Mediating Roles of Job Resources and Personal Resources between Leadership Styles and Employee Engagement

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Abstract

Mediating roles of job resources and personal resources between leadership styles and employee engagement were examined in this study. Employee engagement becomes the most important factor in higher education sector. However, few studies have been conducted in this research area in Myanmar. This study is mainly focused on the relationship between leadership styles and employee engagement. In addition, mediating roles of job resources and personal resources were also investigated. Quantitative research method was used in this study and descriptive analysis and inferential statistics had been used to explain the relationship among variables. Path analysis with structural equation modeling (SEM) was employed to model the complex relationship between the leadership styles, engagement behaviors, job resources and personal resources. The results show that different leadership styles have different effects on employee engagement, job resources, and personal resources. Job resources and personal resources is a mediator between student engagement and desirable outcome.

Key words: Satisfaction, student engagement, higher education Institutions, Job demand, Job resources

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1.   Introduction

Globalization of higher education environment can bring many opportunities to higher education organizations, but it can also expose them to a number of risks and challenges. Although university leadership is quite different from business organization in past, universities are demanded for more efforts in fund raising, innovating and productive in teaching, publishing high quality research, making networking local and abroad, and participating in community involvement. Because of those challenges, fostering faculty involvement and engagement are crucial than ever. One of the most important key drivers for employee engagement is the management and leadership of the organizations. Thus, leadership roles become the most important factors for sustaining of the universities and colleges.

Academic administrators and faculty members faced increasing challenges in the middle management operations in the higher institution of learning. Thus, this study aimed to investigate the relationship between leadership styles and faculty engagement its role of faculty members in maximizing the middle operations in the academic setting. However, there has been little published research into the relationship between leadership styles and employee engagement. This area would benefit from empirical research into what type of leadership style can foster more employee engagement. Such a study would both fill a gap in the literature and have an important potential effect on practice. Yet, leadership does not exist separately from followers' perceptions (Avery, 2004). All we can measure are their perceptions of leadership styles. Therefore, this dissertation investigates the relationship between perceived leadership styles and employee engagement in higher education institutions in Myanmar.

2.   Theoretical Background

The framework of this study has four main domains: employee engagement, leadership styles, personal resources, and job sources. Four leadership styles form the independent variables, namely transactional, transformational, laissez- faire, and servant leadership were discussed. First section of the chapter was started with roles of employee in higher education sector.

2.1   Roles of Employee Engagement and Leadership in Higher Education Institutions (HEIs)

The typical administrative organization chart in higher education has the president or chancellor at the top, followed closely by several vice president or vice chancellor. Next come deans or provost and assistant deans. Each deans is usually responsible for several departments, each of which headed by a chair or head (Blau, 194; Morris, 1981). Thus, chair persons constitute the middle management. However, each individual in those positions performs leadership functions with respect to their roles and are perceived as academic leaders by faculty and staff (Birnbaum, 1992). "What is more, the same factors are also important to the staff and faculty of universities. "HEI's are labour intensive and their budgets are predominantly devoted to personnel, also the effectiveness of higher education institutions is largely dependent on their staff" (Toker, 2011, p. 156).

The competitiveness among universities grows exponentially, performance and quality of teaching, and academic work has to be outstanding. Leadership plays significant role in educational organization success (Osseo-Asareet al., 2005). Even though corporations are more often studied in the leadership area, HEI are business organizations too, they worth millions, therefore should be led as well (Lumby, 2012).

One part of the scientific literature defines leadership in higher education the same as in business organizations, the other part on the contrary argue that both are distinctive concepts (Lumby, 2012). Some sources argue that leadership practices in corporate and other organiza- tions are completely inappropriate in HEI and if we move toward a standardized look at the definition and measurement of leadership it would threaten the leadership in the HEI (Eacott, 2011). Based on the survey conducted in the   UK universities Spendlove(2007) found that there are different perceptions to leadership based on their work background. Faculties come from business background think that leadership in HEIs is the same as in business. But, pure academicians thought leadership in HEIs was not the same as business world. The diversity of HEI, their structure and environment makes it hard to apply the same pattern of leading the faculty (Lumby, 2012).

In higher education, the most pay attention area is the roles and responsibilities of the department chairperson (Seargen, creswell, and Wheller,1993). The chair person was the key individual in defining and realizing the department objectives (Bennett, 1990). The most prominent two activities of department chair were representing the interests of the department

to other parts of the institutions and serving as a mentor to junior faculty members (Bare, 1986). He further suggested that in the performance of these functions the chairpersons employed a consultative style of leadership.

Knight and Holen(1985) studied the relationship between department leadership and faculty perceptions of the quality of their chair persons' performance of typical responsibilities. They found that the most effective department chair persons were those who rated high on both initiating structure (tasks) and considerations (relationship). Moreover, they found that faculty wanted chair persons oriented toward both structure and consideration. As academic environment are facing many challenges now a days. The academic leader should be knowledgeable and competent enough to manage his subordinates effectively. So the question arise that what leadership style should be used in higher

2.2   Employee Engagement

There is no universal definition on employee engagement. Engagement has been defined in numerous different ways by academic researchers, consultancy and research institutions and companies (Markos and Sridevi, 2010). The meaning of engagement can sometimes overlap with other constructs in organizational behavior; however, it is still a distinct and unique construct, which embraces cognitive, emotional, and behavioral components that are associated with individual role performance. Employee engagement defined as employees' willingness and abilities to help their company succeed by providing discretionary effort on a sustainable basis. Engagement is affected by many factors which involve both emotional and rational factors relating to work and the overall work experiences.(Witemeyer, Hazen A.,2013)

Employee engagement is one of the important outcomes of leadership processes. Kahn (1990) defined employee engagement as an attempt to avail themselves to the role of organizational members in the work. Employee engagement is the enthusiasm and involvement in the work. People are very attached to their work personally identify with the work and motivated by the work itself. In the attachment, the individual uses and express themselves physically, cognitively, and emotionally for achieving performance in accordance with the role played (in-role performance). Maslach, Schaufeli, and Leiter argued that employee engagement is associated with sustainable workload, feelings of being elect, as well as having control, recognition, and rewards the right, the presence of community support

work, honesty and fairness, and felt that the work was meant and appreciated (Xu & Thomas, 2011). Engaged employees who feel bound optimistic and spontaneous, tend to show a positive attitude and be proactive behavior at work (Organ, 1994; Schaufeli & Bakker, 2004) and they are more likely to do things that aim to improve the effectiveness of the organization (Saks, 2008). Table (2.2) shows the evolution of employee engagement in academic and practitioner literature.

This study is done based on Schaufeli et al. (2006) which is operational the concept of engagement based on vigor, dedication and absorption. Vigor is characterized by high levels of energy and mental resilience while working and by the willingness and ability to invest effort in one's work. Dedication is considered by a sense of significance, enthusiasm, inspiration, pride, and challenge. Absorption is written off as by being fully concentrated and happily engrossed in one's work, whereby time passes quickly and one feels carried away by one's job.

2.3   Leadership

Leader is a person who usually takes responsibility to achieve the organizational goal. Leadership also plays a central part in understanding organizational behavior. Although the behavioral approach's major contribution is narrowing leadership into task-oriented and people-oriented styles, there is no single effective style which suited in all situations (Robbins, 2005).

The full range leadership construct has gained tremendous popularity among researchers and practitioners and is one of the most broadly used comprehensive leadership theories. The label, full range leadership, indicates the wide viewpoint of what comprises a large variety of leadership styles. These styles have been identified to capture a broad range of leadership behaviors from laissez-faire to transformational leadership, each of which have made distinctive contributions to effective and ineffective leadership (Avolio & Bass, 2004).

Bass' full range of leadership model (1999) identified transactional and transformational leadership, and laissez-faire leadership. Transactional and Transformational leadership were described as active forms of leadership, whereby the leader engaged the followership. The active management by exception dimension of the transactional leadership model provided for a form of transactional leadership, where the leader remained fairly uninvolved, monitoring the performance of the follower and intervening when the

performance exceeded acceptable limits. In the more passive form of management by exception, the leader only intervened when a serious problem occurred (Bass et al., 2003).

Although transformational leadership is the vital role in contemporary leadership theories, servant-leadership is one of the survival tools for leaders in current century. Because of the explosion of information technology and globalization processes, organizations are trying to adapt to dynamic environment factors. Thus, the leaders who are steering the company have not only a responsibility to control the organizations but also have a capacity to create and establish the effective change strategies that align the organizations' culture.

The term servant-leadership was introduced by Robert Greenleaf in 1970. Servant-leadership focuses on increased service to others rather than to oneself. LC Spears (1995) revealed the characteristics of the servant leader as listening, empathy, healing, awareness, persuasion, conceptualization, foresight, stewardship, commitment to the growth of people, and building community. After introduced by Greenleaf, many scholars have approved that servant leadership as a modern and reliable theory in the field of organizational leadership. Russel (2001) discussed as the servant leadership appreciates human equality and fosters the individual improvement in an organization. Servant leadership is serving as a leader rather than leading itself. By implementing the servant leadership, the leader more focused on development of employees as the valuable assets of the organization. Sendjaya & Sarros (2002) said the scholars and practitioners have more pay attention to belief in the tenets of servant leadership as a practical operational approach for school communities in recent two decades.

Leadership is situational factors that can affect creativity. Leadership can be attributed to the creativity of individual followers. The results of empirical studies state that the leadership effect occurs with increasing public confidence in the followers of the goals of higher employment and increased perceptions of individuals at work, which in turn will yield positive results such as cohesion, job satisfaction, effort or spirit, psychological well-being, and performance (Jiao, Richards, Zhang, 2011). When leaders promote active thinking in the organization, employees will be more engaged and involved in the organization. When employees are engaged in their jobs, they will increase the behaviors that promote the good of the organization (Babcock - Roberson & Strickland, 2010). The leader is an important element of the work context can affect how individuals view their work. Macey and Shneider (2008) states that when leaders have clear expectations or fair, and recognize good

performance, the leader will have a positive effect on employee engagement by giving birth to a sense of attachment to the job. Leadership can increase the sense of engagement and employee involvement, teamwork, commitment, competence, and performance of employees (Shamir et al., 1993; Yuan, Lin, Shieh, & Li, 2012).

There are a number of constructs that are important to the performance of the organization, such as job satisfaction, empowerment, organizational commitment, organizational citizenship behavior, and well-being (Babcock-Roberson & Strickland, 2010; Harrison & Hubbard, 1998; Savery & Luks, 2001).

The relationship between perceived leadership styles and employee engagement is influenced by many factors. Although there are many factors influencing those relationships, current study will more focus on employee's personal resources and job resources in their work. Both theoretical and empirical works highlight the important moderating role that employee characteristics may play in the relationship between leadership styles and employee engagement. Need for achievement, equity sensitivity and need for clarity play the key roles in employee characteristics (Zhang, 2010).The following figure explains the relationship between Job resources and employee work engagement.

Many research shows that achievements of the institutions are related with transformational leadership (Griffith's, 2004). The studies also show positive relationship between transformational leadership style and the fast forward learning in the organizations where feedback learning shows positive relationship with the transactional leadership style (Bucic et al., 2010). Aydin et al. (2013) also found that transactional leadership style positively affects job satisfaction as well, although to a lesser extent than transformational one.

Employee engagement has many definitions ranging from the degree to which "people bring in or leave out their personal selves during work role performances" (Kahn, 1990, p. 694), to "a positive, fulfilling, work-related state of mind that is characterized by vigor, dedication, and absorption" (Schaufeli et al., 2002, p. 74). The JD-R model (Demerouti et al., 2001) assumes these characteristics can be divided into demands and resources. Excessive job demands (e.g. too high a workload) are related to burnout, whereas increased job resources are associated with engagement (Crawford et al., 2010). Job resources are: "physical, psychological, social or organizational aspects of the job that help achieve work

goals, and/or reduce job demands, and/or stimulate personal growth and learning" (Demerouti et al., 2001, p. 501). Job resources thus activate a motivational process leading to engagement (Bakker and Demerouti, 2007).

Job resources occur at organizational, interpersonal, job, and task levels (Bakker et al., 2004). At the organizational level, financial rewards motivate employees in exchange for labor (i.e. base salary), and monetary premiums for good performance (Demerouti, 1999). At the interpersonal level, team climates create resources through the extent to which team members "construe themselves as interrelated to others rather than as independent and unique" (Bakker et al., 2006b, p. 240). When team members feel empathy toward their co-workers, and frequently exchange views with one another, emotional contagion of engagement occurs (Bakker et al., 2006a, b).

At job level, feedback provides employees with information on their performance from superiors, colleagues, or through the work process (Demerouti, 1999). Finally, at task level, participation in decision making allows employees to experience decision latitude (Karasek, 1979), enabling them to directly affect their working environment (Spector, 1986).

Adel A. Y. Alzyoud1 (2015) showed three components of resources (autonomy, social support and performance feedback) tested in this study were found to be a strong predictor of work engagement among the academics in higher education institutions. The present study expanded this prospective evidence to Myanmar academics' staff and suggests that resources of job (autonomy, social support besides feedback) are predictors of work engagement. When academics experience greater autonomy, social support and performance feedback at work, they may be more likely to find a way to make their work more pleasant, participate in their workplace decision in order to increase their involvement in their work and workplace, and thus increase their commitment to their work. Therefore, through strong autonomy, social support and performance feedback relationships, employees appear better equipped to cope with challenges at work place and show to understand their work more meaningful. Further to the point made above, the significant relationship job resources on work engagement among academicians can influences their level of contributions to enhance the performance of their universities.

The academic operations in universities or college institutions are facing a lot of pressures have realized the need to be more transformative. In schools where focus has been achieved, teaching and learning, instruction, extension, and linkages becomes transformative for every one (Sagor, 1992). Thus, the role of leadership will be discussed in following sections.

**3.   A Conceptual Development and Hypothesis Development**

3.1   Objectives of the Study

Therefore, in order to determine the relationship between the leadership styles and work engagement, there are altogether three objectives are set in the study. They can be described as follows:

1.   To examine the relationship between leadership styles and employee engagement levels in higher education institutions of Myanmar.

2.   To find out the mediating roles of job resources and personal resources among leadership styles and employee engagement level.

3.   To compare the effects of different leadership styles on employee engagement with the mediating effects of job resources and personal resources.

3.2   Conceptual Framework

Employee engagement is a relatively new concept that is being studied and utilized by two sectors: the academic sector and the industry sector. There is a clear delineation between the academic and the industry view of engagement (Wefald & Downey, 2009 as cited in Remo, 2012). Academic researchers have concentrated mainly on clarifying the psychological construct and its measurement. The industry stream is primarily focused on the outcomes of a psychological state: performance, retention, and commitment. The industry stream had readily adopted the concept of workplace engagement even though little evidence existed to support it. In fact, the industry stream is, in part, the moving force behind the revival of the employee engagement concept in the academic realm (Macey & Schneider, 2008 as cited in Remo, 2012).

Figure (1) The Conceptual Framework for current study
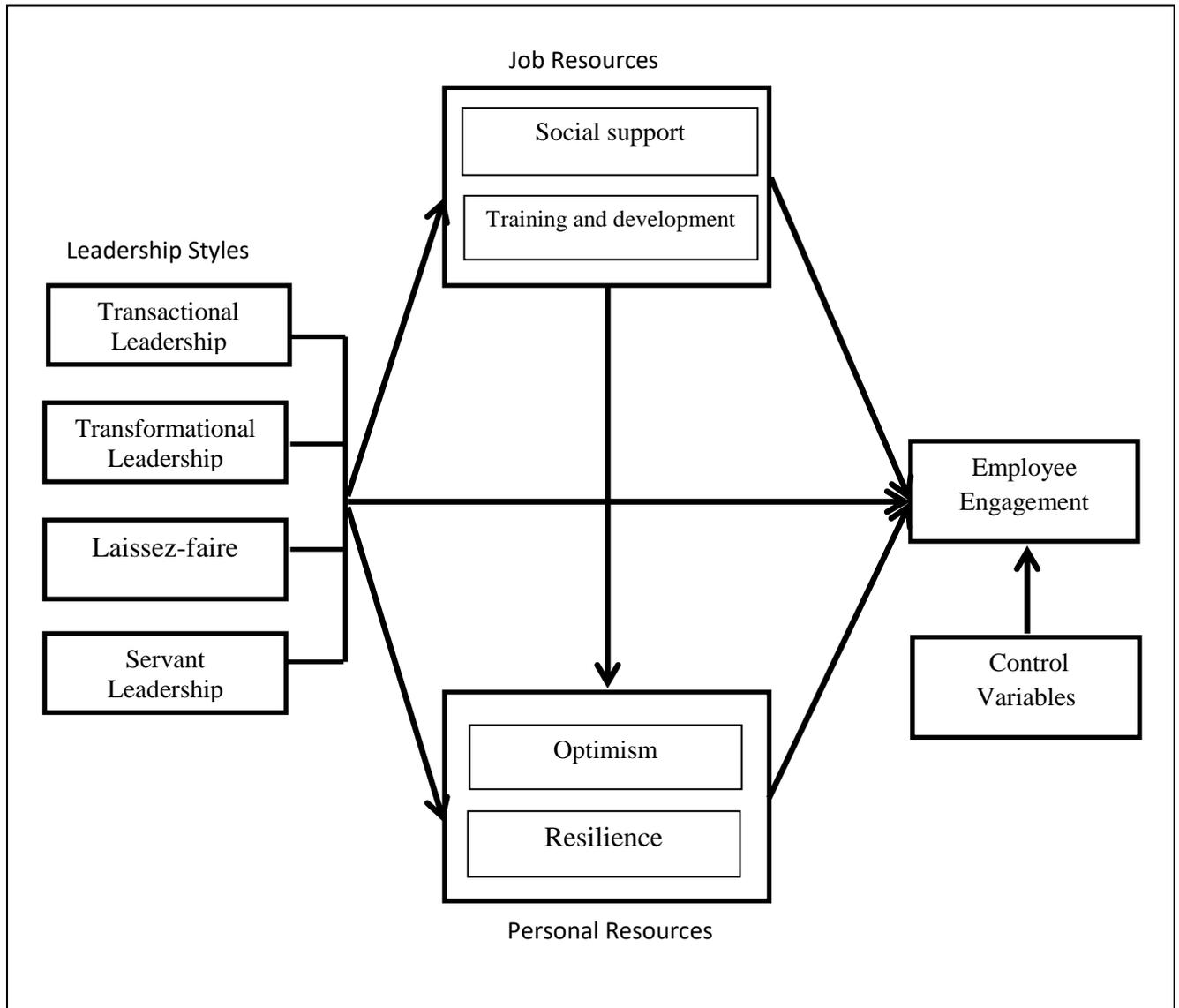
Source: Own Compilation based on (Bakker and Demerouti, 2007). Schaufeli, Wilmar. (2015).

As the goal of this study is to explore leadership styles toward Employee Engagement and identify causal relationships between different constructs of interest through hypotheses testing, explanatory research is the most appropriate type.Besides the research type, a researcher also must decide on a research method to be used for collecting data in order to answer the research question (Bhattacherjee 2012). When it comes to quantitative research one of the popular methods is survey, where a survey research of explanatory type is used to ask about relations between variables which are grounded in theory (Recker 2013). Quantitative method for data collection was adopted for this study. Quantitative method

enables researcher to test specific hypotheses and examine specific relationships between the variables and project results to population at large (Sekaran & Bougie, 2010). Self-administered questionnaire survey was employed for this study. Part A is about the demographic details of the respondents, the questions include gender, age group, nationality, highest educational degree earned, number of years in the institution, number of year in teaching field and present job title. Demographic information of respondents is important for this study as frequencies, means, standard deviations and variances are to be calculated by using these information.   Part B is related to the transformational leadership styles, transactional leadership styles, and laissez-faire. Servant leadership is examined in part C. Part D is about employee engagement and Part E is about job resources and personal resources. These five parts consists of 56 questions that are used for examining the relationship between the independent variables and dependent variable with mediating variable. There are 9 questions covering dimensions of employee engagement, 22 questions on transformational leadership, 10 questions about servant leadership, and 15 questions on job resources. All 56 questions are in 5-point Likert scales, ranging from strongly disagree to strongly agree.

3.3   Methods of the Study

The approach taken for this research study was a quantitative research study using a cross- sectional design that involved collecting data on the sample population at a single point in time. The data was collected through the use of four instruments that measured the leadership style of the department chair, job resources and personal resources of the organizations, and the employee engagement. The first instrument, leadership styles, was designed to measure the full range of leadership style model, which included transformational, transactional, laissez-faire leadership and servant leadership. The participants in the study were requested to rate their perception on their department chair's leadership style using this instruments. The second instrument was designed to measure an individual's level of employee engagement as dedication, vigor, and absorption. The participants in the study were requested to rate their level of employee engagement. The personal resources behavior of participant was measured by using the third instruments which contains optimistic and resilience measures; Fourth instrument was used to measure the job resources of their institutions.

The targeted population was faculties of four universities in southern district of Yangon region. Because, these four universities represent the compositions of HEIs of

Myanmar: art and science university, technological university, maritime university, and cooperative university. Census survey was employed for current research. But, Rector of Technological University (Than Lyin) was not allowed to collect qualitative type survey data in her university. Thus, sampling frame was modified and Technological University (Mhaw Bi) was added. These two universities are the same structure and similar location except Technological University (Mhaw Bi) located in northern district of Yangon. There are total 54 departments and 1080 teaching and administrated staffs in targeted four universities. Questionnaires were delivered to every department of targeted universities and collected after one week. 943 questionnaires were returned and 48 questionnaires were dropped for incomplete filling and some errors

Table(1) The Constructs which used in current research

Scale	Origin
Employee Engagement	Adapted from Schaufeli and Bakker (2003)
Transformational leadership	Adapted from Bass and Avolio (1994)
Transactional leadership	Adapted from Bass and Avolio (1994)
Laissez-faire	Adapted from Bass and Avolio (1994)
Servant leadership	Adapted from Barbuto & Wheelers (2006)
Personal resources: Optimism	Adapted Van Veldhoven et al., 2002. Schaufeli and Bakker (2003)
Personal Job resources :Self-Efficacy	Adapted Van Veldhoven et al., 2002. Schaufeli and Bakker (2003)
Job resources Social Support	Adapted Karasek (1985)
Job resources Training and development	Adapted Babakus et al (2009).

Source: Current Research

4. Analysis and Findings

4.1 PLS model in this paper

As previously mentioned, inferential analysis is used for theory testing, as it is a way of hypotheses testing (Bhattacherjee 2012). There are a number of different numerical statistical procedures for this purpose, and most of them are supported by software applications. We chose Partial least squares analysis as our data analysis and hypotheses testing procedure.

The structural component of current PLS model consists of the relationships between the before-mentioned seven constructs: employee engagement, job resources, personal resources, transformational leadership, servant leadership, transactional leadership, and laissez faire. The assumed relationships between those constructs can be seen from the theoretical model. For Measurement component, it consists of the relationships between the constructs and their indicators, i. e. the items that are used to measure the constructs. Weights

are used as estimations of the case values for the constructs The initial version of the model created in SmartPLS is represented in Figure 3.1. Besides the constructs (colored blue), it displays all measurement items for the constructs (colored yellow). All the constructs are modeled as reflective.

4.2 Assessing of reflective measurement model

Following the validation guidelines of Straub et al. (2004) and Lewis et. Al (2005), the reflective measurement model should be tested at least internal consistency reliability, indicator reliability, convergent validity and discriminant validity in order to achieve the fitness of measurement model. Unidimensionality is aimed to drop the item that consists less contribution on these factors. Accurately, the procedure for removal items had two types which is multidimensionality and unidimensionality procedure. Both these procedure plays a same vital role to retain the item which are related on the factor though these procedure looks so different to carry out the research. Usually, researchers prefer value below than 0.50 should be drop from the measurement model (Afthanorhan. 2013). However, it depends on researchers to choose which one of the substantive meaningful regarding on their literature review. In this case, the author addressed 0.40 or above of factor laodings to retain in the measurement model.

Once the unidimensionality procedure has achieved, the traditional method which is internal consistency reliability, Cronbach alpha proposed by Nunnally (1978) has been used. As usual, value higher than 0.70 considered as the meausrement model is reliable. But there is an alternative method to replace the wekaness of cronbach alpha namely composite reliability. Composite reliability is proposed by Nunally and Bernstein (1994) and most of the researchers concurs to indicate this method is much relible rather than cronbach alpha, since this measure managed to overcome some of cronbach alpaha deficiency. According to Urbach et. al (2010), indicator reliability describe the extnet to which a variable or set of variables is consistent regarding what it extends to measure. However, in PLS-SEM does not emphasize the purpose of indicator reliability, instead, the significant of indicator can be tested using resampling tecnique such as bootstrapping (Efron 1979) or jacknifing (Miller 1974). There may be various reasons for these requirement not beong fulfilled since the item may ghave influenced by additional factors that can give the untrue estimation. Thus, PLS algorith initiated once more in order to obtain new results. Convergent validity involves the degree to which individual items reflecting a construct converge in comparison to items measuring different constructs (Urbach et. al, 2010). A common criterion applied to test the convergent validity construct is namely Average Variance Extracted (AVE) proposed by

Fornell & Larcker (1981). The formula of AVE is total factor loading power of two divide by number of items consisted. Fornell & Larker suggest the result higher than 0.50 indicate the construct is captured to be explained more than half of the variance of its indicators and thus, demonstrates sufficient convergent validity. In particular, any value in construct below than 0.50 is consists of measurement residual.

Finally, discriminant validity concerns the degree to which the measures of different constructs differ from one another. According to Zainudin (2013), the correlation between exogenous variables (independent) should be below 0.85 to prove the constructs differs contributions. For the first measures, cross laodings are obtained by correlating each latant variable component scores with all the other items (Chin, 1998). Accordingly, the AVE of each latent variable should be greater than the constructs highest square correlation with any other latent variable.

4.3   Confirmatory factor analysis

Confirmatory factor analysis is used to assess item loadings and cross loadings. Since cognitive absorption is treated as second order construct in the theoretical model, the special procedure had to be followed. Wilson and Henseler (2007) identified the two step approach for this purposes, and that procedure was used in Agarwal and Karahanna (2000). As the purpose of this paper is theory testing, the same procedure has been chosen. First, PLS analysis was performed without second-order constructs, and the latent variable scores from this step were used in the following calculations.. The results of the CFA can be seen in the table 1. CFA results showed that all of the items have high loadings on their respective constructs. After the Outer loading assessment, R square value and Adjusted R square value were discussed. According to table (3.6) and (3.7), all the R square value and adjusted R square value are in acceptable range

Table (2) R Square Value

	Original Sample (O)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	95% Confident Interval		P Values
				0.025	0.975	
AJR	0.285	0.026	10.847	0.231	0.334	0.000
APR	0.265	0.029	9.041	0.206	0.318	0.000
EE	0.395	0.027	14.659	0.332	0.439	0.000

Source: Current Research

4.4   Evaluation of indicator's collinearity

As we deal with reflective type of construct in this study, it was employed to examine inner VIF values for issues of collinearity According to Hair et al. (2017), the threshold value of VIF is less than 5.

Table（3）Multi-collinearity

	AJR	APR	EE
AJR		1.400	1.586
APR			1.378
EE			
L.LZF	1.431	1.432	1.443
L.SVT	2.618	2.718	2.738
L.TFL	3.631	3.697	3.751
L.TNL	2.473	2.490	2.499
O.Age			3.455
O.Services			3.533
O.YatDpt			1.712
OywithHd			1.479

Source: Current Research

The Table 3 shows the value of VIF of all the predictor constructs was less than 5, therefore, collinearity is not an issue between the constructs' formative indicators (Hair et al., 2014; Hair et al., 2011).

4.5   Convergent validity

Internal consistency

Internal consistency is the first step which needs to be checked (Henseler et al. 2009). To determine the internal consistency we will first check Cronbach's alpha value (Cronbach 1951). Cronbach's Alpha test is widely used to evaluate the consistency of questionnaire respondents (Mitchell and Jolley 2012), and it provides an estimate for reliability based on indicator correlations (Henseler et al. 2009). According to Mitchell and Jolley (2012), alpha coefficient values larger than 0.70 are considered for acceptable inrange. Cronbach's alpha reliability coefficient normally ranges between 0 and 1, but there is actually no lower limit according Gliem and Gliem (2003). The closer Cronbach's alpha coefficient is to 1.0 the greater the internal consistency of the items in the scale (Gliem and Gliem 2003).

Table (4) Internal consistency measures of current Research

	Item numbers	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
Job Resources(AJR)	6	0.814	0.816	0.868	0.526
Personal Resources(APR)	7	0.842	0.846	0.882	0.520
Employee Engagement (EE)	8	0.860	0.868	0.892	0.510
Laissez-faire(L.LZF)	4	0.768	0.801	0.852	0.593
Servant Leadership(L.SVT)	10	0.915	0.916	0.929	0.568
Transformational Leadership(L.TFL)	8	0.857	0.887	0.891	0.517
Transactional leadership(L.TNL)	3	0.796	0.802	0.880	0.710

Source: Survey Data

In Table 4 the Cronbach's Alpha result for each construct is described. Again, the values are high, showing that the constructs within the model are well explained by the items in the questionnaire. Henseler et al. (2009) state how Cronbach's Alpha can underestimate internal consistency reliability of latent variables in PLS (Partial least squares) path models, which is why a measure such as Composite reliability could be more appropriate. Since we are using PLS analysis we also used Composite reliability measure to check internal consistency, and the results can be seen in Table 4. A value above 0.8 or 0.9 is considered as satisfactory, while a value under 0.6. shows a lack of reliability (Henseler et al. 2009). For the assessment of validity, two validity subtypes are usually examined: the convergent validity and the discriminant validity (Henseler et al. 2009). Convergent validity shows that a set of indicators represents the same underlying construct (Henseler et al. 2009).

Average Variance Extracted
Table (5) Average Variance Extracted

	Original Sample (O)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	95% Confident Interval		P Values
				0.025	0.975	
AJR	0.526	0.016	33.646	0.496	0.557	0.000
APR	0.520	0.015	33.948	0.489	0.550	0.000
EE	0.510	0.015	33.341	0.479	0.540	0.000
L.LZF	0.593	0.015	39.489	0.565	0.624	0.000
L.SVT	0.568	0.016	36.493	0.538	0.598	0.000
L.TFL	0.517	0.014	36.892	0.489	0.544	0.000
L.TNL	0.710	0.016	44.404	0.677	0.739	0.000

Source : Current Research

In order to assess this validity subtype we used Average Variance Extracted (AVE), as suggested by Fornell and Larcker (1981), where an AVE value of at least 0.5 indicates

sufficient convergent validity (Götz, Liehr-Gobbers and Krafft 2010). The values for Average Variance Extracted (AVE) can be seen in Table 5.

All of the values are greater than the suggested value of 0.5, showing that each item has sufficient convergent validity. AVE stands for average variance extracted and it is a measure of convergent validity together with composite reliability (CR) value. In order to provide convergent validity, AVE should be 0.5 or more and CR 0.7 or more. Furthermore, CR should be higher than AVE.

Table (6) Composite Reliability

	Original Sample (O)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	95% Confident Interval		P Values
				0.025	0.975	
AJR	0.868	0.007	118.329	0.853	0.881	0.000
APR	0.882	0.006	137.111	0.869	0.894	0.000
EE	0.892	0.006	148.001	0.879	0.903	0.000
L.LZF	0.852	0.008	104.131	0.837	0.868	0.000
L.SVT	0.929	0.004	220.776	0.920	0.937	0.000
L.TFL	0.891	0.006	152.845	0.880	0.902	0.000
L.TNL	0.880	0.008	106.802	0.863	0.895	0.000

Source : Current Research

4.6   Discriminant validity

For discriminant validity, as the other validity subtype, Agarwal and Karahanna (2000) used Chin and Newsted (1999) recommendations in assessing discriminant validity. The first step is to prove that indicators load more strongly on their corresponding construct than on other constructs and the second step involves comparing AVE value to inter-construct correlations, where square root of AVE should be larger than inter-construct correlations (Chin and Newsted 1999). The second step means that "the average variance shared between the construct and its indicators should be larger than the variance shared between the construct and other constructs" (Agarwal and Karahanna 2000, p. 679).

4.7   Heterotrait-monotrait ratio (HTMT)

Henseler et al. (2015) have suggested the assessment of the correlations' heterotrait-monotrait ratio (HTMT) to examine the discriminant validity. This recent approach shows the estimation of the true correlation between two latent variables. A threshold value of 0.90 has been suggested for HTMT (Henseler et al., 2015).

Table (7) Heterotrait-monotrait ratio (HTMT)

	AJR	APR	EE	L.LZF	L.SVT	L.TFL	L.TNL	O.Age	O.Services	O.YatDpt	OYwithHd
AJR	1										
APR	0.575	1									
EE	0.488	0.617	1								
L.LZF	0.316	0.216	0.150	1							
L.SVT	0.582	0.431	0.399	0.468	1						
L.TFL	0.578	0.461	0.418	0.635	0.857	1					
L.TNL	0.547	0.378	0.498	0.605	0.779	0.894	1				
O.Age	0.104	0.107	0.192	0.038	0.073	0.078	0.032	1			
O.Services	0.080	0.070	0.174	0.032	0.048	0.043	0.020	0.839	1		
O.YatDpt	0.043	0.066	0.172	0.016	0.044	0.037	0.042	0.436	0.459	1	
OYwithHd	0.035	0.065	0.067	0.032	0.059	0.046	0.045	0.277	0.302	0.558	1

Source : Current Research

4.8   Goodness-of –fit index

Tenenhaus et al. (2005) suggested a PLS (GoF) in order to validate the PLS model that is used as a fit measure in CB-SEM but is not able to separate the valid models from invalid models. According to Hair et al. (2017), Henseler et al. (2014) assessed the efficiency of standardized root mean square residual's (SRMR), a model fit measure used in CB-SEM but was not previously applied for PLS-SEM.

Table (8)   Model Fit

	Saturated Model	Estimated Model
SRMR	0.063	0.063
Chi-Square	6168.457	6178.074
NFI	0.760	0.760
rms Theta	0.108	

Source :Current Research

The SRMR refers to the root mean square discrepancy between the observed and model-implied correlations (Hair et al. (2017). Moreover, the SRMR shows an absolute fit measure where a value of zero indicates a perfect fit. Hu & Bentler (1998) suggested that a value of less than 0.08 represents a good fit while applying SRMR. A value of 0.063 was found for SRMR for PLS model that indicates a good fit.

4.9   Descriptive statistics

Table 9 shows the frequency of male and female respondents. Out of the total respondents (N=895), 118 respondents (13%) are male and 87 respondents (63.6%) are female.

		Frequency	Percent
Gender	Male	118	13%
	Female	777	87%
Age	21-30	146	16%
	31-40	313	35%
	41-50	341	38%
	51-60	95	11%
Education Level	Diploma or Bachelor	221	24.7%
	Postgraduate Diploma	29	3.2%
	Master	454	50.7%
	Ph.D	191	21.3%
Rank	Professor and same rank	10	1.1%
	Associate Professor, lecture, and same rank.	383	42.8%
	Assistant Lecture and same rank.	244	27.3%
	Tutor and same rank.	168	18.8%
	Junior clerk and others	90	11.0%
Duration at current Department	1-5	487	54%
	6-10	171	19%
	11-15	96	11%
	16-20	108	12%
	21 and above	33	4%
Total Service in Years	5 and less	170	19%
	6-10	191	21%
	11-15	179	20%
	16-20	241	27%
	21 and above	114	13%
Experience	5 and less	705	78%

| with current Department Head	6-10	94	11%
	11 and above	96	11%
Areas of the work	Teaching	650	72.6%
	Administrative and others	245	27.4%

Source: current research

The distribution of different age group is described in table . 341 respondents (38%) are from 41-50 years old, follow by 313 respondents (35%) within the age group of 31-40 years old and 146 respondents (10.6%) are from the age group of 21-25 years. According to table majority of the respondents (n=454) (50.7%) are holding Master degree, 191 respondents (21.3%) are holding Doctorate degree, 221 respondents (24.7%) are holding Bachelor degree or Diploma, 29 respondent (3.2%)are holding Post-graduate diploma.

The present job title of respondents of the surveys. Majority of the respondents are associates professors and lecturers (n=383) (42.8%), follow by 244 assistant lectures (27.3%), 168 tutors and same rank (18.8%), 90 junior clerk and others (11%), 10 respondents (1.1%) with professor and same rank.There are 170 respondents (19..0%) who had worked for the higher education institutions within the length of less than 5 years, 191 respondents (21.0%) falls in the range of 6 to 10 years, 179 respondents (20.0%) work between 11 to 15 years, 241 respondents (27.0%) falls in the range of 16-20 years and 114 respondents (13%) had worked in the various institutions for 21 years and above.

The table explains the frequency number of working experiences of the respondents. There are 487 respondents (54.0%) who had worked for the current department within the length of less than 5 years, 171 respondents (19.0%) falls in the range of 6 to 10 years, 96 respondents (11.0%) work between 11 to 15 years, 108 respondents (12.0%) falls in the range of 16-20 years and 33 respondents (4%) had worked in the various institutions for 21 years and above.

The distribution of the different experiences duration with department head is described in table (3.21). 705 respondents (78%) are under 5 years and follow by 94 respondents (11%) within of 6-10 years group and 96 respondents (11%) are from the group of 11 years and above. Following table shows the working area of the respondents. Nearly 73% of the respondents are teaching staffs. More than 27 percent are from the field of administrative and others.

Figure (2) Inferential statistics
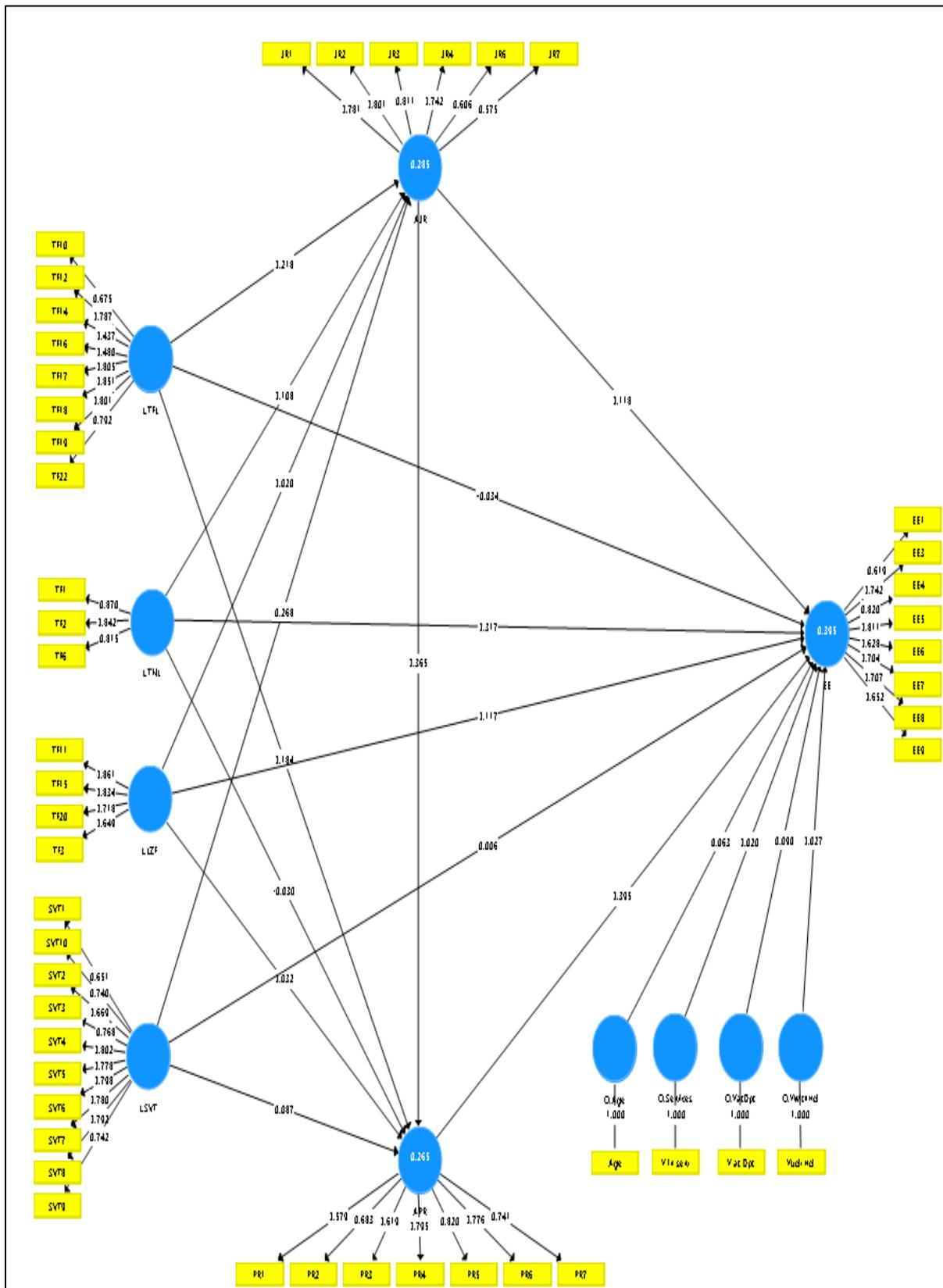
Source: Current research

Table (10) Path Coefficient

	Original Sample (O)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	95% Confident Interval		P Values	Decisions
				0.025	0.975		
AJR -> APR	0.365	0.038	9.715	0.295	0.441	0.000	Supported
AJR -> EE	0.118	0.040	2.935	0.042	0.196	0.003	Supported
APR -> EE	0.395	0.039	10.224	0.317	0.469	0.000	Supported
L.LZF -> AJR	0.020	0.032	0.635	-0.043	0.081	0.525	Rejected
L.LZF -> APR	0.032	0.035	0.932	-0.036	0.099	0.351	Rejected
L.LZF -> EE	0.117	0.033	3.480	0.051	0.183	0.001	Supported
L.SVT -> AJR	0.268	0.056	4.775	0.156	0.376	0.000	Supported
L.SVT -> APR	0.087	0.057	1.536	-0.027	0.195	0.125	Rejected
L.SVT -> EE	0.006	0.047	0.125	-0.088	0.097	0.901	Rejected
L.TFL -> AJR	0.218	0.059	3.718	0.101	0.331	0.000	Supported
L.TFL -> APR	0.184	0.061	3.014	0.065	0.305	0.003	Supported
L.TFL -> EE	-0.034	0.053	0.647	-0.139	0.068	0.517	Rejected
L.TNL -> AJR	0.108	0.051	2.139	0.006	0.206	0.032	Supported
L.TNL -> APR	-0.030	0.054	0.550	-0.136	0.075	0.582	Rejected
L.TNL -> EE	0.317	0.044	7.194	0.228	0.403	0.000	Supported
O.Age -> EE	0.063	0.049	1.286	-0.034	0.160	0.199	Rejected
O.Services -> EE	0.020	0.047	0.435	-0.068	0.116	0.664	Rejected
O.YatDpt -> EE	0.090	0.030	2.974	0.029	0.146	0.003	Supported
OYwithHd -> EE	0.027	0.028	0.958	-0.027	0.082	0.338	Rejected

Source :Current Research

In the table above, the "T Statistics" column contains the same value of t as appeared in corresponding diagram above. The "P Values" column shows the corresponding significance (probability) levels for the path for the given row (e.g., the first row is the path from Incentives to Motivation). Confidence intervals appear in a separate table immediately below. Coefficients of some 2.5% of cases lie below the lower confidence limit and another 2.5% lie above the upper limit, making these the 95% confidence limits.

The path multiplication rule may be used to estimate direct and indirect effects when, as in the model depicted above, one variable (Servant Leadership) has a direct effect on another (Personal resources) as well as in indirect effect (from Personal resources to Employee Engagement). The direct effect is the standardized structural coefficient, also known as the inner model loading of Servant leadership on Personal Resources. The indirect effect is the product of the path coefficient for TSVT-> A.PR times the path coefficient for TSVT -> A.PR

Table (11) Indirect Effects

	Original Sample (O)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	95% Confident Interval		P Values	Decisions
				0.025	0.975		
AJR -> EE	0.144	0.021	6.760	0.103	0.186	0.000	Supported
L.LZF -> APR	0.007	0.012	0.627	-0.015	0.031	0.531	Rejected
L.LZF -> EE	0.018	0.016	1.133	-0.013	0.050	0.257	Rejected
L.SVT -> APR	0.098	0.024	4.007	0.052	0.146	0.000	Supported
L.SVT -> EE	0.105	0.025	4.211	0.058	0.156	0.000	Supported
L.TFL -> APR	0.079	0.023	3.515	0.036	0.125	0.000	Supported
L.TFL -> EE	0.130	0.028	4.668	0.075	0.183	0.000	Supported
L.TNL -> APR	0.040	0.018	2.137	0.003	0.077	0.033	Supported
L.TNL -> EE	0.017	0.023	0.718	-0.029	0.062	0.473	Rejected

Source: Current Research

According to Table (3.15), partitioning the effects shows that AJR has the largest indirect effect on Employee engagement followed by L.TFL and L.SVT. L.TNL has the smallest indirect effects on A.PR to compare with L.TFL and L.SVT. LZF has no indirect effects on EE and APR. L.TNL -> EE has also no direct effects on EE.

Table (12) Specific Indirect Effects

	Original Sample (O)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	95% Confident Interval		P Values	Decisions
				0.025	0.975		
L.LZF -> AJR -> APR	0.007	0.012	0.627	-0.015	0.031	0.531	Rejected
L.SVT -> AJR -> APR	0.098	0.024	4.007	0.052	0.146	0.000	Supported
L.TFL -> AJR -> APR	0.079	0.023	3.515	0.036	0.125	0.000	Supported
L.TNL -> AJR -> APR	0.040	0.018	2.137	0.003	0.077	0.033	Supported
L.LZF -> AJR -> EE	0.002	0.004	0.579	-0.004	0.013	0.563	Rejected
L.SVT -> AJR -> EE	0.032	0.013	2.352	0.010	0.063	0.019	Supported
L.TFL -> AJR -> EE	0.026	0.011	2.247	0.008	0.054	0.025	Supported
L.TNL -> AJR -> EE	0.013	0.007	1.735	0.002	0.031	0.083	Rejected
L.LZF -> AJR -> APR -> EE	0.003	0.005	0.625	-0.006	0.012	0.532	Rejected
L.SVT -> AJR -> APR -> EE	0.039	0.010	3.762	0.020	0.060	0.000	Supported
L.TFL -> AJR -> APR -> EE	0.031	0.010	3.253	0.013	0.051	0.001	Supported
L.TNL -> AJR -> APR -> EE	0.016	0.008	2.066	0.002	0.032	0.039	Supported
L.LZF -> APR -> EE	0.013	0.014	0.917	-0.014	0.041	0.359	Rejected
L.SVT -> APR -> EE	0.034	0.023	1.513	-0.009	0.081	0.130	Rejected
L.TFL -> APR -> EE	0.073	0.026	2.830	0.025	0.127	0.005	Supported
L.TNL -> APR -> EE	-0.012	0.021	0.546	-0.054	0.030	0.585	Rejected

Source: Current Research

According to Table, partitioning the specific effects shows that L.SVT has the more indirect effect on Employee engagement through AJR. Although L.TNL has less indirect effects on A.PR to compare with L.SVT, LZF has no indirect effects on EE through A.JR. Except L.LZF, all leadership styles have specific indirect effects through AJR and APR. For mediating roles of APR between leadership styles and EE, only TFL has effects on EE.

Table (13) Total Effects

	Original Sample (O)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	95% Confident Interval		P Values	Decisions
				0.025	0.975		
AJR -> APR	0.365	0.038	9.715	0.288	0.436	0.000	Supported
AJR -> EE	0.262	0.040	6.615	0.183	0.337	0.000	Supported
APR -> EE	0.395	0.039	10.224	0.312	0.466	0.000	Supported
L.LZF -> AJR	0.020	0.032	0.635	-0.040	0.083	0.525	Rejected
L.LZF -> APR	0.040	0.036	1.098	-0.031	0.112	0.272	Rejected
L.LZF -> EE	0.135	0.037	3.680	0.063	0.207	0.000	Supported
L.SVT -> AJR	0.268	0.056	4.775	0.152	0.373	0.000	Supported
L.SVT -> APR	0.185	0.053	3.494	0.084	0.288	0.000	Supported
L.SVT -> EE	0.111	0.055	2.029	0.001	0.212	0.043	Supported
L.TFL -> AJR	0.218	0.059	3.718	0.098	0.328	0.000	Supported
L.TFL -> APR	0.264	0.060	4.421	0.141	0.374	0.000	Supported
L.TFL -> EE	0.095	0.057	1.673	-0.017	0.202	0.094	Rejected
L.TNL -> AJR	0.108	0.051	2.139	0.008	0.207	0.032	Supported
L.TNL -> APR	0.010	0.054	0.184	-0.096	0.113	0.854	Rejected
L.TNL -> EE	0.334	0.050	6.619	0.234	0.431	0.000	Supported
O.Age -> EE	0.063	0.049	1.286	-0.035	0.158	0.199	Rejected
O.Services -> EE	0.020	0.047	0.435	-0.070	0.111	0.664	Rejected
O.YatDpt -> EE	0.090	0.030	2.974	0.030	0.147	0.003	Supported
OYwithHd -> EE	0.027	0.028	0.958	-0.029	0.080	0.338	Rejected

Source: Current Research

Above Table shows the absolute effects of independent variables on employee engagement and mediating variables. Partitioning the effects shows that A.JR has a smaller total absolute effect on EE than does A.PR (0.395 vs. 0.262), with all variables being positive. However, the effect of job resources has strong effects on personal resources. Among the leadership styles, all variables have effects on employee engagement except transformational leadership styles. Transactional leadership has the strongest effects with path coefficient (0.334). In addition, Laissez-faire has not much difference total absolute effect on employee engagement than does servant leadership (0.135 vs 0.111.), with all variables being positive.

Although laissez-faire has not direct effect on job resources, other all variables have some effects on job resources. Servant leadership has the strongest effects on job resources followed by transformational leadership. Total absolute effects of servant leadership on personal resources are the highest with (0.185) to compare with other leadership styles. But laissez-faire and transactional leadership have not significant effects on personal resources. Following figure (3.4) show the high light paths of the variables using relative value.

Figure(3) High Light Paths (Relative Value)
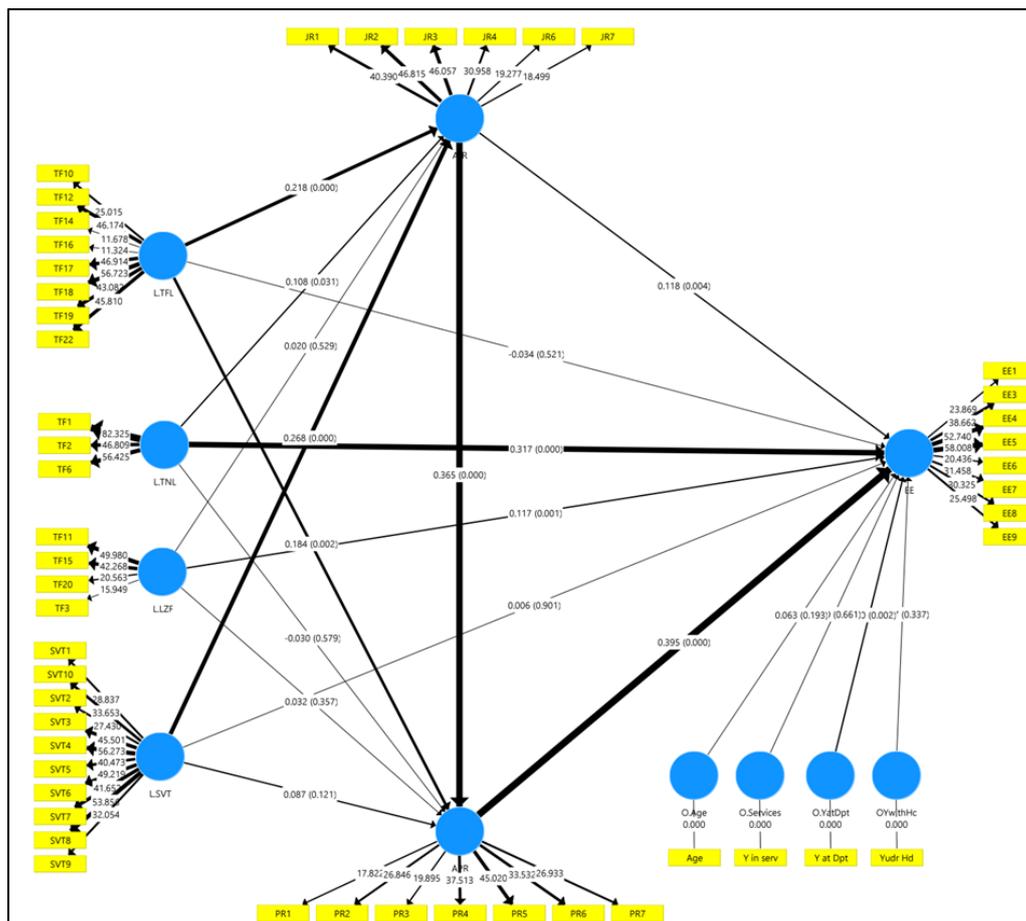
Source: Current Research

In this chapter, the method used to explore the relationship of the leadership styles of department head and employee engagement with mediating effects of job resources and personal resources were described. Four instrumentations were used to collect related data to answer the four research questions. The survey was delivered to the participants responded by researcher himself. The statistical methods of Pearson's correlation coefficients and structure equation modeling were utilized to analyze data. The SPSS and SMART PLS3 were used for statistical computations. An alpha level of .05 was the criterion level of significance for this

study, and .01 and .001 levels were reported as well. All of the hypotheses testing had performed in this chapter. The results obtained from this chapter will be further discussed in the final chapter followed by the implications and limitations of the study with a few recommendations that are relevant to this study.

5.   Discussion and Conclusion

According to path coefficients results of current results, job resources and personal resources had significantly impacted on employee engagement. Among leadership styles, only laissez-faire and transactional leadership styles had significant effects on employee engagement. Job resources were impacted by all leadership styles except laissez-faire. Job resources and transformational leadership had some significant effects on personal resources of the employees.

Job resources, servant leadership, and transformational leadership made some indirect effects on employee engagement. Personal resources had been impacted by indirect effects of leadership styles except laissez faire. Among leadership styles, transactional leadership styles bring the greatest effects on employee engagement to compare with other leadership styles. Job resources made the biggest indirect effects on employee engagement. The relationship between some leadership styles and employee engagement, job resources and personal resources possessed some mediating roles.

Current results show that there are some relationships between employee engagement and leadership styles. The result also consistent with previous research as employee engagement was driven by leadership styles. However, transactional leadership style had more influencing power that contrast with other culture. Although transformational leadership style had no direct impact on employee engagement, it was the one of the main key drivers for development of personal resources and job resources, which are main antecedents of employee engagement.

According to table (9), both job resources and personal resources had direct effects on employee engagement. Even though personal resources had greater effects on employee engagement, personal resources were influenced by job resources. Both of job resources and personal resources have also mediating roles. They bring some effects between the

relationship of leadership styles and employee engagement To foster the employee engagement in HEIs, leadership training programs should be established Based on above discussions, administrators in respective universities should focus not only on leadership dimensions but also development of job resources dimensions. In addition, employee engagement programs should be formulated.

This study is important because it can help university to become more successful and effective while seeking to raise the quality of employees' engagement. The management field will get benefit from knowing what predictable outcomes are possible from using a specific leadership styles which developed the employee engagement. Because the faculty, the organization, and the field of student engagement may be affected positively by this study, its significance is likely to be comprehensive.

There are limitations to the generalization of findings noted in this study. Current study used adopted instruments and it should be changed with Myanmar scales. To get more comprehensive results, random sampling method should be used rather than purposive sampling. In dimension of leadership styles, only servant leadership, transactional leadership, transformational leadership, and laissez-faire were investigated. Other approaches of leadership dimension should be added.

The findings of this study clearly show that there are relationship between employee engagements and some leadership styles. However, there are the difference degrees of impacts on employee engagement with different leadership styles. Based on current research, teaching staffs and administrative staffs in co-operative university are more engage when their immediate supervisors or head of the department are practicing the transactional leadership style. In addition, this research also explains the mediating roles of job resources and personal resources.

The finding of this research also support that employee engagement is a meaningful concept and requires serious attention from the administrations of the university. Universities need to pay attention on leadership styles of chair which encourage employee engagement. In practical terms, this study suggests that top management of the university should be trying to understand the employee engagement behavior of their faculty and staff members to raise the performance of the university.

This study focuses to examine the relationship between four leadership styles and work engagement of teaching and administrative staffs of four universities in suburb of Yangon. By using census survey, altogether 1080 teaching and administrative staffs were requested to fill predetermined questionnaires. There are limitations to the generalization of findings noted in this study. Due to time and cost constraint, the data for this study will collect from some selected universities of Myanmar and this sample may not be representative of other organizations. The questionnaire of the study will be directly adopted from various western models with some adaptation. Therefore, it is needed to modify the questionnaire which can measure on exact dimension of different leadership styles, job resources, employees' personal resources and employee engagement in Myanmar. Thus, future studies should be to consider the various determinants in order to comprehensively understand the dimensions of work engagement and facets of servant-leadership, transformational leadership, transitional leadership, laissez-faire styles in Myanmar. In addition, this research is conceptualized based on JD-R frame work. However, the research is only emphasis on Job resources and personal resources. Job demand is more focused on burn out, while job resources are more focused on work engagement. Thus, job demand factor is not considered in current research.

Although some Asian scholars have examined this area of studies, the relationship between leadership styles and work engagement in more culture, is called for. Moreover, in contrast to the numerous studies exploring the leadership, relatively few studies have investigated the relationship between leadership styles and work engagement in Myanmar context. In addition, there is no investigation about this context in her higher education sector.

This research is carried out among the universities' faculties in Myanmar as the importance of choosing this area lies in the fact that, for improving the quality of education sector that plays a vital role to develop the leadership in Myanmar. Thus, the main aim of this research is to analyze the relationship of employee engagement amongst the universities faculties of Myanmar. Leadership's tenants of caring and ethical behavior and community building are an essential component for building work engagement in higher education sector. Many academic administrators have been seen as servant leaders and transformational leaders. They have to manage the supporting work for academic instructors. Thus, those instructors can devote more teaching and scholar work. Moreover, faculties in Myanmar have

two roles; as an academician and as a public servant. And also, the education sector is the area where the strong work engagement can be seen. Thus, investigating the multidimensional leadership styles in selected universities will clearly explain the links between leadership styles and employee engagement in Myanmar.

The researcher has proposed that research into the correlation between leadership style and employee engagement for staffs in higher education context, would add to the field of organizational leadership. Organizations that rely on knowledge workers for services need to strengthen the engagement of their employees, in order to be more successful. Studies on employee engagement and burnout have been conducted on service-oriented professions such as nursing, dentistry, and medicine. The researcher found little scholarly literature evidence regarding employee engagement and the higher education sector. A study investigating the influence of leadership style on employee engagement in educational institutions would expand the range of investigation into these topics of organizational leadership. Moreover, this research point out that some leadership styles will foster the job resources, which will boost the personal resources and employee engagement of staff in HEIs.

This study is important because it can help leaders and organizations to become more successful and effective while seeking to raise the quality of employees' engagement. The leadership field will benefit from knowing what predictable outcomes are possible from using a specific leadership style. As a result, actions may become more strategic and may assist in goal achievement. Because the leader, the organization, the employee, and the field of leadership may be affected positively by this study, its significance is likely to be comprehensive.

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Assessing the Effect of Financial Literacy on Saving Behaviour of Staff: A Case of Co-operative University, Thanlyin

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Abstract

Financial literacy of individuals is important ingredients for economic development of the country through their informed financial decisions like savings which can trigger the investments for the corporations. The main objective of the study was to assess the effect of financial literacy on saving behaviour among staff in Thanlyin Co-operative University (TCU). The study found that the TCU staff have high level of financial literacy and positive saving behaviour according to the composite mean value. On the aspect of correlation between the variables, the study found that there is a significant positive relationship between financial literacy and individual saving behaviour among TCU staff. The estimated coefficient indicates that financial literacy has a positive impact on increasing the saving behaviour of the staff while socio-demographic factors like gender, age, marital status, and monthly income cannot predict the saving behaviour of the TCU staff. Accordingly, the university policy makers should consider the interventions to enhance the financial literacy of the staff to make the contribution to the individual saving level and the whole economy of the country. Also, the finding addresses the financial literacy training programmes on individual saving for employees in the universities.

Key words: Financial Literacy, Saving behaviour, Socio-demographic variables

I.   Introductionship

Jacinta Odek (2013) firmly stated that financial literacy continued to gain greater prominence in the field of education and beyond in this period. Accordingly, many researchers became interest in the field of financial literacy and its impact on personal financial management practices. Nowadays environmental changes in technology, legal and evolutions in financial markets have become ever more necessary for individuals, households, and corporations to be more knowledgeable and competent in financial management practices. Among them, saving is one of the common financial management practices for individuals, households and corporations. In today, most of the financial institutions provide various forms of saving for consumers. Saving can have positive impact on the entire economy since it can encourage the investments that trigger the economic growth and development. Thus, it can be said that saving plays an important role in the economic growth and development around the world. Harrod (1939) and Domar (1946) stated that the speed of economic growth is determined by the ability to save because higher savings rate will drive up the rate of investment and consequently

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stimulate economic growth. Thus, financial literacy of individuals is important ingredients for economic development of the country through their informed financial decisions like savings which can trigger the investments for the corporations. Accordingly, implementing financial literacy programmes can enhance individuals' financial literacy which would increase their financial circumstances and facilitate future financial plan. Higher level of financial literacy can have a positive impact on individuals' saving behaviour, because increased financial literacy means that individuals with better understanding of their financial circumstances would be able to plan their finances better and informed financial decisions.

II.   Research Objectives

The main objective of the study was to assess the effect of financial literacy on saving behaviour among Thanlyin Co-operative University (TCU) staff. Accordingly, the following subsidiary objectives are developed for the current study;

(1) To determine the level of financial literacy among the Thanlyin Co-operative University Staff.

(2) To describe the saving behaviour among the Thanlyin Co-operative University Staff.

(3) To determine the relationship between financial literacy and saving behaviour among the Thanlyin Co-operative University Staff.

III.   Research Methodology

The study used descriptive and explanatory research design to determine the level of financial literacy among the TCU Staff and how it influences their saving behaviour. The study used survey method to collect primary data from respondents by administering self-completion questionnaire. The questionnaire is made up of both open-ended and closed-ended questions. The population of the study is the staff of TCU. According to Administrative Department of TCU, it has 257 employees as at July 2017. By using simple random sampling technique, necessary data was collected from a sample of 128 permanent staff (50% of the population). In the study, financial literacy and saving behaviour is measured by five-point Likert scale (1=strongly disagree to 5= strongly agree). Then, the average score was calculated to determine statistically the staff's level of financial literacy and saving behaviour. In the study, financial literacy and socio-demographic variables are independent variables and saving behaviour is dependent variable. The study expected that financial literacy affects the staff's saving behaviour. The improvement in financial literacy enable the staff to make more informed decisions such as saving, expenditure allocation. For analyzing purpose, the study applied the

SPSS 23 and linear regression, Pearson Correlation, means, standard deviation, frequency distribution were calculated. For reliability purpose, Cronbach's alpha is used to check the reliability of the data. Then, the study developed the model which help establish the relationship between the independent variables (financial literacy and socio-demographic variables) and dependent variable (saving behaviour). The model was as follows:

$$SB_i = a + \beta_1 FL_i + \beta_2 Gen_i + \beta_3 Age_i + \beta_4 MS_i + \beta_5 MI_i + e$$

Where,

SB   =   Saving Behaviour

a   =   Constant

β   =   Coefficient

FL   =   Financial Literacy Level of the staff

Gen   =   Gender of the staff

Age   =   Age of the staff

MS   =   Marital status of the staff

MI   =   Monthly Income level of the staff

e   =   Error

IV. Literature Review

Financial literacy is important for individuals, households and corporations, financial systems and national economy, and monetary policy. Previous literature pointed out that financial literacy directs the individuals and households to make the budgeting right and savings in financial institutions. Brown et al. (2006) defined the financial literacy as the evolving state of competency that enable people to respond effectively to ever changing personal and economic circumstances. Garman & Forgue (2006) defined financial literacy as sufficient knowledge of personal finance facts and terms for successful personal financial management. Meanwhile, Anthes (2004) defined financial literacy as the ability to read, analyze, manage and communicate about the personal financial conditions that affect the material well-being. Remund (2010) defined financial literacy as a measure of the degree of which one understands key financial concepts and processes the ability and confidence to manage personal finance through appropriate, short-term decision-making and sound, long-range financial planning, while mindful of life events and changing economic conditions. Huston (2010) defined financial literacy as a skill that can help people to make financial decisions effectively. It also refers to a skill that can help people to make financial decision effectively. People who are financially literate should have basic understanding of the financial concepts such as interest rate, inflation rate, compound interest, and risk (Huston, 2010).

In a study of Jacinta Odek (2013), Beal & Delpchitra (2003) described that the skills acquired in financial literacy enables individuals to navigate the financial world, make informed decisions about their money and minimize their chances of being misled on financial matters.

Saving behaviour is the most common form of individual financial behaviour which can have a significant financial wellbeing. However, the word "saving" has different meaning and explanations in different situations. For some people saving means keeping money in financial institutions like commercial banks, credit societies, etc. For others, saving means buying equity like stock and debt instruments, buying real assets like gold, land etc. In the current study, saving means keeping money in financial institutions and at home. Browning & Lusardi (1996) and Warneryd (1999) defined the saving, in economic contexts, as the residual income after deducting current consumption over a certain period of time. This implies that saving takes place when money is left over. Conversely, saving in psychological context is referred to the process of not spending money for current period in order to be used in future (Warneryd, 1999). Savings benefit not only individuals and households but also the entire economy as it provides the base for investments and infrastructure development for every country. Saving behavior is the combination of perceptions of future needs, a saving decision and a saving action. The individual's saving behavior of the individual is influenced by their socio-demographic variables like age, gender, income etc., and financial literacy (Banks et al., 2009; Jappelli and Tullio, 2010).

Researchers showed that individuals with high level of financial literacy can manage their funds well, understand how financial institutions work, and possess a range of analytical skills. Delafrooz and Laily (2011) have conducted a study in Malaysia to examine the degree to which financial literacy influenced the saving behaviour. This research had been conducted via quantitative methodology by distributing self-administered questionnaires to 2246 employees in the public and private sectors. The finding revealed that saving behavior is significantly influenced by the financial literacy whereby individuals with low level of financial literacy are not intended to save and eventually encounter financial problems in future. Hilgert, Hogarth and Beverly (2003) explored the connection between knowledge and behavior of US Household by using the secondary data adopted from the University of Michigan's monthly Surveys of Consumers conducted in 2001. The researchers found that households obtained higher financial scores (answered the quiz correctly) tend to have higher scores on saving index (achieved more saving practices). Thus, the researchers concluded that increase in financial knowledge can lead to better saving behavior.

V.   Conceptual Framework of the Study

The primary purpose of the research is to assess the staff's level of financial literacy and saving behaviour. According to literature and previous research studies, there are many factors affecting the individual's saving behaviour. However, in this research it is assumed that the staff's saving behaviour is mainly affected by their level of financial literacy and socio-demographic variables like gender, age, marital status, and monthly income. Figure 1 shows the conceptual framework for the current study.

Figure 1: Conceptual Framework of the Study
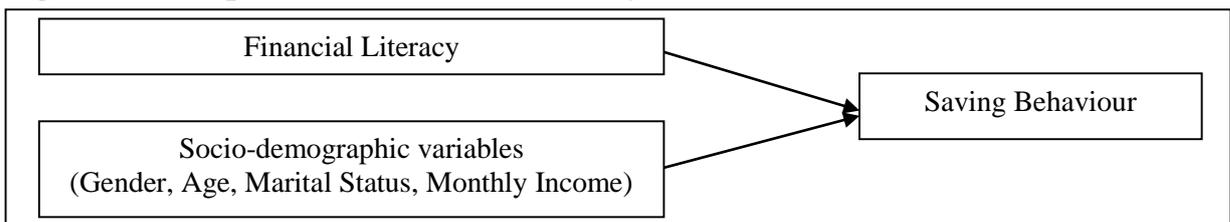
Source: Adapted from literature

VI.   Empirical Analysis

In this section, the staff's socio-demographic profile, financial literacy and saving behaviour are analyzed and presented. The data was analyzed by using Statistical Package for Social Science (SPSS Version 23).

(1)   Data Reliability

The research instrument was tested for reliability using the Cronbach's alpha coefficient. Regarding financial literacy measurement items, the reliability test shows the Cronbach's Alpha value of 0.760 (Good reliability) which strengthen the reliability for the instrument for the study. In addition, the reliability test showed Cronbach's Alpha value of 0.891 (Very good reliability) for saving behaviour. In summary the Cronbach's Alpha for both dimensions are exceeding the minimum alpha value of 0.60, thus the construct measures are deemed reliable and acceptable in the current study. Table 1 shows the summary of reliability statistics.

Table 1: Summary of Reliability Statistics

Construct	Cronbach's Alpha	Number of Items	Remark
Financial Literacy	0.760	7	Good
Saving Behaviour	0.891	7	Very good

Source: Survey Data (2017)

(2)   Socio-demographic Profile of the respondents

Firstly, socio-demographic profile of the staff covered in the study is presented in this section. It has been constructed based on students' gender, age, marital status and monthly income. Table 2 presents the socio-demographic profile of the respondents.

Table 2: Socio-demographic Profile of the Respondents

Particular	Freq.	%	Particular	Freq.	%
Gender			**Marital Status**		
Male	21	16%	Single	69	54%
Female	107	84%	Married	59	46%
Total	128	100%	Total	128	100%
Age			**Monthly Income**		
Below 30	61	47%	Below MMK 300,000	107	84%
31-40	33	26%	MMK 300,000- 400,000	19	14%
41-50	23	18%	Above MMK 400,000	2	2%
Above 50	11	9%			
Total	128	100%	**Total**	128	100

Source: Survey Data (2017)

As shown in Table 2, totally, 128 respondents participated in the current study. According to gender difference, the result showed that majority of the respondents were female which was represented by 84% of the total respondents while 16% of the respondents are male staff. This showed that more female than male staff participated in the current study. According to age distribution, the results indicated that respondents below 30 years were 47%, between 31 and 40 years were 26%, between 41 and 50 years were 18% while only 9% of the respondents were above 50 years. This showed that majority of respondents were 30 years old and below. According to marital status, 54% of the respondents are single and 46% of the respondents are married. According to monthly income variables, 84% of the respondents have monthly income up to MMK 300,000 and 16% of the respondents have monthly income above MMK 300,000. This showed that majority of respondents have monthly income less than MMK 300,000.

(3)   Staff's Financial Literacy

Financial literacy has a significant impact on individual saving behaviour, as more knowledge on financial matters enable individuals to make more substantive financial plans and more informed decisions regarding allocations of their money and savings. Hence it is expected that the relationship between financial literacy and saving behaviour among the staff from Thanlyin Co-operative University is positive. In this study, the respondents' level of financial literacy is measured by using Five-point Likert scale on seven statements ranging from 1=

strongly disagree to 5= strongly agree. Then, the mean score is calculated and interpreted as the respondents have high level of financial literacy when the mean score is above the 21 in the study. The study implies that the higher the mean score, more the respondents have financial literacy. Table 3 shows the frequency distribution for financial literacy.

Table 3: Frequency distribution for Financial Literacy

No.	Items	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
FL1	I have better understanding of how to invest my money.	1 0.8%	4 3.1%	41 32%	71 55.5%	11 8.6%
FL2	I have better understanding of how to manage my credit.	- -	4 3.1%	32 25%	78 60.9%	14 10.9%
FL3	I have a very clear idea of my financial needs during retirement.	- -	2 1.6%	30 23.4%	68 53.1%	28 21.9%
FL4	I have the ability to maintain financial records for my income and expenditure.	- -	5 3.9%	43 33.6%	61 47.7%	19 14.8%
FL5	I have little or no difficulty in managing my money.	- -	12 9.4%	52 40.6%	54 42.2%	10 7.8%
FL6	I have better understanding of financial instruments.	7 5.5%	18 14.1%	59 46.1%	37 28.9%	7 5.5%
FL7	I have the ability to prepare my own weekly/monthly budget.	3 2.3%	4 3.1%	37 28.9%	72 56.3%	12 9.4%
	Composite mean	25.4688				

Source: Survey Data (2017)

According to Table 3, majority of respondents have agreement on each given statement except item 6. Thus, the study finds that 64% of the respondents have better understanding of how to invest their money, 71% of the respondents have better understanding of how to manage their credit, 75% of the respondents have a very clear idea of their financial needs during retirement, 50% of the students have little or no difficulty in managing their money, 66% of the respondents have the ability to prepare their own weekly budget. It was also found that most of the respondents (66% of the respondents) have no understanding of financial instruments. However, the mean score 25.4688 shows that majority of staff from TCU have high level of financial literacy.

(4)   Individual Saving Behaviour

The study sought to know whether the respondents have positive saving behaviour. The respondents were asked to indicate the extent of their reactions on the following aspects of individual saving behaviour. Responses were rated on a 5-point Likert scale. Then, the mean score is calculated and interpreted as the respondents have positive saving behaviour when the

mean score is above the 21 in the study. This implies that the higher the mean score, more the respondents have more positive saving behaviour.

Table 4: Frequency distribution for Saving Behaviour

No.	Items	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
SI1	I put money aside on a regular basis for the future.	1 0.8%	6 4.7%	33 25.8%	61 47.7%	27 21.1%
SI2	In order to save, I often compare prices before I make a purchase.	- -	7 5.5%	33 25.8%	68 53.1%	20 15.6%
SI3	In order to save, I often consider whether the real necessity before I make a purchase.	1 0.8%	5 3.9%	28 21.9%	70 54.7%	24 18.8%
SI4	In order to save, I always follow a careful monthly budget.	- -	9 7%	37 28.9%	64 50%	18 14.1%
SI5	I always have money available in the event of emergency.	2 1.6%	7 5.5%	43 33.6%	61 47.7%	15 11.7%
SI6	In order to save, I plan to reduce my expenditure.	- -	9 7%	42 32.8%	65 50.8%	12 9.4%
SI7	I always save to achieve certain goals.	- -	5 3.9%	33 25.8%	64 50%	26 20.3%
	Composite mean value	26.3203				

Source: Survey Data (July, 2017)

Table 4 shows the frequency distribution for saving behaviour. According to Table 4, majority of respondents have agreement on each given statement. Thus, the study found that 69% of the respondents put money aside on a regular basis for the future, 69% of the respondents often compare prices before they make a purchase in order to save money, 74% of the respondents often consider whether the real necessity before they make a purchase, 64% of the respondents always follow a careful monthly budget, 59% of the respondents have always money available in the event of emergency, 60% of the respondents plan to reduce their expenditure in order to save money, 70% of the respondents save to achieve their certain goals. Overall, the mean score of 26.3203 shows that majority of respondents from TCU have positive saving behaviour. In this study, the respondents' saving place is also asked in the study. The analysis showed that 86% of the respondents saved their money in financial institutions like commercial bank, credit societies. However, 6% of the respondents are saving money only at home.

(5)   Correlation Analysis

To establish the relationship between the independent variables and the dependent variable, correlation analysis is used. The result is shown in Table 5. According to the results

shown in Table 5, financial literacy has a correlation coefficient of 0.516 which shows a moderate positive relationship between financial literacy and individual saving behaviour. The relationship is statistically significant at p=0.000. Thus, it was found that if the staff from TCU have more financial literacy, they may have more positive saving behaviour.

Table 5 Correlations among Variables

	Saving Behaviour	Financial Literacy Level	Gender	Age	Marital Status	Monthly Income
Saving Behaviour	1					
Financial Literacy Level	.516**	1				
Gender	.112	.042	1			
Age	-.032	.075	-.080	1		
Marital status	.044	-.049	-.141	.435**	1	
Monthly Income	.060	.267**	-.036	.444**	.188*	1

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

(6)   Regression Analysis

Linear regression was conducted to determine the relationship between saving behaviour (as dependent variable) and financial literacy and socio-demographic factors (as independent variables) in the study. In this study, R^2 for this model is 0.302 which indicates 30% of the variation in the saving behaviour can be explained by financial literacy (independent variable). Then, the F-value of 4.160 is significant at the 0.05 level. This indicated that the overall regression model with the independent variable (financial literacy) can well explain the variation of the dependent variable (Saving Behaviour).

Tables 6: Regression Analysis showing the effect of Financial Literacy on Saving Behaviour

Model	Unstandardized Coefficient		Standardized Coefficient	t	Sig
	B	**Std. Error**	**Beta**		
(Constant)	1.203	.384		3.132	.002
Financial Literacy Level	.682	.100	.543	6.839	.000
Gender	.163	.127	.098	1.276	.204
Age	-.059	.057	-.096	-1.042	.300
Marital Status	.171	.105	.138	1.623	.107
Monthly Income	-.050	.068	-.064	-.734	.464

Fit Indices

F = 10.256* , P = 0.000

R = 0.544

R^2 = 0.296

Adjusted R^2 = 0.267

Source: Survey Data (July, 2017)

The result of regression analysis showed that the independent variable, financial literacy can predict the respondents saving behaviour. This variable was significant at the 0.000 level. From the regression equation, if all factors are taking constant at zero, the individual saving behaviour will be 1.203. According to the results, financial literacy (β=0.682) has the greatest impact on saving behaviour. This showed that whenever increase in financial literacy will lead to increase in individual saving behaviour. The model for the current study can be stated:

SB = a + 0.682FL + 0.163Gen -0.059Age + 0.171MS – 0.050MI + e

VII.   Finding and Discussion of the Study

Individual saving is the one among the determinants of the economic development of the country. Therefore, factors encouraging the individual saving behaviour can contribute the economic development. Accordingly, most researchers explored the factors in various context and in different time setting. The current study examined whether the financial literacy can impact the individual saving behaviour among the public sector employees with focus on TCU Staff. The population of the study was 256 employees and the study used simple random sampling to select 128 employees. Regarding gender, female respondents were the dominant group than their male counterparts. On the age level, most of the respondents aged below 30 years. According to marital status, proportion of single respondents are relatively higher than married respondents. Regarding monthly income level of respondents, majority of respondents have income below MMK 300,000. The study also found that the TCU staff have high level of financial literacy according to the composite mean value of financial literacy items. In addition it was found that the TCU staff have a positive saving behaviour according to the composite mean value of saving behaviour items. Also, it was found that majority of the respondents have saving practices at the present time. On the aspect of correlation between the variables, the study found that there is statistically significant positive correlation between financial literacy and individual saving behaviour among TCU staff. However, there is no statistically significant correlation between saving behaviour and socio-economic factors like gender, age, monthly

income, and marital status. Then, the study analyzed the effect of financial literacy and socio-demographic factors on individual saving behaviour in a sample of Thanlyin Co-operative University staff with linear regression. The estimated coefficients indicated that financial literacy have greatest impact on increasing the positive saving behaviour of the staff while socio-demographic factors like gender, age, marital status, and monthly income cannot predict the saving behaviour of the TCU staff. Regarding the impact of financial literacy on saving behaviour, the result of the current study was consistent with theoretical expectations and previous empirical findings. In this regard, it can be concluded that financial literacy can contribute the economic growth through saving and development of financial sector. In addition, the study identified the financial literacy level of the staff. Thus, the staff can plan to increase their financial literacy level to make better financial planning for their future. Moreover, increasing the financial literacy and saving behaviour can contribute the individual's financial goals such as buying a house, financing their children's education, better retirement experience, and investment to increase wealth more and more. Accordingly, the university policy makers should consider the interventions to enhance the financial literacy of the staff to make the contribution to the individual saving level and the whole economy of the country. Also, they must suggest the government to devise the policies that address the financial literacy training programmes on individual saving for employees.

VIII. Conclusion

In examining the relationship between financial literacy and individual saving behaviour of TCU Staff, financial literacy is determined as the key variable in enhancing the individuals' saving behaviour. Putting into socio-economic variables, gender, age, marital status, and monthly income level have no significant relationship with saving behaviour. Thus, they conclude that higher financial literacy level leads to more positive saving behaviour. Increased saving behaviour and practices can contribute many benefits for the individual as well as the economy as a whole. Thus, this study is significant to the policy makers, employers who will find the policies and strategies that encourage the individual saving behaviour and practices. As for the employees, by knowing their actual level of financial literacy, they can make some measures, if necessary, to make better financial decisions for themselves and their families. For employers, financially literate staff are more productive since they can largely focus on work activities, not on their financial problem. Thus, financially literate staff are able to contribute to the development of the organization through higher productivity. Thus, the research recommended that the employers should provide the financial literacy training for their

employees. This study also will be useful for financial institutions like commercial banks, credit societies since they can offer various financial product in line with the level of financial literacy of their clients. Thus, understanding the financial literacy level of their clients, financial institutions are able to innovate the new financial products. Lastly, but not the least, the study contributed to the theoretical knowledge in personal finance. Thus, it would be useful for other researchers to make further researches regarding financial literacy and saving behaviour.

IX. Limitations of the study and suggestion for further studies

The current study focused on only one organization, namely Thanlyin Co-operative University. Therefore, the similar researches should also be done in other organizations and compare the results to ascertain whether there is consistency on effect of financial literacy on individual saving among respondents in various organizations. In addition, further studies should be done on private sector employees, students, and self-employed population in order to find out whether there is same effect of financial literacy on saving behaviour.

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An Analysis of the Relationship between Gold Price and US Dollar Exchange Rate in Myanmar

CHO CHO ZAW[1]

Abstract

The aim of this research was to study the relationship between foreign exchange rate and gold price of Myanmar. Accordingly, this study examines the trends of gold price and US dollar from April 2014 to March 2018 in Myanmar. Only secondary data were used in the study and there comprise of daily closing gold price and US dollar exchange rate. Descriptive statistics and correlation coefficient was used to analyze the relationship between gold price and US dollar exchange rate for study period. Granger causality model was used to explore whether gold price and US dollar exchange rate cause with each other. Negative relationship was found between gold price and US dollar exchange rate. It also was found that causality have between gold price and US dollar exchange rate mutually. It is found that US dollar is gradually appreciate during the study period. Appreciation of US dollar may be able to provided export-led-growth policy for development in Myanmar. Central Bank should always monitor not only situation of foreign exchange market but also authorized dealers in the market. Financial planners should always monitor economic and political situation which can affect on US dollar in Myanmar to assess investment opportunities.

Key words: Gold price, US dollar exchange rate, Negative relationship

I.   Introduction

In worldwide countries, gold price is dollar-denominated; therefore, the fluctuations of dollar rate have a great impact on gold price. Generally, the dollar fell, gold price rose; the dollar rose, gold price fell. The main reasons are as below:

First, the dollar's ups and downs represent the market confidence in dollar assets. The dollar rose, the investors buy dollar-denominated assets to get profit; while the U.S. dollar fell, part of the funds lose confidence in dollar assets in favor of buying gold in order to preserve and increase the profit.

Second, the falling dollar, the exchange rate of euro, yen and other currencies rose, so that the gold price denominated in other currencies is relatively cheap in the domestic gold market, which attracts investors and customer to buy. There capital inflows naturally promote the rise of gold price.

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As in other Asian countries, gold is a very popular investment and store of value for local entrepreneurs and regular people alike. In a country with an antiquated banking system, many people see gold as a very safe investment. Myanmar has had an independent gold market for many decades which means that the gold price in Myanmar is not necessarily determined by international gold prices, and there can often be differences between prices in London and Yangon. Those looking to take advantage of these price differences will need to understand a few things about the Myanmar gold market.

The first is that it is very difficult to determine the purity of Myanmar gold. Strict standardization has never been implemented in Myanmar, meaning that purities can vary widely depending on the source. The second is that it is illegal to export Myanmar gold, which means buying cheap gold in Myanmar and then exporting it to other countries is not an option for honest businesses. Gold in Myanmar is sold by the Kyat Thar, which can either be bought in nuggets or in jewelry form. An advantage of the gold market in Myanmar is that it is very liquid. (Myanmar's economy and investment)

II.   Research Objectives

The main objective of the study is to investigate the relationship between gold price and US dollar exchange in Myanmar.Accordingly, the following subsidiary objectives of the research are as follow;

1. To analyze the trend of gold prices and US dollar exchange rates
2. To analyze the relationship between gold prices and US dollar exchange rates.

III.   Research Methodology

The secondary source of data was used for data collection. Data of gold price per ounce (1 tical is 0.578 ounce) in Myanmar and U.S dollar in Myanmar for 6 years had been collected through various websites. Particularly, it was collected from Central Bank of Myanmar; References exchange rate history, www.goldbroker.com, www.tradingeconomics.com. To identify relationship between gold price and U.S dollar, descriptive statistics, correlation coefficient is utilized. Granger Causality test was used to examine whether gold price cause US dollar or US dollar cause gold price.

IV. Literature Review of Gold Price and Exchange Rate Relationship

A lot of existing recent literature is available about the relationship between exchange rate of US dollar with respect to the various currencies and gold prices in those nations.

Tully & Lucey, (2007) investigated the relationship between gold prices and exchange rate of US Dollar. They used six different models of GARCH family in their study. Their analysis concludes that an APGARCH model is best fit model for the datasets used in the analysis which included data for various economic variables over the 1983–2003 period and both spot and average futures prices of gold. The study provided reference to the equity market crash of 1987 and 2001. The study confirms that the though few macroeconomic variables have a statistically significant impact on gold prices, the exchange rate of domestic currency to US dollar is the main and important factor which has a strong impact on gold prices.

(Capie, Mills, & Wood, 2005) in their study on Gold as a Hedge against the US Dollar did a detailed analysis about if gold is a perfect hedge against US dollar. They collected abundant data for spot prices of gold and the exchange values of currencies from the London markets. They ensured that exchange rate and gold price data were of same day. They checked the relationship of gold with various currencies not only for the entire period but also for various sub periods. The study concluded that gold is a good hedge against adverse exchange value of US Dollar to home currency. The study provided for various statistical evidences for their claims.

In another study, (Capie, Mills, & Wood, 2004) used weekly data for last thirty years for spot prices of gold, exchange rate of Great Britain Pound and Japanese Yen to US Dollar to understand up to what extent gold has acted as a hedge against exchange rate adversities. The study used GARCH model for the analysis. They concluded relationship between gold and exchange rates of the currencies to USD is inelastic and negative. But the nature and the strength of this relationship has shifted over time. The hedging property of yellow metal is highly dependent on political events and political uncertainty.

V. Data Analysis

In this research, secondary data were used. Time series data of daily gold price and daily US dollar exchange rate were employed. Gold price is dependent variable and US dollar exchange rate is independent variable. Closing prices of two variables on the last trading time of that day are used. Daily gold price per ounce (1 tical is 0.578 per ounce) and US dollar exchange rate in Myanmar were obtained from gold spot price in Myanmar:goldbroker.com

website and Reference Exchange history: Central Bank of Myanmar. Myanmar official exchange rate started April 2012 authorized by Central Bank of Myanmar. Therefore, gold price and US dollar exchange rate was collected 1 April 2012 to 31 March 2018 for 6 years. All data analyzed here are daily observations covering the period from 2012-04~2018-03 and total in 2187 data points available.

A. Descriptive Statistics

Figure 1. Gold Price and US Dollar Exchange Rate
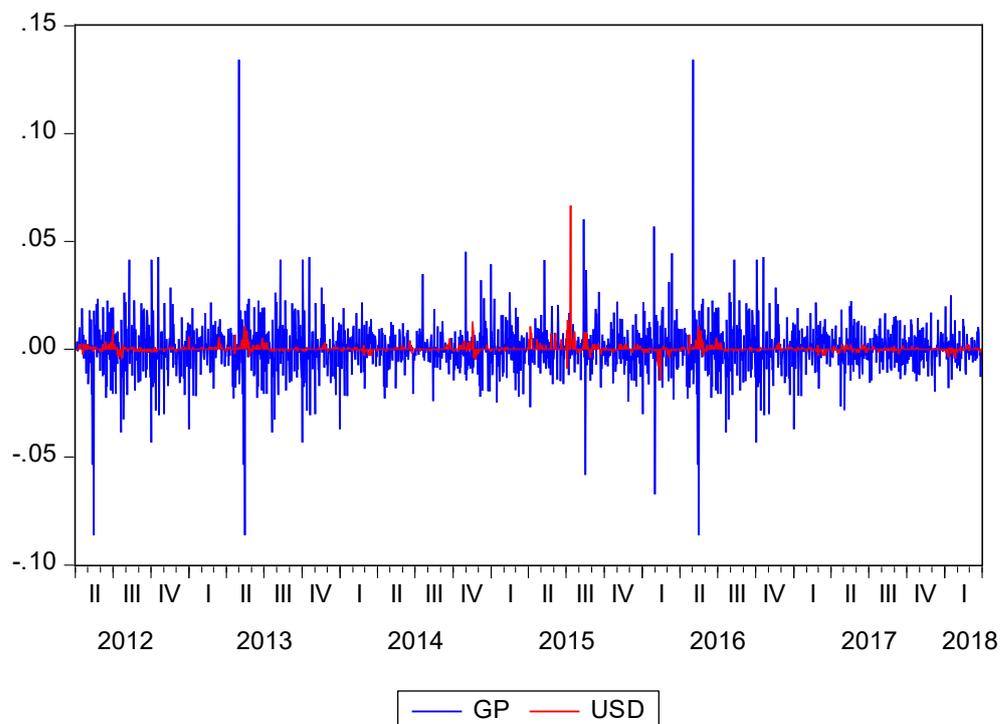
Source: Secondary Data

Table 1. Basic Descriptive Statistics

	Period	GP	USD
Mean	2012-04~2018-03	0.000145	0.000208
Std. Dev.	2012-04~2018-03	0.011317	0.002030
Max.	2012-04~2018-03	0.134156	0.066667
Min	2012-04~2018-03	-0.086138	-0.014423

Source: Secondary Data

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Figure (1) shows gold price and US dollar exchange rate from 2012-04~2018-03 and Table (1) shows the basic descriptive statistics of gold price and US dollar exchange rate.

Some interesting facts are revealed in Figure (1) and Table (1). First, US dollar exchange rate has fluctuated within 800 Kyat between April 2012 to May 2013. And then, US dollar exchange rate increase above over 900 Kyat from 2013. It is sharply rise to 1028 Kyat in November 2014. From November to the end of March 2015 is closed at 1027 Kyat. From 2016, US dollar exchange rate does not below 1000 Kyat. Then US dollar exchange rates steadily increase following months over 1200 Kyat. The highest exchange rate and lowest exchange rate are 1375 Kyat on December 2016 and 830 Kyat on April 2012.On the other hand, gold price is around about 1000000 Kyat at the earliest year of study. Gold price is sharply increased April 2012 to 1380000 Kyat. It rises steadily from April 2012 to 1480000 Kyat in the start of February 2013. However, gold price decreased about 1190000 Kyat in end of 2013. From 2013, gold price does not decrease below 12000000 Kyat per ounce. Highest gold price is 1800000 Kyat in March 2018 and and lowest gold price is 1100000 Kyat in June 2014. Second, gold price is much more volatile than US dollar exchange rate as price fluctuation. Third, the average price of gold from 2012-04~2018-03 is 0.000145 and average US dollar exchange rate is 0.000208. Fourth, the price of gold and US dollar exchange rate reached a high of 0.134156 and 0.066667.

B. Correlation Analysis

Table (2) Correlation between Gold Price and US Dollar Exchange Rate

	2012-04~2018-03	
	Gold Price	US Dollar
Gold Price	1.000000	-0.048270
US Dollar	-0.048270	1.000000

Source: Secondary Data

Table (2) presents the correlation matrix of gold price and US dollar exchange rate. It's clearly observed that gold price has negative correlation with US dollar exchange rate. This result indicated that when US dollar depreciates against other major eventually it rises gold demand, led to increase gold price, vice-versa. The negative coefficient of 0.048270 implied when US dollar one unit increases, gold price would decrease by Kyat 4.82 per ounce.

C. Granger Casusality Test

The Granger Causality is used to examine whether gold price cause US dollar exchange rate change or US dollar cause gold price change.

Table (3) The Result of Pairwise Granger Causality Test between Gold Price and USD Exchange Rate

	F-Statistics	Prob.	Decision
Null Hypothesis			
USD does not Granger Causality Cause GP	0.57518	0.7504	Accepted
GP does not Granger Causality Cause USD	0.78198	0.5840	Accepted

Source: Secondary Data

The results and decision of Granger Causality Test are given in table. The null hypothesis is rejected when the P-value is less than 5%. On the other hand, in case the P-value is more than 5%, the null hypothesis is accepted. As a result, the test indicates there are not exists bidirectional causality between gold price and US dollar exchange rate for Six years (2012-04~2018-03).

VI. Finding and Discussion

This study firstly analyzes the trend of gold price and US dollar exchange rate in Myanmar. US dollar exchange rate has fluctuated within 800 Kyat between April 2012 to May 2013. Exchange rate sharply rises to 1300 kyat in 2015. Dollar price goes down below 1000 kyat in October 2014 and it continually rising above 1000 kyat. Highest exchange rate was found in December 2016 to 1375 kyat.

At the earliest year of study period gold price is round about 1000000 kyat per ounce (1 tical is 0.578 per ounce) Gold price is sharply increase April 2012 to 1380000 kyat. It rises steadily from April 2012 to 1480000 kyat in the start of February 2013. However, gold price decreased about 1100000 kyat in June 2014. Highest gold price is 1700000 kyat in March 2017. Myanmar gold price is slightly stable. It was found increasing and decreasing price frequently. Myanmar gold price is closely linked to the world price of gold.

In the analysis of relationship between gold price and US dollar in Myanmar, gold price is considered dependent variable and US dollar is independent variable. Negative

relationship was found relationship between gold price and US Dollar exchange rate in the study period of 2012-04~2018-03.

From the estimation output from correlation model, gold price and US dollar had showed significant. The negative relationship indicated when US dollar depreciated against other currencies, gold price was moving higher price and vice versa. This relationship proved that gold played in vital role in hedged against US dollar exchange rate.

As the result of Granger Causality Test, the test indicated that the hypothesis of US dollar exchange rate does not granger causality cause gold price is accepted. Therefore, the change of US dollar exchange rate does not cause gold price movement. And, the hypothesis of gold price does not granger causality cause US dollar exchange rate is accepted. Therefore, the movement of gold price does not impact on US dollar changing.

VII. Suggestions and Recommendations

The study concluded that the relationship between gold prices and US exchange rate in Myanmar. The trend of gold had been introduced in many literatures as the hedge against economic uncertainty. This study could provide financial planners some hints of monitoring gold price movement and US dollar exchange rate. In many research, negative relationship between gold price and US dollar exchange rate in other country was found. The properties of safe asset and hedging capabilities suggested that the dollar price of gold should increase when exchange rate of dollar against other currencies depreciates.

In this study, it was found negative relationship by analyzing with correlation coefficient. It is assumed that investors are used to buy and hold gold when US dollar depreciates against other major currencies. They also invest gold if they have surplus money in sound economic situation. Gold demand also depends on economic situation of the country. However, it not only be for gold demand. It closely related to economic situation, political situation, climate and gold demand and so on. Similarly, US dollar movement depends on other situation of certain country.

On the other hand, Myanmar gold price is closely linked with world gold price. Therefore, Myanmar gold price can change as world gold price movement. World gold price should always be monitored to access investment opportunities. Due to Myanmar gold price is closely related to world gold price, it can establish gold stock as the country. To be strong gold stock market, as the country have to adopt strong rules and regulation, foreign investment policy. Myanmar gold exchange was established on 5 January 2016. It makes country develop in foreign exchange market. Therefore, investor can trade both currency and

gold by online in foreign exchange market. Continuously, it also closely related to gold price and exchange rate, it should monitor both gold exchange market and foreign currency exchange market.

Myanmar has long been experiencing military regime since 1988. Since then, Myanmar did not experience remarkable economic growth due to international and external factors. For example, the on-going reforms, inflations, multiple exchange rate system, black market activities and foreign sanctions. These factors have contributed to the stagnation and even declination of Myanmar's economy. In Myanmar, currency exchange rate has become one of the main factors that hampers the development efforts. Stable foreign exchange rate is essential for several reasons. Foreign exchange rate is closely influence on the international trade leads to more demand on kyat than US dollar in terms local currency become strong. In the other hand, deficit in international trade leads to more demand on US dollar and foreign exchange rate increases.

US dollar market of the United State which is a largest economic country of the world economy can effect on the global economy. There may be positive impact on one country but also negative impact on another country due to US dollar market. Generally, if the economies of a country become growth, the currency value of that countries is also used to improve. Consequently, the development of state owned enterprises and foreign companies lead to improving the production and service, reducing unemployment, controlling the inflation rate, increasing the stock price. Similarly, the movement of US dollar has impact on Myanmar which is a become globalization country. Reason for appreciation of US dollar in Myanmar accordance with global economies. In the facts of the provided the appreciation of dollar in Myanmar or dollar demand and supply in Myanmar, dollar demand is more than supply. When the review of demand site according to export-import measurement, import is larger than export. Alternatively, the supply site is reviewed that it encompasses not only product export but also foreign earing service exports such as hotel and transportation, foreign investment companies and non-government organization and remittances of migrated labors in foreign country.

Due to appreciation of dollar, there may be both positive impact and negative impact on Myanmar economy. Appreciation of dollar might increase the price of imported goods. It leads to higher inflation and impact on reducing public's purchasing power. However, practically, the effects are directly related to categories of imported good. Currently, the categories of imported goods are investment goods, inter-industrial use and consumer goods. The most of the imported goods are the investment goods. Hence, appreciation of dollar does

not impact on current commodity price and encourage for long-term development without afraid for deficit of payment of trade as import more than export. Therefore, appreciation of dollar is a huge affords to be more develop in the export aspect. Appreciation of dollar or depreciation of kyat might persuade to buy Myanmar products for cheaper. Particularly, stabilization needs to maintain for making more trade.

VIII. Scope and Limitations of the study

Daily price of gold and U.S dollar in Myanmar was collected for 6 years, starting from 2012-04 to 2018-03. The price of gold and exchange rate are the market price authorized by CBM and thus it does not consider other region's price of gold shop, money changer and so on. The study was analyzed only relationship between gold price and exchange rate.

IX. Conclusion

This study examined the relationship between gold price and US dollar exchange rate in Myanmar. Findings indicate that there is a negative relationship by analyzing with correlation coefficient. The trend of gold price and US dollar exchange rate is gradually appreciated during the study period. And the result of Granger Causlity reveals that there is no causal relationship exit between the gold price and US dollar exchange rate. This study could provide financial planners some hints of monitoring gold price movement and US dollar exchange rate.

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Study on the Square Root Solution with Decimals Fraction on the Different Between Calculator and C-programming

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Abstract

In this paper we first express about square root and methods of square root finding in calculator. Then we define special computer program for square root with C-programming coding. Then we compared result different between Calculator and Special program when finding the square root.

Keywords:
Square root, C programing language

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Content

2.   Introduction

Square root is one of the most useful and vital operation in computer graphics and scientific calculation applications, such as digital signal processing (DSP) algorithms, math coprocessor, data processing and control and even multimedia applications. It is a classical problem in computational number theory and often encountered, which is a hard task to get an exact result. A lot of square root algorithms, programming coding and calculators were implemented. Among the computer programming languages, C is the most basic and also the most widely used language. C can be used not only for text documents but also for various mathematical operations. Statistical as well as mathematical exercises ranging from basic addition, subtraction, cube root, square root and many polynomial powers can be created through this general purpose programming language. To get the square root of any number, the C programming can be customized to code the logic. In our studying paper, to create a C programming language for square root calculation basic from Newton- Respon's Method and math library function.

1.2 Objectives of the study

The objectives of the study are-

(i) To get exactly approximation solution when solving square root problems.

(ii) To reduce errors for calculation of Mathematical problems, finical equations, statistical equations and engineering calculations.

1.3. Method of Study

This paper mainly uses in literature survey and the data sources are based on secondary data obtaining from libraries, internet, website. We develop the Newton's algorithm for numerical data and that data solved in visual basic compiler using C-programing language.

1.4. Scope of the study

This study is focused on square root computing method can compute easy calculator system and special program with C programming.

2. Definition of Square Root

In Mathematics, A **square root** of a number x is a number y such that $y^2 = x$; When $\sqrt{x}$, radical sign is $\sqrt{}$, x is radical and 2 is root.
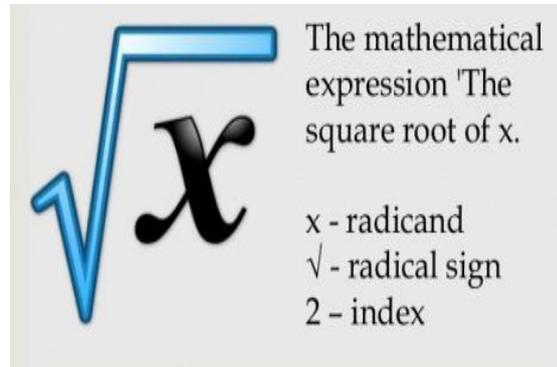

Fig:1(Source from Internet)

2.1 History of Square root

1800 BC: The *Yale Babylonian Collection* (YBC) was created.

1650 BC: Kahun Papyrus shows that the *Egyptians* extracted square roots by an inverse proportion method.

800 BC: In *India*, A method for finding very good approximations to the square roots of 2 and 3 are given in the Baudhayana Sulbha Sutra.

400 BC: It was known to the ancient *Greeks* that square roots of positive whole number that are not perfect squares are always irrational numbers. This is the Euclid's theorem dating back to 400 BC. The particular case Square root of 2 is assumed to date back earlier to the *Pythagorean* which is exactly the length of the diagonal of a square of side length 1.

800 AD: In 9th century *Indian mathematician Mahavira*, stated that square roots of negative numbers do not exist.

1450 AD: The symbol for square root was invented by *Regiomonatanus* (1436–1476). An R was also used for Radix to indicate square roots in Gerolamo Cardano Ars Magna

1525 AD: The symbol '√' for the square root was first used in print in 1525 in Christoph Rudolff's Coss.

2.2 Usages of Square root

Square roots can be used:

(i) to solve for the distance between two points (Pythagorean Theorem)

(ii) to solve for the length of a side of a right triangle (Pythagorean Theorem)

(iii) to find the solutions to quadratic equations

(iv) to find Statistical problem

(v) basically to solve for a squared variable in an equation

3. To Calculate the Square Root

In square root calculation, there are four categories;

(i) A Positive Number:

When the square root of a positive number can be calculated by:

1. square root calculator above
2. handheld calculator
3. spreadsheet
4. square roots without a calculator

(ii) A Negative Number:

To calculate the square root of a negative number, find the square root of the same positive number and multiply by "i". (where i represents an imaginary number and i = square root of -1)

Example: square root of -5

= (square root of 5) x (square root of -1)

= (square root of 5) x (i)

= 2.236068 x i

= 2.236068i

(iii) An Imaginary Number:

To calculate the square root of an imaginary number, find the square root of the number as if it were a real number (without the i) and then multiply by the square root of i (where the square root of i = 0.7071068 + 0.7071068i) .

Example: square root of 5i

= (square root of 5) x (square root of i)

= (2.236068) x (0.7071068 + 0.7071068i)

= 1.5811388 + 1.5811388i

(iv) A Complex Number:

To find the square root of a complex number, use the following equation:

Square root $(a + bi) = c + di$ Where:

c = (1/square root of 2) x square root of [(square root of(a^2+b^2)) + a]

d = (sign of b/square root of 2) x square root of [(square root of(a^2+b^2)) - a]

Example:

the square root of $3-5i = c + di$

c = (1/square root of 2) x square root of [(square root of($3^2+(-5)^2$)) + 3]

c = 2.1013034

d = (-1/square root of 2) x square root of [(square root of($3^2+(-5)^2$)) - 3]

d = -1.1897378

Thus: square root of $3-5i$ = 2.1013034 - 1.1897378i

4. Some Square Root Property Formulas

Square root sometimes need to found out in geometry to find the side of a particular shape. Example; Pythagoras theorem, the result of finding the side using the theorem need not be in perfect square. However, we need to keep in mind the properties while finding out the square root.

1. $\sqrt{x} \cdot \sqrt{y} = \sqrt{x.y}$

2. $\sqrt{\dfrac{x}{y}} = \dfrac{\sqrt{x}}{\sqrt{y}}$

3. $\sqrt{n^2 x} = n\sqrt{x}$

4. $\sqrt{x} + \sqrt{y} \neq \sqrt{x+y}$

5. $\sqrt{x} - \sqrt{y} \neq \sqrt{x-y}$

5. Example of C- programming for square root in positive number

```
1. #include <stdio.h>

2. #include <math.h>

3.  int main()

4.{

5.     double num, root;

6.     /* Input a number from user */
```

7.   printf("Enter any number to find square root: ");

8.   scanf("%lf", &num);

9.   /* Calculate square root of num */

10.   root = sqrt(num);

11.   /* Print the resultant value */

12.   printf("Square root of %.2lf = %.9f", num, root);

13.   return 0;

14. }v

This above program customer can be change decimal place in line 12.

6. Example of C++ programming for square root in positive number

1. # include<stdio.h>
2. double sq_root(double x)
3. {
4. double rt = 1, ort = 0;
5. while(ort!=rt)
6. {
7. ort = rt;
8. rt = ((x/rt) + rt) / 2;
9. }
10. return rt;
11. }
12. int main(void)
13. {
14. int i;
15. for(i = 2; i<11; i++) printf("square root of %d is %.20f\n",i, sq_root(i));
16. return 0;
17. }

This above program customer can change decimal place in line 15. This above program in "i" refers to required result for square root number.

Conclusion

In this paper, we developed the C programming coding to solve the square root of mathematical functions. We occurred approximation differences between calculator and c programming when solving square root problem. The square root of most numbers can't be expressed exactly in finite precision. We needed an exact answer, and there was a way to calculate it without a square root.

The above square root c-programming is quick and easy to apply compared to the classical method or calculator where we need to solve rational number or irrational with exact approximation number. So c programming for square root reduces errors.

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A Study on

the relationship between the Vocabulary size and the

(Verb+ Noun) collocation Knowledge in Business English

for the Third Year Students of All Specializations at

Co-operative University, Thanlyin.

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Department of English

July, 2018

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Abstract

This Study was carried out to investigate Third Year student's collocation abilities. As collocations are a necessary one for language learners, especially for a foreign language. Every language has its own distinct features and language learners can avoid wrong use of those features. If a language learner does not know the collocations of a language well, he or she will not be able to write a perfect business letter or an email. The wrong lexical choice may cause a mismatch, distorted message, the use of non-existent word or phrase and collocation dissonance. In order to discover how well Third Year students' knowledge of collocations, 100 subjects were requested to participate this study. A matching form test and a multiple choice form test were administered to them. This study indicated that students have a low mastery of collocations and it was discovered that students were not digested enough their early lessons and also they were not familiar with a lot of vocabularies. Particularly they had much less knowledge of collocations. It is expected that this paper helps the learners to get a high mastery of collocations in English.

This paper aims to investigate the relationship between the receptive vocabulary size and receptive verb-noun collocation knowledge of the third year students for all specializations at the Co-operative University, Thanlyin. This paper also investigates the students' productive knowledge of collocations in writing business emails. A total of 260 third year students from all specializations participated in answering questions. Two instruments are used for data collection. They are the vocabulary size test designed by Nation (2001), a multiple-choice test and a matching type test of English collocations. There are 15 (verb + noun) collocations used for this study. Descriptive statistics with two kinds of tests are employed.

Contents

Acknowledgement

Abstract

References

1. Introduction

Each and every language has their significance and it cannot be assumed that one's language is less difficult than that of the other. One language may be difficult to some extent for those whose language in not the same as that one. An English man might think that Myanmar language has a great variety. For instance, 1. Don't wear shoes in the monastery. 2. Don't wear your hats.3. Wear thanakha. 4. Wear clean clothes. 5. Wear umbrella. Such expressions indicate that only the verb, **wear** is used which is totally different from Myanmar language use. In Myanmar, it is:ဖိနပ်မစီးရ၊ ဦးထုပ်မဆောင်းရ၊ သနပ်ခါးမလိမ်းပါ၊ သန့်ရှင်းသော အဝတ်ကိုဝတ်ပါ။ထီးဆောင်းပါ။ We won't say - ဖိနပ်ဆောင်းသည်။ထီးစီးသည်။

Similarly, a Myanmar student might say 'I make my homework.' Instead of saying 'I do my homework.' Every language has its own rules. They have the rules of what word must go with what.

According to Oxford Advanced Learners' Dictionary, collocation is a combination of words in a language that happens very often and more frequently than it would happen by chance. In Myanmar, English has been learning as a foreign language since they were in their primary schools. Nonetheless, Myanmar students are still making mistakes in collocations of English in tests.

In this paper, the use of collocations for the third year students of all specializations will be studied. Altogether 260 students of third year students were asked to help complete this study. They were provided a test and data were then collected. Before the test, the researcher of this paper gathered necessary information on collocations: What collocation is, Different kinds of collocations, and Common collocations in current reference book. Next, the test result will be studied and discussed how or what or why students make mistakes. Furthermore, how well students can do the test will also be seen. It is hoped that this study will be a useful one for the learners of English in using collocations.

Being the business learners, students get more opportunity to communicate with one another in English. English is an international language and it is used in economic sector and social sector. In this university, Business English is taught as a compulsory subject in every specialization.

1.1 Purpose of the Study

Learning collocations is essential for all learners. In this paper, collocations tests were carried out research in different points of view: multiple choice and matching.

1.2 Scope of the Study

This paper explores the collocation knowledge of the third year students of Co-operative University, Thanlyin. Two types of test questions were prepared as matching and multiple choice. These questions are to investigate the students' production of collocation. The collocations selected for the study are 12 (verb + noun) collocations from their reference book (Business Result: Intermediate Level) for the third year students from Co-operative University, Thanlyin. The other three collocations are selected from the textbook of Grade 11. They are a (adverb+ noun), a (adjective+ noun) and a (verb+ adjective) collocations. There are 260 students from eight different sections participated in the study. Both types of tests: multiple choice test and matching collocation test are the objective tests.

1.3 Significance of the Study

In this study, the most prominent feature is a large number of the participants from the eight different sections (five different specializations). They are 260 third year students. Collocations are selected randomly from their reference book. The results of the learners' collocation knowledge are the key to improve their overall language proficiency.

1.4 Organization of the Study

This paper contains six chapters. Chapter 1 is concerned with the introduction of conducting research on (verb + noun) collocations including the purpose of the study, the scope of the study and the significance of the study. Chapter 2 deals with the review on the notion of collocations defined by various scholars and the framework of the study of collocations. Chapter 3 mentions the research methodology for the present study. Chapter 4 expresses the literature review. And Chapter 5 describes the findings inferred from the statistical analyses and discussion of the research questions in detail. The final chapter, Chapter 6, explains the summary of the whole chapter together with suggestions for further study. It is followed by references.

II.Aims and Objectives of the Study

The purpose of current study is to observe how well third year students of all specializations can use collocations in English. There are so many forms of collocations in terms of grammar and their strength. This study hopes for the students to see the accurate information on the use of collocations.

Specific objectives to do this research are as follows:

➢ To examine how collocations are formed in terms of grammar.

➢ To study how collocations are classified in terms of their strength.

➢ To understand how students use collocations in a wrong way.

➢ To see how well they can apply some collocations they have already learnt in their early school days.

III. Research Methodology

This study was conducted to investigate Third Year students' collocation abilities. Knowing a word is not only knowing its form and meaning. Words occur together to make collocation patterns, or they do not combine and recombine freely and randomly with others (Hanks, 1987). Using language is to select more than one word at a time, and to blend the selections with each other (Sinclair, 1987). In order to discover how well Third Year students' knowledge of collocations, 22 subjects were involved in this study. A test was administered to those 260 students and includes two forms of questions. No. 1 was a Matching Form and the second one was a Multiple Choice question. There were 10 items in Q. No.1 and 5 in Q. No.2. Test question 1 was designed with 10 pairs and question 2 was made with 5 sentences taken form Business Result Course Book of Intermediate Level. All the items were in different types of collocations.

E.g.   1.adjective + noun (basic procedure)

2. verb + noun (exchange news)

3. verb + adverb (sleep deeply)

Multiple choice question was made of the most common verbs-**make**, **do** and **have**. Despite the verbs, errors of the tenses and usage were not counted. Only the correct choice was counted. There were no pre-test and post-test in this study. Students' prior knowledge was to be studied. Students were given time limit (00:30 hour) and then data were collected.1. The number of students who would do well in each test item

2. The areas where students made most mistakes

3. The reason they made those mistakes
4. Ways to overcome the errors

IV. Literature Review

Many researchers have different definitions of collocation. In terms of the degree of cohesiveness of lexical combination, Benson et al. (1986) statesthat "collocations" are fixed phrases stored in the mind. Nattinger and DeCarrico (1992:36) consider collocations as high frequency word combinations.

Oxford Advanced Learners' Dictionary says that Collocation is the way in which particular words tend to occur or belong together. For example, you can say: Meals will be served outside on the terrace, **weather permitting.** But not Meals will be served outside on the terrace, **weather allowing.**

Both these sentences seem to mean the same thing ('They'lltreat us tolunch outside if the weather is good enough.'): **allow** and **permit** have very similar meanings. But in this combination, only **permitting** is correct. It collocates with **weather** and allowing does not.

It also suggests the learners that they need to know which adjectives are used with a particular noun, which nouns and a particular adjective is used with, which verbs are used with a particular noun and which adverbs are used to intensify a particular adjective so that they can write and speak natural and correct English.

Teachers from the English department had conducted error analysis based on learner's language specifically on collocations among our university students. The study revealed that 64% of the collocations used were incorrect and 80% of these errors were lexical collocation.

Typical errors in collocation usage in writing productions by the third year students were analyzed. It was found that 17.63% of collocation usages were impropriate. Three major types of errors were identified; approximation (49%), synonym errors (31%) and negative transfer errors (20%). This result suggests the merit of collocation instruction, for example, teaching vocabularies in collocation forms, keeping collocation logs and reading texts with attention to collocations.

It is known that collocations are everywhere and no language learner can avoid them. Nik Peachey, Learning Technology Consultant, Writer, Trainer (2008) said that collocations are so ever present in the English language and it is hard to find a song without them. Here is an example:

The First Time Ever I Saw Your Face

The first time ever **I saw your face** (not I met your face)

I thought **the sun rose** in your **smile eyes**

And the moon and the stars

Were the gifts you **gave** (not pay)

To the dark and the **endless sea**, my love (not borderless sea)

V. Analysis of collocations in the reference book for third year students

Collocations are classified in various types: each scholar has divided them according to different dimensions. According to Michael McCarthy and Felicity O'Dell, the use of collocations has become popular in Business English.

Kennedy, Graeme (2003:468) defines collocation as "a succession of two or more words that must be learned as an integral whole and not pieced together from its component parts". Firth (1957:18), believes that collocations of a word help us to understand its meaning.

There are two main ways to classify collocations into groups, in terms of Grammar and in terms of Strength.

5.1. Collocations in terms of Grammar

Collocations are classified in terms of Grammar as follows:

(Adjective + Noun)

good	morning
nice	day
lucky	day
ugly	girl
bright	colour
good	night
good	dream

(Verb + Noun)

go	shopping
make	a nosie

give	speech
take	a rest
play	football
open	the door

(Noun + Noun)

sky	blue
girl	friend
paper	clip
mail	man
fighter	bomber

(Preposition + Noun)

at	least
on	foot
behind	me
beside	you
in	time
at	the moment

(Noun + Preposition)

the daughter in my family

a day of my lucky days

a book on the table

the tree behind you

the people under the tree

(Verb + Adverb)

speak	politely
think	widely
come	quickly
smile	sweetly
feel	gladly
do	quickly

(Adverb+ Adjective)

Bitterly cold

Completely satisfied

Terribly sorry

Fast asleep

Virtually important

(Noun+ Verb)

Lions roar

Prices fall

Dogs bark

Temperatures rise

Cats miaow

5.2. Collocations in terms of Strength

There are four main types of collocations based on its strength.

5.2.1 Unique Collocations

This is a kind of collocation which people usually use that and it does not exist. For example, the uniqueness of the word 'foot' is that it is used as a verb in the collocation 'foot the bill'. At the same time, there are some phrases we do not know about this word such as "footing the coffee," "footing the invoice." It is unique because it is not used with any other nouns.

5.2.2. Strong Collocations

A strong collocation is the one in which the words are very closely associated with each other. For example, the adjective 'mitigating' almost collocates with 'circumstances' or 'factors', it rarely collocates with other words.

Collocation	Comment
In element weather was expected	(very formal = unpleasant weather in element collocations) almost exclusively with weather
She has auburn hair	Auburn only collocates with words connected with hair (e.g. curls, dresses, looks)
I felt deliriously happy	= extremely happy strongly associated with happy. Not used with glad, content, sad, etc
The chairperson adjourned the meeting	= have a pause or rest during a meeting / trial. Adjourn is very strongly associated with meeting, case, trial.

5.2.3. Medium- Strength Collocations

This kind of collocation makes up the greater part of what people say and write. For example, in some cases, people often think of "have a conversation," but it is true that 'make a conversation.' Besides there are many phrases which are considered as medium-strength collocations such as "make a mistake," "recover from a major operation" and so on.

5.2.4. Weak Collocations

Weak collocations are made up of words that collocated with a wide range of other words. In fact, most students can create combination of words which are on the verge of the area we define as "collocation". For example, with colors, people can apply them in English in a similar way to their own language such as red shirt, white wine, a blue film, black hair and so on. In general, these combinations are attentions to them. However, in order to have a perfect writing or essay, it is important to understand and concern about all aspects of weak collocations.It can be seen that there is also another kind of collocation.

5.3 Fixed Collocations

Fixed collocations are collocations which are so strong that they cannot be changed in any way. For example, I was walking **to and fro**. (I was walking in one direction and then in the opposite direction, a repeated number of times.) No other words can replace **to** or **and** in this collocation. It is completely fixed. The meaning of some fixed collocations cannot be guessed from the individual words. These collocations are called idioms and are focused on in the book, English Idioms in Use.

 e.g up and down

    in and out

    this and that

    more or less

According to the mentioned types of collocations, it can be seen that collocations cannot stay far away from Nouns and Verbs.

5.4. Lexical collocations

They are made up of only verbs, adjectives, nouns and adverbs.

5.5. Grammatical collocations

They contain words such as verbs, adjectives or nouns combined with a preposition or a grammatical structure.

5.6. De – lexicalized Verbs

De – lexicalized Verbs (get, have, make, do, put, take) are important because although they may have a basic meaning (make = create / manufacture, have = own / posses).They are more commonly used in combinations with nouns or other words as a chunk of meaning. A lot of mistakes in collocations are made with de – lexicalized verbs.

Make a mistake	do your homework	take an exam

5.7. The importance of Nouns in collocations

Nouns are very useful for learners as a key word. This is because the majority of general nouns usually require further qualification. Nouns are also important because they are usually the words that carry the most meaning within a sentence.

good			package	
well – paid			luxury	
menial	job		expensive	holiday
boring			cheap	
full – time			good	

Source: Business Result (Intermediate)

Here are some examples:

Verbs + Holiday

- Go on holiday

  e.g. The children were excited about going on holiday.

- Have / take a holiday

  e.g. Teachers must not take holidays during term time.

- Book a holiday

  e.g. I booked the holiday online.

Adjective / Noun + Holiday

- A skiing / camping / walking + holiday

  e.g. They went on a camping holiday in France

- A package holiday (= a holiday in which we pay a price that includes travel, room and food)

  e.g. The company organizes package to Spain and Greece.

- A summer holiday

  e.g. They were going to a house on the coast for their summer holidays.

- A winter holiday

  e.g. Why not try a winter holiday for a change?

- A family holiday

  e.g. I first visited Japan on a family holiday when I was a boy.

- An annual holiday (= a holiday we take every year)

- Your dream holiday (= the best holiday you can imagine)

Holiday + Noun

- A holiday resort (= a place with many hotels where a lot of people go on holiday)

  e.g. A holiday resort in Spain.

- A holiday destination (= a town or country where a lot of people go on holiday)

  e.g. Marwari's is one of Turkey's most popular holiday destinations.

- A holiday brochure (= a magazine that shows what holidays you can take)

- Holiday photos (also holidays snaps) (= photographs that you take when you are one holiday

- A holiday romance (= a brief romantic relationship with someone you meet on holiday)

- A holiday abroad (= a holiday in a country other than the one you live in)

5.8.   Collocations of do, have, make and take

For people who are learning English, or even who speak it moderately well, these four verbs present difficulties when it comes to many collocations. For example, what about **the shopping**? Is it **do** the shopping or **make** the shopping? How about **photograph**? **Do** a photograph or **make** a photograph? Neither! We should take a photograph….. and so on. This table is an attempt to clear up some of the most common doubts and error.

do	make	take	Have
		take action	
		take advantage	have an advantage
	make an application	take can application	
	make an appointment		Have an appointment
	make an argument		have a argument
	make a baby		have a baby
	make a bath	take a bath	have a bath
	make a bed		have a bed
do one's best	make the best of		have the best
		take a bite	have a bite
	make a bow		
	make a break		
	make a breakthrough		
do business		take business	have business
		take a chance	have a chance
		take a class	have a class
	make conversation		have a conversation
do a deal	make a deal		
	make a decision	take a decision	
	make an effort	take (a lot of) effort	
	make an enquiry		
	make an error		
		take an exam	have an exam
	make an example		
	make an excuse		have an excuse

Source: Business Result (Intermediate)

VI. Findings and Discussion

In this section, results of the tests will be discussed with four main factors:

1. How many students could do well in each test item?
2. In what area did the students make most mistakes?
3. Why did they make such mistakes?
4. How will the students overcome the errors?

Test Question. 1.

Match the words in Column A with words in Column B with are the most appropriate ones.

	Column A		Column B
1.	exchange	a.	business
2.	make	b.	hair
3.	place	c.	deeply
4.	sleep	d.	chess
5.	do	e.	an order
6.	basic	f.	word
7.	curly	g.	news
8.	break	h.	research
9.	have	i.	procedure
10.	play	j.	a blouse

Table 1 Results of the Test Question 1

	Answer	Correct (No. of std)	Correct %	Incorrect (No. of std)	Incorrect %
1	exchange news	68	26	192	74
2	make a blouse	156	60	104	40
3	Place an order	205	79	55	21
4	sleep deeply	115	46	145	54
5	do research	75	29	185	71
6	Basic procedure	49	19	211	81
7	curly hair	200	77	60	23
8	break the law	114	44	146	56
9	have business	55	21	205	79
10	play chess	91	35	169	65

	Total	1128	43.4%	1472	56.6%

Source: Test Question 1

As seen in the table, 79% of the students could give the correct answer to item 3, 'place an order'. They are thought to have learnt from their teachers. Language learners should not be unfamiliar with such vocabularies. Item 7, 'curly hair' is the second one that most of the students got the correct answer. It is assumed that they have learnt the lesson, 'Describing people' and they know very well to describe someone's appearance. 60% of the students could give the right answer, 'make a blouse' to item 2. They are likely to remember the lesson, 'The Calendar' with 'the use of make'. Nonetheless, 40% could not give the correct answer. The correct answer to item 4 is 'sleep deeply'. According to the data collected, 46% of the students could give the correct match and another 54% could not. It can be seen that their high school lessons were left behind. 44% of the students know that the verb 'break' goes together with 'the law' though they have ever learnt it in their lesson like 'You should not break the law.' Students have already studied the verb, 'play' since they were in a primary school. For example,*I can play football very well./ He is playing thepiano.* The verb '*play*' can be followed by either a king of sport or a musical instrument. That knowledge is not a strange one, however, only 35% could do well for this. It is, therefore, more clear that they have not digested their earlier school lessons. Out of 260, only 75 students were correct to item 5, 'do research'. They should indeed get the correct answer as they have been frequently hearing this expression. Only 68 students got the correct answer, 'exchange news' for item 1. Though students are not far away from the words, news and information, they seldom use the verb, 'exchange' in their everyday life. This is because they could not use the collocation, 'change news.' The word 'business' is familiar with the students but only 55students got the correct answer. They did not know that the verb 'have' goes with 'business'. Most of them know 'start a business' or 'run a business.' 81% of the students did not know the word, 'basic' and as a result, they did the wrong match. Most of them know that the word,' procedure' usually goes together with 'difficult, easy, or simple.' It showed that students need to memorize several words as much as they can. Totally 43.4% of the students could do well in the test and 56.6% of the students were found to be weak in collocations in English.

Question. II. Choose the appropriate verbs and fill each blank with the correct form of them.

1. I like to ---------------- my homework. (do, make)   Ans. 1.do

2. Last night mom prepared dinner and MaMya ---------- the washing.   Ans.2.did

   (do, make)

3. The little kids are --------- a lot of fun at the party.(do, have) Ans.3.having

4. Dad's car broke down on the highway but he did not have enough

credit to ------------ a phone call. (do, make)   Ans.4.make

5. We are -------- late. Let's take a taxi. (take, get)   Ans.5. getting

Table 2. Results of the Test Question 2

No.	Correct Answer	Correct	Correct	Incorrect	Incorrect
		No.of std	%	No. of std	%
1	do	169	65	169	35
2	did	143	55	117	45
3	having	91	35	169	65
4	make	70	27	190	73
5	getting	161	62	99	38
	Total	634	48.8%	666	51.2%

Source: Test Question II.

As seen in Table 2, 169 students could give the correct answer to item 1 and another 91 students could not give the correct one. Although it is a very common one, 35 students could not get the correct answer. It is certain that they are not good enough to remember the previous lessons. 55% of the students got the correct answer for item 2 and those who could not get the correct answer are altogether 45%. It is clear that they have not digested their early lessons. Only 91 students could give the correct answer to item 3. There is a TV programme called 'Let's sing & have fun'. However, they did not get the correct answer. Students are thought to be very weak in observation. 190 students could not choose the right answer for item 4 although it is not a strange usage. It is considered that students are less in touch with such phrases and they need a lot of practice in collocations. 62% of the students could choose the correct answer for item 5 and it is because students are familiar with phrases such as getting dark, or getting tired. They have ever learnt that certain verbs like feel, become, get are followed by an adjective. In total, nearly 49% of the students could do well in test question 2 and 51% are found to be weak in English collocation.

VII. Conclusion

This study shows that collocations underline the importance of learning a language. Knowledge of collocations enables a learner to say 'Switch on the light' rather than 'Open the light'. A native speaker has a thorough intuition of possible combinations, however, EFL and ESL learners know a little about them. This is because the errors of the students constitute a high percentage. This study reveals that Third Year students do not have sufficient knowledge on collocations. Two major types of errors are identified in this study. The first one is that students are not digested enough in their early stages (lessons). They are assumed not to be able to memorize their early lessons. The second one is that they are not familiar with a lot of vocabularies. The results of the tests suggest the merit of collocations, vocabularies in collocation forms, keeping collocation logs and reading texts with attention to collocations. Hakuta (1974) stated that collocations can be considered as memorized whole utterances or phrases. They are learned through rote memorization or overusing them. This study shows that collocations need deliberate learning. It is not enough just to know the vocabulary. This means that collocations are not easy and even more difficult to paraphrase. Ways to overcome those errors are: to memorize the collocations and to personalize them.

Summing up, this study shows Third Year students have a low mastery of collocations. They need much more study on collocations so that they can have a high mastery of it. This study hopes English Language learners to realize how important collocations are and also hopes to be able to help them study collocations more in detail.

It would be interesting to assess learners' collocation knowledge at different levels. And, it is suggested that additional instrument such as interviews can be adapted in future research. It will get a better understanding of the students' perceptions of collocations.

It is sure that vocabulary learning must be learned before the study of collocations. All languages have a large number of collocating words. A good dictionary will help learners and dictionaries of collocations are also available.

VIII. Limitations of the Research

Firstly, this research might have limitations in exploring the collocation knowledge of the Cooperative University students. Because there are the other students such as first year, second year, final year, post-graduate diploma and master students. In addition, this study mainly focuses on only 260 third year students from all specializations. Those students have to answer only 15 collocations. Therefore, the limitation of the study is that it cannot cover the students of the whole university.

Determinants of Fertility Decline in Developing Countries: Empirical Evidence from Myanmar

Myo Myat Thu Zar[1]

Abstract

Fertility is one of the key factors influencing population change. Fertility measures were derived from a population. As in developing countries including Myanmar is decreasing fertility rate. The total fertility rate (TFR) of women 15-49 estimated from the 2007 FRHS is two births per women. There has been steady decline in fertility in Myanmar in the past decades from 4.7 children per women in 1983 to 2 children per women in 2007. In this study, by using Myanmar Demographic and Health Survey (MDHS) raw data, fertility decline is calculated based on factors affecting the socio-economic factors such as women's first birth age, paternal' education and occupation, income, social media knowledge and place of residence. Multiple regression analysis is also used to the relationship between number of children ever born and demographic factors by using SPSS software.

Key words: number of children ever born and socio-economic factors and demographic factors.

1.Introduction

Everyone is a member of a population and population changes affect everybody in one way or another. A change in population is usually determined by three demographic processes of fertility, mortality and migration. Fertility represents the role of births in population change and human behavior is an essential factor of reproduction. "Fertility" refers in demography to the reproductive behavior of women and couples to the statistics describing the results of this behavior. The results of the 2014 Myanmar Population and Housing Census indicated that the population of Myanmar on the 29th March 2014 was 51,419,420 persons. The 2014 Census data show that the population density in Myanmar is 76 persons per square kilometre. About 30 per cent of the population reside in urban areas.

The fertility of a population is one of three factors that determine long-term population growth. The other two factors are mortality and migration. Fertility is the measure of the reproductive performance of women as obtained from the statistics of the number of live births. The number of births occurring in any year in a population is determined partly by

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demographic factors such as the age and sex distribution, the number of married couples and their distribution by age, duration marriage and number of children already born.

Fertility in Myanmar appears to have fallen below four children per women during Second World War years and to have risen steadily through the mid-1960s, reaching a level of slightly over five children per women. Fertility decline appears to have begun at about this time, proceeding slowly through the mid-1980s and rapidly thereafter. Fertility appears to have fallen very rapidly during the late 1980s, falling below three children per women in 1989 and 1990. Urban-rural differences have generally increased over time, and urban fertility appears to have fallen below replacement level in the late 1980s.Fertilityin Myanmar has been declining. The number of children a married woman can expect to give birth to is still high though it has declined. Fertility decline in Myanmar is likely to be influenced by the factors such as education, employment, increase in contraceptive use, increase in age at first marriage and increase in the proportion of women never married.

Fertility of Myanmar has been declining. The total fertility rate (TFR) of women 15-49 estimated from the 2007 FRHS is two births per women. There has been steady decline in fertility in Myanmar in the past decades from 4.7 children per women in 1983 to 2 children per women in 2007.

Myanmar fertility is declining else, all over the world fertility is declining. Although only a very few countries have declining populations, 61 countries (with about 44% of the world's population) already have below-replacement fertility rates (less than 2.1 births per woman). On the other hand, in 2050, 130 countries will still have positive growth rates, 44 of them above 1% per year, about the rate observed in more-developed regions in 1965. Fertility has declined most quickly in Latin America and Asia, less rapidly in North Africa and the Middle East, and much more slowly in sub-Saharan Africa. Asia's fertility fell sharply in the last 50 years, from 5.9 to 2.6 children per woman. Sub-Saharan Africa's has dropped much more slowly, from 6.5 to 5.5. Latin America and the Caribbean have seen a decline from 5.9 to 2.7, North Africa and Western Asia from 6.6 to 3.5.Europe's fertility rate fell from 2.6 to 1.4, well below replacement level.

Malaysia is an intermediate-fertility country with total fertility dropping from 5 to2.1 children per woman in the period between 1995 and 2000.

1.1 Objectives of the study

(i) To investigate the impact of maternal demographic and socio-economic factors on fertility rate.

(ii) To examine the relationship between paternal demographic and socio-economic factors on fertility rate.

1.2 Method of study

The study used the data from Demographic and Health Survey (DHS) which was conducted across the country in 2015-2016. The DHS survey collected information on fertility levels, marital status, fertility preferences, awareness and use of family planning methods, breastfeeding practices, nutrition, mother and child mortality and health, HIV/AIDS and other sexually transmitted infections (STIs), and other health-related issues, such as smoking and knowledge of tuberculosis. The study administered univariate, bivariate and multivariate analyses. Data analysis was performed by using the Statistical Software named SPSS version 22 which is very powerful analysis software.

1.3 Scope and limitation of the study

In this study, the data on fertility of states and regions in Myanmar to access the study period are used from Myanmar Demographic Health Survey 2015-2016. In addition, some information is obtained from Fertility and Reproductive Health Survey (2007).

1.4 Organization of the study

This paper is composed of five chapters. As the introduction part, the objective of the study, method of the study, scope and limitation of the study and organization of the study are presented in Chapter I. Chapter II deals with the Literature review and Chapter III concerns with the data analysis and conceptual frame work. Chapter IV mentions multiple regression analysis for the number of children on socioeconomic factors and demographic factors. Chapter V describes the finding of paper.

2. Literature Review

Max Weber; fertility decline has been considered one index of a general social process, initiated by the adoption of industrial technology, that alters the economic and social psychological fabric of society. Large young population places a heavy burden on the working-age population and limits the provision of basic needs and social services.

(Thompson 1942, 3).According to Thompson fertility decline is caused by two main changes in society. On the one hand, large numbers of individuals move from the countryside into the cities. Those individuals represent the rural surplus population which relocates in order to find employment in town. In the course of this process, referred to as urbanization, the traditional way of life undergoes massive alterations. While struggling to acquire or to enhance their status with in the new urban environment, a large number of children seem obstructive, and thus not desirable. In contrast to rural areas, urban life includes a different mode of living, another quality of incomes and types of work, other occupational positions along with exercise of power as well as a variety of opportunities for leisure activities. Therefore, townspeople experience a serious conflict between establishing a large family and the achievement of their ambitious objectives. Moreover, urban labor requires a relatively time consuming period of vigorous training, by which the postponement of children becomes a natural side effect. As a consequence, either a low number of children are born to urban couples' or prospective parents might already be to too old to have offspring at all. Furthermore, in comparison to a rural farmer that has to be to the farm 365 days per year in order to care for the cattle, for urbanites rearing children is connected with immobility while they have the desire to travel (Thompson 1942, 207-210).

Note stein (1948) summarizes important factors contributing towards the fertility decline, particularly in undeveloped areas. According to him, substantial restrictions in fertility "depend on the social organization, customs, and beliefs from which arise the aspirations [...] with respect to family size" (Note stein 1948, 250-251).

Becker concentrates on a microeconomic approach in order to show "[...] the interrelationship between socio-economic variables and fertility" (Becker 1960, 209) .Easter in (1975) pursues the intention to unite economic views with principal demographic and sociological concepts. In implementing the previous, his objective is to illustrate the potential output of children per family in context with the demand for children and the costs of fertility control. To solve the question concerning the determinants for a decrement in fertility in the course of modernization, Easter in utilizes a strategy which gives the same weight on *demand* and *output* of children as well as on *fertility control*.

2.1 Survey Description

The paper employed the data from the 2015-16 DHS survey which was conducted across the country. The primary objective of the 2015-16 MDHS was to provide up-to-date estimates of basic demographic and health indicators. Specifically, the survey collected information on fertility levels, marital status, fertility preferences, awareness and use of family planning methods, breastfeeding practices, nutrition, mother and child mortality and health, HIV/AIDS and other sexually transmitted infections (STIs), and other health-related issues, such as smoking and knowledge of tuberculosis. The 2015-16 MDHS followed a stratified two-stage sample design and was intended to allow estimates of key indicators at the national level, in urban and rural areas, and for each of the seven States and eight Regions of Myanmar. The first stage involved selecting sample points (clusters) consisting of EAs or ward/village tracts. A total of 442 clusters (123 urban and 319 rural) were selected from the master sample. At the second stage, a fixed number of 30 households was selected from each of the selected clusters (a total of 13,260 households), using equal probability systematic sampling. For the clusters, which were completely enumerated during the population census, the census household listings were taken as the base and updated in the field by the household listing teams. These updated lists were used for selecting the sample households. For the clusters that were not enumerated or partially enumerated during the census, an independent household listing operation was carried out. Because of the non-proportional sample allocation, the sample was not a self-weighting sample. Weighting factors had to be calculated, added to the data file, and applied so that results are representative at the national as well as regional level. All women age 15-49 who were either permanent residents of the selected households or visitors who stayed in the households the night before the survey were eligible to be interviewed. In half of the selected households (every second household), all men age 15-49 who were either residents or visitors who stayed in the household the night before the survey were eligible to be interviewed. During the course of the fieldwork, 4 clusters were identified as insecure and were replaced with other clusters in the vicinity. In addition, 1 urban cluster had to be dropped due to worsening security. Overall, the survey was successfully carried out in 441 clusters.

3. Theoretical Argument and Data Analysis

3.1 Definition

Regression is a quantitative expression of the basic nature of the relationship between the dependent and independent variables.

The linear regression equation is

$$Y = \beta_0 + \beta_1 X_1 + \varepsilon$$

Multiple regression involves the use to two or more independent variables

The multiple regression model is

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \text{-------} + \beta_k X_k + \varepsilon$$

3.2 Data Analysis

The paper analyzed the data by using the univariate and multivariate analysis. Multiple linear regression models have found wide application in demography. In the study employed multiple liner regression model and considered the relationship between one dependent variable or explained variable and ten independent variables are studied from these models. One dependent variable is "Number of children" and ten independent variables are as follows:

X_1 = Place of residence

X_2 = Listening to radio

X_3 = husband/partner's occupation

X_4 = Age of respondent at first birth

X_5 = Respondent occupation

X_6 = frequency of watching television

X_7 = frequency of reading newspaper or magazine

X_8 = husband/partner's educational attainment

X_9 = highest educational level

X_{10} = wealth index combined

Model specification is as follow:

$$Y_i = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + \beta_9 X_9 + \beta_{10} X_{10} + \varepsilon_i$$

3.3 Conceptual Framework of Research

According to the theory, my paper of research map shows that fertility decline on soico-economic factors such as education, income, rural/urban, marriage age.

Explanatory Variables   **Explained Variable**

Demographic Characteristics

- Place of Residence
- Age at first birth

Socio-economic Characteristics

- Respondent's Educational status
- Partner's educational status
- Family's Wealth Index
- Respondent's Occupation
- Partner's Occupation
- Access to media(radio, newspaper, television)
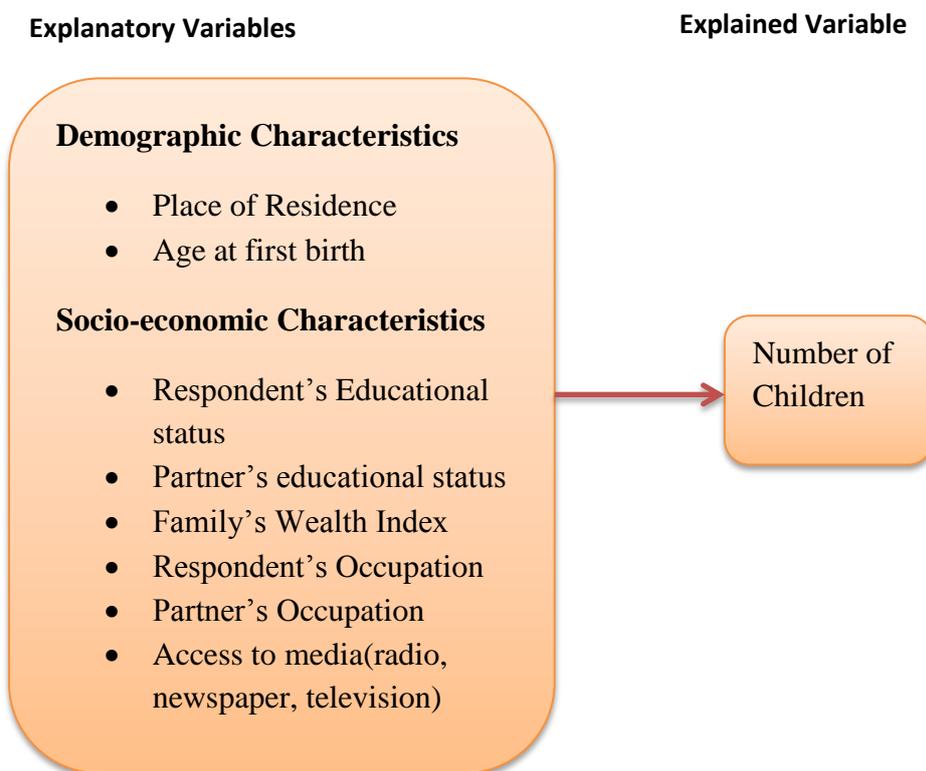
Number of Children

Urban-rural residence, educational attainment, occupational attainment, family income are related to age at first marriage and attitude towards contraceptive use.

4. Analysis of number of children on socio-economic factors and demographic factors

4.1 Demographic Profile

The study respondents' demographic and socio-economic profile is presented as follow.

Rural-Urban Residence

In general, males and females who grew up in cities tend to marry later than males and females who grew up in the countryside. Urban women are better educated than rural woman. Jobs in urban areas are usually outside the home where children are not allowed in the place of work. Therefore, they would not consider to have more children. The urban-rural differentials may be attributed to differential in social services, including higher coverage with immunization, safe delivery of births and access to health care services.

From Table (4.1), rural area lived in 70.6% and urban area lived in 29.4%. So, the study that rural women are more lived than in urban area.

Table (4.1) Type of place of residence

Type	Frequency	Percent
Urban	3785	29.4%
Rural	9100	70.6%
Total	12885	100%

Source: SPSS data analysis

Figure 4.1

Type of place of residence
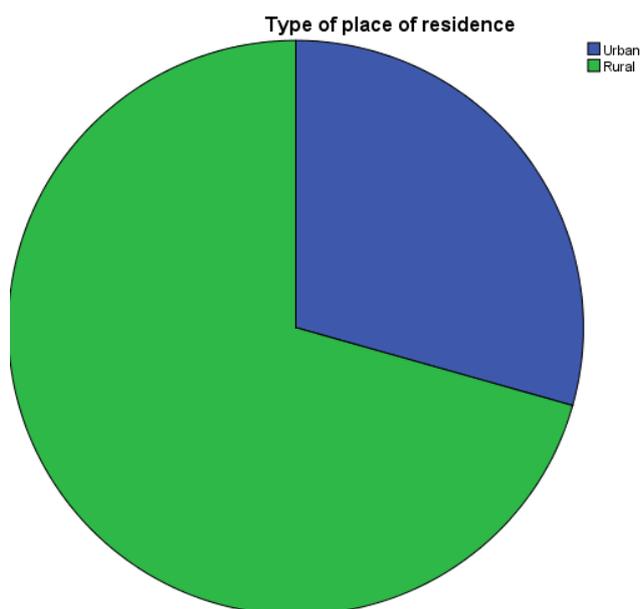
Educational level

Education is the most important variable affecting on fertility, but this paper study education has a negative relationship with the fertility. This means the highest educational level and the number of children are not dependent.

Table (4.2) Highest educational level

Type	Frequency	percent
No education	1592	12.4%
Primary	5129	39.8%
Secondary	4838	37.5%
Higher	1324	10.3%
Total	12883	100%

Source: SPSS data analysis

Figure 4.2

Highest educational level
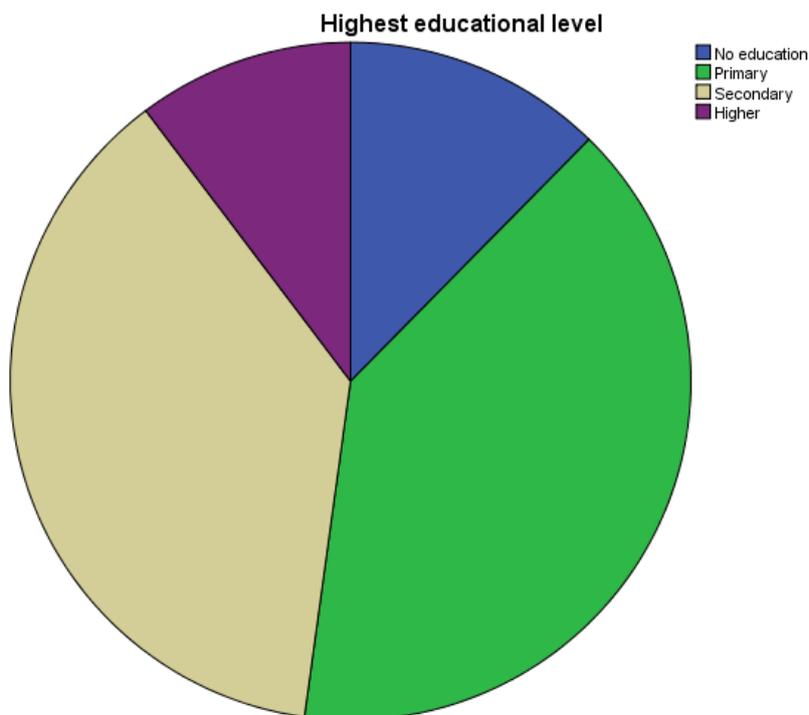
From Figure (3.2), no education is 12.4 %, primary level is 39.8 % and secondary level is 37.5 %. Higher educational level is the lowest (10.3%). So, Myanmar found that educated person are decreased.

4.2 Knowledge of Social Media

Social media such as television, radio and newspaper are the most important variable affecting on fertility, but this paper study radio and newspaper have no relationship with the number of children.

Mass media convey messages on preventing communicable diseases, including HIV/AIDS, tuberculosis, and malaria; healthy life styles for preventing no communicable diseases, and other topic. In Myanmar, men are slightly more likely than women to be regularly exposed to all forms of media, but especially newspapers. Television is the most common form of media used by women and men (60% each). About one-fourth of women (25%) and men (28%) listen to the radio. Exposure to newspapers varies most by gender: 16% of women and 27% of men read newspapers at least once a week

Table(4.3) Frequency of reading newspaper or magazine

	Frequency	Percent
Not at all	7398	57.4%
Less than once a week	3501	27.2%
At least once a week	1986	15.4%
Total	12885	100%

Source: SPSS data analysis
Figure 4.3

Frequency of reading newspaper or magazine
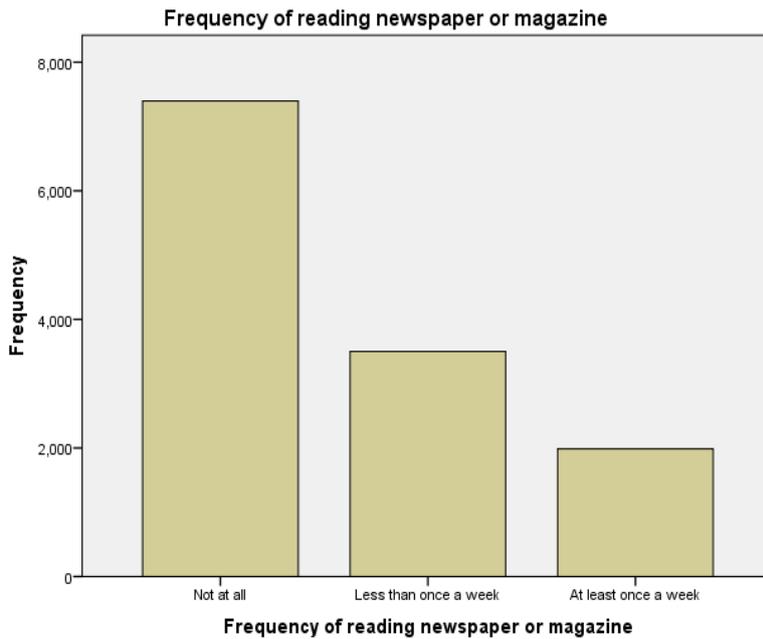
Table (4.4) Frequency of listening to radio

	Frequency	Percent
Not at all	7078	54.9%
Less than once a	2667	20.7%
week	3140	24.4%
At least once a week		
Total	12885	100%

Source: SPSS data analysis

Figure 4.4

Frequency of listening to radio
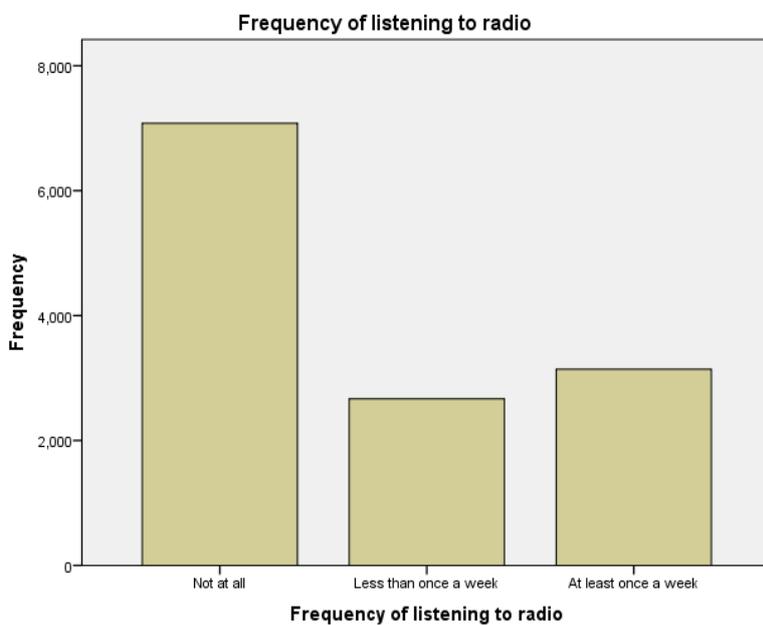
Table (4.5) Frequency of watching television

	Frequency	Percent
Not at all	3069	23.8%
Less than once a week	2346	18.2%
At least once a week	7470	58.0%
Total	12885	100%

Source: SPSS data analysis

Figure 3.5
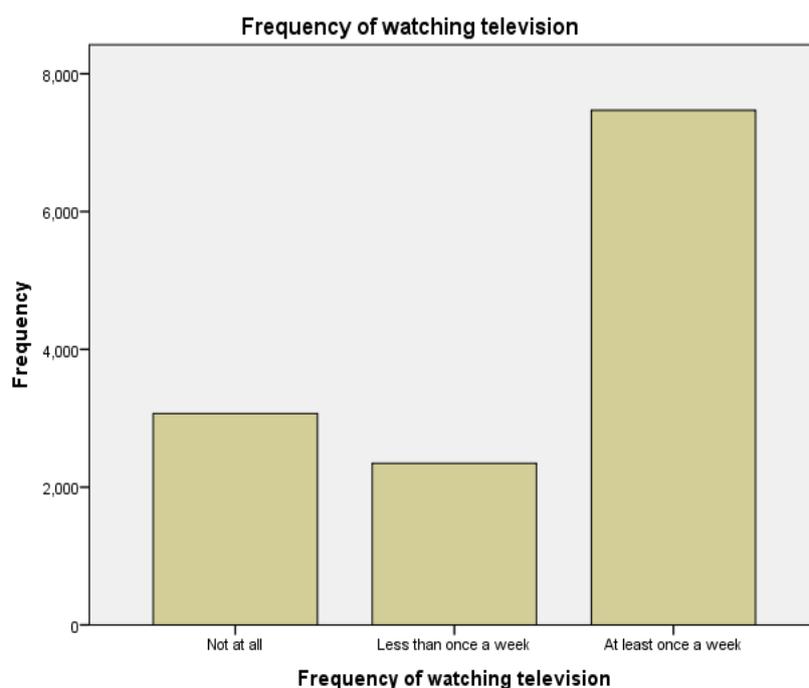
4.3 Childbearing Age at First Birth

Age at first marriage is significantly associated with the level of fertility. It is found to be one of the strong correlates of fertility. The early age at first marriage tends to increase fertility, and the delay in age at first marriage results in a decrease in fertility.

Childbearing in Myanmar occurs relatively late. Only 7% of women age 25-29 gave birth before age 18. The median age at first birth in Myanmar is 24.7 years among women age 25-49.Women with no education have a lower median age at first birth than those with primary education (21.5 versus 23.5 years). Women in the lowest wealth quintile tend to give birth earlier than those in other quintiles.

Childbearing during teenage years can reduce women's educational and employment opportunities and is associated with higher level of fertility. In Myanmar, 6% of women age 15-19 have begun childbearing: 5% have given birth and an additional 1% are pregnant with

their first child. The level of teenage fertility is influenced by education. Nineteen percent of teenagers who have never been to school have begun childbearing, compared with 3% who have a secondary education and 1% who have more than secondary education. The level of teenage fertility is also associated with wealth; 9% of the poorest teenagers have begun childbearing, compared with 3% of the richest.

Table (4.6) Age of respondent at 1st birth

Age	Frequency	Percent
<15	88	1.1
15-19	2206	28.3
20-24	3345	42.9
25-29	1537	19.7
30-34	489	6.3
35-39	118	1.5
40-49	13	.2
Total	7796	100%

Source: SPSS data analysis

Figure 4.6

Age at First Birth
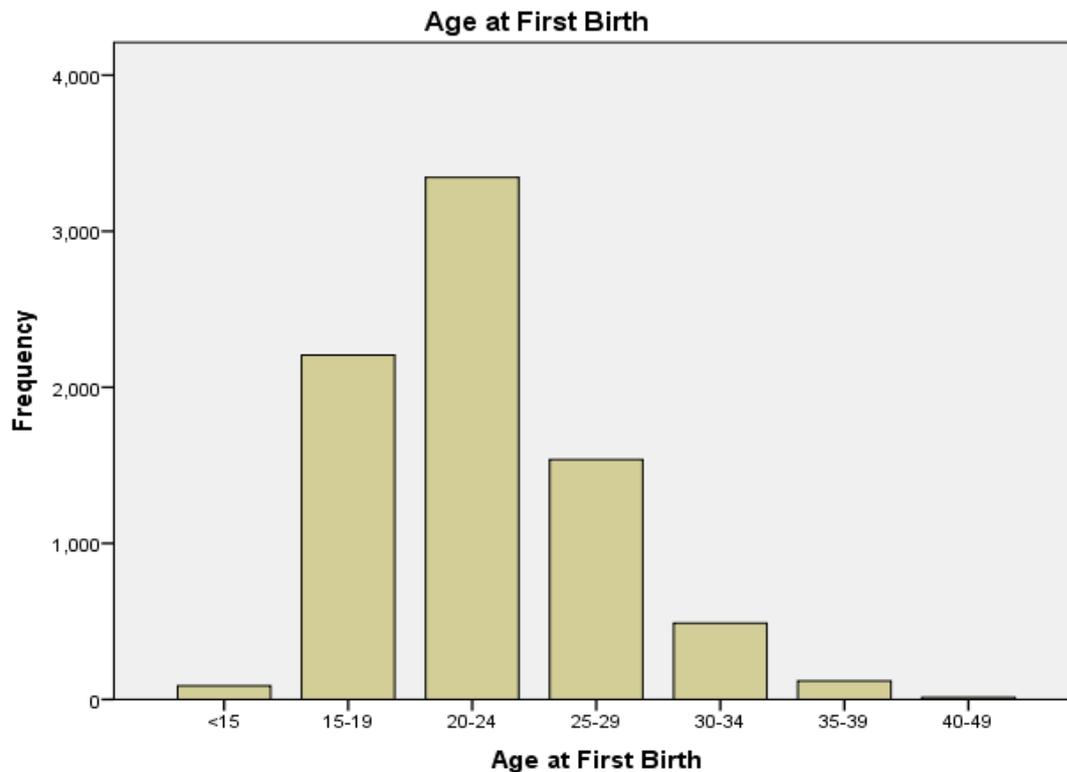
4.4 Determinants of Declining Fertility

The study attempts to identify the determinants of declining fertility by analyzing the data in terms of multivariate statistical method. In this case, collinearity of independent variables is at first examined as follow.

4.5 Measure of Collinearity

Collinearity refers to the situation in which there is a high multiple correlations when one of the independent variable is regressed on the others. Diagnostics are available which allow to detect the presence of collinear data. The tolerance of a variable, $(1-R_j^2)$ is commonly used to measure the collinearity. If the tolearance of a variable is small, it is almost a linear combination of the other independent variables. The variance inflation factor (VIF) for each independent variable is the reciprocal of the tolearance, $(1-R_j^2)$. If a set of independent variables are uncorrelated, then VIF will be equal to one. Other researchers suggest a more conservative criteria; criterian that would employ alternatives to least square regression if the maximum VIF were to exceed 5. Table(4.3) shows the tolearance and VIFs of the variables in the model for the number of children ever born.

Table (4.3) Measures of Collinearity Tolerance and VIF

Variable	Collinearity Statistics	
	Tolerance	VIF
X1	0.686	1.458
X2	0.948	1.055
X3	0.876	1.142
X4	0.913	1.096
X5	0.900	1.111
X6	0.804	1.243
X7	0.748	1.336
X8	0.626	1.596
X9	0.566	1.767
X10	0.555	1.803

From table (4.3), the high value of VIF are found for variable X_9 and X_{10}. Hence, there is high dependency among these independent variables. It can be conclude that, that is the highest education level and family wealth index are highly dependent.

\Table (4.4) Coefficient Correlation Matrix

Dependent Variables	X1	X2	X3	X4	X5	X6	X7	X8	X9	X10
X1	1.000									
X2	-.081	1.000								
X3	.059	-.025	1.000							
X4	-.002	-.011	.007	1.000						
X5	-.061	-.053	-.201	-.004	1.000					
X6	.062	-.060	.013	.030	.010	1.000				
X7	.110	-.163	.054	-.020	.010	-.069	1.000			
X8	.085	-.024	.137	-.071	.005	-.029	-.073	1.000		
X9	.063	-.049	-.002	-.130	.088	-.057	-.233	-.355	1.000	
X10	.356	.033	.105	-.084	.039	-.255	-.051	-.140	-.169	1.000

Further, table (4.4) provided the same findings because independent variables are not related each other with coefficients of correlation which are less than 0.7.

4.3.2 Empirical Results

The following table (4.5), the demographic factors and socioeconomic factors are describe man and standard deviation.

Table (4.5)   Descriptive Statistics

	Mean	Std. Deviation	N
Type of place of residence	1.71	.455	12885
Highest year of education	3.48	1.613	11291
Frequency of listening to radio	.69	.836	12885
Frequency of watching television	1.34	.837	12885
Frequency of reading newspaper or magazine	.58	.743	12885
Husband/partner's educational attainment	2.22	1.590	8737
Husband/partner's occupation (grouped)	6.43	2.762	8649
Respondent's occupation (grouped)	3.96	3.523	12855
Age of respondent at 1st birth	22.36	4.590	7796

Wealth index combined	3.07	1.403	12885

Socio-Economic Variables

Table (4.6) Empirical Results of Multiple Linear Regression Model

Variables	β	t	Sig.
Demographic Variables			
Place of residence	-0.009	-0.751	0.453
Respondent's Age at 1st birth	-0.261	-24.259	**0.000**
Social Variables			
Respondent's Education	-0.220	-16.118	**0.000**
Husband/Partner's education	-0.086	-6.67	**0.000**
Reading newspaper or magazine	-0.004	-0.369	0.712
Listening to radio	0.003	0.271	0.786
Watching television	-0.059	-5.151	**0.000**
Economic Variables			
Family's Wealth index	-0.036	-2.593	**0.010**
Respondent's occupation	-0.018	-1.71	0.087
Husband/Partner's occupation	-0.078	-7.147	**0.000**
Model Fit			
R-squared	0.205		

Adjusted R-squared	0.204		
F-test	194.434		
Sig	**0.000**		

a. Dependent Variable: Total children ever born

From the Table (4.6), it is observed that the coefficient of highest educational level is -0.220 and significance. So, highest educational level and number of children are inverse relationship. If the highest educational level is increased, number of children ever born are decreased.

The coefficient of frequency of watching television is -0.059 and significance. So, frequency of watching television and number of children are inverse relationship. This mean that women are more than touched with media ,fertility declined. But, frequency of reading newspaper or magazine and listening to the radio are not significance with the number of children.

The coefficient of age of respondent at first birth is -0.261 and significance. If the respondent's age are more old, fertility rate is declined. And then, the coefficient of partner's educational attainment and occupation are -0.086 and -0.078. We can say that number of children and coefficients are indirect relationship.

In this table (4.6), the adjusted R^2 20.5% can interpreted as the number of children ever born explained by the ten independent variables considered and model is significance.

5. CONCLUSION

The total population of Myanmar is 51419420 persons in 2014 census. Overall 13% of currently married women age 15-49 want to have another child soon, 18% want to wait at least 2 years, and 61% want no more children or are sterilized. The reason of fertility decline is associated with a number of factors: the education level of parents, age at first birth, knowledge of public health, paternal and maternal occupational, family income, progress of modern medicine. This finding suggests that women with higher education are better able to have only the number of children ever born. Early age at first marriage for woman tends to have the strongest impact on increasing fertility. Finding that women age 19 to 22 are the highest fertility rate and then gradually down birth rate. Almost every country has declined

in fertility rate. Moreover, changes in fertility level are also studied by using multiple linear regression models. The results, seemed to reflect that the number of children ever born is influenced by the paternal' occupation, education.

Finding, rural area is living 70.6 percent and urban area lived 29.4 percent. So, rural residence are more likely. The median age of a woman at her firth birth is 22.36 years. Fertility peaks in the age group 20-24, 42.9 percent. Teenagers (15-19)of a woman at first birth is 22.8%. The oldest age (40-49) of a woman at first birth is 0.2%. The number of children that a woman bears depends on many factors, including the age at which she begins childbearing.

Fertility levels are markedly lower among highly educated women and women living in wealthy households compared with other women. Thirty nine percent of age 15-49 in Myanmar have attended primary school. Thirty seven percent of age have attended secondary level. Ten percent have completed more than secondary education. About 3 in 10 women (32%) and men (29%) have no regular exposure to social media such as television, radio and newspaper. Finding, Fertility decline are not relationship with these factors such as their residence place, listening to the radio, and reading to the newspaper.

As the result of this study, we recognize that the number of children depend upon husband education and occupation, family wealth index, mother's age at first birth and knowledge.

Acknowledgements

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CO-OPERATIVE UNIVERSITY (THANLYIN)

DEPARTMENT OF GEOGRAPHY

SPATIAL ANALYSIS OF TRAFFIC ACCIDENT OF THANLYIN TOWNSHIP

PRESENTED BY

DAW SHWE YI WIN

3 ,July, 2018

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ABSTRACT

Thanlyin Township is located opposite to Yangon City has changed dramatically after the opening of the Yangon – Thanlyin Bridge (1). It lies between north latitudes 16˙40' and 16˙59' and east longitude 96˙13' and 96˙25'. Thanlyin Township is composed of (17) wards and (28) village tracts. Thanlyin township having the population of 248676. According to the traffic accidents records of 2017,136 traffic accidents that caused 225 injuries and 23 death were occurred within Thanlyin Township.The majority of these accidents resulrs from human errors. The human caused accidents are mainly the carelessness of drivers or pedestrians. Most accidents on Township road are caused by speeding, unsafe overtaking, drunk driving and a lack of driving experience. Traffic police has started a new five years program to reduce the number of accident, injuries and deaths on the road by encouraging the four habits: wearing seatbelts, wearing helmets while riding bicycles and motorcycles, not driving after consuming alcohol or other drugs, and not using mobile phones while driving.

Introduction

      Road accidents are worldwide and increasing, mainly because the development of transportation infrastructure fails to keep pace with other sectors like industry and real estate.Thus the road traffic accidents are the leading cause of human deaths and illness worldwide. These accedents often result in fatalities, injuries or damage to people around the world. Thanlyin township having the population of 248676. According to the traffic accidents records of 2017,136 traffic accidents that caused 225 injuries and 23 death were occurred within Thanlyin Township. The majority of these accidents results from human errors. The human caused accidents are mainly the carelessness of drivers or pedestrians. Most accidents on Township road are caused by speeding, unsafe overtaking, drunk driving and a lack of driving experience. Traffic police has started a new five years program to reduce the number of accident , injuries and deaths on the road by encouraging the four habits: wearing seatbelts, wearing helmets while riding bicycles and motorcycles, not driving after consuming alcohol or other drugs, and not using mobile phones while driving.

Aims and Objectives

The aims and objectives of the study area are as follow.

(1) To build a Geodatabase System for traffic accidents
(2) To make Nearest Neighbour based on traffic accident cases
(3) To create traffic accident zone map

Data collection

Traffic accident records in the Thanlyin Township were collected from Thanlyin Traffic Police Office Headquarter office located on Bogoke Nay Win street. The records include accident date and time ,accident location, name of respondents, name of victims, number of person death or injuries and so on. Due to the limited time, only 2017 traffic accident data were used for the analysis.

Methodology

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┌──────────────┐      ┌──────────────┐      ┌──────────────┐
│Data Collection│ ──▶ │ Geodatabase  │ ──▶ │   Analysis   │
└──────────────┘      └──────────────┘      └──────────────┘
        │                    │                    │
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┌──────────────┐     ┌──────────────┐     ┌──────────────┐
│Accident data │     │Locating      │     │Nearest       │
│From          │     │AccidentPoint │     │Neighbouring  │
│Traffic Police│     │on Google     │     │              │
│Office        │     │Earth &       │     └──────────────┘
└──────────────┘     │Displaying in │
        │            │ArcMap        │
        ▼            └──────────────┘
┌──────────────┐            │
│Road Network  │            ▼
│Shapefile     │     ┌──────────────┐
│from OSM      │     │Attribute     │
└──────────────┘     │Table         │
                     │Preparation   │
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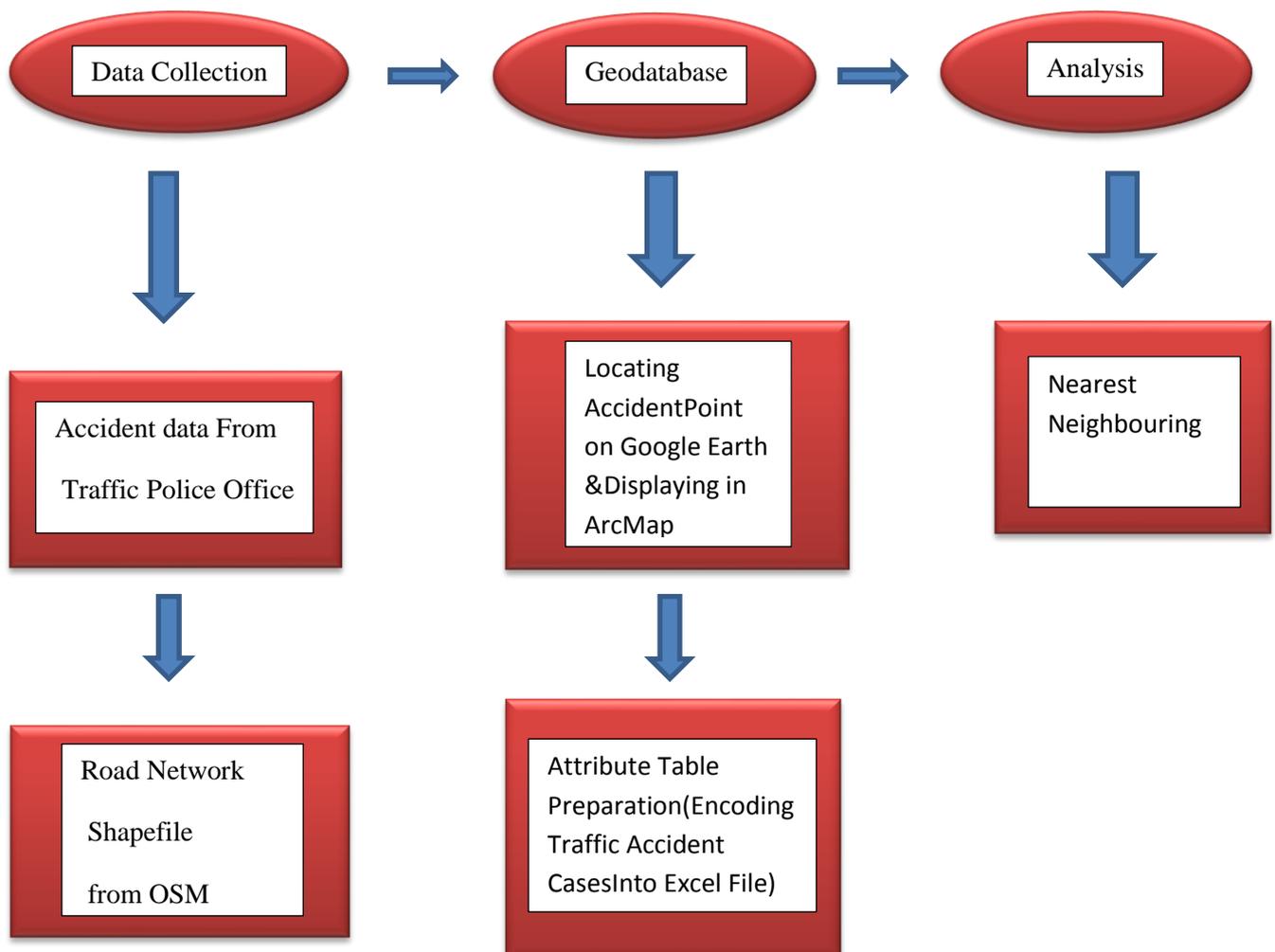
1.Geographical Backgroung of Thanlyin Township

(1.6)   Location, Size, Shape and Boundary

Thanlyin Township is located in Southern portion of Yangon Region. It is one of the fourty five townships of Yangon Region.It is located on the left bank of Bago River and close to the Yangon City. It lies between north latitudes 60˙40' and 16˙59' and east longitudes 96˙13' and 96˙25'. It is surrounded by Thonegwa Township and Khayan Township on the east, Kyauktan Township on the south, the Yangon River on the west and the Bago River on the north. The total area of Thanlyin Township is 92149 acres (372.9) sq.kilometer and it comprises about 3.8 percent of Yangon Region. This township is 38.6 to kilometers (24) miles long north to south and 20.92 kilometers (13) miles wide from east to west .

Thanlyin Township can be divided into two parts, i.e. urban area and rural area.Thanlyin Town, the urban area, is formed by seventeen wards. The rural area is comprised of twenty eight village traacts. The shape of the township is elongated with a longer axis from northeast to southwest and a shorter axis from southeast to northwest.

Since Thanlyin Township is located facing two rivers, i.e. the Yangon River and the Bago River, its position is naturally favourable for water way transportation. Besides, position of the township indicates two more locational advantages : (1) its opposite position to mega city Yangon, and (2) lying between the great economic capital city and it neighbours plus its hinterland having rich agricultural resources. These locational advantages have made Thanlyin in a collecting and redistribution centre. Consequently these conditions have led to become an attractive population centre and hence to develop land transportation in the area.

Location of Study Area

Figure (1.1) Location of Study Area

Source: Based from MIMU (Shape File)

(1.2) Relief and Drainage

As the study area is a part of Irrawaddy deltaic area, topography of Thanlyin Township is generally a flat low land. With the exception of western portion, the whole surface is characterized by flat land of deposition origin. On the west Thanlyin-Kyauktan laterite ridge with low relief run roughly from west-northwest to east-southeast.

Most part of the township is below 10 metres above mean sea level. The lowest portion is the Bago River bank . Within this portion , the lowest plot is around Nyaunglaypin village at the mouth of Khayan Chaung. Some lowlying area south-west of Yangon-Thanlyin bridge and around this bridge, reclaimed for settlement plans in recent year.

Relief and Drainage
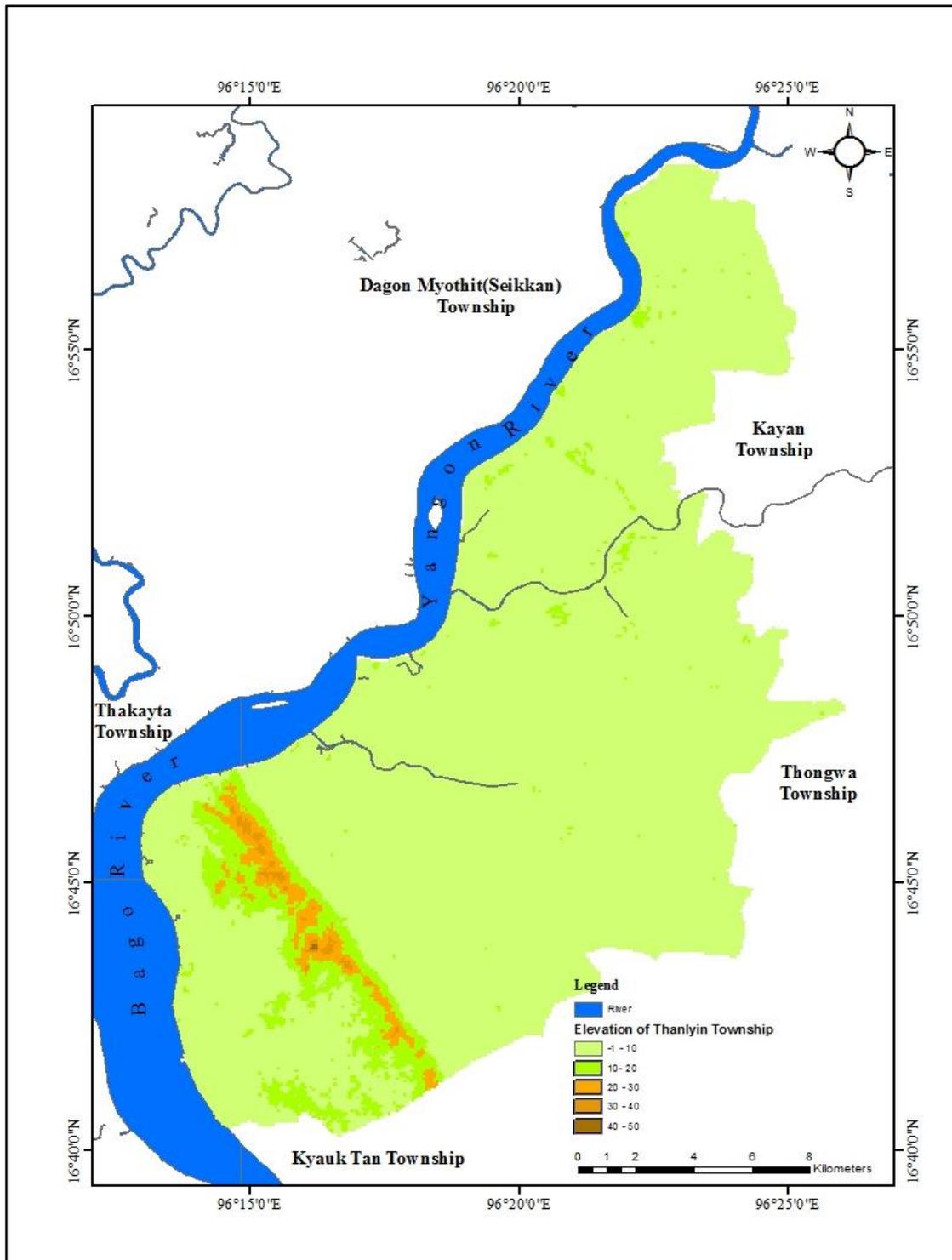
Figure (1.2) Elevation of Thanlyin Township

Source: Based from DEM

(1.3) Climate

As Thanlyin Township is situated in lower Myanmar in low latitudes and close to the sea, general characteristic of climate is humid tropical climate. The area experiences tropical monsoon type of climate like Yangon city.

(1.4) Soil and Natural Vegetation

Soil

On the west of the township, there is a ridge which trends roughtly from northwest to southeast. This ridge is mainly covered by lateriatic soild that is highly eroded. The color of the soil is yellow-red and has small pieces of rust. On moderate slope, brown, lateritic soils are commonly found. Four types of soil are found in Thanlyin Township. (1) Strongly eroded lateritic soil (2) Lateritic soil (3) Meadaw lateritic soil and(4) Meadaw soil.

Natural Vegetation

As the population grow, the natural vegetation has been cleared for settlement and other landuses and cultivation. Various types of bamboos are also found. The dominate species of these forests are Pyingadow, Kanyin and Pyinma. Mangrove and swamp forests occupy the tidal areas in these tidal forests Kanazo, Tayaw, Thinbaung, Lamu, Byu and Dani are the most abundant species.

(1.5) Human Background of Thanlyin township

(1.5.1) Population Distribution and Population Density

Population of the township is unevenly distributed throughout the area. As usual, urban area of the township is densely populated while rural area are sparsely populated. Landuse types of these areas is a major factor that creates different distribution pattern. Majority of the urban land is occupied by residences and giant fractions of the land in rural areas are overwhelmingly used for agriculture.

In 2017, estimated total population was 248676 persons live within the township area. Overall population density of the study area is 667 persons per square kilometer in 2017.As in other, urban area of Thanlyin has denser population than its rural area.

2.Traffic Accident of Study Area

(2.1) All Accident Cases of Thanlyin Township

According to data of Traffic Police Office, the total accident of Thanlyin Township was 136 cases in 2007. The current traffic accident of Thanlyin Township can be studied by dividing into (10) major types are –

(1) Motorcycle and Motorcycle Accident Cases

(2) Motorcycle and Bicycle Accident Cases

(3) Motorcycle and Private Car Accident Cases

(4) Motorcycle and Public Transport Accident Cases

(5) Motorcycle and Pedestrian Accident Cases

(6) Public Transport and Public Transport Accident Cases

(7) Public Transport and Private Car Accident Cases

(8) Private Car and Private Car Accident Cases

(9) Private Car and Bicycle Accident Cases

(10) Private Car and Pedestrian Accident Cases

All Accident Cases of Thanlyin Township
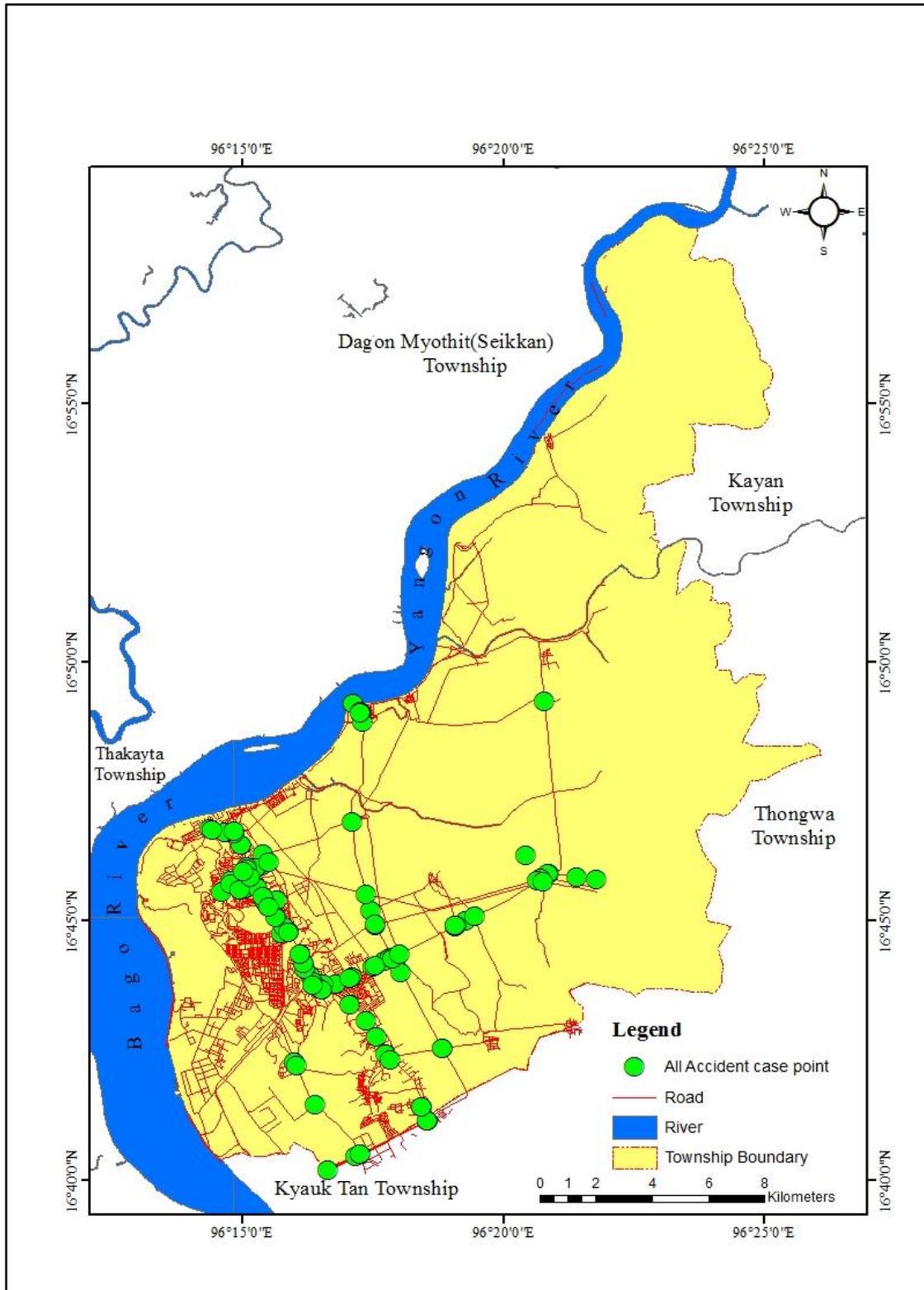
Figure (2.1) All accident case

Source: Traffic Police Office

(1) Motorcycle and Motorcycle Accident Cases
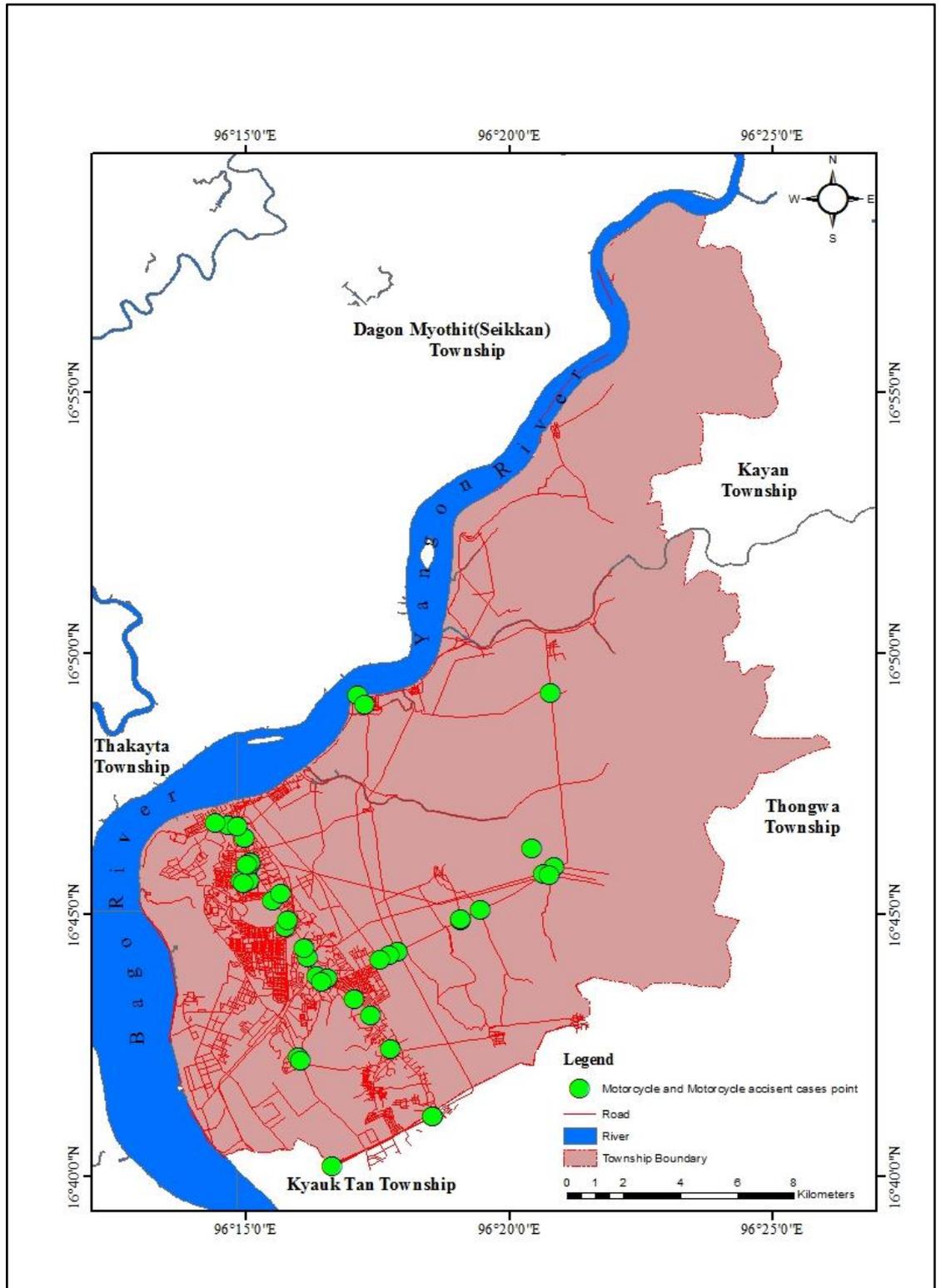
Figure (2.2) Motorcycle and Motorcycle Accident Cases

Source: Traffic Police Office

(2) Motorcycle and Bicycle Accident Cases
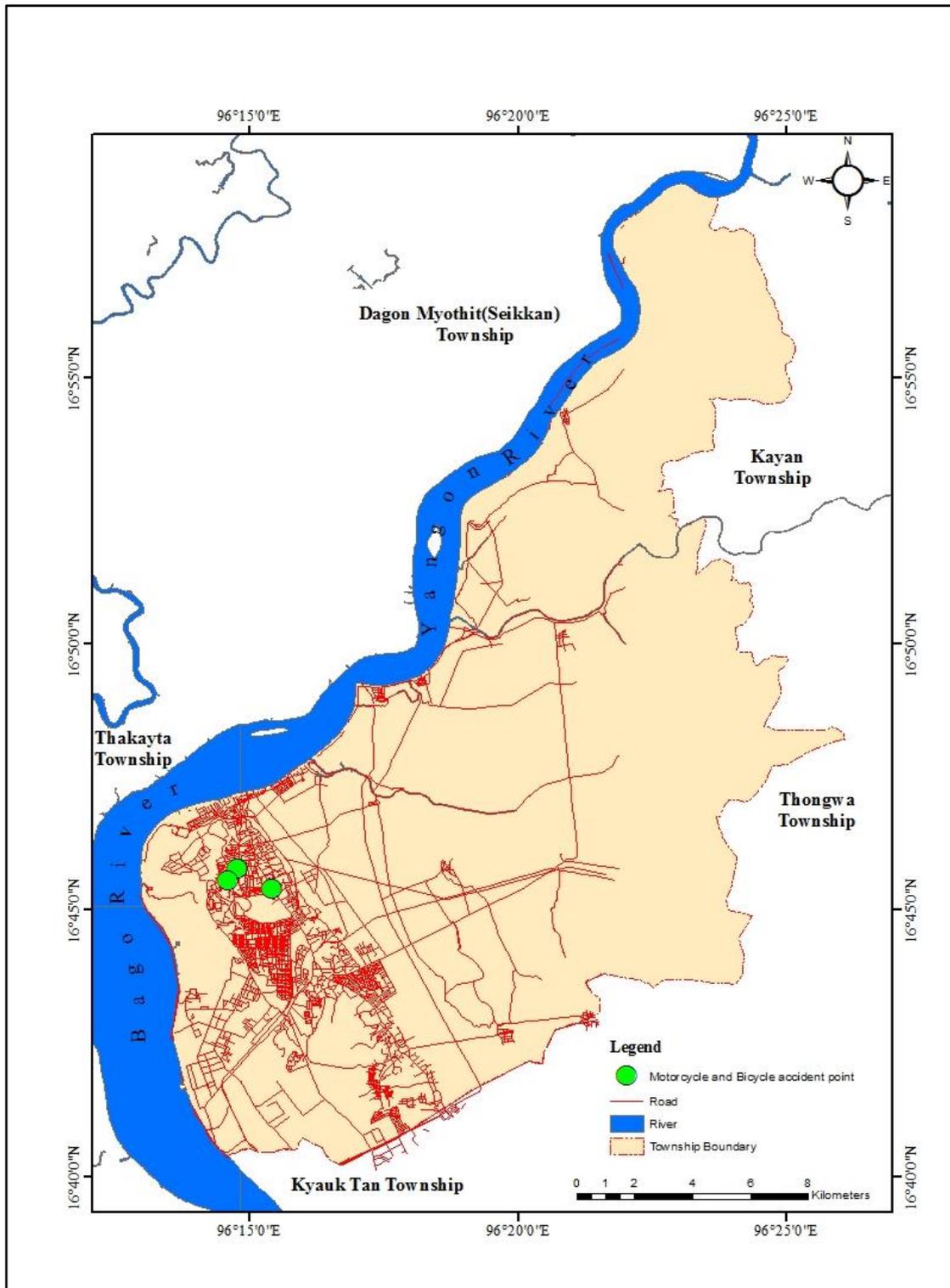
Figure (2.3) Motorcycle and Bicycle Accident Cases

Source: Traffic Police Office

(3) Motorcycle and Private Car Accident Cases
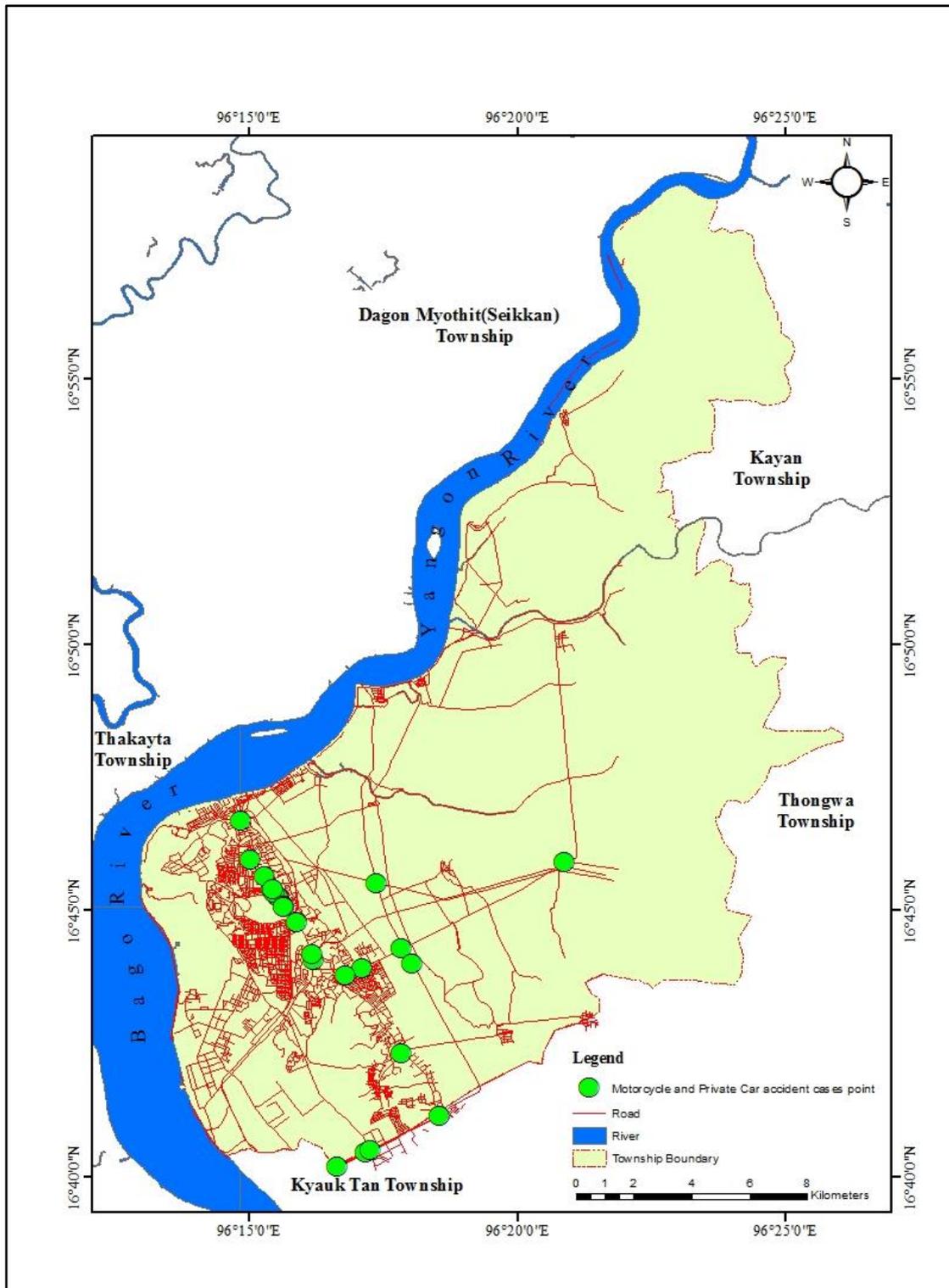
Figure (2.4) Motorcycle and Private Car Accident Cases

Source: Traffic Police Office

(4) Motorcycle and Public Transport Accident Cases
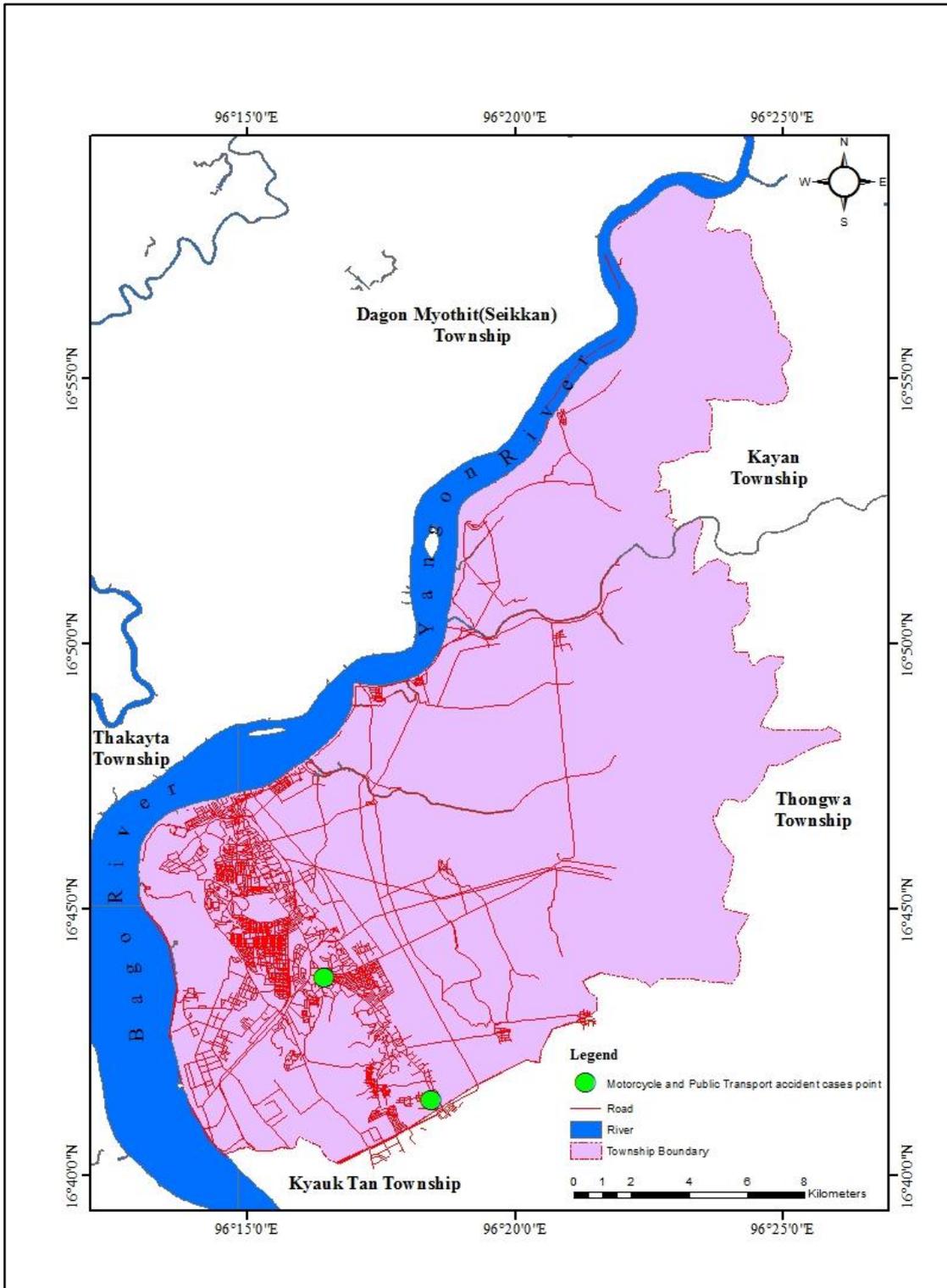
Figure (2.5) Motorcycle and Public Transport Accident Cases

Source: Traffic Police Office

(5) Motorcycle and Pedestrian Accident Cases
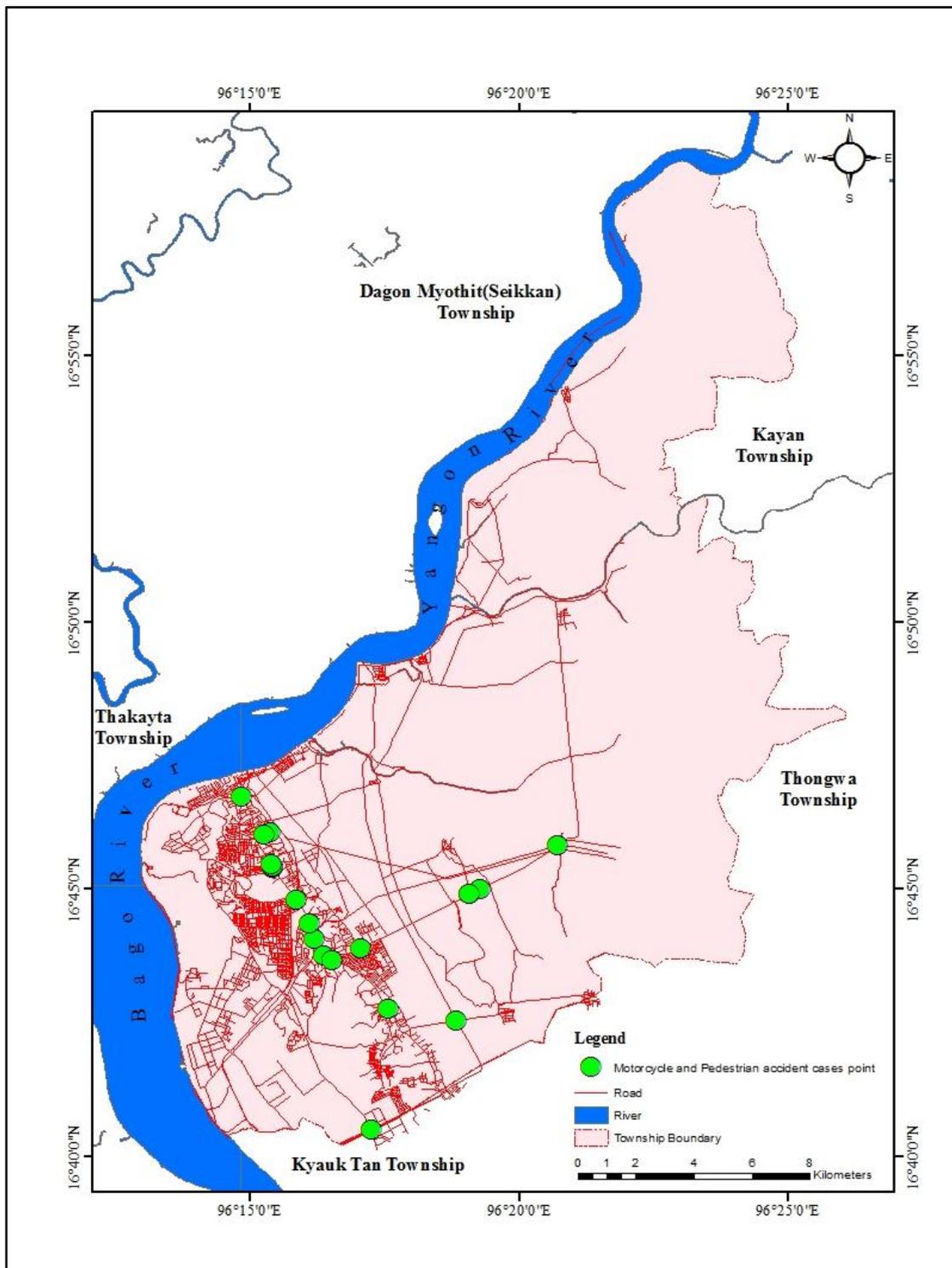
Figure (2.6) Motorcycle and Pedestrian Accident Cases

Source: Traffic Police Office

(6) Public Transport and Public Transport Accident Cases
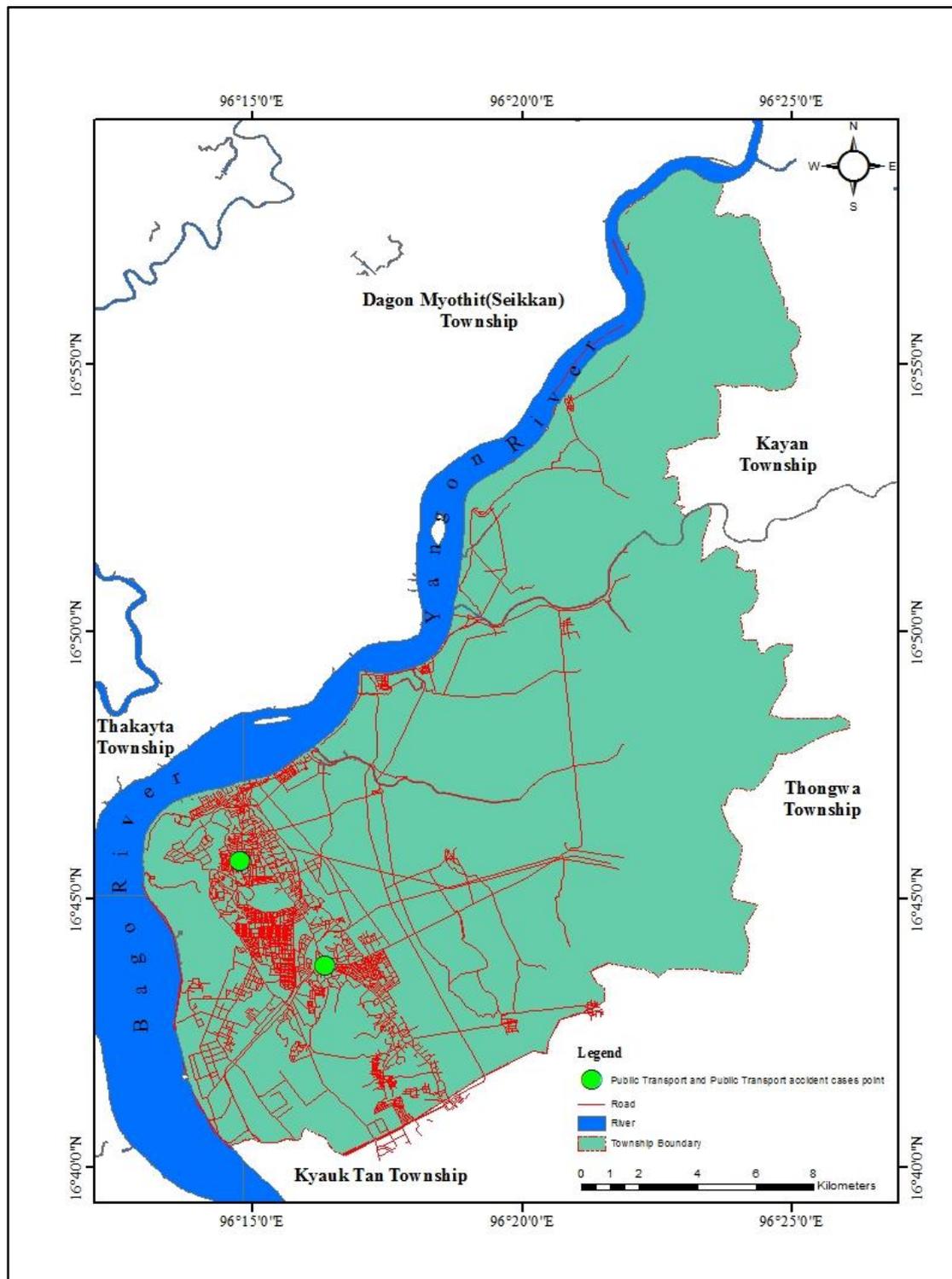
Figure (2.7) Public Transport and Public Transport Accident Cases

Source: Traffic Police Office

(7) Public Transport and Private Car Accident Cases
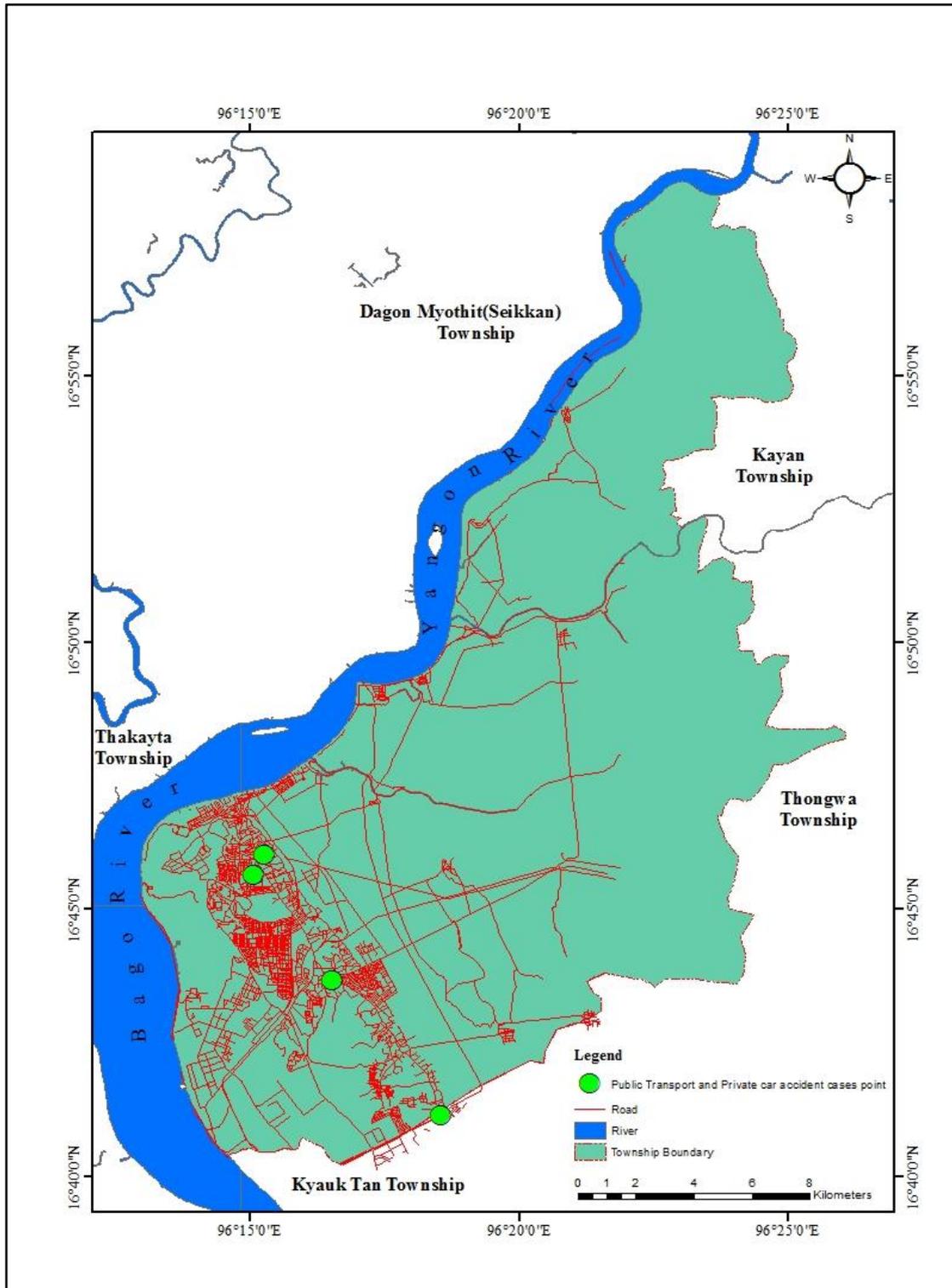
Figure (2.8) Public Transport and Private Car Accident Cases

Source: Traffic Police Office

(8) Private Car and Private Car Accident Cases
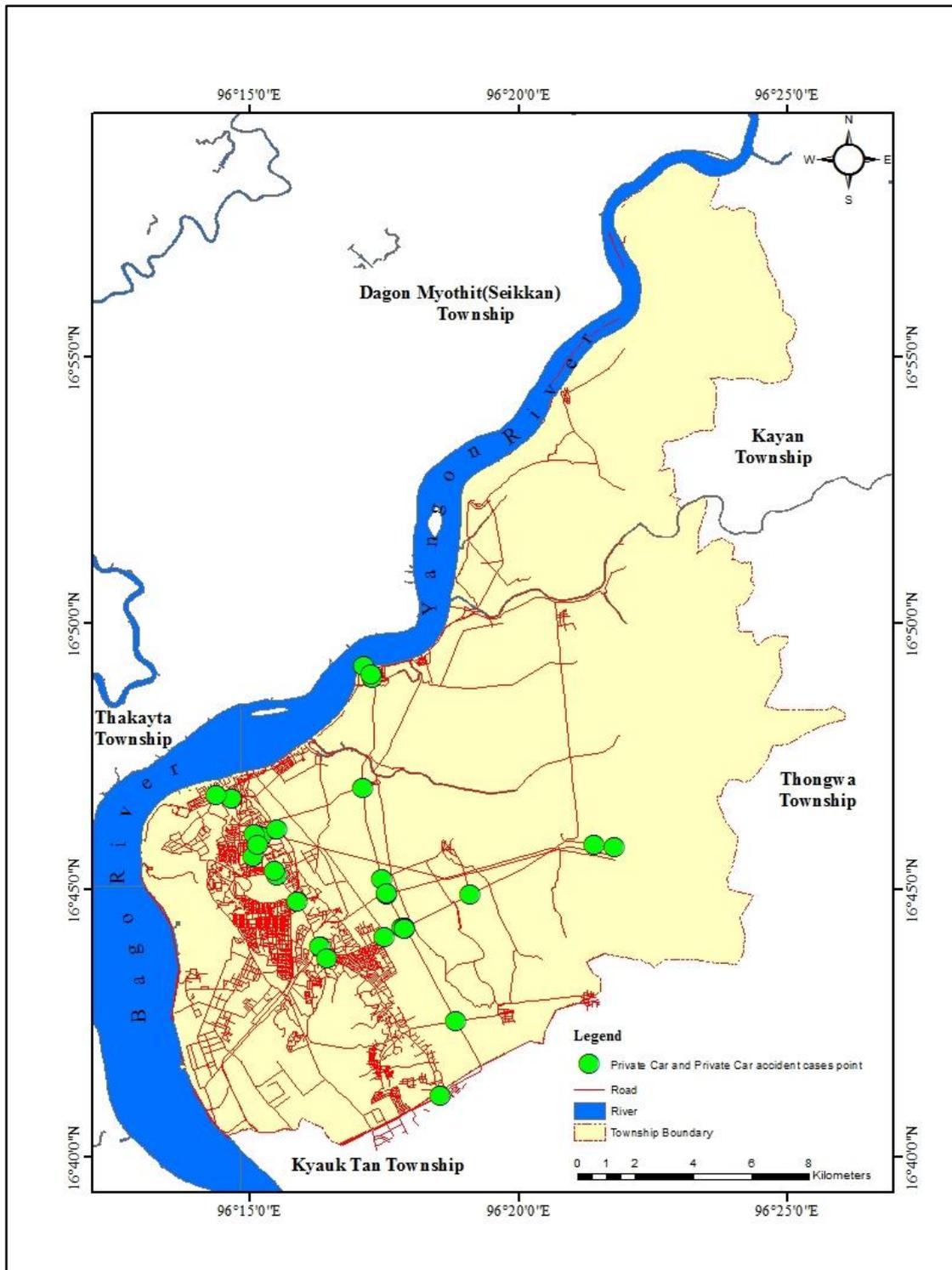
Figure (2.9) Public Transport and Private Car Accident Cases

Source: Traffic Police Office

(9) Private Car and Bicycle Accident Cases
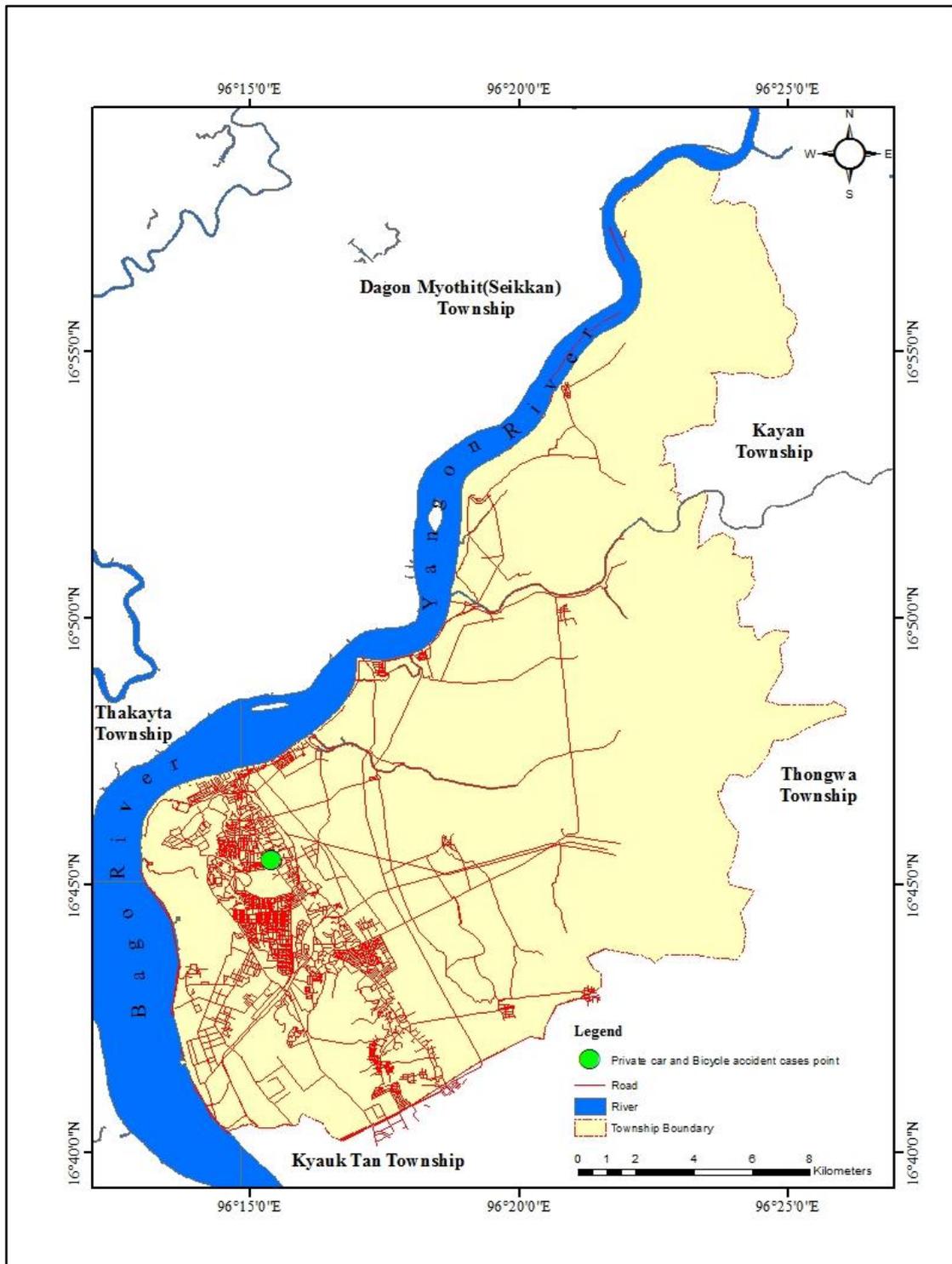
Figure (2.10) Private Car and Bicycle Accident Cases

Source: Traffic Police Office

(10) Private Car and Pedestrian Accident Cases
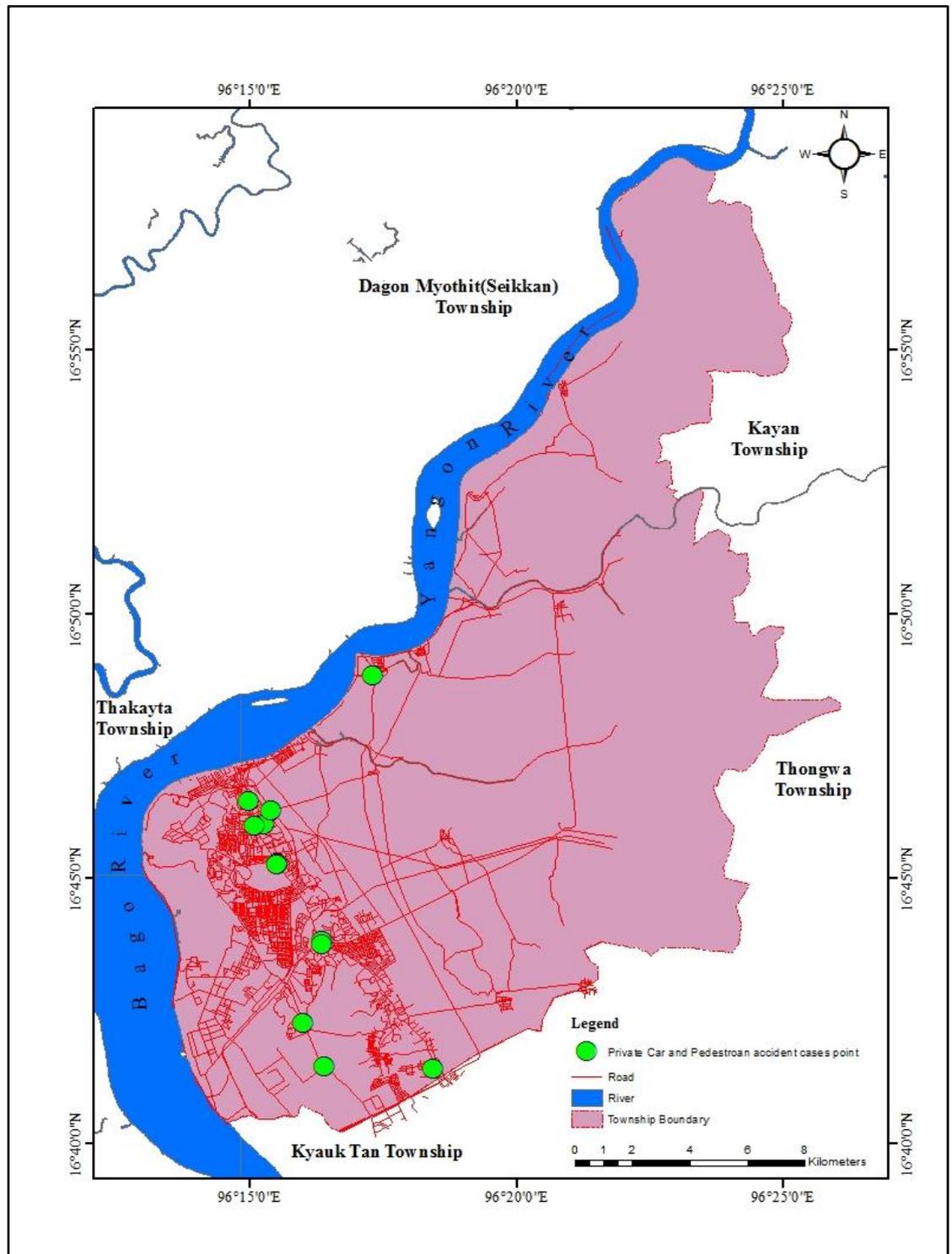
Figure (2.11) Private Car and Pedestrian Accident Cases

Source: Traffic Police Office

(2.2)Accident Case Of Thanlyin Township

Thanlyin Township is getting developed in accordance with the features of civilization. The most important characteristics of the civilization, transportation still needs to be developed.Thanlyin Township is 92149 acres wide. By 2017, the number of accident happened in this township is 136 cases. These accidential cases are caused based on the essential needs of civilization process.Although Thanlyin seems pretty small, there are the infrastructures of the town like modern hospitals, stste high, middle and primary school, universities, the governmental offices, private business sectors. Consequently, a considerable number of cars commuting to these places is getting more and more increased, in Thanlyin Township. It is crowded with the cars from this township and from another townships as well.As a result, the accidents of these different types of vehicles happen daily in this area. The drivers of such vehicles as buses of Yangon Bus Services, the school buses of states school, mini buses of companies,taxis and motorcycle need to obey the traffic rules and regulations. The most frequently happened accidents are caused by motorcycles. In addition, the second most frequently cases are due to private cars.

The reasons why these accidents happen in this area are the increasing number of vehicles in the narrow roads which are not compatible with these vehicles, the reckless drivers who do not want to abide by the rules and regulations of the traffic police, and the buses trying to get the passengers competing with other buses.

Table (2.1) Traffic Accident Case during 2017

Month	Traffic Accident Case	Death	Injury
January	8	2	13
February	10	-	34
March	11	-	15
April	11	2	18
May	11	1	13
June	18	5	22
July	10	1	16
August	11	2	15
September	12	1	17
October	11	5	19
November	10		19
December	13	4	24

Source: Traffic Police Office
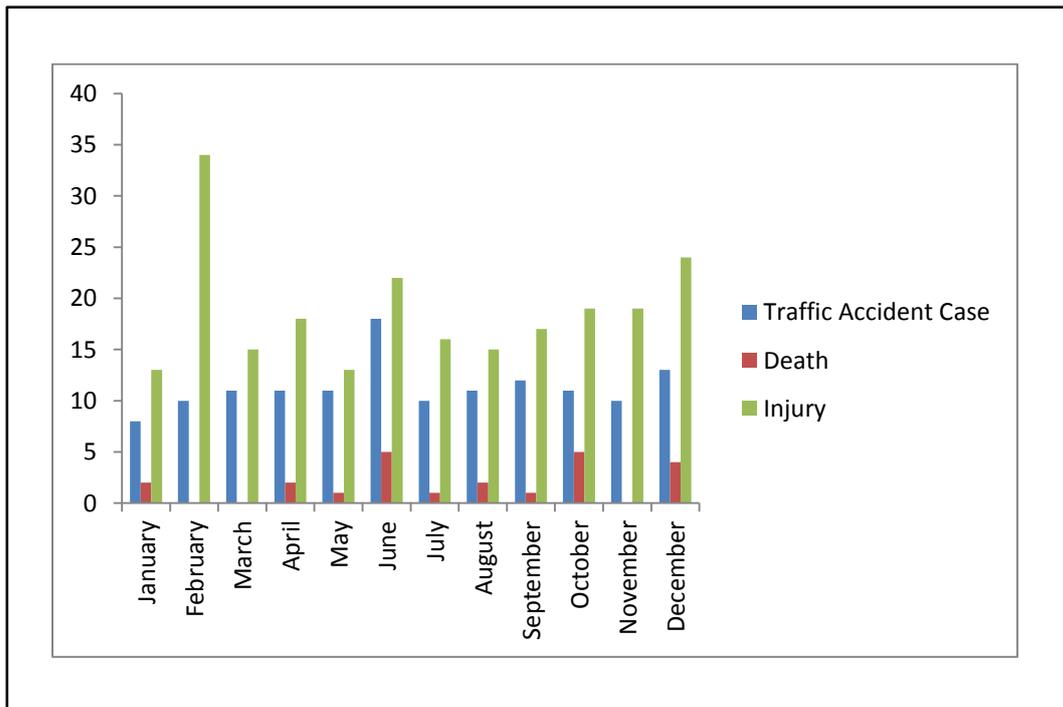
Figure(2.12) Traffic Accident Case during 2017

Source: Based on Table 2.1

3.Analysis Of Traffic Accident

3.1 Nearest Neighbour Analysis

All the point of the traffic accident can be summarized by " Average Nearest Neighbour". Average nearest neighbour summery provides information of how the points are distributed over the point summarizing into three general patterns : (1) clustered , (2) random, (3) dispersed.

The means value of all distances between two nearest points along the all accident is ($\bar{x}$) 189.31 meters expected mean distance of a pair of points is 597.53 metres with neighbour ratio of 0.316. Thus, the calculated z-score is – 15.241 at p value of 0.00. Therefore, there is a less than 1% likelihood that this clustered pattern could be the result of random chance.

NearestNeighborRatio: 0.316821
z-score: 15.241755
p-value: 0.000000

Significance Level (p-value) | Critical Value (z-score)

0.01	< -2.58
0.05	-2.58 – -1.96
0.10	-1.96 – -1.65
---	-1.65 – 1.65
0.10	1.65 – 1.96
0.05	1.96 – 2.58
0.01	> 2.58

(Random)

Significant   Significant

Clustered   Random   Dispersed

Average Nearest Neighbor Summary

Observed Mean Distance:	189.309912 Meters
Expected Mean Distance:	597.529972 Meters
Nearest Neighbor Ratio:	0.316821
z-score:	-15.241755
p-value:	0.000000

Figure (3.1) Average Nearest Neighbour Summary

(Motorcycle&Motorcycle)

Sourcce: Result

FINDINGS AND SUGGESTIONS

Findings

After analyzing the accidential cases happened in Thanlyin Township, the most frequent accidents are caused by the motorcycle and their cases are (41) in 2017. The second most frequent cases are among private cars and (28) times can be found in this year. The third one is caused by collision between private cars and motorcycles, which is proved with (24) cases. The place where most accidents happened is the junction at the traffic lights. The second place is the college bus stop which is most used by the students of Co-opperative University and other pedestrian. The third one is the junction of (18th) hill near Kyeik Kauk Pagoda due to the bumper-to-bumper traffic.

Suggestion

In (21st) century , we can witness the traffic accidents everywhere because the vehicles of various types are being used more than before. The educated talk should be held so as to educate the public about the rules and displines of the traffic users and pedestrians. The roads need to be extended. If the drivers of the private cars and motorcycles come to the transport office and extend their licence, they need to be informed about the traffic rules that they will not break these again. In this township, the highest cases of accident is happened by the motorcycles. In this case, these motorcycles have their respective time span for licence, there is the lack of discipline abided by the traffic rules. The most possible causes of the traffic accidents of the motorcycles are driving without wearing helmet, riding them with over passenger, the too young drivers, riding with over weight, overtaking the vehicles during traffic congestion in a wrong way, riding between the queue of cars. Therefore, the traffic police in this township need to take action of the reckless drivers of motorcycles at their assigned place, carefully.

The second most frequent accident happening type of vehical is between private cars and it is really important to take controlled measure. It is essential to suggest the drivers of various vehicles to drive the vehicles within limited miles, to drive the respective vehicles only if they

have driving licence, to wear belt, to set up the front and back camera , not to drive if they drink alcohol and beer, to abite by the traffic rules. In these ways the accidents will fade out and the lives of the public will be saved.

ACKNOWLEDGEMENTS

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USING MATHEMATICS TO SOLVE REAL WORLD PROBLEMS

Cho Cho Aung [1]

Abstract

In this paper, to study the applications of Linear Programming(The BIG M Method) in Business problems. First we mention construct the Linear Programming Model (LP Model). Secondly, Slack variables, Surplus Variables, Artificial Variables and Modified Problem. Then by using the BIG M Method to solve the maximization and minimization of real life Business Problems.

Key Words : Linear Programming (L P), The Big M Method

1. INTRODUCTION

An algebraic method of solving the standard form of a linear programming problem (l.p.p) which allows the solution of multivariable problems.

1.1 Objectives

This study examined relationships between quality of life in people and cognitive functioning in both abstract and real-world problem solving.

1.2 A Standard Maximization Problem in Standard Form

A linear programming problem(l p p) is said to be a standard maximization problem in standard form if its mathematical model is of the following form:

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Maximize the objective function

$$P = c_1 x_1 + c_2 x_2 + \cdots\cdots\cdots + c_n x_n$$

Subject to the problem constraints of the form

$$a_1 x_1 + a_2 x_2 + \cdots\cdots\cdots + a_n x_n \leq b \quad , \quad b \geq 0$$

With non-negative constraints

$$x_1, x_2, x_3, \cdots\cdots\cdots, x_n \geq 0$$

1.3 Slack variables

To adopt a linear programming problem to the matrix methods used in the simplex process, we convert the problem constraint inequalities into a system of linear equations by using a simple device called a ***slack variable***. In particular, to convert the system of problem constraint inequalities from

$$x_1 + 2x_2 \leq 32$$

$$3x_1 + 4x_2 \leq 84 \qquad \text{--------------- *}$$

into a system of equations, we add variables s_1 and s_2 to the left sides of * to obtain

$$x_1 + 2x_2 + s_1 \qquad = 32$$

$$3x_1 + 4x_2 \qquad + s_2 = 84$$

The variables s_1 and s_2 are called ***slack variables*** because each makes up the difference (take up the slack) between the left and right sides of the inequalities in *.

1.4 An Introduction to the BIG M Method

We introduce the big M method through a simple maximization problem with mixed problem constraints. The key parts of the method will then be summarized and applied to more complex problems.

Consider the following problem:

$$\text{Maximize} \quad P = 2x_1 + x_2$$

$$\text{Subject to} \quad x_1 + x_2 \leq 10$$

$$-x_1 + x_2 \geq 2 \qquad \text{------------(1)}$$

$$x_1,\ x_2 \geq 0$$

To form an equation out of the first inequality, we introduce a slack variable s_1, as before, and

write $\qquad x_1 + x_2 + s_1 = 10$

How can we form an equation out of the second inequality ? We introduce a second variable s_2

and subtract it form the left side so that we can write

$$-x_1 + x_2 - s_2 = 2$$

The variable s_2 is called **_a surplus variable_**, because it is the amount (surplus) by which the left

side of the inequality exceeds the right side.

We now express the linear programming problem (1) as a system of equations

$$x_1 + x_2 + s_1 \qquad\qquad = 10$$

$$-x_1 + x_2 \qquad - s_2 \qquad = 2$$

$$-2x_1 - x_2 \qquad\qquad + P \quad = 0 \qquad \text{------------- (2)}$$

$$x_1,\ x_2,\ s_1,\ s_2 \geq 0$$

It can be shown that a basic solution of (2) is not feasible if any of the variables (excluding P)

are negative. Thus, a surplus variable is required to satisfy the non-negative constraint.

The basic solution found by setting the nonbasic variables x_1 and x_2 equal to 0 is

$$x_1 = 0,\ x_2 = 0,\ s_1 = 10,\ s_2 = -2,\ P = 0$$

But this basic solution is not feasible, since the surplus variable s_2 is negative (which is a

violation of the nonnegative requirements of all variables except P). The simplex method works

only when the basic solution for a tableau is feasible, so we cannot solve this problem simply by

writing the tableau for (2) and starting pivot operations.

In order to use the simplex method on problems with mixed constraints, we turn

to an ingenious device called an *artificial variable.* This variable has no physical meaning in

the original problem (which explains the use of the word " *artificial* ") and is introduced solely

for the purpose of obtaining a basic feasible solution so that we can apply the simplex method.

An *artificial variable* is a variable introduced into each equation that has a surplus variable. As

before, to ensure that we consider only feasible basic solutions, *an artificial variable is required*

to satisfy the nonnegative constraint.

Returning to the problem at hand, we introduce an artificial variable a_1 into the

equation involving the surplus variable s_2 :

$$-x_1 + x_2 - s_2 + a_1 = 2$$

To prevent an artificial variable from becoming part of an optimal solution to the

original problem, a very large " penalty " is introduced into the objective function. This penalty

is created by choosing a positive constant M so large that the artificial variable is forced to be 0

in any final optimal solution of the original problem. We then add the term $-Ma_1$ to the

objective function :

$$P = 2x_1 + x_2 - Ma_1$$

We now have a new problem , which we call the *modified problem*:

$$\text{Maximize} \quad P = 2x_1 + x_2 - Ma_1$$

$$\text{Subject to} \quad x_1 + x_2 + s_1 \qquad\qquad = 10$$

$$-x_1 + x_2 \qquad - s_2 + a_1 = 2 \qquad \text{----------------- (3)}$$

$$x_1, \ x_2, \ s_1, \ s_2, \ a_1 \ \geq \ 0$$

The initial system for the modified problem (3) is

$$x_1 + x_2 + s_1 \qquad\qquad\qquad = 10$$

$$-x_1 + x_2 \qquad - s_2 + a_1 \qquad = 2$$

$$-2x_1 - x_2 \qquad\qquad + Ma_1 + P \quad = 0 \quad \text{----------- (4)}$$

$$x_1, \ x_2, \ s_1, \ s_2, \ a_1 \ \geq \ 0$$

We next write the augmented coefficient matrix for (4), which we call the **preliminary simplex**

tableau for the modified problem .

2. THE BIG M METHOD

The Big M Method – Introducing Slack, Surplus and Artificial Variables to Form the

Modified Problem

Step 1 - If any problem constraints have negative constants on the right side, multiply

both sides by (-1) to obtain a constraint with a nonnegative constant. (If the

constraint is an inequality , this will reverse the direction of the inequality.)

Step 2 - Introduce a slack variable in each $\leq$ constraint.

Step 3 - Introduce a surplus variable and an artificial variable in each $\geq$ constraint.

Step 4 - Introduce an artificial variable in each $=$ constraint.

Step 5 - For each artificial variable a_i , add $-Ma_i$ to the objective function .

Use the same constant M for all artificial variables.

2.1 Example Find the modified problem for the following linear programming problem.

(Do not attempt to solve the problem)

Maximize $P = 2x_1 + 5x_2 + 3x_3$

Subject to $\quad x_1 + 2x_2 - x_3 \leq 7$

$$-x_1 + x_2 - 2x_3 \leq -5$$

$$x_1 + 4x_2 + 3x_3 \geq 1$$

$$2x_1 - x_2 + 4x_3 = 6$$

$$x_1, \ x_3, \ x_3 \ \geq \ 0$$

Solution :

First, we multiply the second constraint by -1 to change -5 to 5.

Next,

We introduce the slack, surplus, and artificial variables according to the rules stated in the box

$$x_1 + 2x_2 - x_3 + s_1 \qquad\qquad\qquad = 7$$

$$x_1 - x_2 + 2x_3 \quad - s_2 + a_1 \qquad\qquad = 5$$

$$x_1 + 4x_2 + 3x_3 \qquad\qquad - s_3 + a_2 \quad = 1$$

$$2x_1 - x_2 + 4x_3 \qquad\qquad\qquad + a_3 = 6$$

$$x_1, \ x_2, \ x_3 \ , s_1, \ s_2, \ s_3, \ a_1, \ a_2, \ a_3 \quad \geq \ 0$$

Finally,

We add $-Ma_1 , -Ma_2 \ and \ -Ma_3$ to the objective function :

$$P = 2x_1 + 5x_2 + 3x_3 - Ma_1 - Ma_2 - Ma_3$$

The modified problem is

Maximize $P = 2x_1 + 5x_2 + 3x_3 - Ma_1 - Ma_2 - Ma_3$

Subject to $\quad x_1 + 2x_2 - x_3 + s_1 \qquad\qquad\qquad = 7$

$\qquad\qquad\qquad x_1 - x_2 + 2x_3 \quad - s_2 + a_1 \qquad\qquad = 5$

$\qquad\qquad\qquad x_1 + 4x_2 + 3x_3 \qquad\qquad - s_3 + a_2 \quad = 1$

$\qquad\qquad\quad 2x_1 - x_2 + 4x_3 \qquad\qquad\qquad + a_3 = 6$

$\qquad\qquad\qquad x_1, x_2, x_3, s_1, s_2, s_3, a_1, a_2, a_3 \quad \geq 0$

2.2 The Big M Method − Solving the Problem

STEP – 1   From the preliminary simplex tableau for the modified problem.

STEP – 2   Use row operations to eliminate the M 's in the bottom row of the preliminary

simplex tableau in the columns corresponding to the artificial variables. The

resulting tableau is the initial simplex tableau.

STEP – 3   Solve the modified problem by applying the simplex method to the initial simplex

tableau found in STEP – 2.

STEP – 4   Relat the solution of the modified problem to the original problem.

(A)   If the modified problem has no solution, then the original problem has no solution.

(B)   If all artificial variables are 0 in the solution to the modified problem, the delete the

artificial variables to find a solution to the original problem.

(C)   If any artificial variables are nonzero in the solution to the modified problem, then the
original problem has no solution.

2.3   Petroleum Blending

A refinery produces two grades of gasoline, regular and premium, by blending together two

components, A and B. Component A has an octane rating of 90 and costs $28 a barrel.

Component B has an octane rating of 110 and costs $32 a barrel . The octane rating for regular

gasoline must be at least 95, and the octane rating for premium must be at least 105. Regular

gasoline sells for $34 a barrel and premium sells for $40 a barrel. Currently, The company has

30,000 barrels of component A and 20,000 barrels of component B. It also has orders for 20,000

barrel s of regular and 10,000 barrels of premium that must be filled. Assuming that all the

gasoline produced can be sold, determine the maximum possible profit .

Solution:

First we organize the information given in the problem in table

Component	Octane Rating	Cost	Available Supply
A	90	$28	30,000 barrels
B	110	$32	20,000 barrels

Grade	Minimum Octane Rating	Selling Price	Existing orders
Regular	95	$34	20,000 barrels
Premium	105	$40	10,000 barrels

Let x_1 = Number of barrels of component A used in regular gasoline

x_2 = Number of barrels of component A used in premium gasoline

x_3 = Number of barrels of component B used in regular gasoline

x_4 = Number of barrels of component B used in premium gasoline

The total amount of component A used is $x_1 + x_2$.

$$x_1 + x_2 \leq 30,000$$

The total amount of component B used is $x_3 + x_4$.

$$x_3 + x_4 \leq 20{,}000$$

The amount of regular and premium gasoline produced must be sufficient to meet the existing

orders

$$x_1 + x_3 \geq 20{,}000 \qquad \text{Regular}$$

$$x_2 + x_4 \geq 10{,}000 \qquad \text{Premium}$$

Now consider the octane ratings.

The octane rating of regular gasoline must be at least 95 ; thus

$$90 \frac{x_1}{x_1 + x_3} + 110 \frac{x_3}{x_1 + x_3} \geq 95$$

$$90 x_1 + 110 x_3 \geq 95(x_1 + x_3)$$

$$90 x_1 + 110 x_3 \geq 95 x_1 + 95 x_3$$

$$-5 x_1 + 15 x_3 \geq 0$$

The octane rating of premium gasoline must be at least 105; thus

$$90 \frac{x_2}{x_2 + x_4} + 110 \frac{x_4}{x_2 + x_4} \geq 105$$

$$90 x_2 + 110 x_4 \geq 105(x_2 + x_4)$$

$$90 x_2 + 110 x_4 \geq 105 x_2 + 105 x_4$$

$$-15 x_2 + 5 x_4 \geq 0$$

The cost of the components used is

$$C = 28(x_1 + x_2) + 32 (x_3 + x_4)$$

The revenue from selling all the gasoline is

$$R = 34(x_1 + x_3) + 40(x_2 + x_4)$$

The profit is

$$P = R - C$$

$$= 34(x_1 + x_3) + 40(x_2 + x_4) - 28(x_1 + x_2) - 32(x_3 + x_4)$$

$$= (34 - 28)x_1 + (40 - 28)x_2 + (34 - 32)x_3 + (40 - 32)x_4$$

$$= 6x_1 + 12x_2 + 2x_3 + 8x_4$$

To find the maximum profit , we must solve the following linear programming problem

Maximize $P = 6x_1 + 12x_2 + 2x_3 + 8x_4$

Subject to

$$
\begin{aligned}
x_1 + x_2 &\leq 30{,}000 \\
x_3 + x_4 &\leq 20{,}000 \\
x_1 + x_3 &\geq 20{,}000 \\
x_2 + x_4 &\geq 10{,}000 \\
-5x_1 + 15x_3 &\geq 0 \\
-15x_2 + 5x_4 &\geq 0
\end{aligned}
$$

and $x_1, x_2, x_3, x_4 \geq 0$

Maximize $P = 6x_1 + 12x_2 + 2x_3 + 8x_4 - Ma_1 - Ma_2 - Ma_3 - Ma_4$

Subject to

$$x_1 + x_2 \qquad\qquad + s_1 \qquad\qquad\qquad\qquad\qquad = 30{,}000$$

$$x_3 + x_4 \qquad + s_2 \qquad\qquad\qquad\qquad\qquad = 20{,}000$$

$$x_1 \quad + x_3 \qquad\qquad - s_3 + a_1 \qquad\qquad\qquad = 20{,}000$$

$$x_2 \quad + x_4 \qquad\qquad\qquad - s_4 + a_2 \qquad\qquad = 10{,}000$$

$$-5x_1 \quad + 15x_3 \qquad\qquad\qquad\qquad - s_5 + a_3 \qquad = 0$$

$$-15x_2 \quad + 5x_4 \qquad\qquad\qquad\qquad\qquad - s_6 + a_4 = 0$$

$$x_1,\ x_2,\ x_3,\ x_4,\ a_1,\ a_2,\ a_3,\ a_4,\ s_1,\ s_2,\ s_3,\ s_4,\ s_5,\ s_6 \geq 0$$

$$x_1 + x_2 \qquad\qquad + s_1 \qquad\qquad\qquad\qquad\qquad = 30{,}000$$

$$x_3 + x_4 \qquad + s_2 \qquad\qquad\qquad\qquad\qquad = 20{,}000$$

$$x_1 \quad + x_3 \qquad\qquad - s_3 + a_1 \qquad\qquad\qquad = 20{,}000$$

$$x_2 \quad + x_4 \qquad\qquad\qquad - s_4 + a_2 \qquad\qquad = 10{,}000$$

$$-5x_1 \quad + 15x_3 \qquad\qquad\qquad\qquad - s_5 + a_3 \qquad = 0$$

$$-15x_2 \quad + 5x_4 \qquad\qquad\qquad\qquad\qquad - s_6 + a_4 = 0$$

$$-6x_1 - 12x_2 - 2x_3 - 8x_4 + Ma_1 + Ma_2 + Ma_3 + Ma_4 + P = 0$$

$$x_1,\ x_2,\ x_3,\ x_4,\ a_1,\ a_2,\ a_3,\ a_4,\ s_1,\ s_2,\ s_3,\ s_4,\ s_5,\ s_6 \geq 0$$

	x_1	x_2	x_3	x_4	s_1	s_2	s_3	a_1	s_4	a_2	s_5	a_3	s_6	a_4	P		
s_1	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	30,000	Eliminate M
s_2	0	0	1	1	0	1	0	0	0	0	0	0	0	0	0	20,000	from a_1 column
a_1	1	0	1	0	0	0	−1	1	0	0	0	0	0	0	0	20,000	
a_2	0	1	0	1	0	0	0	0	−1	1	0	0	0	0	0	10,000	
a_3	-5	0	15	0	0	0	0	0	0	0	−1	1	0	0	0	0	
a_4	0	-15	0	5	0	0	0	0	0	0	0	0	−1	1	0	0	
P	-6	-12	-2	- 8	0	0	0	M	0	M	0	M	0	M	1	0	$R_7 + (-M)R_3 \to R_7$

	x_1	x_2	x_3	x_4	s_1	s_2	s_3	a_1	s_4	a_2	s_5	a_3	s_6	a_4	P		
	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	30,000	Eliminate M
	0	0	1	1	0	1	0	0	0	0	0	0	0	0	0	20,000	from a_2 column
~	1	0	1	0	0	0	− 1	1	0	0	0	0	0	0	0	20,000	
	0	1	0	1	0	0	0	0	−1	1	0	0	0	0	0	10,000	
	- 5	0	15	0	0	0	0	0	0	0	−1	1	0	0	0	0	
	0	-15	0	5	0	0	0	0	0	0	0	0	−1	1	0	0	
	-M-6	-12	-M-2	-8	0	0	M	0	0	M	0	M	0	M	1	-20,000M	$R_7 + (-M)R_4 \to R_7$

First tableau:

	x_1	x_2	x_3	x_4	s_1	s_2	s_3	a_1	s_4	a_2	s_5	a_3	s_6	a_4	P	
s_1	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	30,000
s_2	0	0	1	1	0	1	0	0	0	0	0	0	0	0	0	20,000
a_1	1	0	1	0	0	0	-1	1	0	0	0	0	0	0	0	20,000
a_2	0	1	0	1	0	0	0	0	-1	1	0	0	0	0	0	10,000
a_3	-5	0	15	0	0	0	0	0	0	0	-1	1	0	0	0	0
a_4	0	-15	0	5	0	0	0	0	0	0	0	0	-1	1	0	0
P	-M-6	-M-12	-M-2	-M-8	0	0	M	0	M	0	0	M	0	M	1	-30,000M

Eliminate M from a_3 column

$R_7 + (-M)R_5 \rightarrow R_7$

Second tableau:

$\sim$	x_1	x_2	x_3	x_4	s_1	s_2	s_3	a_1	s_4	a_2	s_5	a_3	s_6	a_4	P	
	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	30,000
	0	0	1	1	0	1	0	0	0	0	0	0	0	0	0	20,000
	1	0	1	0	0	0	-1	1	0	0	0	0	0	0	0	20,000
	0	1	0	1	0	0	0	0	-1	1	0	0	0	0	0	10,000
	-5	0	15	0	0	0	0	0	0	0	-1	1	0	0	0	0
	0	-15	0	5	0	0	0	0	0	0	0	0	-1	1	0	0
	4M-6	-M-12	-16M-2	-M-8	0	0	M	0	M	0	M	0	0	M	1	-30,000M

Eliminate M from a_4 column

$R_7 + (-M)R_6 \rightarrow R_7$

↓ Enter

	x_1	x_2	x_3	x_4	s_1	s_2	s_3	a_1	s_4	a_2	s_5	a_3	s_6	a_4	P	
s_1	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	30,000
s_2	0	0	1	1	0	1	0	0	0	0	0	0	0	0	0	20,000
a_1	1	0	1	0	0	0	-1	1	0	0	0	0	0	0	0	20,000
a_2	0	1	0	1	0	0	0	0	-1	1	0	0	0	0	0	10,000
Exit $\rightarrow a_3$	-5	0	(15)	0	0	0	0	0	0	0	-1	1	0	0	0	0
a_4	0	-15	0	5	0	0	0	0	0	0	0	0	-1	1	0	0
P	4M-6	14M-12	-16M-2	-6M-8	0	0	M	0	M	0	M	0	M	0	1	-30,000M

$\frac{1}{15}R_5 \rightarrow R_5$

	x_1	x_2	x_3	x_4	s_1	s_2	s_3	a_1	s_4	a_2	s_5	a_3	s_6	a_4	P	
$\sim$	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	30,000
	0	0	1	1	0	1	0	0	0	0	0	0	0	0	0	20,000
	1	0	1	0	0	0	-1	1	0	0	0	0	0	0	0	20,000
	0	1	0	1	0	0	0	0	-1	1	0	0	0	0	0	10,000
	$-\frac{1}{3}$	0	(1)	0	0	0	0	0	0	0	$-\frac{1}{15}$	$\frac{1}{15}$	0	0	0	0
	0	-15	0	5	0	0	0	0	0	0	0	0	-1	1	0	0
	4M-6	14M-12	-16M-2	-6M-8	0	0	M	0	M	0	M	0	M	0	1	-30,000M

$R_2 - R_5 \rightarrow R_2$

$R_3 - R_5 \rightarrow R_3$

$R_7 + (16M + 2)R_5 \rightarrow R_7$

14

↓ Enter

$$
\begin{array}{c|ccccccccccccccc|c}
 & x_1 & x_2 & x_3 & x_4 & s_1 & s_2 & s_3 & a_1 & s_4 & a_2 & s_5 & a_3 & s_6 & a_4 & P & \\
\hline
s_1 & 1 & 1 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 30{,}000 \\
s_2 & \frac{1}{3} & 0 & 0 & 1 & 0 & 1 & 0 & 0 & 0 & 0 & \frac{1}{15} & -\frac{1}{15} & 0 & 0 & 0 & 20{,}000 \\
a_1 & \frac{4}{3} & 0 & 0 & 0 & 0 & 0 & -1 & 1 & 0 & 0 & \frac{1}{15} & -\frac{1}{15} & 0 & 0 & 0 & 20{,}000 \\
a_2 & 0 & 1 & 0 & 1 & 0 & 0 & 0 & 0 & -1 & 1 & 0 & 0 & 0 & 0 & 0 & 10{,}000 \\
x_3 & -\frac{1}{3} & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{1}{15} & \frac{1}{15} & 0 & 0 & 0 & 0 \\
\text{Exit} \to a_4 & 0 & -15 & 0 & \boxed{5} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -1 & 1 & 0 & 0 \\
\hline
P & \frac{-4M-20}{3} & 14M\text{-}12 & 0 & \text{-}6M\text{-}8 & 0 & 0 & M & 0 & M & 0 & \frac{-M-2}{15} & \frac{16M+2}{15} & M & 0 & 1 & -30{,}000M \\
\end{array}
$$

$\frac{1}{5}R_6 \to R_6$

$$
\sim
\begin{array}{|ccccccccccccccc|c}
1 & 1 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 30{,}000 \\
\frac{1}{3} & 0 & 0 & 1 & 0 & 1 & 0 & 0 & 0 & 0 & \frac{1}{15} & -\frac{1}{15} & 0 & 0 & 0 & 20{,}000 \\
\frac{4}{3} & 0 & 0 & 0 & 0 & 0 & -1 & 1 & 0 & 0 & \frac{1}{15} & -\frac{1}{15} & 0 & 0 & 0 & 20{,}000 \\
0 & 1 & 0 & 1 & 0 & 0 & 0 & 0 & -1 & 1 & 0 & 0 & 0 & 0 & 0 & 10{,}000 \\
-\frac{1}{3} & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{1}{15} & \frac{1}{15} & 0 & 0 & 0 & 0 \\
0 & -3 & 0 & \boxed{1} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{1}{5} & \frac{1}{5} & 0 & 0 \\
\hline
\frac{-4M-20}{3} & 14M\text{-}12 & 0 & \text{-}6M\text{-}8 & 0 & 0 & M & 0 & M & 0 & \frac{-M-2}{15} & \frac{16M+2}{15} & M & 0 & 1 & -30{,}000M \\
\end{array}
$$

$R_2 - R_6 \to R_2$

$R_4 - R_6 \to R_4$

$R_7 + (6M + 8)R_6 \to R_7$

↓ Enter

	x_1	x_2	x_3	x_4	s_1	s_2	s_3	a_1	s_4	a_2	s_5	a_3	s_6	a_4	P		
s_1	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	30,000	
s_2	$\frac{1}{3}$	3	0	0	0	1	0	0	0	0	$\frac{1}{15}$	$-\frac{1}{15}$	$\frac{1}{5}$	$-\frac{1}{5}$	0	20,000	
a_1	$\frac{4}{3}$	0	0	0	0	0	-1	1	0	0	$\frac{1}{15}$	$-\frac{1}{15}$	0	0	0	20,000	
Exit → a_2	0	④	0	0	0	0	0	0	-1	1	0	0	$\frac{1}{5}$	$-\frac{1}{5}$	0	10,000	$\frac{1}{4}R_4 \to R_4$
x_3	$-\frac{1}{3}$	0	1	0	0	0	0	0	0	0	$-\frac{1}{15}$	$\frac{1}{15}$	0	0	0	0	
x_4	0	-3	0	1	0	0	0	0	0	0	0	0	$-\frac{1}{5}$	$\frac{1}{5}$	0	0	
P	$\frac{-4M-20}{3}$	- 4M-36	0	0	0	0	M	0	M	0	$\frac{-M-2}{15}$	$\frac{16M+2}{15}$	$\frac{-M-8}{5}$	$\frac{6M+8}{5}$	1	$-30{,}000M$	

$\sim$

	x_1	x_2	x_3	x_4	s_1	s_2	s_3	a_1	s_4	a_2	s_5	a_3	s_6	a_4	P		
	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	30,000	$R_1 - R_4 \to R_1$
	$\frac{1}{3}$	3	0	0	0	1	0	0	0	0	$\frac{1}{15}$	$-\frac{1}{15}$	$\frac{1}{5}$	$-\frac{1}{5}$	0	20,000	$R_2 - 3R_4 \to R_2$
	$\frac{4}{3}$	0	0	0	0	0	-1	1	0	0	$\frac{1}{15}$	$-\frac{1}{15}$	0	0	0	20,000	
	0	①	0	0	0	0	0	0	$-\frac{1}{4}$	$\frac{1}{4}$	0	0	$\frac{1}{20}$	$-\frac{1}{20}$	0	2,500	
	$-\frac{1}{3}$	0	1	0	0	0	0	0	0	0	$-\frac{1}{15}$	$\frac{1}{15}$	0	0	0	0	
	0	-3	0	1	0	0	0	0	0	0	0	0	$-\frac{1}{5}$	$\frac{1}{5}$	0	0	$R_6 + 3R_4 \to R_6$
	$\frac{-4M-20}{3}$	- 4M-36	0	0	0	0	M	0	M	0	$\frac{-M-2}{15}$	$\frac{16M+2}{15}$	$\frac{-M-8}{5}$	$\frac{6M+8}{5}$	1	$-30{,}000M$	$R_7 + (4M + 36)R_4 \to R_7$

↓ Enter

	x_1	x_2	x_3	x_4	s_1	s_2	s_3	a_1	s_4	a_2	s_5	a_3	s_6	a_4	P		
s_1	1	0	0	0	1	0	0	0	$\frac{1}{4}$	$-\frac{1}{4}$	0	0	$-\frac{1}{20}$	$\frac{1}{20}$	0	27,500	
s_2	$\frac{1}{3}$	0	0	0	0	1	0	0	$\frac{3}{4}$	$-\frac{3}{4}$	$\frac{1}{15}$	$-\frac{1}{15}$	$\frac{1}{20}$	$-\frac{1}{20}$	0	12,500	
Exit → a_1	(4/3)	0	0	0	0	0	-1	1	0	0	$\frac{1}{15}$	$-\frac{1}{15}$	0	0	0	20,000	$\frac{3}{4}R_3 \rightarrow R_3$
x_2	0	1	0	0	0	0	0	0	$-\frac{1}{4}$	$\frac{1}{4}$	0	0	$\frac{1}{20}$	$-\frac{1}{20}$	0	2,500	
x_3	$-\frac{1}{3}$	0	1	0	0	0	0	0	0	0	$-\frac{1}{15}$	$\frac{1}{15}$	0	0	0	0	
x_4	0	0	0	1	0	0	0	0	$-\frac{3}{4}$	$\frac{3}{4}$	0	0	$-\frac{1}{20}$	$\frac{1}{20}$	0	7,500	
P	$\frac{-4M-20}{3}$	0	0	0	0	0	M	0	-9	$M+9$	$\frac{-M-2}{15}$	$\frac{16M+2}{15}$	$\frac{1}{5}$	$\frac{5M-1}{5}$	1	$-20{,}000M + 90{,}000$	

$\sim$

x_1	x_2	x_3	x_4	s_1	s_2	s_3	a_1	s_4	a_2	s_5	a_3	s_6	a_4	P		
1	0	0	0	1	0	0	0	$\frac{1}{4}$	$-\frac{1}{4}$	0	0	$-\frac{1}{20}$	$\frac{1}{20}$	0	27,500	$R_1 - R_3 \rightarrow R_1$
$\frac{1}{3}$	0	0	0	0	1	0	0	$\frac{3}{4}$	$-\frac{3}{4}$	$\frac{1}{15}$	$-\frac{1}{15}$	$\frac{1}{20}$	$-\frac{1}{20}$	0	12,500	$R_2 + (-\frac{1}{3})R_3 \rightarrow R_2$
(1)	0	0	0	0	0	$-\frac{3}{4}$	$\frac{3}{4}$	0	0	$\frac{1}{20}$	$-\frac{1}{20}$	0	0	0	15,000	
0	1	0	0	0	0	0	0	$-\frac{1}{4}$	$\frac{1}{4}$	0	0	$\frac{1}{20}$	$-\frac{1}{20}$	0	2,500	
$-\frac{1}{3}$	0	1	0	0	0	0	0	0	0	$-\frac{1}{15}$	$\frac{1}{15}$	0	0	0	0	$R_5 + \frac{1}{3}R_3 \rightarrow R_5$
0	0	0	1	0	0	0	0	$-\frac{3}{4}$	$\frac{3}{4}$	0	0	$-\frac{1}{20}$	$\frac{1}{20}$	0	7,500	
$\frac{-4M-20}{3}$	0	0	0	0	0	M	0	-9	$M+9$	$\frac{-M-2}{15}$	$\frac{16M+2}{15}$	$\frac{1}{5}$	$\frac{5M-1}{5}$	1	$-20{,}000M + 90{,}000$	$R_7 + \frac{4M+20}{3}R_3 \rightarrow R_7$

↓ Enter

$$
\begin{array}{c}
& x_1 & x_2 & x_3 & x_4 & s_1 & s_2 & s_3 & a_1 & s_4 & a_2 & s_5 & a_3 & s_6 & a_4 & P \\
\end{array}
$$

	x_1	x_2	x_3	x_4	s_1	s_2	s_3	a_1	s_4	a_2	s_5	a_3	s_6	a_4	P	
s_1	0	0	0	0	1	0	$\frac{3}{4}$	$-\frac{3}{4}$	$\frac{1}{4}$	$-\frac{1}{4}$	$-\frac{1}{20}$	$\frac{1}{20}$	$-\frac{1}{20}$	$\frac{1}{20}$	0	12,500
Exit → s_2	0	0	0	0	0	1	$\frac{1}{4}$	$-\frac{1}{4}$	$\boxed{3/4}$	$-\frac{3}{4}$	$\frac{1}{20}$	$-\frac{1}{20}$	$\frac{1}{20}$	$-\frac{1}{20}$	0	7,500
x_1	1	0	0	0	0	0	$-\frac{3}{4}$	$\frac{3}{4}$	0	0	$\frac{1}{20}$	$-\frac{1}{20}$	0	0	0	15,000
x_2	0	1	0	0	0	0	0	0	$-\frac{1}{4}$	$\frac{1}{4}$	0	0	$\frac{1}{20}$	$-\frac{1}{20}$	0	25,000
x_3	0	0	1	0	0	0	$-\frac{1}{4}$	$\frac{1}{4}$	0	0	$-\frac{1}{20}$	$\frac{1}{20}$	0	0	0	5,000
x_4	0	0	0	1	0	0	0	0	$-\frac{3}{4}$	$\frac{3}{4}$	0	0	$-\frac{1}{20}$	$\frac{1}{20}$	0	7,500
P	0	0	0	0	0	0	-5	$M+5$	-9	$M+9$	$\frac{1}{5}$	$\frac{5M-3}{15}$	$\frac{1}{5}$	$\frac{5M-1}{5}$	1	190,000

$\frac{4}{3}R_2 \to R_2$

~

	x_1	x_2	x_3	x_4	s_1	s_2	s_3	a_1	s_4	a_2	s_5	a_3	s_6	a_4	P		
	0	0	0	0	1	0	$\frac{3}{4}$	$-\frac{3}{4}$	$\frac{1}{4}$	$-\frac{1}{4}$	$-\frac{1}{20}$	$\frac{1}{20}$	$-\frac{1}{20}$	$\frac{1}{20}$	0	12,500	$R_1 - \frac{1}{4}R_2 \to R_1$
	0	0	0	0	0	$\frac{4}{3}$	$\frac{1}{3}$	$-\frac{1}{3}$	$\boxed{1}$	-1	$\frac{1}{15}$	$-\frac{1}{15}$	$\frac{1}{15}$	$-\frac{1}{15}$	0	10,000	
	1	0	0	0	0	0	$-\frac{3}{4}$	$\frac{3}{4}$	0	0	$\frac{1}{20}$	$-\frac{1}{20}$	0	0	0	15,000	
	0	1	0	0	0	0	0	0	$-\frac{1}{4}$	$\frac{1}{4}$	0	0	$\frac{1}{20}$	$-\frac{1}{20}$	0	25,000	$R_4 + \frac{1}{4}R_2 \to R_4$
	0	0	1	0	0	0	$-\frac{1}{4}$	$\frac{1}{4}$	0	0	$-\frac{1}{20}$	$\frac{1}{20}$	0	0	0	5,000	
	0	0	0	1	0	0	0	0	$-\frac{3}{4}$	$\frac{3}{4}$	0	0	$-\frac{1}{20}$	$\frac{1}{20}$	0	7,500	$R_6 + \frac{3}{4}R_2 \to R_6$
	0	0	0	0	0	0	-5	$M+5$	-9	$M+9$	$\frac{1}{5}$	$\frac{5M-3}{15}$	$\frac{1}{5}$	$\frac{5M-1}{5}$	1	190,000	$R_7 + 9R_2 \to R_7$

↓ Enter

Exit → s_1 row operation: $\frac{3}{2}R_1 \to R_1$

	x_1	x_2	x_3	x_4	s_1	s_2	s_3	a_1	s_4	a_2	s_5	a_3	s_6	a_4	P	
s_1	0	0	0	0	1	$-\frac{1}{3}$	$\boxed{2/3}$	$-\frac{2}{3}$	0	0	$-\frac{1}{15}$	$\frac{1}{15}$	$-\frac{1}{15}$	$\frac{1}{15}$	0	10,000
s_4	0	0	0	0	0	$\frac{4}{3}$	$\frac{1}{3}$	$-\frac{1}{3}$	1	-1	$\frac{1}{15}$	$-\frac{1}{15}$	$\frac{1}{15}$	$-\frac{1}{15}$	0	10,000
x_1	1	0	0	0	0	0	$-\frac{3}{4}$	$\frac{3}{4}$	0	0	$\frac{1}{20}$	$-\frac{1}{20}$	0	0	0	15,000
x_2	0	1	0	0	0	$\frac{1}{3}$	$\frac{1}{12}$	$-\frac{1}{12}$	0	0	$\frac{1}{60}$	$-\frac{1}{60}$	$\frac{1}{15}$	$-\frac{1}{15}$	0	5,000
x_3	0	0	1	0	0	0	$-\frac{1}{4}$	$\frac{1}{4}$	0	0	$-\frac{1}{20}$	$\frac{1}{20}$	0	0	0	5,000
x_4	0	0	0	1	0	1	$\frac{1}{4}$	$-\frac{1}{4}$	0	0	$\frac{1}{20}$	$-\frac{1}{20}$	0	0	0	15,000
P	0	0	0	0	0	12	-2	M+2	0	M	$\frac{4}{5}$	$\frac{5M-12}{15}$	$\frac{4}{5}$	$\frac{5M-4}{5}$	1	280,000

$\sim$

	x_1	x_2	x_3	x_4	s_1	s_2	s_3	a_1	s_4	a_2	s_5	a_3	s_6	a_4	P		
	0	0	0	0	$\frac{3}{2}$	$-\frac{1}{2}$	$\boxed{1}$	-1	0	0	$-\frac{1}{10}$	$\frac{1}{10}$	$-\frac{1}{10}$	$\frac{1}{10}$	0	15,000	
	0	0	0	0	0	$\frac{4}{3}$	$\frac{1}{3}$	$-\frac{1}{3}$	1	-1	$\frac{1}{15}$	$-\frac{1}{15}$	$\frac{1}{15}$	$-\frac{1}{15}$	0	10,000	$R_2 - \frac{1}{3}R_1 \to R_2$
	1	0	0	0	0	0	$-\frac{3}{4}$	$\frac{3}{4}$	0	0	$\frac{1}{20}$	$-\frac{1}{20}$	0	0	0	15,000	$R_3 + \frac{3}{4}R_1 \to R_3$
	0	1	0	0	0	$\frac{1}{3}$	$\frac{1}{12}$	$-\frac{1}{12}$	0	0	$\frac{1}{60}$	$-\frac{1}{60}$	$\frac{1}{15}$	$-\frac{1}{15}$	0	5,000	$R_4 - \frac{1}{12}R_1 \to R_4$
	0	0	1	0	0	0	$-\frac{1}{4}$	$\frac{1}{4}$	0	0	$-\frac{1}{20}$	$\frac{1}{20}$	0	0	0	5,000	$R_5 + \frac{1}{4}R_1 \to R_5$
	0	0	0	1	0	1	$\frac{1}{4}$	$-\frac{1}{4}$	0	0	$\frac{1}{20}$	$-\frac{1}{20}$	0	0	0	15,000	$R_6 - \frac{1}{4}R_1 \to R_6$
	0	0	0	0	0	12	-2	M+2	0	M	$\frac{4}{5}$	$\frac{5M-12}{15}$	$\frac{4}{5}$	$\frac{5M-4}{5}$	1	280,000	$R_7 + 2R_1 \to R_7$

$$\begin{array}{c}
\begin{array}{c} s_3 \\ s_4 \\ x_1 \\ x_2 \\ x_3 \\ x_4 \\ \\ P \end{array}
\left(
\begin{array}{cccccccccccccc|c}
0 & 0 & 0 & 0 & \frac{3}{2} & -\frac{1}{2} & 1 & -1 & 0 & 0 & -\frac{1}{10} & \frac{1}{10} & -\frac{1}{10} & \frac{1}{10} & 0 & 15{,}000 \\[6pt]
0 & 0 & 0 & 0 & -\frac{1}{2} & \frac{3}{2} & 0 & 0 & 1 & -1 & \frac{1}{10} & -\frac{1}{10} & \frac{1}{10} & -\frac{1}{10} & 0 & 5{,}000 \\[6pt]
1 & 0 & 0 & 0 & \frac{9}{8} & -\frac{3}{8} & 0 & 0 & 0 & 0 & -\frac{1}{40} & \frac{1}{40} & -\frac{3}{40} & \frac{3}{40} & 0 & 26{,}250 \\[6pt]
0 & 1 & 0 & 0 & -\frac{1}{8} & \frac{3}{8} & 0 & 0 & 0 & 0 & \frac{1}{40} & -\frac{1}{40} & \frac{3}{40} & -\frac{3}{40} & 0 & 3{,}750 \\[6pt]
0 & 0 & 1 & 0 & \frac{3}{8} & -\frac{1}{8} & 0 & 0 & 0 & 0 & -\frac{3}{40} & \frac{3}{40} & -\frac{1}{40} & \frac{1}{40} & 0 & 8{,}750 \\[6pt]
0 & 0 & 0 & 1 & -\frac{3}{8} & \frac{9}{8} & 0 & 0 & 0 & 0 & \frac{3}{40} & -\frac{3}{40} & \frac{1}{40} & -\frac{1}{40} & 0 & 11{,}250 \\[6pt]
\hline
0 & 0 & 0 & 0 & 3 & 11 & 0 & M & 0 & M & \frac{3}{5} & \frac{5M-9}{15} & \frac{3}{5} & \frac{5M-3}{5} & 1 & 310{,}000
\end{array}
\right)
\end{array}$$

$$\therefore\ x_1 = 26{,}250, \quad x_2 = 3{,}750, \quad x_3 = 8{,}750, \quad x_4 = 11{,}250, \quad s_3 = 15{,}000, \ s_4 = 5{,}000$$

$$s_1 = s_2 = s_5 = s_6 = a_1 = a_2 = a_3 = a_4 = 0 \quad , \quad P = 310{,}000$$

The refinery should blend 26,250 barrels of component A and 8,750 barrels of component B to produce 35,000 barrels of regular.

They should blend 3,750 barrels of component A and 11,250 barrels of component B to produce 15,000 barrels of premium.

They will result in a maximum profit of $310,000.

3. Minimization By The BIG M Method

The Big M method can be used to solve minimization problems. To minimize an objective function, we have only to maximize its negative. Figure illustrates the fact that the minimum value of a function f occurs at the same point as the maximum value of the function $-f$. Furthermore, if m is the minimum value of f, then $-m$ is the maximum value of $-f$, and conversely. Thus, we can find the minimum value of a function f by finding the maximum value of $-f$ and then changing the sign of the maximum value.
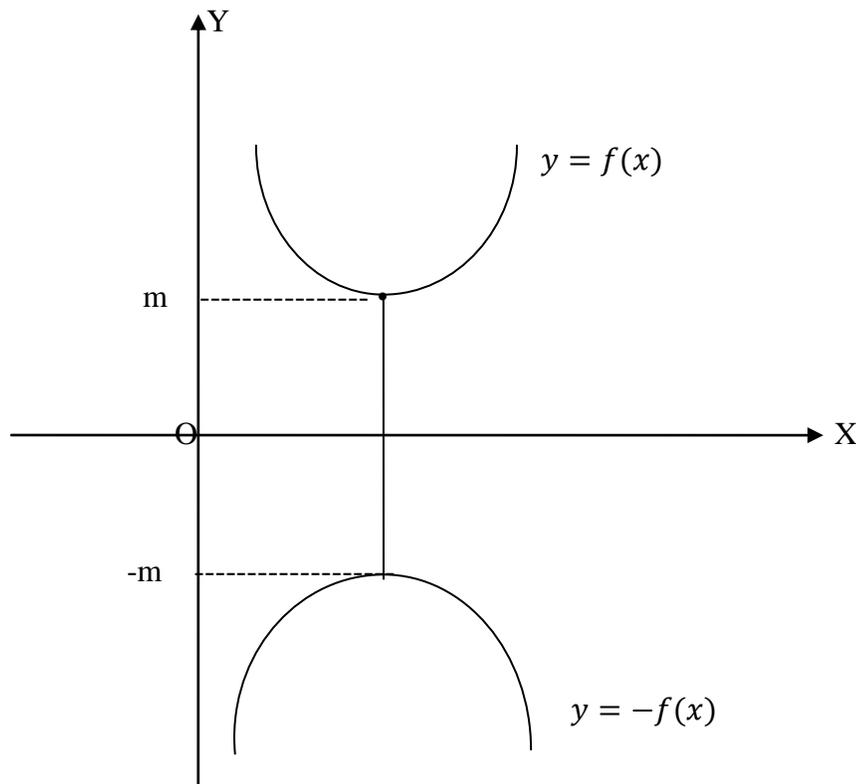
3.1 Manufacturing – Production Scheduling

A tire company has plants in Chicago and Detroit . The Chicago plant can make 600 radials and 100 standard tires per day . The Detroit plant can make 300 radials and 100 standard tires per day. Its costs $20,000 per day to operate the Chicago plant and $15,000 per day to operate the

Detroit plant. The company has a contract to make at least 24,000 radials and 5,000 standard

tires. How many days should each plant be scheduled to minimize operating costs?

solution

Let $x =$ number of days the Chicago plant operate

$y =$ number of days the Detroit plant operate

The number of radial tires produced is $600\ x\ + 300\ y$

The number of standard tires produced is $100\ x\ + 100\ y$

The operating expenses are $20,000\ x\ + 1,500\ y$

The linear programming problem is as follows:

Minimize $C = 20,000\ x\ + 15,000\ y$

Subject to $\quad 600x\ + 300y\ \geq\ 24,000$

$$100x\ + 100y\ \geq 5,000$$

$$x, y\ \geq\ 0$$

Maximize $P = -C\ =\ -20,000\ x\ -\ 15,000\ y$

Subject to $\quad 600x\ + 300y\ \geq\ 24,000$

$$100x\ + 100y\ \geq 5,000$$

$$x, y\ \geq\ 0$$

State the modified problem

Maximize $P =\ -20,000\ x\ -\ 15,000\ y\ -\ Ma_1 -\ Ma_2$

Subject to $\quad 600x\ + 300y\ -\ s_1 + a_1\qquad\qquad =\ 24,000$

$$100x\ + 100y\qquad\qquad -\ s_2 + a_2\ =\ 5,000$$

$$x,\ y,\ s_1,\ s_2,\ a_1,\ a_2\ \geq\ 0$$

$$600x + 300y - s_1 + a_1 \qquad\qquad = 24{,}000$$

$$100x + 100y \qquad\qquad - s_2 + a_2 \qquad = 5{,}000$$

$$20{,}000\,x + 15{,}000\,y + Ma_1 + Ma_2 + P \quad = 0$$

	x	y	s_1	a_1	s_2	a_2	p		
a_1	600	300	-1	1	0	0	0	24,000	Eliminate M from
a_2	100	100	0	0	-1	1	0	5,000	a_1 column
	---	---	---	---	---	---	---	---	
P	20,000	15,000	0	M	0	M	1	0	$R_3 + (-M)R_1 \to R_3$

	x	y	s_1	a_1	s_2	a_2	p		
	600	300	-1	1	0	0	0	24,000	Eliminate M from
$\sim$	100	100	0	0	-1	1	0	5,000	a_2 column
	---	---	---	---	---	---	---	---	
	$-600M$ $+20{,}000$	$-300M$ $+15{,}000$	M	0	0	M	1	$-24{,}000M$	$R_3 + (-M)R_2 \to R_3$

$\downarrow$ Enter

	x	y	s_1	a_1	s_2	a_2	p		
Exit $\to a_1$	600	300	-1	1	0	0	0	24,000	$\dfrac{1}{600}R_1 \to R_1$
a_2	100	100	0	0	-1	1	0	5,000	
	---	---	---	---	---	---	---	---	
P	$-700M$ $+20{,}000$	$-400M$ $+15{,}000$	M	0	M	0	1	$-29{,}000M$	

	x	y	s_1	a_1	s_2	a_2	p		
	1	$\dfrac{1}{2}$	$-\dfrac{1}{600}$	$\dfrac{1}{600}$	0	0	0	40	
$\sim$	100	100	0	0	-1	1	0	5,000	$R_2 + (-100)R_1 \to R_2$
	---	---	---	---	---	---	---	---	
	$-700M$ $+20{,}000$	$-400M$ $+15{,}000$	M	0	M	0	1	$-29{,}000M$	$R_3 + (700M - 20{,}000)R_1$

Enter ↓

$$
\begin{array}{c}
 & x & y & s_1 & a_1 & s_2 & a_2 & p \\
x \\
\text{Exit} \to a_2 \\
\\
P
\end{array}
\left(
\begin{array}{ccccccc|c}
1 & \frac{1}{2} & -\frac{1}{600} & \frac{1}{600} & 0 & 0 & 0 & 40 \\
0 & \boxed{50} & \frac{1}{6} & -\frac{1}{6} & -1 & 1 & 0 & 1{,}000 \\
\hline
 & -50M & & & & & & -1{,}000M \\
0 & +5{,}000 & \frac{-M+200}{6} & \frac{7M-200}{6} & M & 0 & 1 & -800{,}000M
\end{array}
\right)
\begin{array}{l}
\\
\frac{1}{50}R_2 \to R_2 \\
\\
\\
\end{array}
$$

$$
\sim
\left(
\begin{array}{ccccccc|c}
1 & \frac{1}{2} & -\frac{1}{600} & \frac{1}{600} & 0 & 0 & 0 & 40 \\
0 & \boxed{1} & \frac{1}{300} & -\frac{1}{300} & -\frac{1}{50} & \frac{1}{50} & 0 & 20 \\
\hline
 & -50M & & & & & & -1{,}000M \\
0 & +5{,}000 & \frac{-M+200}{6} & \frac{7M-200}{6} & M & 0 & 1 & -800{,}000M
\end{array}
\right)
\begin{array}{l}
R_1 + (-\frac{1}{2})R_2 \to R_1 \\
\\
\\
\\
R_3 + (50M - 5000)R_2
\end{array}
$$

$$
\begin{array}{c}
x \\
y \\
\\
P
\end{array}
\left(
\begin{array}{ccccccc|c}
1 & 0 & -\frac{1}{300} & \frac{1}{300} & \frac{1}{100} & -\frac{1}{100} & 0 & 30 \\
0 & 1 & \frac{1}{300} & -\frac{1}{300} & -\frac{1}{50} & \frac{1}{50} & 0 & 20 \\
\hline
0 & 0 & \frac{50}{3} & \frac{4M-50}{3} & 100 & M-100 & 1 & -900{,}000
\end{array}
\right)
$$

Since the bottom row has no negative indicator the optimal solution for the modified problem is

$$x = 30, y = 20, \ s_1 = 0, s_2 = 0, a_1 = 0, a_2 = 0, P = -900{,}000$$

Thus

$$\text{Min C} = -Max\,P = -(-900{,}000) = 900{,}000$$

The minimum operating costs are $900,000 when the Chicago plant operates 30 days and the Detroit plant operates 20 days.

4. Conclusion

This paper is to teach the various tools and techniques so that we will be able to solve the various real life business problems.

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The Role of Co-operative University, Thanlyin in Community Development

Lei Lei Win

Abstract

A model university is assumed more and more, the main traditional functions of research, the didactic function, and the cultural one, a significant role within the community to which it belongs. The university's role within the community can be assessed according to the services through which it contributes to the local and regional development. The objectives of the study are to know the roles of universities in community development and to evaluate a case study featuring the participation of Co-operative University, Thanlyin (TCU) in community development. This research is mainly used descriptive method based on the analysis of a current situation of Co-operative University, Thanlyin. And also, the secondary data was collected from NaungThone Pin Village Group and Ah-hmuHtan Ward Administrative Office in Thanlyin. The research is organized so as to consider the possible effects of university's resources along four axes; Human Resource Development in TCU, Socioeconomic development in NaungThone Pin Village Group and Ah-hmuHtan Ward, New Village projects in Tha Nat Pin Village and South East Asia Social Innovation Network's Project in TCU. By applying these four axes, this research is based on the role of Co-operative University, Thanlyin including in Community Development.

Key words; Community Development, TCU, Human Resource Development, Socio-economic Development

1. Introduction

Over the past few decades, academic interest in the relationship between knowledge production institutions within a region and the region's socio-economic development has increased significantly. Every University is being forced to carefully reconsider their role in society and to evaluate the relationships with their various constituencies, stakeholders, and communities. It is observed that the two core functions of higher education institutions- teaching, learning and doing research – are exogenous to and independent from specific economic and social imperatives. In that respect, universities and other higher education institutions are being called upon by various regional actors and agencies to make an active contribution to the region in which they are located. Thus, in addition to teaching, learning

and doing research, higher education institutions are to play a key role as agents of economic, social and cultural development in their located regions. Realizing the potential contribution that higher education institutions can and do play in the development of their located regions. There are four universities in Thanlyin. Namely, they are Co-operative University, Thanlyin, University of East Yangon, Myanmar Maritime University and Technological University, Thanlyin. The city's population has increased from 43000 in 1983 to 123000 in 1996. By the 2014 census, the city's population has increased to 268068. This research is based on the roles of Co-operative University, Thanlyin TCU in community development. TCU was established in 1996. This university plays a role increasingly that goes beyond its traditional functions of teaching and research to stimulate the community development. The presence of a university has an impact on the increasing population of the region is which it is located. And also, the income and job opportunities of local people in the surrounding area of TCU have been gradually increasing as the positive spillover effects of TCU.

1.1   Research Objectives

1. To know the roles of Universities in Community Development
2. To analyze the participation of Co-operative University, Thanlyin in Community Development

1.2   Research Methods

This research is mainly use descriptive method based on the analysis of current situation of Co-operative University, Thanlyin. The research methodology followed in this study comprised of a literature review on the role of universities in community development. This research was intensively used in literature survey form journals, special reports and internet sources. The secondary data was collected form Co-operative University, Thanlyin, NyaungThone Pin Village Group and Ah-HmuHtan Ward Administrative Office in Thanlyin where situated in the surrounding area of TCU.

2. Literature Review

The university engagement literature proposes that universities adapt their core functions of teaching and research, as well as community service, to address actual regional needs (Chatterton & Goddard, 2000; OECD,2007). In this vein, the regional engagement of higher education institutions is conceptualized into three dimensions, namely knowledge creation in the region through research and its exploitation via technology transfer; human capital formation and knowledge transfer; and cultural and community development contributing to

the milieu, social cohesion and sustainable development (Jongbloed et al., 2008; OECD, 2007).

Research has shown that through its teaching function, higher education institutions can play a key role in developing the skill needs of the region within which they are located. Thus, the knowledge that is transmitted to students and graduates and is subsequently absorbed into the regional economy is one of the most effective means of knowledge transfer and has a greater potential of transforming regional economies (OECD, 2007). The literature points out those higher education institutions can respond to the development of the human capital in the region in which they are located in a number of ways (Charles, 2003; Gunasekara, 2004; OECD, 2007).

They can widen access to higher education, especially from remote areas, communities with low tradition of participation in higher education and among non-traditional learners who combine work and study, improve the balance between the labour market and supply through creating improved labour market intelligence, supporting new enterprises in their curricular and stimulating links with local employers, and also attract talent to the region and help retain and develop it. Another way through which higher education institutions can help improve upon the skill base of their regions is to map out strategies to enhance graduate retention and employability in the region by pursuing more regionally focused on programmes which can facilitate the retention of graduates into these regions (Chatterton & Goddard, 2000; Gunasekara, 2004). They can localize the learning process by drawing upon the specific characteristics of a region to aid learning and teaching and enhance the regional skill base through lifelong learning and distance education since the changing nature of labour market competencies requires retooling and re-skilling of workers to enable regions to be competitive (OECD, 2007).

Higher education institutions further adapt their research function in building the innovation capabilities of the regions there are located. Chatterton and Goddard (2000) assert that research within higher education institutions, especially the university sector, has traditionally focused on the production of basic knowledge for the international academic community and has neglected the application of established knowledge for the local/regional community. Nonetheless, there are a number of trends that are encouraging universities for commercializing their research activities and link their research and expertise more closely to their surrounding environment. Lester (2005) argues that the university's role in local innovation processes depends on what kind of industrial transformation is occurring in the regional economy and thus the "one-size-fits-all" approach to economic development pursued

by so many universities, with a focus on patenting, licensing, and new business formation, should be replaced with a more comprehensive, more differentiated view of the university's role in regional innovation. Chatterton and Goddard (2000) assert that higher education institutions have established a number of mechanisms to manage their research interface with the outside world. Explicit mechanisms through which research results are transferred between higher education institutions and regional stakeholders include single entry points such as regional development offices, research centers, spin-off companies, incubator units, advice and training services, sciences parks and mechanisms to exploit intellectual property rights.

Additionally, research advocates for a broader regional development concept including community development, welfare, social inclusion and cohesion, sustainability and cultural vitality, hence recognizing that social, cultural and environmental developments have demonstrable economic and intrinsic benefit (Mora, Gomes, Haddad, &Marmolejo, 2006; OECD, 2007). These underpin and stabilize economic growth and bring forth benefits in terms of community health and welfare, social cohesion, community life and sustainable development. Chatterton and Goddard (2000) indicate that a number of trends are converging that are increasing the service function of higher education institutions. Among these is the growing awareness of the global nature of many problems such as environmental degradation, poverty and economic development which has created a number of interconnected local responses and that higher education institutions are well placed to interpret these global issues on a local scale and to play a major role in the social and environmental development of the region.

3. Profile of the Co-operative University, Thanlyin

The Co-operative University, Thanlyin is located on Kyaikhauk Pagoda Road, Thanlyin Township. The campus is half on how bus ride away and eight miles due southeast of the city center of Yangon. The campus spreads 84.259 hectares (208.209 acres) of land. The Co-operative University, Thanlyin's campus consists of four sites. With the Notification No.(10/94) dated 19.5.1994 of the Government of the Union of Myanmar, the college was established as "Yangon Co-operative Regional College" was opened on 21.6.1994 for the year 1994-1995 academic year. Then, the college was upgraded to Degree College by the Notification No.(17/96) dated 11.11.1996 and was renamed as "Yangon Co-operative Degree College". Now Co-operative Degree College is upgraded as Co-operative

University, Thanlyin in 2012-2013 academic years. The number of admission students' rate of TCU is increasing year by year because of the university's rule, disciple and so on.

Vision

To become an excellent university by innovating and advancing knowledge through teaching, learning and research for providing intellectual skilful human resources that can fulfill the needs of socio-economic enhancement of our country.

Mission

- To implement an internationally recognized higher education
- To deliver, train and apply knowledge strategically and innovatively
- To generate critical and logical thinking intellectual skilful human resources
- To enhance knowledge and contribute fruitful issues through innovative research in science, the arts and humanities
- To facilitate staff development programmes
- To fulfill the needs of socioeconomic development and prosperity of the society
- To build up integrity culture among staff and students
- To sustain environment

4. **Community Development impacts of TCU**

   Universities are often viewed as sources of economic and social progress for the environments where they are located. Increasingly they are expected to play a role that goes beyond their traditional functions of teaching and research, to stimulate the community development. This research analyzed the role of Co-operative University, Thanlyin in Community Development into four point of views. They are

   (1) Role of Human Resource Development in TCU

   (2) Socio-economic Development in Naung Taung Pin Village Group and Ah-hmuHtan Ward

   (3) New Village Projects in Tha Nat Pin and East Phaunggyi Village

   (4) South East Asian Social Innovation Network's Project in TCU

   4.1 **Role of Human Resource Development in TCU**

      Education plays a major role in human development. Education strengthens people's ability to meet their needs by increasing their productivity, their potential to achieve a higher standard of living and confidence to create and innovate in all aspects of life.

4.1.1 Degree conferred at Co-operative University, Thanlyin

All the levels of Degree College, the University of Yangon conferred B.A (Business Science) degree for the academic years from 2000-2001 to 2009-2010. Bachelor of Business Science was conferred in the academic years from 2010-2011 to 2015-2016. Undergraduate courses of respective subjects have been started to offer in the academic year 2014-2015. Degrees for respective subjects will have been started to offer in the academic year 2017-2018. During of course is four years, five bachelor degrees are conferred as follows;

1. Bachelor of Business Science (Accounting and Finance)
2. Bachelor of Business Science (Applied Statistics)
3. Bachelor of Business Science (Regional Development)
4. Bachelor of Business Science (Marking Management)
5. Bachelor of Business Science (Social Enterprise Management)

Post Graduate Courses which have been started to confer according to the majoring subjects since 2015-2016 academic years. Duration of a course is one year, five Post Graduate Diplomas are conferred as follows;

1. Post Graduate Diplomas (Accounting and Finance)
2. Post Graduate Diplomas (Applied Statistics)
3. Post Graduate Diplomas (Regional Development)
4. Post Graduate Diplomas (Marking Management)
5. Post Graduate Diplomas (Social Enterprise Management)

Master Degree have been started to confer according to the majoring subjects since 2015-2016 academic year. Duration of course is two years, five Master Degree are conferred as follows;

1. Master of Business Science (Accounting and Finance)
2. Master of Business Science (Applied Statistics)
3. Master of Business Science (Regional Development)
4. Master of Business Science (Marking Management)
5. Master of Business Science (Social Enterprise Management)

4.1.2 The Number of Graduated Students conferred by TCU

The following table shows the number of graduates conferred annually by TCU.

Table (4.1) The number of Graduates conferred by TCU

Year	No. of Graduate Students	Year	No. of Graduate Students
2000-2001	92	2008-2009	267
2001-2002	402	2009-2010	402
2002	320	2010-2011	620
2002-2003	480	2011-2012	653
2003-2004	383	2012-2013	501
2004-2005	267	2014-2015	539
2005-2006	205	2015-2016	523
2006-2007	257	2016-2017	461
2007-2008	339		

Sources; Co-operative University, Thanlyin

Figure (4.1) The number of Graduated Students conferred by TCU
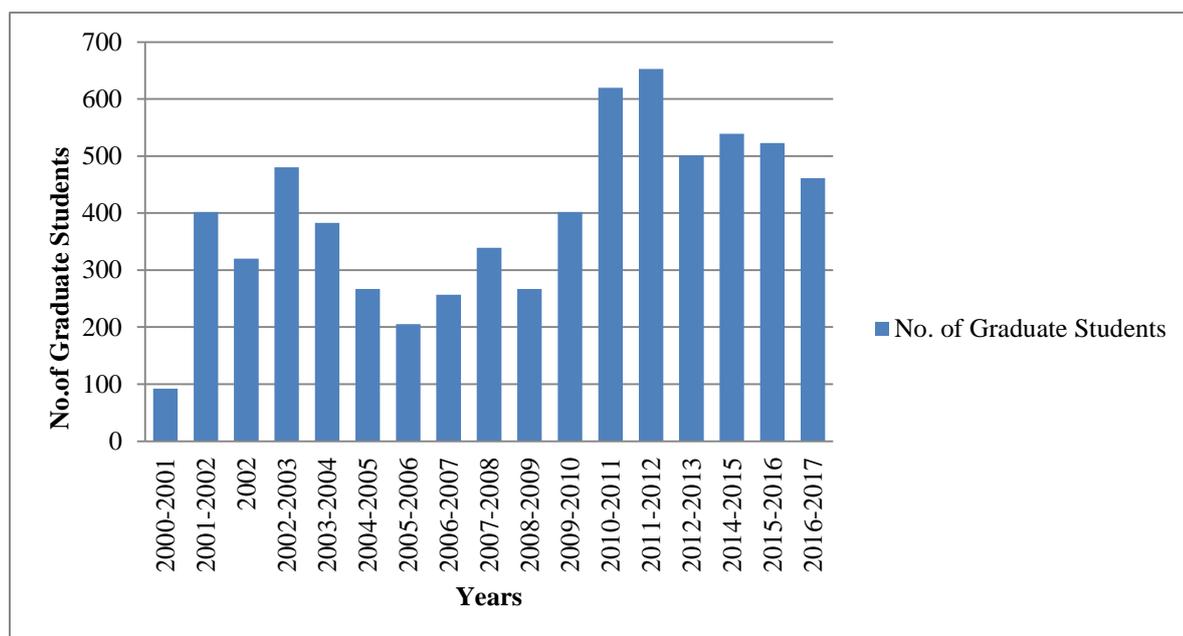
Sources; Co-operative University, Thanlyin

Post Graduate Diploma (PGD) has been started to confer according to the majoring subjects since 2015-2016 academic years. The number of (27) graduated students for PGD have been conferred from 2014-2015 to 2016-2017.

Master Degrees have been started to confer according to the majoring subjects since 2015-2016 academic year. The number of (20) graduated students for Master Degree have been conferred in 2016-2017.Since 2000, additional courses can also be opened in TCU by corporation with other organizations. It conducted a series of diploma and certificate courses as follow-

Diploma Programmes

1. Business Management Higher Diploma
2. Business Management Advanced Diploma

Certificate Progrmmes

1. Certificate in Accounting
2. Certificate Japanese Language
3. Certificate English Language

These programmes have been producing the students by conferring diploma and certificate course by course.

As education and training are the university's primary missions, their effects are usually evident in terms of the creation of groups with greater cultural wealth and education, resulting in more flexible and diversified labor markets. The social and economic impact of educating students is widely recognized as a fundamental factor in the development of countries and regions. The more the number of graduate students is the more the number level of workforce who can create higher value added jobs with better working conditions. As these results, the production level of the nation has been increasing and the living standard of nation has been promoting. Consequently, higher education organizations can be used as a tool for community development. At present, TCU has been producing the job opportunities in various sectors. Mostly, they are employing in Companies and Banks. Others are employed in Government and Private Sector. The following table shows the condition of workforce in each sector.

Year	The Number of Completion Students	Government	Company	Banks	Private	Other
2014-2015	539	10	50	25	15	439
2015-2016	523	16	102	55	1	349
2016-2017	461	-	25	26	-	410

Sources; Co-operative University, Thanlyin

4.2 Socio-economic Development in NyaungThone Pin Village Group and Ah-hmuHtan Ward

4.2.1 Socio-economic Development in NyaungThone Pin Village Group

NaungThone Pin Village is situated in the western part of Co-operative University, Thanlyin. That village is a long shape and has the same boundary with Ah-hmuHtan Ward. It is about four miles long and stretches from north to south. The population is about 400 people before 1996. Most of them are farmers. At present, there are (7774) people and (1295) houses. And there are (1300) households. They mostly earn their income by buying and selling, government servants, casual, carry-motorbikes and farming. In NyaungThone Pin Village Group, hostels are built mainly for the students from TCU. They are altogether (20) hostels which have the capacity of 15 male or female students in each. The monthly hostel fees are (20000 ks) to (25000 ks) for each student. As a result of existing Co-operative University, Thanlyin, the migration population becomes more and more as well as the job opportunities also become more and more. The first stage of the development of NyaungThone Bin was started in 2000. The development has been shown in the following table.

Before 2000			After 2000		
Sr.No.	Varieties of Careers	Quantity	Sr.No.	Varieties of Careers	Quantity
1.	Farmers	300	1.	Farmers	189
2.	Casual	20	2.	Casual	800
3.	Shops	5	3.	Shops	30
4.	Stores	1	4.	Stores	15
			5.	Big hostels	10
			6.	Hostels (residence)	5
			7.	Big restaurants	4
			8.	Carry-motorbike	150

Sources; Administrative Office of NyaungThone Pin Village Group

It is found that the village has more development after the year 2000. The economic aspect is being spread because of job opportunities. There are many migrants for the job opportunities. Because of it, income of the people from that village is increased. Moreover, the social and economic services in these village groups are being developed day by day.

4.2.2 Socio-economic Development in Ah-hmuHtan Ward

The neighboring ward of NyaungThone Bin is Ah-HmuHtan Ward. The population of Ah-HmuHtan is over 3000 people and (500) houses before the year of 2000. There are only 550 households and their main career is government servants. Only a few people do farming. At present, the population is (10740), (2169) houses and (2302) households. Government servants, casual, selling things, carry motorbike and hostels are their job opportunities. In Ah-hmuHtan Ward, hostels are also built for the students from TCU. They are altogether 15 hostels which has the capacity of 10 to 30 male or female students in each. The monthly hostel fees are not different from Nyaung Tone Bin Village's. Because of the students living in that village, four beauty parlor and seven stores are opened. There are more and more job opportunities in Ah-HmuHtan Ward because of the existing of TCU. There are more migrant people because there are more job opportunities. The first stage of the development of Ah-HmuHtan Ward was started in 2000. The development has been shown in the following tables.

Before 2000				After 2000		
Sr.No.	Varieties of Careers	Quantity		Sr.No.	Varieties of Careers	Quantity
1.	Government Servants	1200		1.	Government Servants	5370
2.	Farmers	70		2.	Farmers	20
				3.	Casual	100
				4.	Tea shops	15
				5.	Stores	7
				6.	Hostels	15
				7.	Big restaurants	10
				8.	Carry-motorbike	25
				9.	Small restaurants	30
				10.	Beauty Parlor	4

After 2000, there was more job opportunities in the region where the surrounding area of TCU. The involvement of TCU in a region becomes increasingly important for its sustainable development. Due to the existence of TCU, the income of the local people in the region has increased significantly. That is the positive spillover effect of TCU in community development.

4.3 New Village Projects in Tha Nat Pin and East Phaunggyi Village

In Myanmar, SMU projects have been stating in as the purpose of the rural development. Korea research group visited Myanmar. Two villages were selected to implement the SMU projects. They are Tha Nat Pin and East Phaunggyi Village. In 2012, TCU had conducted as the coordinator to undertake all activities of SMU.TCU is actively participating in SMU projects in order to achieve the community development in two villages.

Tha Nat Pin is situated in East Yangon and (20 km) far from Yangon. There are (182) households in this village and the total population are (693). Most of the people have to engage in rice cultivation and poor.

East Phaunggyi Village is situated in North-East Yangon and (80 km) away from Yangon. There are (1865) households in this village and the total population are (8785). East Phaunggyi is more bigger than Tha Nat Pin . Rice cultivation is their main earning and other are carpenters, masons and laborer in farms.

Normally, thesetwo villages area small and underdeveloped villages. In these two villages, the economic and social situation of the villagers is stagnating for a long time and living standard is very low.The period of projects is just for five years. The projects were implemented to achieve the rural development in short-term period by doing step by step.

The following table shows the achievements of the New Village Movement in Tha Nat Pin from 2012 to 2016 (five year plans).

Achievements of the New Village Movement in Tha Nat Pin, 2012

Sr.No.	Project Name	Unit	Objective	Performance	Growth
1	Digging Tube-well	unit	4	4	100%
2	Building the Bridge (2.4m x 42m)	unit	1	1	100%
3	Fitting the Galvanized Iron Sheet	house	48	48	100%

Achievements of the New Village Movement in Tha Nat Pin, 2013

Sr.No.	Project Name	Unit	Objective	Performance	Growth
1	Constructing the Road Inside the Village	km	2.4	2.4	100%
2	Digging Tube-well	unit	1	1	100%
3	Raising Pigs	head	50	50	100%

Achievements of the New Village Movement in Tha Nat Pin, 2014

Sr.No.	Project Name	Unit	Objective	Performance	Growth
1	Constructing the Road Inside the Village	feet	220	220	100%
2	Digging Tube-well	unit	1	1	100%
3	Breeding Hens	head	500	500	100%
4	Repairing the Bridge	unit	1	1	100%

Achievements of the New Village Movement in Tha Nat Pin, 2015

Sr.No.	Project Name	Unit	Objective	Performance	Growth
1	Constructing the Road Inside the Village	feet	500	500	100%
2	Breeding Pigs	unit	80	80	100%
3	Growing Paddy	acre	3	3	100%
4	Microfinance	household	135	225	166%
5	Fitting the Drainage Pipe	unit	1	1	100%
6	Concreting in front of the SMU Community Hall	feet	60	60	100%

Achievements of the New Village Movement in Tha Nat Pin, 2016

Sr.No.	Project Name	Unit	Objective	Performance	Growth
1	Repairing the Bridge	feet	1	1	100%
2	Breeding Cows	unit	28	28	114%
3	Microfinance	acre	93	93	100%
4	SMU Market	bag	55	55	100%

The following table shows the achievements of the New Village Movement in East Phaunggyi from 2012 to 2016 (five years plans).

Achievements of the New Village Movement Projects in East Phaunggyi in 2012

Sr.No.	Project Name	Unit	Objective	Performance	Growth
1	Constructing the Road Inside the Village	Meter	3200	3200	100%
2	Installing Underground Water pump	unit	1	1	100%
3	Fitting the Galvanized Iron Sheet	house	135	135	100%
4	Supplying AgriculturalInputs	house	113	113	100%

Achievements of the New Village Movement Projects in East Phaunggyi in 2013

Sr.No.	Project Name	Unit	Objective	Performance	Growth
1	Building the SMU Community Hall	Unit	1	1	100%
2	Building the Concrete Road in front of the SMU Hall	feet	1000	1000	100%
3	Breeding Pigs	head	100	100	100%
4	Building Car Parking	unit	1	1	100%
5	SMU Microfinance Training	unit	1	1	100%

Achievements of the New Village Movement Projects in East Phaunggyi in 2014

Sr. No.	Project Name	Unit	Objective	Performance	Growth
1	Building the Concrete Road with Black Stone	Feet	2000	2000	100%
2	Fitting the Zinc Roofs	house	219	219	100%
3	SMU Microfinance	household	200	200	100%
4	Repairing the Bridge (connecting with West Phaunggyi)	unit	2	2	100%
5	Constructing the Drainage	unit	4	4	100%

Achievements of the New Village Movement Projects in East Phaunggyi in 2015

Sr. No.	Project Name	Unit	Objective	Performance	Growth
1	Constructing the RoadInside the Village	Feet	750	750	100%
2	SMU Microfinance	unit	175	175	100%

Achievements of the New Village Movement Projects in East Phaunggyi in 2016

Sr. No.	Project Name	Unit	Objective	Performance	Growth
1	Repairing the Roof of SMUCommunity Hall	Unit	1	1	100%
2	Constructing the AssemblyGround	Unit	1	1	100%
3	Making the Mat	household	40	40	100%
4	Garment (Sewing Machine)	unit	7	7	100%
5	SMU Market	-	-	-	100%

Due to these effects of projects, the lives of the villagers in these two villages could be promoted by building infrastructure and also increased income generation. Later the project period, SMU team in TCU pointed out the villagers to serve the sustainable development by holding self-reliance. In conclusion, TCU has been playing as an essential role to achieve community development.

4.4 South East Asian Social Innovation Network's Project in TCU

TCU created the SISU as a specific project and as an incubator in November 2017. TCU's SISU project has been conducting for three years in order to support the community development of villages in Thanlyin. The main objectives of the SISU at TCU are operating as a research center for social innovation, accelerating project, providing tools for professors/classes to foster social innovation and acting as an interface between the universities, society, and surrounding communities.

The specific objectives of the SISU are to foster social innovation as an integral part in the institutional activities in knowledge transfer and encourage a university-society engagement with local communities and in particular disadvantaged groups through a variety of means: new social enterprise, new participation and collaborative projects, new business model such

as micro credit, collection of data on social issues and solutions, new initiative for the communities.

Myanmar is a developing country. So, rural development is an important role. The lives of rural people can be promoted by creating job opportunities and by supporting infrastructure to achieve rural development. TCU's SISU has been opening the training for trainers to achieve community development. Firstly, Nylon Flower Making training was opened in TCU for four days. The training was conducted in TCU's SISU Classroom from 28th May 2018 to 31st May 2018. Totally, 28 teachers are participated in this training. The main objective of this training is to enhance the income generation of women in village by creating job opportunities. Most of the women in the village have no regular income and they spend their time on household chores. Thus, if they have regular income in a sustainable way, they can solve their social issues in their family. For this project, Bayat village, Tanatpin village, Saylonegyi village, Chaungsaut village, and Bottapyawkan village are selected. All these villages are located in Thanlyin Township. TCU's community involvement through the trainings and development activities intended for job opportunities to alleviate poverty of local people especially low-income people in the regions.

5. **Conclusion**

The impact of universities upon the development of the communities to which they belong is a significant one. Each university has its own mechanisms for quality assurance and continuous improvement of services, including all articles and community relations components community development is a significant role to achieve the development of a nation. Thus, this research studied on the role of universities in community development that based on Co-operative University, Thanlyin by analyzing the four axes; 1 Role of Human Resource Development in TCU, Socio-economic Development in Naung Taung Pin Village Group and Ah-hmuHtan Ward, New Village Projects in Tha Nat Pin and East Phaunggyi Village, and South East Asian Social Innovation Network's Project in TCU.

As education and training are the university's primary missions, their effects are usually evident in terms of the creation of groups with greater cultural wealth and education, resulting in more flexible and diversified labor markets. The social and economic impact of education students is widely recognized as a fundamental factor in the development of countries and regions. By TCU's HRD data, TCU has been nurturing the graduated students more and more yearly. And also, TCU has been operating the necessary courses by joining with other organizations to achieve community development. The more the benefits of

education is the more the benefits of social network in community development. Consequently, TCU has been conducting as a role for community development by producing the educated person.

Secondly, I studied on Socio-economic Development in Naung Taung Pin Village Group and Ah-hmuHtan Ward where the surrounding area of TCU. After 2000, the increase is more significant in these regions by population, job opportunities, living standards and Infrastructure like road. At present, the number of population in these regions were almost doubled compared with the population before 2000. It is the positive spillover effect of TCU on local community development.

Thirdly, I studied on New Village Projects in Tha Nat Pin and East Phaunggyi Village. TCU has been conducted its projects by joining with other international organization. These projects have been implemented successfully to achieve community development.

Finally, I studied on South East Asian Social Innovation Network's Project in TCU. This project started in 2017. In May, 2018, SISU team in TCU can open the training for trainers' course for Nylon Flower Making. The University's community involvement through the training and development activities which are intended for job opportunities to alleviate poverty of local people.

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မြန်မာဘာသာစကားရှိ ခံစားမှုပြအနက်ကို အတ္တဗေဒအမြင်ဖြင့် လေ့လာခြင်း

ဒေါက်တာအေးသိမ့်သိမ့်ထွေး[၁]

စာတမ်းအကျဉ်း

ဤစာတမ်းတွင် မြန်မာမှုနယ်ပယ်၌ နေ့စဉ်ပြောဆိုသုံးစွဲနေသော မြန်မာဘာသာစကားရှိ အနက်အဓိပ္ပာယ်အမျိုးအစားမှ ခံစားမှုပြအနက်ကို လေ့လာတင်ပြထားပါသည်။ ထိုသို့ လေ့လာရာတွင် စကားအသုံးအနှုန်း၊ လေသံထူးခြားမှုနှင့် ခံစားမှုပြအနက်၊ ဗန်းစကားနှင့် ခံစားမှုပြအနက်၊ အနက်ရိုးတူ ဝေါဟာရများနှင့် ခံစားမှုပြအနက်၊ အယဉ်သုံးစကားနှင့် ခံစားမှုပြအနက်၊ တစ်ဦးဆိုင်အမည်နှင့် ခံစားမှုပြအနက်၊ နေ့စဉ်သုံးစကားများနှင့် ခံစားမှုပြအနက်တို့ကို လေ့လာ တင်ပြထားပါသည်။ ဤသို့ တင်ပြရာတွင် ဘာသာဗေဒ၏ အဓိကဘာသာရပ်ခွဲတစ်ခုဖြစ်သော အတ္တဗေဒအမြင်ဖြင့် လေ့လာတင်ပြထားပါသည်။

သော့ချက် - အတ္တဗေဒ၊ အနက်အဓိပ္ပာယ်၊ ခံစားမှုပြအနက်

နိဒါန်း

မြန်မာဘာသာစကားကို လေ့လာရာတွင် အနက်အဓိပ္ပာယ်သည် အရေးပါသော အခန်းကဏ္ဍမှ ပါဝင်ပါသည်။ ထိုဘာသာစကားအတွင်းရှိ အနက်အဓိပ္ပာယ်ကို သိပ္ပံနည်းကျခွဲခြမ်းစိတ်ဖြာ လေ့လာသောပညာသည် အတ္တဗေဒ ဖြစ်သည်။ နှစ်ပေါင်းထောင်ချီကြာမြင့်ပြီဖြစ်သော မြန်မာဘာသာစကားရှိ အနက်အဓိပ္ပာယ်ကို အတ္တဗေဒအမြင် ဖြင့် လေ့လာရာတွင် မြန်မာဘာသာစကားတွင် အနက်အဓိပ္ပာယ်(၇)မျိုး ခွဲခြားနိုင်ပြီး ယင်းတို့အနက်မှ ခံစားမှုပြ အနက်ကို ရွေးချယ်၍ လေ့လာတင်ပြထားပါသည်။

ရည်ရွယ်ချက်

ဘာသာစကားပြောဆိုရာတွင် အနက်အဓိပ္ပာယ်သည် အလွန်အရေးပါသည့်နည်းတူ ဘာသာစကားပြောဆို သုံးနှုန်းရာမှ ထင်ဟပ်လာသော ခံစားမှုပြအနက်သည်လည်း အလွန်အရေးပါကြောင်း သိရှိရပြီး မြန်မာဘာသာ စကားကို ပိုမိုကျွမ်းကျင်စွာ သုံးစွဲလာနိုင်မည်ဖြစ်ပါသည်။

၁။ အနက်အဓိပ္ပာယ်

၁၊ ၁။ ဘာသာစကားနှင့် အနက်အဓိပ္ပာယ်

ဘာသာစကား၏ အသက်သည် အနက်အဓိပ္ပာယ်ဖြစ်သောကြောင့် ကမ္ဘာပေါ်တွင် မည်သည့်ဘာသာစကားမဆို အဓိပ္ပာယ်မရှိသော ဘာသာစကားဟူ၍ မရှိပေ။ "လူတို့သည် ပြောစရာတစ်ခုခုမရှိဘဲ စကားမပြော။ ပြောစရာ ရှိမှသာလျှင် စကားပြောကြသည်။ ထိုပြောစရာအကြောင်းတစ်ခုခုသည် အဓိပ္ပာယ်ဟုဆိုနိုင်ပါသည်။"[၁] ထို့ကြောင့် လူတို့သည် အဓိပ္ပာယ်ကို စိတ်ဝင်စားကြပါသည်။ ဘာသာစကားတိုင်းတွင် အဘိဓာန်များရှိနေခြင်းကို ကြည့်လျှင်လည်း အဘိဓာန်သည် အဓိပ္ပာယ်ဖွင့်ဆိုချက်ပင် ဖြစ်ပါသည်။

ဘာသာစကားနှင့် အနက်အဓိပ္ပာယ်၏ ဆက်နွယ်မှုကိုဖော်ပြသော အဆိုတစ်ရပ်မှာ "ကမ္ဘာပေါ် ၌ အဓိပ္ပာယ်မရှိသော ဘာသာစကားဟူ၍လည်း မရှိစကောင်း ဘာသာစကားမရှိသော အဓိပ္ပာယ်ဟူ၍လည်း မရှိစကောင်း၊ ဘာသာစကားရှိသည်နှင့် အဓိပ္ပာယ်သည် ရှိရမည်သာဖြစ်ပါသည်။"[၂]

ဘာသာစကားတစ်ခုကို လေ့လာသည်ဆိုရာတွင်လည်း စကားသံဖွဲ့ပုံကို လေ့လာရုံမျှနှင့်လည်း မပြီး၊ သဒ္ဒါဖွဲ့ပုံကို လေ့လာရုံမျှလည်း မပြီးဘဲ လေ့လာမှု၏ နောက်ဆုံးဦးတည်ချက်မှာ အနက်အဓိပ္ပာယ်ပင် ဖြစ်သည်။ ထို့ကြောင့် ဘာသာစကားတိုင်းတွင် အဓိပ္ပာယ်သည် အရေးပါပြီး ဘာသာစကားတစ်ခု အောင်မြင်စွာရပ်တည် နိုင်ရေးအတွက် အနက်အဓိပ္ပာယ်သည် ဘာသာစကားတို့၏ အနှစ်သာရ အမြုတေဖြစ်သည်ဟု ဆိုနိုင်ပါသည်။

၁၊ ၂။ အတ္တဗေဒဟူသည်

အတ္တဗေဒဟူသည် ဘာသာဗေဒ၏ အဓိကဘာသာရပ်ခွဲ တစ်ခု[၃] ဖြစ်သည်။ ဘာသာစကားအတွင်းရှိ အနက် အဓိပ္ပာယ်ကို သိပ္ပံနည်းကျခွဲခြမ်းစိတ်ဖြာ၍ လေ့လာသောပညာရပ်ဖြစ်သည်။ ဤပညာရပ်သည် သရုပ်ဖော် ဘာသာဗေဒတွင် ပါဝင်သော သဒ္ဒဗေဒ၊ အတ္တဗေဒ၊ သဒ္ဒါဟူသော အဓိကအပိုင်းကြီး သုံးပိုင်းအထဲမှ တစ်ပိုင်း အပါအဝင်ဖြစ်ပြီး အခြားအပိုင်းနှစ်ပိုင်းနှင့် အပြိုင် အရေးပါသည့် ပညာရပ်ဖြစ်သည်။ ထင်ရှားသော အတ္တဗေဒ ဝါဒ ၃(၃)မျိုးမှာ စိတ်ဝါဒ[၄]၊ အမူအရာဝါဒ[၅]၊ အခြေအနေဝါဒ[၆] တို့ဖြစ်သည်။

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[၁] ထွန်းမြင့်၊ ၁၉၉၅၊ ၁၁၀

[၂] ထွန်းမြင့်၊ ၁၉၉၅၊ ၁၁၀

[၃] a major branch of Linguistics

[၄] mentalism

[၅] behaviourlism

[၆] contextualism (Context of situation)

စိတ်ဝါဒမှာ ဘာသာစကားတစ်ခုအတွင်းရှိ အဓိပ္ပာယ်သည် လူတို့၏ စိတ်ကို အခြေခံ၍ဖြစ်လာ သည်။ ထို့ကြောင့် အဓိပ္ပာယ်ကို လေ့လာဖော်ထုတ်ရာ၌ လူတို့၏ စိတ်ကို အခြေခံ၍ လေ့လာဖော်ထုတ်ပေး ရမည်။ တစ်နည်းဆိုလျှင် ဘာသာစကား၏ အဓိပ္ပာယ်သည် လူတို့၏ စိတ်ကူးပင်ဖြစ်သည်ဟူသော ဝါဒဖြစ်သည်။

အမူအရာဝါဒမှာ ဘာသာစကားတစ်ခုအတွင်းရှိ အဓိပ္ပာယ်သည် လူတို့၏အမူအရာကို အခြေခံ၍ ဖြစ်လာသည်။ ထို့ကြောင့် အဓိပ္ပာယ်ကို လေ့လာဖော်ထုတ်ရာ၌ လူတို့၏အမူအရာကို အခြေခံ၍ လေ့လာဖော်ထုတ်ပေးရမည်။ တစ်နည်းဆိုလျှင် ဘာသာစကား၏ အဓိပ္ပာယ်သည် လူတို့၏ အမူအရာပင် ဖြစ်သည်ဟူသော ဝါဒဖြစ်သည်။

အခြေအနေဝါဒမှာ ဘာသာစကားတစ်ခုအတွင်းရှိ အဓိပ္ပာယ်သည် ဘာသာစကားကို အသုံးပြု သည့် ပတ်သက်ရာ ပတ်သက်ကြောင်း အခြေအနေအရပ်ရပ်ကို အခြေခံ၍ ဖြစ်လာသည်။ ထို့ကြောင့် စကားသံ ၏ အဓိပ္ပာယ်ကို လေ့လာဖော်ထုတ်ရာ၌ ယင်းစကားသံကို အသုံးပြုရာတွင်ရှိနိုင်သော ပတ်သက်သမျှသော အခြေအနေ အရပ်ရပ်ကို စုပေါင်းအခြေခံ၍ ဖော်ထုတ်ပေးရမည်။ တစ်နည်းဆိုရလျှင် စကားသံတစ်သံ၏ အဓိပ္ပာယ်သည် ယင်းစကားသံကို အသုံးပြုရာတွင်ရှိနိုင်သော ပတ်သက်ရာ ပတ်သက်ကြောင်း အခြေအနေ အရပ်ရပ်ပင်ဖြစ်သည် ဟူသောဝါဒဖြစ်သည်။

ထို့ကြောင့် အတ္ထဗေဒဟူသည် ဘာသာစကားအတွင်းရှိ အနက်အဓိပ္ပာယ်ကို သိပ္ပံနည်းကျစွဲခြမ်း စိတ်ဖြာ၍ လေ့လာသောပညာရပ်ဖြစ်သည်။

၁၊ ၃။ အတ္ထဗေဒသီအိုရီများ

ဘာသာစကားဆိုင်ရာ ပြဿနာများကို ဘာသာစကားနယ်ပယ်တွင်ရှိသော အရာများ၏ အကူအညီဖြင့်သာ ဖြေရှင်းသင့်သည်ဟု ခေတ်သစ်အတ္ထဗေဒပညာရှင်များက ယူဆလာခဲ့ကြသည်။ ထို့ကြောင့် အနက်အဓိပ္ပာယ် လေ့လာရာတွင် သက်ဆိုင်ရာဘာသာစကားတစ်ခုအတွင်းရှိ အနက်အဓိပ္ပာယ်သဘောများကို သရုပ်ဖော် လေ့လာခြင်းဖြင့် အနက်အဓိပ္ပာယ်ဆိုင်ရာ သီအိုရီများကို ဆက်လက်လေ့လာဖော်ထုတ်ခဲ့ကြသည်။ ယခုအခါ တွင် အတ္ထဗေဒသီအိုရီများ များစွာတိုးတက်ပြောင်းလဲခဲ့ပြီဖြစ်သည်။ ဆက်၍လည်း ပြောင်းလဲတိုးတက် နေဦးမည်ဖြစ်သည်။ အဓိကကျသော အတ္ထဗေဒဆိုင်ရာ သီအိုရီများမှာ-

(၁) အဓိပ္ပာယ်ကို စကားပြောသူက သူပြောနေသည့် အကြောင်းအရာနှင့်ပတ်သက်၍ ရင်း၌ ရှိနေသော စိတ်ကူးရုပ်ပုံ [1] အဖြစ် ဖွင့်ဆိုသည့် Conceptual Theory (Conceptualism)

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[1] mental image

(၂)   ဘာသာဗေဒသင်္ကေတနှင့် ၎င်းကရည်ညွှန်းသော အရာဝတ္ထုတို့အကြား တိုက်ရိုက် ဆက်စပ်မှုရှိသည်ဟု ယူဆသော Reference / Correspondence Theory

(၃)   သီးခြားအခြေအနေတစ်ခုတွင် အခြားစကားလုံးများနှင့် အခြေအနေအရ အနက် ဆက်စပ်ဖြစ်ပေါ်မှုကို လေ့လာသည့် Contextual Theory

(၄)   ကန့်သတ်ထားသည့် အဓိပ္ပာယ်နယ်ပယ်များအတွင်းရှိ အဖွဲ့ဝင်အချင်းချင်း အဓိပ္ပာယ် အရ ဆက်စပ်မှုကို လေ့လာသည့် Field Theory

(သာဓကအားဖြင့် - အဖိုး၊ အဖွား၊ အဖေ၊ အမေ၊ အစ်ကို၊ အစ်မ၊ ဦးလေး၊ အဒေါ်၊ ဘကြီး စသည့် အဖေဘက်၊ အမေဘက် ကျားမ လိင်ဆက်စပ်မှုကိုပြသည့် ဆွေမျိုးစပ် ဝေါဟာရများ ၎င်းတို့အချင်းချင်း ပတ်သက်ဆက်စပ်မှုကို လေ့လာခြင်းမျိုးဖြစ်သည်။)

(၅)   အဓိပ္ပာယ်အစိတ်အပိုင်းများခွဲ၍ လေ့လာသည့် Componential Analysis

(သာဓကအားဖြင့် "ကောင်လေး" ဟူသော စကားကို လူသား၊ အဖို၊ ကလေး စသည်ဖြင့် ခွဲခြမ်းပြခြင်းမျိုးဖြစ်သည်။)

(၆)   ဝေါဟာရအဓိပ္ပာယ်တစ်ခုစီနှင့် ၎င်းတို့၏ ဝါကျအတွင်း အဆက်အစပ်အနေအထားကို လေ့လာသည့် Combinatorial Semantics

(၇)   အောက်ခံလွှာရှိ ယုတ္တိဆက်စပ်မှု [1] ကို လေ့လာသည့် Generative Semantics တို့ဖြစ်ကြပါသည်။

ထို့အတူ အဓိပ္ပာယ်အမျိုးအစားများကို ခွဲခြားလေ့လာရာတွင်လည်း Geoffrey Leech က ၎င်း၏ Semantics အမည်ရှိ စာအုပ်တွင်-

၁။   အနက်ရိုး / ပညတ်အနက် / အဘိဓာန်အနက် [2]

၂။   ဂယက်အနက် / ဂုဏ်ရည်ပြအနက် [3]

၃။   လူမှုဝန်းကျင်အနက် [4]

၄။   ခံစားမှုပြအနက် [5]

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[1] underlying logical relations

[2] conceptual meaning / denotative meaning

[3] connotetive meaning

[4] stylistic meaning

[5] effective meaning

၅။   နှစ်ဖက်သွားအနက် [1]

၆။   ဒွန်တွဲအနက် [2]

၇။   အလေးပေးအနက်[3] ဟူ၍ အဓိပ္ပာယ် (၇) မျိုး ခွဲခြားဖော်ပြထားသည်။ [4]

၁၊ ၄။ မြန်မာဘာသာစကားရှိ အနက်အဓိပ္ပာယ်အမျိုးအစားများ

ဘာသာစကားကို ကြားခံမဣ္ဈိုင် [5] အဖြစ် အသုံးပြု၍ အနက်အဓိပ္ပာယ် ပေးပို့ဆက်သွယ်နိုင်မှုမှာ အံ့မခန်း ကျယ်ပြန့်လှပေသည်။ စကားလုံးများ၊ ဝါကျများကို သာမန်အားဖြင့် နားလည် အနက်အဓိပ္ပာယ်ဖော်သည် လည်းရှိ၍ ပြောသူနှင့် နာသူ၊ ရေးသူနှင့် ဖတ်သူတို့အကြား ပတ်သက်ဆက်နွယ်မှု အပါအဝင် အနက်ရိပ်များ၊ စိတ်သဘောထားများ၊ လျှို့ဝှက်ချက်များကိုပါ ထည့်သွင်းတွက်ချက်ကာ အနက်အဓိပ္ပာယ်ဖော်ကြသည်လည်း ရှိသည်။ "ထမင်းစားပြီးပြီလား" ဟု မိတ်ဆွေတစ်ဦးကတစ်ဦးကို ယဉ်ကျေးမှုသဘောအရ နှုတ်ခွန်းဆက်သည် ဟု သာမန်အဓိပ္ပာယ်ဖော်သည်လည်းရှိ၍ အမှန်တကယ် ထမင်းစားပြီး/မပြီး သိချင်၍ မေးသည်ဟုလည်း အဓိပ္ပာယ်ကောက်နိုင်သည်။ ပထမအဓိပ္ပာယ်ကောက်ပုံမှာ တိုင်းရင်းဘာသာစကားကို ပြောဆိုသုံးစွဲသူအများစုက သဘောတူသတ်မှတ်ကာ နားလည်လက်ခံထားသော သာမန်အနက် အဓိပ္ပာယ်[6] မျိုးဖြစ်သော်လည်း ဒုတိယ အဓိပ္ပာယ်ကောက်ပုံမျိုးမှာ လူမှုရေးနောက်ခံများ၊ ယဉ်ကျေးမှုအစဉ်အလာ ထုံးတမ်းများ ရှောင်ခလေ့များစသည် တို့ကိုပါ ထည့်သွင်းစဉ်းစားရသည်အထိ ကျယ်ပြန့်တတ်ပါသည်။

မြန်မာဘာသာစကားတွင် စကားလုံးများက ရည်ညွှန်းသော အနက်အဓိပ္ပာယ်များကို အနက်အဓိပ္ပာယ်ရှုထောင့်မှ အမျိုးအစားခွဲလျှင် အနက်အဓိပ္ပာယ်နှစ်မျိုးရှိပါသည်။ ၎င်းတို့မှာ ပဉ္စတ်အနက်နှင့် ဂယက်အနက်တို့ဖြစ်ပါသည်။ ပဉ္စတ်အနက်ကို အနက်ရိုး၊ သဘောလက္ခဏာပြအနက်၊ အဘိဓာန်အနက်ဟု ခေါ်ဆိုကြသေးသည်။ ဂယက်အနက်ကိုလည်း တွဲဖက်အနက်ဟု ခေါ်ဆိုကြသည်။ ပဉ္စတ်အနက် (အနက်ရိုး)ကို သုတပေးသောအနက်၊ ဂယက်အနက်ကို ခံစားမှုပြသောအနက်ဟူ၍ ခွဲခြားလေ့လာတတ်ကြပါသည်။

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[1] reflected meaning

[2] collocative meaning

[3] thematic meaning

[4] Leech, 1960, 10

[5] medium

[6] denotative meaning

အတ္တဗေဒပညာရှင်များသည် အလေ့လာခံဖြစ်သော အနက်အဓိပ္ပာယ်နယ်ပယ်နှင့် ပတ်သက်၍ အယူအဆကွဲပြားကြသည်။ ပညာရှင်အချို့က ဘာသာစကားဖြင့် ဆက်သွယ်နိုင်သမျှ အကြောင်းအရာ အားလုံးကို အနက်အဓိပ္ပာယ်အဖြစ် ကျယ်ကျယ်ပြန့်ပြန့်သတ်မှတ်လိုကြသည်။ ပညာရှင်အချို့ကမူ အနက်ရိုး (အဘိဓာန်တွင် ဖွင့်ဆိုထားသော အနက်မျိုး) တစ်နည်းအားဖြင့် သဘောလက္ခဏာပြအနက် ၁ ကိုသာ အနက် အဓိပ္ပာယ်ဟု သတ်မှတ်လိုကြသည်။

အနက်အဓိပ္ပာယ်အမျိုးအစားကြီး (၂) မျိုးကို ထပ်မံ၍ မျိုးစိတ်လိုက်သောအခါ Geoffrey Leech ၏ သီအိုရီအတိုင်း အမျိုးအစား (၇) မျိုး ခွဲခြားနိုင်ပါသည်။

၂။ မြန်မာဘာသာစကားရှိ ခံစားမှုပြအနက်

မြန်မာဘာသာစကားတွင် အချို့သော စကားလုံးများ၏ ပညတ်အနက်နောက်ကွယ်၌ ခံစားမှုတစ်စုံတစ်ရာ တွဲဖက်ပေါ်လာကြောင်း တွေ့ရသည်။ ယင်းသို့ အနက်ရိုး၏ နောက်တွင် ကပ်ပါလာသော ခံစားမှုကို ဖော်ပြသည့် အနက်ကို ခံစားမှုပြအနက်ဟုခေါ်သည်။ တစ်နည်းအားဖြင့် ခံစားမှုနှင့်ယှဉ်တွဲနေသော စကားလုံး၏အနက်ကို ခံစားမှုပြအနက်ဟု ဆိုလိုခြင်းဖြစ်သည်။ စကားတစ်လုံးကို ခံစားမှုနှင့် ယှဉ်၍ သုံးကြည့်လေလေ ခံစားမှု သဘောကို မြင်နိုင်လေလေဖြစ်သည်။ ဆေးပုလင်းထဲတွင် ဆေးမရှိတော့သည့်တိုင် ဆေးနံ့ကျန်နေတတ်သည် သဘောမျိုးဖြစ်သည်။ စကားလုံးကို ကြားလိုက်သည်နှင့် နှစ်မြို့ဖွယ်၊ မနှစ်မြို့ဖွယ် ခံစားချက်ကို တိုက်ရိုက် ထိခိုက်စေသည်။ "တစ်နည်းအားဖြင့် သုံးနှုန်းပြောဆိုသောစကားတွင် ပြောသူ၏ ပုဂ္ဂလခံစားမှု၊ ပြောသူက နာသူအပေါ်ထားသည့် သဘောထား၊ ပြောသူက ပြောနေသည့် အကြောင်းအရာပေါ်ထားသည့်သဘောတို့ ထင်ဟပ်နေလျှင် ယင်းတို့ကို ခံစားမှုပြအနက်ဟု ခြုံ၍ ခေါ်ဆိုနိုင်သည်" ၂ ဟု ဆရာကြီး ဦးခင်အေးက "အတ္တဗေဒနိဒါန်း"တွင် ခံစားမှုပြအနက်နှင့် ပတ်သက်၍ ဖွင့်ဆိုထားသည်။ ခံစားမှုပြအနက်ကို စကားလုံးတို့ ၏ ပညတ်အနက် ဂယက်အနက်တို့ဖြင့်ပင် ထင်ရှားပြည့်စုံစွာ ဖော်ပြနိုင်သည်ကို တွေ့ရပါသည်။

၂။ ၁။ စကားအသုံးအနှုန်း၊ လေသံထူးခြားမှုနှင့် ခံစားမှုပြအနက်

လူတစ်ဦးနှင့်တစ်ဦး စကားပြောဆိုရာတွင် ပြောသူ၏လေသံ၊ စကားလုံးအသုံးအနှုန်းတို့သည် နာသူအပေါ်တွင် ခံစားမှုအနက်ကို အမျိုးမျိုးထွက်ပေါ်လာစေနိုင်ပါသည်။ "မင်းမျက်နှာမကြည့်ချင်ဘူး" ဟု ဆိုလျှင် ပြောသူက နာသူအပေါ် မည်သို့သဘောထားသည်မှာ အထူးစဉ်းစားရန်မလိုပေ။ သို့သော် ထိုမျှတိုက်ရိုက်မကျသော စကားလုံးများဖြင့်လည်း ပြောသူက နာသူအပေါ်ထားရှိသော စိတ်သဘောထားများကို ပေါ်လွင်စေခြင်းများ လည်း ရှိပေသည်။

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၁ conceptual meaning

၂ ခင်အေး၊ ၂၀၀၄၊ ၈၁

သာဓကအားဖြင့် လူအများကို တိတ်ဆိတ်စွာနေရန် ရည်ရွယ်၍ ပြောကြားရာတွင် "အသံ တိုးတိုးဖြင့်ပြောပါ" ဟု ပြောနိုင်သကဲ့သို့ "မဆူကြပါနဲ့" ဟုလည်း ပြောနိုင်သည်။ ပြောသူ၏ နာသူအပေါ် ထားရှိသော ယဉ်ကျေးသည့်သဘောထားနှင့် မနှစ်မြို့သည့် သဘောထားကို ခွဲခြားစွာ တွေ့မြင်နိုင်ပါသည်။ ထိုသို့ပြောဆိုရာတွင် စကားသုံးနှုန်းပုံနှင့် လေသံတို့သည် အလွန်အရေးပါလှသည်။ ယဉ်ယဉ်ကျေးကျေးသုံးနှုန်း ပြောဆိုသော "အသံတိုးတိုးဖြင့်ပြောပါ" ဟူသော စကားကိုပင် ငေါ့တော့တော့လေသံဖြင့်ပြောပါက အခြား အဓိပ္ပာယ်တစ်မျိုးဖြစ်သွားမည်။ ထိုအတူ မနှစ်မြို့သော သဘောပါသည့် "မဆူကြပါနဲ့" ဟူသော စကားကို လေသံပြင်းပြင်းဖြင့်မပြောဘဲ တောင်းပန်သည့် လေယူလေသိမ်းဖြင့် ပြောပါက နောက်ပြောင်ကျီစယ်သည့် အဓိပ္ပာယ်ကို ပြောင်းသွားနိုင်ပေမည်။

"ဒီနားက ရှောင်ပေးပါ"

"ဒီနားက ထွက်သွားပါ"

ဟူသော ဝါကျတို့တွင်လည်း ပထမဝါကျသည် အကြောင်းအရာတစ်ခုခုကြောင့် နေရာမှဆွာရန် တောင်းပန်သော၊ ယဉ်ကျေးသော ခံစားမှုပြအနက် ထင်ဟပ်နေ၍ ဒုတိယဝါကျမှာမူ ရိုင်းသော၊ မျက်နှာ မကြည့်ချင်၍ ဒေါသနှင့်ပြောသော၊ အလိုက်မသိရန်ကောဟူသော ဒေါသနှင့်ပြောသော ခံစားမှုပြအနက်တို့ ထင်ဟပ်နေသည်ကို တွေ့ရပါသည်။

ထို့ပြင် -

"ကျွန်တော့်ဖခင် ကွယ်လွန်သွားပြီ"

"ကျွန်တော့်အဖေဆုံးသွားပြီ"

"ကျွန်တော့်အဘိုးကြီး ကွဲသွားပြီ"

ဟူသောဝါကျတို့သည် အနက်ရိုးချင်း တူညီကြသော်လည်း ခံစားမှုပြအနက်တို့မှာ များစွာ ကွာခြားသွားကြောင်း တွေ့ရပါသည်။ ပထမဝါကျသည် ရှိသေလေးစားသောသဘော၊ ဝမ်းနည်းကြေကွဲသော သဘောကို ပြသည်။ ဒုတိယဝါကျသည် သာမန်အားဖြင့် ပြောသော သဘောကိုပြသည်။ တတိယဝါကျမှာမူ ရှိသေလေးစားမှုမရှိသော၊ တန်ဖိုးမရှိသော၊ ရိုင်းစိုင်းသောသဘောတို့ကို ဖော်ပြနေပါသည်။ ထို့ကြောင့် စကား ပြောဆိုရာတွင် စကားအသုံးအနှုန်းနှင့် လေသံထူးခြားမှုတို့ကြောင့် ခံစားမှုပြအနက်အမျိုးမျိုး ပေါ်ထွက်စေနိုင် ပါသည်။

ထိုအတူ အမေဖြစ်သူက သမီးဖြစ်သူအား ဈေးမှဝယ်လာသောလက်ဆောင်ကို ပြသရာ သမီး ဖြစ်သူက "ဒါလေးလား" ဟုဆိုလျှင် ကျေနပ်နှစ်သက်သော၊ ဝမ်းသာသော ခံစားမှုအနက်ကို ထင်ဟပ်စေ၍ "ဒါကြီးလား" ဟုဆိုလျှင်မူ မကြိုက်နှစ်သက်သော ခံစားမှုပြအနက်တို့ ထင်ဟပ်စေနိုင်ကြောင်း တွေ့ရသည်။

ထို့ကြောင့် လူတစ်ဦးနှင့်တစ်ဦး ပြောဆိုဆက်ဆံရာ၌ လေသံအနိမ့်အမြင့် အတက်အကျနှင့် စကားလုံးအသုံးအနှုန်းတို့သည် အလွန်အရေးကြီးပါသည်။ ယင်းတို့ကို နေရာလွဲမှားစွာ အသုံးပြုမိပါက တစ်ဦးနှင့်တစ်ဦး နားလည်မှုလွဲမှား၍ ခံစားမှုပြအနက်တို့လည်း အမျိုးမျိုးထင်ဟပ်စေနိုင်ပါသည်။

၂၊ ၂။ ဗန်းစကားနှင့် ခံစားမှုပြအနက်

မြန်မာဘာသာစကားသဘာဝအရ လူမှုဆက်ဆံရေးကိစ္စများတွင် သူ့နေရာနှင့်သူ သုံးရသောစကားများ ရှိပါသည်။ အထူးသဖြင့် "ဗန်းစကားများ"[၁] သည် လူငယ်အချင်းချင်းပြောသောအခါတွင် သုံးလေ့သုံးထရှိ သည်။ လူငယ်များသည် မိမိထက်အရွယ်ဂုဏ်ကွာခြားလွန်သော လူကြီးများကို ပြောဆိုရာတွင် ဗန်းစကားများ သုံးသည့်အခါ ရိုင်းစိုင်းသော ခံစားမှုများ ထွက်ပေါ်လာနိုင်ပါသည်။

သာဓကအားဖြင့် မိမိအိမ်အလှူသို့လာသော ဆရာမ အားပါးတရစားစေလို၍ "အမုန်းဆွဲပါ" ပြောဆိုပါက ရိုင်းစိုင်းသော ခံစားမှုပြအနက်ကို ထင်ဟပ်စေနိုင်ပါသည်။ သို့သော် မိမိ၏သူငယ်ချင်းကို ထိုအတိုင်းပြောပါကမူ လူငယ်သဘာဝအချင်းချင်း မည်သို့သော ခံစားမှုမျှမဖြစ်ပေါ်နိုင်ပေ။ ဦးလတ်၏ "ရွှေပြည်စိုးဝတ္ထု"တွင် ဘိလပ်ပြန်ဝတ်လုံတော်ရ မောင်သောင်းဖေက သူ့ဖခင်ဦးရာကျော်ကို မိန်းမတောင်း ခိုင်းရာ၌-

"အဖေညက အငြိမ့်ပွဲမှာ အလွန်လှပတဲ့ မဒကလေးတစ်ယောက်ကို
ကျွန်တော်တွေ့ခဲ့ပါတယ်။ ကျေးဇူးပြု၍ သည်မဒလေးကို ကျွန်တော့်ကို
စပ်ပေးပါ။"[၂]

ဟူ၍ ပြောလေသည်။ မောင်သောင်းဖေမှာ ဘိလပ်မှပြန်လာပြီးကတည်းက ဘယ်နေရာမှာစကားသုံးရ ကောင်းမှန်မသိအောင် မြန်မာအမူအရာများ ပျက်ယွင်းနေပြီးဖြစ်သည်။ ထို့ကြောင့်လည်း ဦးရာကျော်က-

"မဒဆိုတဲ့ ကာလစကားမှ မဒဟူသော ပါဠိစကားမှလာတဲ့စကား
မဒသဒ္ဒါသည် "အဆီအနှစ်" လို့ အဓိပ္ပာယ်ရတယ်။ သည်စကားမျိုး
ဆိုတာထက် ဝတ်လုံတော်ရမင်းတို့ အချင်းချင်း သက်တူရွယ်တူမျှ
နှင့် ပြောရတဲ့စကားမျိုး မိဘမှစ၍ ဆရာသမားလူကြီးလူကောင်း
သက်ကြီးရွယ်အိုကြီးများ ရှေ့မှာသုံးရသော စကားမျိုးမဟုတ်။

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[၁] slang

[၂] လတ်၊ မ၊ ၁၂၇၆၊ ၂၈၆

ဝတ်လုံတော်ရမင်းကတော့ မြန်မာစကားအသုံးအစွဲများကို မေ့ခဲ့တဲ့

လက္ခဏာနဲ့တူတယ်။"" ၁

ဟူ၍ ခပ်ထေ့ထေ့လေး ပြန်ပြောလိုက်ခြင်း ဖြစ်ပါသည်။ ၍အချက်ကို ကြည့်ခြင်းအားဖြင့် ဗန်းစကားများသည် အသုံးနေရာလွဲမှားလျှင် ရှိုင်းစိုင်းသော ခံစားမှုအနက်များ ဖြစ်ပေါ်လာတတ်သည်။

ထို့ပြင် "ညောင်းသည်" ဟူသောစကားမှာ ဗန်းစကားဖြစ်ပြီး အနက်မှာ "သွားသည်" ဟု အနက်ရသည်။ ထို့ကြောင့် ဖခင်ဖြစ်သူအား "အဖေညောင်းတော့မလား" ဟုမေးလျှင် အဖေမှာ ဘာပြန်ဖြေရမှန်း မသိအောင် ဖြစ်ရသည်။ ထိုစကားကြားရပါက အဖေအပေါ်ထားရှိသော လေးစားခြင်း၊ တန်ဖိုးထားခြင်းများ ပျောက်ဆုံးနေပြီး ရှိုင်းစိုင်းသည်ဟု ခံစားလာရသည်။

ထို့အတူ " ဆွဲစိ   -   (ဗန်း) *မိမိဘက်ပါအောင်သိမ်းသွင်းသည်။

ဖြဲ   -   (ဗန်း) ခြိမ်းခြောက်သည်။

စော်   -   (ဗန်း) မိန်းမငယ်

စွဲ   -   (ဗန်း) စားသည်။

ဝိုက်   -   (ဗန်း) စားသည်။

လျှော   -   (ဗန်း) သေသည်။

ဘွားတော်   -   (ဗန်း) မိမိထက်အသက်ကြီးသူ၊ ဂုဏ်ကြီးသူ။

ဂျင်းထည့်   -   (ဗန်း) ဒုက္ခရောက်အောင်လုပ်သည်။

ဝွမ်း   -   (ဗန်း) အဆင်မပြေဖြစ်သည်။

အသည်းပေါက်   -   (ဗန်း) စိတ်တို / စိတ်ဆိုးသည်။

စသည်ဖြင့် ဗန်းစကားများသည်လည်း လူတိုင်းနှင့် ပြောဆိုသုံးစွဲရန်မသင့်ပေ။ လွဲမှားစွာ သုံးစွဲမိပါကလည်း ရှိုင်းစိုင်းသည့် ခံစားမှုပြအနက်များ ထွက်ပေါ်လာမည်ဖြစ်သည်။

၂။ ၃။ အနက်ရှိုးတူ ဝေါဟာရများနှင့် ခံစားမှုပြအနက်

တစ်ခါတစ်ရံတွင်မူ အနက်ရှိုးခြင်းတူသော်လည်း ခံစားမှုအနက်ချင်း ကွဲပြားသောစကားလုံးများ ရှိပါသည်။ လူတစ်ဦးတစ်ယောက် သေဆုံးရာတွင် "သူသေပြီ" ဟုပြောလျှင် မည်သည့်ခံစားမှုမှမပါဘဲ သာမန်ပြောခြင်း

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၁ လတ်၊ မ. ၁၂၇၆၊ ၂၈၆

* (ဗန်း) = ဗန်းစကား

ဖြစ်သည်။ "ကွယ်လွန်ပြီ၊ ဆုံးပါးပြီ" ဟုပြောလျှင် ယဉ်ကျေးသောခံစားမှုအပြင် သေဆုံးသူအား လေးစားသည့် ခံစားမှုအရွေ့အသက်များ ပါဝင်နေသည်။ "ဇာတ်သိမ်းပြီ၊ လျှောပြီ၊ ကြွပြီ" ဟူသော ဝန်းစကားများတွင် ခံစားမှုက တစ်မျိုးပြောင်းသွားသည်ကို တွေ့ရသည်။ ထိုစကားများသည် အနက်ရိုးချင်းတူသော "သေပြီ" ဟူသော အကြောင်းဖော်ပြသည့် အနက်ပင်ဖြစ်ပါသည်။

ထို့အတူ "အမျိုးသမီး" နှင့် "မိန်းမ" ဟူသော စကားတို့သည် အနက်ရိုးတူပြီး အမဖြစ်ကြောင်း ဖော်ပြသောအနက်ဖြစ်သည်။ သို့သော် "အမျိုးသမီး" ဟု ပြောလိုက်လျှင် မိန်းမများအားလုံးကို ကိုယ်စားပြုသည် ဟူသော ခံစားမှုပြအနက်ကို တွေ့ရသည်။ "အမျိုးသမီး" ဟူသော စကားလုံးသည် ဂုဏ်သရေရှိသည့် လေးစားသည့် အရွေ့အသက်ပါသည့် ခံစားမှုများပါဝင်နေသည်။ "မိန်းမ" ဟုဆိုလျှင် သာမန်ပင် ခံစားရ၍ အမျိုးသမီးထုကြီးကို ကိုယ်စားပြုခြင်းမရှိသော အရွေ့အသက်ပါသည့်ခံစားမှုကို တွေ့ရသည်။ "မိန်းမ" ဟူသော စကားလုံးသည် လိင်အမျိုးအစားကိုပြသော ခံစားမှုအနက်ကို တွေ့ရသည်။ ထို့ကြောင့် အနက်ရိုးချင်းတူ သော်လည်း "ဟိုမိန်းမ" ဟူသောစကားနှင့် "ဟိုအမျိုးသမီး" ဟူသော စကားသည် ခံစားမှုပြအနက်အရ ဂုဏ်ရည်ချင်းမတူနိုင်ကြောင်း တွေ့ရသည်။

အမျိုးသားတစ်ဦးက မိမိ၏ အိမ်ထောင်ဖက်ဖြစ်သူကို ဖော်ပြရာတွင် "ဒါကျွန်တော့်အမျိုးသမီး ပါ " ဟုဆိုလျှင် နာသူအား လေးစားမှုအရွေ့အသက် ထင်ဟပ်နေပါသည်။ "ဒါငါ့မိန်းမ၊ ငါ့မယား" ဟုဆိုလျှင် နာသူနှင့် ရင်းနှီးကျွမ်းဝင်သော ခံစားမှုထင်ဟပ်နေပါသည်။

"ကျွန်တော့်ဇနီးပါ" ဟုဆိုလျှင်မူ သာမန်ခံစားမှုနှင့် ပြောဆိုခြင်းဖြစ်သည်။ "ဒါငါ့မဟောသီလေ" ဟုဆိုလျှင်မူ မိမိအမျိုးသမီးအပေါ် ချစ်ကျွမ်းဝင်မှု၊ မြတ်နိုးမှု စသော ခံစားချက်အရွေ့အသက်များ ထင်ဟပ် နေပါသည်။ ထို့ကြောင့် "အမျိုးသမီး၊ မိန်းမ၊ မယား၊ ဇနီး၊ မဟောသီ" စသည့် အနက်ရိုးတူစကားလုံးများ ဖြစ်သော်လည်း ခံစားမှုအနက်မှာမူ ကွဲပြားလျက်ရှိသည်ကို တွေ့ရသည်။

ထို့အတူ အိမ်ထောင်ဘက် ယောက်ျားဖြစ်ကြောင်းကို ဖော်ပြရာတွင် "အမျိုးသား" ဟုဆိုလျှင် နာသူအပေါ်လေးစားသော ခံစားမှုအရွေ့အသက်များ မိမိအမျိုးသားအပေါ် အထင်ကြီးတန်ဖိုးထားသော ခံစားမှု အရွေ့အသက်များ ထင်ဟပ်နေပါသည်။ "ယောက်ျား" ဟုဆိုလျှင်မူ နာသူအပေါ် ရင်းနှီးကျွမ်းဝင်ခံစားမှုတို့ ထင်ဟပ်နေသည်။ "သူလင်လေ" ဟုဆိုလျှင်မူ မနှစ်မြို့သော ခံစားမှုအရွေ့အသက်တို့ ထင်နေကြောင်း တွေ့ရသည်။ ထိုစကားလုံးတို့သည်လည်း အနက်ရိုးတူပြီး ခံစားမှုအနက်ကွဲပြားသော စကားလုံးပင်ဖြစ်သည်။

ဆိုက်ကားနင်းသူကို "ဆိုက်ကားသမား" ဟုသုံးလျှင် နိမ့်ချသည့် ခံစားမှုကို ထင်ဟပ်စေနိုင်ပြီး "ဆိုက်ကားဆရာ" ဟုဆိုလျှင်မူ သူ၏ ရိုးသားသော အသက်မွေးဝမ်းကျောင်းမှုကို လေးစားသည့် သဘော ခံစားမှုများ ထင်ဟပ်နေသည်ကို တွေ့ရသည်။

ထို့ကြောင့် စကားပြောဆိုရာတွင် စကားအသုံးအနှုန်းသည် လွန်စွာအရေးကြီးသည်။ အချို့ စကားလုံးတို့သည် အနက်ရိုးချင်းတူသော်လည်း ခံစားမှုများအမျိုးမျိုးကွဲပြားသွားကြောင်း တွေ့ရသည်။

၂၊ ၄။ အယဉ်သုံးစကားနှင့် ခံစားမှုပြအနက်

စကားပြောဆိုရာတွင် အချို့သောစကားလုံးများသည် ခံစားမှုပြအနက်ပြင်းထန်သဖြင့် ထိုခံစားမှုလျော့နည်းသွား စေရန် အယဉ်သုံးစကားများ [1] ဖြင့် အစားထိုး၍ သုံးရသည်လည်း ရှိပါသည်။ သာဓကအားဖြင့် ဘေးအန္တရာယ် နှင့် ပတ်သက်သောကိစ္စ၊ လူမှုဆက်ဆံရေးကိစ္စများ၊ အလေးအပေါ့စွန့်ခြင်းနှင့်ဆိုင်သော သဘာဝကိစ္စများ၊ လိင်ကိစ္စ စသည်တို့တွင် တိုက်ရိုက်သုံး စကားလုံးတို့သည် ရိုင်းသဖြင့် ယဉ်ကျေးအောင် အသုံးပြုရခြင်း ဖြစ်သည်။

သာဓက - နာရေးကိစ္စဖြစ်ပေါ်နေသောအိမ်ကို "မသာအိမ်" ဟူသော စကားလုံးကိုသုံးလျှင် ရိုင်းပျရာ၊ ရက်စက်ရာကျသော အတွေ့အသက်များအပြင် ကြောက်ရွံ့ထိတ်လန့်သော ခံစားမှုမျိုးလည်း ပေါ်ပေါက် လာနိုင်ပေသည်။ ထို့ကြောင့် "အသုဘအိမ်" ဟူသော အယဉ်သုံးစကားဖြင့် အစားထိုးပြောလေ့ရှိသည်။

"မြွေကိုက်တယ်" ဟူ၍သုံးလျှင်လည်း အမှန်တကယ် မြွေကိုက်ခံရတော့မည့်သဖွယ် ထိတ်လန့် ကြောက်ရွံ့သော ခံစားမှုဖြစ်ပေါ်လာတတ်သောကြောင့် "ပိုးထိတယ်" ဟူသော အယဉ်သုံးစကားဖြင့် အစားထိုး ပြောလေ့ရှိသည်။ ထိုပြင် မြွေကို "ပိုး" ဟု သာမက "အကောင်ရှည်" ဟုလည်း ပြောင်းလဲပြောလေ့ရှိသည်ကို တွေ့ရသည်။

ထိုပြင် သဘာဝကိစ္စများကို ဖော်ဆောင်သော စကားလုံးတို့သည် ရိုင်းပျသည့်သဘောကိုဆောင် သည့်အပြင် ထိုစကားလုံးတို့ကို ကြားလိုက်ရလျှင်မူ အမှန်တကယ်တွေ့ရသကဲ့သို့ ရွံ့ရှာဖွယ်ခံစားမှုများ ဖြစ်ပေါ် လာတတ်သည်။ ထို့ကြောင့် "ကျင်ကြီး၊ ကျင်ငယ်" "အလေး၊ အပေါ့" "အခင်းကြီး" "အခင်းလေး" "မစင်" စသည့် အယဉ်သုံးစကားများဖြင့် အစားထိုးပြောလေ့ရှိပါသည်။

အချို့သော စကားလုံးများသည် ပြင်းထန်သော ခံစားမှုပြအနက်ကို ဖြစ်ပေါ်စေသဖြင့် အယဉ်သုံးစကားဖြင့် လဲလှယ်ပြောဆို သုံးစွဲလေ့ရှိကြသည်။

သာဓက	အိမ်သာ	- သန့်စင်ခန်း၊ Toilet ၊ ထောင့်ခန်း
	သေ	- ကွယ်လွန်၊ အနိစ္စရောက်၊ ဆုံးပါး၊ နာရေးကိစ္စဖြစ်
	အနာ	- အနာကြီးရောဂါသည်၊ ကိုယ်အရေပြားရောဂါသည်
	အရူး	- စိတ်ဝေဒနာသည်
	ငါးစိမ်းသည်	- ငါးသည်

မြန်မာနိုင်ငံတွင် ဗမာလူမျိုးတို့က တိုင်းရင်းသားလူမျိုးများဖြစ်သော "ကချင်၊ ကယား၊ ကရင်၊ ချင်း၊ မွန်၊ ရခိုင်၊ ရှမ်း" စသောသူများအား "ကချင်မ၊ ကယားမ၊ ကရင်မ၊ ချင်းမ၊ မွန်မ၊ ရခိုင်မ၊ ရှမ်းမ" စသည်ဖြင့် ခေါ်ဝေါ်ပါက ထိုသူတို့က မိမိတို့အား နှိမ့်ချ၍ခေါ်သည်ဟု ခံစားရသောကြောင့် မနှစ်မြို့ကြကြောင်း တွေ့ရသည်။

ထို့အတူ အချို့သော ပြည်နယ်များသို့ ရောက်သွားသော ဗမာလူမျိုးတို့အားလည်း တိုင်းရင်းသား တို့က "ဗမာ၊ ဗမာမ" စသည်ဖြင့် ခေါ်ဝေါ်ပါကလည်း မနှစ်မြို့သော အငွေ့အသက်တို့ ထင်ဟပ်နေကြောင်း တွေ့ရသည်။

ထို့ကြောင့် အယဉ်သုံးစကားသည် မလိုလားအပ်သော ခံစားမှုများ စိတ်လှုပ်ရှားစရာ အကြောင်းအရာများ ပြောရာတွင် စိတ်သက်သာရာရစေရန် (သို့) ခံစားမှုလျှော့ပါးစေရန် ဖန်တီးသုံးစွဲလေ့ ရှိကြောင်း တွေ့ရသည်။

၂၊ ၅။ တစ်ဦးဆိုင်အမည်နှင့် ခံစားမှုပြအနက်

ခံစားမှုပြအနက်များသည် သက်ဆိုင်ရာ အညွှန်းခံအရာ၏ "ဂုဏ်အရည်အသွေးထူးခြားမှုကြောင့်လည်း ထွက်ပေါ်လာတတ်ပါသည်။ တစ်ဦးဆိုင်အမည်များတွင်လည်း ခံစားမှုပြအနက်တို့ ထင်ဟပ်တတ်ကြောင်း တွေ့ရပါသည်။

ဘုရားဟောဇာတ်နိပါတ်များတွင် ပါဝင်သော "ဒေဝဒတ်၊ မာန်နတ်" ဟူသော အမည်တို့ သည်လည်း "ရက်စက်ခြင်း၊ ဖျက်ဆီးတတ်ခြင်း၊ ကောက်ကျစ်ခြင်း" စသော ဂုဏ်ရည်တို့ကြောင့် မနှစ်မြို့ဖွယ်၊ ကြောက်လန့်ဖွယ် ခံစားမှုများ ထင်ဟပ်ခဲ့ဖူးပါသည်။ "ဇူဇကာ" ဟူသော အမည်သည်လည်း ထိုနည်းတူ ရွံ့ရှာဖွယ်၊ စက်ဆုပ်ဖွယ် ခံစားမှုများကို ထင်ဟပ်စေပါသည်။

မြန်မာပြည်လွတ်လပ်ရေးအတွက် သက်စွန့်ကြိုးပမ်းဆောင်ရွက်ခဲ့သော "ဗိုလ်ချုပ်အောင်ဆန်း" သည် ကြည်ညိုလေးစားဖွယ် သူရသတ္တိနှင့် ပြည့်စုံသူတစ်ဦးဖြစ်ခဲ့သောကြောင့် "အောင်ဆန်း" ဟူသော အမည်၏ နောက်ကွယ်တွင် လေးစားဖွယ် ကြည်ညိုဖွယ် ခံစားမှုပြအနက်များ ထင်ဟပ်စေနိုင်ပါသည်။

ထို့ပြင် မြန်မာ့စာပေသမိုင်းတွင် ထင်ရှားခဲ့သော "ဦးပုည၊ ဇော်ဂျီ၊ မင်းသုဝဏ်" စသော စာပေ အကျော်အမော်တို့၏ အမည်များနောက်တွင်လည်း လေးစားဖွယ်၊ အားကျဖွယ်၊ ကြည်ညိုဖွယ် စသော ခံစားမှုပြ အနက်တို့ ထင်ဟပ်စေနိုင်ပါသည်။

အမည်နာမတို့တွင် ခံစားမှုပြအနက်တို့ ထင်ဟပ်နိုင်သည်ကို လက်မခံသောသူများလည်း ရှိပါသည်။ ထိုသူများအား ဒေါက်တာခင်အေး၏ "အတ္တဗေဒနိဒါန်း" တွင်

"ဒီလိုဆိုရင် သင်္ဘောသစ်တစ်စင်းတည်ဆောက်ပြီးလို့ နာမည်ပေးတဲ့အခါ Titanic လို့ နာမည်ပေးပါလား" ဟု ပြန်လည်ချေပသည့် သာဓကလည်း ရှိပါသည်။" ၁

ဟူ၍ ဖော်ပြထားသည်ကို တွေ့ရသည်။ ထို့အတူ မြန်မာပြည်တွင် လွန်ခဲ့သော (၁၈)နှစ်ခန့်က တွံတေးတူးမြောင်းတွင် နစ်မြုပ်ခဲ့သော "တိုင်းလုံးကျော်" ဟူသော သင်္ဘော၏အမည်ကိုလည်း ပေးချင်မည်မဟုတ်ပေ။ ထိုသင်္ဘောကြီး များ နစ်မြုပ်သွားခဲ့သည်မှာ ကြာပြီဖြစ်သော်လည်း ဘေးအန္တရာယ်ရှိဖွယ်၊ ကြောက်ရွံ့ထိတ်လန့်ဖွယ် ခံစားမှုပြ အနက်တို့သည် "Titanic ၊ တိုင်းလုံးကျော်" စသော သင်္ဘောကြီးများ၏အမည်တွင် စွဲထင်ကျန်သေးသောကြောင့် ဖြစ်နိုင်ပါသည်။

ထို့အတူ ဒီရေလှိုင်းတို့တွင် ကြောက်မက်ဖွယ်ကောင်းသော "ဆူနာမီ" ၂ ရေလှိုင်းနှင့် "နာဂစ်" မုန်တိုင်းတို့ကြောင့် အသက်အိုးအိမ်စည်းစိမ်တို့ ပျက်စီးခဲ့ရသည်။ ထို့ကြောင့် "ဆူနာမီ" "နာဂစ်" ဟူသော အမည်များ၏ နောက်တွင်လည်း ကြောက်ရွံ့ဖွယ်၊ ဝမ်းနည်းဖွယ်၊ မနှစ်မြို့ဖွယ် ခံစားမှုပြအနက်တို့ ထင်ဟပ်စေ နိုင်ပါသည်။ လူမိုက်ကြီး လမ်းမတော်ဖိုးတုတ်၏ အမည်ကို အစွဲပြု၍ "ဖိုးတုတ်" ဟူ၍လည်း အမည် မပေးလိုပေ။ ထို့ကြောင့် သက်ဆိုင်ရာ အပြောတူစုအတွင်း၌ လူများ၏ကောင်းဂုဏ်၊ ဆိုးဂုဏ်ပေါ်မူတည်၍ ထိုသူများ၏အမည်များတွင် ခံစားမှုပြအနက်များ ထင်ဟပ်လာနိုင်ပါသည်။ တစ်နည်းအားဖြင့် မူလအမည် ပိုင်ရှင်၏ ပြုမူဆောင်ရွက်ချက်အကျင့်စရိုက်တို့သည် ထိုအမည်များအပေါ်တွင် လွှမ်းမိုးသွားပြီး ထိုအမည်တို့နှင့် ပတ်သက်သော ခံစားမှုပြအနက်တို့သည်လည်း ထိုအမည်တို့ပေါ်တွင် စွဲထင်ကျန်ရစ်နေသေးသောကြောင့်ပင် ဖြစ်ပါသည်။

သက်ရှိတို့၏ အမည်များသာမက သစ်သီးသစ်ဥများ၏ ကောင်းဂုဏ်၊ ဆိုးဂုဏ်ပေါ်မူတည်၍လည်း ထိုသစ်သီး၊ သစ်ဥများ၏အမည်ကိုကြားလျှင် စိတ်ခံစားမှု တစ်မျိုးမျိုး ဖြစ်ပေါ်လာနိုင်ပါသည်။

သာဓက - "ဒူးရင်းသီး"

တွင် စူးရှပြင်းထန်သော အနံ့တစ်မျိုးရှိသည်။ ထိုအနံ့နှင့်ပတ်သက်၍ ကြိုက်နှစ်သက်သူက မွေးရနံ့ဟုထင်၍ စားချင်သောခံစားမှုဖြစ်လာမည်။ သို့သော် မကြိုက်နှစ်သက်သောသူက ထိုအနံ့ကို မခံနိုင်၍ "ဒူးရင်းသီး" ဟူသော အမည်ကြားသည်နှင့် ခေါင်းကိုက်ချင်သောခံစားမှု ဖြစ်လာမည်။ ဤသည်တို့သည် ဒူးရင်းသီးနှင့် ပတ်သက်သော ခံစားမှုပြအနက်တို့ဖြစ်သည်။ ထိုခံစားမှုပြအနက် "ဒူးရင်းသီး" ဂုဏ်ကို ဖော်ပြသော ဂုဏ်ရည်ပြ အနက်လည်း အမျိုးမျိုးပြောင်းသွားသည်။

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၁ ခင်အေး၊ ၂၀၀၄၊ ၈၆

၂ tsunami

"သရက်သီး" ၊ "ရှောက်သီး" ၊ "သံပုရာသီး"

စသော အသီးတို့၏အမည်ကို ကြားလိုက်သည်နှင့် ချဉ်လွန်းသော အရသာရှိသည်ဟူသော ခံစားမှုပြအနက် ပေါ်ထွက်လာကာ သွားရည်များပင် ယိုလာသည်ဟု ခံစားမိကြသည်။

ထို့ကြောင့် စိတ်ခံစားမှုများသည် အကြောင်းအရာအမျိုးမျိုး၊ အခြေအနေအမျိုးမျိုး၊ အရာဝတ္ထု အမျိုးမျိုး စသည်တို့၏ ဂုဏ်အရည်အသွေး ထူးခြားမှုတို့ကြောင့် အမျိုးမျိုးဖြစ်ပေါ်လျက်ရှိသည်။

"သင်္ကြန်၊ သီတင်းကျွတ်၊ တန်ဆောင်တိုင်၊ ခရစ်စမတ်" စသော စကားလုံးများသည် အချိန်ကာလအားဖြင့် နီးကပ်လာသည်နှင့်အမျှ ပျော်ရွှင်ဖွယ်စိတ်ခံစားမှုပြအနက်များ ထွက်ပေါ်လာတတ်သည်။

တစ်ခါတစ်ရံ ဒေသ၏ထူးခြားမှုကြောင့်လည်း ထိုဒေသ၏အမည်ကို ကြားရသည်နှင့် တချို့မှာ စိတ်ခံစားမှုတစ်မျိုးမျိုး ဖြစ်ပေါ်လာနိုင်ပါသည်။ "ပုဂံ၊ သာမည၊ စစ်ကိုင်းတောင်၊ ရွှေတိဂုံစေတီ" စသည့်နေရာ ဒေသအမျိုးမျိုးတို့ကြောင့် စိတ်ခံစားမှုအမျိုးမျိုးဖြစ်လာနိုင်ပြီး ခံစားမှုပြအနက်အမျိုးမျိုး ပေါ်ထွက်လာနိုင် ပါသည်။

"ဇွဲကပင်တောင်" ဟူသည် မြန်မာပြည်အနေဖြင့် ကရင်ပြည်နယ် "ဒေသအမှတ်အသား" အဖြစ် သတ်မှတ်ထားပြီး ကရင်လူမျိုးတို့အဖို့ မိမိတို့ဒေသ၊ မိမိတို့လူမျိုးအဖို့ အထွတ်အမြတ်ထားရသော၊ တန်ဖိုးထားရာသော နေရာဒေသတစ်ခုဖြစ်ပြီး ထိုတောင်ကြီးနှင့်ပတ်သက်၍ ဝင့်ကြွားမှု၊ ဂုဏ်ယူမှု စသော ခံစားမှုပြအနက်တို့ ထင်ဟပ်လာစေပါသည်။ ထို့ကြောင့် "ဇွဲကပင်" ဟူသော အမည် မြန်မာလူမျိုးတစ်ဦးနှင့် ကရင်လူမျိုးတစ်ဦးတို့တွင် ထင်ဟပ်လာသော ခံစားမှုအနက် တူချင်မှတူနိုင်ပေမည်။

ထို့အတူ "စစ်ကိုင်းတောင်" ဟူသော အမည်ကို ကြားလိုက်ရသည်နှင့် ရင်ထဲတွင် အေးချမ်းသော ခံစားမှုတို့ ထင်ဟပ်လာတတ်ပါသည်။

"ပုဂံ" ဟူသည် ဒေသကိုဖော်ပြနေသော မြို့အမည်သာမကတော့ဘဲ မြန်မာ့ယဉ်ကျေးမှုတို့ ကိန်းအောင်းရာဟူသော ခံစားမှုပြအနက်တို့လည်း ပေါ်ထွက်လာတတ်သည်။ ပုဂံမြေကို မြန်မာလူမျိုးတို့ အလေးအနက်ထားသော ဝင့်ကြွားသော စိတ်ခံစားမှုများရှိကြသည်။

"ရွှေတိဂုံစေတီ" ဟူသော အမည်ကို ကြားလိုက်ရသည်နှင့် ကြည်နူးခြင်း၊ ကြည်ညိုခြင်း စသော ခံစားမှုများသာမက မိမိတို့၏ မြန်မာနိုင်ငံအတွက် တန်ဖိုးထားရာ အထွတ်အမြတ်ထားရာ ခံစားမှုများလည်း ထင်ဟပ်လာတတ်ပါသည်။ နိုင်ငံခြားတွင် အကြောင်းအမျိုးမျိုးကြောင့် ခေတ္တသွားရောက်နေကြသူများသည် ရွှေတိဂုံကိုမြင်လျှင် မိမိတိုင်းပြည်ကို ပြန်ရောက်ပြီ ဟူသောအသိဖြင့် အလွန်ချမ်းမြေ့ကြရတတ်ပါသည်။ "ရွှေတိဂုံစေတီ" သည် "နိုင်ငံတော်မျက်နှာ" ဟူသော တင်စားချက်နှင့်အညီ မြန်မာပြည်သူပြည်သားများအတွက် ခံစားမှုပြအနက်အမျိုးမျိုးကို ဖြစ်ပေါ်စေသည်။

ထို့ကြောင့် တစ်ဦးဆိုင် အမည်နာမတို့တွင်မူ အကြောင်းအရာအမျိုးမျိုးကို အခြေခံ၍ ခံစားမှုပြ အနက်အမျိုးမျိုး ထင်ဟပ်စေနိုင်ကြောင်း တွေ့ရသည်။

၂၊ ၆။ နေ့စဉ်သုံးစကားများနှင့် ခံစားမှုပြအနက်

နေ့စဉ်လှုပ်ရှားသွားလာနေရသော လူ့ဘဝကြီးတွင် ဘဝအခြေအနေအမျိုးမျိုး လူ့သဘာဝစရိုက်အမျိုးမျိုးတို့ ကြောင့်လည်း ခံစားမှုပြအနက်အမျိုးမျိုး ပေါ်ထွက်လျက်ရှိသည်။ လူတို့၏ ဓလေ့ထုံးစံအယူအဆ စသည်တို့ အပေါ်မူတည်၍လည်း ခံစားမှုအနက်မတူညီကြကြောင်းကိုလည်း တွေ့ရပါသည်။

"ကောင်မ" ဟူသော စကားလုံးသည် ရင်းနှီးကျွမ်းဝင်သူများတွင် ချစ်စနိုးခေါ်ဝေါ်ခြင်း ဟူသော စိတ်ခံစားမှုကို ဖြစ်ပေါ်စေသော်လည်း လူစိမ်းများအဖို့မူ ရိုင်းပျသော ခံစားမှုကို ဖြစ်ပေါ်စေတတ် ပါသည်။

ထို့ပြင် အချို့ရင်းနှီးသူအချင်းချင်း "ယောက်မ" ဟု ခေါ်ဝေါ်ကြရာတွင်လည်း ချစ်ခင်မှုပြ ခံစားမှုကို ဖြစ်ပေါ်စေတတ်သော်လည်း "သမီးယောက်မတွေ တည့်နေကြတယ်" ဟူသော အသုံးတွင်မူ စိတ်ခံစားမှုသည် တစ်မျိုးပြောင်းသွားစေနိုင်ပါသည်။

လောကကြီးတွင် သက်ရှင်လှုပ်ရှားနေသူများကို သတ္တဝါဟု ခေါ်ကြသည်။ သို့သော် "ဒီသတ္တဝါ" ဟူသော အသုံးသည် ရင်းနှီးကျွမ်းဝင်သူများအဖို့ နောက်ပြောင်ကျီစယ်သော ခံစားမှုကို ထင်ဟပ်စေနိုင် သော်လည်း မရင်းနှီးသော သူစိမ်းများအဖို့ ရိုင်းပျသော ခံစားမှုကို ထင်ဟပ်စေနိုင်ပါသည်။

ထို့အတူ "ခွေးကောင်" ဟူသော အသုံးနှုန်းသည်လည်း ချစ်ခင်နှစ်သက်၍ ချစ်စနိုးခေါ်ဝေါ်ခြင်း ဟူသော ခံစားမှုကို ထင်ဟပ်စေနိုင်သော်လည်း "ခွေးမျိုး" ဟုဆိုလျှင် နာကျည်းသောခံစားမှုကို ဖြစ်ပေါ်စေ နိုင်သည်။

အချို့ဝေါဟာရများမှာမူ သာမန်အားဖြင့် မည်သည့်ခံစားချက်မျိုးမှ မရှိသော်လည်း ကဗျာ၊ စာပေ၊ အလင်္ကာတို့နှင့်ယှဉ်၍ သုံးသောအခါ ခံစားမှုပြအနက် အမျိုးမျိုးထွက်လာတတ်သည်ကိုလည်း တွေ့ရပါသည်။ သာဓကအားဖြင့် - ဗေဒါပန်းသည် သာမန်အားဖြင့် ခရမ်းပြာရောင်ရှိ၍ လှပသောအပင်တစ်မျိုး၊ ဘဲ၊ ကြက် စသည်တို့၏ စားစရာတစ်မျိုးသာဖြစ်သည်။ သို့သော် ဆရာဇော်ဂျီ၏ -

ပန်းပန်လျက်ပဲ

> ညိုပြာပြာ လတာပြင့် ခြေရင်း။

လှိုင်းတက်ရာ ဗေဒါတက်၊ လှိုင်းသက်ရာ ဆင်း။

> ဆင်းရလဲ မသက်သာ။

အုန်းလက်ကြွေ ရေပေါလော၊ မျောစုန်လို့လာ။

အဆင်းနဲ့အလာ၊ ဗေဒါမ အထွေး။

အုန်းလက်ကြွေ သူ့နံဘေး၊ ဆောင့်ခဲ့ရသေး။

➢ ဆောင့်ခဲ့လဲ မသက်သာ။

နောက်တစ်ချီ ဒီတစ်လုံးက၊ ဖုံးလိုက်ပြန်ပါ။

မြုပ်လေပေါ့ ပေါ်မလာ၊ မဗေဒါ အလှ။

တစ်လံက္ခာ လှိုင်းအကြ၊ ပေါ်လိုက်ပြန်ရ။

➢ ပေါ်ပြန်လဲ မသက်သာ။

ချောင်းအဆွယ် မြောင်းငယ်ထဲက၊ ဘဲထွက်လို့လာ။

ဘဲအုပ်မှာ တစ်ရာ နှစ်ရာ၊ ဗေဒါက တစ်ပင်တည်း။

အယက် အကန် ခံလို့

ဗေဒါပျံ အံကိုခဲ၊ ပန်းပန်လျက် ပဲ။   ။

    "ဗေဒါလမ်း" ကဗျာကို ဖတ်ရသောအခါ ဗေဒါပန်းလေးများကို မြင်လိုက်ရသည်နှင့် စိတ်ခံစားမှုပြ
အနက်မှာ တစ်မျိုးပြောင်းသွားသည်။ ဗေဒါပန်း၏ အားမာန်ကို အတုယူလိုစိတ်ခံစားလာရသည်။ ဆရာမင်းသုဝဏ်
၏ "သပြေညို" ကဗျာတွင်-

    "သူ့ခေါင်းမှာတဲ့ သပြေညို

    ငါ့ခေါင်းမှာတဲ့ သပြေညို

    တို့ပြေမှာ တို့မေကမ်းပါတဲ့

    သပြေညို ရွှေကိုပန်းဟာက

    လန်းလျက်ပါကို"

"နှစ်သစ်ဆုတောင်း" ကဗျာတွင်-

    "နှစ်ဆန်းချိန်

    ရှိပန်းခါခါနိူမ်လို့

    မာရဇိန် ရှေ့တော်ဦးမှ

    ပန်းသပြေချမ်းရေထူးရယ်နဲ့

    ကျူးမြွက်ဆုတောင်း"

ထို့အတူ "သပြေပန်း"သည်လည်း ရိုးရိုးအပင်အရွက်ပင်ဖြစ်သည်။ သို့သော် "အောင်သပြေပန်းနှင့် ညှောင်ရေလောင်းသည်" ဟူသော မြန်မာတို့၏ ဓလေ့ထုံးစံအရ သပြေပန်းသည် ဘဝအောင်မြင်မှုအတွက် အရေးပါသည်ဟူသော ခံစားမှုပြအနက် ပေါ်ထွက်လာတတ်သည်။

အချို့သော ဝေါဟာရများမှာ ဝေါဟာရသက်သက်အဖြစ်ပင် ခံစားမှုပြအနက်များ ပါဝင်နေတတ် သည်ကို တွေ့ရသည်။

သာဓက - "ဆရာ" ဟူသော ဝေါဟာရသည် "ပညာသင်ကြားပေးသူ သွန်သင်ဆုံးမနည်းလမ်း ပြသူ"[၁] ဟူသော အနက်ရှိအပြင် ထိုဝေါဟာရကို ကြားလိုက်မြင်လိုက်သည်နှင့် ကြည်ညိုလေးစားစိတ်၊ အားကိုးလိုစိတ်၊ ကြောက်ရွံ့စိတ် စသော ခံစားမှုတို့ကို ဖြစ်ပေါ်စေတတ်သည်။ သို့သော် "ဆရာစားချန်သည်" ဟူ၍ သုံးလိုက်ပါမူ မရိုးသားသောစိတ်ခံစားမှုကို ဖြစ်ပေါ်စေသည်။

ထို့အတူ "ထောင်" ဟူသော ဝေါဟာရသည် "တရားဥပဒေအရ ပြစ်ဒဏ်ရရှိသူကို အကျဉ်းချ ထားရာ အဆောက်အအုံ"[၂] ဟူသော အနက်ရှိအပြင် ထိုစကားလုံးကို ကြားလိုက်မြင်လိုက်သည်နှင့် အပြစ်ဒဏ် ရှိသူရော မရှိသူပါ ကြောက်ရွံ့ထိတ်လန့်စိတ်များ ဖြစ်ပေါ်လာတတ်သည်။

"ဘုရား" ဟူသော ဝေါဟာရသည် "သစ္စာလေးပါးကို အလိုလိုသိသော ပုဂ္ဂိုလ်မြတ်"[၃] ဟူသော အနက်ရှိအပြင် "ဘုရား" ဟုကြားလိုက်သည်နှင့် ကြည်ညိုစရာ၊ ကိုးကွယ်စရာအတွက် အမြတ်ထားစရာ စသော ယုံကြည်မှုဆိုင်ရာ ခံစားမှုအနက်တို့ ပေါ်လွင်စေသည်။

"ကျား" ဟူသော ဝေါဟာရသည် "အဝါရောင်တွင် အနက်စင်းများရှိသည့် ကြောင်မျိုးဝင် သားရဲတိရစ္ဆာန်တစ်မျိုး"[၄] ဟူသော အ�’မာန်အနက်ရှိသည်။ ထိုစကားလုံးကို ကြားလိုက်သည်နှင့် ကြောက်ရွံ့ခြင်း၊ ထိတ်လန့်ခြင်း ဟူသော ခံစားမှုပြအနက်များ ပေါ်လွင်စေသည်။

ထို့အတူ "အဖေ"၊ "အမေ" ဟူသော ဝေါဟာရတို့သည် ဖခင်၊ မိခင် ဖြစ်ခြင်းသာမက မှီခိုအားထားစရာ၊ လေးစားချစ်ခင်မြတ်နိုးစရာ စသော ခံစားမှုပြအနက်တို့ ထင်ဟပ်စေပါသည်။

"အာဇာနည်" ဟူသော ဝေါဟာရသည်လည်း "သာမန်ထက် လက်ရုံးရည်၊ နှလုံးရည် ထူးကဲ သာလွန်၍ အများအကျိုးအတွက် အသက်စွန့်ကြိုးပမ်းဆောင်ရွက်သူ"[၅] ဟူသော အနက်ရှိအပြင် အထင်ကြီးစရာ၊ လေးစားအားကျစရာ၊ ချစ်ခင်စရာ စသော ခံစားမှုပြအနက်အမျိုးမျိုး ထင်ဟပ်စေပါသည်။

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[၁] မြန်မာအဘိဓာန်၊ ၁၉၉၁၊ ၁၁၄

[၂] မြန်မာအဘိဓာန်၊ ၁၉၉၁၊ ၁၆၉

[၃] မြန်မာအဘိဓာန်၊ ၁၉၉၁၊ ၂၅၆

[၄] မြန်မာအဘိဓာန်၊ ၁၉၉၁၊ ၂၃

[၅] မြန်မာအဘိဓာန်၊ ၁၉၉၁၊ ၄၂၈

ထို့အတူ “အေအိုင်ဒီအက်စ် (AIDS)” ဟူသော ဝေါဟာရမှာ ရောဂါတစ်မျိုးဖြစ်ပြီး (ခုခံအား ကျဆင်းသောရောဂါ) ဟုအနက်ရှိသည်။ ထိုရောဂါအမည်ကို ကြားလိုက်သည်နှင့် ကြောက်ရွံ့ထိတ်လန့်ခြင်း အပြင် အထင်သေးခြင်း၊ သနားခြင်း စသည့် ခံစားမှုပြအနက်တို့လည်း အနည်းအများ ထင်ဟပ်စေနိုင်ပါသည်။ တစ်နည်းအားဖြင့် လူမှုကိစ္စကို အကြောင်းပြု၍ ပေါ်ပေါက်လာသော ခံစားမှုသည် သက်ဆိုင်ရာစကားလုံးကိုပါ အငွေ့အသက်စွဲသွားသည့် သဘောဖြစ်သည်။ ဤသို့သော စကားလုံးမျိုးတို့သည် ခံစားမှုပြအနက်ကို ဖော်ထုတ်မြဲဖြစ်ပေသည်။

ခြုံငုံသုံးသပ်ချက်

ခံစားမှုပြအနက်သည် မြန်မာဘာသာစကားတွင် စကားလုံးတို့၌ အနက်အဓိပ္ပာယ်အမျိုးအစား (၇)မျိုးရှိသည့် အနက် စိတ်ကိုအခြေခံ၍ ဖြစ်ပေါ်လာသော အနက်အဓိပ္ပာယ်ဖြစ်သည်။ လူတစ်ဦးချင်းစီအလိုက် ပြောင်းလဲနိုင် သကဲ့သို့ လူတစ်စု၊ နိုင်ငံတစ်နိုင်ငံအလိုက်လည်း ပြောင်းလဲတတ်သည်။ လူတို့၏ရိုးရာ၊ ဓလေ့၊ ယဉ်ကျေးမှု၊ ယုံကြည်ကိုးကွယ်မှု စသည်တို့အရ ခံစားမှုပြအနက်သည် အမျိုးမျိုးဖြစ်ပေါ်ပြောင်းလဲတတ်သည်။ ထိုပြင် စကားပြောရာတွင် လေယူလေသိမ်း၊ အသံအနိမ့်အမြင့်၊ အတက်အကျတို့ကြောင့်လည်း ခံစားမှုပြအနက် အမျိုးမျိုးကို ဖြစ်ပေါ်စေသည်။ ထို့ကြောင့် ခံစားမှုပြအနက်ကို ဖော်ဆောင်သော အနက်တို့၌ အချိန်အခါ နေရာဒေသမရွေး အမျိုးမျိုးပြောင်းလဲဖြစ်ပေါ်နေတတ်ပါသည်။

ခံစားမှုပြအနက်သည်လည်း ဘာသာစကားတွင် အရေးပါလှသည်။ ဘာသာစကားပြောဆိုသုံးစွဲသူ တို့၏ ခံစားမှုအမျိုးမျိုးတို့အရ ခံစားမှုပြအနက်အမျိုးမျိုး ဖြစ်ပေါ်နေကြောင်း တွေ့ရသည်။ ခံစားမှုကိုဖော်ပြရာတွင် မနှစ်မြို့သည့် ခံစားမှုကိုပြသည့်သဘောဖြင့် မာထန်သည့် လေသံမျိုးဖြင့် ပြောဆိုပြီး ရင်းနှီးမှုပြသည့် သဘောဖြင့် ပေါ့ပေါ့လွင်လွင်လေသံမျိုးသုံးသည့်အခါမျိုးတွင် တွေ့ရတတ်သည်။ အချို့သော ဘာသာစကားအစိတ်အပိုင်း များမှာမူကား ခံစားမှုဖော်ထုတ်ခြင်းကို အဓိကတာဝန်အဖြစ် ထမ်းဆောင်ကြောင်း တွေ့ရသည်။ ၄င်းတို့တွင် "အလို" "အမလေး" "ဟား" စသော အာမေဍိတ်များသည် အဓိကဖြစ်သည်။ ထိုအာမေဍိတ်များကို အသုံးပြုသော အခြားမည်သည့်အနက်ကိုမှ ဖော်ဆောင်ခြင်းမရှိဘဲ ခံစားမှုပြ စိတ်သဘောထားများကိုသာ ဖော်ပြကြကြောင်း တွေ့နိုင်သည်။

နိဂုံး

မြန်မာဘာသာစကားကို ဘာသာစကားပညာရှင်များက ခေတ်အဆက်ဆက် စူးစမ်းလေ့လာခဲ့ကြသည်။ မြန်မာ့ ရိုးရာအစဉ်အလာနည်းများဖြင့် စူးစမ်းသော ဘာသာစကားပညာရှင်များလည်း ရှိပါသည်။ မြန်မာဘာသာစကားကို ဘာသာဗေဒပညာရပ်၊ အတ္ထဗေဒပညာရပ်များဖြင့်လည်း လေ့လာဖော်ထုတ်နေပါသည်။ မြန်မာဘာသာစကားကို မြန်မာဘာသာစကားသင်ကြားသင်ယူမှုနှင့် ဆက်စပ်၍လည်းကောင်း၊ ပြောဆိုအသုံးပြုနေသော မြန်မာလူ့ဘောင် အဖွဲ့အစည်းနှင့် ဆက်စပ်၍လည်းကောင်း၊ မြန်မာ့အတွေးအမြင်နှင့် ဆက်စပ်၍လည်းကောင်း၊ မြန်မာစာပေ ရေးဖွဲ့ဖန်တီးမှုနှင့် ဆက်စပ်၍လည်းကောင်း၊ ပညာရပ်ချင်း ပေါင်းစပ်လေ့လာမှုများလည်း ပေါ်ထွန်းနေပြီ ဖြစ်ပါသည်။

ဘာသာစကားတစ်ခု၏ အနက်အဓိပ္ပာယ်ကောက်ယူရာတွင် ရိုးစင်းစွာ ကောက်ယူနိုင်သကဲ့သို့ ထူးထွေသော သဘောများလည်း ပါဝင်နေပါသည်။ အနက်အဓိပ္ပာယ်သည် လေ့လာ၍ မကုန်နိုင်လောက်အောင် များပြားလှပါသည်။ စကားပြောဆိုရာတွင် အနက်အဓိပ္ပာယ်ကြောင့် ရင်းနှီးကျွမ်းဝင်မှုကို ပေးနိုင်သကဲ့သို့ တစ်ခါတစ်ရံတွင် ဆက်ဆံရေးပျက်ပြားအားနည်းသွားတတ်သော သဘောလည်းရှိသည်။

မြန်မာဘာသာစကားသည် သာမန်အားဖြင့် ကြားလိုက်မြင်လိုက်သည်နှင့် ခံစားမှုအမျိုးမျိုး လူမှုအခြေအနေအမျိုးမျိုးကို ထင်ဟပ်ပြနိုင်သော သဘောရှိသည်။ ထို့ကြောင့် ဘာသာစကားကို ကျွမ်းကျင်စွာ အသုံးပြုနိုင်ခြင်းဖြင့် မိမိဖုံးကွယ်လိုသော လူမှုအခြေအနေကို အတော်အတန်ဖုံးကွယ်နိုင်သည့်အပြင် မိမိ ဖော်ထုတ်လိုသော လူမှုအခြေအနေကိုလည်း အမွှမ်းတင် ထင်ရှားစေနိုင်တတ်သည်။ ထို့ကြောင့် အချို့သော စကားလုံးများကို သုံးသည့်အခါ လိုအပ်သော အနက်အဓိပ္ပာယ်ရောက်အောင် သတိထားသုံးသင့်ပေသည်။

မြန်မာဘာသာစကားကို နေ့စဉ်သုံးစွဲနေကြသောသူတို့သည် မိမိတို့ ပြောဆိုနေသော ဘာသာစကား၏ အနက်အဓိပ္ပာယ် အမျိုးအစားများကို တိတိကျကျ သိချင်မှသိနိုင်ကြမည် ဖြစ်ပါသည်။ "နီးလွန်းလျှင် မမြင်တတ်" ဟူသောသဘောအတိုင်း ကိုယ့်ဘာသာစကား၏ အနက်အဓိပ္ပာယ်ကို လေးလေးနက်နက် မစဉ်းစားမိ၊ မမြင်မိသူများ ရှိတတ်ပါသည်။ ထို့ကြောင့် ဤစာတမ်းကို ဖတ်မိသူတို့အတွက် မြန်မာဘာသာစကား ၏ အနက်အဓိပ္ပာယ်အမျိုးအစားများကို ခွဲခြားသိမြင်လာနိုင်ရန် မြန်မာဘာသာစကားကို ကျွမ်းကျင်စွာ အသုံးချလာနိုင်ရန် တစ်ဖက်တစ်လမ်းမှ အထောက်အကူပေးနိုင်လိမ့်မည်ဟု ခံယူမိပါသည်။

ကျမ်းကိုးစာရင်း

ကျော်အောင်စံထားဆရာတော်၊ ဒုတိယ။ ၁၉၆၆။ *ဝေါဟာရတ္ထပကာသနီကျမ်း၊ ဒုတိယအကြိမ်* ။
ရန်ကုန်။ လယ်တီမဏ္ဍိုင်စာအုပ်တိုက်။

ခင်မင်၊ မောင်၊ (ခရေဖြူ)။ ၂၀၀၁။ *တစ်သံ နှစ်သံ သုံးလေးသံ* ။ ရန်ကုန်။ ကံသာပုံနှိပ်တိုက်။

ခင်မင်၊ ဒေါက်တာ။ ၂၀၀၄။ *အတ္တဗေဒနိဒါန်း* ။ ရန်ကုန်။ ပညာတန်ဆောင်ပုံနှိပ်တိုက်။

ခင်မင်၊ မောင်၊ (ခရေဖြူ)။ ၂၀၀၅။ *သက်တံရောင်စုံ ဘာသာစကား* ။ ရန်ကုန်။ ကြယ်နီစာပေတိုက်။

ထွန်းမြင့်၊ ဦး။ ၁၉၉၅။ *ဘာသာဗေဒ* ။ ရန်ကုန်။ G.E.C ပညာရေးသမဝါယမလီမိတက်။

ဖေမောင်တင်၊ ဦး။ မ.၁၃၂၀။ *မြန်မာစာပေသမိုင်း၊ ပဥ္စမကြိမ်* ။ ရန်ကုန်။ သုဓမ္မဝတီစာပုံနှိပ်တိုက်။

မင်းသုဝဏ်။ ၂၀၀၃။ *မြန်မာစာမြန်မာမှု* ။ ရန်ကုန်။ အိပ်မက်ဦးစာပေ။

မြန်မာအဘိဓာန် ။ ၁၉၉၁။ ရန်ကုန်။ မြန်မာစာအဖွဲ့။

လတ်၊ ဦး။ မ.၁၂၇၆။ *ရွှေပြည်စိုး* ။ ရန်ကုန်။ မြန်မာပြည်ဗုဒ္ဓဘာသာသာသနာပြုစာပုံနှိပ်စက်။

သိန်းနိုင်၊ မောင်။ ၁၉၈၁။ *အဓိပ္ပာယ်ကို အသုံးချဘာသာဗေဒအမြင်ဖြင့် စိစစ်လေ့လာချက်* ။ ရန်ကုန်
တက္ကသိုလ် မဟာဝိဇ္ဇာဘွဲ့အတွက်တင်သွင်းသောကျမ်း။

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ကျေးဇူးတင်လွှာ

အပြည်ပြည်ဆိုင်ရာ သမဝါယမနေ့အထိမ်းအမှတ် စာတမ်းဖတ်ပွဲတွင် စာတမ်းရေးသား ဖတ်ကြားခွင့်ပြုပေးပါသော ဒေါက်တာရီရီဝင်း (ပါမောက္ခချုပ်၊ သမဝါယမတက္ကသိုလ်၊ သန်လျင်)၊ ဒေါ်မြင့်မြင့်စိန် (ဒုတိယပါမောက္ခချုပ်၊ သင်ကြား၊ သမဝါယမတက္ကသိုလ်၊ သန်လျင်)၊ ဒေါက်တာအေးအေးမော် (ပါမောက္ခ၊ ဌာနမှူး၊ မြန်မာစာဌာန၊ သမဝါယမတက္ကသိုလ်၊ သန်လျင်)၊ မြန်မာစာပေနှင့် အတ္ထုပ္ပဝေဒပညာရပ်ကို လေ့လာ ဆည်းပူးခွင့်ပေးခဲ့ပါသော ဆရာကြီး ဒေါက်တာခင်အေး (အငြိမ်းစား ပါမောက္ခ၊ ဌာနမှူး၊ မြန်မာစာဌာန၊ ရန်ကုန် တက္ကသိုလ်)နှင့် ဆရာမကြီး ဒေါ်သန်းသန်း (အငြိမ်းစား ပါမောက္ခ၊ ဌာနမှူး၊ မြန်မာစာဌာန၊ ဒဂုံတက္ကသိုလ်)၊ အဘက်ဘက်မှ အကူအညီပေးခဲ့ပါသော သမဝါယမတက္ကသိုလ် (သန်လျင်)၊ မြန်မာစာဌာနမှ ဆရာမများ၊ ဝန်ထမ်းများအားလုံးနှင့် သင်ပြ၊ မြင်ရ၊ ကြားနာရပါသော ဆရာ၊ ဆရာမအပေါင်းတို့အား အထူးကျေးဇူးတင်ရှိ ပါကြောင်း အလေးအနက် မှတ်တမ်းတင်အပ်ပါသည်။

THE ANALYSIS ON MOTIVATION, SUCCESS, CHALLENGES OF WOMEN ENTREPRENEURS

(AN EMPIRICAL STUDY OF SELECTED WOMEN ENTREPRENEURS IN YANGON CITY)

Nyein Htet Aye[1]

Abstract

This research examines the selected women entrepreneurs from Myanmar Women Entrepreneurs Association with emphasis on identifying general information with regards to the personal and business profiles of the Women Entrepreneurs. The research examines motivation of women entrepreneurs, success factors, challenges they face. Results indicate that personally to do something for society, to get own satisfaction and to income increase are important motivators for women entrepreneurs to start own business. Friendliness to customer, good general management skills, Hard-work, good customer service and ability to manage personal are success factors for women entrepreneur. Competition with large industries, Lack of technology and lack of research and development are challenges faced by women entrepreneurs.

Key words: women entrepreneur, Motivation, Success, Challenges

1.   INTRODUCTION

In both developed and developing countries entrepreneurship is a key to rapid economic development. The role of entrepreneurship in economic development involves more than just increasing per capita output and income. It includes initiating and constituting change in the business and society. Thus increasing supply of enterprises becomes a vital aspect for growth of modern society. Entrepreneurship is the practice of starting new organizations or revitalizing mature organizations, particularly new business generally in response to identified opportunities. An Entrepreneur is a person who takes risk of setting up his own business venture for perceived reward. A "women entrepreneur" is a woman who organizes and manages any enterprise of a business, usually with considerable initiative and risk (Oxford Advanced Learner's Dictionary, 6th edition). According to Myanmar Women Entrepreneur Association, Women Entrepreneur is the one who establishes own business and controls on it.

Entrepreneurship is suitable to women and it is possible to do work when she has free time. Self-employed women has no restrictions and time bound work which makes it easy for her to manage the responsibilities of work, home and child at a time. Secondly, it is convenient for women to be in control of a small business.

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One way to alleviate poverty is to economic development is to empower women economically, especially through projects that encourage women to engage themselves in entrepreneurial income generation activities (Chowhury and Amin, 2011). Despite the growing importance of women entrepreneurship in creating job opportunities of a number of people and the effort of the government and local and international organizations to create, develop quality, resilient and successful entrepreneurship and to cultivate the enterprising culture among women is increasing, little is known about the motivation, success and challenges faced by women entrepreneurs.

Therefore, the research focuses on exploring the motivation, success and challenges and leadership orientation of Women Entrepreneurs in Yangon City.

1.1 Rationale of the study

If entrepreneurship is considered as an engine of growth of an economy, women entrepreneurship can be considered as part of the engine for the growth of Myanmar's economy. The role of the women is increasing as globalization increases and there is changing in the society's perception on the role of women due to the expansion of higher education and awareness. As the role of the women increases, it is obvious that the number of the women owned enterprises, the participation of women increases. It is important to upgrade the existing situation by promoting the women to lead in their owned business and to promote the women in the labor force in the Myanmar society. The best way to capitalize existing women entrepreneurial endeavor and to make it strong would be to know what motivates them, what challenges them to take further initiatives, what makes their efforts successful. By knowing these valuable facts, policy makers could consider the policy options that promote the women entrepreneurship in Myanmar. Moreover, for those who want to promote women entrepreneurship could consider the most appropriate intervention in the context of Myanmar. Therefore the present research has been taken.

1.2 Objectives of the Study

This research has been conducted based on the following objectives:

- To identify the key motivation factors of women entrepreneurs to start for their own business
- To identify the key success factor of women entrepreneurs for their own business
- To identify the key challenges factor of women entrepreneurs in doing their own business

1.3   Method of the Study

The research was conducted using primary data. Primary data were collected from 40 Women Entrepreneurs of Myanmar Women Entrepreneurs Association by using purposive sampling Method. This research uses a descriptive analysis of the motivational factors, success factors, challenges faced by women entrepreneurs.

1.4   The scope and limitation of the study

This research focus on the motivation, success factors and challenges faced by selected women entrepreneurs and leadership orientation in Yangon City. This research was conducted by the participation of 40 selected women entrepreneurs from the Association of Myanmar Women Entrepreneur in Yangon City. Women entrepreneurs in Myanmar Women Entrepreneur Association is considered as main City of economy for Myanmar as most of the business entities such as manufacturing sector including industrial zones and different forms of service are fixed in Yangon region.

This research has limitations in which it is not covers the whole women entrepreneurs in Myanmar Women Entrepreneur Association in Yangon City. It gives only descriptive comments about a number of women entrepreneurs. As the study includes only 40 women entrepreneurs from MWEA of Yangon city and there might be others women entrepreneurs around Myanmar. Therefore it is different to generalize for the whole population of Myanmar.

1.5   Organization of the Study

This research paper is organized by four chapters. The first chapter starts with the introduction and describes the rationale for the study, the objectives of the study, methodology, scope and limitations, and the organization of the study. The second chapter presents the literature review, where are defining entrepreneurs and entrepreneurship, women entrepreneurs, Myanmar Women Entrepreneur Association, and motivation, success factors and challenges. The third chapter presents about the data analysis part. It includes analysis on personal and business profile data of women entrepreneurs and motivation, success factors and challenges faced by women entrepreneurs. The last chapter is conclusion, where summarizes the main findings and gives the recommendations based on the findings.

2.   LITERATURE REVIEW

2.1   Entrepreneurship

Entrepreneurship stems from the French word *entreprendre* meaning 'to undertake' or 'to take in one's own hands'. During the Industrial Revolution the term entrepreneur was used to describe the new phenomenon of the individual who had formulated a venture idea, developed it, assembled resources and created a new business venture. Entrepreneurship is the process of designing, launching and running a new business, which is often initially a small business. The people who create these businesses are called entrepreneurs. In today competitive world, and based on market economy along with rapid international changes and development that can play and important roles in the country's economic growth, employment, and social welfare.

2.2   Women Entrepreneur

An entrepreneur is someone who innovates and whose functions to carry out new combinations called "enterprise". Entrepreneurs are the prime movers in economic development (Schumpeter, 1934). Technically, a "women entrepreneurs" is any women who organizes and manages any enterprise a business, usually with considerable initiative and risk. However, quite often the term "women-owned business" is used relatively to government contracting. U. S. Women's Chamber of Commerce described women-owned business as a women entrepreneur owns more than 50% controls and runs of the enterprise. Women entrepreneurs have enormous potential to bring prosperity in the world and therefore encouraging women entrepreneurship is very important (McConnell, 2007). Women entrepreneurs are generally classified into self-entrepreneurs, inheritance entrepreneurs, and partner entrepreneurs (Starr and Yudkin, 1996).

2.3   Myanmar Women Entrepreneur Association

Myanmar Women Entrepreneur's Association, established in 1995, and is a non-Government, nonprofit, nonpolitical and nonreligious association. Its aim is to unite and bring into focus and world attention, the role and capabilities of Myanmar women entrepreneurs. It has been operating for 22 years with 2272 members marking this organization a relevant association. The MWEA's objectives and activities include: (a) facilitating communications and discussions and promoting friendship and co-operative efforts among women entrepreneurs; (b) promoting and encouraging modern methods of business management among Burmese women entrepreneurs; (c) participating in and

promoting activities to raise the social economic life of Burmese women; (d) encouraging environment-friendly and culturally sensitive businesses; and (e) promoting and encouraging relationships with national and international women's associations, professionals, business, and academia.

2.4   Motivation

Motivation is a significant factor in the start-up and success of the business. Carsrud and Brannback (2011) argued that motivation is the link between the intention and action of entrepreneurs. Motivating factors can be either internal or external to the entrepreneur (Kuratko et al., 1997; Robichaud et. Al,2001). Kuratko et al., (1997) classified motivators into four categories: extrinsic rewards, independence/ autonomy, intrinsic rewards, and family security. Yalcin and Kapu (2008) classified entrepreneurial motivations into four categories: financial, recognition, freedom, and family tradition (i.e., the motive to continue the family business and to imitate family members). Motivating factors can also be classified as push or pull factors. "Push factors include the need to increase family income, dissatisfaction with a salary-based job, problems with finding an appropriate job and the need for flexibility for family responsibilities." Pull factors include "the need for independence, self-actualization, increased status quo and reputation in society" (Yalcin & Kapu, 2008, pp.188-189).

2.5   Success

Like motivation factors, it is equally important to know what factors contribute success of entrepreneurs. The most common factors believed to have impacts on success are hard work, skill and expertise. Nonetheless, researchers have found other factors connected with success of entrepreneurs. Rose, Kumar, Yin (2006) suggested human capital, competencies, government support program; personal initiatives are the key to the success of entrepreneurs. They identified that personal initiative bears more importance to make the endeavors of entrepreneurs successful. Mehralizadeh and Sajady (2006) worked on small business firms to identify the determinants of their success and failure. They found number of issues and believed to have contribution on the performance of entrepreneurs in business which are suitable managing technical skills, selecting appropriate personnel with relevant skills, education and paying more attention to personnel training, application of management conceptual skills, financial issues, better human relation, recognize the economic situation, planning and organizing of their business and informal issues.

2.6   Challenges

The journey of entrepreneurs is not smooth. They frequently need to tackle various challenges that sometime jeopardize their endeavor. Successful management of those obstacles brings momentum in their efforts. Those challenges originate from internal as well as external environment. Ahmad and Xavier (2012) investigated the environment of entrepreneurship development and indentified several variables obstruct entrepreneurial efforts which are inadequate financial support, bureaucracy and inconsistency of government policies, lack of entrepreneurial education at tertiary level and inadequacy of entrepreneurial training. Chowdhury (2007) identified political instability, corruption, lack of infrastructure facilities, education and training, lack of financial help are the key barriers of entrepreneurship development in developing nations. Entrepreneurship development also gets affected by motivational and legal barriers. Nawaser, Shakhsian, Jahanshahi (2011) considered financial risk and fear of proper management of business are the key motivational barriers. They found legal barriers as bank regulations, documentation for loan, environmental rules and regulations. They concluded that motivational barriers have more deadly effect in entrepreneurship failing that legal.

3.   ANALYSIS ON THE MOTIVATION, SUCCESS FACTORS, CHALLENGES OF SELECTED WOMEN ENTREPRENEURS IN YANGON CITY

Data collected was statistically analyzed using SPSS. Before going through the analysis the information on the motivation, success, and challenges of selected women entrepreneurs in Yangon City, biographical and business information of women entrepreneurs was analyzed.

3.1 Personal Profile of Women Entrepreneurs in Yangon City

The first part of the study describes the personal profile of the women entrepreneurs in Yangon region. Under the personal profile, a total of five items have been studied. These include: age group classification, academic qualifications, marital status, residence, and annual income.

(1) Age Group Classification of Women Entrepreneurs:

Table (3.1) Age Group Classification of Women Entrepreneurs

		Frequency	Percent (%)
age	Up to 20 years	1	2.5
	20-30 years	7	17.5
	30-40 years	11	27.5
	Above 40 years	21	52.5
	Total	40	100.0

Source: Survey Data (June, 2018)

In Table 3.1, the result shows that 52.5% of the women entrepreneurs are above 40 years which are the highest percent as compared with other age groups in which 2.5% are up to 20 years old, 17.5 % are between 20 to 30 years and 27.5% are between 30-40 years old, respectively.

(2) Academic Qualifications of Women Entrepreneurs:

Table (3.2) Academic Qualifications of Women Entrepreneurs

		Frequency	Percent (%)
Academic Qualification of Women Entrepreneurs	High school	1	2.5
	Undergraduate	2	5.0
	Graduated	20	50.0
	Master	15	37.5
	Ph.D.	2	5.0
	Total	40	100.0

Source: Survey Data (June, 2018)

As shown in Table 3.2, the academic qualifications of women entrepreneurs fall in different categories: from primary up to Professional level. According to the result, 5% of women entrepreneurs are under graduate and 50 % of women entrepreneurs are graduated women and 37.5 % have master's degree and 5% have got Ph.D. respectively. Interestingly, 2.5% of women entrepreneurs are just high school level.

(3) Marital Status of Women Entrepreneurs:

Table (3.3) Marital Status of Women Entrepreneurs

		Frequency	Percent (%)
Marital Status	Married	21	52.5
	Unmarried	19	47.5
	Total	40	100.0

Source: Survey Data (June, 2018)

Table 3.3 indicates the marital status of women entrepreneurs. When 40 women entrepreneurs have been studied it is described that 52.5 % of women entrepreneurs are married where as 47.5% are unmarried.

(4) Residential Status of Women Entrepreneurs:

Table (3.4) Residential Status of Women Entrepreneurs

		Frequency	Percent (%)
Residential Status	urban	39	97.5
	Rural	1	2.5
	Total	40	100.0

Source: Survey Data (June, 2018)

Table 3.4 indicates the residential status of women entrepreneurs. Residence in this study refers to the native place of the respondents regardless of the location of their business. According to result shown in above table 97.5 % of entrepreneurs are from urban area where as 2.5% of the women entrepreneurs are from rural based area.

(5) Income Level of Women Entrepreneurs:

The annual income level of the women entrepreneurs fall into four categories: up to Kyats 12 lakhs, Kyats 12 to 24 lakhs, Kyats 24 to 48 lakhs and above 48 lakhs. The result shows that 60 % of women entrepreneurs earn above Kyats 48 lakhs, where 10 % earn only up to Kyats 12 lakhs. On the other hand, 7.5% earn Kyats 12 to 24 lakhs where 12.5% earn Kyats 24 to 36 lakhs. It can be denoted that the highest percentage of women entrepreneurs earn annual income above Kyats 48 lakhs. (see Table 3.5)

Table (3.5) Income Level of Women Entrepreneurs

		Frequency	Percent (%)
Income	< 12 lakhs	4	10.0
Level	Kyats 12-24 lakhs	3	7.5
	Kyats 24-36 lakhs	5	12.5
	36-48 lakhs	4	10.0
	> 48 lakhs	24	60.0
	Total	40	100.0

Source: Survey Data (June, 2018)

The personal profile of the women entrepreneurs can be concluded that the highest percentages of total women entrepreneurs are level of above 40 age level. They are graduated and Master education level, and married women. They are from urban areas. They earn more than 48 lakhs per annum.

3.2 Business Profiles of Women Entrepreneur

The second part of the study describes the business profiles of the women entrepreneurs in Yangon region and it covers the items such as business type, location of the business, Type of business premises, Number of employee, Size of business, experiences, time spent per day and financing for the business.

(1) Type of Business:

Table 3.6 indicates the type of business that women entrepreneurs are running and it includes three main types. They are manufacturing, trading, and services. The result shows that 12.5% of women entrepreneurs are running manufacturing business and trading business. 75.0% of women entrepreneurs are running the services. It is clear that the business type "service" is the most significant type that the women entrepreneurs are dealing with.

Table (3.6) Type of Business

		Frequency	Percent (%)
Type of Business	Manufacturing	5	12.5
	Trading	5	12.5
	services	30	75.0
	Total	40	100.0

Source: Survey Data (June, 2018)

(2) Business Location:

Table 3.7 shows that 92.5 % of the business are located in urban where as 7.5% of the business are located in rural area.

Table (3.7) Business Location

		Frequency	Percent (%)
Business Location	urban	37	92.5
	rural	3	7.5
	Total	40	100.0

Source: Survey Data (June, 2018)

(3) Type of Business Premises:

Business premises in this research refer to the place where women entrepreneurs are running their business. They may be part of their own house, separate own building, rented building or others. According to the result, 22.5% of the business building are part of own houses, 37.5% are separate own building, 30% are rental building and 10% fall to other categories like mobile shop.

Table (3.8) Type of Business Premises

		Frequency	Percent (%)
Business Building	part of own house	9	22.5
	separate own building	15	37.5
	Rented building	12	30.0
	other	4	10.0
	Total	40	100.0

Source: Survey Data (June, 2018)

(4) Number of Employees:

Table 3.9 indicates the number of employees in the businesses of women entrepreneurs. The result shows that 47.5% of women entrepreneurs have up to 10 employees, 35% of women entrepreneurs have 10-50 employees, and 17.5% of women entrepreneurs have 50-100 employees. Interestingly, there are no women entrepreneurs who have above 100 employees.

Table (3.9) Number of Employees

		Frequency	Percent
Number of Employee	<10 employees	19	47.5
	10-50 employees	14	35.0
	50-100 employees	7	17.5
	Total	40	100.0

Source: Survey Data (June, 2018)

(5) Size of Business:

Table (3.10) Size of Business

		Frequency	Percent (%)
Size of Business	Micro enterprise	19	47.5
	Small enterprise	14	35.0
	Medium enterprise	7	17.5
	Total	40	100.0

Source: Survey Data (June, 2018)

Table 3.10 represents the size of business that women entrepreneurs' owned business. The result shows that 47.5 % is micro enterprise which owned by women entrepreneurs and 35% is small enterprise and 17.5% is medium enterprise.

(6) Business Experiences:

Table 3.11 represents the business experiences of women entrepreneurs. By studying the experiences of women entrepreneurs, the four categories are found less than 1 year, 1 to 2 years, 2 to 4 years and more than 4 years of experiences have been studied. The study shows 7.5 % are less than 1 year that has very new experiences and 7.5% of women have 1 to 2 years experiences, 20% have 2 to 4 years of experiences and 65 % have more than 4 years of experiences in business field. The final category points out that majority of the women entrepreneurs have more than 4 years of experiences.

Table (3.11) Business Experiences

		Frequency	Percent (%)
Business Experience	Less than 1 year	3	7.5
	1 to 2 years	3	7.5
	2 to 4 years	8	20.0
	More than 4 years	26	65.0
	Total	40	100.0

Source: Survey Data (June, 2018)

(7) Time Spent for Business:

Regarding time spent for business, the 4 categories: up to 3 hours, 3 to 6 hours, 6 to 9 hours and above 9 hours have been studied. The result shows that 7.5% of women spent up to 3 hours for the business, 30% spent 3 to 6 hours, 45 % spent 6 to 9 hours and 17 % spent more than 9 hours per day for their business. It can be described that the majority of the women spent 6 to 9 hours per day for their business (see Table 3.12).

Table (3.14) Time Spent for Business

		Frequency	Percent (%)
Time Spent for Business	Up to 3 hours	3	7.5
	3 to 6 hours	12	30.0
	6 to 9 hours	18	45.0
	above 9 hours	7	17.5
	Total	40	100.0

Source: Survey Data (June, 2018)

(8) Sources of Financing for the Business:

Table 3.13 represents the different sources of financing for the business established by women entrepreneurs. They include banks, financial institution, family,

friends and oneself. According to the result, 12.5 % of women entrepreneurs can access from the bank, 10 % from family, and 77.5% from own finance. The study shows that the most significant financial source for the business is women's own finance.

Table (3.13) Sources of Financing for the Business

		Frequency	Percent (%)
Sources of Financing	Banks	5	12.5
	Family	4	10.0
	Self	31	77.5
	Total	40	100.0

Source: Survey Data (June, 2018)

By analyzing these facts mentioned above, the business profile of the women entrepreneurs can be conducted that the majority of business is services, located in urban area and mostly are running at separate own building. The majority of businesses of women entrepreneurs have less than 10 employees and size of business is micro. The majority of the women have more than 4 years of experiences in business field and they spend 6 to 9 hours a day for their business. The most significant financial source for the business is women's own finance.

3.3   Reliability Statistics of the Study

Cronbach's Alpha was used to analye the reliability of the research. The Cronbach's Alpha for Motivation factors of women entrepreneurs to start their own business was 0.7 which means that the level of relative internal consistency, and in this situation reliability marginally acceptable. Cronbach's Alpha for Success factors of women entrepreneurs was 0.9 which means that the level of relative internal consistency, and reliability result was in excellent situation. Cronbach's Alpha for Challenges faced women entrepreneurs was 0.9 which means the level of relative internal consistency, and reliability result was in excellent situation. The result was reported in Table (3.14).

Table (3.14) The Cronbach's Alpha for All Variables

No.	Variables	Cronbach's Alpha	Results of Reliability	No. of Items	No. of respondents
1	Motivation Factors	0.7	Good	13	40
2	Success Factors	0.9	Excellent	17	40
3	Challenges Factors	0.9	Excellent	21	40

Source: Survey Data (June, 2018)

3.4 Motivation factors of Women Entrepreneurs to start their own business

The motivation factors of women entrepreneurs are measured by using the five Likert scale on 13 items questionnaire. Table 3.15 shows that the most important motivation factor for starting a business are "personally to do something for society" (mean of 4.73). The next important motivating factor is "To get own satisfaction" (mean of 4.70). Other important motivations include "To income increase" (mean of 4.68), "To be own boss (mean of 4.63), and "I want to use my past experiences" (mean of 4.58). The lowest rated factors among those presented were "Utilize inherited assets (mean of 3.43), "To provide job for family member" (mean of 3.85) and "To gain public reorganization (mean of 4.13).

Table 3.15 Factor Analysis for Motivation Factors

No.	Motivation Items	Strongly Disagree		Disagree		Neither Agree nor Disagree		Agree		Strongly Agree		Mean
		Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	
1	To prove I can do it	-	-	1	2.5	-	-	16	40	23	57.5	4.53
2	To be own boss	-	-	-	-	4	10	7	17.5	29	72.5	4.63
3	I want to use my past experiences	-	-	-	-	2	5	13	32.5	25	62.5	4.58
4	I want to maintain personal freedom	2	5	1	2.5	5	12.5	12	30	20	50	4.18
5	Closer to family	-	-	-	-	4	10	15	37.5	21	52.5	4.43
6	To income increase	-	-	-	-	2	5	9	22.5	29	72.5	4.68
7	For job security	-	-	-	-	3	7.5	12	30	25	62.5	4.55
8	To build up business to pass on	-	-	2	5	4	10	9	22.5	25	62.5	4.43
9	Personally to do something for society	-	-	-	-	1	2.5	9	22.5	30	75	4.73
10	Utilize inherited assets	9	22.5	1	2.5	8	20	8	20	14	35	3.43
11	To provide job for family members	5	12.5	1	2.5	6	15.0	11	27.5	17	42.5	3.85
12	To gain public recognition	2	5	1	2.5	5	12.5	14	35	18	45	4.13
13	To get own satisfaction	-	-	-	-	2	5	8	20	30	75	4.70

Source: Survey Data (June, 2018)

3.4   Perceived Success Factors for Women Entrepreneurs' own businesses

Table (3.15)Factor Analysis for Success Factor

No.	Success Items	Strongly disagree		Disagree		Neither Agree nor Disagree		Agree		Strongly Agree		Mean	SD
		Freq.	(%)	Freq.	(%)	Freq.	(%)	Freq.	(%)	Freq.	(%)		
	Good general management skills	-	-	1	2.5	-	-	13	32.5	26	65.0	4.60	.632
	Ability to manage personal	1	2.5	1	2.5	-	-	12	30	26	65	4.55	.783
	Hard-work	-	-	-	-	4	10	9	22.5	27	67.5	4.58	.675
	Good Customer Services	-	-	-	-	2	5	13	32.5	25	62.5	4.58	.594
	Friendliness to customer	-	-	-	-	1	2.5	13	32.5	26	65	4.63	.540
	Maintenance of accurate records of income/expenses	-	-	2	5	8	20	10	25	20	50	4.2	.939
	Pervious business experience	1	2.5	-	-	7	17.5	8	20	24	60	4.35	.949
	Appropriate training					7	17.5	14	35	19	47.5	4.30	.758
	Access to capital	1	2.5	4	10	5	12.5	14	35	16	40	4	1.086
	Satisfactory Government support	3	7.5	6	15	14	35	7	17.5	10	25	3.38	1.234
	Supports from family and friends	3	7.5	3	7.5	11	27.5	12	30	11	27.5	3.63	1.192
	Market factors such as sale promotion	1	2.5	-	-	10	25	14	35	15	37.5	4.05	.932
	Reputation for honesty	1	2.5	-	-	5	12.5	8	20	26	65	4.45	.904
	Community involvement	1	2.5	1	2.5	4	10	16	40	18	45	4.23	.<s>?</s>0
	Political involvement	4	10	6	15	12	30	5	12.5	13	32.5	3.43	1.<s>?</s>
	Good product/service at a fair price	1	2.5	-	-	5	12.5	11	27.5	23	57.5	4.38	.897
	Location	-	-	4	10	3	7.5	11	27.5	22	55	4.28	.987

Source: Survey Data (June, 2018)

Using a five Likert scale, with five (5) being most important and one (1) being least important, women entrepreneurs in the sample rated their perception of 17 items in relation to their success. As shown on Table 3.15, the five highest rated factors were "Friendliness to customer" (mean of 4.63), "Good general management skills" (mean of 4.60), "Hard-work" and "Good customer service" (each rated a mean of 4.58) and "Ability to manage personal" (mean of 4.55). Those items rated as least important were "Satisfactory" (mean of 3.38), "Political involvement (mean fo 3.43) and "supports from family and friends" (mean of 3.63).

3.2   Perceived Challenges for Women Entrepreneurs' own businesses

When studying the factors related to challenges faced by women entrepreneurs, a total of 21 challenges items were set up. Results presented in Table 3.16 indicate that "Competition with large industries "(mean of 4.33), followed by "Lack of technology" (mean of 4.13) and "Lack of Research and Development' (mean of 4.10). The challenges of least important rating were largely related to "Lack of government subsidies" (mean of 3.58), "Inadequate government policy" (mean of 3.68) and "Lack of Friendly" (mean of 3.70).

Table (3.16) Factor Analysis for Challenging Factor

No.	Challenging Items	Strongly Disagree		Disagree		Neither Agree nor Disagree		Agree		Strongly Disagree		Mean	SD
		Freq.	(%)	Freq.	(%)	Freq.	(%)	Freq.	(%)	Freq.	(%)		
1	Lack of Research and Development	-	-	1	2.5	9	22.5	15	37.5	15	37.5	4.10	.841
2	Lack of Technology	-	-	2	5	6	15	17	42.5	15	37.5	4.13	.853
3	Lack of good governance	1	2.5	1	2.5	10	25.0	12	30	16	40	4.03	1.000
4	Lack of friendly environment	2	5	2	5	12	30	14	35	10	25	3.70	1.067
5	Bureaucracy corruption	1	2.5	2	5	12	30	11	27.5	14	35.0	3.88	1.042
6	Lack of skill workers	2	5	4	10	5	12.5	14	35.0	15	37.5	3.90	1.172
7	Lack of accurate data	1	2.5	4	10	5	12.5	13	32.5	17	42.5	4.03	1.097
8	Less of supply power	-	-	3	7.5	10	25	15	37.5	12	30	3.90	.928
9	Inadequate government policy	2	5	3	7.5	11	27.5	14	35	10	25	3.68	1.095
10	Lack of government subsidies	2	5	5	12.5	11	27.5	12	30	10	25	3.58	1.152
11	High rate of interest	1	2.5	3	7.5	7	17.5	14	35	15	37.5	3.98	1.050
12	Competition with large industries	-	-	2	5	6	15	9	22.5	23	57.5	4.33	.917
13	Lack of infrastructure	1	2.5	4	10	6	15	11	27.5	18	45	4.03	1.121
14	Lack of capital	3	7.5	3	7.5	7	17.5	11	27.5	16	40	3.85	1.252
15	Lack of training	-	-	3	7.5	9	22.5	14	35	14	35	3.98	.947
16	Less raw materials	2	5	5	12.5	6	15	13	32.5	14	35	3.80	1.203
17	Low management skills	1	2.5	4	10	6	15	14	35	15	37.5	3.95	1.085

18	License for work	1	2.5	4	10	5	12.5	13	32.5	17	42.5	4.03	1.097
19	Political unstable	2	5	1	2.5	8	20	12	30	17	42.5	4.03	1.097
20	Cost of equipment	3	7.5	2	5	5	12.5	12	30	18	45	4.00	1.219
21	Business site	3	7.5	1	2.5	8	20	8	20	20	50	4.03	1.230

Source: Survey Data (June, 2018)

4.   CONCLUSION

4.1 Findings and Recommendations

The first part of this research has been designed to explore the general information with regards to personal profiles and business profiles of selected women entrepreneurs in Yangon City. The second part has been designed to identify the motivation, success and challenges factors faced by women entrepreneurs. Finally, the key factors of motivation, success, challenges of women entrepreneurs have been identified. The research is focused on the women entrepreneurs of Myanmar Women Entrepreneur Association in Yangon City. The finding of the study is described as below.

The personal profile of the women entrepreneurs can be concluded that the highest percentage of total women entrepreneurs is above 40 age level. They are graduated and Master degree holders, and married women. They are from urban areas. They earn more than 48 lakhs per annum.

The finding of personal profiles of the women entrepreneurs explain that the majority of the women entrepreneurs are above 40 age level and this findings point out that most of the women have had certain level of life experience so that they may have more confidence, more logical thinking and more network that enable women to start the business that they want to establish. Education level is also one of the findings of personal data, in which most of the women entrepreneurs are graduated and are master level degree holders. This finding points out that the knowledge and education supports the women to be more confident to start the business and to become the successful entrepreneurs. As one of the findings points out, most of the women entrepreneurs are above 40 age level.

The findings recommend that youth are more active and easier to learn what they wish creativity, capability and creative thinking, there should be more and young female entrepreneurs in the future. For this purpose, academic institutions should cultivate young female entrepreneurs by lecturing and sharing concepts, knowledge and theories about entrepreneurship activities so that they can be more creative ones.

Another finding is that the majority of the women entrepreneurs are married women. Today, women are not spending their precious time only for doing housework at home. Today women's roles are changing and they are standing not only the supportive role, but also in the leading role who earns family income in the family. The last finding is that the per annual income of the majority of the women entrepreneurs earn more than Kyats 48 lakhs which shows how women entrepreneurs can effort to increase the family income and can support the prosperity of the family members thereby society and nation.

The second part of the study explored The business profile of the women entrepreneurs can be conducted that the majority of the type of businesses of the women entrepreneurs in Yangon City are services, located in urban area and mostly are running at separate own building. Most of business owned women entrepreneurs have less than 10 employees and size of business is micro. Most of the women have more than 4 years of experiences in business field and they spend 6 to 9 hours a day for their business. The most significant financial source for the business is women's own finance.

It is interesting that most of the women are will to start and run business with services that may include educational services, transportation services such as travel and tour, health care services, beauty care services and many others. It can be denoted that choosing of the type of business is totally aligned with the current economic trend in which service sector is the greatest portion followed by manufacturing and agriculture in the economic development sector of a country. The type of the business is also matched with its location in which most of the services are the most suitable in the urban area where the infrastructures such as transportation, electricity, communication, etc. are well established. Policy makers are recommended to promote the existing infrastructures and services sector so that women entrepreneurs can extend their services businesses that contribute the part of country's economy. The result shows that the majority of the women entrepreneurs who owned entrepreneurial business are micro enterprise. On the other hand, SME sector is the major engine of economic development in Myanmar. For this reason, women entrepreneurs would better have not only in micro level but also in small and medium levels have women entrepreneurs. The result shows that the majority of the women entrepreneurs have more than 4 year experiences and this point supports the fact that the experience is the best teacher for all. By regarding this point, women should take the lesson to be learnt that acquiring the experience in initiating and running the business favors the women to be more confident and more successful in business field.

Finally, it is undeniable that the source of the finance is critical for establishing the business and running in long term. In this study, it was found out that most of the financial source for women entrepreneurs come from the own finance source, and a few are from banks and institutions. It can be denoted that women concentrates on their saving to use as investment in their business which is the best practice for all. However one's own finance may be limited in amount for the entrepreneurs and policy makers are recommended to promote the financial sectors to be more accessible for the women so that women can extend their business and enjoy the benefit from it.

Third part of the study explores that there are some factors regarding with each motivation, success and challenges of women entrepreneurs. The most important motivation factors for starting a business are personally to do something for society. This proves that entrepreneurs start a business to initiate the change in society. The most successful factors of women entrepreneurs are friendliness to customer, good general management skills and hard-work. It can be denoted that good social, management skills and fortitude are necessary for a women entrepreneur to be a successful entrepreneur. The most challenging faced by women entrepreneurs are competition with large industries, lack of technology, and lack of Research and Development. It can be denoted that most of enterprises owned by women entrepreneur are micro enterprise. Thus, they have many challenges to compete with large industries. Moreover, they have no technology to extend their business. More researches are needed to upgrade the existing situation of women entrepreneurs.

4.2 Conclusion

This research has put a great effort to explore the general information about the women entrepreneurs such as personal profile and business profile. It also attempts to investigate the motivation, success factors and challenges of women entrepreneurs in Yangon City. This research explores some valuable information that will be useful for those who want to become entrepreneurs themselves as well as for those who want to promote the role of women entrepreneurs. The research found that there are some factors regarding with each motivation, success and challenges of women entrepreneurs. The most important motivation factors for starting a business are personally to do something for society. The most successful factors of women entrepreneurs are friendliness to customer, good general management skills and hard-work. The most factors related to challenges faced by women entrepreneurs are competition with large industries, lack of technology, and lack of Research and Development. All the findings of this research are implications for women entrepreneurs as well as policy makers who work for improvement of women entrepreneurs. Women in Myanmar are

becoming a very important economic group and therefore more efforts are needed to nature them in taking up entrepreneurship.

Acknowledgements

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Study On The Lease By The Transfer Of Property Act 1882

Ma Aye Tin

Abstract

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. The study on this lease of the transfer of property act 1882 in Myanmar regarding the meaning of the clauses as to the general process act 1987 section (4) Immovable property includes ;

(1) Lands,

(2) Benefits which arise out of land, and

(3) Things attached to the earth, i.e.

(i)Things embedded in the earth,

(ii)Things attached to what is so embedded in the earth,

(iii)Things rooted in the earth except; (a)Standing timber, (b) Growing crops, or (c)Growing grass. The transfer of property act 1882 mainly deals with the transfer of immoveable property.

There are modes of transfer of immovable property the competent transferees under the Transfer of Property Act 1882 Lease of immoveable Property in Chapter (5) section (105) of the Transfer of Property Act, 1882 defines a lease of immovable property is a transfer of a right to enjoy such property made for a certain time, express or implied or in perpetuity, in consideration of a price paid or promised or of money, a share of crops, service or any other things of value, to be rendered periodically or on specified occasion to the transferor by the transferee, who accepts the transfer on such terms.

Practice of Lease of Immovable Property in Myanmar may be divided into two sectors, practice of citizens for lease of immoveable property and practice of foreigners for lease of immovable property. The Urban Rent Control Act (1960) comprises (44) sections. This Act is concerned with Landlords and tenants only. Foreign investor may lease land or building either from the government or government organizations or from owners of private land or building from commencing on the date of receipt of the permit or endorsement of the commission up to an initial period of (50) years in accordance with the stipulation.

A lease of immoveable property from year to year, or for any term exceeding one year, or reserving a yearly rent, can be made only by registered instrument. All other leases of immoveable property may be made either by registered instrument or by oral agreement accompanied by delivery of possession. Where a lease of immovable property is made by a registered instrument, such instrument or, where there are more instruments than one, each such instrument shall be executed by the both lessor and the lessee. According to the section 105 of the transfer of property act, the limitation of the duration for lease is important. Hence, if it is a lease which does not express the duration of lease, the leased duration can be defined by the purpose for which, the lease is made under section 106.

The three rights and liabilities of the lessor provided under the section 108(a),(b)and(c) of the Transfer of Property Act and The fourteen rights and liabilities of lessee provided by the section 108 (d) to (q) of the Transfer of Property Act. Termination of lease is centered on the provision prescribed in the section 111 of the Transfer of Property Act are as follows:

A lease of immovable property determines

(a) By efflux of the time limited thereby;

(b) Where such time is limited conditionally on the happening of some event- by the happening of such event;

(c) Where the interest of the lessor in the property terminates on, or his power to dispose of the same extends only to the happening of any event- by the happening of such event.

Introduction

Property of any kind can be transferred by different ways for numerous matters in daily life. Therefore, transfer of property is an essential transaction for living persons. In Myanmar, Legal provisions relating to the transfer of property can be found in the Transfer of property Act 1882. Section 5 to 37 of this Act deals with a transfer of property of two kinds, moveable and immoveable property. Section 38 to 53 (A) of this Act is concerned only with the transfer of immoveable property. While section 54 to 137 provide for the five kinds of transfer of immoveable property. Therefore, the Transfer of Property Act is more related to the transfer of immoveable than moveable property.

Lease is one of the five kinds of Transfer. The main Object of the Lease of immoveable property is to fulfill the necessities of lessor and lessee. Making of Lease of immoveable property may be based on the various purposes such as, building lease, land lease and agricultural lease. In the making of the different kinds of lease, these are required to be valid Lease. Only then, parties to a lease may entitle all rights of lease of immoveable property. In Myanmar, Building may be divided into two kinds, Building owned by private national and Government or Government organizations. And also Land may be two kinds under the land laws of Myanmar; Freehold land and Government owned land. Relevant laws on lease of immoveable property are enacted in Myanmar. However, Laws relating to the lease of immoveable property of Foreigner are separately promulgate to be more beneficial of the state and its citizens. Therefore, governing laws For lease of immoveable property to citizens and Foreigners are different.

Moreover, depending on the region where the lease is made, applicable laws on lease of immoveable property are not the same Lease of immoveable property made in the regions where are designated as Urban, are dealt with by the Urban Rent Control Act, 1960 with respect to the lease of immoveable property made in the remaining regions that are not designated as the Urban areas, the Transfer of Property Act must be applied.

In order to be able to complete necessary processes of lease conveniently without any difficulties, there need to know and a bide the rights and liabilities of lessor and lessee which are prescribed by respective laws of lease. And also both parties to the lease

contract should understand the modes of termination of lease defined by respective law.

In respect of lease of immoveable property to Foreigners, according to the section 5 of the transfer of immoveable property Restriction Act 1987, no person shall lease to a Foreigner or a company owned by Foreigner for more than a year at a time. However, implementing the market oriented economic system in Myanmar. Therefore, Government of Myanmar grants the long term Lease of state owned land and buildings to Foreigners and Companies owned by Foreigners with the permission of Foreign Investment Commission in the Foreign Investment Law, 2012.

1.1 Objectives

The objectives of this study are as follows;

1. To know about the Transferable Property
2. To analyze legal aspects on lease of immoveable property in Myanmar.
3. To find out the lease of immoveable property to citizens and Foreigners.

1.2 Method of the study

This study will use the descriptive method. The secondary data used from law author books, internet sources and other related laws.

1.3 Limitations

The main object of this paper is to evaluate the legal effects of laws on lease of immoveable property and to emerge the comprehensive laws on lease of immoveable property for different purposes in Myanmar which are supportable to be proper evolution of market oriented economics system and all around development of state.

2. The Transfer of Property Act in Myanmar

2.1 Definition of Transfer of Property Act

Transfer of property, whether moveable or immoveable, the term ''Transfer of property ''means an act by which a living person conveys property, in present or in future, to one or more other living persons, or to himself and one or more other living persons and to transfer property is to perform such act.

2.2 Historical Background of Transfer of Property Act

In India, the personal laws governed the transfer of property assisted by orders of courts under civil procedure code before the Transfer of Property Act, 1882 came into existence. Transfer of movable goods was regulated to an extent by the India Contract Act, 1872. For transfer of immoveable property, the Anglo Indian Courts often turned to principles of Justice. Equity and Good conscience as it prevailed in England at the time. This rarely did any good due to the vast difference in customs and society of the two countries. Of course the rapidly growing commerce and infrastructure in the late nineteenth century lead to more conflicts even in business. Thus, on immediate need was felt for a clear and pragmatic law regarding property and transfers suited to India and it peculiar problems as well as to take care of the potential economic problems. The task of drafting such legislation fells upon the first law Commission and was later referred to the second law Commission.

A Bill, finally presented to the legislative Council, became a law on the 17th February 1882 and carne into force from 1st July of the same year. The transfer of Property Act, 1882 mainly deals with transfer of immoveable property. It does not apply to transfers by the operation of law such as transfer of immoveable property necessitated by order of Court of insolvency or forfeiture among other. The 137 sections contained within have been divided into 8 chapters.[2]

Property can be transferred in several ways, and conveyance of title in India is not subject to one single piece of legislative enactment. Thus different legislation exist that govern the transfer of title from one person to another with respect to the property depending upon the mode of conveyance. One of the basic features of the Transfer of Property act, 1882 is that it governs transfer of property between living persons only.

Prior to the Transfer of Property Act, 1882, there was practically no law as to real estate in India. A few points were covered by the Regulations and Acts which were repealed either wholly or in part by section 2 of the Act. But for the rest of the law, the courts, in the absence of any statutory provisions, adopted the English law as the rule of Justice, equity and good conscience. This

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was not satisfactory, for the rules of English law were not always applicable to social conditions in India, and the case law became confused and conflicting. To remedy this state of affairs, commission was appointed in England to prepare a code of substantive law of India.[3]

2.3 Transferable Property

As a general rule for transferability, any kind of property is permitted for it. But it is limited by a few exceptions which are mentioned in section (6) of the Transfer of Property Act. Under this section, property of any kind may be transferred, except as otherwise provided by this Act or by any other law for the time being in force.

(a) The chance of an heir- apparent succeeding to an estate the chance of relatives obtaining a legacy on the death of a kinsman, or any other mere possibility of a like nature, cannot be transferred.

(b) A mere right of re-entry for breach of condition subsequent cannot be transferred to anyone except the owner of the property affected there by.

(c) An easement right cannot be transferred apart from dominant heritage.

(d) An interest in property restricted in its enjoyment to the owner personally cannot be transferred by him.

(d.d) A right to future maintenance, in whatsoever manner arising, secured or determined, cannot be transferred.

(e) A mere right to sue cannot be transferred .

(f) A public office cannot be transferred, nor can the salary of a public officer, whether before or after it has become payable.

(g) Stipends allowed to military, air-force and civil pensioners of Government and political pensions cannot be transferred.

(h) No transfer can be made.

(1) In so far as it is opposed to the nature of the interest affected thereby: or

(2) For an unlawful object or consideration within the meaning of section 23 of the contract Act: or

(3) To a person legally disqualified to be transferee.

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[3] Mulla, the Transfer of Property Act, 10th Editon, Lexis Nexis Butter Worth, Introduction, P.XI.

2.4 Modes of Transfer of Immoveable Property

There are various modes of transferring ownership of property: permanently by (1) relinquishment (2) sale (3) gift and temporarily by way of (4) mortgage (5) leases and (6) leave and license agreement.

Among them under the sec (105) of the Act defines lease as a transfer of the right to enjoy a property, for a certain period, express or implied, in consideration of a price paid or promised, money or any other thing of value to be rendered periodically or on such occasions section (58) of the Act defines .In the case of U Aung Win and two (representatives of deceased U Saw Pe) Vs U Kyaw Nyunt[4] the court held that partition of property does not includes the modes of transfer of immoveable property recognized under this Act.

The transfer of property can be made in oral or in writing.

1. "Oral transfer" under the section 9 of Transfer of Property Act deals with oral transfer, which reads as – A transfer of property may be made without writing in every case in which writing is not expressly required by law. Transfer of property which requires oral transfer is transferred by delivery of possession. E.g.

    i. Generally, the movable properties may be transferred by delivery of possession.

    ii. Month to month tenancy.

    iii. Mortgage by deposit of title-deeds, exchange of immovable property value less than one hundred, etc.

2. **"Written transfer"**

    Where registration is necessary, the transfer must be made in writing. According to Transfer of Property Act, following transaction must be made only through a written document which must be dully registered.

    i. Lease from year to year. (section 107)

    2.5 Essentials for a valid Transfer

    There are eight essentials of valid transfer of property which are;

    (1) Transfer must be between two or more living persons.

    (2) The property must be transferable.

    (3) The transfer must not be-opposed to nature, unlawful object and consideration, Transfer to a person legally disqualified.

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[4] U Aung Win and two (representatives of deceased U Saw Pe) Vs U Kyaw Nyunt 2005, special Civil Case, No.13.

(4) Parties must be competent to valid transfer.

(5) If one transfer an interest in created in favor of an unborn person-under section 13, (a) limited interest to be created in favor of living person. (b) unborn person shall be born before expiry of limited interest, (c) once the unborn person is born, he shall be given absolute interest on attending the age of majority.

(6) The transfer must be made in the mode prescribed by the Act, under section 9.

(7) The transfer must not be contrary to the rule against perpetuity (section 14).

(8) Conditional transfer.[5]

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[5] https:// www.srdlaw notes.com > 2016/03

3. Lease of Immoveable property under the Transfer of Property Act.

Lease can be of a moveable or an immoveable property. It is a contractual arrangement calling for the lessee (user) to pay the lessor (owner) for use of an asset. Under the Transfer of Property Act, 1882 the subject of "Lease of Immoveable Property" is dealt with in chapter (5) section (105) of the Transfer of Property Act, 1882 defines a lease of immoveable property is a transfer of a right to enjoy such property made for a certain time, express or implied or in perpetuity, in consideration of a price paid or promised or of money, a share of crops, services or any other thing of value, to be rendered periodically or on specified occasion to the transferor by the transferee, who accepts the transfer on such terms.

Definition of lessor, lessee, premium and rent defined the transferor is called the lessor, the transferee is called the lessee, the price is called the premium and the money, share, service or other thing to be rendered is called the rent.[6]
It was held in the case of U Ye Lin Vs U Soe Tin (his legal Representative, Daw Win Ye,[7] held that although U Soe Tin (plaintiff of the first instance court) bought the house from U Ye Lin, he did not receive the possession of the house because, the seller, defendant had difficulty to move from that place for this reason the buyer did not have the right of entitlement of interest in the property by the making of the sale. Again when a lease of such house was made between the respondent and plaintiff, their lease was decided as invalid because the plaintiff, the buyer could not be a competent lessor for lack of entitlement of interest in property under section (105) of the Act.

3.1 Lease of Immoveable Property under the Urban Rent Control Act, 1960

According to section 2(g) of the Urban Rent Control Act, 1960 "Tenant" meant any person who directly rent an environ of building or through someone and has to pay for rent. In this clause, according to the meaning of civil law suit practice of code, a legal agent or a person who has the right to earn rental shall the building to the long term permanent tenant with or without the consent of landlord.[8]

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[6] Section (105) of the transfer of property Act, 1882

[7] U Ye Lin Vs U Soe Tin (His Legal Representative, Daw Win Ye) 2006, M.L.R. P - 53
[8] Section 2(g) of the Urban Rent Control Act, 1960.

In the case of Mrs. DM. Singer (applicant) Vs The Controller of Rents and three others (Respondents)[9] t h e Court held that the following classes of persons are termed tenants within the meaning of the Act:

(a) A person who takes a lease of any premises and occupies them himself;

(b) A person who is permitted under section-12 of the Urban Rent Control Act to occupy;

(c) A legal representative of either of the above two;

(d) A sub-tenant and

(e) A tenant-holding over.

3.2 Cognizance of offences under the Urban Rent Control Act, 1960

According to section 34(1) of the Urban Rent Control Act (1960), mentioned that section 34(1) "Anyone who accepts the rental money more than the rated standard rental directly or indirectly for the environs of building with or without acknowledgement, for such committing for the first time, will be fined 500 kyats or second time or more will be fined 2,000 kyats".

under section 35 (1) of this Act prescribed that anyone who disturbs or threatens the tenant who is living in the building by the order of inspector accordingly to the contexts of section 13, to leave the environs of building or disturbs the tenant intentionally, for the first time, such person will be fined 200 kyats by the judge and second time or more will be fined up to 1,000 kyats.

(2) Not against the general meaning of above mentioned section ,without any concrete reason, If the landlord fails to maintain the condition of environs of building from protecting weather conditions by the time of validity of this Act, or according to the Separate contract of agreement or according to the customary laws, the landlord has the responsibility to do maintenance for the building or part of the building, such case will be considered as disturbance on purpose.

Under section (36) of this Act, 1960 as follow: "Not against the texts of this Act, the tenant who is ordered or decreed according to the law to return the building to the landlord, the tenant will not be allowed to continue to stay in that building or tenant is still staying in the building, according to the penal

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[9] MRS.D.M. SINGER (APPLICANT) Vs THE CONTROLLER OF RENTS AND THREE OTHERS (RESPONDENTS) 1949 B.L.R. P-143

code section 441 and 442, tenant will be considered as committing tress passing, in addition, will be fined the amount of money not more than two months rental and also will be imprisoned".

Further, section (10) of t h e Urban Rent Control Act 1960 said that " any environs of building which is rented or re-rented or to continue the renting, the landlord is not allowed to demand fine money, advance money or other fines or the landlord is allowed to demand one month deposit money, but not more than one month.

However, any text in this Section is not affected on contract agreement and paying money which were done before 1st of September 1939.[10]

Moreover, section (37),(38) and (39) of the Urban Rent Control Act 1960 provided that section 37(1) of this Act, "Anyone who against the text of section (10), such person will be imprisoned for six months or fined for 2,000 kyats or both". (2) If anyone who is obviously guilty according to this section and ordered to pay fine, the Court which decided the verdict, according to the civil law suit code 545, can order such person to pay all amount of fine or partially as compensation for any loss.

Section (38) of this Act," anyone who attempts to reoccupy the environs of building is stopped from doing so by the order or decree according to the section 12 or section 14, in this case, without the permission of inspector or order of municipal which allows to repair or demolish the building immediately, intentionally disturbing any benefits attached with environs of building, or destroy anything which is supposed to be used permanently together with the building or postpone bills for water and electricity of the building or postpone any service for the building, for the first offense, such person will be fined 500 kyats or related to such environs of building or another building, committed second time or more, will be fined up to 2,000 kyats."

Finally section (39) of this Act provided as follows:

Related to this case, within nine months after the day of accusation, if the case is submitted without the advanced permission of inspector ,no court will sentence to anyone who is accused of any crime.

However, the inspector will conduct an immediate investigation, from

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[10] Section 34(1), 35 (1),(2), 36, 10 of the Urban Rent Control Act, 1960.

reliable source of information, if anyone committed the crime, according to the section (10) or section (34), in addition, if the case is obvious, such person who committed the crime will be put on trial at court by the inspector.[11]

3.3 Laws Relating to lease of Immoveable Property to Citizens.

Lease of immoveable property may be made by relevant provisions of the following laws. They are; The Registration Law, 2018, The Myanmar Stamp (Amendment) Act, 2014.

3.3.1 Lease by the Registration Law 2018

The Registration law is an important part of lease of immoveable property to citizens because registration of lease contract is essential requirement for a valid lease. The registration law 2018 comprises chapter (17) and section (87). Among them, section 16 (d), 17(c), 25, 1 0 , 11, 47 (a), (b), (c) and 48 (a), (b), (c) are the most related sections with lease of immoveable property.

Therefore, if anyone rents immoveable property, the l e a s e contract must be registered at the relevant registration office under the Registration Act 2018.

Section (16) – the under mentioned which were regarded as the deeds to register without pay as to this law.

(d) The deeds regarding the immoveable property lease one year after one year and more than one year, and the lease rentals are prescribed as to the duration of the years.

Section (17) - the following deeds may register as to this law:

(c) The deeds which involve with the lease for the immoveable properties not more than one year.

Section (25) – The deeds relating to the immoveable properties are to be registered at the lease registration office located at where the immoveable properties are existed as to the section (10) or section (11).

Section (10) – The Director – General of the Nay Pyi Taw, Yangon and the Mandalay Development Council shall be formed an opened the registration offices for the deeds of the towns in the city development area at all townships or at some towns in composition accordingly.

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[11] Section 37 (1), (2), (38) and (39) of the Urban Rent Control Act, 1960.

Section (11) - Except towns included in the section (10), the rest registration offices shall be opened in the conjunction the relevant township land Management and the Township office of the Directorate of statistics.

Section (47) - The deeds which were registered under the law shall

a. It shall have enforcement starting from enter into the deeds.

b. If it is related to the immoveable properties, the deeds relating to the things, its regulations and its verbal promise contrary to its regulations or they shall have effect which dominates over the informative notice.

c. But it shall not be related to the regulations written in the deeds and which are contrary to verbal promise and the regulations of the deeds as to the section (b) of the law, even though it has enforcement or they shall not be concerned with the things which were handed over as to the informative notice.

Section (48) – The deeds which are to be registered without pay as to the section (16), they were not registered-

(a) It shall not have any effect on the transfer and hiring the immoveable properties of the deed in any way.

(b) It shall not be legal evidence regarding the adopting child.

(c) The delegation of power or related to the things in deeds concerned shall not be the legal evidence.

Section (49) – If the deeds are registered as the section (16), sub-section (a), (b), (c), (d) and (e) also the deeds registered as to the section (17), sub-section (a), (b) and (c) the things and the promise and the conditions are legal.[12]

3.3.2 Lease by the Myanmar Stamp (Amendment) Act 2014

The following sections are related to the lease of immoveable property in Myanmar.

Schedule (1)

Stamp-duty on Instruments[13]

Description of instrument	Proper stamp-duty
(35) Lease including an under lease or sub- lease and any agreement to let or sub-let-	(No-15) = one and a half per centum on the amount or value

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[12] Section 16(d), 17(c), 25,10,11,47(a), (b), (c) and 48 (a), (b), (c) and (49) of the Registration Act, 2018

[13] Section 35(a), (b), (c), 61(a)(b) and (63) of the Myanmar stamp (Amendment) Act, 2012

(a) Where by such lease the rent is fixed and no premium is paid or delivered-	
(i) Where the lease purports to be for a term of less than one year;	The same duty as a BOND (No-15) for the whole amount payable or deliverable under such lease.
(ii) Where the lease purports to be for a term of not less than one year but not more than three years.	The same duty as a BOND (No.15) for the amount or value of the average annual rent reserved.
(iii) Where the lease purports to be for a term in excess of three years;	The same duty as a CONVEYANCE (No-23) for a consideration equal to the amount or value of the average annual rent reserved. (No-23) = Five per centum on the amount or value.
(iv) Where the lease does not purport to be for any definite term;	The same duty as a CONVEYANCE (No-23) for a consideration equal to the amount or value of the average annual rent which would be paid or delivered for the first ten years if the lease continued so long.
(v) Where the lease purports to be in perpetuity;	The same duty as a CONVEYANCE (No-23) for a consideration equal to one- fifth of the whole amount of the rents which would be paid or delivered in respect of the first fifty years of the lease.
(b) where the lease is granted for a fine or premium or for money advanced and where no rent is reserved;	The same duty as a CONVEYANCE (No-23) for a consideration equal to the amount or value of such fine or premium or advance as set forth in the lease.
(c)Where the lease is granted for a fine or premium or for money advanced in addition to rent reserved; Exemptions (a) Lease executed in the case of a cultivator and for the purposes of	The same duty as a CONVEYANCE (No-23) for a consideration equal to the amount or value of such fine or premium or advance as set forth in the lease, in addition to the duty which would have been payable on such lease

cultivation (including a lease of trees for the production of food or drink), without the payment or delivery of any fine or premium, when a definite term is expressed and such term does not exceed one year, or when the average annual rent reserved does not exceed kyat 10,000.
 	
(b) Leases of fisheries granted under the existing laws.
 	
(61) Surrender of lease;-
 	
(a) when the duty with which the lease is chargeable does not exceed kyat 500;
 	
(b) in any other case….
 	
    Exemption
 	
Surrender of lease, when such lease is exempted from duty.
 	
(63) Transfer of lease by way of assignment and not by way of under lease.
 	
           Exemption
 	
Transfer of any lease exempt from duty except No.20 and 35.
	if no fine or premium or advance had been paid or delivered; provided that, in any case when an agreement to lease is stamped with the ad valorem stamp required for a lease, and a lease in pursuance of such agreement is subsequently executed, the duty on such lease shall not exceed kyat 600.
	
	The duty with which such lease is chargeable.
	
	-kyat 600
	
	The same duty as a CONVEYANCE (No-23) for a consideration equal to the amount of the consideration for the transfer.

3.3.3 Rights and Liabilities of Lessor and Lessee under the Transfer of Property Act 1882

The rights and liabilities of lessor and lessee are mentioned in section 108 of the Transfer of Property Act which states: "In the absence of a contract or local usage to the contrary, the lessor and the lessee of immoveable property, as against one another, respectively, possess the rights and are subject to the liabilities mentioned in the rules next following, or such of them as are applicable to the property is leased". The section then proceeds to define the three rights and

liabilities of the lessor and the thirteen rights and liabilities of the lessee as presented below.''[14]

The three rights and liabilities of the lessor provided under the Section 108 (a),(b) and (c) of the Transfer of Property Act are(a) disclosure of material defect,(b) delivery of possession and(c) quiet possession. (a)**Disclosure of Material Defect:** "The lessor is bound to disclose to the lessee any material defect in the property with reference to its intended use, of which the former is and the latter is not a ware, and which the latter could not with ordinary care discover."

(b)**Delivery of Possession**: section 108(b) of the Act provided that "the lessor is bound on lessee's request to put him on possession of the property".

(c) **Quiet possession**: The final right of lessor prescribed in section 108 (c) of the Act is that "the lessor shall be deemed to contract with the lessee that, if the latter pays the rent reserved by the lease and performs the contract binding on the Lessee, he may hold the property during the time limited by the lease without interruption."

The Rights and liabilities of lessee are provided by section 108 (d) to (q) of the Transfer of Property Act, they are as follows:

(d)Accession: The first right given by section 108 (d) of the Act is that "If during the continuance of the lease any accession is made to the property , such accession shall be deemed to be comprised in the lease."

(e) Destruction of leasehold property: "If by fire, tempest or flood or violence of an army or of a mob or other irresistible force, any material part of the property be wholly destroyed or rendered substantially and permanently unfit for the purposes for which it was let, the lease shall, at the option of the lessee, be void."

Provided that, if the injury be occasioned by the wrongful act or default of the lessee, he shall not be entitled to avoid himself of the benefit of this provision.

(f)Repairs: According to the section 108(f), "If the lessor neglects to make within a reasonable time after notice, any repairs which he is bound to make to the property, the lessee may make the same himself, and deduct the expense of such repairs with interest from the rent or otherwise recover it from the lessor." [15]

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[14] Section (108) of the Transfer of property Act, 1882.

[15] Section 108 (d),(e)and (F) of the Transfer of Property Act, 1882.

(g)Payment of lessee: "If the lessor neglects to make any payment which he is bound to make, and which if not made by him, is recoverable from the lessee or against the property, the lessee may make such payment himself, and deduct it with interest from the rent, or otherwise recover it from the lessor."

(h)Removal of fixtures: "The lessee may, even after the determination of the lease remove, at any time whilst he is in possession of the property leased but not afterwards, all things which he has attached to the earth provided he leaves the property in the state in which he received it".

(i) Emblements: "When a lease of uncertain duration determines by any means except the fault of the lessee, he or his legal representative is entitled to all the crops planted or sown by the lessee and growing upon the property when the lease determines, and to free ingress and egress to gather and carry them."

(j) Lessee's Right of Transfer: "The lessee may transfer absolutely or by way of mortgage or sub-lease the whole or any part of his interest in the property and any transferee of such interest or part may again transfer it. The Lessee shall not, by reason only of such transfer, cease to be subject to any of the liabilities attaching to the lease. Nothing in this clause shall be deemed to authorize a tenant having an untransferable right of occupancy, or the farmer of an estate in respect of which default has been made in paying revenue, to assign his interest as such tenant or farmer".

(**k) Disclosure to the lessor**: "The lessee is bound to disclose to the lessor any fact as to the nature or extent of the interest which the lessee is about to take, of which the lessee is, and the lessor is not aware and which materially increases the value of such interest."[16]

(L) Payment of Rent: "the lessee is bound to pay or tender, at the proper time and place, the premium or rent to the lessor or his agent in this behalf"[17]

(m) Keeping and Restoring the Leasehold property: "The lessee is bound to keep and on the termination of the Lease to restore, the property in as good condition as it was in at the time when he was put in possession, subject only to the changes caused by reasonable wear and tear or irresistible force, and to allow the lessor and

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[16] Section(g),(h),(i),(j)and(k)of the Transfer of Property Act,1882

[17] U Thet Pe, The transfer of property act, 2009, 2nd Edition shu Tine Yin Bookshop, Yangon, P-261, 262.

his agents, at all reasonable times during the term, to enter upon the property and inspecting the condition thereof and give or leave notice of any defect in such condition; and when such defect has been caused by any act or default on the part of the lessee, his servants or agents, he is bound to make it good within three months after such notice has been given or left."

(n) Lessor's Title to be protected: "If the lessee becomes aware of any proceeding to recover the property or any part thereof, or of any encroachment made upon, or any interference with, the lessor's rights concerning such property, he is bound to give, with reasonable diligence, notice thereof to the lessor".

(o) Mode of Lessee's use of the property: "The lessee may use the property and its products (if any) as a person of ordinary prudence would use them if they were his own; but he must not use, or permit another to use, the property for a purpose other than that for which it was leased, or fell or sell timber, pull down or damage buildings belonging to the lessor, or work mines or quarries not open when the lease was granted, or commit any other act which is destructive or permanently injurious thereto."[18]

(p) Erection of permanent structure: "He must not, without the lessor's consent, erect on the property any permanent structure, except for agricultural purposes."[19]

(q) **Restoration of possession**: "On the determination of the lease, the lessee is bound to put the lessor into possession of the property."

3.3.4 Termination of lease

The provisions prescribed in the section 111 of the Transfer of Property Act are as follows:

A lease of immoveable property determines -

a. By efflux of the time limited thereby;
b. Where such time is limited conditionally on the happening of some event by the happening of such event.

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[18]U Thet Pe, The transfer of property Act, 2009, 2nd Edition shu Tine Yin Bookshop, Yangon, P-272.

[19] Section 108 (p) of the Transfer of property Act, 1882.

c. Where the interest of the lessor in the property terminates on, or his power to dispose of the same extends only to the happening of any event by the happening of such event;

d. In case the interests of the lessee and the lessor in the whole of the property become vested at the same time in one person in the same right;

e. By express surrender; that is to say, in case the lessee yields up his interest under the lease to the lessor, by mutual agreement between them;

f. By implied surrender;

g. By forfeiture; that is to say, (1) in case the lessee breaks an express condition which provides that on breach thereof the lessor may re-enter, or (2) in case the lessee renounces his character as such by setting up a title in a third person or by claiming title in himself, or (3) the lessee is adjudicated an insolvent and the lease provides that the lessor may re-enter on the happening of such event; and in any of these cases the lessor or his transferee gives notice in writing to the lessee of his intention to determine the lease.

h. On the expiration of a notice to determine the lease, or to quit or of intention to quit, the property leased, duly given by one party to the other.[20]

4   Lease to Foreigners under the Transfer of Property Act, 1882

The Transfer of Property Act concerns with the transfer of movable and immovable property to not only citizens but also to foreigners because there is no specific provision in it regarding the persons who apply to it. Therefore, it can be presumed that it is applicable not only to citizens but also to foreigners. The meaning of the lessor and the Lessee is defined in this Act. The lessor is ·called the landlord, an absolute owner, who being under no personal incapacity, can grant a lease for any term he pleases. Therefore, as a person who is not competent to contract cannot grant a lease, he shall not be a lessor. The transferee of the immoveable property by way of lease is called the lessee. Therefore, any person whether citizen or foreigner may be a Lessee and the Lessee is called a tenant. Under the Transfer of Property Act, the lessor and the lessee have not been distinguished

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[20] Section(111) of the Transfer of Property Act,1882

with regard to whether they shall be a citizen or a foreigner and so, the provisions of this law are applicable to all competent persons under the law. It can be seen that foreigners can lease immoveable property from the any person or to any person under the Transfer of Property Act. Modes of making the lease, duration of lease, rights and liabilities of lessor and lessee are the same as upon the citizens and foreigners under this Act.

Therefore, if citizens rent immovable property for a short or long term to other citizens or to foreigners on the lands within the areas where the Transfer of Property Act is enforceable, they would have to abide by the provisions of the Act. [21]

4.1 Lease to Foreigners under the Urban Rent Control Act , 1960

The Urban Rent Control Act was enacted on 4th May1960. The aim of enacting this Act is to control rents, to protect the lessee and to avoid injury to lessees who face the problem of being homeless. Moreover, it is enacted with a view to solving problems arising out of rent and occupancy between the lessor (landlord) and the lessee (tenant) whether they are citizens or foreigners, in urban areas. Therefore, the Urban Rent Control Act, 1960 is applied in urban areas for any term of lease made between citizens and for short term (up to one year) lease made between citizens and foreigners. Actually this Act is not applied outside of urban areas. For areas outside of urban areas, the Transfer of Property Act is applied to all cases relating to the lease of immoveable property. When leasing immoveable property is made to a foreigner or from a foreigner, for the short term, after the Transfer of Immoveable Property (Restriction) Act 1987 was enacted.

4.2 Lease to Foreigners Under the Transfer of Immoveable property Restriction Law, 1987

Restrictions relating to immoveable property are prescribed in chapter II of this law. Under the provision of section 3, ''no person shall transfer any immoveable property by way of sale, purchase, gift, acceptance of a gift, mortgage, acceptance of a mortgage, exchange or transfer and acceptance of a transfer by any other means to a foreigner or a company owned by a foreigner.''

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[21] The Union of Government of the Republic of the Union of Myanmar Notification No. 39/ 2011.

No foreigner or a company owned by a foreigner shall transfer any immoveable property by way of sale, purchase and gift, acceptance of a gift, mortgage, acceptance of a mortgage, exchange or transfer and acceptance of a transfer by any other means than that which is provided in section 4.

Section 5 of the law provided that no person shall lease to a foreigner or a company owned by foreigner and lease from a foreigner or a company owned by a foreigner immoveable property for more than a year at a time.

Chapter IV prescribed the penalties for violation of the law under section 11 "Whoever violates any of the provisions of section 3 or 4 shall on conviction be punished with imprisonment for a maximum term of five years. In addition, the immovable property involved in the offence shall also be confiscated by the state."

And also prescribed in section 12 is "Whoever violates the provisions of section 5 shall on conviction be punished with fine, which shall be not less than the amount of three into rent agreed upon for the entire period of the lease. In addition, the immovable property involved in the offence shall also be confiscated by the state."

In instituting legal proceedings in respect of offences under this Law, prior sanction shall be obtained from the Ministry concerned under the provision of section 17 of this law.

The State Peace and Development Council amended some provisions of the Transfer of Immoveable Property Restriction Law, 1987 on 13th January, 2005 in line with the change in situations. This law is called the "Law Amending the Transfer of Immovable Property Restriction Law."

However, section 14 of the Transfer of Immovable Property Restriction law 1987 provides that, with the approval of the government, leases may extend for more than one year with regard to diplomatic missions, UN agencies or organizations. In practice the Ministry of Foreign Affairs give such approval.[22]

In summing up, the Transfer of Immovable Property Restriction Law, 1987 is the main law for the lease of immovable property to foreigners. The legal effect afforded by this law is that is enables the prevention of influence and

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[22] Section (3),(4),(5),(11),(12),(14) and(17) of the Transfer of Immoveable Property Restriction Law,1987

exploitation by foreigners for the interest of citizens by prohibiting foreign ownership and long term use of land, buildings and benefits arising out of land, within Myanmar.

4.3 Lease to Foreigners Under the Myanmar Special Economic Zone Law, 2014

In Myanmar, the PyidaungsuHluttaw hereby enacts Myanmar Special Economic Zone law on 23rd January ,2014 .This law contains 18 chapters and 96 sections.

Relating to the land use contained in section (79) and (81) in the Myanmar Special Economic Zone law, 2014.

According to section (79) of this law mentioned that "The Management Committee may allow the developer or the investor to lease land or use land for up to 50 years upon payment of the land lease fee or land use fee, if the investor wishes to continue their business after the expiry of the term, the term may be extended for up to 25 years."

Further section (81) of this Law provided that ''if the developer or the investor close the investment business or liquidate it, the land Lease or the permit to use it shall be revoked, the land shall be returned and, if necessary, the buildings on the land shall be removed.''[23]

Therefore, it can be said that the Myanmar Special Economic Zone law provided for leasing of immoveable property such as land and buildings to Foreigners and foreign companies for the purpose of doing investment in special economic zones in Myanmar.

4.4 Lease to Foreigners Under the Myanmar Investment Law 2016

In order to implement foreign direct investment, the right to obtain a long term lease for utilization of immoveable property within the Myanmar .So this law concerned with the land lease to the Foreigners.

In respect of the land lease are provided in section 50 (b), (c) and (d) as follows:

(b) Foreign investor may lease land or building either from the government or government organizations or from owners of private land or building from

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[23] Section(79) and(81) of the Myanmar Special Economic Zone Law,2014

commencing on the date of receipt of the permit or endorsement of the Commission up to initial period of (50) years in accordance with the stipulation.

(c) After the expiry of the term of the right to use land or building or the period of right to lease of land or building permitted under subsection (b), a consecutive period of (10) years and a further consecutive period of (10) years extension to such period of lease of land or building may be obtained with the approval of the Commission.

(d) The investor shall register the land lease contract at the Office of Registry of Deeds in accordance with the Registration Act.[24]

4.5   Lease to Foreigners Under the Farmland Law, 2012

According to the farmland law 2012 (No.11/ 2012), the foreigners those who have the right to lease the Farmland and it shall be carried out by co-operation with Myanmar Citizen who has the right to cultivate/right to utilize the farmland. Regarding the point, section 9 (f) of the Farmland Law provided that "a person who has the right to use common interest the Farmland in accord with the Foreign Investment Law of the Republic of the Union of the Myanmar by cooperating with the foreigner or the organization in which the foreigner is included." But, the person who has the right to use the farmland must to comply the condition relating to the foreigner. The condition is provided in section (14) as follow:

(14) The person who has the right to use the farmland shall not sell, mortgage, lease, exchange or gift on the whole or part of the right to use the farmland without permission of the Government to any foreigner or any organization in which the foreigner is included.[25]

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[24] Section50(b),(c)and(d) of the Myanmar Investment Law,2016

[25] Section 9(F) and section (14) of the farmland Law, 2012.

Conclusions and Recommendations

Lease is one of the five kinds of transfer in the Transfer of property Act. In Myanmar, there are two kinds of laws relating to the lease of immoveable property. They are the Transfer of property Act, 1882 and the Urban Rent Control Act, 1960. Definition and essential of a valid transfer are provided in section 105 of the Transfer of property Act. According to this section, only the person who makes a lease can be a lessor. However, under the section 2 (c) of the Urban Rent Control Act 1960, a person may be a landlord even though he himself has not made a lease of immoveable property. According to the section (105) of the transfer of property Act, only the person who receives a lease made by another person is called lessee. However, under section 2 (g) of the Urban Rent Control Act, tenant means a person by whom or whose account the rent is payable for any premises and includes a legal representative, deriving title under a tenant and person remaining in possession of premises let to him after the termination of tenancy. According to this definition, even someone who is not a dependent person of the tenant and not a person who has always lived with the deceased tenant may be tenant. Therefore, under this section even a deceased tenant's daughter who is living permanently aboard shall be deemed to be a tenant. The Urban Rent Control Act 1960 mainly aims to control the rental fees of the property leased in Urban areas, and to protect law-abiding tenants from being ejected. However, According to the section 12 (1)(a) of the Urban Rent Control Act, provides that the house owner has the right to eject when the tenant who breaks his responsibility, on the property leased. However, the specific provisions for the responsibilities of the tenant are not provided therein and it is required to refer the responsibilities of the tenant stated in the section 108 of the transfer of property Act. With respect to the ground for termination of the lease, this is also not defined in the Urban Rent Control Act. Therefore, if any person wants to terminate a lease, it must be terminated only through the provisions stipulated in section 111 of the Transfer of property Act.

Section 12(1) of the Urban Rent Control Act contains six grounds which can be used by the landlord in order to file a suit for recovery of property leased and for ejectment of a tenant from the premise leased, as provision for the rights of a landlord. Moreover, in the section 14, provides the right of the landlord to apply to the Civil Court for recovery of possession of any premises from any person has been

permitted to occupy under the provisions of section 13 or for the ejectment of any such person therefrom. This provision is made with the intention of protecting the landlord. In addition, in section 18, if the house owner is not satisfied with the standard rent fixed by the controller, he or she has the right to make a reference for adjustment of rent at the court defined under this law. Besides mentions above, as the problems relating to lease of immoveable property are popular civil suits Which are mostly decided by the Civil Courts of Myanmar, concerning laws for such cases need to transparent, satisfy and modernize. The Urban Rent Control Act 1960 is one of the laws which is being applied mainly in leasing immoveable property to citizens.

The existing laws of Myanmar for lease of immoveable property to foreigners may be grouped into two (i) Laws for short-term lease of immoveable property to Foreigners. (ii) Laws for long-term lease of immoveable property to Foreigners .The first Category includes the Transfer of Property Act ,1882, the Urban Rent Control Act ,1960 and the Transfer of Immoveable Property (Restriction) Law 1987. The second category contains the Myanmar special Economic Zone Law ,2014 and the Myanmar Investment Law,2016   Among them, the main laws for lease of land to Foreigners are the Transfer of Immoveable property (Restriction) Law 1987, the Myanmar Special Economic Zone Law was enacted in 2014. The main aims of these Laws are to develop the momentum of the economy of the state by establishing and operating the Special Economic Zones, to develop industry and high technology in the state, and to create more employment opportunities for the citizens.

This Law was originally stipulated in India in 1882. As to the Urban Rent Control, it was subscribed not to take any advanced money. In reality, people are taking advanced money. I think we should amend it as to the needs by the revising the law. The Foreigners are allowed to lease up to 50 years as to the Myanmar Investment Law (2016) But as to the Transfer of property (Restriction) Law, 1987, they are allowed to Lease the property for only one year. I came to Find out that there is a contrary in these Laws. The Farmland should not be engaged by the Foreigners. As to the Urban Rent Control Act, 1960 the Fines prescribed in this Act was very too Low. Being so, these Fines should be amended as to the present time.

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SOCIO-ECONOMIC CONDITION OF SANPYA VILLAGE IN HLEGU TOWNSHIP

Hnin Moh Moh Aye[1]

Abstract

This paper is concerned with socio-economic conditions of Sanpya Village, Hlegu Township. In 2018, a sample survey was conducted to explore socio-economic conditions in Sanpya Village. It was found that household size, economically active members, year of schooling for household heads and gender of household heads were found to be influential factors for poor level of those households in this village. In Sanpya Village has total (360) houses, (397) households in the village. The main business of the households has worked as casual workers and shops in the village. They encourage their family member to improve the education level better than themselves. There is no health care clinic in the village. The people in the village mostly used tube-well than other types of water resources in the village. The majority of households are income level between (over 2 Lakh and under 4 Lakh). The majority of households are expenditure level between (over 160 thousand kyats and under 260 thousand kyats). Some of the ward streets are not good in the village. So, there should be carried out for better street infrastructure in the village.

Introduction

Socio-economic is the important role in the development of a country. Socio-economic is the social science (also known as socio-economic or social economics) that studies how economic activity impacts and is designed by social processes. In general it analyzes how societies progress, stagnate or regress because of their local or regional economy, or the global economy. Socio-economic status is an economic and sociological combined total measure of a person's work experience and of individual or family's economic status and social position in relation to others, based on monthly income, monthly expenses, gender, electrical power condition, housing condition, travel condition, drinking water condition, cooking condition, trash condition, educational status and occupational structure. When analyzing a family's socioeconomics, the household's incomes, versus with an individual, when their attributes are assessed or more commonly known to describe an economic difference in society as a whole. The socio-economic character of an area includes its population, housing and economic activity.

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Myanmar has embarked on an all-around national development programmed by promoting the living standard of people aimed at achieving a peaceful, modern and developed nation since 1989. The government has been building infrastructure through systematic plans for all citizens to be able to enjoy a rich and secure socio-economic life and to possess a promising future. In this paper, it attempts to study and assess socio-economic development of rural area on the basis of survey data of Sanpya Village in 2018.

The government has the objective of the rural development. In line with the objectives, the government has set up the five rural development tasks;(1) securing smooth and better transportation in the rural areas, (2) availability of clean water in the rural areas, (3) uplift of the education standard of the rural people and development of the economy in the rural regions,(4) to promote the socio-economic situation of rural areas and (5) to narrow the socio-economic gaps between urban and rural areas by alleviating poverty in the rural areas. In performing rural development activities, the state plays its role as policy maker, strategy planner and supervisor and rural development measures been to implement to these strategic plan have taken in selected target areas by constructing model village approach.

Rationale of the study

In Myanmar 70% of total population is in rural area. Nowadays, state government is carrying out rural development programs. The current population of Myanmar is about 54 million as of Friday, July 7, 2017, based on the latest United Nations estimate. All societies including rural and urban must lead to productivity because it can become efficiency and can simultaneously enhance for the national value.

Rural development, according to the World Bank, is a strategy to be well designed to improve economic and social life of the specific group of people in the rural area. It includes extending the benefits of development to poorest among those who seek likelihood in the rural area. The group involves small-scale tenants and landless people.

Therefore, this paper emphasizes on the socio-economic status to describe a demographic that is being studied and to describe on individual's or family's social and economic position in relationship to other in a society.

Objective of the Study

The objective of the study is the current socio-economic condition of households and to reviews the socio-economic condition in Sanpya Village

Method of the Study

The method used in this study falls in type of descriptive approach. Data were collected using face to face interview methods, observation method and questionnaires

methods under simple random sampling. Information from households was collected by using structured questionnaires. 160 households were randomly selected from Sanpya Village (40%) of total households (397). Other information was obtained from General Administrative Office in Sanpya Village.

Scope of the Study

This study focuses on the households in Sanpya Village, Hlegu Township. The data was collected from 160 households from 397 households. These primary data are collected during 2018.

Organization of the Study

This paper is organized with four chapters. Chapter 1 is the introduction which includes rationale of the study, objectives of the study, methods of the study, scope of the study and organizational of the study. Chapter 2 is background history of Sanpya Village. Then, Chapter 3 analyzes socio-economic conditions of people in Sanpya Village. Finally, Chapter 4 summarizes with conclusions, suggestions and recommendations.

Historical Background of the Study

Backgroung History of Sanpya Village

In Hlegu Township, the name "Sanpya Village" became from physical and mental workers of civil servant university phunggyi. The village was started May (1), in 1970. Sanpya Village is abundance of plains and less hills. Some difference ethnic groups are living in the village such as Kayin, Rakhine, Shan and mostly Burmese. The village has been adjoined boundary of East in Bago Region, West in East Phaunggyi village, South in Gwe Taught Iye Village and North in Mayan Chaung Village.

Sanpya Village is situated near from civil servant university phunggyi (Lower Myanmar) far from North (20) miles in Hlegu Township, Yangon Region. The village is about 50 miles far from Yangon and over three hour driven by car. The village has an area of around 50 acres. In the villages are found that main concrete street, which is 3300 feet. This villages is comprises Min Gohn Village group, 397 households were adhere stay in the village. The village can be divided into four quarters.

Near the village, there are Civil Servant University Phunggyi (Lower Myanmar) and Co-operative College (Phaunggyi). The Sanpya Village is 360 houses, and 397 households, total population over 2000. There is only one Monastery library which can contribute the required information and knowledge for the villagers.

Education

The village is one Basic Education Primary School. It can be found that five teachers for education. There are over (200) students of Basic Education Primary School in the village.

Health Care Service

There are Health Care Providers for patients in Sanpya Village. The village has one Rural Health Care Organization and one local health clinic that provides health care services of the residents with two nurses in the village. Some villagers are going to private clinic in phaunggyi village for the access to reliable health care service.

Analysis of the Study

This chapter analyzes on the socio-economic condition of the Sanpya Village. These conditions are based on gender, occupation, age, education, numbers of family, ethnic group, housing, assets owned, and acquisition of loans.

Table (1)   Classification of Respondent by Gender of Household Heads

Gender	Number of Households Head	percentage
Male	138	86
Female	22	14
Total	**160**	**100**

Source: Survey Data, 2018

In Gender- wise distribution, from the (160) total respondents, the males households head are more than female households head whereby the number of the females are 22 women which is equal to 14 percent and the males are (138) men which is equal to 86 percent.

Table (2)   Classification of Occupation by Household Heads

Occupation	Number of Household Heads	percentage
Farms	12	7
Daily Wages/ Wages Salary	9	6
Government Employees	9	6
Casual Workers	84	52
Retirement Persons	19	12
Shops	27	17
Total	**160**	**100**

Source: Survey Data, 2018

The classification of occupation by households heads are divided six categories according to their work in daily life. The total household heads are found 52% of casual workers. 17% are shops, 12% are retirement persons, 7% are farms and the other rest 6% are respectively daily wages/wages salary and government employees. It is found that majority of household head are casual workers.

Table (3)   Classification by Age of Household Heads

Age Group	No. of Household Heads	Percentage
20-29	9	5
30-39	32	20
40-49	38	24
50-59	40	25
60-69	25	16
70-79	16	10
Total	**160**	**100**

Source: Survey Data, 2018

The above table shows age-wise, which contains 160 total respondents, the researcher found that the highest ages group of households head of between (50-59), which are equal (25) percent (40 households head).The second highest ages group of between (40-49), which are equal (24) percent (38 households head).The third highest ages group of between (30-39), which are equal (20) percent (32 households head).The next group of ages (60-69), which are equal (16) percent (25 households head).The another group of age (70-79), which are equal (10) percent (16 households head).The rest group was the least for the ages (20-29), which is equal (5) percent (9 households head).

Table (4)   Classification by Education of Household Heads

Education	No. of Household Heads	Percentage
Illiterate	10	6
Monastery Education (Baka)	6	4
Primary Education	39	24
Secondary Education	50	31
Higher Education	41	26
University	6	4
Graduate	8	5
Total	**160**	**100**

Source: Survey Data, 2018

In this part of table (4) most household heads 31 percent are secondary education, which is an equal 50 household heads. The respectively, Baka and University are the least with 6 household heads which is equal to 4 percent.

The higher education of household heads are (41 household heads), which is equal 26 percent. The primary education level are (39 household heads), which is equal 24 percent.

The level of illiterate education are (10 household heads), which is equal 6 percent. The Graduate level are (8 household heads), which is equal 5 percent.

The attempt to fine out the education level of household heads and the literacy rate is to know of household heads.

Table (5)   Classification by Number of Family member in Households

Gender	No. of Family member	Percentage
Male	177	35
Female	331	65
Total	**508**	**100**

Source: Survey Data, 2018

As shown in the above Table (5), the number of family members are found that the number of female (331 family members), which are equal (65) percent. The number of male are (177 family members), which are equal (35) percent. Therefore, Most of the female is found the number of family member in households.

Table (6)   Classification by Education in Family Members

Level of Education in Family Members	No. of Family Members	Percentage
Illiterate	20	4
Monastery Education (Baka)	5	1
KG	14	3
Primary Education	158	31
Secondary Education	159	31
Higher Education	73	14
University	31	6
Graduate	48	10
Total	**508**	**100**

Source: Survey Data, 2018

Table (6) shows the educational qualification of family members. The number of family who studied up to primary and secondary level of education was 31% of respectively. Then the higher education levels are 14%. The Graduate levels are 10%. The University levels are 6%. The Illiterate levels are 4%. The KG levels are 3% and the monastery levels (Baka) are 1%.

Table (7)   Classification by Ownership of Housing Condition

Ownership of Housing Condition	No. of Households	Percentage
Own House	148	92
Tenant	12	8
Total	**160**	**100**

Source: Survey Data, 2018

The above table (7) shows the households by type of ownership of housing unit in Sanpya Village. Most of the households (148) were owner, it was 92%. Some of the households (12) were staying in tenant, it was 8%. Therefore, it can be see that the most households are living own house in Sanpya Village.

Table (8)   Distribution of Housing Types

Housing Types	Number of Households	Percentage
Reinforced concrete (RC)	10	6
Brick House	20	13
Wooden House	124	77
Bamboo House	6	4
Total	**160**	**100**

Source: Survey Data, 2018

According to the distribution are housing types for sample households. The most of houses were wooden house, it was 77%.The brick house were 13%, the RC house was 6% and the bamboo house were 4%. It shows that the majority of houses are in fair condition.

Table (9)   The Number of Households by Ethnicity

Ethnicity	No. of Households	Percentage
Burmese	153	95
Kayin	5	3
Rakhine	1	1
Shan	1	1
Total	**160**	**100**

Source: Survey Data, 2018

As shown in the above table (9), it was found that the majority of households are Burmese (95) percent which is equal (153 households) from (160). The Kayin are (3) percent which is equal to (5 households). The Rakhine and Shan is (1%), which is an equal to (1 households) respectively.

Table (10)   Classification by Religion of Households

Religion	No. of Households	Percentage
Buddhist	156	97
Christians	4	3
Total	**160**	**100**

Source: Survey Data, 2018

The classification by religion of households is classified into Buddhist and Christians. The religion is found that (97) percent are Buddhist and (3) percent are Christians.

Table (11)   Distribution of Sanitation Types

Toilet	No. of Households	Percentage
Water-Proof Toilet	160	100
Total	**160**	**100**

Source: Survey Data, 2018

Table (11) shows the sanitation condition of households. The sanitation condition of households can be observed that whether the villagers have awareness of the health based on cleanness. According to this table, it can be seen that the households used the water-proof toilet 100 percent, (160 households).

Table (12)   Classification of Access Condition

Access Condition	No. of Houses		Total	Percentage		Total
	Near	Distance		Near	Distance	
Home from School	147	13	160	92	8	100
Home from Bazaar	118	42	160	74	26	100
Home from Dispensary	124	36	160	77	23	100
Home from Hospital	125	35	160	78	22	100

Source: Survey Data, 2018

According to this table (12) the classification of travel condition are found that the distance between home to School, Bazaar, Dispensary and Hospital. Travel condition was studied of houses 160, 147 houses near the school and 13 were distance from the school, 118 houses near the bazaar and 42 were distance from the bazaar, 124 houses near the dispensary and 36 were distance from the dispensary, 125 houses near the hospital and 35 were distance from the hospital.

Table (13)   Classification by Source of Water for Drinking

Source of Drinking Water	No. of Households	Percentage
Wells	61	38
Tube-well	90	56
Lake	3	2
Others	6	4
Total	**160**	**100**

Source: Survey Data, 2018

The above table shows the utilized water source for the households. The majority of households are using tube-well for drinking water, it was 56%. 38% of households are using wells, 2% of households were got from lake and 4% of the households were got from others.

Table (14)   Distribution Types of Energy

Types of Energy	No. of Households	Percentage
Electricity	145	91
Battery	6	4
Solar	5	3
Other	4	2
Total	**160**	**100**

Source: Survey Data, 2018

Table (14) shows types of energy for sample households. Most of 145 households are using electricity. It is 91%. 6 households were used battery system. 5 households are using sources of solar system, which are 3%. The remaining 4 households were used others, which are 2%.

Table (15)   Assets Owned by Households

Sr. No.	Assets Owned	No. of Household	Sample Size	Percentage on total population
1	TV	135	160	84
2	VCD,DVD,EVD	108	160	67
3	Telephone	148	160	92
4	Iron	137	160	86
5	Motor Cycle	100	160	62
6	Electric Pot	135	160	84
7	Bicycle	95	160	59
8	Radio	43	160	27
9	Sewing Machine	34	160	21
10	Satellite	80	160	50
11	Generator	36	160	22
12	Car	11	160	7
13	Others	17	160	11

Source: Survey Data, 2018

Based on the above table, 84% of sample households own TV, 67% of sample households own VCD, DVD, EVD, 92% of sample households own telephone, 86% of sample households own iron, 62% of sample households own motor cycle, 84% of sample households own Electric Pot, 59% of sample households own Bicycle, 27% of sample households own Radio, 21% of sample households own Sewing Machine, 50% of sample households own Satellite, 22% of sample households own Generator, 7% of sample households own Car and 11% of sample households own Others.

Table (16)   Classification by Cooking Fuel Condition

Cooking Fuel Condition	No. of Households	Percentage
Electricity	101	63
Electricity and Firewood	43	27
Electricity and Coal	11	7
Electricity, Firewood and Coal	4	2
Firewood and Coal	1	1
Total	**160**	**100**

Source: Survey Data, 2018

Above table (16), show the households by main type of cooking fuel. 63% of households are using Electricity, 27% of households are using Electricity and Firewood, 7% are using Electricity and Coal, 2% of households are using Electricity, Firewood and Coal. Remaining 1% of households are using Firewood and Coal. Therefore, it can be assumed that the most families are using Electricity for cooking.

Table (17)   Classification by Acquired Loans of Households

Name of Organization	No. of Households	Percentage
BNK	28	17
Vision F	1	1
GJB	5	3
KEB Hana	5	3
World vision	1	1
Dune	16	10
Hayman	4	2
Government loan	1	1
Sathapana	14	9
No loan	85	53
Total	**160**	**100**

Source: Survey Data, 2018

In this table (17), shows of sample households by acquired loans in Sanpya Village. 28 households are loans from the BNK, it is (17) percent. 1 household are using loans from Vision F, World Vision and Government loan. 5 households are using loans from GJB and KEB Hana. 16 households are using loans from Dune. 4 households are using loans from Hayman. 14 households are using loans from Sathapana. It can be seen that the loans acquired condition was in Sanpya Village.

Table (18)   Classification by Disposal of Waste Condition

Disposal of Waste Condition	No. of Households	Percentage
Waste bin/ Rubbish car/ Cart	65	41
Burn/ Sinking earth	80	50
River/ Creek	7	4
No fixed area	8	5
Total	**160**	**100**

Source: Survey Data, 2018

Table (18) shows the classification of households by the disposal of waste condition in Sanpya Village. Most of the households dispose by burning the waste or sinking the waste in the ground which (80 households). It was (50%). (65 households) are disposing the waste in bin/rubbish car/cart which is (41%). (8 households) are disposing the waste river/creek which is (5%). (7 households) are using no specific area to dispose the waste which is (5%). Therefore it can be see, most families are using Burn and Sinking earth for dispose of wastes.

Table (19) Income per Month for Sample Households

Income (Kyats)	No. of Households	Percent
80000-179999	25	16
180000-279999	34	21
280000-379999	53	33
380000-479999	19	12
480000-579999	18	11
580000-679999	7	4
680000-779999	3	2
780000-879999	-	-
880000-979999	-	-
980000-1079999	-	-
1080000-1179999	-	-
1180000-1279999	1	1
Total	**160**	**100**

Source: Survey Data, 2018

Table (19) shows the monthly income for households. Maximum monthly income range is between 1180000 to 1279999 kyats. It found that the maximum income level of households is 1%. Minimum monthly income range is between kyats 80000 to 179999. Minimum income levels of households are 16%. 33% of households were obtained income range between (kyats 280000 to 379999).

Table (20) Expenditure per Month for Sample Households

Expenditure (Kyats)	No. of Households	Percent
60000-159999	53	33
160000-259999	68	42
260000-359999	27	17
360000-459999	6	4
460000-559999	6	4
Total	**160**	**100**

Source: Survey Data, 2018

Table (20) shows the monthly expenditure for households. Maximum monthly expenditure range is between 460000 to 559999 kyats and 4% of the households are maximum expenditure level. Minimum monthly expenditure range is between kyats 60000 to 159999 and 33% of the households are minimum expenditure level. 42% of households were spend expenditure range between (kyats 160000 to 259999).

Linear Regression Model for the Households

Let the linear regression model equation be –

$\hat{Y} = b_0 + b_1X$ ---------- (1)

$\hat{Y} = 73382.569 + 0.424X$ ---------- (2)

Where

$\hat{Y}$ = Estimated total expenditure of sample household in Sanpya Village

b = Coefficients

X = Total income of sample households in Sanpya Village

t value (12.218)

R = 0.697, R^2 = 0.486, F-value = 149.273

According to above equation (2) regression analysis shows the relationship between average monthly expenditure and average monthly income. The R square is 0.486 that reveals 48.6% of total variance in monthly expenditure is explained by monthly income. Results show that F-value is 149.273 that is significant at P=0.000 (<0.01), suggesting average trust has significantly explained the 48.6% of the variance in monthly expenditure. The regression coefficient between average monthly income and average monthly expenditure is 0.424 (t = 5.883, p = 0.000 see appendix). This shows that there is strongly direct relationship between average monthly income and average monthly expenditure. Thus income is positively related expenditure.

Conclusion

Finding and Discussion

Sanpya Village is situated at 20 miles away from Hlegu Township. The Sanpya Village is 360 houses and 397 households. The total populations are over 2000 in which included 1200 female and 900 male. Then, the education, health, occupations and properties of households were also studied in this paper. The village is existing four wards which some of the ward street are not good. The villages found that most of resident are Burmese. This village have one Monastery and then it have one crematorium.

Living condition in Sanpya Village, it found that 77% of the households are living in wooden house. Energy condition has 91% of the households use the electricity energy. Drinking water has 56% of the households are using tube well. All of households are using water proof toilets. There were utilized telephones of 148 households in this village so that people can communicate with the other places of the nation easily. In the villages are found that main concrete street.

Most of 33% total households can generate income between 280000 kyats and 379999 kyats and spend their earning fairly. This shows that there is strongly direct relationship between average monthly income and average monthly expenditure. Thus income is positively related expenditure. Some households have credit loans from MFIs. The education levels of household heads are highest secondary level education. The education sector is fair condition in the village. In the village, the numbers of teachers and students ratio is 1: 40 regarding with 5 teachers are working for about over 200 students. There is only one library in the village in which it can contribute literature and knowledge of the people. The occupation condition found that mostly are general workers.

Recommendation and Suggestion

For development of socio-economic, employment opportunities should be available to create new job functions for residents in the village. That should be created by government agencies, non-government organizations and businessmen for Sanpya Village and then should be provide the task encourage both education and vocational/technical training. The households head should make encourage to improve the better education level of family members.

This village should be provided rural health clinic because of cannot sufficient for the patients. So, It should be opened 24-hours clinic in the village. For this village should be made separate Village Library. The loans should be used really in working capital of households. According to above mention, it can be seen that socio-economic condition of concern with living standard.

References

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