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# Research Article

# IMPACT ON SOCIO ECONOMIC PARAMETERS OF GREEN INDUSTRIALIZATION IN BANGLADESH

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**ABSTRACT**

This study aims to guide the analysis process and the interpretation of results. Closely linked to the conceptual framework that was chosen for the purposes of this study. Science the birth of this fertile land poverty has been a common problem. Poverty is a chronic and complex problem for Bangladesh and women are severely affected by it due to lack of access to resources, income generating activities, decision-making process and political participation. At present the government has taken various steps for the green industry established in RMG sectors of Bangladesh. The study was conducted April 2019 to August 2019 at Narayanganj District of Bangladesh. The selected characteristics viz. age, education , family size, yearly salary, yearly savings, training exposure, cosmopoliteness, decision making ability, service length, knowledge on green industrialization and pro in garments were considered as the independent variables. It was assumed that these independent variables might have contribution to the green industrialization in the RMG sector of Bangladesh. Two green industries of Narayanganj District were purposively considered for the study. Data were collected from a sample of randomly selected 263 RMG Workers and Supervisors out of 840 from the mentioned two (2) RMGs. Simple and direct questions with different scales were used to obtained information. Eleven (11) selected characteristics of the RMG Workers and Supervisors were considered as the independent variables. The correlation coefficient was initially computed to determine the relationships among all the variables. The analyses indicated that out of 11 variables only 4 variables namely decision making ability, knowledge, cosmopolitness and education had significant contribution and effect to/on the green industrialization of RMGs as perceived by the Workers and Supervisors. The result indicated that the whole model of 11 independent variables explained 63.5 per cent of the total variation in green industrialization of RMG.

***Keywords:*** Green Industrialization, Education, Cosmopolitness, entrepreneurs and socio-economic development.

## INTRODUCTION

Increased productivity, income, food consumption and participation of the beneficiaries in socio-economic development activities are some of the major prerequisites for the overall economic development of Bangladesh. Most of the RMG entrepreneurs are believed to working to meet-up the above pre-requirements as the prerequisite for socio-economic development since the independence of Bangladesh. The RMG entrepreneurs were welcomed in Bangladesh to improve the socio-economic conditions of the poorest section of the population. The workers of RMG are expected to uplift their personal, social and economic dimensions by increasing their access and control over resources. In order to improve this position, a large number of i.e. more than 5400 Ready Made Garments factories of Bangladesh which are green and non-green complaints and non-complaints are now operating in the country. The green industry has extended activities where people especially improving working conditions, occupational health and safety use solar energy water and re use of water as well as transport facilitation of RMG employee. For undertaking any meaningful socio-economic development programme, if targeted to involve poor section of rural people in development related activities, it needs to know the specific problems issues. The issues on socio-economic development and eco-friendly environment need more attention and thus it deserves a specific investigation. It is necessary to conduct study regarding to the performance of different factories on green industry development of Bangladesh. Considering the time and resource constraints among the green industrialization of Bangladesh. The green industry was selected for this piece of research. The findings of the study are expected to be of great value to the researchers, extension service providers, students and particularly planners in formulating and designing extension strategies for involvement of green industrialization activities. The selected socio economic parameters were viz. age, education, family size, yearly salary, yearly savings, training exposure, cosmopoliteness, decision making ability, service length, knowledge on green industrialization and problems in garments. It was assumed that these independent variables might have contribution to the green industrialization in the RMG sector of Bangladesh.

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## METERIALS AND METHODS

Appropriate methodology enables the researcher to collect valid and reliable information and to analyze and interpret the information properly in order to arrive at correct conclusion. To fulfill the objectives of the study, the research should be designed to collect both qualitative and quantitative data. A chronological description of the methodologies followed in conducting this research work has been presented in this section.

### Locale of the Study

This research work was conducted on purposively selected two readymade garments (RMG) in Narayanganj district.

### Population

The RMG workers and supervisors the garments of the selected was which constituted the population of the study.

### Sampling Procedure

Data were collected from the sample rather than whole population due to lack of time and fund. Sample size calculator developed by Creative Research System (Yin, R. K. 1984) was used to determine the sample size. By setting the population number of 840 with 95% confidence level and confidence interval of 5, the sample size was determined as 263 which distributed proportionately among the two garments workers and supervisors as shown in table 3.1. Separate list of the population of workers and supervisors of the two RMGs were collected from the authority of the garments. Sample respondents were selected randomly and proportionately from the population. Fourteen (14) workers and supervisors were selected for the reserve list those were interviewed in the cause of absence of any respondents listed in the main sample size of 263.

**Table 1 Population, sample and reserve list size**

| Type of Employee | Population size | Sample Size | Reserve list size |
|---|---|---|---|
| Workers | 359 | 113 | 05 |
| Supervisors | 20 | 6 | 01 |
| Workers | 426 | 133 | 07 |
| Supervisors | 35 | 11 | 01 |
| Total | 840 263 | | 14 |

### The Variables and their Measurement

Various characteristics of the RMG workers and supervisors were considered as the causal variables of the study. These were age, educational, family size, yearly salary, yearly savings, training exposure, cosmopoliteness, decision making ability, service length, knowledge on green industrialization and problem faced in garments. Green industrialization of RMG in Bangladesh as perceived by the workers and supervisors was the dependent variable. The measurement procedures of the variables are described below:

### Age

Age of a respondent was measured on the basis of time from his/her birth to the time of interview. A score of one (1) was assigned for each year of his/her age.

### Education

The education was measured on the basis of completed years of schooling by a respondent in educational institutions. A score of one (1) was assigned for each completed year of schooling. If a respondent does not know reading and writing her score was zero. A score of 0.5 was given to a respondent who only could sign his/her name.

### Family size

Family size of a respondent was measured on the basis of the actual number of members in his/her family. The family members included himself/herself, husband /wife, children and other dependent members who jointly lived and ate together at the time of interview. The actual number of members was considered as the family size score of a respondent. For example if a respondent had five members in his/her family, his/her family size score was given as “5”.

### Yearly Salary

It was measured by taking the total income in the RMG workers and supervisors from garment during a year which included monthly salary, overtime, part time benefit etc. A score of one was assigned for each one thousand Taka.

### Yearly savings

It was measured by the total savings of a respondent and members of her family from different sources during a year. A score of one was assigned for each one thousand Taka.

### Training exposure

Training experience of RMG workers and supervisors was measured by the total number of days he/she participated in different training programs. A score of one (1) was assigned for each day of training received.

### Cosmopoliteness

It referred to the degree to which an individual visit to external places to his/her social system. Cosmopoliteness of respondent was measured by computing a cosmopoliteness score based on his/ her frequency of visit to five (5) different places external to his/ her own social system. Each respondent was asked to indicate the number of times she/ he visited to each of the five different types of places within a specified time frame. Score was assigned to his/ her frequency of visits to different places in the following way:

| Place of visit | Nature of visit | Weight |
|---|---|---|
| Outside of your factory (per month) | Not event once a month | 0 |
| | 1-3 times a month | 1 |
| | 4-5 times a month | 2 |
| | 6-7times a month | 3 |
| | 8 or more times a month | 4 |
| Other floor to own factory (per month) | Not event once a month | 0 |
| | 1-2 times a month | 1 |
| | 3-4 times a month | 2 |
| | 5-6 times a month | 3 |
| | 6 or more times a month | 4 |
| Neighbor/ Friends/ relatives (Per month) | Not event once a month | 0 |
| | 1-2 times a month | 1 |
| | 3-4 times a month | 2 |
| | 5-6 times a month | 3 |
| | 6 or more times a month | 4 |
| Floor supervisor (Per month) | Not event once a month | 0 |
| | 1-2 times a month | 1 |
| | 3-4 times a month | 2 |
| | 5-6 times a month | 3 |
| | 6 or more times a month | 4 |
| Buyer (Per month) | Not even once a month | 0 |
| | Once a year | 1 |
| | 2-3 times a month | 2 |
| | 4 times a month | 3 |
| | Above 4 time a month | 4 |

The weight for visit to all places were added together to obtain the cosmopoliteness score of a RMG workers and supervisors. This score could range from 0 to 20, where zero indicates no cosmopoliteness and 20 indicates highest level of cosmopoliteness.

**Decision Making Ability**

Decision making ability of a respondent was measured by using a rating scale. Each respondent was asked to indicate the extent of his/her decision making ability in each of the five (5) selected items by checking any one of the responses viz. Able to self 'decision, able to make decision with family members and able to make decision with others. The weights were assigned to the responses as 3, 2 and 1 for able to self 'decision, able to make decision with family members and able to make decision with others respectively. Finally decision making ability score of a respondent was computed by summing up his/her scores for his/her all the items. Thus decision making ability scores of the respondents could range from 5 to 15, where 5 indicated very lowest decision making ability and 15 indicated highest decision making ability.

**Service Length**

It was measured by the number of years for which a respondent was serving time in RMG sectors up to the time of interview. It was calculated in terms of years on the basis of a respondent's response to question and as verified from factory office records. One (1) score was assigned for 1 year of service in RMG.

**Knowledge on green industrialization in RMG**

Knowledge is those behavior and test situations which emphasized the remembering either by recognition or recall of idea, material or phenomenon (Bloom *et al*., 1956). In this study knowledge was measured by the extent of understanding useful effects of green industry. It was measured as evident from his responses to a set of questions related to green industrialization those were logically and scientifically prepared for this purpose at the time of interview. Score of 1, 2 or 3 were given to each of the correct answer against the nature of the questions and zero (0) for no or incorrect answer. Total knowledge score range was '0' to '10' where '0' indicated very low knowledge and '10' indicated very high knowledge on green industrialization in RMG.

**Problem faced in garments**

It referred to the extent to which a respondent faced difficulties in performing various activities as a workers and supervisors in the garment. Each respondent was asked to indicate the extent of population he/ she considered to each of the selected ten (10) problem items a five-point rating scale: "very high problem", "high problem", "medium problem", "low problem" and "no problem" at all. Scoring was made was follows:

| Extent of Problems | Score assigned |
|---|---|
| No problem | 0 |
| Low problem | 1 |
| Medium Problem | 2 |
| High Problem | 3 |
| Very High Problem | 4 |

Thus possible problem faced in garments scores of the respondents could range from 0 to 40, where zero (0) indicated no problem faced at all and 40 indicated highest problem faced in garments.

**Field data collection**

After completion of the pre-test, researcher re arranged the interview schedule to collect the data for this study. Researcher of the study collected data himself from the respondents. Prior to the data collection from the RMG, necessary documents were collected from the BKMEA, BGMEA and concerned offices. Data were collected from 263 RMG workers and supervisors of 2 RMG having green industrialization during the period from June 2018 to August 2018. These two RMG factories are situated Narayanganj where there are over 100 export-oriented RMG factories which established green industry according to USGBC standard. To compare the impact of green industrialization, data were also collected from 30 workers of a non-green garments.

**Instrument for Collection of Data**

An interview schedule was carefully prepared in English keeping in mind the objectives of the research and following the procedures of measurement of different variables. Simple and direct questions and different scales were used to obtain information. Direct questions were included to collect information on such variables. Appropriate scales were developed to operationalize the variables of the study. The draft interview schedule was pre-tested with 20 green RMG workers and supervisors. This pre-test facilitated the researcher to examine the suitability of different questions and statements in general. On the basis of pre-test result, corrections and modifications were done in the interview schedule.

**Statistical procedure**

On the basis of objectives of the study collected, data were compiled, coded and analyzed. The statistical measures such as range, mean, percentage distribution, standard deviation, rank order, categories etc was used to interpret the data. Step wise regression test was used to determine the contribution of the selected characteristics of the respondents on their perceived green industrialization. To compare the step taken by the green and non-green RMG for green industrialization, simple t-test was used. Five (5%) percent level of significance was used to reject null hypothesis.

**Result and Discussion**

The section deals with the salient features of the 11 selected characteristics of the RMG workers and supervisors. Category wise distribution of the workers and supervisors based on the selected 11 characteristics is discussed. Salient feature of the selected characteristics of the RMG workers and supervisors including measuring unit, ranges, mean and standard deviation has been presented in Table 2.

**Table 2 Salient features of the selected characteristics of RMG workers and supervisors (N=263)**

| Selected Characteristics | Measuring unit | Ranges | | Mean | Standard deviation |
|---|---|---|---|---|---|
| | | Possible score | Observed | | |
| Age | Year | - | 18-60 | 31.26 | 7.84 |
| Education | Year of schooling | - | 0.5-16 | 6.83 | 3.74 |
| Family size | Number | - | 2-8 | 4.70 | 1.28 |
| Yearly salary | Thousand Tk. | - | 96-336 | 179.25 | 47.11 |
| Yearly saving | Thousand Tk. | - | 0-50 | 3.75 | 4.88 |
| Training Exposure | Days | - | 0-8 | 2.42 | 2.12 |
| Cosmopoliteness | Scale score | 0-20 | 0-19 | 13.86 | 4.34 |
| Decision making ability | Scale score | 5-15 | 5-13 | 9.20 | 2.34 |
| Service Length | Year of scoring | - | 1-33 | 10.73 | 5.86 |
| Knowledge on green industrialization | Scale score | 0-10 | 1-10 | 5.76 | 2.01 |
| Problems faced in green garments | Scale score | 0-40 | 8-36 | 23.73 | 5.75 |

Categories wise distribution of the RMG workers and supervisors against each selected characteristics are described in the subsequent this sections.

### Age

Age of the RMG workers and supervisors ranged from 18 to 60 years with an average of 31.26 years and a standard deviation of 7.84. On the basis of their age, the RMG workers and supervisors were classified into three categories as shown in Table 3.

**Table 3 Distribution of the RMG workers and supervisors according to their age**

| Categories | RMG workers (n=263) | |
|---|---|---|
| | Number | Percent |
| Young (up to 35 years) | **193** | **73.4** |
| Middle aged (36-50 years) | **66** | **25.1** |
| Old aged (above 50) | **04** | **1.5** |

Ref: Department of Youth Development

The highest proportion (73.4 percent) of the workers were young compared to 25.1 percent of the being middle aged and 1.5 percent, the old. A close look into the data indicates that decision-making regarding green industrialization of RMG activities were mostly in the hands of young workers. This is quite logical. The one third of the RMG workers and supervisors' had young age group of the garments which help the more productions of the garments sectors. According to BKMEA (2016) observed that young people more skill than other aged people.

### Education

The level of education of the RMG workers and supervisors ranged from 0.5 to 16 years of schooling having an average of 6.83 and a standard deviation of 3.74. Based on their educational qualification scores, the respondents were classified into four categories as shown in Table 4.

**Table 4 Distribution of the workers and supervisors according to their education**

| Categories | RMG workers (n=263) | |
|---|---|---|
| | Number | Percent |
| Can sign only (0.5) | 46 | 17.5 |
| Primary level (1-5) | 46 | 17.5 |
| Secondary level (6-10) | 151 | 57.41 |
| Above Secondary (> 10) | 20 | 7.6 |

The highest proportion (57.41 percent) of the respondents had secondary level of education, while 17.5 percent of them could sign their names only as well as had primary level education and 7.6 percent of the workers higher education. Most of the RMG workers had secondary level of education because the workers had entered the jobs after complete their primary education level. It is logical that education is necessary for proper understanding of the information and development of skills for green industrialization of RMG.

### Family size

The number of family members of the respondent ranged from 2 to 8 with an average 4.70 and a standard deviation of 1.28. Based on the family size score, the respondents were classified into three categories as shown in Table 5.

**Table 5. Distribution of the RMG workers and supervisors according to their family size**

| Categories | RMG workers (n=263) | |
|---|---|---|
| | Number | Percent |
| Small family (up to 4) | **123** | **46.78** |
| Medium family (5-6) | **121** | **46.00** |
| Large family (>6) | **19** | **7.22** |

Data presented in the Table 5.4 show that the highest proportion (46.78 percent) of the respondents felt under small family compared to 46.00 percent having medium family and remaining 7.22 percent large family. Thus, the overwhelming majority (92.78 percent) of the respondents had either small or medium family size. So, the finding was quite logical in a family setting like the study area of RMG plays role for discouraging the large family size.

### Yearly salary

Yearly salary scores of the respondents ranged from 96 to 336. An average yearly salary score of the respondents was 179.25 and a standard deviation of 47.11. On the basis of yearly salary scores, the respondents were classified into three categories as shown in Table 6.

**Table 6.Distribution of the RMG workers and supervisors according to their yearly salary**

| Categories | RMG workers (n=263) | |
|---|---|---|
| | Number | Percent |
| Very low income (<132) | **17** | **6.5** |
| low income (132 to 226) | **202** | **76.8** |
| Medium income (>226) | **44** | **16.7** |

About one third (76.8 percent) of the respondents had low income salary, 16.7 percent had medium income and 6.5 percent had very low salary. The government has raised the minimum monthly wage for 4.5 million garment workers by around 51 percent to Tk 8,000 from the existing Tk 5,300.

### Yearly savings

Yearly savings scores of the respondents ranged from 0 to 50. An average yearly savings score of the respondents was 3.75 and a standard deviation of 4.88. On the basis of yearly savings scores, the respondents were classified into three categories as shown in Table 7.

**Table 7. Distribution of the RMG worker and supervisors s according to their yearly savings**

| Categories | RMG workers (n=263) | |
|---|---|---|
| | Number | Percent |
| Very low savings (up to 5) | **216** | **82.9** |
| low savings (6-8) | **35** | **13.3** |
| Medium savings (>8) | **10** | **3.8** |

Data presented in Table 5.6 shows that 82.9 percent of the respondents had very low savings, 13.3 percent had low savings and 3.8 percent had medium savings. So it was found that savings tendency was increasing among RMG workers and supervisors even among the landless community.

**Training exposure**

The training exposure of the RMG workers scores ranged from 0 to 8. An average training exposure score of the respondents was 2.42 and a standard deviation of 2.12. On the basis of training exposure scores, the respondents were classified into three categories as shown in Table 8.

**Table 8. Distribution of the RMG workers and supervisors according to their training exposure**

| Categories | RMG workers (n=263) | |
|---|---|---|
| | Number | Percent |
| No training recipient (0) | 82 | 31.2 |
| Very low training (1-3) | 104 | 39.5 |
| low training (>3) | 77 | 29.3 |

Data presented in Table 5.7 show that the majority 39.5 percent of the respondents had very low training, 29.3 percent had low training and 31.2 percent had no training. So it was found that near about half of the RMG workers and supervisors had no training. Its means that the RMG was not trained workers. Its need to proper trained up for creation of trained workers in the RMG.

**Cosmopoliteness**

The cosmopoliteness scores of RMG workers and supervisors ranged from 0 to 19. An average cosmopoliteness score of the respondents were 13.86 and a standard deviation of 4.34. On the basis of cosmopoliteness scores, the respondents were classified into three categories as shown in Table 9.

**Table 9. Distribution of the RMG workers and supervisors according to their cosmopoliteness**

| Categories | RMG workers (n=263) | |
|---|---|---|
| | Number | Percent |
| Low Cosmopoliteness (0-9) | 31 | 11.8 |
| Medium Cosmopoliteness (10-17) | 191 | 72.6 |
| High Cosmopoliteness (>17) | 41 | 15.6 |

Data presented in Table 5.8 shows that 11.8 percent of the respondents had low cosmopoliteness, 72.6 percent had medium cosmopoliteness and 15.6 percent had high cosmopoliteness. So it was found that most of the RMG workers had medium cosmopoliteness that's logically proven.

**Decision Making Ability**

The decision making ability of RMG related of the RMG workers scores ranged from 5 to 13. An average decision making ability score of the respondents were 9.20 and a standard deviation of 2.34. On the basis of decision making ability scores, the respondents were classified into three categories as shown in Table 10.

**Table 10 Distribution of the RMG workers and supervisors according to their decision making ability**

| Categories | RMG workers (n=263) | |
|---|---|---|
| | Number | Percent |
| Low decision making ability ( up to 7) | 53 | 20.2 |
| Medium decision making ability ( 8-11) | 176 | 66.5 |
| High decision making ability (>11) | 34 | 13.3 |

Data presented in Table 10 shows that (20.2 percent) of the respondents had low decision making ability, while two third (66.56 percent) had medium decision making ability and 13.3 percent had high decision making ability of the workers. So it was found that most of the RMG workers had medium decision making ability that's logically proven. The RMG workers able to decision making ability for their green industry as well as outside of the community.

**Service Length**

The service length of RMG related of the RMG workers scores ranged from 1 to 33. An average service length score of the respondents were 10.73 and a standard deviation of 5.86. On the basis of service length, the respondents were classified into three categories as shown in Table 11.

**Table 11 Distribution of the RMG workers and supervisors according to their service length**

| Categories | RMG workers (n=263) | |
|---|---|---|
| | Number | Percent |
| Low service length (0-5) | 65 | 24.7 |
| Medium service length ( 6-20) | 180 | 68.4 |
| High service length (>20) | 18 | 6.9 |

Data presented in Table 11 shows that 24.7 percent of the respondents had low service length, while the two third (68.4 percent) had medium service length and 6.9 percent had high service length of the workers. So it was found that most of the RMG workers had medium service length that's logically proven. The RMG workers had medium service length of their service because of they migrate their jobs due to high salary.

**Knowledge on green industrialization**

The Knowledge on green products practices to established green industry in RMG of the RMG factory ranged from 1 to 10 score average score was 5.76 and standard deviation of 2.01. On the basis of Knowledge on green products practices to established green industry were classified three categories as shown in Table 12

**Table 12 Distribution of the RMG workers and supervisors according to knowledge on green industrialization**

| Categories | RMG workers (n=263) | |
|---|---|---|
| | Number | Percent |
| Low knowledge ( up to 3) | 38 | 14.1 |
| Medium knowledge ( 4-7) | 174 | 66.5 |
| High knowledge (>7) | 51 | 19.4 |

Data presented in Table 12 shows that 14.1 percent of the respondents had low knowledge 66.5 percent had medium knowledge and 19.4 percent had high knowledge of the workers. So it was found that most of the RMG workers had medium knowledge that's logically proven.

**Problem faces by the RMG workers and supervisors in garments**

Problem faced scores of the respondent ranged from 8 to 36 against the possible range of 0-40 with an average 23.73 and a standard

deviation 5.75. On the basis of problem faced by the respondents were classified into three categories shown as Table 13.

**Table 13 Distribution of the respondents according to their problem faced in garments**

| Problem faced categories (score) | RMG workers (n=263) | |
|---|---|---|
| | Number | Percent |
| Low problem faced (up to 18) | 47 | 17.9 |
| Medium problem faced (19-28) | 158 | 60 |
| High problem faced (>28) | 58 | 22.1 |

Data contained in Table 13 reveal that highest proportion (60 percent) of the respondents faced medium problems in garments. Whereas 22.1 percent of the respondents faced high problems and 17.9 percent faced low problem in the same aspect.

## CONCLUSIONS

On the basis of the above findings of the researcher to draw the following conclusions The results specified that decision making ability parameter of the RMG workers and supervisors had highest contribution on their perceived green industrialization in Bangladesh. Consequently, it may be concluded that decision making ability of the RMG workers and supervisors was an important socio economic factor on green industrialization of RMG sector in Bangladesh. According to the knowledge on green industrialization of the RMG workers and supervisors had second highest impact on their perception on green industrialization in Bangladesh. The indirect effect of knowledge on green industrialization was mostly channeled through education, cosmopolitness and decision making ability. Therefore, it may be concluded that knowledge of the RMG workers and supervisors was an important factor to form correct perception on green industrialization of RMG sector in Bangladesh. The findings indicated that cosmopolitness of the RMG workers and supervisors had third contribution on their perception green industrialization in Bangladesh. The indirect effect of cosmopolitness was mostly channeled through knowledge, education and decision making ability. Therefore, it may be concluded that cosmopolitness of the RMG workers and supervisors was an important factor to form correct perception on green industrialization of RMG sector in Bangladesh. The indirect effect of education was mostly channeled through knowledge, decision making ability and cosmopoliteness. Therefore, it may be concluded that education of the RMG workers and supervisors was an important factor to form correct perception on green industrialization of RMG sector in Bangladesh.

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