

A Geographic Assessment of the Spatial Distribution of Jade Jewellery Industries in Sagaing

Hla Kyi*, Khin Win**, Than Than Myint***, Their Htoo****, Cherry Win*****,
Hla Myint*****

Abstract

The study area, Sagaing Town, is located in Sagaing Region. Although agriculture is the chief economic activity of Sagaing, jade jewellery industry is important for the local economy. The main aim of this paper is to study the improvement of jade jewellery industry which is essential for the economic development of Sagaing. Because of the importance of Jade Jewellery industry to the local economy, the emphasis is put on the spatial variation of this industry and it is conducted by using Gareth Shaw and Dennis Wheller Location Quotient Method. In analyzing the spatial distribution pattern, it is found that spatial distribution is high and medium distribution in the northern part and low in the southern part of the study area. What so ever, it can partially contribute to the improvement of living standard and poverty alleviation schemes of Sagaing as well as the other areas of Sagaing Region.

Keyword: Jewellery, spatial, location quotient, poverty

Introduction

Jade is a precious green stone from which jewellery and small decorative items are made especially in China and Japan. It is hard and lustrous, rarer and usually more expensive. Jade refers to an ornamental mineral, mostly known for its green varieties. It can refer to either of two different minerals: nephrite, a silicate of calcium and magnesium, or jadeite, a silicate of sodium and aluminum. Jade is featured prominently in ancient Asian art, but also has an important place in many other cultures. The study area, Sagaing is a Dry Zone in Myanmar, population is increasing year after year and urban functions are also expanding and developing. So, the majority of local people engage in the jade jewellery industry in the study area. Because of the importance of jade jewellery industry to the local economy, this paper is a research working on the importance of the progresses in socio- economic status of the people.

* Associate Professor, Dr, Department of Geography, Yadanabon University

** Professor (Head), Dr, Department of Geography, Yadanabon University

*** Associate Professor, Dr, Department of Geography, Yadanabon University

**** Associate Professor, Dr, Department of Geography, Yadanabon University

***** Lecturer, Dr, Department of Geography, Yadanabon University

***** Lecturer, Department of Geography, Yadanabon University

Aim and Objectives

The main aim is to point out the essentials for the economic development in Sagaing which are improvement of living standard for local people.

The objectives of this research are as follows.

- to classify the jade jewellery industries practiced in the study area,
- to identify the spatial distribution of jade jewellery industries in the study area
- to analyze the importance of the jade jewellery industries in the economic development of the study area

The Study Area

Sagaing is located in Sagaing Township of Sagaing Region in the Dry Zone of Central Myanmar. Astronomically, it lies between latitudes 21°51' N and 22°13'N and between longitudes of 95°36' E and 96°13' E. It has an area of 12.61 Square miles or 8,072 acres and is composed of 23 wards. They are Pegado, Sitee, Tintake, Pyukan , Ywathaung , Nilar, Padamyar, Shweminwun, Railway Servant, Zayyarkewthit, Parami, Myothit, Seingone, Htonebo, Tagaung ,Thawtapan, Dwezay, Nandawun kwetthit, Ayemyawady, Podan, Moezar, pabetan and Minlan wards. Since the almost all of the study area is flat plain, the relief of the Sagaing provides the socio-economic developments of the town. The major drainage of Sagaing is the Ayeyarwady River. It flows for 59 km from north to south and serves as the south-east boundary of the town. So, the Ayeyarwady River exists as the life artery of Sagaing. Due to the study from 1990 to 2019 climatic data, the average mean temperature of the Sagaing is about 82.02°F with the average maximum temperature of about 95.86°F and the average minimum temperature of about 67.95°F. Thus the average range of temperature is about 16.18°F. Therefore, the temperature condition of Sagaing varies greatly from year to year and from month to month. The average total rainfall of Sagaing is about 33.03 inches in the 30 year periods from 1990 to 2019. According to the Koppen's Climatic Classification System, Sagaing generally suffers from Tropical Steppe Type of Climate (BSh Type of Climate).

According to 2018–2019 data, the total population of Sagaing is 84,214 persons. Shweminwun Ward has the largest population with 6,620 people and Padamyar Ward has the least population with 911 persons.

Methodology

In this research, both primary data and secondary data were used to analyze the economic importance of jade jewellery industry for local people. Secondary data were collected from various libraries, from the internet and from departmental offices while primary data were obtained by field observations including the distribution of questionnaires, structured interviews and open talk with the local people. Afterwards, the collected data are processed, examined and analyzed by using GIS, graphical method, qualitative and quantitative methods, and Location Quotient Method.

Factors for the Distribution of Jade Jewellery Industries

Raw Material Sources – Jade in Myanmar is primarily found in the ‘Jade Track’ located in Kachin State which encompasses the alluvial region of the Uyu River between the 25th and 26th parallels. Extraction of jade in this region is concentrated particularly in the towns of Tawmao, Hpakant, Hweka and Mamon with Hpaknat having developed as the present –day center of jade mining since the Myanmar government’s loosening of restrictions on gemstone mining in 1995. In addition to this region, there are also notable mines in the towns of Nasibon and Natmaw in the neighbouring Hkamti District.

In Sagaing, the raw materials for jade jewellery industry were bought from Hpakant, Naypyidaw jade market, Mandalay jade market and Dawezay local jade market in Sagaing.(Boyce, R.R (1978))

Production and Processing of Jade Jewellery – Although jade jewellery industry in Sagaing came into the existence in the far past, the industry was developed rapidly only after 2006. In the past, there was no market for jade and jade jewellery in Sagaing. The jewellery have to be sold into the Mandalay jade market. Since 2006, Chinese jade merchants used to purchase jade jewellery from Sagaing, in addition to buying in Mandalay jade market so that the jade jewellery market would come to exist in Sagaing. The extended jade jewellery market could bring about the increased jade jewellery industries and the local people could be benefited in their socio-economic conditions.

The jade jewellery industries were operated on a variety of investments- varying from large capital investments to a small invest on the family subsistence scale. Although jade jewellery industries use both machinery and manual power, these industries in Sagaing used to apply more mechanical power because jade jewellery are mostly beads and bangles.

In producing jade beads, the jade stones bought from the jade stone sources are cut to the desired sizes by cutting machines. The pieces then continued to be cut into the cylindrical shape by using the cutting machine. The angular pieces of jade are then rounded by a stirring machine and passed through the screen. The rounded pieces of jade stones are then made hole for string by using drilling machine. These beads are then polished by steamers. The values of the jade beads vary with their size and their colour and quality.

Entrepreneur and Manual Labour – Jade jewellery industry plays a vital role on the socio economic development of a nation. There are 23 wards in Sagaing. Among them 14 wards participate in the jade jewellery industry. In studying the variation of jade jewellery industry, the largest entrepreneurs were found in Tintake Ward. It was found that Moezar and Htonebo wards had only a few entrepreneurs because it was not jade market and it was difficult to get the raw material. The jade market was in Dawezay Ward because of the convenience of transportation, an so it was the largest entrepreneur area in 2016. At present Tintake Ward is the largest number area because of

the expansion of urban area in Sagaing. Of the total entrepreneurs of jade jewellery industries, 27.31 percent (entrepreneur) and 24.68 percent (labour) was occupied by Pyukan Ward, 50.96 percent (entrepreneur) and 51.68 percent (labour) by Tintake Ward and 10.19 percent (entrepreneur) and 13.23 percent (labour) by Pagado while Moezar and Htonebo had about 0.2 percent(entrepreneur and labour) respectively.(Hla Tun Aung, U, (2003))

In jade jewellery industry, an entrepreneur used from 2 to 15 labourers and some industries use family labour. In the jade jewellery processing, man labour is used in handling machines while female labour is used in manual arts. As for the wage of the male labourers are paid from 8,000 to 1,5000 kyats as their daily wages while the female labourers obtain from 4,500 to 5,000 kyats a day. Moreover the daily wages also vary with the skills in their work. In general, the labourers are hired from the same residential blocks or wards. The ward- wise distribution of jade jewellery industries entrepreneurs and labour are shown in table (1).

**Table (1) Ward Wise Distribution of Jade Jewellery
Industry Entrepreneur and Labour in Sagaing**

No.	Ward	Entrepreneur	Labour
1	Dawezay	28	69
2	Zeyar	25	75
3	Nandawun	18	57
4	Seingone	11	11
5	Shweminwun	10	33
6	Parami	3	14
7	Myothit	3	18
8	Htonebo	2	2
9	Moezar	2	2
10	Poetan	3	3
11	Pyukan	268	746
12	Tintake	500	1,562
13	Sitee	8	30
14	Pagado	100	400
	Total	981	3,022

Source: Field Observation.

Jade Products and Trade - Myanmar jade jewellerys are the best available in the green stones. They are some pretty chains in different colours, varying as black jade, blue jade, brown jade, lavender jade, orange jade, purple jade, red jade, yellow jade, white jade, etc. In Myanmar, the ornaments commonly made of jade are bangles, fingerings, pendants (loquets), brooch and necklaces and so on. In Sagaing, the precious jade jewellerys are beads, bangles as the most produced products.

Out of various jade beads produced from Sagaing jade jewellery industries, the most common jade beads are produced as necklace beads, bangle beads and chain beads. Among various wards with jade bead production, Zeyar, Nandawum, Singone, Pyukan, and Tintake wards produce the largest number of beads and bangle. Jade beads and bangles are produced in Dawezay and Parami wards whereas the remaining wards produce the beads only (table (2)).

According to the data, jade jewellery production continued to be in processing in a large number in Tintake Ward but the production has declined in Zeyar Ward at present. The decline of jade jewellery works in Zeyar Ward is found to be related with its distance from the jade market, lessen availability of raw material jade stones, changes of state policies and fluctuation in foreign market demands, especially in decreased purchasing of Chinese. So if even it connects with the foreign trade, it can be supported by economic developing for region.

In jade jewellery trade, jade beads are sold in a large number in Dawezay jade jewellery market. The prices of jade beads vary with the qualities of the jade beads. The jade jewellery market of Sagaing is linked with the jade jewellery markets in Mandalay, Naypyitaw, Yangon, China, Thai, Korea and Singapore. The most common market for jade beads is China jade jewellery market. The jade beads are sold by the entrepreneurs or they are sold through brokers.

Jade jewellery trade depends mostly upon the state governmental policies. Moreover, the local people and the merchants also believe in Kamma-faith and the result of Kamma. For this reason, the release in the governmental policies in the favors of the interest of the people can bring about the socio-economic development of the local people and their social status will be higher.

Table (2) Types of Jade Jewellery Products in Sagaing

No	Ward	Types of Jewellery
1	Dawezay	bead, bangles
2	Zeyar	bead
3	Nandawun	bead, bangles
4	Seingone	bead
5	Shweminwun	bead
6	Parami	bead, bangles
7	Myothit	bead
8	Htonebo	bead
9	Moezar	bead
10	Poetan	bead
11	Pyukan	bead ,bangles
12	Tintake	bead ,bangles
13	Sitee	bead
14	Pagado	bead

Source: Field Observation.

Spatial Analysis of Jade Jewellery Industry

The spatial concentration of owners in Sagaing had analyzed by mean of location quotient method applied by Gareth Shaw and Dennis Wheeler. In calculation the location quotient of concentration of entrepreneur in Sagaing, the mean value was 2.13 and the value of standard deviation was 4.48. Based on the mean value and standard deviation value, the concentration of entrepreneur could be divided into three groups. They were

1. High concentration areas (the location quotient value was greater than 1.14)
2. Medium concentration areas (the location quotient value was between 0.14 and 1.14)
3. Low concentration areas (the location quotient value was less than 0.14)

By studying table (3) and Map (2), which shows the concentration of entrepreneur, high concentration areas were found in three wards. They are Pyukan, Tintake and Pagado. The highest concentration of entrepreneur was found in Pyukan Ward with the location quotient value of 16.36. Because of the offer of the job opportunities for the local people, better income and profit for jade jewellery industry, suitable environment condition of the ward, are the highest area in Sagaing.

Area with medium concentration of entrepreneurs were found in seven wards of Sagaing. Low concentrations patterns are found Moezar, Htonebo, Myothit and Parami wards. These wards are located along the Ayeyarwady River and far distance of the local jade market. In these wards, jade jewellery industry is one of the major economic activities of the local people. So, the jade jewellery industry was more developed in these wards than the other wards in Sagaing. (Shaw Gareth and Wheller Dennis (1985))

Table (3) Location Quotient Value of Concentration of Entrepreneur in Sagaing

No.	Ward	Entrepreneur	Population	Location Quotient
1	Dawezay	28	4,949	0.54
2	Zeyar	25	4,900	0.45
3	Nandawun	18	4,273	0.36
4	Seingone	11	5,378	0.18
5	Shweminwun	10	6,620	0.18
6	Parami	3	1,843	0.18
7	Myothit	3	3,955	0.09
8	Htonebo	2	2,175	0.09
9	Moezar	2	2,791	0.09
10	Poetan	3	3,740	0.09
11	Pyukan	268	1,530	16.36
12	Tintake	500	5,429	8.36
13	Sitee	8	2,635	0.27
14	Pagado	100	3,394	2.64
	Total	981	53,612	29.88

Source: Field Observation.

Simple Random Sampling Method

In the questionnaire survey, out of the 981 entrepreneurs concerned with Jade Jewellery industry, 272 entrepreneurs were selected as a sample. Questionnaires were given to 27.7 percent of the entrepreneurs. Their responses are different according to the location of their wards. In studying the responses to the question in the questionnaire received from Sagaing, 27.5 percent stated that job opportunities and 22.8 percent stated that better income as their most important jade jewellery industries. It is found that job opportunities and better income are the main factors for their economy.

In examining the responses of questionnaires received from Pyukan, Tintake and Pagado wards are situated in northern part of Sagaing, 27.5 percent of the respondents pointed out that job opportunity as the most important factors. 22.8 percent of the respondents who are the entrepreneurs in all wards stated that better income are the main factor for jade jewellery industry. For 12.1 percent of the respondents Suitable environment is a factor for jade jewellery industry. Although the policy is a factor in Dawezay, Zeyar and Shweminwun, which are situated in middle part of Sagaing, it is not an importance factor for entrepreneur. It is found that the important of jade jewellery industry varies spatially in Sagaing because of the interest of the entrepreneurs.

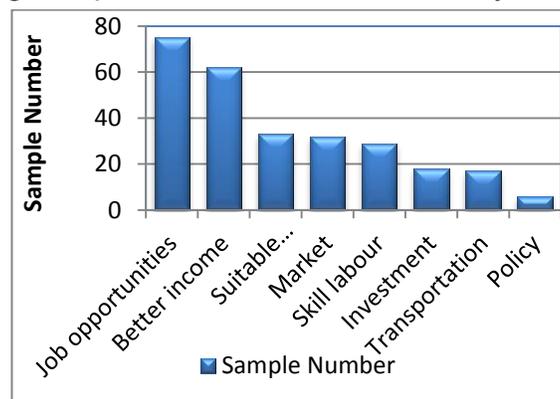
Table (4) The Important Factor for Jade Jewellery Industry

No.	Ward	1	2	3	4	5	6	7	8	Sample	%	Total
1	Dawezay		3	2	7	3		3	2	20	71.4	28
2	Zeyar		5	2	3	3			2	15	60.0	25
3	Nandawun		3		8	4				15	83.3	18
4	Seingone		5	2	2	2				11	100	11
5	Shweminwun		3	2		3			2	10	100	10
6	Parami		3							3	100	3
7	Myothit		3							3	100	3
8	Htonebo		2							2	100	2
9	Moezar		2							2	100	2
10	Poetan		3							3	100	3
11	Pyukan	20	5	5	5	5	6	4		50	18.6	268
12	Tintake	50	13	10	5	7	8	7		100	20	500
13	Sitee		2	2	2		2			8	100	8
14	Pagado	5	10	8		2	2	3		30	30	100
	Total	75	62	33	32	29	18	17	6	272	27.7	981

Source: Questionnaire Survey

1: Job opportunities, 2: Better income, 3: Suitable environment, 4: Market, 5: Skill Labour, 6: Investment, 7: Transportation, 8: Policy

Figure (1) Factor Influencing the Spatial Variation of Jade Jewellery Industry



Source: Based on Table (4).

In studying the spatial variation of Jade Jewellery industries, it is found that job opportunities is the first factor that leads to concentrate these industries and the second by better income while the government policy is less in importance for the concentration of these industries.

Conclusion

Development of jade jewellery industry in a locality is much relying upon the amount of investment and the market conditions. The people in jade jewellery industry have a great belief upon their faith and the effects of faith. So, they used to determine the benefits from their jade product as the indicator of their good or ill faith.

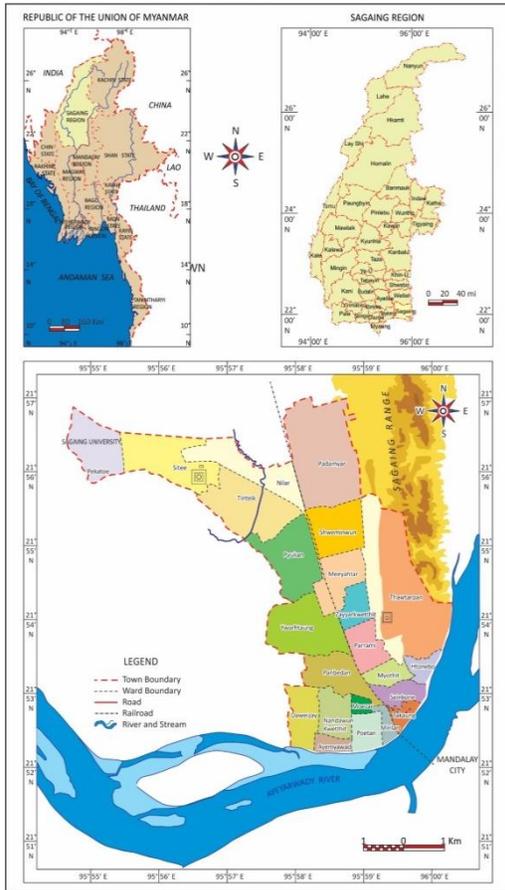
The limitations in jade mining and the existence of black marketing of jade also caused the losses in jade jewellery industry. Therefore, it is a necessity for the state government to promote local jade market by means of the government policies.

If the production of jade jewellery industries in Sagaing can be linked with the foreign markets, in addition to the local market, poverty of the people can be reduced and their living status will rise up.

As Sagaing is economically important, the jade jewellery industry is one of major economic activities of the local people. The jade jewellery industry requires a large amount of financial investment but can also gain economic success with a small amount of financial investment. Jade Jewellery processing requires more machinery power than manual power skilled labour plays an important role in manual power. Moreover, there is a requirement for easy access to the market, especially to foreign markets on which jade jewellery of Myanmar are exported. The China market is the most important. Therefore, the establishment and widening of the local and foreign market are very important for the progresses in socio-economic status of the people.

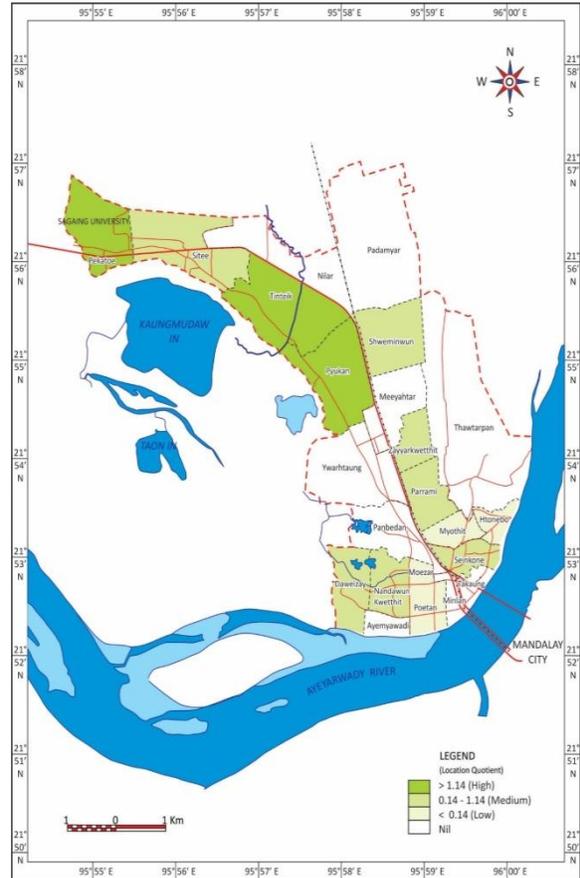
If mechanical and manual labour can be used proportionately, there can emerge better job opportunities in local areas resulting regional development. Establishment of jade market and provision with easy access to bank credit will definitely bring about the development of jade jewellery industries.

Map (1) Location of Sagaing



Source: UTM Map No.2295_13

Map (2) Spatial Distribution of Jade Jewellery Industry in Sagaing



Source: Compiled by Researcher

Photo (1) Products of Jade Jewellery Industry



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