

## **Key Factors of TQM Implementation in the Textile and RMG Industry: A Study of Some Textile and RMG Companies of Bangladesh**

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**Abstract:** *The purpose of this paper is to identify key factors of total quality management (TQM) implementation of Textile and RMG industry. Textile and RMG Industry is an important sector for Bangladesh in terms of industrial expansion of the country, earning foreign currency and creating job opportunities. However, it faces subtle problems due to labor unrest, political instability and owner's ignorance. TQM is an approach that focuses on customer satisfaction. Therefore, implementation of TQM is a challenging task. Through a self-administrative survey from 80 companies (160 managers) of textile and RMG industry in Bangladesh data have been collected. This paper identifies eight key factors of TQM implementation in the Textile and RMG Industry in Bangladesh. These are continuous development process, motivation techniques, quality based services, connect with everyone, effective production process, quality development techniques, excellence performance maintain strategy, and employee monitoring systems.*

**Keywords:** *Textile and RMG Industry, TQM, Key Factors, Implementation.*

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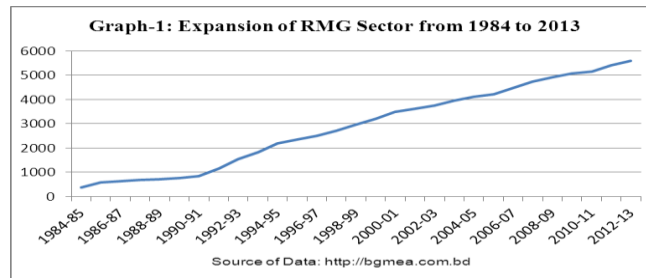
### **I. Introduction**

Likewise other industry textile and readymade garment (RMG) industry apply different business strategies to sustain the growth of this sector. Companies practice TQM to maintain the quality of products or services and attain the customer satisfaction (Islam & Haque, 2012, pp. 268). The concept of textile follows several steps like ginning of fibers, spinning of yarn, weaving of fabrics and operations like dyeing, processing, printing, finishing of the fabric and finally making of the readymade garments. Usually all these operational steps are taken together and described as a single industry sector. Sometimes, they are treated as two separate industries, the Textile and the Readymade Garments (manufacturing) industry. To accomplish a standard production, this sector demands skilled human resource and modern techniques. Produced readymade garments products have been exported to different countries facing a tough rivalry. Company has applied TQM to attain this challenge and fulfill customer requirements as well as accomplish the competitive advantage (Shahid Mehmood, Faisal Qadeer, & Aftab Ahmad, 2014, pp. 662-679).

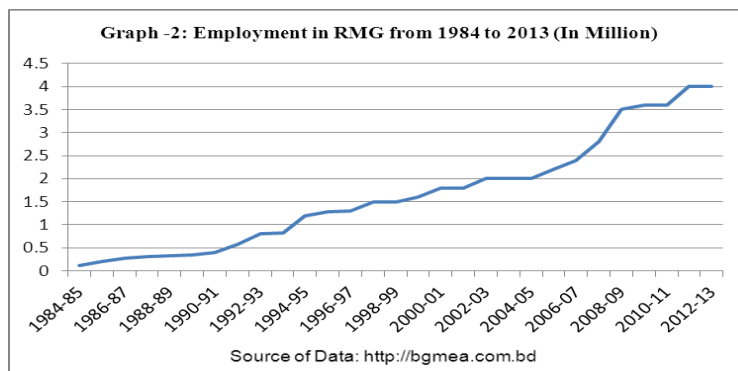
TQM helps companies to improve output as well as produce quality products or services. TQM means companies broad effort to realize quality. It reflects everyone (employee, customer, stakeholder etc.) in the organization to keep quality performance or production. In the TQM, customer is the center point. Company tries to implement TQM and driven it to the customer satisfaction (Rahman & Masud, 2011, pp. 01). Company practices TQM by continuous development of process and products for attain customer demands and also employee development (Alsuhaيمي, 2012, pp. 84). Company adopts technology to produce the excellence product and sustain customer wants. TQM is an effective mode to preserve and achieve company target by focus to customer.

### **Textile and RMG Industry in Bangladesh**

The significance of textile and RMG industry is expressed by the GATT Secretariat in 1994. It is stated that the most important export good of 88 developing countries is the textile and clothing products. Among the 88 developing countries Bangladesh is one of them. The economic importance of textile and RMG industry for a developing country like Bangladesh is well known all over the world.

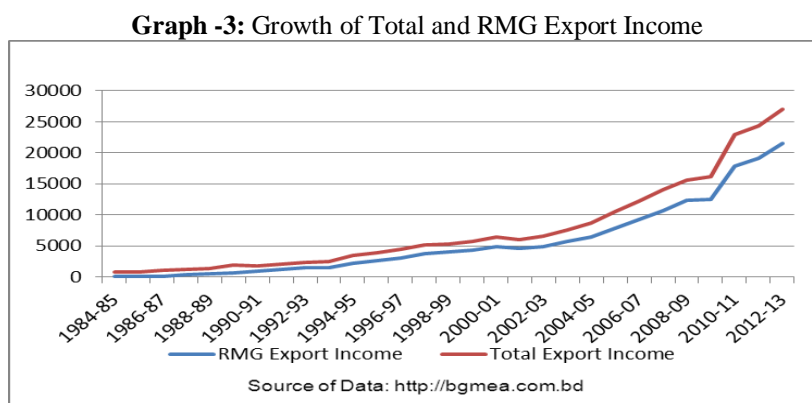


This sector is considered as the most profitable one by the business man and entrepreneurs. It had been growing very fast. By 1984-85 there were 384 companies were established and this sector employed a total of 0.12 million workers (Spinanger, 1987). In the same year US \$ 31.6 million was earned that contributed to 5% of the total national export earnings (<http://bgmea.com.bd>). But soon after the beginning it started to expand very quickly and steadily (Graph-1).



However, the sector faced some problems at the beginning of 1990s, otherwise it grew consistently. In 1999-2000, 3200 companies were flourished and 1.6 millions people were employed directly in the textile and RMG industry (Graph-2). The growth of Textile and RMG industry is continuing and in 2012-13 the number of companies rose to 5600. As a result it created a huge number of employment opportunities and reaches to 4 millions (<http://bgmea.com.bd>). The expansion of this sector proves the potential outcome and demand of this sector world wide and it may continue to expand decade’s long run. Considering the production volume this sector grew very fast. From 1999-00 to 2008-09 the growth was increased to 411.54%, that portrayed the annual growth of the sector of 45.73% and 2011-12 yearly growth of production was 1821.83 (million USD) (<http://bgmea.com.bd>).

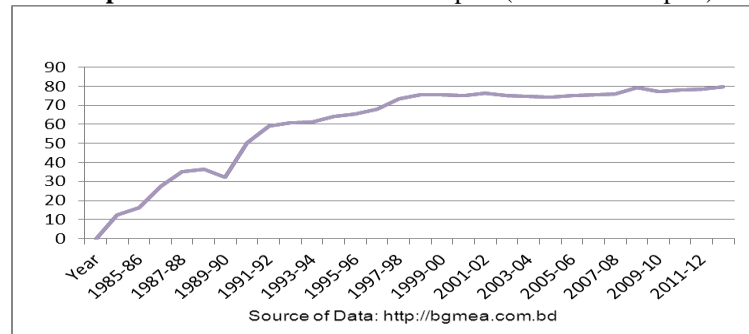
This sector earns a lot of foreign currency which is used for importing of capital goods, raw material and fabrics. It is essential for the industrial development of the country. If the growth of total export income and textile and RMG export income is compared between 1984-85 and 2012-13, the result surfaces that the both sectors are keeping increase quickly (Graph-3). Moreover, from the year of 2004-5 the trend of income in terms of total exports income. Textile and RMG export income are going upward almost sharply. The export income of this sector was only US \$ 116.2 million in 1984-



85, whereas only in next 6 years in 1990 it reached to US \$ 624.2 millions, which means a growth of 1975.3%. Following the expansion of export volume the export income of the country was continued in the following decades. However, in 20012-13 the RMG sector of Bangladesh earned US \$21515.73 million (<http://bgmea.com.bd>).

The share of RMG to total export shows that during the 1980s and 1990s the share of the RMG to the total export income increased very sharply. From the beginning of this century the share of the RMG sector to the total export income seemed to be stable.

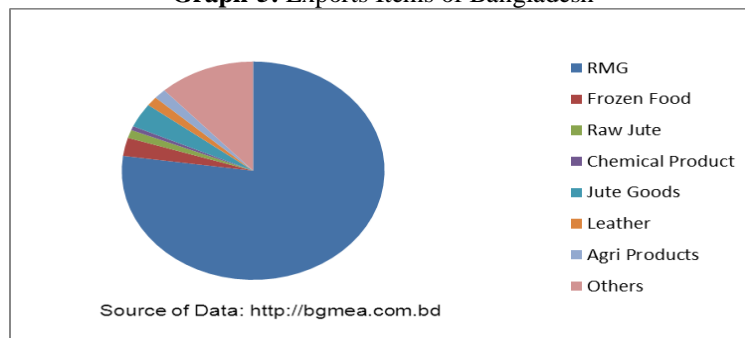
**Graph 4: Share of RMG to Total Export (% of Total Export)**



It does not mean that export income of this sector dropped, but other export items have been begun to play some role in this regard (Graph-4). It is evident that in 1984-85 only 12.44% of the total export income was earned by RMG, but in 2000-01 and 2012-13 its share to the total export income was almost 75.14% and 79.63% respectively (<http://bgmea.com.bd>).

Textile and RMG Industry is a labor intensive sector in Bangladesh. Labor in Bangladesh is cheaper than Hong Kong, India and China. Therefore, Hong Kong, India and China could not have a price advantage against Bangladesh. Bangladesh has exported RMG products 77.10% of total an exported item.

**Graph-5: Exports Items of Bangladesh**



Bangladesh holds all opportunities to expand its RMG sector exports (Graph 5). Assumptions can be made to develop this sector needed are (i) Bangladesh has to introduce variety of products, (ii) increase number of production and (iii) produce quality of products. However, all issues are correlated each other, but production requires less efforts and minimum costs to improve the quality itself.

## II. Literature Review

The word “quality” is derived from the Latin word ‘qualities’ which means the degree of superiority of an item (Oxford Dictionary, 2003:105). Murgatroyd and Morgan (1994) identify two different definitions of the word quality, one is ‘quality assurance’ and the other is ‘consumer-driven-quality’. “Quality assurance denotes to the determination of standards, appropriate methods and quality requirements by an expert body (employee), accompanied by an effective process to attain these standards”. “Consumer-driven quality denotes to notion of quality in which those who are to receive a product or service make explicit their expectations for this product or service and quality is defined in terms of meeting or exceeding the expectations of customers” (Murgatroyd and Morgan, 1994, pp.45-46). Quality perception is related with customer-driven perspective, which is a derivative of economic theories (Rahman & Masud, 2011, pp.02).

Total Quality Management (TQM), is a management tool that deals with improving total performance of something especially of organization. TQM surfaces organized Kaizen performances involving everyone in a

company-managers and workers- in a holistic systemic manner. It demands an integrated effort toward improving performance at every level of a company. It tries to increase customer satisfaction through nourishing such corporate cross-functional goals as quality, cost, scheduling, human resource development, and new product development (Albert Porter, 2011, pp. 20-23).

Total quality management comes from a ground that mistakes can be avoided if there appropriate and certain efforts/practices are given in appropriate areas. It attempts to keeping continuous improvement of all works from high level of strategic planning and decision-making to lower level that are directly related to production. This holistic approach of continuous improvement encompasses everybody and every function in the organization like administration, communications, manufacturing, planning, training, marketing, distribution, etc. It helps to nonstop improvement of capabilities of employee, processes of work, technology and machine. Although, at the beginning the total quality management is applied to manufacturing activities of all levels of workers, it is now considering as recognized and basic management tool. It is now appropriate for service, public sector and private companies. It talks on culture, attitude of a company. Customer evaluates the quality, which is a vital part of total quality management in any companies (Haque, 2004, pp. 1). Total quality consists of 3 qualities:

1. Quality of return that deals with the satisfaction of the needs of the shareholders,
2. Quality of products and services that deals with the satisfaction of the needs of the consumer and end user, and
3. Quality of life at work and outside work that deals with the satisfaction of the needs of the work people in the organization.

The term management comprises of planning, organizing, leading, directing, controlling, motivating, and assurance. Total Quality Management is a method through which management and employees become part of a continuous improvement process that leads a continuous enhancement of the production of goods and services. It is an amalgamation of quality and management tools and its objective is to increase business and reducing losses due to wasteful practices. This approach is mainly appropriate for management that originated in the 1950 and has become more popular tool since the early 1980's (O.port and G. Smith, 1995, pp. 55-56.).

Total quality might be achieved with the help of partners of the enterprise. In this regard socio-politico, economic, technological, and ecological responsibility of the enterprise have to be considered. Total quality management is used for satisfying the customer in terms of offering quality products and services. Total quality management deals with the philosophy of management that includes integrated managerial functions, production marketing, finance, and human resource management etc. to focus on meeting customer needs and organizational objectives (P.Sellers, 1989, pp. 38-42). Total quality management mainly focuses the highest priority on customer satisfaction and customer needs without defect and error free product or services. This concept also tries to improve and distinguish the product and service attributes to achieve the competitive advantage. (W.E. Deming, 1986, pp. 510).

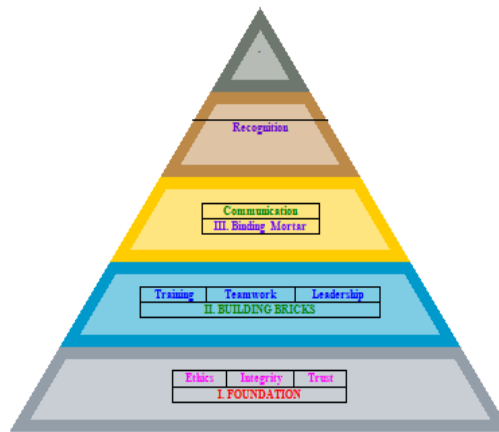
Total quality management is a way of life of a company that is run by top management. It demands commitment and personal involvement from top management in creating and organizing different quality values and goals. Furthermore, values and goals are kept in line with the objectives of the organization that creates a well defined systems and methods in the organization. These systems and methods lead to quality activities and encourage all employees to participate in producing good products in terms of quality and quantity. (Aries and J. Trout, 1982) & (Shahid Mehmood. et.al., 2014, pp. 662-679). Total quality management surfaces the continuous improvement of all operations and activities of the company. It recognises the customer satisfaction that can only be obtained by providing a high quality product and continuous improvement of the quality of the product. There is a strong link between product quality and customer satisfaction. Total quality management acknowledges that link. It also recognizes that product quality is the result of process quality. Therefore, it emphasises on continuous improvement of the organization's processes which leads to the development in process quality. However, its ultimate result is an improvement in product quality, and increase in customer satisfaction. Therefore, progress cycles are brought in place for all activities such as product development and the way customer relationships are managed. Different cycles like measurement cycle, monitoring cycle and responses cycle function as basis of improvements. (G.P. Pisano and S.C. Wheelwright, 1995, pp.93-105).

<sup>1</sup> Some of the companies who have implemented total quality management include Ford Motor Company, Phillips Semiconductor, SGL Carbon, Motorola and Toyota Motor Company

Total quality management is a statistical based approach that provides rational rather than emotional basis for decision making. Data collection and analysis requires the people who are in the best position, identify errors and take proper action to decrease costs and prevent non-conformance (Guptha.R.C., 1993). Total quality management is consisting of eight basic principles - ethics, integrity, trust, training, teamwork, leadership, recognition and communication which are divided into four groups: Foundation, Building Bricks, Binding Mortar, and Roof (Figure-1). The foundation is grounded on ethics, integrity and trust that nurtures openness,

fairness and sincerity and allows involvement by everyone (Joiner, 2007, pp. 617-627). Each principles of eight have specific roles in total quality management concept. For an example, ethics ensures organizational and individual ethics. Organizational ethics promotes the employees i performances of organization. Individual ethics include personal responsibility and rights for the success of the organization. (Sundara Raju, S.M., 2004, pp. 01-15)

On the foundation of ethics, integrity and trust building bricks of training, teamwork and leadership are set. Training improves the productivity of the employees and helps to introduce the philosophy of total quality management. It enables the employees to work within teams, solve problems, make decisions, analyse job performance, improve technical skills and enhance performance of the organization. Teams consist of small groups of workers who share tasks and responsibilities that work for one to two hours a week. With the use of teams, the business receives quicker and better solutions to problems. In total quality management organisations are structured in such a way that people in different departments work with each other to solve problems as a team. Such multifunctional teams lead to better understanding of all employees how the system works (K. Gana, 2004).



**Figure -1: 8 Key Elements in Four Group**

The function of leadership is to plan (drive, direct), employ (deploy, support, participate), check (review), and act (recognize, communicate, revise) the issues of total quality management (Pekar, 1995, pp.03-21). In total quality management leadership sticks to the following five management principles: commitment of the management, empowerment of the employee, making decision based on fact, continuous improvement of the process, and focus on the customer (S.Caminiti, 1989, pp. 43-44).

Recognition is made in different ways, places and time. It follows along with a personal letter from top management in the forms of banquets, plaques, trophies etc. Recognition is made in front of departments, on performance boards and also in front of top management. Recognition is given in staff meeting, annual award banquets, etc.

In the total quality management all the organization members, suppliers and customers are bound by building mortar of communication. The supervisors explain the employees the issues about total quality management, and the lower level employees provide critical suggestions to upper management. This builds trust between supervisors and employees and breaks down barriers between departments (P.Sellers, 1989, pp. 38-42). As people behave in the way they are appraised and remunerated, total quality management links recognition and remuneration of the teams as well as individuals to customer satisfaction metrics for both suggestions and achievements. The employees are constantly encouraged to take more responsibility, communicate more effectively, act more creatively, and to be innovative for quality improvement. On going training of the employees supports the drive for quality improvement. Recognition follows immediately after an action has been performed by a team or an employee. It is acknowledged that mistakes are made by people, but most of them are caused by faulty systems and processes. The root cause of such mistakes could be identified and repetition prevented by improving the process (C. Ron., 2003).

### **Objective of the Study**

As general objective the key factors of TQM implementation in the textile and RMG industry in Bangladesh will be surfaced in this article. To meet the general objective customer satisfaction through products or services, the role of the top management toward the subordinates, the attitude of the top management toward quality development, the important of team work and training of employee for quality improvement and the attitude of the organization toward continuous process improvement will be discussed in this paper.

### III. Methodology Of The Study

This research is used both secondary and primary sources of data and information. As secondary sources national and international standard publications, journals, government’s policy report, and websites of different writers from relevant themes have been studied and analyzed.

For the analysis of the primary data collected in a field survey, quantitative research methodology has been used that includes the usage of the analytical statistical tool, the ‘factor analysis’ with the help of the Statistical Package for Social Studies (SPSS). Factor analysis is a structure used for reduce number of factors from a large numbers of variables and summarization of data (Zikmund, Babin, et.al, 2012, pp. 649). I have used 16.00 SPSS version to analysis this research data. For the collection of primary data survey method is used. In this study 5-Point Likert Scale is used for each statement for obtaining the data from the respondents. Likert Scale is ranging from “strongly disagree” to “strongly agree” that is required the respondents to indicate a degree of agreement with each of a series of statements connected to the desired object (Malhotra K. Naresh, 2006, pp.258). For collection of the primary data about the usages of the tools of the total quality management in the export-oriented Textile and Remade Garment Companies questionnaire was prepared. Five questions are asked to respondents for demographics purpose and 26 questions (variables) are asked for to identify key factors or components of Total Quality Management implication in the Textile and RMG Industry. Respondents are asked to tick marks all those criterion that are they consider as a TQM factors.

I have considered 26 elements of TQM apply in the textile and RMG Industry. These as follows:

**Table 1: Factors that are considered for TQM implementation of Textile and RMG Industry**

Customer Satisfaction with Products or Services	Variables
CS1	Employees are careful about the overall satisfaction of customers with products or services.
CS2	Employees are careful about the satisfaction of customers with the performance of products or services.
CS3	Employees are careful about the satisfaction of customers with the features of products or services.
CS4	Employees are careful about the satisfaction of customers with the warranty system
CS5	Employees are careful about the satisfaction of customers with the pricing of products or services.
Attitude of the Top Management toward the Subordinates	Variables
AMS1	Top management controls the subordinates.
AMS2	Top management empowers the subordinates.
AMS3	Top management promotes trust within the subordinates.
AMS4	Top management encourages team effort among the employees.
AMS5	Top management recognizes competition of the employees.
Attitude of the Top Management toward Quality Development	Variables
AMQD1	Top management provides priority to the quality improvement goals.
AMQD2	Top management chooses suppliers on the basis of quality.
AMQD3	Top management chooses suppliers on the basis of price.
AMQD4	Top management provides importance to the employee for the achievement of the quality improvement goals.
AMQD5	Employee records the views of customers about the quality of products or services.
Attitude of the Company toward Team work and Training for Quality Improvement	Variables
ACTTQI1	Company promotes teamwork to achieve the quality improvement goals.
ACTTQI2	Company trains the employee to achieve the quality improvement goals.
ACTTQI3	Company rewards the employee to achieve the quality improvement goals.
Attitude of the Company toward Continuous Process Improvement	Variables
ACCPI1	Company eliminates waste whenever those occur.
ACCPI2	Company eliminates rework whenever those occur.
ACCPI3	Company improves process using measures life cycle time reduction.
ACCPI4	Company makes all process effective to anticipate the changing customer’s needs.
Attitude of the Company toward the role of Benchmarking for Continuous Process Improvement.	Variables
ACBCPI1	Company uses benchmarking to improve competitive advantage.
ACBCPI2	Employee provides innovate production process to improve competitive advantages.
ACBCPI3	Employee uses statistical tools to assess the performance of organization.
ACBCPI4	Employee incorporates lessons learned into organizational activities.

**Sample Design and Sample Size for the Study:** The target of this study population was general manager of Textile and Readymade Garments Companies. The sample includes Dhaka city’s 80 Textile and RMG companies and collecting 160 respondents. Textile and RMG companies have been selected by using purposive sampling technique. From each factory two general managers were selected as a respondent. 30 to 45 years old age limit and having more than 3 years job experience were considered as inclusion criteria for selecting the respondents. 160 self-administrator questionnaires have been used to collect the survey data because the sample size will be at least five times of the number of variables (Zikmund et.al, 2012).

**Problem Statement:** Entrance in the companies was a great challenge for the researcher. To solve this problem snow-ball strategy has been adopted. Another problem was that the respondents showed unwillingness and anxiety to give their time. By establishing a good rapport with the authority and respondents this problems have been solved.

**Reliability of Survey Data**

Cronbach’s coefficient alpha was used to test the reliability of the overall measuring instrument. Cronbach’s alpha range between 0 to 1: 0 means no internal reliability and 1 is as perfect internal reliability.

**Table 2: Cronbach’s Alpha Result of the TQM Factors**

Dimension	No. of Items	Cronbach's Alpha
Overall Scale	26	.899

The result point out that the TQM factor scale is reliable as the overall Cronbach’s alpha value is 0.899 (Table 2). Thus, survey result has high reliability and recommend for further study.

**Table 3: KMO and Bartlett's Test**

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.634
Bartlett’s Test of Sphericity	Approx. Chi-Square	3.522E3
	df.	325
	Sig.	.000

Kaiser Meyer Olkin (KMO) test is measured of sampling adequacy. This is used to study the appropriateness of factor analysis. The factor analysis is appropriated between 0.05 to 1.00. If the value is less than 0.50 that means this situation may not be suitable for factor analysis. In this study KMO test value is .634. Hence factor analysis is applicable for data assessment and evaluation. Bartlett’s test of Sphericity is used to check the hypothesis: the variables are uncorrelated in the population. In this case, Bartlett’s Test of Sphericity has the approximate Chi-Square score 3.522, degree of freedom score 325, and the level of significant is .000 (significant level<0.05) (Table 3). Therefore, all the points, null hypothesis are rejected and factor analysis is appropriate for assessment of data.

**Analysis and Interpretations**

Data have been analyzed through factor analysis process by Extraction Method: Principal Component using Varimax with Kaiser Normalization method.

**Table 4: Total Variance Explained**  
(Extraction Method: Principal Component Analysis)

Component	Initial Eigenvalues			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	8.332	32.045	32.045	3.947	15.182	15.182
2	2.972	11.430	43.475	3.601	13.848	29.030
3	2.169	8.342	51.816	2.874	11.055	40.084
4	1.791	6.889	58.706	2.521	9.695	49.780
5	1.577	6.064	64.770	2.445	9.404	59.184
6	1.431	5.504	70.274	2.309	8.880	68.064
7	1.249	4.805	75.079	1.583	6.087	74.151
8	1.060	4.078	79.157	1.301	5.006	79.157
9	.845	3.251	82.408			
10	.796	3.061	85.470			
11	.682	2.623	88.093			

12	.578	2.223	90.316			
13	.479	1.844	92.159			
14	.359	1.380	93.539			
15	.280	1.077	94.616			
16	.250	.962	95.578			
17	.219	.842	96.421			
18	.202	.775	97.196			
19	.194	.746	97.942			
20	.141	.540	98.482			
21	.110	.421	98.904			
22	.079	.302	99.206			
23	.074	.285	99.491			
24	.060	.230	99.721			
25	.047	.182	99.904			
26	.025	.096	100.000			

I have identified the principal components variance based on their Eigenvalue. In the initial factor solution, the first factor will account for most variance, and second will next highest variance. In this way, there are mentioned 08 components variance are more than 1. These 08 components or factors Eigenvalue near about similar and the cumulative variance percentage is 79.157 (Table 4). Hence, 08 components or factors are clarifying 79.157% variance in the 26 variables.

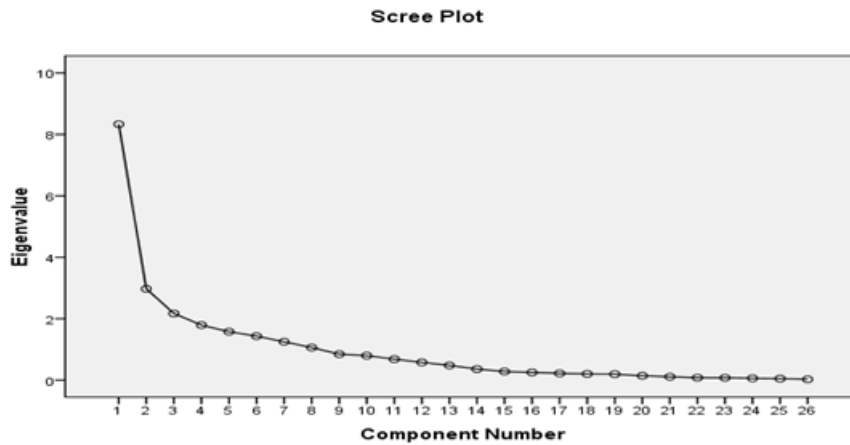


Figure 2: Scree Plot of Component of Factor Analysis

A Scree Plot is a plot of the Eigenvalue against the number of factors in order of extraction (Zikmund, et.al. 2012). This is a graphical representation of total variance based on principal component analysis. Here total 26 components variances are shown. The first 08 components or factors have Eigenvalue is >1 (Figure 2).

Table 5: Rotated Component Matrix

Variables	Component							
	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8
CS1	<b>.688</b>	.180	.227	.248	.351			
CS2	.427	.109		<b>.777</b>		.145		-.141
CS3	<b>.793</b>	.324					.256	.199
CS4	.595		<b>.614</b>	.250	.104	.108		
CS5	.356	.373	<b>.627</b>	.211			.117	
AMS1		.125	.115					<b>.888</b>
AMS2	.366	<b>.493</b>	-.227	.244	-.112	-.463	-.255	
AMS3				<b>.842</b>			.159	
AMS4	.335	.129	.349	.134	-.111		<b>.661</b>	.321
AMS5	<b>.693</b>			.252		.158	.114	-.281
AMQD1	.181	.158			.193	<b>.864</b>		



AMQD2	.180		.154	.144	-.444	<b>.676</b>	.194	-.136
AMQD3		-.103			-.395		<b>-.742</b>	
AMQD4	.211	<b>.781</b>	.312			.167	.171	
AMQD5		<b>.744</b>	.187		.351			.149
ACTTQI1		<b>.857</b>				.160	.282	.117
ACTTQI2		<b>.764</b>			.252	.173	-.235	
ACTTQI3	.253	.478	.121	.233	.221	<b>.611</b>		
ACCP11	.147	.394	.252			<b>.729</b>	.189	-.112
ACCP12	.199	.241		.108		<b>.838</b>	.242	.182
ACCP13	.152		<b>.774</b>	-.101		.198	-.129	.130
ACCP14	-.159		<b>.742</b>	.409	.183	.101	.203	
ACBCPI1	<b>.553</b>		.341	.311	.275	.183		.288
ACBCPI2		.117	.472	-.196		<b>.524</b>	-.153	.283
ACBCPI3	<b>.764</b>		.314			.398		
ACBCPI4	.515	.166		<b>.668</b>		.182		.167

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 11 iterations.

Rotating factors is an important output from factor analysis. The factor matrix is called the factor pattern matrix. The Varimax Procedure is an orthogonal system of factor rotation that minimizes the number of variables with high loadings on a factor, thus enhancing the interpretability of the factors (Zikmund, et. al., 2012).

Above table measures 08 components or factors of TQM. These are included in the TQM implementation in the Textile and RMG Industry in Bangladesh. Factor 1 has satisfaction of customers with products, satisfaction of customers with the features of products, competition of the employees, uses benchmarking and uses statistical tools. I have summarized that factor 1 is related to continuous development process.

Factor 2 includes top management empowers the subordinates, provides importance to the employees, records the views of customers, promotes team work, trains the employee and I have summarized that all the variables are focused by motivation techniques.

Factor 3 consists of satisfaction of customer with warranty systems, satisfaction of customer with the pricing of products, improves process using measures lifecycle time reduction, makes all process effective to anticipate the changing customer's needs. I have summarized the aforementioned qualities as the quality based services provided by the company.

Factor 4 has careful about the satisfaction of customer with the performance of products. Top management tries to promote trust within the subordinates and management incorporates lessons learned into business activities. I have summarized that factor 4 is connected with everyone (customer, employee, and stakeholder) of the company and try to satisfy them.

Factor 5 consists of company eliminates waste whenever those occur, company eliminates rework whenever those occur, company innovates production process to improve competitive advantage. I have summarized all the variables are focused by effective production process.

Factor 6 has top management provides priority to the quality improvement goals, top management chooses suppliers on the basis of quality, company rewards the employee for the achievement of the quality improvement goals of firm. I have summarized all variables as quality development technique.

Factor 7 includes top management encourages team effort among the employees and top management chooses suppliers on the basis of price. Team effort has positive value but top management select suppliers on the price basis has negative value. I have summarized that factor is related to excellence performance maintain strategy.

Factor 8 consists of top management controls the subordinates and has been summarized as employee monitoring systems.

**Table 6: There are eight key factors or components that are needed to implement TQM in the textile and RMG industry of Bangladesh. These are as follows:**

<b>Factor 1: Continuous Development Process</b>
CS1: Employees are careful about the overall satisfaction of customers with products or services.
CS3: Employees are careful about the satisfaction of customers with the features of products or services.
AMS5: Top management recognizes competition of the employees.
ACBCPI1: Company uses benchmarking to improve competitive advantage.
ACBCPI3: Employee uses statistical tools to assess the performance of organization.
<b>Factor 2: Motivation Techniques</b>
AMS2: Top management empowers the subordinates.
AMQD4: Top management provides importance to the employee for the achievement of the quality improvement goals.
AMQD5: Employee records the views of customers about the quality of products or services.
ACTTQ1: Company promotes teamwork to achieve the quality improvement goals.
ACTTQ2: Company trains the employee to achieve the quality improvement goals.
<b>Factor 3: Quality based Services</b>
CS 4: Employees are careful about the satisfaction of customers with warranty systems.
CS5: Employees are careful about the satisfaction of customers with the pricing of products or services.
ACCPI3: Company improves process using measures life cycle time reduction.
ACCPI4: Company makes all process effective to anticipate the changing customer’s needs.
<b>Factor 4: Connect with Everyone</b>
CS2: Employees are careful about the satisfaction of customers with the performance of products or services.
AMS3: Top management promotes trust within the subordinates.
ACBCPI4: Employee incorporates lessons learned into organizational activities.
<b>Factor 5: Effective Production Process</b>
ACCP1: Company eliminates waste whenever those occur.
ACCP2: Company eliminates rework whenever those occur.
ACBCPI2: Employees innovate production process to improve competitive advantages.
<b>Factor 6: Quality Development Techniques.</b>
AMQD1: Top management provides priority to the quality improvement goals.
AMQD2: Top management chooses suppliers on the basis of quality.
ACTTQ3: Company provides reward the employee to achieve the quality improvement goals.
<b>Factor 7: Excellence Performance Maintain Strategy</b>
AMS4: Top management encourages team effort among the employees.
AMQD3: Top management chooses suppliers on the basis of price.
<b>Factor 8: Employee Monitoring System.</b>
AMS1: Top management controls the subordinates.

(Source: Survey Data)

#### IV. Findings

It is surfaced that there are eight factors or components to implement TQM in the textile and RMG industry in Bangladesh. TQM ensures the involvement and satisfaction of every one of the company. Companies apply TQM and consider some important factors or elements. These are: continuous development process, motivation techniques, quality based services, connected with everyone, effective production process, quality development technique human resource development strategy, and employee monitoring system.

Textile and RMG industry maintains continuous development process to attentions customer needs. It is factor one. Companies use benchmarking to improve competitive advantage. Competitive advantage means to gain above competitors with offering customers greater value. The greater value is sustained by lower prices or providing greater benefits or services that are justify to higher prices. Top management uses statistical tools to assess the performance of company. They apply statistic for measurement of error, accuracy, precision, and bias that company overall performance.

This sector applies factor two: motivation techniques through employee empowerment, appreciation of employees, team work, training and all these things have reflections on customer. Motivation is an act of leading, assistance, influencing and direction of employees. Motivation is the way to influence the employees to develop their performance. Top management empowers the subordinates, gives the significance of the employee for attain the excellence development target. Company reflects on views of customers to add value of products. Management delegates the authority of the employees. Company supports teamwork as well. Team work denotes different employees and different groups work together to exploit their efficiency and to reach their goal. Team work provides innovative ideas about products, and working process. It minimizes company cost and maximizes utilization of human resources to achieve their target. Company trains the employees. Training enhances employee skills, knowledge and competency. It provides support to employee for completing their activities in an effective and efficient way.

Factor three, quality based services, adds some additional benefits or services that help to fulfill customer demand. Textile and RMG industry provides warranty systems with their products or services, they try to set up reasonable price of products, they uses effective procedures, as a result they require less time to

produce the products, as well as they try to predict customer needs. Company uses various strategies to add additional benefits to reach its goal.

Company connects with everyone like customer, employee and stakeholder. It is factor four of TQM and it includes customer satisfaction with the performance of products, top management tries to promote trust within the subordinates, and includes lessons into business actions. Company applies TQM approach and thinks about fitness of products. Top management continues good relationship with the subordinates and maintains proper communication with them. Company and top management give priorities to gather knowledge from regular business operations.

Textile and RMG industry of Bangladesh implement factor five for application of TQM and it is effective production process. Effective production techniques reduce misuse of raw materials, remove alter the work, and innovate useful manufacturing tools or techniques. Company implements TQM technique, as a result reduce the production costs and increase the effective utilization of all resources and introduce new manufacturing techniques that help them to achieve the center point of customer.

Companies retain quality development techniques. It is factor six that includes managers' main concerns about quality advance objectives, select suppliers based on excellence, company gives rewards the employee for attain the quality development goals. Quality development means a unique attribute possessed in a regular basis by someone or something. This sector pays attention on quality development technique within the employees as well as productions.

Factor seven deals with excellence performance maintain strategy. Top management inspires team strength within the employees of the company and top management chooses suppliers on the basis of price. This sector applies this strategy for obtaining maximum benefits by proper utilization of team effort of the company. Top management main concerns quality for select suppliers and they ignore price. They are trying to implement TQM approach for exploit the earnings.

This sector applies employee monitoring systems to use of TQM process and it is factor eight. Top management controls employees working procedures or ways. They also controls production method, determine standard of production, select the equipment, choose the raw materials etc. and in these ways they preserve continuous monitoring systems of employees within the companies.

## **V. Recommendations**

Though Textile and RMG industry is the most important sector of Bangladesh and it has great contribution on the Gross Domestic Product (GDP) of Bangladesh, however, Textile and RMG industry surfaces various problems to continue their operations. To implement TQM as well as to improve their performance they may take some necessary steps. These are as follows:

- To train the employees about TQM approach.
- To maintain quality improvement tools or techniques to produce quality products and services.
- To motivates employees, supplier, customers and stakeholders.
- To achieve customers satisfaction by quality products, by additional services, and by timely delivering the products.
- To achieve competitive advantage: organizational and individual development required.
- To maintain continuous improvement process: small or incremental value adds ensues on a regular basis (Mazumder, et.al, 2011, pp. 367).
- To assure product quality and maintain other related activities by using total quality management in the organization (Mazumder, et.al, 2011, pp. 375)
- To continue social responsibility, they may take some initiatives to protect environment form pollution as well as take some welfare activities.

## **VI. Conclusion**

This paper identifies the key elements of TQM implementation in the Textile and RMG industry in Bangladesh. Textile and RMG industry in Bangladesh has attempted to implement TQM approach by continuous development process, motivation techniques, quality based services, connect with everyone, effective production process, quality development techniques, excellence performance maintain strategy and employee monitoring systems. These all components or factors focus on customer and attain to objectives of the company.

Textile and RMG industry keeps continuous development process by emphases customer. This sector practices benchmarking for reach competitive advantage. Managers apply statistical technique for measurement of companies overall performance: inaccuracy, accurateness and unfairness etc. They take motivation techniques by empowerment, the importance of employees, encourage team work, organize train opportunities and also maintain preserve idea of customer about the products. This sector takes various strategies like warranty, reasonable price, smooth production process and identify potential customer wants to run quality

based services. Companies and managers try to deliberate every one of the organization through customer happiness with products performance, stimulate faith within the assistants and study by professional events. This sector implements effective production procedures that minimize waste of raw materials, eliminate rework and invent valuable manufacturing tools. Managers provide importance of quality development and choose suppliers according quality as well as companies offer prizes to the employees for acquire the quality improvement objectives. Top management encourages team effort for perfect utilization of human resources and it is a human resource growth tactic. They consider suppliers on the basis of quality and they do not main concern about raw materials price. Managers control employees to determine standard of performance, select the production process and pick the tools and techniques etc. They retain employee monitoring systems for effective and efficient utilization of employees at a right place as well as at a right time.

Albeit this sector faces competition within the many countries to export the cloth products, but applying TQM properly it may succeed. Companies apply TQM to achieve the competitive advantage as well as keep customer satisfaction. Furthermore, this study provides deeper knowledge to the managers and decision makers about vital factors of TQM establishment in their companies. Further research is needed to analyze the relationship between key attributes of TQM and garment workers performance.

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