

A Cost-effective Approach of Design and Implementation of an Enhanced Home Automation System

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Abstract: The various technological devices and systems, global system for mobile communication (GSM/BLUETOOTH) are believed as an efficient and fast enough technique that can perform efficient, real-time object identification and fast reporting that makes an easy access to a disabled person. In the production of goods and services, the need for human work will be reduced by the home automation whereas automation uses the control system information technology. This paper focuses on the automation control of a house or office as a result of which man-power is saved to some extent. An Arduino mega linked with GSM and Bluetooth is used to control the switching of home, office appliances from a particular surrounding distance. The Arduino mega has become so useful that different automated system can be performed with it. More specific to say that the home and office appliances can be controlled by the digital device very easily. Although one can log in to the system using remote connection by virtue of password protected Bluetooth connection, also can use an alternative manual option if he/she is not around any GSM network. Thus, it is easy to access from anywhere.

Keywords: Home Automation; Global System for Mobile; Wireless Communication

1.0 Introduction:

The principle motivation of this project is to propose a simplified but advanced automation system for controlling different home appliances as well as monitoring utility consumption such as power in a house or office. Firstly, in order to ensure convenience, a wireless control system has been

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preferred to its wired alternative which is better in terms of cost as well. Secondly, the system has been designed using GSM and Bluetooth modules in cooperation with Arduino microcontroller (Asadullah & Ullah, 2017). Thirdly, a switching mechanism has been applied to this prototype for the purpose of activating and deactivating electrical systems of various home appliances. In order to power up the modules, three direct current (DC) sources have been used. As the batteries are rechargeable, they can supply energy when in use and get charged when remaining idle. It is important to mention that this prototype facilitates home automation system to be deployed far away from the electricity grid line and offers remedy in case load-shading occurs frequently. Moreover, all of the equipment used are electronic in nature and the mechanical apparatus have been intentionally excluded since electronic components outperform mechanical alternatives in terms of switching speed and space efficiency. The prototype has been built using a few electronic components and thus it is not only simple to use but also cost-effective at the same time. Another key point is the components are capable of performing other tasks apart from the intended ones and hence the design of dedicated components only for this prototype will reduce the overall cost. Besides, GSM technology is capable of communicating wirelessly from a long distance. Thus, the prototype can be monitored and controlled remotely. The prototype is robust and its operation requires little or no consideration and so the maintenance cost is negligible. The access to the prototype is password protected which hinders illegitimate interruption to its operation. An incorporated kill switch can be activated in case any malfunction is observed. Such a system is beneficial to the elderly and disabled persons who can run the household by sitting on a sofa or lying on a bed. For example, they can switch on or off the lights, fans, start the water pump, open or close the door, watch television, listen to their favorite songs, and many more. Therefore, the proposed prototype is cost-effective, multipurpose, and handy (Alkar & Buhur, 2005).

For better readability, the manuscript is prepared in four sections. Along with the introduction stated in the first section, the working principle of this prototype has been specified in the second section and its implementation in the subsequent section. Finally, the entire manuscript has been summarized in the concluding section.

2.0 Methodology:

A GSM device is used for switching which sends SMS to the loads via a

digital device SMS option. Then the receiver receives the SMS of the signal given by the SMS directed switch. If no SMS is received, receiver sends a rejection message back to the SMS loads. Upon receiving the SMS, the receiver passed the signal to direct the signal to correct load as if someone is switching on or off the appliances. However, the connected load passed the signal to the switches of the correct load. Switches passed the signal on or off mode to the loads. And the loads get the signal to become on or off.

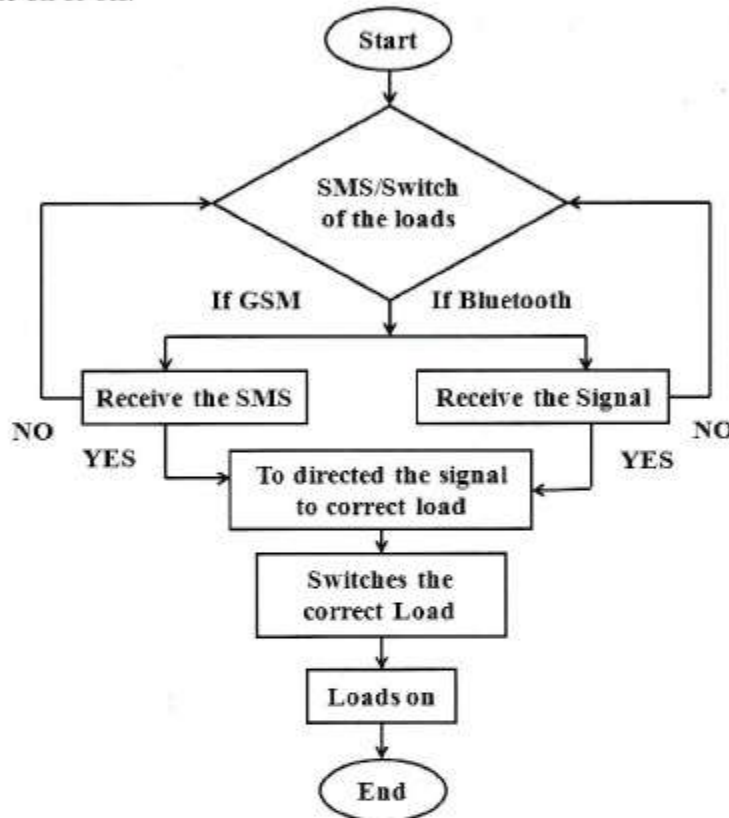


Figure 1: Flow chart of the proposed prototype

As GSM is SMS based and Bluetooth is apps based, thus for the switching of the appliances one has to log in into the Bluetooth apps connecting with the Bluetooth module and has to select the room in which appliances need to be on or off (Tan, Lee & Mok, 2007). The later steps of the execution are similar to the ones of GSM technology (Millman & Halkias 2003). Using GSM and Bluetooth is an intricate design which contains main modules connected together to have a complete home automation system to achieve this purpose each of these modules brought up of descript

component. These various modules consist of the power supply unit, the GSM modem unit, the Bluetooth unit, sensor unit, controller unit, and the switching unit. These different units cannot function alone, they all need to function together to achieve the desired result.

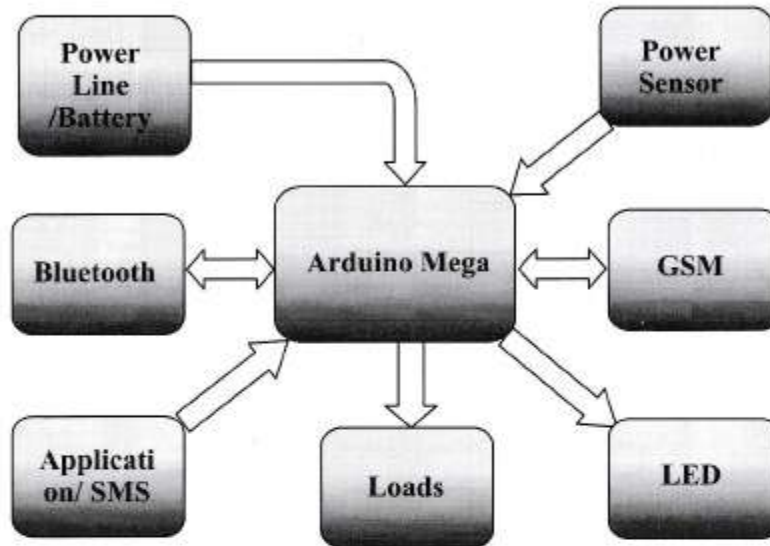


Figure 2: Block diagram of the proposed architecture

The GSM or Bluetooth received signal/SMS from the GSM or Bluetooth network as shown by the direction of the arrow in the diagram above and the Arduino for processing and outputting to the relevant component to act accordingly (Gaikwad & Kalshetty 2017).

3.0 Implementation:

This system has two dc batteries and adapter of 12V converted into 5V by the buck module for sensitive GSM to improve the system, if there is loadshedding so that the system still works. This system tested more than four times and GSM system works in low network range very well and from sending message, receiving a message and switching appliance are generated in between 2-3 sec whereas Bluetooth system switching generated in one-third of one sec. Table 1 contains the apparatus necessary for the implementation of this prototype.

Table-1: List of apparatus necessary for the Implantation of the proposed prototype.

Name of Components	Rating	Quantity	Cost (\$)
Arduino Mega 2560	6-20V, 20mA	1	9.375
Bluetooth HC-06	2.1mbps-160kbps	1	3.6875
GSM Modem SIM900A	12V DC, 2A	1	23.125
Buck Module	1.5-35V, 2A	1	3.6875
Voltage Sensor	0.25V DC	1	1.875
Current Sensor	5.0V, 10mA	1	3.25
Relay Module	DC 30V, 10A AC 250V, 10A	1	3.125
16*2 LED Display	4.7V-5.3V	1	1.725
10k Variable Pot	0.3W	1	0.3125
Solenoid Door Lock	9-12V DC, 0.6A	1	12.0625
10mm LED (White)	3-3.2V, 20mA	3	0.3
100ohm Resistor	$\pm 5\%$	3	0.1875
Nylon T Connector	110-220V, 50A	1	0.375
5V 2A DC Adaptor	90-264Vac, 0.1-4A	1	1.5
DC-12 Volt Battery	0.83A	1	22.5
2G SIM	56-236.8kb/s	1	1.5

Initially, by sending SMS or switching by android apps one can on or off light or fan and can close or open the door. Secondly, the reading of consumed power and energy can be observed on the display.

4.0 Conclusion:

As human life is dynamic, our daily activities are getting busier to keep abreast with the dynamics of the advancement in our civilization. Therefore, concentration should be given more upon our economic affairs than household activities. That is why home automation is essential in our day to day life which is the research question of this project. In contrast to the other notable works which have already been reported in the literature, the proposed prototype is simple, cost-effective, efficient, and robust at the same time. Besides, it can be controlled from a long distance and it is suitable for both elderly and disabled persons. In brief, these are the contribution of this proposal.

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Impact of Governance on Foreign Trade and Investment: A Global Perspective

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Abstract: *The purpose of the study is to analyze the effects of governance and its elements on global trade and investment. In order to conduct the study, the partial least square-structural equation modeling method was used on data from 94 countries. Governance and four of its indicator, specifically the government effectiveness, regulatory control, control of corruption and rule of law demonstrated a significant positive impact on foreign trade and investment. On the other hand, the political stability and voice and accountability factors demonstrated an insignificant influence on foreign trade and investment. Remarkably, the political dimension of governance is found highly correlated with the government effectiveness, regulatory control, control of corruption and rule of law. Thus, it creates a chance of having an indirect relation with the foreign trade and investment.*

Keywords: Governance; International Trade and Investment; World Governance Indicator

1.0 Introduction

Foreign trade and investment is critical because it leads to effective use of local resources. As a result, global organizations, like WTO or World Bank, try to motivate nations around the world to facilitate globalization, where the foreign trade and investment faces minimal restriction and maximum support from the governments. Rugman et al. (2006) termed foreign trade as the interchange of goods and services across country borders and foreign investment as the equity capitals invested by other countries. Many forces are there to influence the foreign trade and investment, but the governance of nations is the base which can either support or restrict for globalization. Earlier investigations assessed the impact of governance using six factors; voice & accountability, political

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stability, governance effectiveness, regulatory quality, rule of law, and control of corruption; to measure the governance as proposed by World Bank, (Suntharalingam and Hassan 2016, Berden, Bergstrand and Etten 2014, Abounoori 2005). Governance plays an important role in developing economy of nations. The concept is used by World Bank to assess the authority used in a nation (Kaufmann, Kraay and Mastruzzi 2011).

2.0 Review of Literature

The impact of governance on foreign trade and investment varies as both of the factors are constituted by dimensions which are also diversified in nature. As evident from the study of Berden et al. (2014), voice and accountability decreases trade and FDI levels but increases the chance of FDI inflows. Contrary, political stability decreases trade but increase the chance of FDI. According to this study, only the regulatory control has a positive impact on all the dimensions of globalization.

Groot et al. (2005) found that investing in good governance is critical in order to exploit the benefits of international trade. In another study conducted in western Balkan countries found no significant reliance of governance indicators on economic growth (Pere 2015).

Corruption, a critical dimension of governance, found to be discouraging trade in majority of countries (Torrez 2002). Even effects of inadequate institutions toward trade can be as damaging as of tariffs (Anderson 2002). Trade liberalization influences the severity of environmental policy depending on the level of corruption (Damania 2003). The relationship among corruption, trade intensity and country size may show a weak correlation depending on samples (Knack 2003). Trade faces multidimensional impact from corruption (Thede 2012). Openness to trade with complementary factors of high bureaucracy quality and financial reforms can reduce corruption (Majeed 2014). Local corruption has a negative influence on the exporters. On the other hand, corruption in the trade partners' country has a positive influence on the importers (Roy 2014). Another study on EU and MENA nations found that corruption adversely affects trade flows (Ali 2015). Nations with less corruption tends to be economically developed and are among the highest trading nations (McCann 2015). In some conditions free trade may leads to less corruption (Mohtadi 2015). Trade openness has insignificant effect on corruption which was evident in a study conducted on developing countries (Mukherjee 2016). A study comparing developing and developed countries, found that less corruption is related to high trade

volume and corruption affects the trade of developing countries more than the developed ones (Wang 2018).

Political stability extremely influences the economic growth of a countries regardless the stage of democracy (Abeyasinghe 2004). In another study on developing countries found that free trade improves the level of political stability (Bussmann 2006). A study conducted on Kenya shows that political insecurity and instability can hamper country's export potentiality (Muhammad 2011). Political stability plays a vital role in accelerating economic growth more than economic freedom (Younis 2008). Political stability is the most influential factor in accelerating FDI among other factors like- GDP, trade openness, and inflation rate . Political stability intensively and extensively improves trade openness (Grechyna 2017). A study on BRICS nations shows that political stability along with trade openness has a significant effect on FDI while corruption shows an insignificant effect (Abdella 2018).

Institutional quality of both importer and exporter nations rises the quantity of bilateral trade (Linders 2005). One study analyzing the effects on bilateral trade by institutional quality, found a positive impact of institutional quality on bilateral trade (H. L. Groot 2003). Institutional conditions in host country and difference between exporting and importing nations are significant elements for bilateral trade (Álvarez I. C. 2018).

The rule of law and trust over the trade partners works as substitute because the effect of trust on trade depends on the quality of rule of law (Yu 2015). Influence of rule of law on economic growth is relevant in case of developed countries but this relation is not relevant in developing and least developed countries (Ozpolat 2016).

3.0 Importance of the Study

- ▲ The key contribution of the paper is that it will recognize the significance of governance in developing international trade and investment of a nation.
- ▲ Furthermore, the paper will explore the influence, the determinants of governance has over foreign trade and investment.
- ▲ In consequence, it will let us identify the most critical forces among these determinants for international trade and investment and will help government to formulate a better policy to govern the investment and trade climate.

4.0 Statement of the Problem

Most of the studies on trade and investment focused on the bilateral dealings and a few studies were attentive to explore the impact of governance on foreign trade and investment. Moreover, studies assessing the governance either did not concentrated on the overall impact of governance or did not cover all the determinant factors of governance. Therefore, questions arise on how governance and the determinants of governance influence foreign trade and investment.

5.0 Objectives

The major purpose of this study is to evaluate the impact of governance on foreign trade and investment. More specifically, the impact of governance and its determinants on foreign trade and investment will be explored in this study. The specific objectives are given below:

- ▲ To evaluate the impact of governance on foreign trade and investment
- ▲ To assess the influence of political stability on foreign trade and investment
- ▲ To appraise the relation between governments effectiveness and foreign trade and investment
- ▲ To review effect of regulatory control on foreign trade and investment
- ▲ To verify the influence of control of corruption on foreign trade and investment
- ▲ To assess the effect of rule of law on foreign trade and investment
- ▲ To check the impact of voice and accountability on foreign trade and investment

6.0 Hypotheses

The above discussion over the studies conducted on governance and/or foreign trade and investment, it is obvious that governance is a critical factor that influences foreign trade and investments. But most of the previous studies mainly focused on some particular dimensions of governance, like- corruption, political stability, regulation and rule of law, while leaving a side dimensions like- government effectiveness and voice & accountability. A few studies covered several factors of governance, but still did not cover all the dimensions. In this study, the impact of governance including the six dimensions constituting governance on foreign trade and investment will be assessed. Therefore, the following hypotheses are formed to conduct the study:

H1: Governance has a significant positive relation with foreign trade and investment

H2: Political stability has a significant positive relation with foreign trade and investment

H3: Government effectiveness has a significant positive relation with foreign trade and investment

H4: Regulatory control has a significant positive relation with foreign trade and investment

H5: Control of corruption has a significant positive relation with foreign trade and investment

H6: Rule of law has a significant positive relation with foreign trade and investment

H7: Voice and accountability has a significant positive relation with foreign trade and investment

7.0 Research Methodology

The study used Partial Least Square Structural Equation Model path analysis for testing the reflective model (Ringle, Götz, et al. 2009, Hair, Henseler, et al. 2014). The hypotheses were tested using the Smart PLS 3.2 software package (Ringle and Wende 2015). Partial Least Square Structural Equation Model path method utilizing nonparametric bootstrap was used for the path analyses. Latan and Noonan (2017) suggested 4999 subsamples for Smart PLS bootstrap; hence in this study 5000 sub samples were taken. As suggested by Hair et. al. (2019), a number previous studies have used the technique for analyzing secondary data analysis (Becker and Ismail 2016, Buitrago, Caraballo and Roldán 2019).

7.1 Sample and Procedure

In total data of 94 countries around the world were used as sample for the study and secondary data from World Bank and WTO were used to conduct the research. As shown in appendix, the mean values of Data from 1996 to 2017 were used to measure the each variable.

7.2 Measures

The dependent variable, foreign trade and investment (GLOB) covers international bilateral trade, which includes service and merchandize export and import; also covers International investment containing net difference between annual foreign direct investment outflows and inflows. It is measured based on five reflective indicators- Annual merchandise export (Y1), Annual merchandise import (Y2), Annual service export

(Y3), Annual service import (Y4), Annual foreign direct investment (FDI) net flow (Y5). Berden et al. used FDI and international trade as an indicator for foreign trade and investment. In this study, the annual service and merchandise export and import including net flows of FDI from World Trade Organization were used to determine foreign trade and investment. In Partial Least Square Structural Equation Model, a construct like foreign trade and investment (GLOB) is measured using the normalized indicator; with a mean of '0' and standard deviation of '1'. Garson and Henseler et. al. explained the following four steps process, which is used in this study to measure foreign trade and investment (GLOB) and governance (GOV) construct: "1) Construct variable scores are given initial approximations based on equally weighted indicator scores. 2) Initial weights are assigned to the structural (inner) paths connecting the latent variables using a path weighting scheme based on regression, to maximize the R-squared of each endogenous latent variable. 3) The structural (inner) weights are used to adjust the estimates of the latent variable scores. 4) The measurement (outer) weights connecting the latent variables to their indicator variables are estimated with arrows going from the latent variable to the indicator variables, measurement path weights are based on the covariance's between the estimate of the latent variable and the indicator variable as the model is reflective." These constructs were automatically measured by the Smart PLS software package by the above mentioned process, when the model was tested. The World Bank supported Worldwide Governance Indicators (WGI) was used to determine governance. Here, Governance (GOV) has six dimensions- Political stability (X1), Government effectiveness (X2), Regulatory control (X3), Control of corruption (X4), Rule of law (X5), Voice and accountability (X6). The PLS path analysis model to be studied is depicted in fig. 1. Nevertheless, the PLS regression models are given in the following sections.

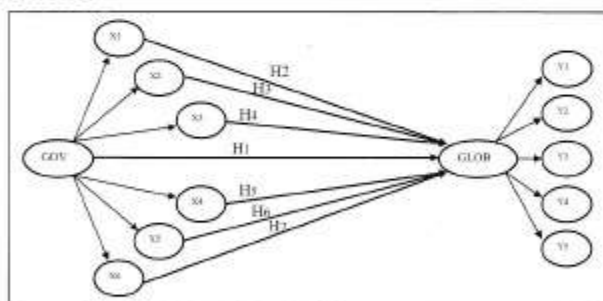


Figure 1: Hypothesized model. Bold arrows represent hypothesized paths.

Primarily, this study assessed a model constituting one independent-governance (GOV) and one dependent variable- foreign trade and investment (GLOB).The PLS Regression model can be represented as:

$$GLOB_{nj} = \sum \beta_i GOV_{ni} + \varepsilon_{nj} \quad (1)$$

Where, GOV_i is governance explanatory variable and $GLOB_j$ is foreign trade and investment dependent variable. β_i is the partial regression coefficient.

Later, the model took the six dimensions of governance as independent variable to assess their impact on foreign trade and investment. The PLS Regression models can be represented as:

$$GLOB_{nj} = \sum \beta_i X1_{ni} + \varepsilon_{nj} \quad (2)$$

Where, $X1_i$ is political stability explanatory variable and $GLOB_j$ is foreign trade and investment dependent variable. β_i is the partial regression coefficient.

$$GLOB_{nj} = \sum \beta_i X2_{ni} + \varepsilon_{nj} \quad (3)$$

Where, $X2_i$ is government effectiveness explanatory variable and $GLOB_j$ is foreign trade and investment dependent variable. β_i is the partial regression coefficient.

$$GLOB_{nj} = \sum \beta_i X3_{ni} + \varepsilon_{nj} \quad (4)$$

Where, $X3_i$ is regulatory control explanatory variable and $GLOB_j$ is foreign trade and investment dependent variable. β_i is the partial regression coefficient.

$$GLOB_{nj} = \sum \beta_i X4_{ni} + \varepsilon_{nj} \quad (5)$$

Where, $X4_i$ is control of corruption explanatory variable and $GLOB_j$ is foreign trade and investment dependent variable. β_i is the partial regression coefficient.

$$GLOB_{nj} = \sum \beta_i X5_{ni} + \varepsilon_{nj} \quad (6)$$

Where, $X5_i$ is rule of law explanatory variable and $GLOB_j$ is foreign trade and investment dependent variable. β_i is the partial regression coefficient.

$$GLOB_{nj} = \sum \beta_i X6_{ni} + \varepsilon_{nj} \quad (7)$$

Where, $X6_i$ is Voice and accountability variable and $GLOB_j$ is foreign trade and investment dependent variable. β_i is the partial regression coefficient.

8.0 Results and Discussion

8.1 Validity Check

The Normed-fit index (NFI) was used to justify the model. The model fit is seemed a good fit as the $NFI > .95$ (Hu and Bentler 1998, Bentler and Bonnet 1980, Latan and Noonan 2017). The composite reliability and the Cronbach's Alpha for both of the variables is above .80 as shown in Table 1 supporting construct reliability and validity (Chin 1998, Daskalakis and Mantas 2008, Henseler, Ringle and Sarstedt 2012, Hair, Ringle and Sarstedt 2017, Henseler, Hubona and Ray 2018). The Average Variance Extracted (AVE) value of above .5 provides an adequate support for convergent and divergent validity (Chin 1998, M. & Höck 2006, C. R. Höck 2010, Henseler, Hubona and Ray 2018, Hair, Ringle and Sarstedt 2017). Next, the discriminate validity was check by using the Fornell-Larcker Criterion in Table 1. As shown in the table, the upper value (Square root of AVE) is higher than the value (Correlation) below it, therefore, indicating discriminate validity (Garson 2016, Fornell and Larcker 1981).

Table- 1: Consistencies/ Reliability of the measurement Variables

Constructs	Cronbach's Alpha	Composite Reliability	AVE	HTMT	Fornell-Larcker Criterion		VIF
					Foreign trade and investment	Governance	
Foreign trade and investment	.880	.887	.634	.324	.796		1.00
Governance	.918	.948	.775		.364	.880	

Note. In Fornell-Larcker Criterion, the square root of AVE values is shown on the diagonal and printed in italics; non-diagonal elements are the latent variable correlations (LVC).

Even the Heterotrait-Monotrait Ratio (HTMT) value of below .90, supports the discriminate validity (Ringle and Wende 2015). The issue of multi co-linearity was verified by the Variance inflation factor (VIF) values, which is < 2.50 (Ringle, Wende, & Becker, 2014).

8.2 Tests of Hypotheses

In Table 2 the means, standard deviations and correlations for variables are specified. All the independent variables have a significant correlation with the dependent variable except the voice and accountability. Political

stability shows a significant and highly positive correlation with all other determinants of governance except voice and accountability.

Table 3 and Figure 2 can be observed to examine the hypotheses. The first hypothesis stated that governance of a nation significantly improves the state of its engagement with foreign trade and investment. This assumption is accepted since the path analysis between governance and foreign trade and investment shows a significant positive relation ($\beta = .36$; $t\text{-value}=4.24$). The ensuing hypotheses assumed significant and positive stimulus of the six determinant variables of governance toward foreign trade and investment.

Among these hypotheses, four hypotheses are accepted. The path analysis established that government effectiveness ($\beta = .39$; $t\text{-value}=4.96$), regulatory control ($\beta = .36$; $t\text{-value}=4.37$), control of corruption ($\beta = .37$; $t\text{-value}=4.45$) and rule of law ($\beta = .37$; $t\text{-value}=4.11$) have significant impact on foreign trade and investment.

Table- 2: Descriptive Statistics and Correlation

Variables	Mean	Std. Deviation	Pearson Correlation						
			GOV	X1	X2	X3	X4	X5	X6
Governance	0.1881	0.8491							
Political Stability	0.0024	0.9669	.88**						
Government Effectiveness	0.3680	0.9886	.97**	.82**					
Regulatory control	0.3521	0.9910	.96**	.81**	.96**				
Control of Corruption	0.2519	1.0825	.96**	.82**	.98**	.93**			
Rule of Law	0.2571	1.0388	.97**	.84**	.98**	.96**	.98**		
Voice and Accountability	-0.1029	0.9278	.32**	0.16	0.13	0.16	0.11	0.13	
Foreign trade and investment	3276140016	7317665885	.33**	.21*	.37**	.35**	.36**	.35**	0.04

Note. N=94; $p<0.10$; * $p<0.05$; ** $p<0.01$; *** $p<0.001$.(2-tailed).

Contrary, the hypothesis two and six are rejected as the path analysis outcome confirmed both political stability ($\beta = .30$; $t\text{-value}=1.53$) and voice and accountability ($\beta = -.16$; $t\text{-value}=.886$) have an insignificant relation with foreign trade and investment.

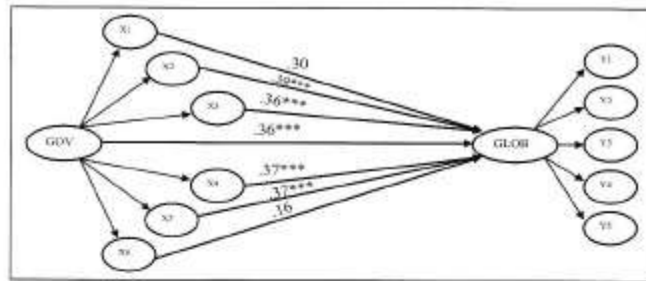


Figure 2: Tested Model

To further analyze the results, the f^2 values can be evaluated to verify the significance of the effects each exogenous variable have over the endogenous variable-Foreign trade and investment.

Table- 3: Path Analysis

Hypotheses	Path	Path Coef.	STDEV	t Value	Bootstrap Percentile	95% CI BC	Result
H1	Governance ->Foreign trade and investment	.36***	.086	4.24	.25	.55 .20 .49	Accepted
H2	Political Stability ->Foreign trade and investment	.30	.197	1.53	-.41	.46 -.46 .42	Rejected
H3	Government Effectiveness ->Foreign trade and investment	.39***	.078	4.96	.27	.57 .22 .52	Accepted
H4	Regulatory Control ->Foreign trade and investment	.36***	.081	4.37	.25	.54 .19 .49	Accepted
H5	Control of Corruption ->Foreign trade and investment	.37***	.082	4.45	.24	.56 .20 .50	Accepted
H6	Rule of Law ->Foreign trade and investment	.37***	.088	4.11	.24	.56 .19 .50	Accepted
H7	Voice and Accountability ->Foreign trade and investment	-.16	.182	.886	-.28	.26 -.35 .20	Rejected

Note. $p < 0.10$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$. CI=Confidence Interval. BC= Bias Corrected

From Table 4, the f^2 Values indicate that the effect of governance on trade is moderate. Whereas, among the dimensions; government effectiveness, regulatory control, control of corruption, rule of law have a moderate effect on foreign trade and investment, because of f^2 value $> .15$. But the effect of political stability and voice and accountability on foreign trade and investment determined to be weak as $f^2 < .15$ (Cohen 1988, Latan and Noonan 2017).

Table- 4: Significance of effect

Path	f ² Value	Effect size
Governance ->Foreign trade and investment	.15	Moderate
Political Stability ->Foreign trade and investment	.10	Weak
Government Effectiveness ->Foreign trade and investment	.18	Moderate
Regulatory Control->Foreign trade and investment	.15	Moderate
Control of Corruption->Foreign trade and investment	.16	Moderate
Rule of Law->Foreign trade and investment	.15	Moderate
Voice and Accountability->Foreign trade and investment	.03	Weak

The foreign trade and investment in a nation can definitely be improved by the governance of the nation. But the influence governance may have on them is moderate in nature. Besides, the determinant variables of governance demonstrated a varying influence on foreign trade and investment. As discussed earlier, the government effectiveness, regulatory control, control of corruption and rule of law dimensions validated a moderate positive influence on foreign trade and investment. However, the political stability showed an insignificant positive relation and voice and accountability showed an insignificant negative relation with foreign trade and investment. This means that all the dimensions of governance are not equally influential toward foreign trade and investment. Similar results were found in earlier research by Berden et al. (2014), where both political stability and voice and accountability found to be negatively affecting foreign trade. Political stability may not have a direct significant impact on foreign trade and investment but it has a significant positive correlation with the other four determinants which has significant impact on foreign trade and investment. Thus, it may have an indirect effect on foreign trade and investment.

9.0 Recommendations

The prevailing governance in countries is as important for its economic development as for its involvement in foreign trade and investment. Therefore, strong governance can lead to a better state in foreign trade and investment, which in turn will develop the economy of the nation. The findings of the study will contribute in several ways. First, it will guide the government to ensure better governance in order to flourish the foreign trade and investment. Second, government has to acknowledge the importance of governance in developing favorable environment for global trade and investment deals. Third, the policy making bodies will now understand which facets of the governance is beneficial for trade and

investment and which will guide them for effective policy development. Finally, the paper emphasized the significance of the government effectiveness, regulatory control, control of corruption and rule of law in developing foreign trade and investment. Similarly, the paper identified that political stability and voice and accountability have no direct significant relationship with foreign trade and investment.

10.0 Conclusion

The national governance is significant for the development of country's international trade and investment. However, all the elements of the governance are not equally critical to international trade and investment. Dimensions like- government effectiveness, regulatory control, control of corruption, rule of law; play an important role in development of international trade and investment. Remarkably, political stability and voice and accountability found out to be insignificant in developing international trade and investment. One limitation of the study is that the impact of governance and its determinants on the determinants of foreign trade and investment was not analyzed in the study. Moreover, the study did not analyzed whether the results were same for different categories of nations, like-developed, developing or least developed nations. Furthermore, if more nations can be included in the samples, the results could have been different.

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Earthquake Vulnerability Assessment: A Case Study of Sylhet City Corporation

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Abstract: Damaging of building due to high frequency of earthquake has been considered for determination of seismic vulnerability. The present work embodies the reports on the existing buildings and their essential outputs for their vulnerability assessment. Sylhet is a City at the north-eastern corner of Bangladesh which falls under the risky zone of the earthquake prone area. The vulnerability assessment of Sylhet City Corporation by Rapid Visual Screening (RVS) and Turkish Method was adopted to evaluate the seismic vulnerability of the existing two hundred thirty-three buildings within the study area. Comparisons of vulnerability affects in existing wards were that ward 2 is more vulnerable than these of wards 22 and 26.

Keywords: Earthquake; Vulnerability; Risk Zone; Performance Score

1.0 Introduction

Vulnerability is related with the occurrence of damage on constructions like buildings, bridges, highways etc. Building Vulnerability Assessment is very essential for different reasons such as to make sure the safety of the city during an earthquake, to minimize damages after an earthquake and to understand seismic performance.

Lots of researchers are engaged with the assignment of earthquake related issues. Badillo et al. (2017) worked on vulnerability and recovery time evaluation of an enhanced urban overpass foundation. Rhodes et al. (2019) considered liquefaction as a vital fact during earthquake and

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assessment of aging effects on soil liquefaction. Mondal et al. (2017) upholds acceptable performance of soil slope in seismic analysis.

Other parameters from RVS and modified Turkish method need to consider as a whole during earthquake vulnerability assessment. Bangladesh is surrounded by some seismic regions like Assam fault zone, Tripura fault zone, Sub Dauki fault zone and Bogra fault zone. Mazumder et al. (2011) describes as this country is one of the most earthquake prone countries in southern part of Asia, where Sylhet is the riskiest region to an earthquake as it is situated in Dauki fault zone.

Many of the earthquakes with high magnitude have taken place around Sylhet over the last few centuries. Report on Vulnerability Assessment of Dhaka, Chittagong and Sylhet City Corporation Area by CDMP, MoFDM and Peoples Republic of Bangladesh (2009) remarks that, over the past decades, urbanization in Sylhet has been rapidly taking place without proper guidance. Different types of buildings were constructed which can show different forms of nature during an earthquake. It is necessary to assess the building stock of Sylhet to understand the vulnerability of the city.

The application of Vulnerability assessment can be done at different scales. A significant number of studies have been done from place to place of the world in this field. Manohar et al. (2012) assessed earthquake vulnerability on buildings in Guwahati. Vulnerability assessment of buildings of Dhaka city is performed by Sadat et al. (2010). In Sylhet Ahmed et al. (2012) assessed earthquake vulnerability of schools and colleges. Seismic vulnerability assessment of existing building stocks at Chandgaon was done by Sarraz et al. (2015). In this paper, an attempt has been made to assess the building stock of Sylhet by Rapid Visual Screening and Turkish Method.

2.0 Objectives

- ▲ To check the vulnerability of buildings of Sylhet City Corporation.
- ▲ To make comparison graphs among the wards regarding earthquake related issues.

3.0 Study Area

Sylhet City Corporation composed of 27 public administrates. The city was changed to a municipal board to a city corporation in 2001. Ward 2, 22 and 26 of Sylhet City Corporation were selected as the study area.





4.0 Methodology

Two methods were used to assess the buildings namely R.V.S (Rapid Visual Screening) suggested by FEMA 154 (2002) in table 1 and Turkish Method by following the chart of table 2 which was described by Sucuoglu et al. (2003). R.V.S method was originally developed by the Applied Technology Council (ATC) in the late 1980's and published in 1988 in the FEMA 154 (2002). This method can be used to identify potentially hazardous buildings by using a data set.

4.1 Parameters for RVS method

- ▲ Occupancy
- ▲ Soil
- ▲ Falling hazards

Table- 1: RVS Procedure of evaluation

Occupancy				Soil Type						Falling Hazards					
Assembly Commercial Educ. Service	Govt. Historic Industrial	Office Residential School	Number of persons 0-10 11-100 101-1000 1000+	A	B	C	D	E	F						
				Hard Rock	Avg. Rock	Dense Soil	Stiff Soil	Soft Soil	Poor Soil	Unreinforced Chimneys	Parapets	Cladding	Other		
Basic Score, Modifiers and Final Score, S															
Building Type	W1	W2	S1 (MRF)	S2 (BR)	S3 (LM)	S4 (RC SW)	S5 (URM INF)	C1 (MRF)	C2 (SW)	C3 (URM INF)	PC1 (TU)	PC2	RM1 (FD)	RM2 (FD)	URM
Basic Score	4.4	3.8	2.8	3.0	3.2	2.8	2.0	2.5	2.8	1.6	2.6	2.4	2.8	2.8	1.8
Mid Rise (4 to 7 storeys)	N/A	N/A	+0.2	+0.4	N/A	+0.4	+0.4	+0.4	+0.4	+0.2	N/A	+0.2	+0.4	+0.4	0.0
High Rise (>7 storeys)	N/A	N/A	+0.6	+0.8	N/A	+0.8	+0.8	+0.6	+0.8	+0.3	N/A	+0.4	N/A	+0.4	N/A
Vertical Irregularity	-2.5	-2.0	-1.0	-1.5	N/A	-1.0	-1.0	-1.5	-1.0	-1.0	N/A	-1.0	-1.0	-1.0	-1.0
Plan Irregularity	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5
Pre Code	0.0	-1.0	-1.0	-0.8	-0.6	-0.8	-0.2	-1.2	-1.0	-0.2	-0.8	-0.8	-1.0	-0.8	-0.2
Post Benchmark	+2.4	+2.4	+1.4	+1.4	N/A	+1.6	N/A	+1.4	+2.4	N/A	+2.4	N/A	+2.8	+2.6	N/A
Soil type C	0.0	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4
Soil type D	0.0	-0.8	-0.6	-0.6	-0.6	-0.6	-0.4	-0.6	-0.6	-0.4	-0.6	-0.6	-0.6	-0.6	-0.6
Soil type E	0.0	-0.8	-1.2	-1.2	-1.0	-1.2	-0.8	-1.2	-0.8	-0.8	-0.4	-1.2	-0.4	-0.6	-0.8

Source: FEMA 154 (2002)

4.2 Parameters for Turkish method

- ▲ The number of stories above ground
- ▲ Presence of a Soft Story (Yes or No)
- ▲ Presence of heavy overhangs, such as balconies with concrete parapets (Yes or No)
- ▲ Apparent building quality (Good, Moderate or Poor)
- ▲ Pounding between adjacent buildings (Yes or No)
- ▲ Local soil conditions (Stiff or Soft)
- ▲ Topographic effects (Yes or No)

The results found from the methods have compared to understand the actual conditions of the study area. Seismic performance score PS in Turkish method is calculated by using Equation- 1 which was defined by Ahmed et al. (2012).

$$PS = (BS) - \sum VSM \times (VS) \quad (1)$$

BS = the base scores

VS = vulnerability scores

VSM = vulnerability score multiplies

Table- 2: Turkish Procedure of evaluation

Simple Survey Procedure (Turkish) for Risk Assessment of Concrete Buildings							
Table A Initial & Vulnerability Scores for Level I Survey of Concrete Buildings							
No. of Stories	Initial Score (on Soil Zoning)			Soft Storey	Heavy Overhang	Apparent Quality	Short Column
	60<PGV<80	40<PGV<60	20<PGV<40				
1,2	90	125	160	-5	-5	-5	-5
3	90	125	160	-10	-10	-10	-5
4	80	100	130	-10	-10	-10	-5
5	80	90	115	-15	-15	-15	-5
6,7	70	80	90	-15	-15	-15	-5
Table B Initial & Vulnerability Scores for Level II Survey of Concrete Buildings							
No. of Stories	Initial Score (on Soil Zoning)			Soft Storey	Heavy Overhang	Apparent Quality	Short Column
	60<PGV<80	40<PGV<60	20<PGV<40				
1,2	95	130	170	0	-5	-5	-5
3	90	125	160	-10	-5	-10	-5
4	90	115	145	-15	-10	-10	-5
5	90	105	130	-15	-15	-15	-5
6,7	80	90	105	-20	-15	-15	-5
Table B Contd. for Level II Survey							
No. of Stories	Pounding	Topography	Plan Irregularity	Redundancy	Strength Index		
1,2	0	0	0	0	-5		
3	-2	0	-2	0	-5		
4	-3	-2	-2	-5	-5		
5	-3	-2	-2	-10	-10		
6,7	-3	-2	-2	-10	-10		
Table C Vulnerability Parameters							
Soft Storey	No (0)		Yes (1)				
Heavy Overhang	No (0)		Yes (1)				
Apparent Quality	Good (0)		Moderate (1)		Poor (2)		
Short Column	No (0)		Yes (1)				
Pounding Effect	No (0)		Yes (1)				
Top ography Effect	No (0)		Yes (1)				
Plan Irregularity	No (0)		Yes (1)				
Redundancy	Redundant, R (0)		Semi-R (1)		Weakly-R (2)		
Strength Index	Strong (0)		Weak (1)				

Source: Sucuoglu et al. (2003)

5.0 Results and Discussions

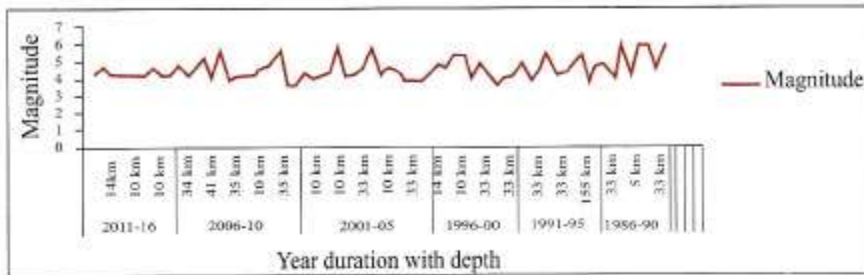


Figure 1: Magnitude and occurrence of Earthquake

Figure 1 shows magnitude and occurrence of Earthquake in Sylhet region from the year 1980-2016. Most of the cases magnitude lies in between 3 and 6 and very few above 7. Depth of the focus of earthquake is 10-40 kilometers most of the time. Data was taken from 1986 to 2016 (Source: List of EQ, Wikipedia).

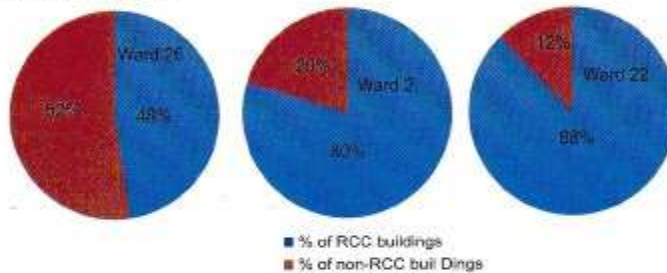


Figure 2: Comparison considering percentage of RCC buildings

Considering 233 samples, it is found that almost 80% of the buildings in ward 2 are RCC buildings while 48% for ward 26 and 88% for ward 22 in the figure 2.

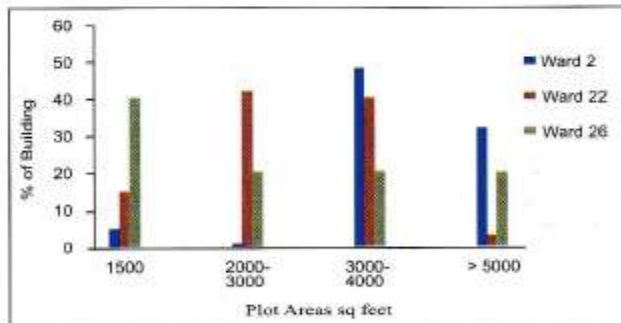


Figure 3: Comparison considering plot areas

In this figure most of buildings that has surveyed are in between 3000 to 4000 Sq. feet plot areas.

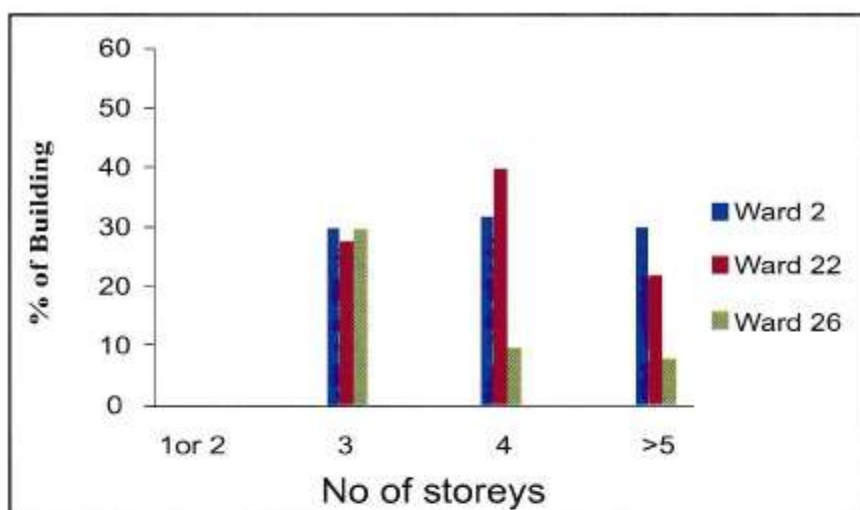


Figure 4: Comparison considering number of storeys

The above figure shows 50% of the buildings in ward 26 are 1 or 2 storeys and near about 30% are 3 storeys while around 10% are 4 and 5 storeys respectively. On the other hand, more than 40% of the buildings in word 22 are 4 storeys and near about 30% are 3 storeys while around 10% are 1 or 2 storeys and more than 20% are 5 storeys buildings in figure 4. More than 30% of the buildings in word 22 are 3 storeys and near about 10% are 1, 2 and 3 storeys respectively.

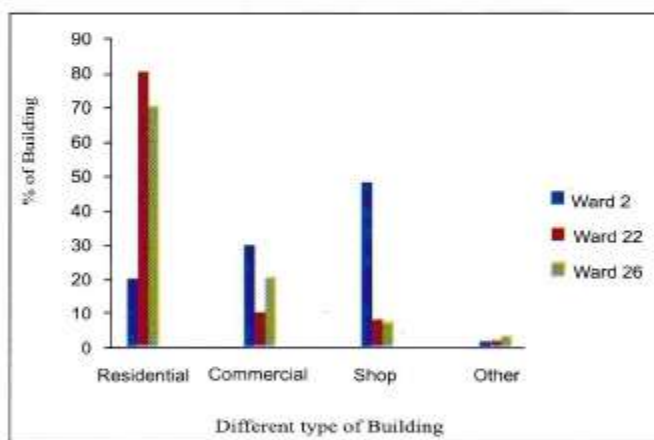


Figure 5: Comparison considering type of buildings

Ward 22 and 26 is residential as nearly 80% and 70% of the buildings are used in that purpose respectively while ward 2 is much more commercial with nearly 20% residential buildings in figure 5.

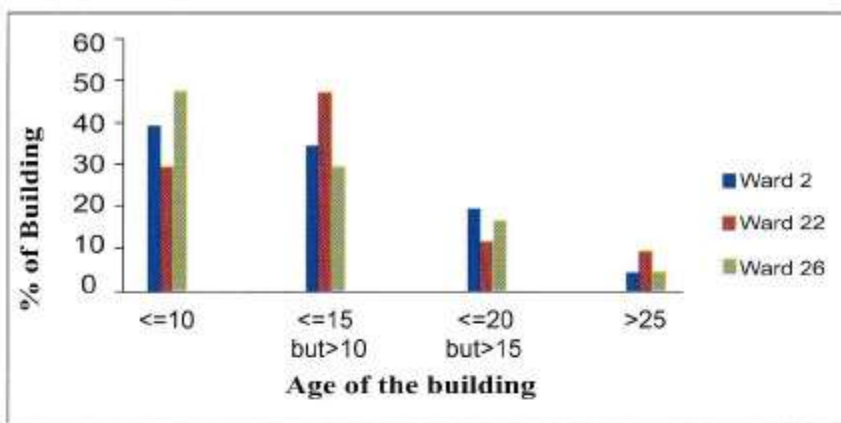


Figure 6: Comparison considering age of buildings

In figure 6, percentage of buildings that has built in different years are mostly RCC buildings from the year 2000.

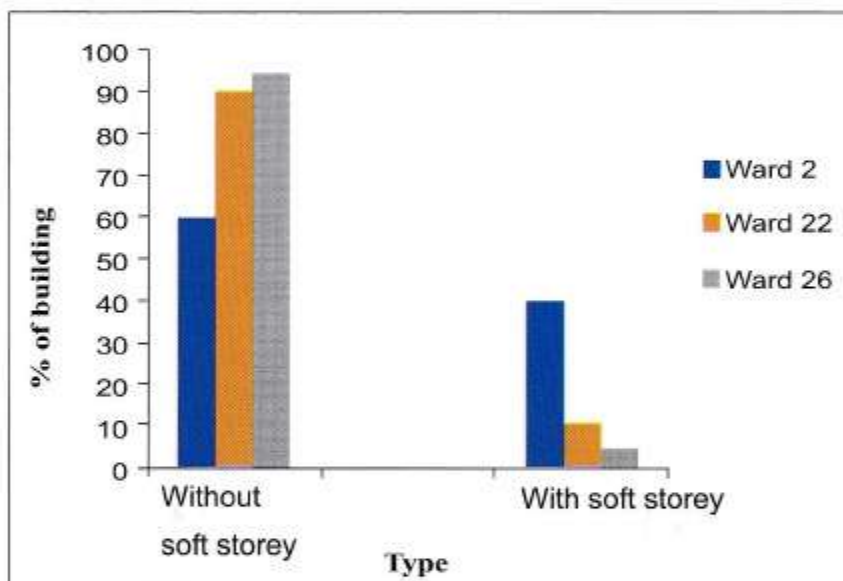


Figure 7: Comparison considering soft storey

Ward 2 has more buildings in percentage with soft storey which is considered as risky as vulnerable during earthquake.

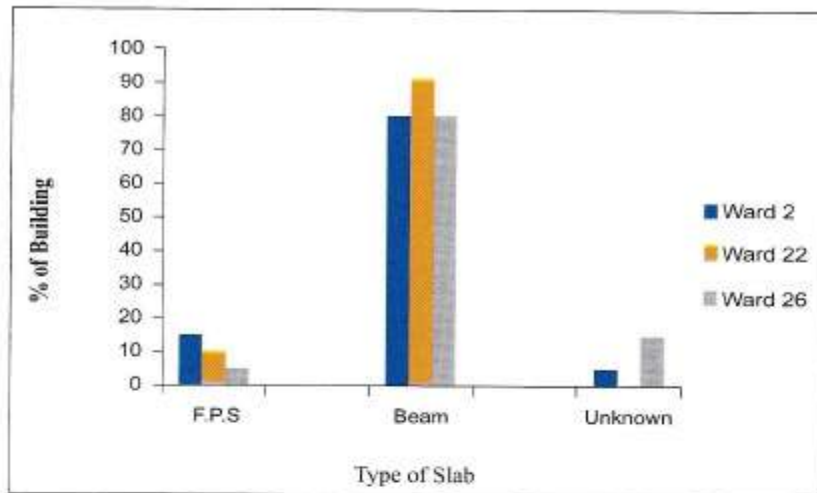


Figure 8: Comparison considering type of slab

Ward 2 gets all kind of slabs. Beam type slabs are less risky where F.P.S and unknown type of slab can be collapsed during an earthquake easily.

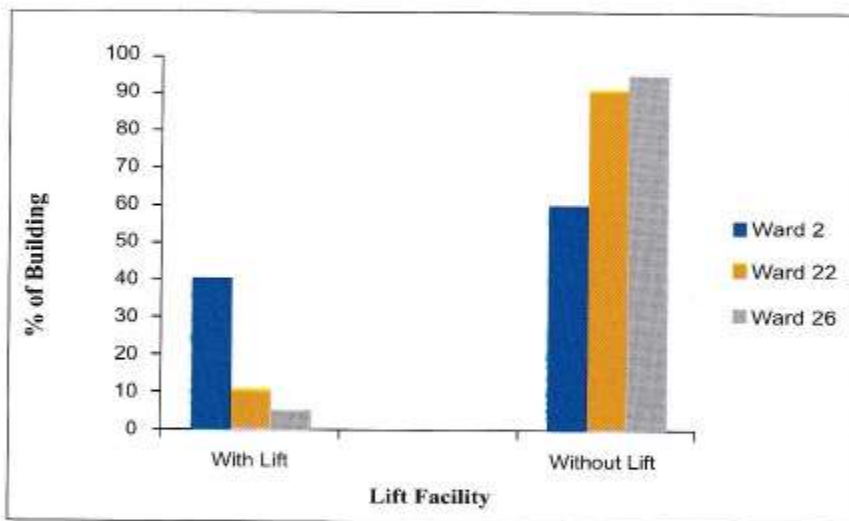


Figure 9: Comparison considering lift facilities

Ward 2 gets lift facilities more than ward 22 and 26.

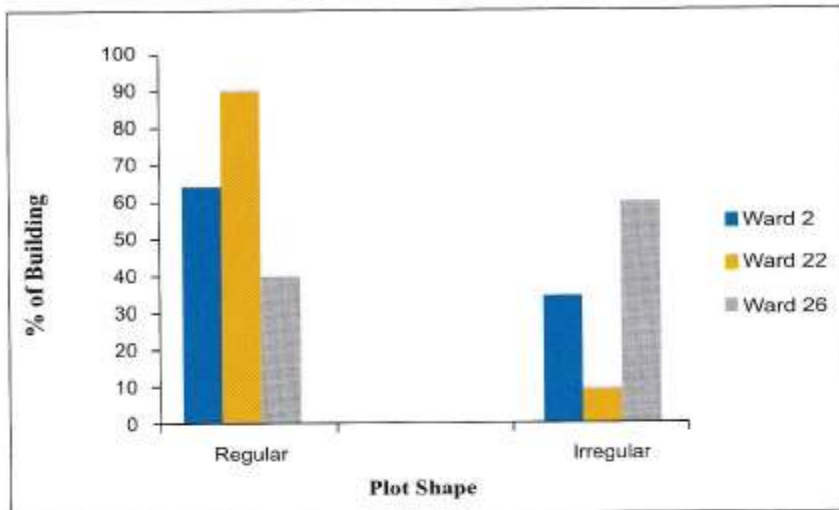


Figure 10: Comparison considering plot shape

Ward 26 has more irregular buildings in percentage than ward 2 and 22, but most of them are village home type. The surrounding areas of the buildings are also large which can minimize damages.

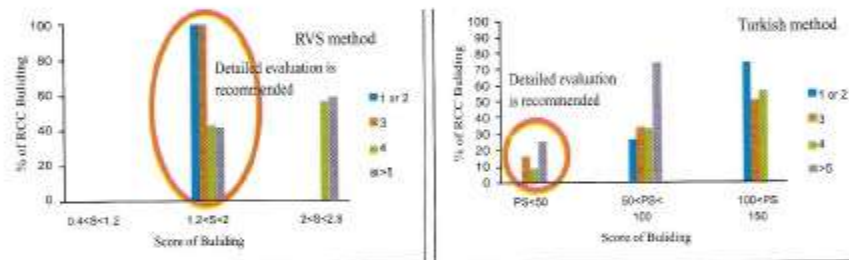


Figure 11: Performance Score

The performance score of building with different types of storeys has shown in figure 11. Buildings having a score >50 are considered to be safe in Turkish method and if the score is 2 or less, a detailed evaluation is recommended in RVS method (Sadat et al. 2010).

6.0 Conclusion

The rapid visual screening method in RVS format is used for rapidly screening and makes assessment of buildings in earthquake vulnerability and Turkish method is used to find the percent value of preliminary score to identify highest, moderate and low vulnerable RCC buildings in Sylhet City Corporation area. Performance score is evaluated from both RVS and Turkish method. Wards are compared by graphs. By considering all the analysis which was done from figure 1 to 11 it can be concluded by the followings:

- ▲ Ward 2 is more vulnerable than ward 22 and 26.
- ▲ 25 to 40% of the 5 or more storeys buildings of the study area need detailed evaluation.

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Paradoxical Parallelism of Robert Browning and W. B. Yeats: A Critical Study

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Abstract: Robert Browning and W. B. Yeats, representative poets of the Victorian and Modern Periods respectively, have crafted wonderful love poems in English literature. Both the poets' love poems cover the arena of greater human and spiritual love. Robert Browning presents lovers from different spheres of society and shows the intensity of love. It is evident that his personal love poems are written as a result of successful and happy love experience with the renowned poetess Elizabeth Barrett Browning. Even most of the lovers of Browning are shown defeated in his poems but hope helps them to remain alive. Conversely, W. B. Yeats goes through the experience of unrequited love for the revolutionary Maud Gonne throughout his life. This glumness in love has made him generate numerous romantic love poems. Fulfilling love of Browning and unfulfilling love of Yeats influence tremendously in their creation of love poems. Based on real feelings and attained different perspectives of love, the poets have generated love between man and woman with exterior colors. Browning's poetic expression in his love poems presents satisfied; sometimes queer; but intense love with hope. But, Yeats's love poems demonstrate sadness and frustrated love. The opposite features- fulfilling and unrequited love make the poets' situation paradoxical. Though they have gone through the opposite phenomena, they have crafted many immortal love poems each of which has its individual appeal for the readers. The poems of the poets have salient and individual literary trend-wise features; but their position as love poets run parallel. Paradox lies in the situation of the poets' subjective mode of experiencing opposite responses in love and in their poetic expressions. This paper focuses on paradoxical parallelism in treatment of love of both poets. This study analyzes some selected poems of both the poets to explore the paradox between the poets and what make their parallel position.

Keywords: Robert Browning; W. B. Yeats; Maud Gonne; Love; Unrequited Love

In the vast realm of literature, many poets have written love poems presenting lovers in various ways. English literature has got a number of passionate, intense and exquisite love poems. There are two prodigious

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love stories in English literary world. One is the rich and fulfilling love tie between Robert Browning and Elizabeth Barrett Browning; another is the unrequited and unfulfilling love of W. B. Yeats and Irish revolutionary Maud Gonne. Robert Browning is the prominent and diverse poet of Victorian Period. He has written both personal and dramatic love poems and has shown love from different dimensions. His lovers have varied love relationships. He is successful in his love in personal life but most of the lovers in his poems are splendid but defeated. One of the most celebrated Irish poets W. B. Yeats's major poems reflect Irish spirit and mysticism. But when he talks about love it is the mirroring of personal feelings and dejection in love. Gradual insightful love feelings of Yeats have deepened the creative zeal of producing love poems. Sadness and regret beget finest and everlasting expressions in the poetry of Yeats. In the poems of both poets, intensity of subjective reality has turned love to the position of eternity. According to *Oxford Advanced Learner's Dictionary of Current English* (2005) the meaning of paradox is "a person, thing or situation that has two opposite features and therefore seems strange"; (p.1101) parallelism refers, "the state of being similar; a similar feature". (p.1102) The situation of Browning and Yeats has opposite features seemingly strange but as renowned love poets they bear the state of being similar.

This paper purports to explore the approaches and subject matters of some love poems and to establish the poets' common and opposite features. This study considers the following questions to frame and focus on the objectives of the paper:

- What are the special features of the love poems of Browning and Yeats?
- What are the impacts of love in the personal lives of Browning and Yeats?
- Why is paradox executed in their love poems and how?

The general objective of this paper is to analyze the treatment of love between man and woman by Robert Browning and W. B. Yeats to show their parallel stand as love poets.

The specific objectives are:

- To examine the nature of love poems of Browning and Yeats;
- To show the impact of contrary autobiographical love responses in the poems of both the poets;
- To explore paradox and parallelism between the poets' treatment of love in their poems;

This paper is written analyzing the primary source that is the selected individual poem of Robert Browning and W.B. Yeats. To gather more information about the poets and the analysis of their works, many other secondary sources are conducted. Content based analysis has been presented after examining the approach of the poets and the nature of their poems. For analysis, Browning's poems "By the Fire-Side", "One Word More", "Love in a life", "Life in a love" "A Woman's Last Word", "The Last Ride Together", "Love Among the Ruins"; and Yeats's "The White Birds", "No Second Troy", "He Wishes for the Clothes of Heaven", "When You Are Old", "The Lover Tells of the Rose in His Heart" are discussed.

Blend of true feelings and creative imagination have shaped the love poems of the poets. The thorough intensity foreshadows the profundity of poetic expression.

Browning's love poems deal with passion that draws a man to a woman and vice versa. He has written both personal and dramatic love poems.

About his personal love affair William J. Long in his book *English Literature: Its History and its Significance for the Life of the English Speaking World* (2003) narrates:

..in 1846, he suddenly became famous,..., but because he eloped with the best known literary woman in England, Elizabeth Barrett, whose fame was for many years, both before and after her marriage...for years this lady had been an almost helpless invalid, and it seemed a quixotic thing when Browning, having failed to gain her family's consent to the marriage, carried her off romantically. Love and Italy proved better than her physicians, and for fifteen years Browning and his wife lived an ideally happy life in Pisa and in Florence.(p.472-73)

Browning passed very happy life with Elizabeth. The reflection of their happy conjugal life is found in the poems of both Browning and Elizabeth. Love poems of Browning deal with personal exalted emotions and deep love between Elizabeth and him. Many poems manifest romance between the lovers.

One of the very essences of Browning's best love poems is momentariness. "By the Fireside" is the exquisite love poem where the poet has presented the combination of strong, earthly, sensuous and spiritual life. It is the autobiographical love poem that manifests his satisfied and fulfilled love. Here the poet externalizes personal emotions and feelings resulted from the love affair. Very passionately he describes

the places in Italy that saw the growth of their love, sweet memories and images of his wife sitting by the fireside. He ponders over the blessings of love bestowed upon him. He exhibits calm and contented love in married life:

My perfect wife, my Leoner,
Oh heart, my own, oh eyes, mine too,
Whom else could I dare look backward for
With whom beside should I dare pursue
The path gray heads abhor? (Browning, "By the Fire-Side", L101-105)

He describes his love from earliest stage to the stage of maturity in love. He is not afraid of passing time and old age to come as he believes in the increase of love with the passage of time. He believes in the attainment of same satisfaction after this life in the next world: "So, earth has gained by one man the more, /And the gain of earth must be heaven's gain too." (L 261-62)

"One Word More" is an epilogue to the volume *Men and Women* (1855) that Browning dedicates to his beloved wife. In this poem the poet's intense love for Elizabeth has got insight. In this long poem the poet longs for the private existence of an artist apart from the public image of existence. He states that Dante has painted to honor his beloved Beatrice; Rafael creates hundred sonnets for his love. He also wishes to express his love and passion for his beloved in the same way with new colour. His offering of fifty poems dedicated to his beloved may seem inadequate, but this diverse expression is his only way to expose his love:

Let me speak this once in my true person,
Not as Lippo, Roland or Andrea,
Though the fruit of speech be just this sentence-
Pray you, look on these my men and women,
Take and keep my fifty poems finished;
Where my heart lies; let my brain lie also!
Poor the speech: be how I speak, for all things. (Robert Browning, "One Word More" L137-44)

W. B. Yeats is one of the prominent poets of twentieth century. He has created wonderful love poems resulting from his unrequited love for Irish revolutionary Maud Gonne, "She was a superbly beautiful woman with whom Yeats fell in love when he first met her at the age of twenty-three" (Jeffares, introduction. xiv). Maud Gonne devotes her life for the independence of Irish people from the oppression of Britain. Yeats is

rejected by Maud Gonne several times. Even after her breakup of the futile marriage with Major John MacBride, he tries to take another chance and she refuses him this time too. His best love poems emerge from his almost life-long futile pursuit of love and continuous pang.

In "The White Birds" the poet's passionate love inspires him to escape from the 'fading meteor', 'the rose and lily' and from the surroundings. He wants to be united with the beloved leaving the barriers. He appeals to the beloved to float like 'white birds on the foam of the sea'. Yeats writes this poem on the reaction of Gonne's wishes to be like a seagull once when they go for a walk along the cliffs. He interprets the wish of Gonne as the wish of getting freedom from sorrow and time. He romantically wishes to escape the social and political circumstances and be like the white birds,

For I would we were changed to white birds on the wandering foam: I and you! I am haunted by numberless islands, and many a Danaan shore, Where Time would surely forget us, and Sorrow come near us no more; Soon far from the rose and the lily, and fret of the flames would we be, Were we only white birds, my beloved, buoyed out on the foam of the sea! (Yeats, "The White Birds", L 8-12)

After the phase of colorful romantic love, Yeats starts to write about the resentment of one-sided love. Here we get the understanding of love in relation with its surroundings. The political situation and the role of Maud Gonne as a fierce revolutionary inspiring people to revolt for their freedom from the British and the poet's being rejected by her for final time indicate that the poem "No Second Troy" is written about Maud Gonne. With resentment he is accusing her indirectly for causing him distress in his devoted offer of love. He compares her with mythological Helen whose beauty was responsible for the burning of Troy. So in this poem the poet passionately accuses her for having devastating beauty that is cause of his misery in love and may cause political chaos. He prefers peace and does not want second Troy in Ireland from frontal attack and revolution inspired by Maud Gonne:

Why should I blame her that she filled my days
With misery, or that she would of late
Have taught to ignorant men most violent ways,
Or hurled the little streets upon the great,
Had they but courage equal to desire?
What could have made her peaceful with a mind
That nobleness made simple as a fire,
With beauty like a tightened bow, a kind

That is not natural in an age like this,
Being high and solitary and most stern?
Why, what could she have done, being what she is?
Was there another Troy for her to burn? (W.B. Yeats, "No Second Troy" L 1-12)

Both Robert Browning and W. B. Yeats experience the appeal of love in their lives. Though the matter of achievement is different in their individual cases, they both have profundity in their manifestation of love. Great poets have their own way of expression and diversity of subject matters which are found in the poems of above mentioned poets. Browning's love poems are dramatic in nature. In his love poems sometimes we get the expression of subjective love and sometimes the message of objective reality through the love affair of imaginary characters. Whatever the situation is in his dramatic love poems, he shows the triumph of true and pure love in the long run.

Browning celebrates both physical and spiritual aspects of love. He has shown love with its multidimensional facets; sometimes he has crossed the traditional dimension of love and presented unconventional lovers and their love. He deals with both successful and unsuccessful love in his poems. He projects various lovers but with profound and passionate love.

"A Woman's Last Word" is another poem about married couple. Here the wife is the speaker and implores her husband to stop argument for the sake of love. It is apparent that the couple was engaged in unpleasant argument about something. But for the realization that an continuous argument can destroy peace and relationship, the woman compromises and appeals her husband to stop for the sake of love:

Let's contend no more, Love,
Strive nor weep:
All be as before, Love,
Only sleep! (Browning, "A Woman's Last Word", L 1-4)

In the poems "Love in a life" and "Life in a Love", the poet very exquisitely presents the intense lover's continuous search for his beloved. In "Love in a life" the lover searches for the beloved in a house that is symbolic of the lover's quest for love. "Life in a Love" presents contradictory and complicated individual. Themes of fate and free will, transience and the ever-changing human psyche are manifested in the poem. The lover insists that if there is the possibility of her escape, he will never cease pursuit of her, "While I am I, and you are you, / So long as the

world contains us both/ Me the loving and you the loth". ("Life in a Love", L 4-6)

Same positivity echoes in "The Last Ride Together". The lover is already rejected, but granted with the last hope of riding together. He enjoys the riding in the happiest manner. The lover achieves the permission of last ride together with his beloved. He compares his achievement with the contribution of soldier, poet, statesman, and musician and with the sculptor. He shows his satisfaction by saying that in comparison with these contributors, his achievement is best:

There's many a crown for who can reach,
Ten lines, a statesman's life in each!
The flag stuck on a heap of bones,
A soldier's doing! what atones?
They scratch his name on the Abbey-stones.
My riding is better, by their leave.
(Browning, "The Last Ride Together", L 61-65)

He enjoys every moment of his ride overwhelmingly with satisfaction. In the midst of disappointment he finds out his consolation and glorifies failure.

I sink back shuddering from the quest.
Earth being so good, would heaven seem best?
Now, heaven and she are beyond this ride. (L 97-99)

Love is more valuable than all the valuable things happened or will happen in this world. "Love Among the Ruins" is such a poem where almost most of the lines talk about the ruin of a glorious ancient city. The shepherd lover's beloved is waiting and thinking about the glories, aspirations of the dead people. Browning has demonstrated that material and worldly aspiration, gain everything is destined to be demolished, but love persists,

O heart! oh blood that freezes, blood that burns!
Earth's returns
For whole centuries of folly, noise and sin!
Shut them in,
With their triumphs and their glories and the rest!
Love is best. (Browning, "Love Among the Ruins", L 79-84)

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narrates personal exalted emotion. In this poem we get the reflection of contended married life. "One Word More" is the expression of dedication to love. The need of compromise and sacrifice for love and happy relationship is exposed in "A Woman's Last Word"; dedicated lovers' eternal search for love is presented in "Love in a life" and "Life in a Love"; and the triumph of profound love above all worldly materials, hopes, fear and aspirations is seen in "Love Among the Ruins". In the poems, besides the expression of love, the message about the need of compromise, worldly hopes and fears are presented as objective reality.

The different phases of Yeats's love poetry evolve from different phases of his gaining love response. Yeats's early love poems are full of passion and enthusiasm. His mode of expression in love poems is almost lyrical. In different phases he exposes his attitude and mental condition towards love.

Along with the exposition of subjective feelings, objective truth finds expression in his matured phase.

The poem "He Wishes for the Clothes of Heaven" depicts the pursuit of romantic and passionate love of tender age. In the poem the appeal is like that of courtly love where the lover is ready to do anything for the beloved. He wants to spread 'heavens embroidered cloths' under the feet of his beloved to welcome her. But as he is poor and cannot manage that cloth, he does not get discouraged and not afraid of any challenge. He courageously welcomes her to 'tread on' his dreams:

HAD I the heavens' embroidered cloths,
Enwrought with golden and silver light,
The blue and the dim and the dark cloths
Of night and light and the half-light,
I would spread the cloths under your feet;
But I, being poor, have only my dreams;
I have spread my dreams under your feet;
Tread softly because you tread on my dreams.
(Yeats, "He Wishes for the Clothes of Heaven", L 1-8)

At the mature stage of his age and experience of being repeatedly rejected make him sometimes bitter. This time he does not talk about his love only, he related the picture of that time with feeling of love. Romantic fantasy of young love now turns to new pattern. In the poem "When You Are Old," the dejected lover tries to knock his desired beloved that when she will be old she will understand one eternal fact. That is though she had been loved by many in her youth but one loved her truly. She had rejected

his sincere love. Once she would feel that love and repent for it:

How many loved your moments of glad grace,
And loved your beauty with love false or true,
But one man loved the pilgrim soul in you,
And loved the sorrows of your changing face; (W.B. Yeats, "When You Are Old", L 5-7)

"The Lover Tells of the Rose in His Heart" focuses on the depth of love inside the heart of the poet. It presents the poet's love for beauty and disliking for ugly things of the world. The poem is the expression of a lover who has beautiful image of his beloved in his heart and that's why the unpleasant things are disturbing to him. He aspires to build the chaotic world newly in accordance with the beautiful picture of his beloved in his heart:

All things uncomely and broken, all things worn out and old,
The cry of a child by the roadway, the creak of a lumbering cart,
The heavy steps of the ploughman, splashing the wintry mould,
Are wronging your image that blossoms a rose in the deeps of my heart.
The wrong of unshapely things, is a wrong too great to be told;
I hunger to build them anew, and sit on a green knoll apart,
With the earth and the sky and the water, re-made like a casket of gold
For my dreams of your image that blossoms a rose in the deeps of my heart.
(W.B. Yeats, "The Lover Tells of the Rose in His Heart", L 1-8)

In the last phase of his poetic career, Yeats produces most matured poems. Dejected Love also haunts still, but with new understanding. The poem "Among School Children" hints at his reminiscence of past emotional love for Maud Gonne. At his age of sixty, he visits a convent school as a senator and recollects the image of Maud Gonne among the children: "And had that colour upon cheek or hair, / And thereupon my heart is driven wild: / She stands before me as a living child" (L 22-24). The purpose behind writing this poem was to make her immortal through his writing. Again he deals with young age and old age in this poem. He thinks everybody has to taste the old age however famous he or she is. Though old age and youth are contrasted, they are closely related.

This complicated feeling of Yeats's love results in forming expression of passionate love, sometimes of hatred and most of the times of the amalgam of both resentment and fervent love.

From the discussion of the above mentioned poems, some common and opposite aspects of handling love by Browning and Yeats come out.

The most prominent paradox lies in their subjective experience of love; one is successful and another is unsuccessful. The love poems of both poets have different poetic expressions, themes and approaches. Browning's love poems are written in dramatic monologue or as dramatic lyric. Browning's poems reveal varieties of love relationship. Yeats' love poems are short and almost lyrical and the love poems express his various mood regarding love. Browning has dedicated the volume of fifty poems of *Men and Women* for the expression of his prodigious love for Elizabeth and he has immortalized pure love creating varied lovers. Yeats's has written different phases of his love feelings; sometimes it is romantic but most of the time it is bitter and gloomy.

John Peck and Coyle Martin in their *Palgrave Key Concepts: Literary Terms and Criticism* (2002) show that there are two main approaches to think about poetry. They opine, "One approach is to concentrate on the poet. Underlying this approach very often is the idea that poetry is primarily an expression of the poet's emotions" (p.14). Browning's fulfilling love has sublimated his being and poetic genius. Love heightens his optimism. He has created varieties of situations and placed the lovers respond to that but hope is always there. In some poems the lovers are rejected or defeated but they replenish their hope for future success. Thus the inner souls of the lovers reveal themselves in the mind's eyes of the reader. They do not dive into the ocean of frustration; rather they glorify failure. Theme of love over time and death is manifested by Browning.

Yeats has shown his intensity of love through his love poems. Other than some of his earlier pure romantic poems of exalted emotions, most of the love poems are poignant and sometimes harsh in tone as he has been rejected repeatedly. Yeats's love experience is paradoxically frustrating and again fulfilling. In personal life he has not got his beloved but she is alive in his creation. Unrequited love has given Yeats romantic and legendary power of creating love poems. He depicts his inner world and the world around him.

The critical analysis of the selected above mentioned poems brings out some parallel and divergent findings between Robert Browning and W. B. Yeats. In spite of having opposite aspects in their affairs of love and in handling of love in poems, some features they possess similar. Their perspective regarding love emerges from deep feelings of subjective love. Though the poets do not belong to Romantic Age, Yeats's many of the poems and Browning's some poems possess romantic characteristics like

the use of intense imagination, description of nature, escapism and subjective depth of emotion. The poems of both poets evolve from subjective intensity and also reflect in objective reality. The creation of love poems has brought Browning and Yeats in illuminating status as poets. Though there is paradoxical situation in their belonging to different ages in subjective experiences, poetic style and expression of love, the parallel position is upheld by the profundity in feelings and emotions as well as by artistic creativeness in their poetry.

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