

Spatial Distribution Pattern of Tea Shops in Bago Town

Mon Mon San¹, Naw Thitagu Myintzu Htun² and Naw Thin Phyu Phyu Htwe³

Abstract

Most of the urban residents are getting into the habit of taking tea and coffee at least twice a day. This study tries to depict the distribution of tea-shop in Bago town and finds out the relationships between social and economic status of the town. In Bago town, there are three types of tea shops. The distribution patterns are affected by the socio-economic conditions of the town. Simple statistical methods are used to find out the relationships. And three sizes of tea-shops are High, Medium and Small depending on their open space. The number and quality of the tea shops depend on the socio-economic status of the city. Therefore, this paper is titled The Spatial Distribution Pattern of Tea Shops in Bago Town. For the whole town, most of the tea shops are distributed mainly along the highways, the main roads, junction of the streets and concentrated near markets. Distribution pattern of the tea shops in Bago town shows that it is clustered in the northern part while dispersed in the southern part. Most of the tea shops are upgraded their shops' decorations and open the whole day with the variety of foods because of their local needs. The existence of these tea shops centers show that Bago town has better environmental conditions for the locational choice of economic activities.

Keywords: Tea-shop, distribution patterns, socio-economic, environmental conditions

Introduction

Bago is the town that across by Yangon-Mandalay Highway Road and Rail Road. Bago ward is one of the traffic congested areas and population crowded areas. Nowadays, tea shop culture in Bago is a unique one. The tea shops are mostly in every street and ward.

This study tries to depict the distribution patterns of tea shop in Bago Town and find out the estimation of the best location for new tea shops relationships between social and economic status of the wards. The secondary data such as city map plan, Wards boundary and population data are collected from Department of Township Development Committee and General Administration Department of Bago. Moreover, addresses and locations of registered tea shops are collected from Department of Township development committee. The primary data, especially for the tea shops distributed locations are usually collected by field surveying. To register the raw maps collected from the GAD, the GIS software 10.1 was used and the needed map registrations processing were proceeded. The UTM map WGS 1984 Zone 47 was used as based map. Moreover, the tea shops collected by field surveying were also inserted on the ratified map by using ArcGIS software. This project paper can be assessed for further study of socioeconomic conditions in this town.

Objectives

Present study is focus on the nature, types and number of tea shops in Bago town by using ArcGIS analysis tools. The present study is examine the tea shops distribution patterns in Bago town and correlate the distribution of the types of tea shops and the roads infrastructure, and the population distributed conditions of the Bago town.

Methodology

To register the raw maps collected from the GAD, the GIS software 10.1 was used and the needed map registrations processing were proceeded. The UTM map WGS 1984

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Zone 47 was used as based map. Moreover, the tea shops collected by field surveying were also inserted on the ratified map by using ArcGIS software. In case of spatial analysis, buffer analysis tool is especially used for buffering analysis on tea shops and main road correlation. Overlay analysis is also used for analysis on population distribution, density and tea shops distributed conditions in study area. When analyzed on the tea shops distributed patterns changed by classes, overlay analysis is also used.

Definition

Tea shop: 1. A tea house or tearoom is a venue centred on drinking tea. Its function varies widely depending on the culture and some cultures have a variety of district tea-centred house that all qualify under the English language term “tea house” or “tea room”. (en.wikipedia.org/Tea shops)

2. The teashops were founded by Reed Dufrane, known locally and worldwide as the tea Man. The tea Man passed away in 2001, and since then the tea shop has been operated by his family, widow, Virginia, daughters, Lisa and Laura and grandson, Matt and Matt’s wife, Becky and granddaughter, Molly. The tea shop has become a real family operation. For many years, it has become completely wed-based, but remains committed to the same high standards of quality and continues the vision of the tea man by providing its consumers with only the best tea from around the world. (<http://theteashop.com>)

Geographical Factors of the Study Area

Bago Town is one of the twenty-eight townships of Bago Region. It is situated in the southern part of Bago Region, occupying Bago-Sittaung river valley. It extends approximately between 17° 21' and 17° 29' north latitudes and between 96° 26' and 96° 29' east longitudes in figure (1). The town area is bordered by Warmayan, Mekhon, Okehpo Village Tracts in the north, Kamarnat, Hmontaing, Auksidee (west) Village Tracts in the east, Zaynyaungpin, Gwayttanshey Village Tracts in the south, and Nyaunginn Village Tracts in the west.

Bago Town, with the total area of 48.4 square kilometres (18.69 square miles), comprises 31 wards (Figs. 2 & 3). The extension of town area along the Yangon-Mandalay railroad and road has given the town an elongated shape.

Social Background of Bago Town

Historical Background

The Mons were first settled at this site of Bago Town and was named Ussa. The first city was founded by two Mon brothers in the early 9th century AD. Historically the dynasty is recognized as Early Hantharwady Era. By that time Shwemawdaw Pagoda and the reclining Buddha image Shwetharlyaung had already existed. It was in the Middle Hantharwady Era, founded by Byinnya-U in 1369 and ended under Takayutpi in 1539 that a number of religious structures, including mostly pagodas, simas, monasteries and replica of BodhGaya were established largely by King Dhammaceti and Queen Shinsawpu (also the rula) when the dynasty rose to its zenith with peace and prosperity. King Dhammaceti, being the Buddhist ruler of the type, greatly advanced the cause of Buddhism, most of the present well-known Buddhist structures were founded by the kings and the successive rulers maintained, repaired and renovated them. As a result, the land area used for religious purposes in Bago Town is fairly large in proportion, combined with late development in the colonial period by the Indian stocks including Hindus and Muslims. Nevertheless, it is the Buddhist religious structures that can attract a greater number of globetrotters.

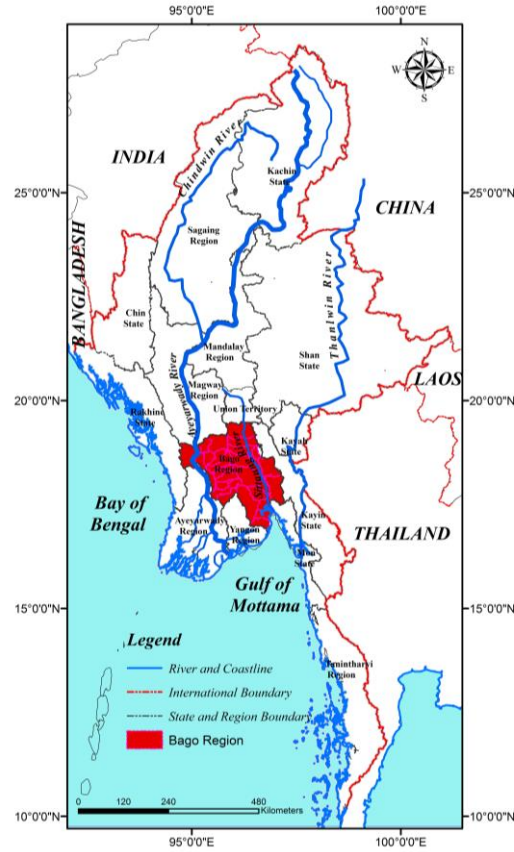


Figure (1). Location of Bago Region within Myanmar, Source: Survey Department

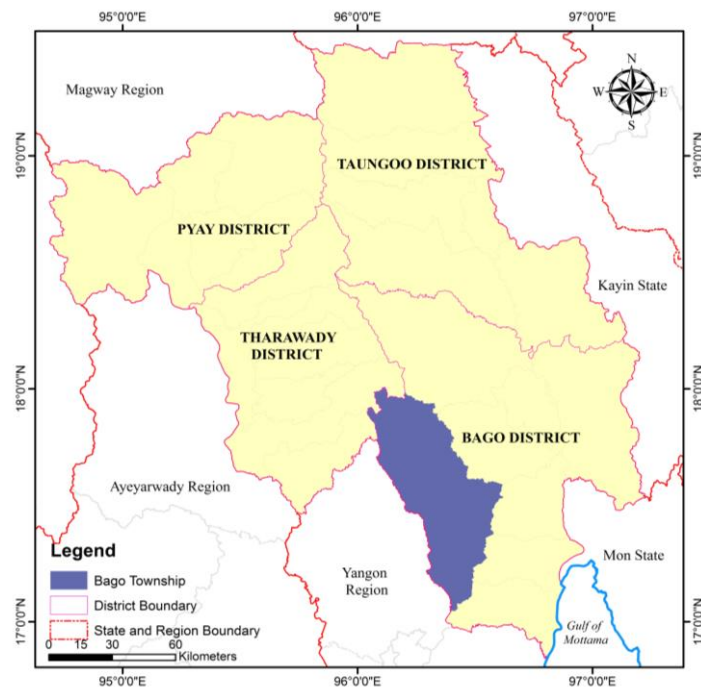


Figure (2). Location of Bago Township within Bago Region Source: Based on Topographic Map

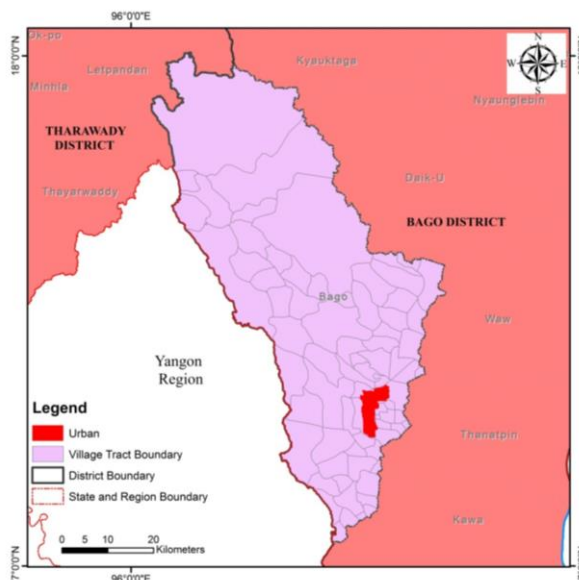


Figure (3). Location of Bago Town within Bago Township, Source: Based on Topographic Map

Population Growth

Population has been increasing annually. Therefore, Bago Town has extended its urban area since 1989. This extending urban area formerly supported to agricultural and other land uses. The number of populations, population growth rate, density and distribution, urban and rural populations are closely related to the development of cottage industries. Population census was taken soon after the British occupation of Lower Myanmar in ten years interval. In 1872, Bago was only a small town with 4,416 persons. According to 1973 census the total population of Bago Town was 180,217 persons. Then in 1983 census indicated that the total population of Bago Town was 183,346, when that of Bago Township was 320,377 persons. The estimated population of Bago Town in 1993 was 186,530 persons, when that of Bago Township was 356,006 persons. Then in 2003 the total population of Bago Town was 224,795, when that of Bago Township was 397,378 persons. The total population of Bago Town was 216,401 in 2013, 196,927 persons in 2014 and 237,619 persons in 2015.

According to table (1), The increased population of Bago Town during 1973~83 was 3,129 persons, 1983~93 was 3,184 persons and 1993~2003 was 38,265 persons. The decrease in the population number in 2003~2013 was 8,394 persons, 19,474 persons in 2014 and 40,692 persons in 2015 due to immigration into Bago from other places or from neighboring townships for better job opportunity and earning greater income.

Table(1). Population Growth in Bago Town (1973~2015)

No.	Year	Population	Increase	Decrease
1	1973	180,217	-	-
2	1983	183,346	3,129	-
3	1993	186,530	3,184	-
4	2003	224,795	38,265	-
5	2013	216,401	-	8,394
6	2014	196,927	-	19,474
7	2015	237,619	40692	-

Population Density and Distribution

The population within the Town is not evenly distributed. Population distribution is highly concentrated in the central part of the Township because of accessibility. Nandawya Ward has the largest population due to good communication and economic activities. The total population of Nandawya Ward in 2015 was 31,389 persons or 13.2 percent of the total population of Bago Town. The population density of Nandawya Ward was 18362.58 persons per square kilometers, followed by Mazin Ward with 19,954 persons or 8.4 percent and population density was 15722.95 persons per square kilometers. Zaypine Ward was the lowest population with 967 persons or 0.4 percent of the total population (Fig. 4). Population numbers and density of Bago Town in 2015 are presented in the table (2).

Table (2). Population Density by Wards in Bago Town, 2015

No.	Wards	Total Population	Area (sq-miles)	Area (sq-km)	Density (per sq-miles)	Density (per sq-km)
1	Yonegyi	3,922	0.23	0.5957	17052.17	6583.85
2	Shinsawpu	11,142	0.38	0.9842	29321.05	11320.87
3	Lakepyarkan	5,358	0.14	0.3626	38271.43	14776.61
4	Myotwingyi	9,091	0.53	1.3727	17152.83	6622.71
5	Ponnasu	12,285	0.35	0.9065	35100.00	13552.12
6	Panhlaing	1,128	0.04	0.1036	28200.00	10888.03
7	Zaypine	967	0.02	0.0518	48350.00	18667.95
8	Nyaungwaing (S)	1,349	0.02	0.0518	67450.00	26042.47
9	Nyaungwaing (N)	1,094	0.12	0.3108	9116.67	3519.95
10	Thunpaya	1,641	0.07	0.1813	23442.86	9051.30
11	Kyaunkkyisu	7,867	0.05	0.1295	157340.00	60749.03
12	Zaigganaing (S)	7,410	0.3	0.777	24700.00	9536.68
13	Zaigganaing (N)	8,570	0.1	0.259	85700.00	33088.80
14	Mazin	19,954	0.49	1.2691	40722.45	15722.95
15	Kalyarni	10,579	0.22	0.5698	48086.36	18566.16
16	Kyunthayar	11,891	0.45	1.1655	26424.44	10202.49
17	Hinthagone	8,148	0.12	0.3108	67900.00	26216.22
18	Bogone	5,566	0.39	1.0101	14271.79	5510.35
19	Hanthawaddy	5,041	0.53	1.3727	9511.32	3672.32
20	Ywathit	2,517	0.14	0.3626	17978.57	6941.53
21	Myothit	10,537	0.63	1.6317	16725.40	6457.68
22	Nandawya	31,389	0.66	1.7094	47559.09	18362.58
23	Oktha Myothit (1)	10,705	0.71	1.8389	15077.46	5821.41
24	Oktha (2)	6,517	0.57	1.4763	11433.33	4414.41
25	Oktha (3)	1,953	0.55	1.4245	3550.91	1371.01
26	Oktha (4)	3,445	0.51	1.3209	6754.90	2608.07
27	Oktha (5)	5,985	0.67	1.7353	8932.84	3448.97
28	Oktha (6)	4,279	0.95	2.4605	4504.21	1739.08
29	Oktha (7)	10,550	1.38	3.5742	7644.93	2951.71
30	Oktha (8)	12,641	2.68	6.9412	4716.79	1821.15
31	Oktha (9)	4,098	4.96	12.8464	826.21	319.00
Total/Average		237,619	18.96	49.1064	30123.16	11630.56

Source: General Administration Department, Bago and Baseline Data Census_MIMU_2015

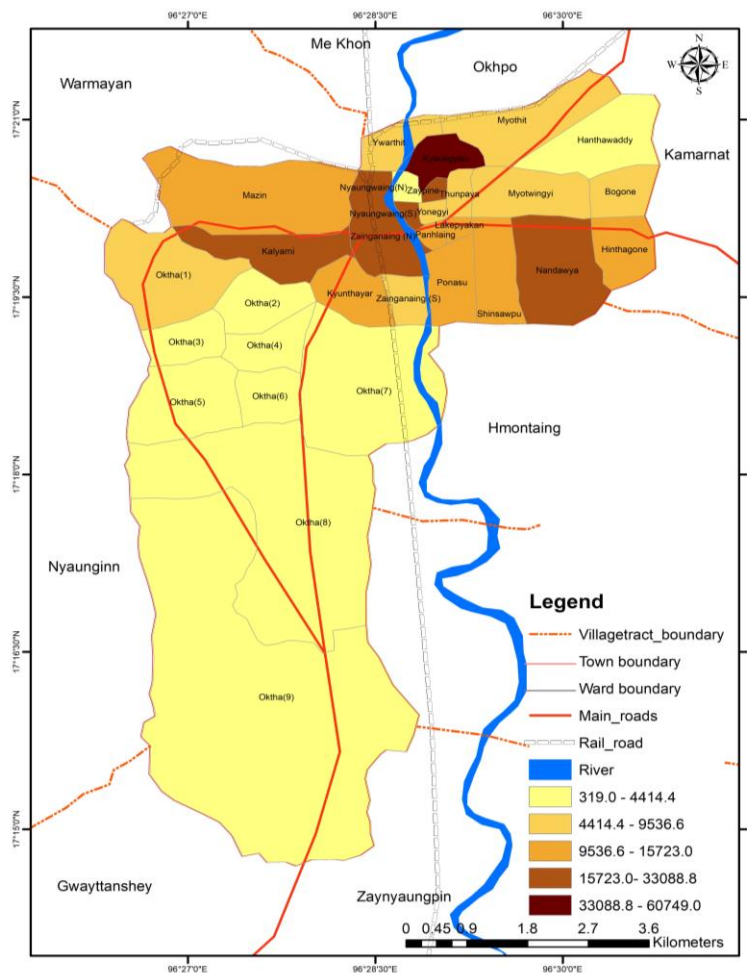


Figure (4). Ward Map and Population Density of Bago Town, (Source: Based on Topographic Map)

General Distribution Pattern of Study Area

Urban residents are getting into the habit of taking tea or coffee at least twice a day. During last decade, most of the tea-shops were served only tea or coffee or milk with tea and drinks timely: Breakfast menu, Lunch menu and Evening menu set. In Bago Town, most of the residential houses are small apartment room type with flats. They do not have living room widely. Therefore, they served their guess to meet at the tea shop. These tea shops are significant places among the Human Society of urban area. Some use for their business, some teenagers use for listening popular music or watching sports, movies and some adult men want to meet and talk their colleagues. These tea shops can be called as a social contact place or as a business information center or as a recreational center.

In Bago Town, there are 31 wards with 71 tea shops. There are three types of tea shops, large tea shop, medium and small tea shop depending on their space. Among the total number of 71 tea shops, some are open from about 5:00 in the morning to about 9:00 in Evening. Some are opening till night with international sports programs as a special service. Generally, various types of tea shops can be found in every ward, along the main roads such as Yangon-Bago Highway, Taungoo Road, Thanatpin Road, Shwemawdaw Pagoda Road and Sandawtwin road. The distribution pattern of tea shops by wards can be shown in table (3). Most of the tea shops are in general.

Table (3). Distribution of Tea Shop by Ward

No.	Ward	Number of Tea Shop	No	Ward	Number of Tea Shop
1.	Yonegyi	3	17.	Hinthagone	2
2.	Shinsawpu	4	18.	Bogone	1
3.	Lakepyarkan	3	19.	Hanthawaddy	5
4.	Myotwingyi	2	20.	Ywathit	0
5.	Ponnasu	4	21.	Myothit	0
6.	Panhlaing	1	22.	Nandawya	8
7.	Zaypine	2	23.	Oktha Myothit (1)	1
8.	Nyaungwaing (S)	1	24.	Oktha (2)	3
9.	Nyaungwaing (N)	0	25.	Oktha (3)	1
10.	Thunpaya	1	26.	Oktha (4)	2
11.	Kyaunkkyisu	2	27.	Oktha (5)	0
12.	Zaigganaing (S)	0	28.	Oktha (6)	5
13.	Zaigganaing (N)	3	29.	Oktha (7)	5
14.	Mazin	2	30.	Oktha (8)	2
15.	Kalyarni	0	31.	Oktha (9)	4
16.	Kyunthayar	4	Total		71

Source: Department of Township Development Committee and Field Survey

Distribution of Tea shops by Ward

This study tries to depict the distribution of tea shop in the wards of Bago Town and finds out the relationships between social and economic status of the wards. The highest number of tea shop in Bago Town can be found in Nandawya ward with eight tea shops, followed by Hanthawaddy, Oktha (6) and Oktha (7) with five tea shops respectively. Nandawya ward has the largest population in Bago Town and situated within the two main roads namely Sandawtwin Road and Thanatpin Road. Hanthawaddy ward situated on Taungoo main roads and Tatma (77) street. Oktha (6) and Oktha (7) wards situated beside Yangon-Bago Highway.

The third most concentrated ward of teashops is four tea shops, in Ponnasu which is the third largest population, Kyunthayar which is the fourth largest population and situated on Yangon-Bago Highway and Shinsawpu which is the fifth largest population and situated on Shwemawdaw Pagoda Road. Each of the three tea shops is bound in Yonegyi, Lakepyarkan, Zaigganaing (N) and Oktha (2) wards. There are two tea shops each in Myotwingyi, Zaypaine, Kyaunkkyisu, Mazin, Hinthagone, Oktha (4) and Oktha (8) and only one tea shop can be found in Panhlaing, Nyaungwaing (S), Thunpaya, Bogone, Oktha Myothit (1) and Oktha (3) are seen in the ward distribution pattern of tea shops in Bago Town. (Fig. 5). Nyaungwaing (N), Zaigganaing (S), Kalyarni, Ywathit, Myothit and Oktha (5) do not have any registered tea shop. When the author surveyed this ward, tea shops are found only in open stalls with small stools around small tables along the road in Kalyarni and Ywarthit.

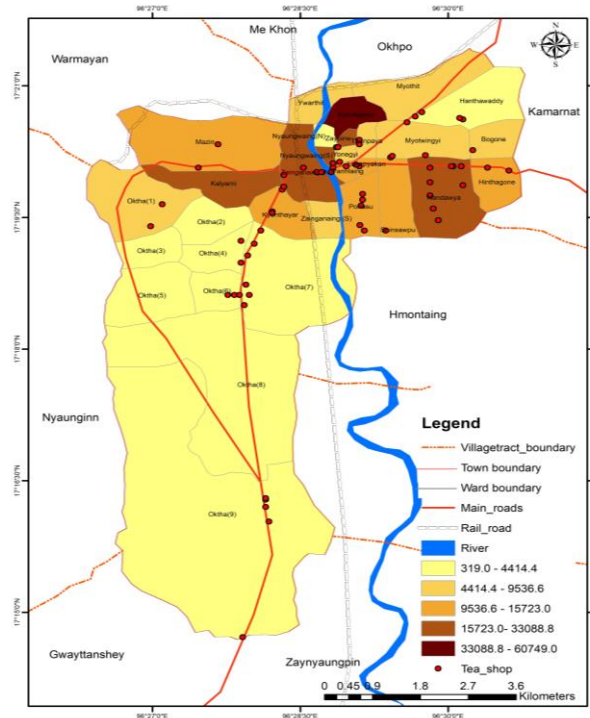


Figure (5). Population Density and Tea Shop Distribution of Bago Town, (Source: Based on Topographic Map)

Table (4). Distribution of Tea Shops by Classes

No	Wards	Address	Feet	Feet Class
1	Yonegyi	No. (60), Bandula Street, Yonegyi Ward	10	1
2	Yonegyi	Kyonetharyar Street, Yonegyi Ward	20	1
3	Yonegyi	Pyitawdar (2) Street, Yonegyi Ward	30	2
4	Shinsawpu	Soshelit (12) Street, Shinsawpu Ward	10	1
5	Shinsawpu	No. (330), Shwemawdaw Pagoda Road, Shinsawpu Ward	20	1
6	Shinsawpu	Shwemawdaw Pagoda Road, Shinsawpu Ward	20	1
7	Shinsawpu	No. (275), Bandula Street, Shinsawpu Ward	30	2
8	Lakepyakan	No. (557), Thanatpin, Lakepyakan Ward	25	2
9	Lakepyakan	No. (816), Hmawkan Ah Nount Road, Lakepyakan Ward	25	2
10	Lakepyakan	Thanatpin, Lakepyakan Ward	20	1
11	Myotwingyi	Thanatpin, Pyitawdar Si Set Shyeh, Myotwingyi Ward	20	1
12	Myotwingyi	Thanatpin, Myotwingyi Ward	25	2
13	Ponnasu	No. (922), Ponnasu Road, Ponnasu Ward	25	2
14	Ponnasu	Hmaw Kan (16) Street, Ponnasu Ward	20	1
15	Ponnasu	Hmaw Kan (9) Street, Ponnasu Ward	15	1
16	Ponnasu	No. (1064), Ponnasu (4) Street, Ponnasu Ward	15	1
17	Panhlaing	No. (192), Konepawtan Street, Panhlaing Ward	20	1
18	Zaypine	Myoma Zay-Upper Floor, Zaypine Ward	20	1
19	Zaypine	No. (1), Fire Station Road, Zaypine Ward	15	1
20	Nyaungwaing	No. (3), Ngar Zay, Nyaungwaing (10) Street, Nyaungwaing Ward	15	1
21	Thunpaya	Thunpaya Road, Thunpaya Ward	15	1
22	Kyaukkyisu	Thunpaya Road, Kyaukkyisu Ward	20	1
23	Kyaukkyisu	Ywar Thit Road, Kyaukkyisu Ward	15	1
24	Zaigganaing (N)	No. (70), (4) Street, Zaigganaing (N) Ward	20	1
25	Zaigganaing (N)	No. (26/1), Butar Road, Zaigganaing (N) Ward	30	2
26	Zaigganaing (N)	No. (22), Butar Road, Zaigganaing (N) Ward	10	1

27	Mazin	Maharzaydi Pagoda Road, Mazin Ward	15	1
28	Mazin	No. (421), Shwethalayaung Road, Mazin Ward	15	1
29	Kyunthayar	No. (597), Yangon-Mandalay Highway, Kyunthayar Ward	15	1
30	Kyunthayar	No. (39), Mingalar Road, Kyunthayar Ward	10	1
31	Kyunthayar	Yangon Road, Kyunthayar Ward	40	3
32	Kyunthayar	Yangon Road, Kyunthayar Ward	30	2
33	Hinthagone	No. (25), Thanatpin Road, Hinthagone Ward	10	1
34	Hinthagone	Thanatpin Road, Mon San Pya	15	1
35	Bogone	Hinthagone Pagoda Road, Bogone Ward	15	1
36	Hanthawaddy	No. (51), Taungoo Road, Hanthawaddy Ward	20	1
37	Hanthawaddy	That Ma (77) Street, Hanthawaddy Ward	15	1
38	Hanthawaddy	That Ma (77) Street, Hanthawaddy Ward	15	1
39	Hanthawaddy	Taungoo Road, Hanthawaddy Ward	40	3
40	Hanthawaddy	Taungoo Road, Hanthawaddy Ward	20	1
41	Nandawya	No. (5), Thanatpin Road, Nandawya Ward	20	1
42	Nandawya	No. (1537), Santawtwin Road, Nandawya Ward	20	1
43	Nandawya	No. (27), Thanatpin Road, Nandawya Ward	15	1
44	Nandawya	Santawtwin Road, Nandawya Ward	20	1
45	Nandawya	Santawtwin Road, Nandawya Ward	20	1
46	Nandawya	Shweaungyway Pagoda Road, Nyarnabala Monastery, Nandawya Ward	15	1
47	Nandawya	No. (1513), Santawtwin Road, Nandawya Ward	15	1
48	Nandawya	Okthathiri (7) Street, Nandawya Ward	15	1
49	Oktha Myothit (1)	Mahargyi Road, Ward (1), Oktha Myothit	15	1
50	Oktha Myothit (2)	No. (112-Kha), Yangon-Mandalay Highway, Ward (2), Oktha Myothit	40	3
51	Oktha Myothit (2)	No. (259), Bahtoo Junction, Ward (2), Oktha Myothit	20	1
52	Oktha Myothit (2)	Tapinshwehti Road, Ward (2), Oktha Myothit	10	1
53	Oktha Myothit (3)	No. (7/340-Ka), Bahtoo Road, Ward (3), Oktha Myothit	15	1
54	Oktha Myothit (4)	No. (14/437), Yarzardhirit Street, Ward (4), Oktha Myothit	20	1
55	Oktha Myothit (4)	No (490), Yangon-Mandalay Highway, Ward (4), Oktha Myothit	30	2
56	Oktha Myothit (6)	No. (155), Thameinbaran Road, Ward (6), Oktha Myothit	25	2
57	Oktha Myothit (6)	No. (194), Thameinbaran Road, Ward (6), Oktha Myothit	10	1
58	Oktha Myothit (6)	Thameinbaran Road, Ward (6), Oktha Myothit	25	2
59	Oktha Myothit (6)	No. (315), Ward (6), Oktha Myothit	10	1
60	Oktha Myothit (6)	No. (314), Ward (6), Oktha Myothit	15	1
61	Oktha Myothit (7)	Yangon Road, Ward (7), Oktha Myothit	25	2
62	Oktha Myothit (7)	No. (432), Dammaparla Road, Ward (7), Oktha Myothit	15	1
63	Oktha Myothit (7)	No. (730/730), Yangon Road, Ward (7), Oktha Myothit	30	2
64	Oktha Myothit (7)	No. (7/6), Yangon Road, Ward (7), Oktha Myothit	30	2
65	Oktha Myothit (7)	No. (1309), Yangon Road, Ward (7), Oktha Myothit	20	1
66	Oktha Myothit (8)	No (1167), Yangon Road, Ward (8), Oktha Myothit	40	3
67	Oktha Myothit (8)	No. (24/1171), Nae Myay (9), Ward (8), Oktha Myothit	15	1
68	Oktha Myothit (9)	Yangon Road, Nyaung Inn, Ward (9), Oktha Myothit	30	2
69	Oktha Myothit (9)	Yangon Road, Nyaung Inn, Ward (9), Oktha Myothit	10	1
70	Oktha Myothit (9)	Yangon Road, College Sheyh, Ward (9), Oktha Myothit	20	1
71	Oktha Myothit (9)	Yangon Road, College Sheyh, Ward (9), Oktha Myothit	30	2

Source: Department of Township Development Committee and Field Survey

Tea Shops Density by Class in Bago Town

The classes of tea shops are classified into three classes: large size, medium and small size depending on their space. Large-size tea-shops can be defined by between thirty-one and forty feet, more than twenty tables including with their fine decoration, such as Satellite Television Channel and good services. They are Than Kywe Tea Shop on Yangon-Bago Highway in Kyunthayar Ward, Than Kywe Tea Shop on Taungoo Road in Hanthawaddy ward, Than Kywe Tea Shop on Yangon-Bago Highway in Oktha (2) ward and Kan Htoo Tea Shop on Yangon-Bago Highway in Oktha (8) ward.

Medium size defines by between twenty-one and thirty feet, with the range of fifteen to twenty tables in the open space and fine decoration including entertainment such as modern music, International sports. It can be found in Yonegyi, Shinsawpu, Lakepyakan, Myotwingyi, Ponnasu, Zaingganaing (N), Kyunthayar, Oktha (4), Oktha (6), Oktha (7) and Oktha (9).

Small defined by between ten and twenty feet, including less than fifteen tables. It is located narrow space; a few tables and bad decoration. But some Tea Shops have entertainment, Satellite Television Channel, International Sports, and fine services. It can be found in almost all the wards of Bago Town (Fig. 6).

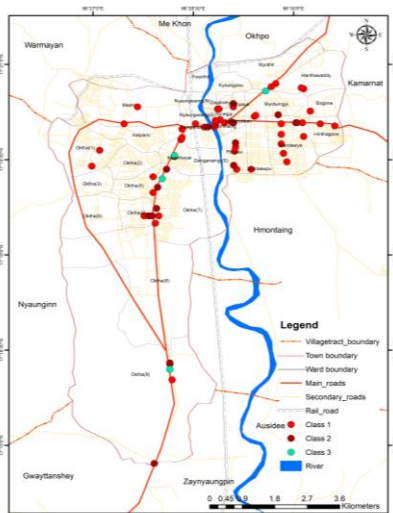


Figure (6). Tea Shop Distribution by classes of Bago Town, (Source: Based on Topographic Map)

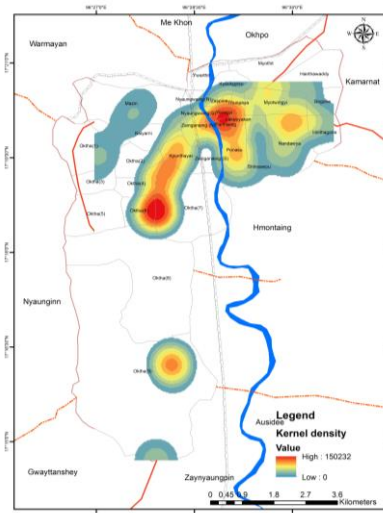


Figure (7). Tea Shop Distribution by Kernel Density of Bago Town, (Source: Based on Topographic Map)

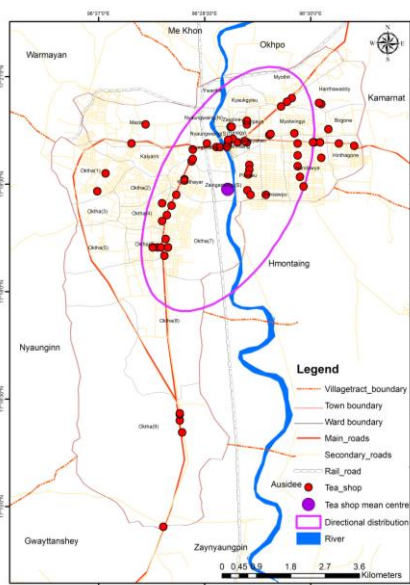


Figure (8). Spatial and Directional Distribution of Tea Shop in Bago Town, (Source: Based on Topographic Map)

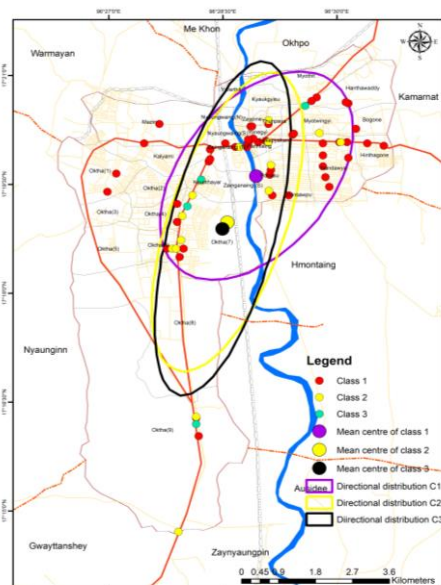


Figure (9). Overlay analysis on Spatial and directional Distribution pattern of tea shop by classes in study area Source: Based on Topographic Map

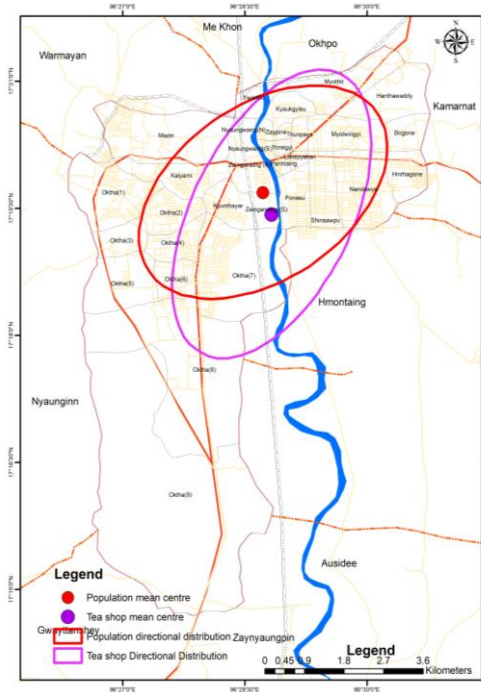


Figure (10). Overlay Analysis on population directional distribution and tea shop directional Distribution in study area Source: Based on Topographic Map

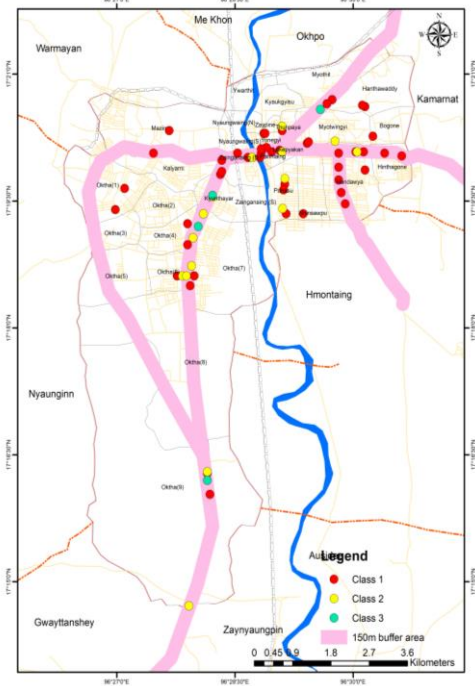


Figure (11). Overlay Buffering analysis on Tea shop classes Source: Based on Topographic Map

Prediction the Best Location for New Tea shops

As the best location of tea shops is found in Bago Town, kernel density and will be used as a basic data for density, and classified into five classes. Among these five, one is defined as excellent, second as good, third as fair, fourth as margin and the last as bad location for selecting a new Tea shop. Figures (7, 8, 9, 10, 11 and 12) showed the location of new Tea shops in Bago Town. A lot of tea shops are concentrated in down town area, the place where governmental offices are situated and nearby Bago University. Yonegyi, Lakepyakan, Panhlaing, Zainganaing (N), Nyaungwaing (S), Oktha (6) and Oktha (7) wards are situated within the First Zone (excellent location). Some tea shops can reach within the second zone (good location). Such as Zaypaine, Thunpaya, Ponnasu, Nanandawya (beside Thanatpin road), Hinthagone (beside Thatnatpin road), Myotwingyi (beside Thanatpin road), Oktha (4) (beside Yangon-Bago Highway) and Oktha (9) (beside Yangon-Bago Highway). The rest of the wards are the third (fair) and the fourth (marginal locations). Moreover, there are good locations for new tea shops along the Yangon-Bago Highway.

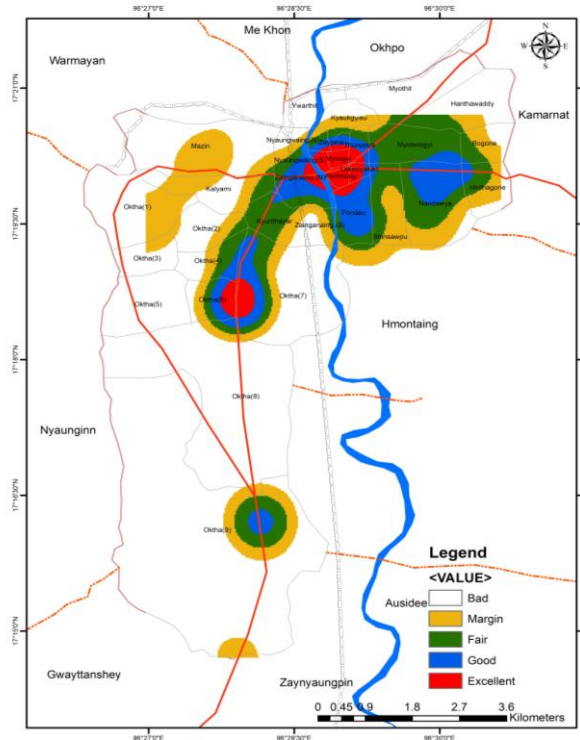


Figure (12). Kernel Density of Tea Shops in Bago Town, (Source: Based on Topographic Map)

Conclusion

In this study, by using ArcGIS, especially for the spatial analysis tool, the Kernel Density is a kind of tool that can calculate the density of features in a neighborhood around those features especially for calculating both point and line features; in this study, it is used to calculate the tea shops density. Moreover, its possible uses include finding density of houses, crime reports, or roads or utility lines influencing a town or wildlife habitat.

In case of calculating the distribution of the tea shops that distance from main roads, buffer analysis tool is used. Based on the buffering result, this paper can explore how the teashops and the main road have strongly correlation in the study area.

Another analysis method that used in this study is overlay method. Based on this overlay methods, in this study, the paper not only can explore the distribution patterns of the tea shops, it can also calculate the direction distribution patterns. Moreover, the spatial correlation of the population density, distribution and the tea shop distribution in the study are also formulated by using the overlay analysis.

In this study, the paper still has so much to suggest not only how to use the GIS tools more but also how the tea shop in the study area can impact on social, culture and economic conditions in Bago city. But, due to the time constraint, based on the paper small finding, what the researchers would like to suggest are; to know more about the temporal and spatial changes of the tea shop, the tea shop data should be collected at least ten years data archived and should use more spatial analysis and statistical tool that composed in ArcGIS. Moreover, in case of the tea shops distribution patterns by classes, as the local people behaviors are also one of the important factors that control the tea shop distribution, the surveys with questioner

and the interviewing methods should also be conducted more and by using the tools, the analysis should be conducted to explore more effective findings.

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