

The Scenario of Fire Safety through Accord in Bangladeshi Garments Industry

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Abstract

The Ready-Made Garment (RMG) sector is one of the industries that drive the economy of Bangladesh towards growth. The risk management of this sector has always been a major concern. Several incidents in this sector increased this concern of several related parties. Different codes of conduct and policies have been introduced in different times to improve the overall scenario. After two massive fire incidents in Tazreen Fashion and building collapse of Rana Plaza in Bangladesh, an accord program has been built to ensure the fire and safety in 2013. The purpose of this study is to explore whether the accord has improved fire safety condition in the Bangladeshi garments industry or not. Therefore, the study initially focuses on looking into the existing literature on history and risk management issues of Bangladeshi garment industry. This study is a descriptive study, based on primary and secondary data. Primary data has been collected through semi-structured questionnaire and in-depth interviews from several respondents from several garment factories. The result of this study illustrates, after the legally binding agreement of Accord 2013, Bangladeshi garments and textile industries had started to focus on worker safety issues. However, in order to prevent fire hazard and ensure a better workplace for the garment workers, they have taken all the necessary steps by ensuring a proper checklist for the fire gadgets and implementing training session for the workers. The findings should make substantial empirical contribution to show the real influence of the codes. However, the study was limited to only Bangladeshi garment industry and due to Covid-19 pandemic, the accessibility to various respondents of this industry has been restricted. Therefore, it may also affect the sample size. Overall, the study may provide an idea about the implication of the accord in garment factories and the result may help the policy makers to develop/modify policies for this sector in a more effective way.

Keywords

Ready Made Garment (RMG), Accord 2013, Fire Safety, Factory Inspection

1. Introduction

The Ready-made Garment (RMG) industry has always been the main driving force of the export economy of Bangladesh accounting for about 81% of its over-all export. It is also one of the largest employers in the country, engaging 4 million workers in 4482 factories (BGMEA, 2018). Over the years, occasional fire accidents in this industry have been a major predicament of the industry. In response to these plights, the RMG sector was one of the first industries to develop voluntary standards, and codes form the primary tool used by foreign buyers and chain stores to improve labor standards in supplier factories. The significant regulatory role of foreign buyers has resulted in the development of numerous codes governing the Bangladeshi garment industry. Socially responsible brands can force higher labor standards in garment factories by canceling suppliers' contracts if they fail to comply with codes. The Accord on Fire and Building Safety in Bangladesh was one of the most significant initiatives that set legally binding standards for members and provided guidance on code implementation and monitoring.

The signatories of the accord committed to create a safe and sustainable Bangladeshi garment industry where workers would no longer need to be afraid of building collapse, fire or other accidents which can be prevented with reasonable health and safety precautions. The accord was created after the Rana Plaza building collapsed on 24th April, 2013 which took 1133 lives and critically injured thousands of people more (Accord on Fire and Building Safety in Bangladesh, 2013). It established an agreement of fire and safety program in Bangladesh for five years. At the time of expiry, the agreement was carried forward by a national regulatory body, supported by International Labor Organization. The details are included in the accord agreement of 2018.

Under the implementation of the agreement, factories inspection, monitoring remediation, safety training, resolving safety complaints etc. are done in several garment factories. Unfortunately, the benefits of codes are limited as many vulnerable, irregular workers remain beyond their reach. In terms of scope, codes do not extend to lower-tier suppliers further down the supply chain. Therefore, despite numerous concerted efforts, there is mixed evidence regarding the actual effectiveness of codes in improving fire safety. This is mainly due to a lack of support from state regulation. A mixture of private and government interventions is needed for sustainable improvement in fire safety. Accordingly, scholars conclude that codes should complement public regulation through effectively enforced legal standards for fire safety.

In this context, the purpose of this research is to explore the role played by the Accord in advancing fire safety for workers in the Bangladeshi garment industry. The study is framed by the following research question: “Has the Accord improved fire safety in the Bangladeshi garment industry?”

Corporate Governance and Corporate Social Responsibility is a current research priority for the University. The fire safety dimension of codes has not attracted sufficient academic attention. A comprehensive analysis of the impact of codes on fire safety for workers in supplier factories has not been carried out. There is also a lack of research on the association of codes with improving labor standards for workers. The aim of this research is to contribute towards an understanding of the impact of codes of conduct on fire safety in the Bangladeshi garment industry, an area where there is a lack of academic literature at present.

The study would help a detailed exploration of the current scenario of the garment factories, particularly after two disastrous events of *Tazreen Fashion* and *Rana Plaza*, how the situation has improved over the years after the formulation of Accord and regular intervention of them with their regulation system.

2. Literature Review

History of RMG Sector in Bangladesh

RMG industry is the second largest and most demanding industry in the world after the oil and gas industry. Bangladesh is the second largest RMG exporters in the world with contributing 16% to the country's total gross domestic profit (GDP) and during Bangladesh's 50 years of independence, RMG industry has acquired around 81 percent of the country's export profits. In addition, around 4.4 million workers are being employed by this industry and majority of them are women (Habib & Hasan, 2021) (Figure 1).

The journey of RMG business in Bangladesh RMG business has started rapidly as an export-oriented sector since the late 1970s. Besides that, the industry quickly started to contribute towards the employment, foreign exchange profits, and gross domestic profit (GDP). Significantly, due to the expansion of RMG sectors in Bangladesh, group of entrepreneurs contributed in order to robust the private sector and among them a large number of percentage are women.

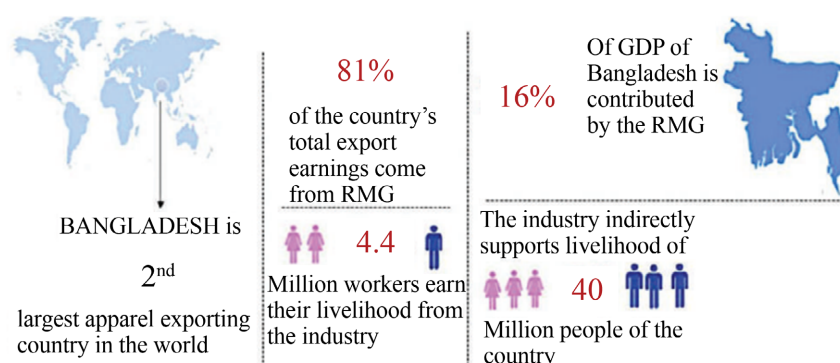


Figure 1. Bangladesh RMG industry overview.

Baishakhi Garment is one of the earliest export-oriented garment industries that started their journey in 1977 is also founded by a woman entrepreneur. In addition, during the last 15 years or so, several women hold senior executive roles in the RMG business (Habib & Hasan, 2021) (Figure 2).

During the 1978, only nine export-oriented garment manufacturing units were existed and their factories were extremely tiny, producing clothing for both home and international markets. By the end of 1982, only 47 export-oriented garment manufacturing units existed, and during the period of 1984-85, the number has increased to 587. The number of RMG factories in Bangladesh had risen to about 2900 in 1999, and currently, Bangladesh is the second-largest exporters in the world and a playing a vital role of major supplier to the US and EU market. Besides that, in 1990, the industry growth rate was about 22% per year, currently, the industry exports 81.6% of the total export of Bangladesh (Habib & Hasan, 2021).

RMG Industry in Bangladesh

The ready-made garment industry has emerged as an important player in the economy of Bangladesh. In the late 1970s, The RMG industry started its journey. The industry contributed to the economy in terms of export earnings, creation of employment, poverty alleviation and women empowerment. This industry has long been the main driving force of the export economy of Bangladesh accounting for about 81% of its overall export. So, contribution of this sector in the economic development of Bangladesh cannot be understated.

According to the World Trade Statistical review of 2019 released by World Trade Organization (WTO), Bangladesh's share was US \$32 billion in 2018 of the global apparel export market of US \$421 billion. It was US \$29 billion in 2017 (BGMEA, 2018). The statistics showed that the global clothing export market share of Bangladesh has increased to 6.80 percent in 2019 which was 6.40 percent in 2018 (RMG Bangladesh, 2020).

The growth of the RMG industry has become so fast not only for cheap labor but also from policy support from government and continuous work of the entrepreneurs. Even though the quota system ended in 2005, Bangladesh didn't

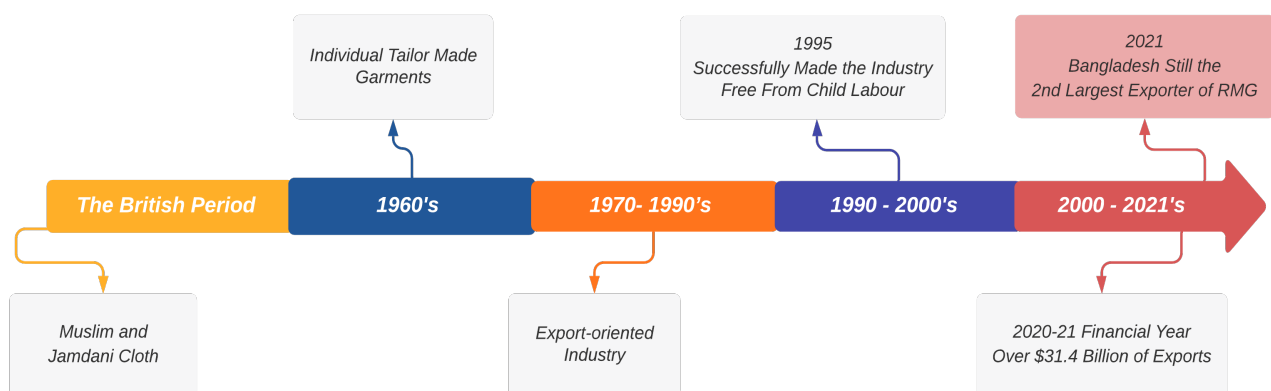


Figure 2. History of RMG sector Bangladesh (Habib & Hasan, 2021).

stop to move forward combining with the generalized system of preferences (GSP) facility in European Union (EU). The growth was even more ensured because of duty free export to Canada and several other countries (Karmokar, 2021).

Two big shocks came in the RMG sector within a gap of only five months; a tragic fire in Tazreen Fashion and the collapse of Rana Plaza. The whole RMG sector faced an existential crisis after these events as different organizations working on labor rights called for boycotting products that are made in Bangladesh in different countries. Local entrepreneurs invested a rigorous effort as an answer to the huge criticism, to improve the overall work environment. The industry somehow managed to bounce back by restructuring the factory infrastructures, power and fire related faults by investing huge money on it (Karmokar, 2021).

However, a new crisis showed up in this sector during coronavirus pandemic. But according to the entrepreneurs of this sector, Bangladesh is performing moderately better in comparison to the rival countries. Forty percent of the EU countries' annual T-shirt sale is supplied by factories in Bangladesh. Also, the country is the top exporter of short pants, trousers and men and children's shirts to the EU. Besides these, Bangladeshi entrepreneurs are leading in exporting denim to the USA (Karmokar, 2021).

The textile and apparel sector of Bangladesh has also reached another height in setting up of environment-friendly factories. As of October, 2020, Bangladesh has 14 out of the 27 best-environment friendly factories in the world. The tag "Made in Bangladesh" has brought glory for the country, making it a prestigious brand across the globe (Das, 2008).

Compliance is the adherence to a particular set of standards. So, compliance in Bangladesh garment factories means conformity to the specific set of standards that are maintained by the global brands. The compliance of garment industry includes almost everything related to a moderate working environment and a worker-friendly management system. Minimum wage, working hours, health and safety issues etc are usually covered in compliance standards (Das, 2008).

Currently, there are many compliances ready-made garment factories in Bangladesh; those fulfill all the garment factory compliance requirements. It helps them to maintain a moderate working environment and standard living wage for the workers. Beximco Fashions Ltd., Ha-Meem Group, Opex Sinha Group, DBL Group, Standard Group, Fakir Group, Square Fashions Group are the top compliance factories in the garment industry. These factories set an example for others in the ready-made garment industry (UNIFEM, 2008).

Risk Management

According to (Barua, Kar, & Mahbub, 2018), Risk can be defined as the uncertainty of experiencing expected outcome, which means risk is the probability of getting unpredictable and undesirable outcome that may have hostile impact on any sort of organization's activities such as profitability, finance flow etc.

However, in order to deal with a diverse range of risks, risk management is very crucial for any business. In another research (Berg, 2010) discussed that, risk management is the process of identifying risk, recognizing and assessing risk and finally developing strategies in order to mitigating the risk.

Risks in RMG sector are now burning issue in the Bangladesh economy context, where this RMG sector is main strength of the Bangladesh economy. From the last two decades Bangladesh RMG sector has experienced several deadliest accidents including Tazreen fire incident and Raza Plaza collapsed. In addition, most of the risks arise from within the factory sites (Hasan & Mahmud, 2017). However, there are several major risks that are RMG sectors are facing in this era.

Accidental Risk

From the last decade, more than a thousand works has lost their lives due to the several accidents including building collapse and fire accidents. Among the incidents, on 24 November 2012, due to the fire accident in the Tazreen Fashion factory in the Ashulia, 117 people were confirmed dead and 200 were critical injured. Moreover, on 24 April 2013 the eight-story commercial building, Rana Plaza building has collapsed and took away more than thousand workers lives and more than 2000 people were injured (Hossen, 2017).

Operational Risk

According to (Hasnin & Ahsan, 2016), Operational risk can be defined as the risk of experiencing loss in the business due to the insufficient of expert internal and external operation process. In RMG sector of Bangladesh the operational risk is quite higher than other industries. Usually, the operational risk occurs in RMG sectors, due to the unavailability of the workers, process breakdown, mechanical failure etc, and therefore, the companies are not being able to meet their targeted production, quality standard and fail to fulfill the delivery process on the time. In addition, operational failure may cause the reduction of order size (Barua, Kar, & Mahbub, 2018).

Occupational & Health Hazard Risk

According to (Hasnin & Ahsan, 2016), a healthy work place is very significant for the workers as an unhealthy work place can create a huge impact on workers physically, chemically, biologically and psychologically. In order to mitigate the risk, occupational safety and health program can be imposed in the workplace. The main intension of occupational safety and health program is to emphasizing on the establishment of a safe and healthy work environment. According to the research, health is related to the physical conditions of including mind and body on the other hand safety is related to the physical conditions of the works site and adopting all the precautions in order to mitigate the risks of harm and damage (Khan, Mustaq, & Tabassum, 2014).

Fire Hazard & Safety

In Bangladesh RMG sector is playing a vital role in the economy since, the Bangladesh RMG is the third biggest exporter in the world. However, this sector is also known for the fire accident as well. Numbers of fire incidents were expe-

rienced by this RMG sector from the last few decades. The first fire incident was recorded in 1990 at Saraka Garments in Dhaka, which causes of more than 32 workers death and injuries of over 100. In 2000, the Chowdhury Knitwear and Garments Factory fire incident causes of 52 workers death and the most recent and deadliest fire incident in the history was the Tazreen Fashion in Dhaka, on 24 November 2012. More than 100 workers were died and more than 150 workers were injured (Bhadily, 2015). One of the biggest reasons of those incidents is not following the proper building safety code standard and fire safety equipment. In addition, most of the factories don't have functional fire exits, fire alarms and water sprinklers.

Accord

However, in 2013, a legally-binding agreement took place between global brands & retailers and Industrial Global Union & UNI Global Union and eight of their Bangladeshi affiliated unions in order to ensure a safe and healthy workplace in Bangladesh garment and textile industry and this agreement is known as the Accord on Fire and Building Safety in Bangladesh. After the deadliest incident of Rana Plaza building collapse, this Accord program has been built for the agreement of establishing a fire and building safety program in Bangladesh for a period of five years and over 220 companies signed this five years Accord (Accord on Fire and Building Safety in Bangladesh, 2013).

On 1st June 2018, the 2018 Transition Accord entered which is a continuation of the 2013 Accord. Mostly previous signatories (200 brands) supported to continue the Accord. The signatories of this Accord have agreed to continue a fire and building safety program in Bangladesh until midnight of May 31, 2021. The agreement of the Transition Accord strikes that, at the end of the timeframe of Transition Accord (1 June 2018-31 May 2021), the work will be handed over to a national regulatory body, supported by the International Labor Organization in order to carry forward from the point. However, In December 2019, an assessment was taken place by the Accord Steering Committee in order to determine whether a national regulatory body ready to take over the roles and responsibilities of the Transition Accord. If the Steering Committee finds that no such body is ready, this agreement will be extended for a further 12 months (2018 Accord on Fire and Building Safety in Bangladesh: May 2018, 2017).

A new press has been released regarding the Bangladesh Accord progress, on 25 August 2021. The press release stated that, representation of international textile retailers and the global trade union signatories to the former Accord on Fire and Building Safety in Bangladesh has decided to continue the legally binding commitments and promises to enhance the program to other countries and the new agreement is called "International Accord for Health and Safety in the Textile and Garment Industry" and this new Accord has initialized from 1 September 2021. There are some new features that included in the International Accord.

- A commitment to focus on the health and safety program in Bangladesh, and on building a credible industry wide compliance and accountability mechan-

ism.

- A commitment in order to enlarge the work of the International Accord based on feasibility studies.
- An option to expand the scope of the agreement to address human rights due diligence.
- An optional streamlined arbitration process to enforce the Accord's terms.

3. Methodology

This study plans to use a qualitative and descriptive research strategy. A qualitative strategy will be employed because the research question requires exploration and fire safety standards need detailed and in-depth examination. A literature review study will be used to provide the framework for data collection and analysis. So, both primary and secondary data will be used in this respect.

The literature review will enable intensive, micro-level analysis of data, and is practical because a big sample is not feasible. Bangladesh is the empirical focus of this study as it is a world leading RMG exporter. The Bangladeshi garment industry is thus an appropriate case study to investigate the research question at the core of this study because it is a sector very strongly affected by codes. While not representative of the whole RMG sector, selecting the Bangladeshi garment industry as the case study provided valuable insights into fire safety and allowed a novel and in-depth understanding of the influence of codes.

This study entails purposive sampling. Purposive sampling offers an effective way to sample strategically so that participants selected are relevant to the research question. A small sample will be chosen because of the expected difficulty of getting access to workers and the detailed work required for this research.

Semi-structured interviewing will be the best research method for this case study as it can produce in-depth qualitative accounts exploring the effect of codes. Experiences with fire safety can be uncovered easily because of direct interaction with participants, resulting in comprehensive data collection. A pre-ready set of both open and closed ended questions will be asked to the anonymized participants from various chosen factories. From each factory, several participants (workers, supervisors, management) will be interviewed. The factories selected were audited by the Accord and the Business Social Compliance Initiative.

4. Data Analysis

The aim of the study is to explore whether the Accord has improved fire safety in the Bangladeshi garment industry. A survey questionnaire with 17 questions and a few focus group interview sessions have been conducted in order to gather primary data. The questionnaire used a combination of *5-point Likert scale* (strongly disagree - strongly agree) and *simple attitude scale* questions for getting the respondents' opinion. For analyzing the data, Excel has been used as a statistical tool. The demographic information of the respondents is shown below (Table 1).

Table 1. Demographic information of respondents.

	Number of Respondents	
	Male	89
Gender	Female	48
Age Group	18 - 25	15
	26 - 35	56
	36 - 45	45
	46 - 55	19
	56 and above	2
Position in the Company	Top Level Management	19
	Middle Level Management	85
	Line Manager	33
Monthly Income	Below 25,000 BDT	32
	25,001 - 50,000 BDT	70
	50,001 - 75,000 BDT	19
	75,001 BDT and above	16
Factory Location outside of the Dhaka	Yes	100
	No	37

For this study, a survey questionnaire has been prepared with 17 questions and 135 responses have been collected. Among the 135 responses, 65 percent of participants were male, and 35 percent of participants were female. 41 percent of the total respondents are in the age group of 26 - 35, 33 percent are in the group of 36 - 45, 14 percent participants are in the group of 46 - 55 and 11 percent are in the group of 56 and above.

Figure 3 illustrates, whether the fire drill practice does take place in the garments factory and office or not. Among the 135 responses, all participants stated that fire drill practice takes place in the factory and offices.

Figure 4 defines whether all employees and workers are encouraged to participate in the fire drill practice in their office and garments or not. 45 percent of the total respondents have stated strongly agree with the statement and 32 stated agree. On the other hand, in total 14 percent of the total participants believe that all employees and workers are not encouraged to participate in the fire drill practice in their office and garments while 9 percent are in the neutral position.

Figure 5 shows how often the fire drill practice takes place in the office and garments. Among all participants, 53 percent stated that the fire drill practice takes place twice a year means half-yearly in their office and factories, 24 percent said annually means once in a year. On the other hand, 17 percent said quarterly mean three times in a year and only 6 percent stated monthly.

Does the Fire Drill practice take place in the garments factory and office?

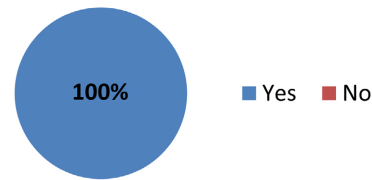


Figure 3. Does the fire drill practice take place in the garments factory and office.

All employees and workers are encouraged to participate in the fire drill practice.

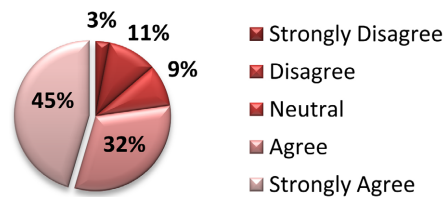


Figure 4. Employees and workers are encouraged to participate in the fire drill practice.

How often the fire drill practice takes place?

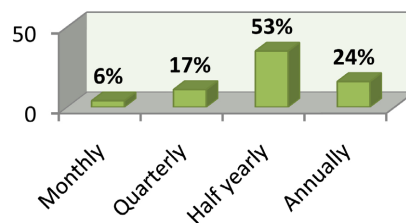


Figure 5. How often the fire drill practice takes place?

Figure 6 shows whether all fire alarms are workable or not. 45 percent of the total respondents stated agree with the statement means in their organization they believe fire alarms are active and workable. 30 percent stated strongly with the statement. On the other hand in total 13 percent believe that, in their office and factory all fire alarms are active and active. Lastly only 12 percent are in the neutral position.

Figure 7 represents whether fire alarms are being inspected on regular basis or not. The above chart shows that among the 66 respondents 38 percent believe that, all fire alarms are being inspected on a regular basis while 27 percent of participants strongly agreed with the statement. On the other hand, 6 percent of the total respondents didn't agree with the statement means they believe fire alarms are not inspected on regular basis and 29 percent of the total respondents are in the neutral position.

Figure 8 illustrates about the evacuation route. If an employee or a worker experiences a fire in their workstation, which evacuation route will they use in

All fire alarms in the factory and office are active and workable.

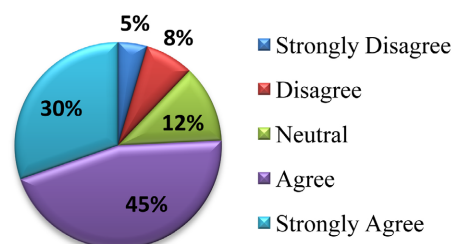


Figure 6. Fire alarms are workable and active.

Fire alarms are inspected at regular intervals.

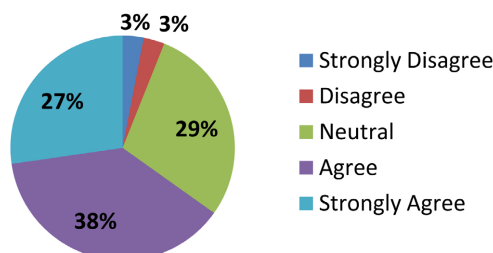


Figure 7. Fire alarm inspection.

If you discover a fire, which evacuation route will you use in order to escape on time?

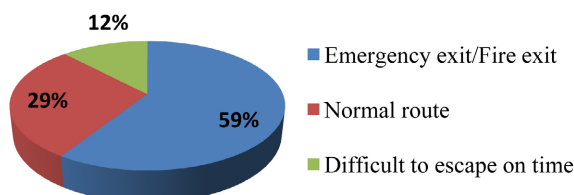


Figure 8. Which evacuation route will use during a fire.

order to escape? According to the survey 59 percent participants stated that, they will use emergency exit/fire exit route means in their workstation, emergency/fire exit route are available. 29 percent stated normal route means during a fire normal route will be convenient for them while 12 percent stated it's difficult to escape on time during a fire, means in their workstation emergency exit/fire exit route are not available.

According to **Figure 9**, among the 135 responses, in total 53 percent has agreed with the statement means in their office and factory, adequate water is available in the water tank for the fire fighter uses, while 18 percent believe that, there is no adequate water is available in the water tank, while 14 percent is in neutral position.

Figure 10 defines, in terms of evacuation, whether roof access is available in the office and factory or not. From the survey, we found that 73 percent of total

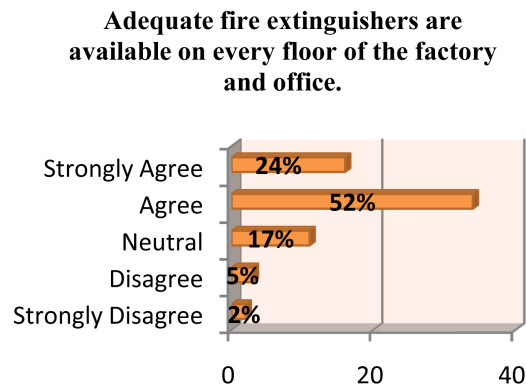


Figure 9. Adequate water is available in the water tank for the fire fighter.

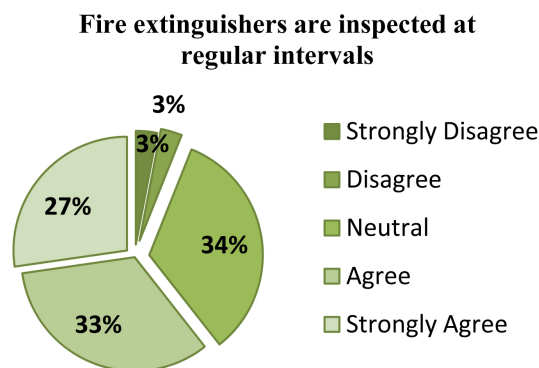


Figure 10. Roof access is available or not.

respondents believe that roof access is available in their office and factory in terms of fast evacuation while 18 percent believe, it's not possible to evacuate through their office and factory roof. On the other hand, only 9 percent are in the neutral position.

Figure 11 is about the fire extinguisher, whether enough fire extinguishers are available on every floor of the factory and office or not. According to the survey, 76 percent of the participants stated that, enough fire extinguishers are available on every floor of their factory and office, while only 7 percent didn't agree with the statement.

Figure 12 illustrates, whether the fire extinguishers are inspected on a regular basis or not. Among the 135 participants, in total 60 percent of participants stated agree and strongly agree, means they believe, in their factory and office the fire extinguishers are inspected at regular intervals while only 6 percent of the total respondents didn't agree with the statement. However, 34 percent of participants are in the neutral position.

Figure 13 illustrates that in total 68 percent of the 135 participants stated that, all fire extinguishers in the factory and office are active and workable. 20 percent of participants are in the neutral position and only 12 percent of the total participants don't believe that all fire extinguishers in the factory and office are active and workable.

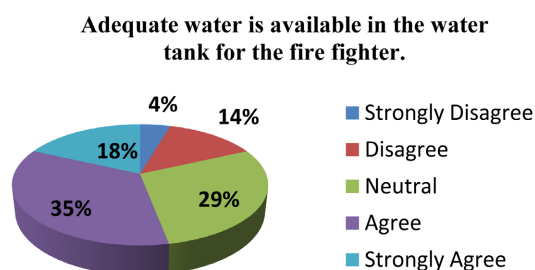


Figure 11. Adequate fire extinguishers are available on every floor of the factory and office.

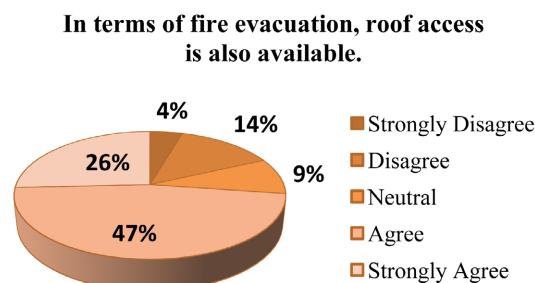


Figure 12. Fire extinguisher inspection.

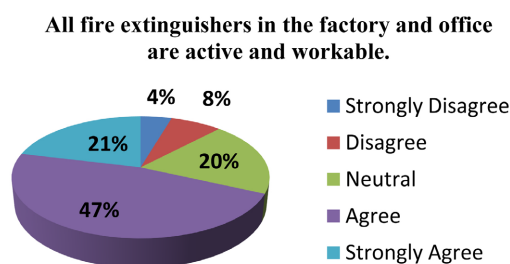


Figure 13. Fire extinguishers in the factory and office are active and workable.

5. Discussion of the Result

In order to prevent any fire hazard, fire safety equipment are required in the office and garments factories and therefore, we have used a few fire safety equipment and means of escape as basic measurement tools for better understanding the fire safety issues in Bangladeshi garments factories. In this study, as the fire safety equipment we have used fire drill, fire alarm and fire extinguisher. However, for measuring the escape route, we tried to identify, whether the emergency exit/fire exit route is available or not and how far the emergency exit/fire exit route is situated from the employee's and worker's workstations.

From the below **Table 2**, it can be stated that fire drills are available in all selected garments factories and offices since in our first question 100 percent of the total respondents have stated yes as the fire drill practice takes place in the garments factory and office. Moreover, most of the garment factories and offices are encouraging their employees and works in order to participate in the fire drill practice and the maximum of our survey respondents (53%) have stated the fire drill practice takes place in their work station half-yearly. Therefore, in order

Table 2. Fire drill analysis.

Questions	Percentage of feed back	
<i>Does the Fire Drill practice take place in the garments factory and office?</i>	Yes	100%
	No	0
<i>All employees and workers are encouraged to participate in the fire drill practice.</i>	Agree & Strongly Agree	77%
	Disagree & Strongly Disagree	14%
<i>How often the fire drill practice takes place?</i>	Monthly	6%
	Quarterly	17%
	Half yearly	53%
	Yearly	24%

to prevent the fire hazard, most of the garment factories have started the practice of using fire drill equipment and it becomes a common fire safety gadget.

Fire alarm is common safety equipment that has been used in every commercial and non-commercial building nowadays. However, it is also required to inspect at regular intervals. In this study, we have found that, in most of our selected garment factories and offices, fire alarms are being considered as an important fire safety gadget and the authorities are much concerned about the inspection of them. The below **Table 3** illustrates, in our selected garments factories and offices, all the fire alarms are active and workable since 75 percent of the total respondents have stated positive opinions towards the statement. Moreover, fire alarms are being inspected at regular intervals as 65 percent of total sample sizes have given their consent.

Emergency Exit/Fire Exit

From **Table 4**, it can be stated that in most of our selected garment factories and offices have emergency exit/fire exit route (59%) while 12% stated it's difficult to escape on time during the fire, which means either the emergency exit/fire exit route is not available or there are some construction measurement issues in the emergency exit/fire exit route. Moreover, our selected factories and offices, where the emergency exit/fire exit route is available, are much closer to the employee's and workers work stations.

Fire Extinguisher

Fire extinguishers are another fire safety gadget that is commonly used in most commercial and noncommercial buildings. It is an active fire protection device that can be used in small fire incidents. In addition, it's required to maintain a continuous checklist as it can be expired after a time period. In our study, we found that 76% of the total respondents have stated that, adequate fire extinguishers are available on every floor of their factories and offices. Moreover, all fire extinguishers are being inspected at regular basis and all of them are active and workable. Therefore, a fire extinguisher is a common safety device that has been used frequently in most garments factories and offices.

From the above analysis (**Table 5**), we can state that, after the legally-binding agreement of Accord 2013, Bangladeshi garments and textile industries are

Table 3. Fire alarms analysis.

Questions	Percentage of feed back	
<i>All fire alarms in the factory and office are active and workable.</i>	Agree & Strongly Agree	75%
	Disagree & Strongly Disagree	13%
<i>Fire alarms are inspected at regular intervals</i>	Agree & Strongly Agree	65%
	Disagree & Strongly Disagree	6%

Table 4. Emergency fire exit analysis.

Questions	Percentage of feed back	
<i>If you discover a fire, which evacuation route will you use in order to escape on time?</i>	Emergency exit/Fire exit	59%
	Normal route	29%
	Difficult to escape on time	12%
<i>The Emergency exit/Fire exit route is much closer to my work station.</i>	Agree & Strongly Agree	74%
	Disagree & Strongly Disagree	18%
<i>In terms of fire evacuation, roof access is also available.</i>	Agree & Strongly Agree	73%
	Disagree & Strongly Disagree	18%

Table 5. Fire extinguisher analysis.

Questions	Percentage of feed back	
<i>Adequate fire extinguishers are available on every floor of the factory and office.</i>	Agree & Strongly Agree	76%
	Disagree & Strongly Disagree	7%
<i>Fire extinguishers are inspected at regular intervals</i>	Agree & Strongly Agree	60%
	Disagree & Strongly Disagree	6%
<i>All fire extinguishers in the factory and office are active and workable.</i>	Agree & Strongly Agree	68%
	Disagree & Strongly Disagree	12%

started to focus on worker safety issues. Notably, all of our sample sizes are under the company signatory, and in order to prevent the fire hazard and ensure a better workplace for the garment workers, they have taken all the necessary steps as implementing fire safety gadgets practice sessions, maintaining proper check-lists for the safety gadgets, ensuring emergency exit/fire exit route and so on.

6. Conclusion

The readymade garments industry plays a vital role in the economy of Bangladesh while Bangladesh RMG is the second largest exporter in the world. About 4.4 million employees and workers are depending on this industry and contribute towards women's empowerment since the majorities are women. But in 2012, Tazreen Fashion fire incident and in 2013, Rana Plaza building collapse incident took more than 1000 people's life and more than 2500 people were in-

jured. These two deadliest incidents showed us the condition of the Bangladesh garments industry's working environment and the worker's safety level was overlooked. After the Rana Plaza incident, a legally-binding agreement took place between global brands & retailers and Industrial Global Union & UNI Global Union and eight of their Bangladeshi affiliated unions in order to ensure a safe and healthy workplace for Bangladeshi garments factory workers and the agreement was named by the Accord on Fire and Building Safety in Bangladesh (Accord, 2013).

The purpose of this study is to understand whether the Accord 2013 has improved fire safety in the Bangladeshi garments industry or not. From the result, we found most of the garment factories are becoming more concerned about fire safety issues, as they have started to take fire safety precautions. In this study, we have analyzed what safety precautions garments factories are taking and how they are implementing on the employees and workers in order to prevent the fire hazard. We focused on the basic fire safety gadgets including, fire drill, fire extinguisher, fire alarms, emergency exit/fire exit, fast aid, and water tank for the fire fighter. In addition, in this study, we came up with some impressive results that, most of the garment factories and offices have taken all the basic fire safety precautions. From our selected sample size, all of the factories and offices are using different fire safety gadgets and maintaining them within a fixed time frame. Moreover, authorities are also encouraging their employees and workers for taking part in fire safety training sessions. On the other hand, emergency exit/fire exit is another construction safety issue that helps to evacuate during any emergency case. In terms of emergency exit/fire exit route, maximum factories and offices are following the standard protocols while only a few factories and offices are overlooking it.

Notably, as the worker's safety is concerned, therefore, proper maintaining is also required for all of the fire gadgets. From the analysis, we found positive outcomes towards the fire safety precaution, but there are also some negative feedbacks in terms of maintaining the safety gadgets. In addition, in the case of emergency exit/fire exit route and roof access point, the result is not up to the mark. Emergency exit/fire exit requires an adequate level of measurements during the construction and most of the garment factories are being constructed in congested areas. Moreover, all garment factories should be built in some open areas rather than in congested areas as few of our selected factories are situated inside of the city.

For this study, we have selected ten garment factories in order to collect data and all of them are inside of Dhaka city and that can be considered as one of the prime limitations for this study. For further research, factories outside Dhaka can also be selected. Secondly, due to the pandemic situation, we were unable to conduct physical factory visits, therefore, data can be considered biased. Therefore, in the future, physical factory visits can be prioritized in order to gather authentic data.

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Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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