

Geographical Assessment on Quality of Life in Sagaing Township , Sagaing Region, Myanmar

Abstract

By

May Thu Naing¹

This research paper is emphasized on assessing the development of Sagaing Township with special reference to Quality of Life. Economic factor is one of the factors for population change and rural development of Sagaing Township. Primary data are gathered by questionnaire distribution and personal interviews. By using primary and secondary data, quantitative and qualitative measures are worked out. The data required for this research were collected by using questionnaires from these 18 wards and 81 village tracts in Sagaing Township. Among these areas, sample of 5,110 respondents, who were the residents in Sagaing, were interviewed. The results showed that quality of life depends on various reasons. These reasons include economic opportunity, health opportunity, education opportunity, religious opportunity, climatic condition and security issues. The result showed that Quality of life in Sagaing Township followed Economic function. The methods used for the research paper are Human Resources Development Index (UNDP,2007), UNESCAP Region 1995 and Myanmar Human Resources Development Indicators(2011) in accordance with the 9 indicators and the Spatial Analysis within the six parts of the Township. In analyzing this research, it is found that the daily status or level of living standard of the residents within the township needs to be promoted by making plans and programmes in order to upgrade the daily quality of life (QOL).Therefore, to encourage both agricultural sectors and cottage industries is primarily important in the sustainable development of Sagaing Township.

Key words: QOL, Human Resource Development Index, living standard

Aims and Objectives

- (1) To examine the relationship between the economic conditions of the native people and Quality of Life Indices of Sagaing Township
- (3) To advise the implementing plans and projects in upgrading the Quality of life of the residents within Sagaing Township.

Data and Methodology

In doing this research firstly, data such as Primary Data and Secondary Data are being collected and are used. For Primary Data in order to represent the whole township, 9.3 percent of the households amounting to 5110 households were given questionnaires to get their responses. Secondary data however are collected from various departments and offices. For detail personal individual open interviews, 205 representatives from various village tracts are examined. Random Selected Sampling Methods were used in questioning the heads of families. In calculating QOL Indices and GIS Methods, 9 indicators are used on 65 variables.

In the year 2011, according to Human Development Index (HDI), of UNDESA (2011), Barro and Lee (2010), UNESCO Institute for statistics (2011), world Bank (2011 a) and IMF (2011) the Human Power Development Progress was calculated according to Myanmar Index

(system) Plan within Sagaing Township. After that Sagaing Township is divided into 6 parts of Township. Analyses were made later for QOL Indices by means of Qualitative Measurement. Analyses according to different parts are made in order to describe the Geographical Assessment on Quality of Life in Sagaing Township and its potentialities for the Rural Development too.

Introduction

The study Area of this Research Paper is Sagaing Township which lies within the large Sagaing Region is situated about 7 kilometers away from the Western part of Mandalay and is separated by Ayeyarwady River. The Urban development of Mandalay has influence on the nearby Sagaing Town and the rural regions. In future by means of the Rural-urban migration process, and later by means of the Agglomeration Process, the urban development can be analyzed.

In examining and studying the "Quality of life" or standard of living of the resident of Sagaing Township according to their respective occupations it is found that: 52 per cent of the residents were engaged in agricultural activities, 15 per cent are engaged in service giving enterprises. 11 per cent of the residents were engaged in trade ; buying and selling. 3 per cent of the residents were engaged in breeding of livestock, animals, etc. 1 per cent of the residents were engaged in Government Departments. 14 per cent of the residents were engaged in impromptu works. 5 per cent of total population are jobless in Sagaing Township.

In Sagaing Township those who are above 18 years of age and who work amounted to 65 per cent of the population. 30 per cent of less than 18 years are workers. The total number of youths with age under 18 years amounted to 36 per cent only were able to attend school and study up to the High School Level.

In this region as water needed for the cultivation of crops are becoming scarce. The rates of the crop yield are becoming decreased and low. Moreover, due to the occurrence of the river floods of Ayeyarwady River and Mu River, seasonal crops grown during all the three seasons cannot be grown successfully. Furthermore to change the Modern System of Cultivation, the amount of expenses for the cultivation of crops is also becoming high. Markets for market gardening crops and vegetables are changing in the neighbouring countries. Although the number of family members are increasing crops, it cannot be increase on the new plots of the increased cultivated cropland.

Only when the farmers are working jointly together with the important extempore workers. If they are also daily wage earners, the income of the family will become sufficient. In order to get the work, some farmers have to move to the nearby villages and towns to find for work. Some farmers who own the cultivated croplands have to hire their croplands to the businessmen who invest lands for growing water-melon. It is also found that sometime the farmers work on their lands as laborers, and sometimes as impromptu wage earners. Such workers are now found in large numbers in order to get the income sufficiently for their families.

In describing the "Quality of Life of Sagaing Township, according to the geographical nature ,it is being divided into 6 parts such as;(1) The town or Urban Area with (18) wards,(2)The Eastern part with 14 Villages Tracts which lie along the Ayeyarwady River bank,(3)The Southern part with 19 Villages Tracts which lie along the Ayeyarwady River

bank(4)The Western Part with 11 Villages Tracts which lie along the bank of the Mu River
 (5)The Central Part with 31 Villages Tracts and (6)Near Yae Myet –In lake where there are 6 Village Tracts.

Based on the above factors the relationship or related Quality of Life (QOL). In order to change and upgrade the Quality of Life in the region, the following Research Problems which are being described.

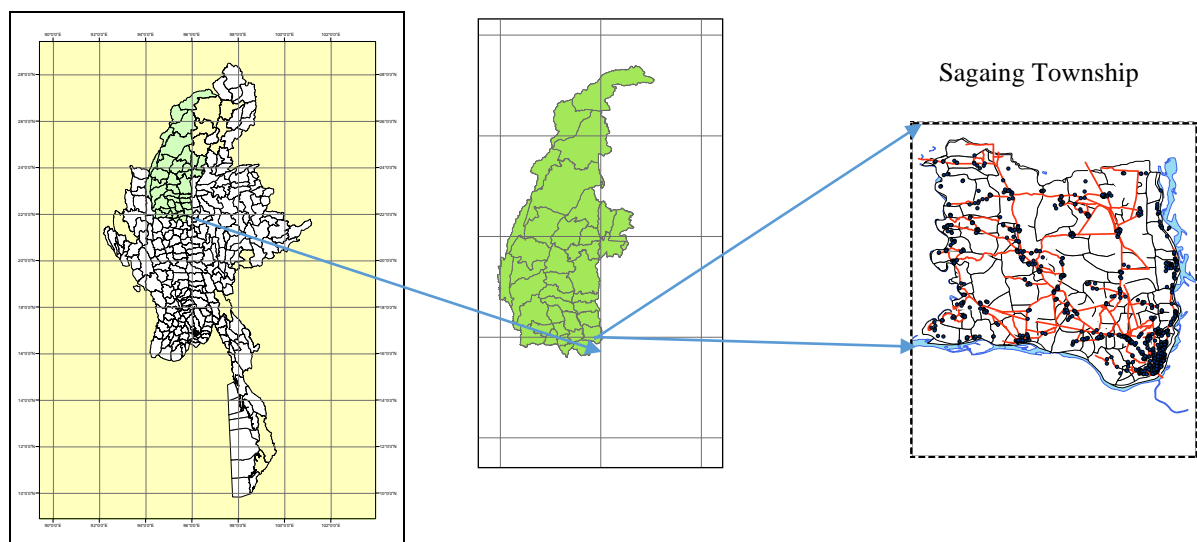
(1) How do the QOL Indices of the residents of Sagaing Township Transform relatively as the process of Rural Development.(2) What is the future development and prospects of Sagaing Township.

Study Area

Sagaing Township lies within the Dry Zone of Central Myanmar. Sagaing Township is situated in the south-eastern part of Sagaing Region. It lies between the latitudes of $21^{\circ}50'$ and $22^{\circ}15'$ north, between the longitudes of $95^{\circ}40'$ and $96^{\circ}00'$ east. It is also a part of the flat plains of the Mu and Ayeyarwady river basins. The area of Sagaing Township is 187.453 Sq Km or 125,944 ha and comprises with the Sagaing Town Proper and 81 village tracts. Sagaing Township is bounded on the north by Wetlet Township, on the east and south-east by Madaya Township, Patheingyi Township, Amarapura Township and Tada-U Township, on the south by Ngazun Township and on the west by Myinmu Township and Ayadaw Township.

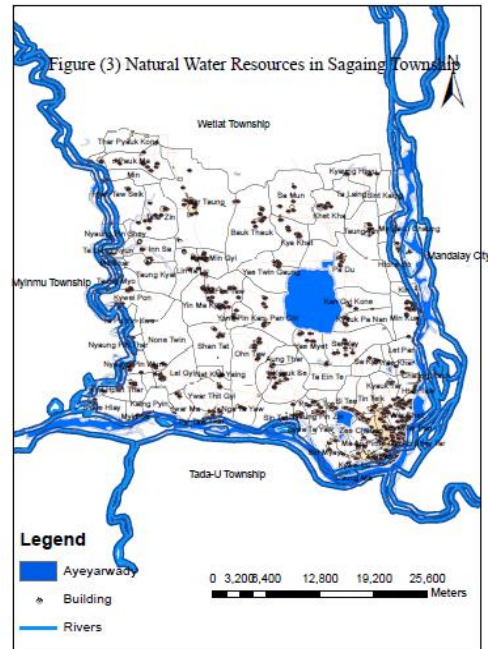
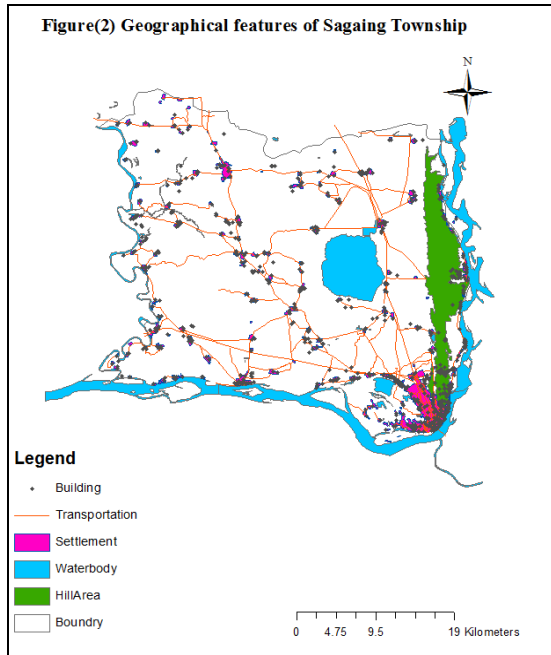
According to the geographical location, Sagaing Township lies between Sagaing Region and Mandalay City. The towns of the region are well connected by waterways, motor roads and railroads, The distance between the two towns of Sagaing and Mandalay is about 10 miles and it takes about (0.5) hour (half an hour) to travel easily by motor bicycle or motor car. They are connected by Inwa Bridge and Yadanabon Bridge.

Figure (1) Location of Sagaing Township



Source: Geography Department at Mandalay University, 2016

Figure (2) Physical Features of Sagaing Township



Findings and Results

(1) Qualitative Measurement: Spatial Comparison on the Quality of Life of the Six Parts in Sagaing Township

In describing the living standard (Quality of Life) of the people living in Sagaing Township by means of the Indicators, the position or ranks of the variable Indices are classified as Very High, High,, Medium, Low and Very Low.

Table(1) Classification of Quality of Life in SagaingTownship

Sr . No	Variable	Index
1	0.81 - 1.00	Very High
2	0.61 - 0.80	High
3	0.41 - 0.60	Medium
4	0.21 - 0.40	Low
5	.01 - 0.20	Very Low

Source: Based on UNDP Data, (2010)

The Physical Indicators of the whole township is medium rank. However (1) firstly in Urban of the township the indicator is high rank. (2) the second is found in the Eastern part of the township whereas (3) the least indicators are found in the Western ,Northern, Central and

Near Yae Myet parts of the town. As for the Immediate Environment Indicators: the indicators of the whole Township is medium. In the Urban Area and Eastern part, the indicator is high rank. Other four parts of Sagaing Township are low Rank.

Regarding the Transportation and Communication Indicators, the indicators of the whole township is medium. However the indicator is the highest in the Urban area of the township. The second living is found in the Eastern part and the third indicator is found in the Southern and Central parts and the least is found in the Western and Near Yemyet parts.

As for the Economic Factors, Economic Indicators of the whole township is medium. However medium indicator is found on the Urban area, Eastern, Southern, Central and Near Yemyet parts while the least indicator is found in the Western part.

The Social Indicators, the indicators for the whole township is low. Medium indicator is found in Urban area; the second is the Eastern part. Low indicator is found in the Western, Southern, Central and Near Yemyet parts of the township.

For Education Indicators, the indicator of the whole township is low. The highest indicator is medium in Urban Area and Southern Parts. Low indicators are in the Eastern, Western and Central part of the township.

For Health Indicators, the indicator for the whole township is very low. It is highest in Urban Area. The least indicator is very low in the others parts of the township.

For Recreation Indicators, the indicator for the whole township is very low. Low indicator is found in Urban Area. The least is very low in the other parts of the township.

For Safety Indicator, the indicator for the whole township is low. Urban Area has the medium indicator. Low indicators are found in the Eastern, Southern and Central parts. Very low indicators are in the Western and Near Yemyet parts.

By classifying the rank of values the places with the low and very low rank indicators are supplemented. It is necessary that programmes should be made not to let the natives of the region leave the area Emigration to other places should be prohibited.

In calculating the Qualitative Measurement of Quality of Life Indicators by Six Parts in Sagaing Township it is found that there are the most least Recreation indicators. That is why many people who drink alcohol are classed as High Indicator. That is why aids or helps should be given to the Youths and adults regarding recreation such as library and sports. For religious recreation visitors as well as Religious from other towns and places are found daily at the Pagoda such as sagaing Hill, Kantalu Padoda, and Haung-Hmutaw Pagoda.

Table(3) Qualitative Measurement of QOL Indices in Sagaing Township, 2016

Sr. No	Indicators	CODE	Urban	Eastern	Western	Southern	Central	Near Yae Myet	TOWNSHIP
1	Physical	1_WHOSE	M	M	L	M	L	L	M
		2_BLDSTR	M	M	L	M	M	L	M
		3_ELECTY	H	L	L	L	L	L	L
		4_WATSUS	H	M	M	H	M	L	M
		5_DRIWAT	L	L	VL	L	L	M	L
2	Immediate Environment	6_USETOET	H	M	M	H	M	M	M
		7_WASDIPO	M	L	M	VL	VL	M	L
		8_FORARE	L	M	L	L	VL	L	L
		9_CONECO	VL	VL	VL	VL	VL	VL	VL
		10_PREHAZ	L	M	H	L	L	VL	M
		11_UWODFU	M	H	H	H	H	H	H
3	Transportation & Communication	12_ENERGY	VL	L	VL	VL	L	L	VL
		13_NEMROD	VL	H	L	L	L	VL	L
		14_OUTROD	H	L	L	L	L	L	L
		15_VEHIAL	H	M	L	H	M	L	M
		16_TRANJU	H	L	M	L	L	L	L
		17_TVRAO	M	M	L	M	M	L	L
		18_NEWPAP	M	L	VL	VL	VL	VL	VL
		19_TEPHON	H	M	L	M	M	L	M
		20_MOTCY	M	M	M	M	M	M	M
4	Economic	21_OWAGRI	M	M	M	H	M	M	M
		22_OWPOL	L	L	L	L	L	L	L
		23_HINCOM	M	L	L	L	L	L	L
		24_PERSON	L	L	L	L	L	VL	L
		25_HEXPED	M	M	M	L	L	L	L
		26_EXOFOD	H	H	M	H	H	M	M
		27_EXPOTH	H	VL	VL	VL	VL	VL	L
		28_EATMAT	L	L	L	L	L	M	L
		29_OWBUSI	VL	VL	VL	VL	VL	VL	VL
		30_PERLAB	M	L	M	M	H	M	M
		31_AGRANI	VL	M	H	H	M	M	M
		32_MARKE	L	VL	VL	VL	VL	VL	VL
		33_AGRLAB	M	H	L	M	M	M	M
		34_WOLAB	H	H	L	H	M	H	M
35_OWHOUS	M	H	H	H	M	H	M		

		36_AGRMAC	VL	VL	VL	VL	VL	VL	VL
		37_LONMOR	H	L	L	L	L	L	L
5	Social Life	38_HOUSIZ	M	M	M	M	M	M	VL
		39_DEP&RAT	L	VL	L	VL	VL	L	VL
		40_SATLIF	M	M	L	L	L	L	L
		41_WANMIG	M	M	L	M	M	L	M
		42_UNMIGR	L	L	M	L	L	M	L
		43_OUTMIG	L	L	L	L	L	L	L
		44_D-COL&UN	H	L	VL	L	L	VL	L
6	Education	45_D_HSCO	H	L	L	L	L	L	L
		46_ENOPRI	H	M	M	M	M	M	M
		47_EDUHEAD	M	M	M	H	H	M	M
		48_LITRATE	H	M	H	M	M	M	M
		50_EXCHIED	VL	VL	VL	VL	VL	VL	VL
		50_ICTKNO	VL	VL	VL	VL	VL	VL	VL
		51_SCHFACI	L	L	L	L	L	L	L
		52_TE&STU	VL	L	L	VL	VL	L	L
7	Health	53_TREDIS	L	L	L	L	VL	L	L
		54_D_HOST	M	L	L	L	VL	VL	L
		55_HEACAR	L	L	L	L	VL	VL	L
		56_DO&PO	VL	VL	VL	VL	VL	VL	VL
		57_GOVHEAL	VL	L	L	L	VL	VL	VL
		58_PREVDISE	M	M	M	L	L	VL	L
8	Recreation	59_EXPENTE	VL	VL	VL	VL	VL	VL	VL
		60_LIBRAR	L	VL	VL	VL	VL	VL	VL
		61_SPORT	VL	VL	VL	VL	VL	VL	VL
		62_DRINK	L	M	VL	L	L	L	L
9	Safety	63-CRIMELE	VL	VL	VL	VL	VL	VL	VL
		64_DECMAK	VL	L	L	L	VL	VL	VL
		65_WORSAF	M	M	M	M	H	M	M

Table (2) Qualitative Measurement of QOL by Six Parts in Sagaing Township,2016

Sr. No	Indicators	TWS	Urban	Eastern	Western	Southern	Central	Near Yae Myet
1	Physical	M	H	M	L	L	L	L
2	Environment	M	H	H	L	L	L	L
3	Transportation& Communication	M	VH	M	VL	L	L	VL
4	Economic	M	M	M	L	M	M	M
5	Social life	L	M	M	L	L	L	L
6	Education	M	M	L	L	M	L	L
7	Health	VL	H	VL	VL	VL	VL	VL
8	Recreation	VL	L	VL	VL	VL	VL	VL
9	Safety	L	M	L	VL	L	L	VL

Source: Calculation based on Field Observation, 2016

Table (3) Qualitative Measurement of QOL Indicators by Six parts in Sagaing Township

Sr.	QOL and Indicators	Situation by regions at Sagaing
1	QOL with respect to Physical Indicators	U > S > E > W > C > Y
2	QOL with respect to Environmental Indicators	U > W > E > S > C > Y
3	QOL with respect to Transportation& Communication Indicators	U > E > S > C > W > Y
4	QOL with respect to Economic Indicators	U > E > S > C > Y > W
5	QOL with respect to Social Indicators	U > E > W > S > C > Y
6	QOL with respect to Education Indicators	U > S > E > W > C > Y
7	QOL with respect to Health Indicators	U > E > W > S > C > Y
8	QOL with respect to Recreation Indicators	U > E > W > S > C > Y
9	QOL with respect to Safety Indicators	U > E > S > C > W > Y

QOL with respect to nine Indicators of Sagaing Township = U > E > W > S > C > Y

Index:

L= Low, VL= Very Low, M= Medium, H= High, VH= Very High

U= Urban, E= Eastern Part, W= Western Part, S= Southern part, C= Central Part,

Y = Near Yae Myet

Table (2) Indicators and QOL Indices in Sagaing Township, 2014

r. No	Indicator	Name of Indices	CODE	Urban	Eastern	Western	Southern	Central	Near Yae Myet	TWS
1	PI	Wooden House	1_WOHOSE	0.56	0.5	0.38	0.48	0.38	0.37	0.44
		Building Structure	2_BLDSTR	0.44	0.45	0.35	0.47	0.5	0.32	0.42
		Electricity supply	3_ELECTY	0.73	0.38	0.22	0.26	0.25	0.25	0.35
		Water Supply System	4_WATSUS	0.63	0.59	0.69	0.67	0.43	0.21	0.54
		Convenient Drinking Water Source	5_DRIWAT	0.33	0.33	0.15	0.28	0.22	0.44	0.29
2	ENI	Using Toilet (Improved Sanitation)	6_USETOET	0.65	0.56	0.46	0.65	0.53	0.47	0.55
		Waste Disposal Method	7_WASDIPO	0.45	0.3	0.5	0.14	0.03	0.25	0.28
		Forest Area cover	8_FORARE	0.3	0.5	0.35	0.2	0.15	0.15	0.28
		Conservation of Ecosystem	9_CONECO	0.03	0.08	0.11	0.03	0.01	0.05	0.05
		Prevention on Hazard	10_PREHAZ	0.34	0.52	0.62	0.36	0.24	0.73	0.47
3	TCI	Using Wood Fuel	11_UWODFU	0.51	0.66	0.79	0.75	0.8	0.76	0.71
		Daily Energy Use to Work	12_ENERGY	0.11	0.24	0.11	0.09	0.23	0.27	0.17
		Has Near Main Road (contact with neighbours)	13_NEMROD	0.12	0.68	0.3	0.32	0.29	0.15	0.31
		Approach Road (outside their village)	14_OUTROD	0.65	0.31	0.35	0.29	0.22	0.21	0.34
		Accessibility of Motor Vehicle	15_VEHIAL	0.65	0.55	0.4	0.65	0.42	0.3	0.5
		Transportation for Junctions (Public Transport)	16_TRANJU	0.64	0.32	0.43	0.32	0.26	0.23	0.37
		TV Watching ,Radio	17_TVRAO	0.57	0.6	0.31	0.52	0.56	0.25	0.47
		Regular Newspaper	18_NEWPAP	0.57	0.25	0.11	0.18	0.07	0.04	0.2
		Telephone Utilities (Internet)	19_TEPHON	0.74	0.51	0.33	0.52	0.5	0.38	0.5
		Ownership of Motor Cycle	20_MOTCY	0.59	0.6	0.46	0.43	0.45	0.45	0.5
4	ECI	Owned by Average Agricultur	21_OWAGRI	0.49	0.48	0.55	0.64	0.5	0.55	0.54
		Owned Poultry (Breeding anim	22_OWPOL	0.36	0.24	0.27	0.32	0.26	0.22	0.28
		Chicken, pig, goat, cow)								
		Household Income/month	23_HINCOM	0.41	0.25	0.3	0.33	0.26	0.21	0.29
		Personal Income/ month	24_PERSON	0.38	0.19	0.27	0.24	0.21	0.2	0.25
		Total Household Consumption	25_HEXPED	0.41	0.41	0.37	0.33	0.33	0.35	0.37
		Expenses on Food /month	26_EXOFOD	0.68	0.8	0.55	0.69	0.7	0.52	0.65
		Expenses on other /month	27_EXPOTH	0.68	0.12	0.12	0.13	0.09	0.11	0.21
		Does eat meals & vegetation	28_EATMAT	0.38	0.21	0.35	0.3	0.21	0.43	0.31
		Owned Business	29_OWBUSI	0.17	0.1	0.07	0.11	0.07	0.13	0.11
5	SLI	Permanent Labour (full time jo	30-PERLAB	0.5	0.34	0.56	0.57	0.65	0.55	0.53
		Animal-drawn Agricultural Eq	31_AGRANI	0.01	0.42	0.63	0.66	0.53	0.44	0.45
		Retail scale (market)	32_MARKE	0.26	0.06	0.16	0.04	0.02	0.12	0.11
		Agricultural labour (landless)	33_AGRLAB	0.59	0.66	0.39	0.55	0.54	0.52	0.54
		Woman Labourers	34_WOLAB	0.62	0.77	0.38	0.72	0.4	0.78	0.61
		Ownership of House	35_OWHOUS	0.56	0.6	0.7	0.66	0.52	0.73	0.63
		Agricultural Machine	36_AGRMAC	0.01	0	0.16	0.01	0	0.06	0.04
		No Need Agriculture loan & M	37_LONMOR	0.71	0.25	0.21	0.22	0.22	0.74	0.39
		Household Size ,(4-6)	38_HOUSIZ	0.06	0.06	0.05	0.06	0.06	0.05	0.06
		Dependency ratio	39_DEP&RAT	0.22	0.18	0.23	0.13	0.13	0.22	0.18
6	EDI	Satisfaction with their own live (Depopulation)	40_SATLIF	0.41	0.42	0.38	0.34	0.23	0.36	0.36
		Want to go out migrant	41_WANMIG	0.41	0.55	0.39	0.56	0.47	0.38	0.46
		Unwillingness migrant	42_UNMIGR	0.33	0.24	0.44	0.29	0.28	0.42	0.33
		Moving person on in family	43_OUTMIG	0.3	0.21	0.35	0.27	0.21	0.28	0.27
		Distance of College & Univers	44_D-COL&U	0.75	0.25	0.2	0.26	0.27	0.2	0.32
		Distance from High School	45_D_HSCO	0.68	0.27	0.32	0.26	0.29	0.23	0.34
		Net Enrolment in Primary Educ	46_ENOPRI	0.65	0.54	0.48	0.55	0.53	0.53	0.55
		Education of head of the hous (under 15 year)	47_EDUHEAD	0	0.58	0.58	0.61	0.62	0.59	0.5
		Literacy Rate	48_LITRATE	0.65	0.58	0.66	0.59	0.52	0.57	0.6
		Expense on Child Education	50_EXCHIED	0.18	0.09	0.15	0.12	0.07	0.13	0.12
7	HI	ITC Knowledge	50 ICTKNO	0.12	0.02	0.03	0.03	0.01	0.02	0.04
		School Facilities	51_SCHFACI	0.32	0.24	0.23	0.26	0.33	0.27	0.27
		Teacher and Student Ratio	52_TE&STU	0.18	0.21	0.24	0.19	0.18	0.28	0.21
		Basic Treatment on Disease	53_TREDIS	0.36	0.3	0.27	0.32	0.15	0.2	0.27
		Distance from Hospital	54_D_HOST	0.61	0.32	0.1	0.29	0.1	0.17	0.26
		Personal Health-care Habits	55_HEACAR	0.3	0.29	0.22	0.34	0.14	0.13	0.24
		Doctor: Population	56_DO&PO	0.01	0.01	0	0.01	0.01	0.01	0.01
		Government Health Care Cente	57_GOVHEAL	0.12	0.3	0.11	0.28	0.16	0.17	0.19
		Prevention of Disease	58_PREVDISE	0.42	0.48	0.26	0.4	0.23	0.13	0.32
		8	RI	Expenses on Entertainment	59_EXPENTE	0.18	0.06	0.05	0.1	0.08
Does go to Library (Reading)	60_LIBRAR			0.2	0.14	0.11	0.1	0.03	0.02	0.1
Sport and other physical activ	61_SPORT			0.05	0.01	0.03	0.01	0	0.02	0.02
Bars or Dinking alcohol	62_DRINK			0.28	0.41	0.44	0.36	0.31	0.3	0.35
9	SAI	Crime level	63-CRIMELE	0.14	0.08	0.11	0.08	0.08	0.06	0.09
		Confidence in Council Decision Making	64_DECMAK	0.17	0.25	0.28	0.25	0.14	0.14	0.21
		Workplace Safety	65_WORSAF	0.41	0.44	0.48	0.44	0.65	0.36	0.46

(2) Quantitative Measurement on Relationship between Quality of Life Indicators in Sagaing Township

In order to examine whether the residents of the region within Sagaing Township are satisfied their Quality of Life .Each variable of the Indicators are measured and calculated by using Spearman's Rank Correlation Coefficient $r_s = 1 - \frac{6\sum d^2}{n^3 - n}$.

For each of the QOL Indicators of the residents within Sagaing Township , it is to find out whether there is the correlation or not. If there is relationship, the correlation rank is being described in the form of numeral number between from (- 1 Negative Correlation to + 1 Positive Correlation). In describing Spearman's Rank Correlation Coefficient r_s , (from + - 0.01 to + - 0.39 is "low" degree of Positive/ or Negative Correlation, from(+ - 0.40 to + - 0.69) is "Some" degree of Positive/ or Negative Correlation, from (+ -0.70 to + - 1.00) is regarding as "High" degree of Positive/ or Negative Correlation.

From the calculation, the correlation values obtained are examined by Correlation Significance Test which is the " Student's distribution ". By this Null Hypothesis H_0 is obtained. $H_0 =$ There is no correlation between the two data sets. They are examined by the formula $(t = r \cdot \sqrt{n-2} / \sqrt{1-r^2})$. After that by using Student's graph the percentage rates of Coefficient of Determination are calculated and described. As a result it is found that there are firm or strong correlation between the two data sets.

In examined the correlation / relationship of the 9 indicators of the Township's Range of QOL of Sagaing Township, the value of (r_s) are (+0.64),(+0.78),(+1.94), (+0.88),(+0.88), (+0.82). There is a " some" or " high " positive relationship between the Township Rank of QOL Indicators and Each Indicator of QOL. That is why depending upon the calculation obtained by including the variables with 9 indicators, it is found that there is a positive relationship.

In analysing the value of the 9 Indicators according to Spearman's Rank Correlation Coefficient: PI is high correlation in ENI, TCI, EDI, REI, SAI . ENI is high correlation in PI, SLI, HI, REI. TCI is high correlation in PI, ECI, SLI, EDI, HI, REI, SAI. ECI is high correlation in TCI,SLI,EDI,HI,REI,SAI.SLI is high correlation in ENI,TCI,ECI,EDI,REI,SAI. EDI- is high correlation in PI, TCI, ECI, HI, REI, SAI. HI is high correlation in ENI, TCI, ECI, EDI, REI, SAI. REI- is high correlation in PI, ENI, TCI, ECI, SLI, EDI, HI, SAI is high correlation in PI, ECI, TCI, ECI, SLI, EDI, HI, REI. Their correlations are found to be good.

The strength of the Indicators is shown by the Student's t distribution " which is Correlation Significance Test according to Null Hypothesis where H_0 = there is no correlation between the 2 sets of data. According to that draft proposal ' Student's t test ', which stated that " there is no relationship between the Township's Rank of QOL Indicators and the Indicators is accepted by 1 per cent, between 5% and 10 % of the respondents among the residents, only than the Null hypothesis can be rejected. That is why , when the correlation between the Township Rank of QOL Indicators and Indicators are highly related from 90 per cent to 99 per cent , the statement can be accepted. The inverse hypothesis which stated that " there is a correlation between the two sets of data." can be also accepted. i.e the coefficient is highly significant statistically and the statement can be accepted.

According to the above findings, in examining the correlation of all the Indicators and the other 9 Indicators by means of ($r_s = +0.64$ to $+0.94$), the correlation is from "Some to High Positive Relationship". As there is the correlation with the QOL Indicator of Sagaing Township and each indicator by having the Coefficient Determination value from 41 per cent to 88 per cent of the correlation is strong and firm as described in table (5). In describing the correlation of the factors of the 9 Indicators and the Indicators of the whole Sagaing Township, it is found that the strength of correlation is strong and durable.

By means of the student's 't' test and as there is no variation or change and difference in tthe answer of the respondents and residents of the questionnaires as well as from the finding of field survey and the analysis according to Spearman's Rank Correlation Coefficient. It is found that there is no variation between the analysis according to Spearman's Rank Correlation Coefficient and the Student 't' test.

Table(4) Spearman's Rank Correlation Coefficient (rs) by Indicators in Sagaing Township,2016

No.	QOL Indicator	PI	ENI	TCI	ECI	SLI	EDI	HI	REI	SAI
1	Physical (PI)	0.00	0.64	0.64	0.37	0.00	0.82	0.00	0.88	0.76
2	Immediate Environment (ENI)	0.64	0.00	0.10	0.04	0.64	0.22	0.64	0.58	0.16
3	Transportation & Communication (TCI)	0.64	0.10	0.00	0.94	0.64	0.76	0.64	0.76	0.88
4	Economic(ECI)	0.37	0.04	0.94	0.00	0.58	0.58	0.58	0.64	0.94
5	Social Life(SLI)	0.00	0.64	0.64	0.58	0.00	0.82	0.00	0.88	0.76
6	Education(EDI)	0.82	0.22	0.76	0.58	0.00	0.00	0.82	0.82	0.70
7	Health(HI)	0.00	0.64	0.64	0.58	0.00	0.82	0.00	0.88	0.76
8	Recreation(REI)	0.88	0.58	0.76	0.64	0.88	0.82	0.88	0.00	0.76
9	Safety(SAI)	0.76	0.16	0.88	0.94	0.76	0.70	0.76	0.76	0.00
	Township	0.64	0.76	0.94	0.88	0.82	0.88	0.82	0.88	0.94

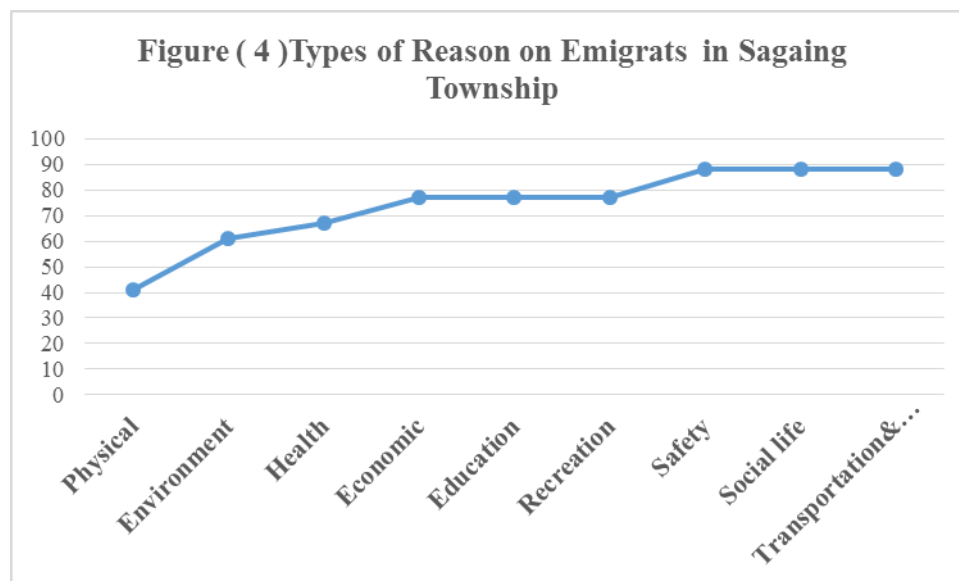
Source: Calculation Based on Field Observation,2014

Table (5) Student's (t) Test value by QOL Indicators in Sagaing Township,2016

Sr. No	Indicators	r_s	t	t %	Coefficient of Determination %
1	Physical	+0.64	0.8	5	41
2	Environment	+0.78	2.5	10	61
3	Transportation & Communication	+0.94	5.5	1	88
4	Economic	+0.88	3.7	10	77
5	Social life	+0.94	5.5	1	88
6	Education	+0.88	3.7	10	77
7	Health	+0.82	5	5	67
8	Recreation	+0.88	3.7	10	77
9	Safety	+0.94	5.5	1	88

Index r_s = Spearman's Rank Correlation Coefficient , Degree of freedom = 4

t %= Correlation Significance (Student's t graph)



Source: Based on Calculation by Table (5)

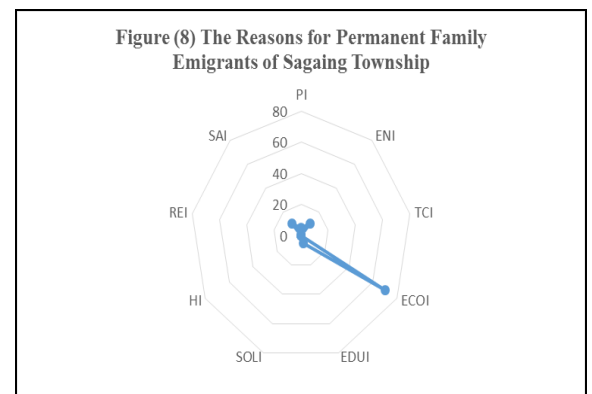
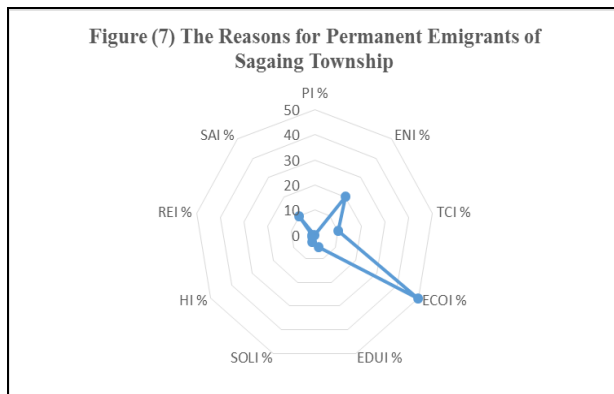
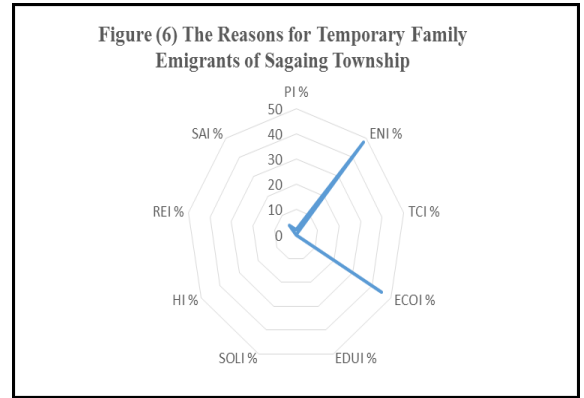
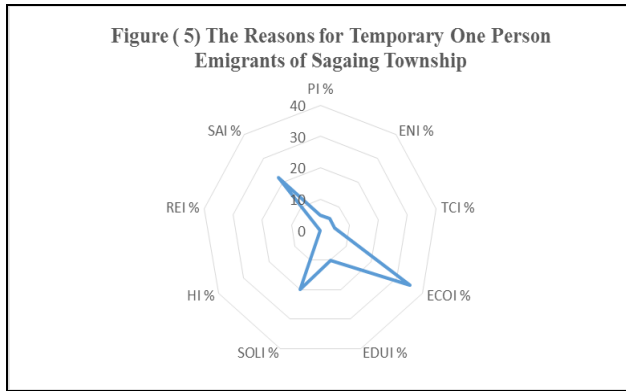
(3) The Effect on Emigration by Quality of Life Indicators in Sagaing Township

In SLI (Social Life Indicator) ,people leave and shift to other places with their families in order to fulfil their wishes or demands or desires. In the Social Life Indicators (SLI of QOL) of Sagaing Township,, the variables which are the Emigrants of people are being studied and analyzed in Table (6).

Table (6) Relationship of Emigrants and Nine Indicators in Sagaing Township, 2016

Types of Emigrants	PI %	ENI %	TCI %	ECOI %	EDUI %	SOLI %	HI %	REI %	SAI %
T-One	5	5	5	35	10	20	0	0	22
T-Family	2	48	0	45	0	0	0	0	5
P- One	0	20	10	50	5	3	1	1	10
P-Family	5	10	0	70	5	0	0	0	10

Source: Calculation Based on Field Observation, 2016



Source:Based on Calculation by Table(6)

Index: Physical (PI), Immediate Environment (ENI) , Transportation &Communication(TCI), Economic(ECI), Social Life(SLI), Education(EDI), Health(HI), Recreation(REI), Safety(SAI)

In describing the reasons regarding why the residents of the region want to shift to other regions or the reasons why they do not want to shift, it is found that there are people who want to go as Migrants and there are Young people who can work well and who are keen and have the desire to go to other regions. However, there are also “Unwillingness Migrants” who do not migrate to other places. They consist of people who are not of age to work such as children; women and housewives together with old people who are unable to work as they are very old.

Migration and shifting to other regions may be due to people who has to accompany their families who had gone already to a new place. All these shifting and migrations to other regions are monthly due to the physical and socio-economic factors facts about the QOL according to Migration Theory . Pull Factors and Push Factors of in the 6 regions of Sagaing are being described.

Conclusion and Discussions

This research had been examined and carried on from the geographical aspect in the year 2014 according to the nine indicators of Human Resource Development Index which are related to the indicators according to 65 variables. The total households in the whole township is 54689 and 9.3 per cent of the total households in Sagaing Township amounting to 5110 households were selected Random Sample Households. By means of UNDP standard rates the Quality of Life of the residents of Sagaing Town is assessed. After assessing the standard of living, the emigration of the people from their native villages or town to migrate to other town and villages are studied. What are the controlling factors of Emigrants in sagaing Township?

In Sagaing Township 3 per cent of Urban-Urban migration pattern is found and 97 % of Rural- Urban Migration pattern is found. Although there are records of the Birth rates and records of the Migration, the ratio of the number of deaths and the migrants are 1:2 .. It is found that when 1 person migrates to a place, 2 persons emigrate to other place, According to the statistics of 2014, the net total decrease of population is 415 persons.

In Sagaing Township 56 per cent of the residents are Cultivators or Peasant farmers. 95 per cent of the residents are who are temporary migrants and who migrants for among the villages known as Temporary Rural- Rural Migration. At present this type of Temporary migration is mostly seen. This depends on the facts connecting with the condition of land ownership, capital for investment in cultivation, the availability of water and electricity for power, (Infrastructure); and location of its nearness to Ayeyarwady River, Mu River and Yae Myet In lake which cause hazards to the areas when the annual floods occur during the flood season of the Rainy Season.

In the township, the cultivator's ownership of agricultural land is on the average 3 hectares or 7 square Kilometer per cultivator. The croplands are fragmented and are not one stretch of land.. As the small land plots are not very near to each other, the owners of such land plots need labourers who can help them in watering the crops. They also need workers who can send water through canals or paper and they also need workers who can ride motor cycles or any types of vehicles in going to the fields which are fragmented land plots which need irrigated water.

As there are changes of climate, the usually sown crops with production do not produce high yields of crops the rate of crop production has decreased. Moreover as the modern method of cultivation system is being used the cost of cultivation has increased. In order to send the

irrigated water or water from other sources into the fields or to take out water when they need to be drained labourers are needed to do the jobs. To store water in the take also need labourers. When the land owners meet with the difficulties of find labourers or farm hands and when they cannot pay the wages of the hired labourers, some of the land owners have to sell their croplands. Some farmers have to hire their croplands. That is why it is found that in the traditionally paddy sown cropland , at present water melons are grown in place of the formerly traditionally sown crops. The water –melons are sown according to Taiwan’s method of cultivation. In some hired croplands “ Sein-ta- lons” mango species are sown changing the cultivation pattern of paddy lands to the market ownership types or orchard types of cultivation. Moreover along the Monywa- Shwebo main roads, paddy fields are not found as before. In place of the paddy lands Business land Use is found. Petroleum and Engine oil shops are found in place of the paddy lands. Lands for economic purposes are used on the former paddy lands. On some of the land plots along the road are Gas stations and oil pumping stations.

That is why it is found that the number of odd job workers are increasing in number. As the income of the families are not sufficient some villages have to migrate to other places in search of jobs. Un-skilled labourers of cottage industries in connection with making of stone necklace, and weaving of cloths are found. Most of them are daily wage earners Domestic Cottage Industries as the manufacturing industries of articles which have to use electricity are found in villages which have the installation of electronic power station on a self –half basis and Government and , it is found that out of 81 village tracts , 49 villages can use electricity.

Forgetting drinking water, due to the structure of the bed rock and the structure of soil of Sagaing Township, although the township is near Ayeyarwady River and Mu River, but as the waters from the artesian wells and hand –dug wells contains a large amount of alkaline, drinking water is scare. However, drinking water is obtained at Sin Tat village where the Water Uplifting Planning Project from the river is carried on. But as the water obtained from Tat Ywa according to the Tat Ywa water lifting Project is salty, there is no drinking water. That water is used only for the cultivation of Crops.

According to Distance Decay function, the Rural-Urban Migration is carried on near the neighbourhood of the villages. As for the Rural-Urban Migration from Sagaing Township , 66% of the emigrants migrated to Mandalay, 8 % of emigrants migrated to Monywa Township. 9% to Shwebo Township, 2% to Kalay Township, 5% to Meiktila Township, 2 % to Taunggyi Township, 1 % to Lashio and 5% to MuSe Township, and 2 % to other countries. These

emigrants are engaged in Commerce (buying and selling of goods); Mining of Gold. They are engaged also as carpenters and masons also wage earners too in any odd jobs.

In the urban area of Sagaing Township, the educated graduates who want to continue their education in further studies; the government employees and employees of the companies who are looking for better job opportunity of QOL in big cities migrated to big towns in order to find good jobs with high income.

With in the Southern part of Sagaing Township, the average ownership of cultivated (paddy) lands in the village tracts of Ywa Thit Gyi, Pyi Taw Thar, and Shwe Hlay per cultivator is 2 ha or 5 Square Kilometers. Froms the Southern part of the township to other regions, the emigrants migrated to Ohn Taw village and Nyaung Pin Wun village, Monywa Town, Mandalay City, Sagaing Urban Town, and to Foreign Country of Malaysia. The emigrants have their native places according to Temporary Migration an as rural- urban migration in order to go and work there.

In the Western part of Sagaing Township, the average ownership of cultivated land for 1 farmer is 3 ha or 7 Square Kilometers in the village tracts such as Mu Thar and Taung Myo. The emigration from the Western part of the township to other regions are to Sa Taung Village and Nyaung Pin Wun village, Monywa, Mandalay and Japan. The reason to migrate to other places , the production of crops in their places are becoming less in the family income. Moreover their is no balance between the income and the expenses. That is why, there have to migrate in order to get jobs and good income. As for young people who want to study abroad to get higher learning and to work while studying, some of them contact with their friends or relations who formerly had emigrated. When they get help from their friends an relations they emigrated from their homes an migrated to other places according to the single or individual Temporary migration pattern , Such types of migration is mostly found at present .

Within the Central part of the Township, in the village tracts of Min Ywa, Ohn Taw, Aung Thar, Pan Chi, Yon Pin Kan and Sa Gyin, the average ownership of cultivated land per farmer is 4 ha or 11 square Kilometers. Although the Indicator for the average ownership of cultivated land is the highest, the per centage of residents who want to migrate to other regions amounted to 15 % Tempoaray immigration to go to work in other places are found in Sa Taung Village, Ohn Taw village , Shwebo, Monywa, Mandalay, Sagaing and Malaysia or foreign country. People migrated to these places in order to work.

Township near Yae Myet In Lake , the average ownership of cultivated land for each farmer in the village tracts of Yae Myet , Pa Du, and Sa Yay is 2 ha or 5 Square Kilometer . From the Central part of the township to other region the emigration rate is 10 %. Most of them are engaged is fishing industry for their living. Resident of Ohn-Taw village, Pa Du village and to Mon Gaung ,ShweBo, Monywa, Mandalay,and Sagaing. They also go to Thailand which is a foreign country. They people go to other places on the Temporary Immigration Basis to go and work there.

In finding the correlation of the Indicators, the QOL of the emigrants and those who want to emigrate should be examined first and the correlation of the Economic Indicator of Human Development Indices should be examined. It is mostly found that the individual immigration and the family or group migration are mostly on the basis of Rural- Urban Migration System.The controlling factors of Emigrants in sagaing Township are Economic Indicator (ECI) of Quality of Life Index within Sagaing .

Suggestions

By leaving and discarding the cultivated crop lands (paddy lands) yearly like this, and by not prohibiting the shifting of cultivation methods as well as the migration of residents in future from (30) years farmers ,(i.e) about in the year of 2035, the population of Sagaing Township will become decreased to one fourth of its present population. So also by using other methods of modern cultivation system and modern agricultural mechanized implements and instruments, the pattern of the agricultural lands will be changed. That is why in order to protect and give remedy to the residents farm lands from the Natural Hazards (Disasters) Programmes and Plans which can help the residents should be proposed an carried out in order to upgrade the QOL of the residents who live in Sagaing Township in Myanmar.

Acknowledgements

I am greatly indebted to the Chairperson Dr. Nyo Nyo, Professor and Head of the Department of Geography, University of Mandalay, for allowing me to do this research paper. I wish to express my most grateful appreciation to Dr. Thida Win, Rector of Mandalay University for his kindness in giving me permission to do this research.

I would like to thank my teacher Daw Agnes Klaipo, Retired Professor of Department of Geography, University of Mandalay, for her critical reading and for correcting the errors.

My deep thanks and gratitude are due to the persons who were concerned with the various governmental offices of Sagaing Township for their allowances to collect and use of their official data. Lastly, I owe my thanks to all my teachers and colleagues who have helped me with great kindness and patience.

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