyarwady River in Zalun Township is 39.60 kilometers (24.8 miles) along the meandering river course. The streams flow from west to east in Zalun into the Ayeyarwady. The average elevation of Zalun Town is 11.0 meters (36.14 feet) above the sea level. (Fig. 3)

Climate

According to the 2007-2017 data, the study area has monthly mean temperature 27.26°C during the period from 2007 to 2017. April is the hottest month and January is the coldest month. In April, maximum temperature is 38.3°C and minimum temperature 13.8°C in January, thus the range of temperature is 24.5°C. According to Table (1.1) (Figure 1.7), the total mean annual temperature of this region is 27.3°C. In 2017 the average total rainfall is 2167 millimeters. (Fig. 4)

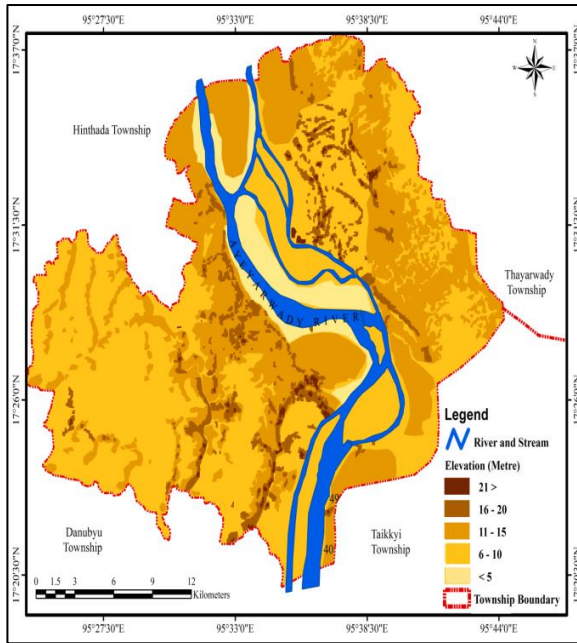


Figure (3) Relief and Drainage of Zalun Town. Source: DEM (Digital Elevation Model) Meteorology and Hydrology

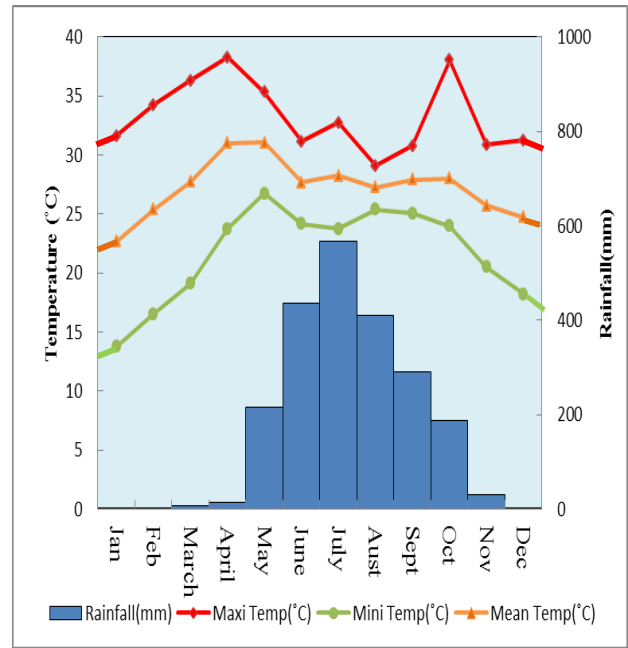


Figure (4) Climograph of Zalun Township Source: Data Based on Department, Zalun

Population Distribution and Density

Population distribution shows the number of people in different parts of Zalun. Zalun Town has unevenly distributed population according to the physical features. This is an important factor that shapes the population distribution.

In 2008, population of Zalun Town was 16217 persons and it increased to 20892 persons in 2017. The total population was 1268 persons in Kanarr Ward, 5127 persons in Lammataw North Ward, 3596 persons in Lammataw South Ward, 3179 persons in Santan Ward and 7722 persons in Nyaungbinzay Ward. Therefore, Nyaungbinzay Ward possessed the largest population and Kanarr Ward the smallest population.

There was a total area of Zalun Town 11.9 square kilometers (4.61 square miles) in which 16217 persons lived in 2008. Therefore, the density of the population in the study area was 1363 persons per square kilometer. In 2017, the total population of the study area increased to 20892 persons and the density of the population was 1775 persons per square kilometer. However, the population density differs from ward to ward in 2017.

Uneven concentration is found along the main roads and the areas of near the markets. These areas are densely populated, whereas along the bank of river, it is sparsely populated. The most densely populated regions are Santan Ward and Lammataw North Ward. (Figs. 5 & 6)

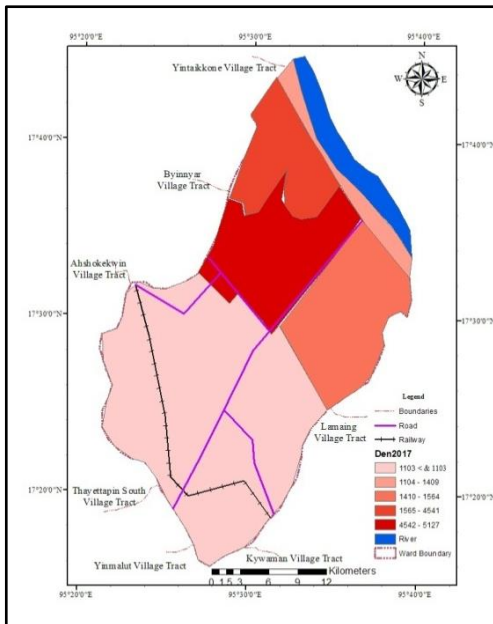
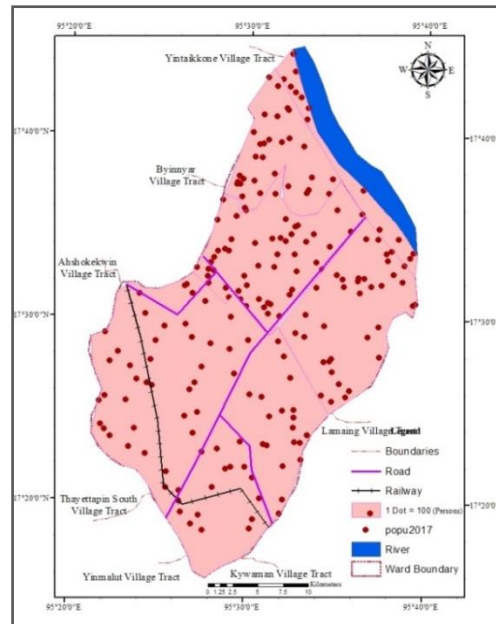


Figure (5) Population Distribution by Wards in Zalun Town (2017)

Source: General Administrative of Zalun Township



Figure(6) Population Density by Wards in Zalun Town (2017)

Source: General Administrative of Zalun Township

Types of Cottage Industries

Cottage industries in Zalun are divided into the following types:

1. Food and Beverages industries (FB)
2. Clothing and Wearing industries(CW)
3. Construction materials industries(CM)
4. Household goods industries(HG)
5. Printing and Publishing industries(P.P)
6. Workshop industries(WS)
7. Miscellaneous industries(M)

Zalun has 183 cottage industries in 2018. (Table 1, Fig. 7)

Table (1) Types of Cottage Industry in Zalun Town (2018)

| Types of Industry | Total | Percentage |
|------------------------------------|------------|------------|
| Food and Beverages industries | 34 | 19 |
| Clothing and Wearing industries | 27 | 15 |
| Construction Materials industries | 31 | 17 |
| Household Goods industries | 6 | 3 |
| Printing and Publishing industries | 21 | 11 |
| Workshop industries | 46 | 25 |
| Miscellaneous industries | 18 | 10 |
| Total | 183 | 100 |

Source: General Administrative Department (2018)

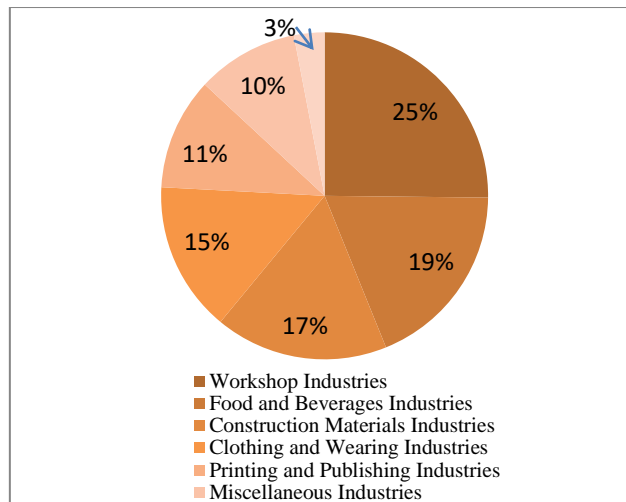


Figure (7) Types of Cottage Industry in Zalun Town (2018) Source: Based on table (1)

Distribution of Cottage Industry

In 2018, the number of cottage industries in Zalun Town is 183. Generally, they can be divided into seven types. (Table 2, Fig. 8)

Table (2) Spatial Distribution of Cottage Industries by types in Zalun (2018)

| Words | FB | CW | CM | HG | P.P | WS | M | Total |
|----------------|-----------|-----------|-----------|----------|-----------|-----------|-----------|------------|
| Kanarr | - | - | 11 | - | - | - | - | 11 |
| Lammataw North | 11 | 15 | 3 | 1 | 14 | 16 | 8 | 63 |
| Lammataw South | 1 | - | 3 | 3 | - | 7 | 3 | 17 |
| Satan | 9 | 7 | 1 | - | - | 4 | | 21 |
| Nyaungbinzay | 13 | 5 | 13 | 2 | 7 | 19 | 7 | 66 |
| Total | 34 | 27 | 31 | 6 | 21 | 46 | 18 | 183 |

Source: Data Obtained from field observation (2018)

Food and Beverages industry

All of them, food and beverages are the basic necessity. These are 34 food beverage industries or 18.6 percent of the total cottage industries in Zalun Town. It includes rice noodle, wheat noodle, mokehinkhar, ice-stick, ginger salad, dry beans and fried banana work, etc.

Dry beans industry is the most number of food and beverages industries. And then, ginger salad industry and mokehinkhar industry are also dominant. They are about 62 percent of food and beverages industry. Among them, the most popular two are Ma Bay Dar (dry beans) and Daw Hla Aye (ginger salad). Ma Bay Dar (dry beans) is made in Satan Ward and Daw Hla Aye (ginger salad) produces in Tawyakyaung Street, Lammataw North Ward.

Food and beverage industries are distributed in 4 wards in the study area. They are Lammataw North, Lammataw South, Santan and Nyaungbinzay Wards. The greatest numbers are found in Nyaungbinzay Ward. There are 13 food and beverages in this ward. There is only one in Lammataw South Ward. It is the smallest number. There is no food and beverage work in Kanarr Ward because of the small populations and the relief of this ward (Fig. 9) (Plate 1, 2, 3 & 4).

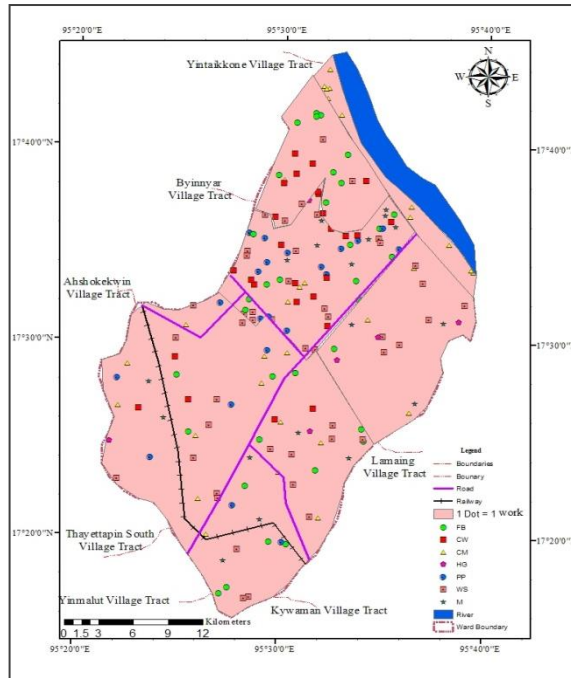


Figure (8) Distribution of Cottage Industries by Wards in Zalun (2018), (Source: Based on table 2).

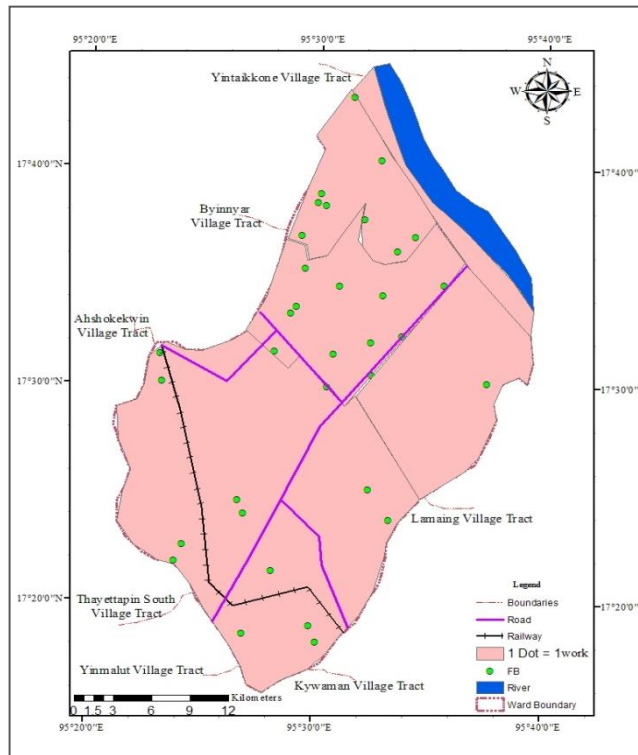


Figure (9) Food and Beverage industries (2018), (Source: Based on table 2).



Plate1: Dry Beanswork
Source: Field Survey (26.4. 2018)



Plate 2: Ginger Salad work
Source: Field Survey (26.4. 2018)



Plate 3: MokeHinkharwork
Source: Field Survey (26.4. 2018)



Plate 4: MokeHinkhar work
Source: Field Survey (26.4. 2018)

Clothing and Wearing industries

There are 27 clothing and wearing apparel industries 14.8 percent of the total cottage industries in Zalun Town. These industries are tailor shops and gold smiths. They are found in 3 Wards: Lammataw North, Santan and Nyaungbinzay Wards. There are 5 tailor shops and 10 gold smiths in Lammataw North Ward. They can be found along the Bogyoke Road, Myoma Market and attached with houses. There are 7 tailor shops in Santan Ward. They are found within the ward attached with houses. There are 5 tailor shops in Nyaungbinzay Ward. They are located along the Bogyoke Road. Therefore, the greatest numbers of clothing and wearing industries are found in Lammataw North Ward, because of large population and density in this ward (Fig. 10) (Plate: 5, 6).



Plate 5: Tailor Shop
Source: Field Survey (26.4.2018)



Plate 6: Gold Smith
Source: Field Survey (26.4. 2018)

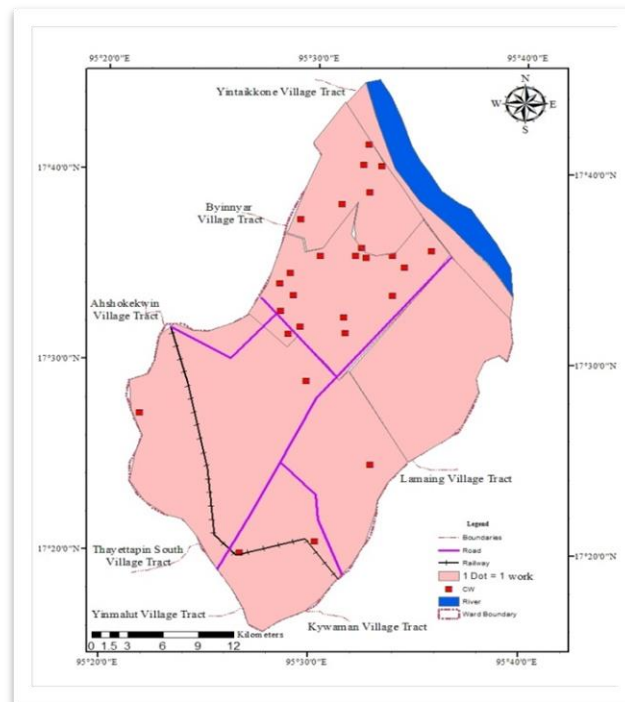


Figure (10) Clothing and Wearing Industries (2018) (Source: Based on table 2).

Construction materials industries

There are 31 construction materials industries or 16.9 percent of the total cottage industries in the study area. These industries are brick, sand, mirror, bamboo and so on.

The industries can be found along the bank of Ayeyarwady River in Kanarr Ward. In Lammatav North Ward, they are located along the Bogyoke Road and Khapound Street and in Nyaungbinzay Ward. It can be found along the Bogyoke Road. The break industries can only be found in summer. These industries are located out of settlement (Fig. 11) (Plate: 7, 8).

There are 13 construction materials in Nyaungbinzay Ward. It is the most distributed of construction materials industry. The second greatest numbers of industries is Kanarr Ward. There are 11 construction materials in this ward. These industries are found in all wards.



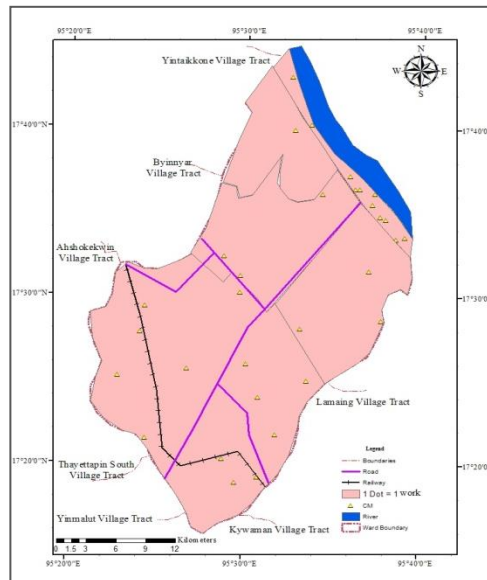
Plate 7: Construction materials work

Source: Field Survey (26.4. 2018)



Plate 8: Bamboo work

Source: Field Survey (26.4.2018)



Figures (11) Construction Materials Industries (2018), (Source: Based on table 2)

Household goods industries

Household goods industries were 6 numbers or 3.3 percent of the total cottage industries. It is the smallest number of all cottage industries. In this industry, it consists of fire woods, furniture and blacksmith. They are found in only 3 wards, Lammataw North, Lammataw South and Nyaungbinzay Wards (Fig. 12) (Plate: 9).

There are 3 household goods industries in Lammataw South and only one in Lammataw North and 2 household goods industries in Nyaungbinzay Ward. They can be found along the Bogyoke Road in Nyaungbinzay Ward and Tawyakyaung Street in Lammataw North Ward.



Plate 9: Household goods work
Source: Field Survey (26.4.2018)

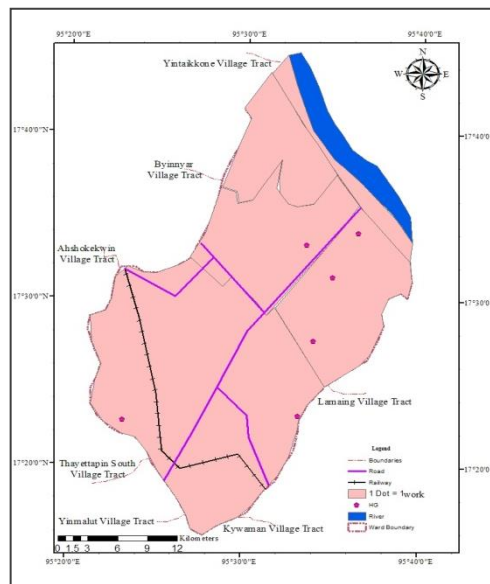


Figure (12) Household Goods Industries (2018), (Source: Based on table 2)

Printing and Publishing industries

There are 21 printing and publishing industries or 11.5 percent of the total cottage industries in Zalun Town.

These industries include printing press, paper cutting and book-binding as well. In printing works, there are different kinds of invitation card, certificate, receipt book, printing of book and note-book.

These industries are widespread in two wards of Zalun Town. They are Lammataw North and Nyaungbinzay wards. The greatest numbers are found in Lammataw North Ward. There are 14 industries in this ward. In printing and publishing industries, necessary strip and scrap paper cannot be obtained from the nearby shops. There is little printing and publishing in the study area.

Among them the most famous industries are San Thiri, Feelings, Social and so on. San Thiri is located in Bogyoke Road, Nyaungbinzay Ward. Feeling and Social are located along Bogyoke Road, Lammataw North Ward (Fig. 13) (Plate: 10, 11).



Plate 10: Printing & publishing work
Source: Field Survey (26.4. 2018)



Plate 11: Printing & publishing work
Source: Field Survey(26.4. 2018)

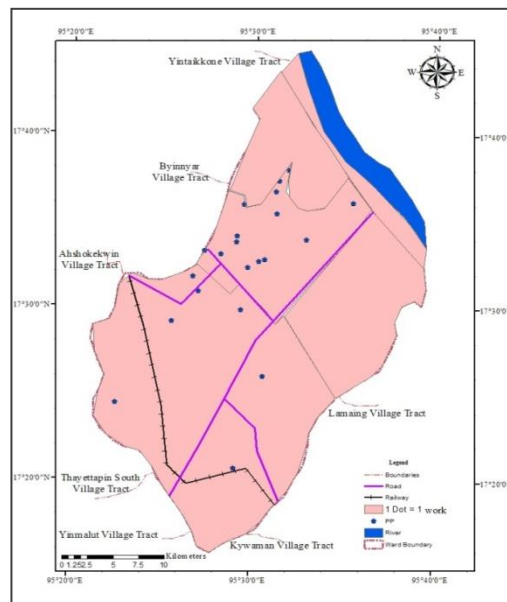


Figure (13) Printing and Publishing Industries (2017), (Source: Based on table 2)

Workshop industries

There are 46 workshops or 25.1 percent of the total cottage industries in the study area. There are car workshop, TV repair, wire and dynamo workshop, electricity workshop, radio workshop, etc., (Fig. 14) (Plate: 12, 13, 14, 15).

The greatest number of industries are found in Nyaungbinzay Ward. There are 19 numbers of this industry in this ward. The second and third numbers of industries are found in Lammataw North and Lammataw South Wards respectively. The last number of industry is found in Santan Ward. There is no workshop in Kanarr Ward because it is far from downtown. They are mostly found along the Bogyoke Road.



Plate 12: Motorbike workshop
Source: Field Survey (26.4. 2018)



Plate 13: Electrical shop
Source: Field Survey (26.4.2018)



Plate 14: Electrical shop
Source: Field Survey (26.4. 2018)



Plate 15: Mobile workshop
Source: Field Survey (26.4. 2018)

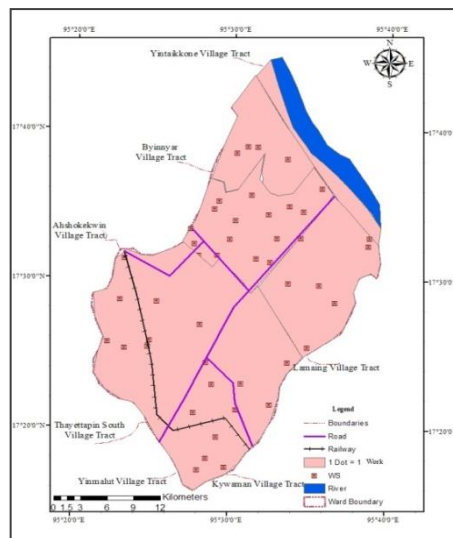


Figure (14) Workshop Industries (2018), (Source: Based on table 2)

Miscellaneous industries

Miscellaneous industries are 18 numbers or 9.8 percent of the total cottage industries in Zalun Town. It includes, repairing cars, motor and dynamo, construction materials and small scale agriculture machineries compound work. In Zalun Town, there are two wards that do not have miscellaneous industries.

Lammataw North Ward possesses the highest number of cottage industries and there are 68 or 37 percent of cottage industries in Zalun Town. However, Lammataw South Ward has only 17 cottage industries or 9 percent. Kanarr Ward has the lowest number with only 11 cottage industries or 6 percent.

There is no relationship between the wards area and cottage industries distribution pattern. For example, the wards have a large number of population and accessibility can be obtained from growth of consumers. Therefore, most of the cottage industries are located in that kind of ward. So, Nyaungbinzay Ward has 66 cottage industries or 36 percent of the total cottage industries.

The distribution pattern of cottage industries relate to location, transportation, labour, availability of electricity, etc., (Fig.15).

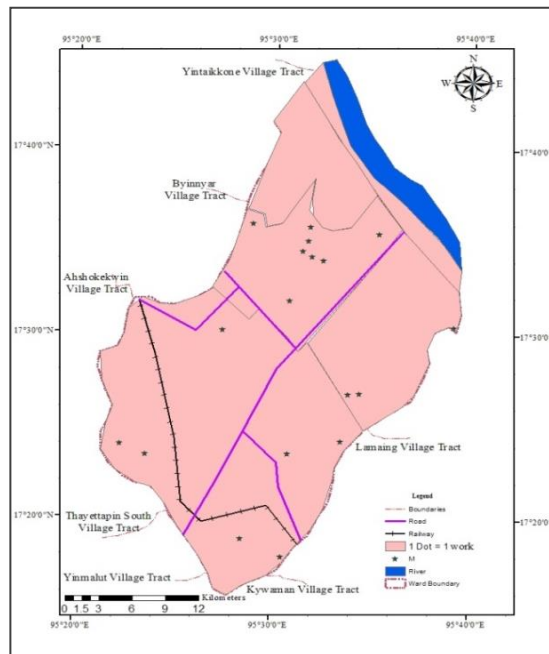


Figure (15) Miscellaneous Industries (2017), (Source: Based on table 2).

Spatial Analysis on Cottage Industries

The Coefficient Index and Student’s t Test.

The Pearson’s Product Moment Correlation (r) is used to find the relationship between the number of population and the number of cottage industries in Zalun Town. The number of total population “X” and the number of cottage industries “Y” are used to find out their correlation.

Table (3) Population and number of Cottage industries in Zalun Town.

| X | Y | X-X ⁻ | Y-Y ⁻ | (X-X ⁻)(Y-Y ⁻) | (X-X ⁻) ² | (Y-Y ⁻) ² |
|-------|-----|------------------|------------------|--|----------------------------------|----------------------------------|
| 1268 | 11 | -2910.4 | -25.6 | 74506.24 | 8470428.16 | 655.36 |
| 5127 | 68 | 948.6 | 31.4 | 29786.04 | 899841.96 | 985.96 |
| 3596 | 17 | -582.4 | -19.6 | 11451.04 | 339189.76 | 384.16 |
| 3179 | 21 | -999.4 | -15.6 | 15590.64 | 998800.36 | 243.36 |
| 7722 | 66 | 3543.6 | 29.4 | 104181.84 | 12557101 | 864.36 |
| 20892 | 183 | - | - | 235515.8 | 23265361.2 | 3133.2 |

Source: Calculation based on table 2

(r) is calculated by using The Pearson's Product Moment Correlation method. According to calculation,

$$\begin{aligned}\sigma x &= \sqrt{\frac{\Sigma(x - x^-)^2}{n}} \\ &= \sqrt{\frac{23265361.2}{5}} \\ &= 2157.09 \\ \sigma y &= \sqrt{\frac{\Sigma(y - y^-)^2}{n}} \\ &= \sqrt{\frac{3133.2}{5}} \\ &= 25.03\end{aligned}$$

$$\begin{aligned}r &= \frac{\frac{1}{n}\Sigma(x-x^-)(y-y^-)}{\sigma x \cdot \sigma y} \\ &= \frac{\frac{1}{5} \times 235515.8}{2157.09 \times 25.03} \\ &= +0.87\end{aligned}$$

The correlation coefficient $r = +0.87$

The values lie between +1 and -1.

There is the relationship between population of wards and number of cottage industries.

The calculated coefficient (r) = +0.87 implies that there is a degree of positive correlation between the total number of population and number of cottage industries in Zalun Town.

Calculation is again checked by Student's t Test.

$$\begin{aligned}t &= \frac{r \cdot \sqrt{n-2}}{\sqrt{1-r^2}} \\ &= \frac{0.87 \cdot \sqrt{3}}{\sqrt{1-0.75}} \\ &= \frac{0.87 \times 1.73}{\sqrt{0.25}} \\ t &= 3\end{aligned}$$

When n = the number of pairs of data studied, and where the degree of freedom are $(n-2)$. In this study, the necessary values are $r = +0.87$ and $n = 5$. These can be calculated by formula for Student's t Test, S that t value for this test is 3 and, the degree of freedom in this case is simply as $n-2 = 3$.

It can be seen that if the rejection begins at 5% level and there is a correlation between the two sets of data can be accepted, i.e., this coefficient is highly significant statistically (95% correct).

Analysis on Cottage Industry by using Mean Center and Standard Distance

Spatial distributions of cottage industries are analyzed by using mean center and standard distance. Orientation of all types of cottage industries trends in north-south direction. Most of them are concentrated in the northwestern part of the township and more half of the cottage industries is located there because of easy accessibility. In they area, there are 2 junctions and accessibility of the area support the existence of many cottage industries. Thus, the most cottage industries are concentrated in the northeastern part of the township, and their mean center is also located in the northeastern part of the township (Fig. 16).

Food and Beverages industries

Spatial distribution of food and beverages industries are analyzed by using mean center and standard distance. Orientation of food and beverage industries trend in north-south direction. Most of the food and beverage industries are found in the northwestern part of the township. In this area, population distribution and density are high. It is one of the factors supporting for concentration of food and beverage industries in the area. Mean centers of Food and Beverages industries are found near the main road (Fig. 17).

Clothing and Wearing industries

Figure 18 shows spatial distribution of clothing and wearing industries analyzed by using mean center and standard distance. Trend of distribution of clothing and wearing industries is north south direction and they are mainly found in the northwestern section of the township which is a populated area. Therefore, population is one of the controlling factors for existing cottage industry. Mean centers of clothing and wearing industries are found in densely populated areas as well as in accessible areas (Fig. 18).

Construction materials industries

Spatial distribution of construction materials industries trends in north-south direction. Most of the construction materials industries are found along the rail road and fringe area of the residential wards because construction materials industries take more space than other types of industries. Mean centers of construction materials industries are found near the transportation road due to heavy and bulky materials (Fig. 19).

Household goods industries

Figure 20 shows spatial distribution of household goods industries analyzed by using mean center and standard distance. Trend of distribution of household goods industries is northeast-southwest direction and they are mainly found in the northeastern part of the area. Therefore, population is not controlling factors for existing household goods industries. Mean centers of household goods industries are randomly distributed in the town (Fig. 20).

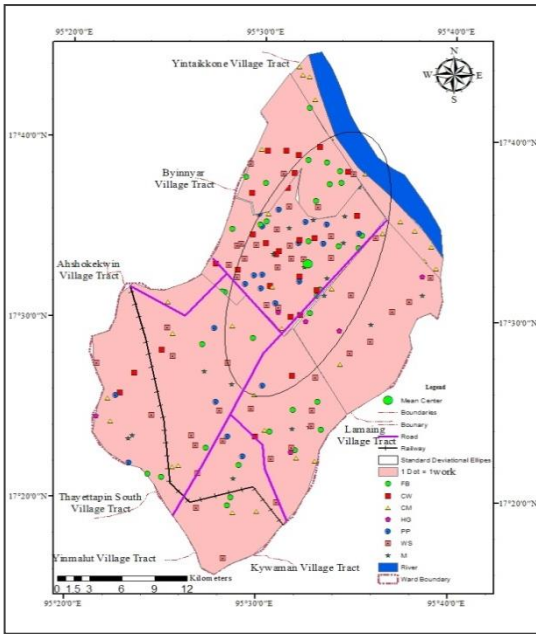


Figure (16) Distribution of All Types of Cottage Industries by using Mean Center and Standard Distance.
Source: Data obtained from field observation

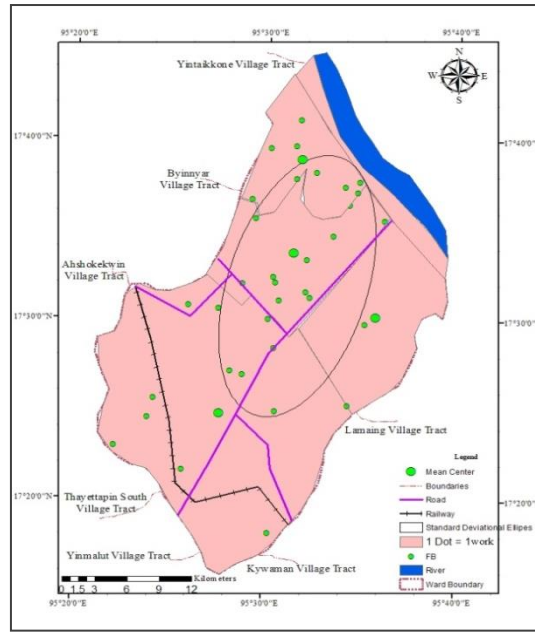


Figure (17) Distribution of Food and Beverage Industries by using Mean Center and Standard Distance.
Source: Data obtained from field observation

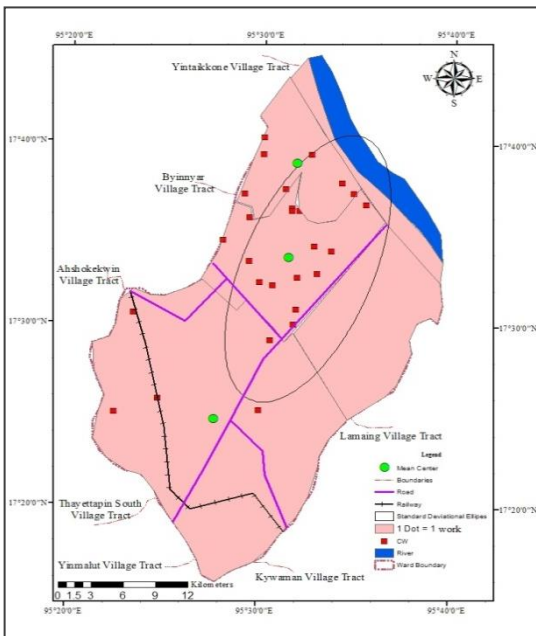


Figure (18) Distribution of Clothing and Wearing Industries by using Mean Center and Standard Distance
Source: Data obtained from field observation

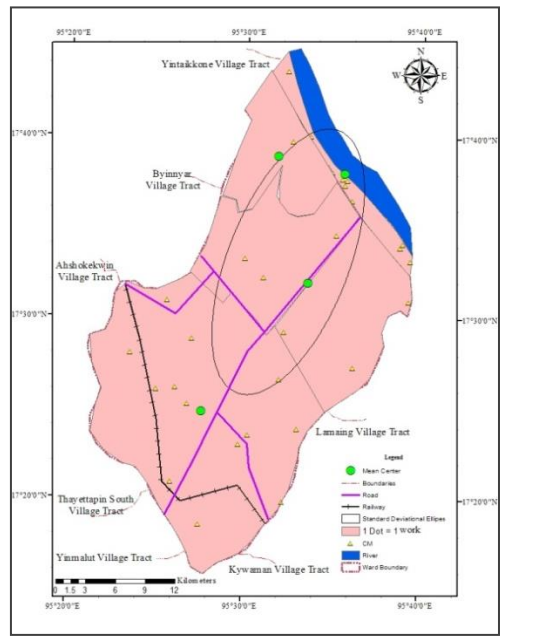
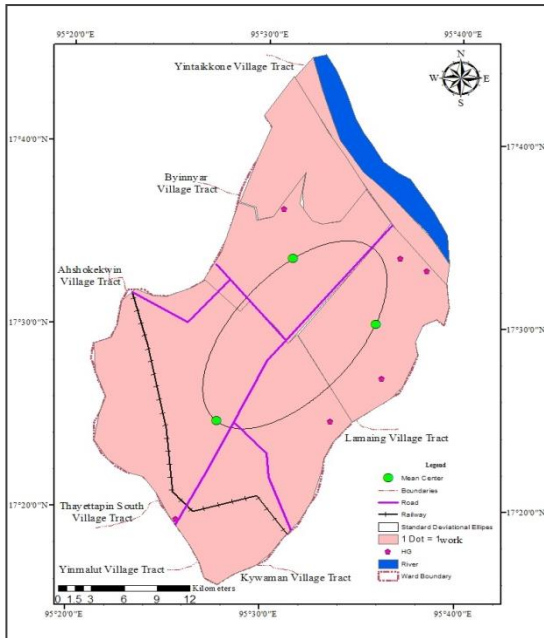
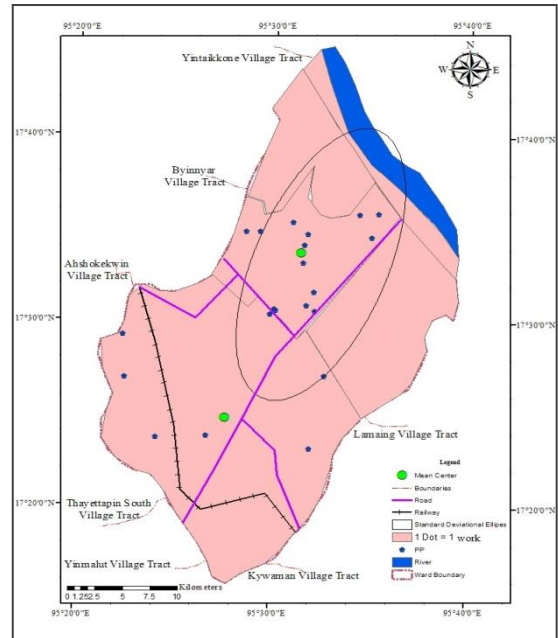


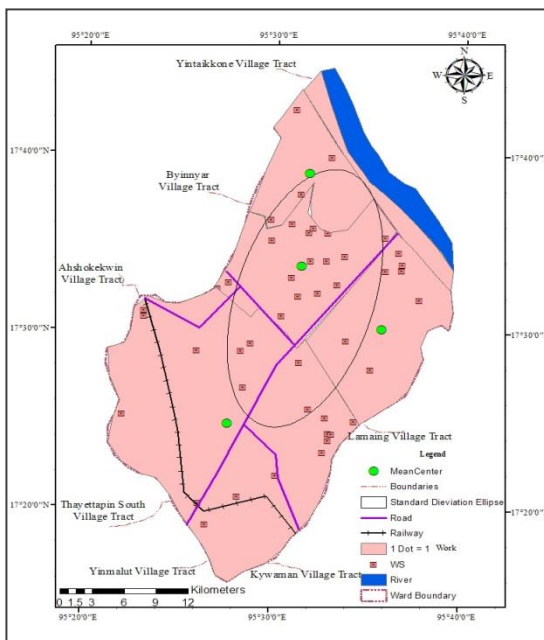
Figure (19) Distribution of Construction Material Industries by using Mean Center and Standard Distance
Source: Data obtained from field observation



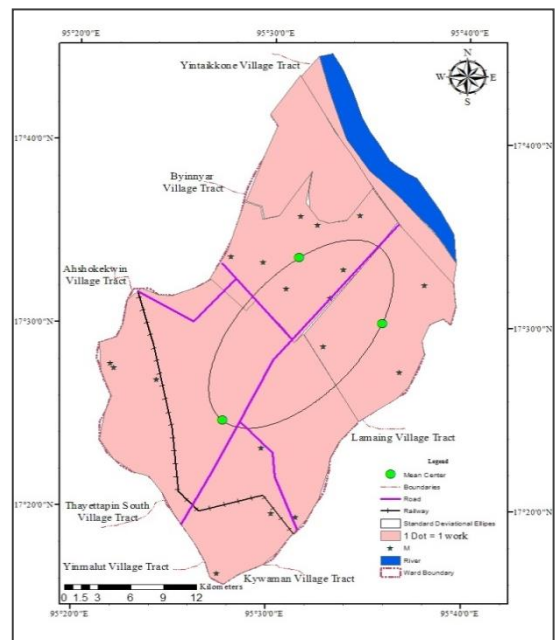
Figure(20) Distribution of Household Good Industries By Using Mean Center and Standard Distance
Source: Data obtained from field observation



Figure(21) Distribution of Printing and Publishing Industries By Using Mean Center and Standard Distance
Source: Data obtained from field observation



Figure(22) Distribution of Workshop Industries By Using Mean Center and Standard Distance
Source: Data obtained from field observation



Figure(23) Distribution of Miscellaneous Industries By Using Mean Center and Standard Distance
Source: Data obtained from field observation

Printing and Publishing industries

Spatial distribution of printing and publishing industries are analyzed by using mean center and standard distance in the area. Printing and publishing industries align in north-south direction (Fig. 21). Mean deviation ellipses are distributed in densely populated and accessible

area. It shows that spatial distribution of printing and publishing industries are controlled by population density and accessibility (Fig. 21).

Workshop industries

Figure (22) shows spatial distribution of workshop industries analyzed by using mean center and standard distance. Workshop industries aligns in the north-south direction. Mean centers are distributed in densely populated and accessible areas. Spatial distribution of workshop industries are controlled by population density and accessibility (Fig. 22).

Miscellaneous industries

Figure (23) shows spatial distribution of miscellaneous industries analyzed by using mean center and standard distance. Miscellaneous industries align the northeast-southwest direction. Mean centers of miscellaneous industries are distributed in densely populated and accessible areas. Therefore, population and accessibility are controlling factors for distribution of miscellaneous industries (Fig. 23).

Conclusion

Zalun is also situated on the delta of the Ayeyarwady in the Southern part of Myanmar. It is situated between 17° 10' and 17° 50' North Latitude and 95° 20' and 95° 40' East Longitude.

The area of Zalun Town is 11.9 square kilometers (4.61 square miles) or 1.85 percent of the Zalun Township. It is composed of 5 wards. Among physical factors, location and relief mainly affect the distribution of cottage industry. The increase in population of Zalun supports the conditions of cottage industry and some people engage in cottage industry nearby their houses.

Zalun Town is one of the townships in Ayeyarwady Region and it is situated about 120.75 kilometers (75 miles) away from Yangon. Zalun Town is located on the accessible area that can easily contact with Yangon. Better accessibility is one of the factors that support establishment of cottage industries. Cottage industries are unevenly distributed in Zalun Town. There is a famous pagoda (Zalun Pyi Taw Pyan) in Zalun. It is one of the factors that support the establishment of cottage industry, because travelers buy some products from cottage industries especially food and beverages industries.

Distribution of cottage industries depends on labour, raw material availability, power supply, transportation and so on. Establishment in cottage industries in Zalun Town affects job opportunities and income of the people living in the area. People work nearby home. Cottage industries affect family income. Raw materials are easily available from Hinthada and Yangon, etc. Most industries have their own generators to generate electricity is when electricity cut off. Zalun Town is located in the accessible place and most bus lines run from Hinthada to Yangon passing there.

Food and beverages industry are mostly found in Lammataw North, Santan and Nyaungbinzay because of population. Clothing and wearing industry mainly depend on labours and markets. These industries are also found in Lammataw North, Santan and Nyaungbinzay. Most finished products in the cottage industries are sold to other areas.

Workshop industries are mostly found along Bogyoke Road because it is a good accessibility area. Construction material industry is mostly found in Kanarr and Nyaungbinzay because of large areas and traditionally places. Printing and publishing industries and miscellaneous industry mainly depend on electricity. These industries are

found along Bogyoke Road. Buses are mainly used in printing and publishing and workshop. Rent cars are mostly used in food and beverages, construction material and miscellaneous.

More 5 workers are found in more 30% of cottage industries. Skilled labour is mainly used in the cottage industry. The situation of the industries is better than in the past because of the people economic activities developed and accessibility.

Cottage industries such as clothing and wearing, printing and publishing, and workshop, raw material are easily available from Yangon. Zalun is a highly accessible area in Hinthada District. The existing passenger traffic transportation routes support cottage industries to carry raw materials from markets and others sources and finished products from the work places to markets and private cars are mostly used. Products of the cottage industries are mainly distributed within the area as well as other wards and also sent to other towns.

The frequent power failures in Zalun Town have also been problems in the production. The initial investment involves cost for a suitable land plot, for the construction of building and for purchasing necessary machines and buying raw material and labour fees. Most of the cottage industries in Zalun Town are small size of cottage industries.

The facing difficulties in the industries are labour, capital and less demand. Although they said lack of electricity is problem for the industries so, some owners possess generators. Skilled labours play in the important role in the cottage industries. Market demand is also important.

In Zalun Town, cottage industries are unevenly distributed in the area and existences of cottage industries are controlled by raw materials, labour, transportation, power supply and etc. In the future, the cottage industries in Zalun Town will get success and reduce the problems by fulfilling the necessities required at present.

The owners of the cottage industries should manage not only to produce large amount but also to get quality products distributed to other places in Myanmar. On the other hand, authorities concerned should plan to get higher accessibility.

Acknowledgement

We are deeply grateful to Dr Tin Htwe, Rector of Hinthada University, for giving us permission to conduct this research. We would like to express our gratitude to Dr Mar Lar, Pro-rector of Hinthada University, for her valuable suggestions. We want to express our sincere thanks to Professor Dr Kyi Kyi Mya, (Head of Department), Department of Geography, Hinthada University for her management and supervision to complete the research work. Thanks are extended to all our teachers, colleagues in Department of Geography, Hinthada University, for their helping hands.

References

- Mu Mu Thet (2016). The Study of the Landuse in Zalun Township, unpublished M.A. (Thesis), Department of Geography, University of Hinthada.
- Pan Sein (2011). Geographical Analysis on Cottage Industry in Insein Township, unpublished M.Res (Thesis), Department of Geography University of Yangon.
- Myat Soe Khaing (2013). The Geographic Study of Cottage Industries in South Okkalapa Township, unpublished PhD Dissertation, Department of Geography, University of Yangon.
- Lay Reh (2010). Spatial Analysis on Cottage Industries in Shwepyithar Township, unpublished M.A (Thesis), Department of Geography, University of Yangon.