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Analyzing Raw Material Procurement Risk in the Supply Chain Management of Bangladeshi Readymade Garment Industry

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Abstract

Raw material procurement in the Bangladeshi ready-made garment (RMG) industry, a crucial sector of the national economy which highly relies on imported materials. This study has been done using qualitative approach, conducting content analysis of existing literature, including peer-reviewed journals, reports, and online media, to identify and analyze the challenges faced by the RMG sector in procurement of raw materials for production. The study finds out a range of raw materials procurement risks, categorized by their impact levels. High-impact risks include destruction caused by the COVID-19 pandemic, price volatility in the global market, changes in bond policies, and geopolitical tensions. Medium-impact risks enclosed issues such as the procurement of low-quality raw materials, importer-imposed sourcing restrictions, customs delays, theft, and dumping. The study acknowledges limitations due to its reliance on secondary sources and not conducting it on the basis of primary. However, the findings provide valuable insights for industry leaders, policymakers, manufacturers, and exporters, highlighting the need for strong risk mitigation strategies, improving supplier relationships, and technological integration to enhance supply chain consistency. This study contributes to the policy makers and industry leader's knowledge specifically addressing raw material procurement risks in the Bangladeshi RMG sector. By identifying and analyzing these challenges, the research offers practical implications for industry stakeholders to improve procurement processes, reduce procurement risks, enhance consistency, and ensure the sustainable growth of this vital economic sector.

Keywords: RMG, Bangladesh, Supply chain, Raw materials, Procurement, Risk management, and Textiles.

1. Introduction

Bangladesh, an agriculturally dependent country, got out of the Least Developed Country (LDC) category on February 26 and was recommended to be a developing country by the United Nations Committee for Development Policy (CDP). In just 50 years since independence in 1971, the war-torn country has achieved unprecedented success in building digital Bangladesh, empowering women and increasing expatriate income, while gradually focusing on education, health, power sectors. Another significant thing to be known to the world in this trend of

development is the recognition of a total of 11 products of this country as Geographical Indications (GI) so far (Talokder, 2023). Moreover, despite being predominantly agricultural, some industries have grown quite a bit in this country. Among which housing, shipping, medicine, processed food and IT industries are notable (People's Republic of Bangladesh, 2024). However, the garment industry of this country has gained a significant reputation in the outside world.

Bangladesh ranks second in the export of ready-made garments in the world (Mirdha, 2020). This industry contributes significantly in earning foreign exchange every year. In 2018-2019 financial years, 85 percent of the total export earnings came from this industry. The total value of exported readymade garments during this period was 34.13 billion US dollars (Bangladesh's key garments sector hits a wall with shortage of raw material, 2020). Naturally, Bangladesh government gives importance to advance this industry. To increase exports, the government provides special facilities to its exporters, such as cash, concessions in bonded warehouses, easy loans at low interest, reduction in red tape, etc. However, Bangladesh's garment industry is facing challenges like worker unrest, energy shortages, and financial pressure. In the past six months, 100 factories have shut down, leaving 50,000-60,000 workers unemployed. Additionally, 158 factories are struggling to pay workers on time. Smaller factories are being ignored by government policies, while larger ones receive some support. The energy crisis and high production costs are making things worse, causing buyers to move to other countries and on the other hand, the industry has to depend on imports for its main raw materials, which has made its way forward precarious.

Problem Statement

Bangladesh's ready-made garment (RMG) sector has grown to be an important part of the national economy, maintaining a consistent contribution to both GDP and employment of people. The RMG industry has significant problems in raw materials procurement; a must needed component of its supply chain, even though it has economic significance. The sector is vulnerable to risks like customs delays, transit problems, theft, and the dumping of export or import items because of its relay on imported raw materials, such as textiles, yarns, and accessories. These hazards have made weak the industry's ability to compete globally in addition to constructing with production schedules on right time.

According to some research, inefficiencies in the RMG supply chain's raw material procurement process raise procurement and operating costs drastically and make it extremely hard to fulfil international orders on time, which is important to the industry's ability and capacity to compete globally (Hossain M. S., 2021). Ancient procurement methods, weak infrastructure, and a highly dependence on manual procedures that are unable to compete and satisfy the ever-changing needs of global supply chains are just a few of the problems that frequently make a cause of these inefficiencies in RMG sector. These difficulties and problems are introduced when they are accompanied by outside disturbances and unethical policies.

According to (Gazi *et al.,* 2024), the COVID-19 pandemic created serious weaknesses in the RMG supply chain, leading to order cancellations, delays in production, and material shortages while producing that had a negative impact on production schedules and profitability of the organization. Trade conflicts and regional problems in policy and relations are examples of geopolitical tensions that have further disrupted procurement channels by altering the flow of materials and increasing costs through tariffs or other imposed tax or changed supply routes. In order to reduce these risks and maintain perfect and consistence growth, the sector has been under high pressure to innovate and adapt with the situation.

Furthermore, delays and inefficiencies of raw materials procurement are still getting worse by the procurement processes' lack of technological integration and adoption with transparency. The industry suffers from poor demand forecasting, ineffective inventory control, and restricted supply chain visibility in the absence of strong digital technologies adoption, which leads to frequently delays in delivery, poor quality of product, and higher operating costs in production (Sarker, 2024). The gap between the industry's capability and actual performance is way behind by these systemic inefficiencies and problems,

which make it more difficult for the sector to work more quickly to shifting market needs and global disruptions in procurement process.

Additionally, other research discusses that the industry's capacity to successfully respond to supply chain disruptions is constrained by problems in supplier relationships and lack of risk management procedures in RMG sector (Chowdhury *et al.,* 2019). According to a study by (Islam M., 2021), disclosed that RMG export profits greatly boost Bangladesh's economic growth over the long and short terms period both. Whereas FDI (Foreign Direct Investment) includes has no relation on observation in long-term impact and a negative short-term impact, RMG export earnings have a good impact on economic growth. Furthermore, RMG exports draw FDI inflows, underscoring the sector's significance in promoting growth of the economy. In order to decrease capital flow and further improve economic performance, this study suggests increase the abilities of RMG employees through training & development initiatives and promoting FDI in backward connections, especially for woven fabrics for RMG raw materials procurement process.

For Bangladeshi RMG sector to grow sustainably and strongly, it is important that these risks be recognized and mitigated with proper initiatives. But in spite of its importance, there is a lack of deep knowledge and studies that focused on the hazards and harm related to the acquisition of raw materials in this industry. This study mainly intended to close this gap by investigating the RMG supply chain's existing condition, determining the raw materials utilized, and examining the procurement procedures in order to suggest risk-reduction strategies and policies.

Research Objective

The main objective of this study is to find out the risk of raw material procurement in Bangladeshi ready-made garment industry. Apart from the main objective it also has some secondary objectives. They are shown below:

a) To know about the current situation of the garment industry in Bangladesh
b) To know about the raw materials that are generally used in this industry
c) To know about the process of supply chain management by which raw materials are procured.

2. Review of Literature

Since the dawn of civilization, humans have been conducting various researches. At one time Bangladesh's main export earnings were from jute and jute products known as "golden fiber". However, since the late eighties, due to the increase in the exports of the ready-made garment industry, various quarters have gradually started working for the development of this industry. Researchers also focus on research work on various aspects of this industry. Researchers Nuruzzaman and Ahasanul Haque tried to find out what factors are responsible for the increase in lead time. According to them, the activities involved in bringing in raw materials for the garments from abroad are mainly increasing the lead time. However, they also show how to reduce it. They wrote, if all those raw materials can be collected from local sellers instead of abroad, this time will be reduced a lot (Nuruzzaman & Haque, 2009). Some other researchers have found a total of 12 key elements important for supply chain management in the apparel industry, they are: location, transportation and logistics, marketing and channel restructuring, sourcing and supplier management, information and electronic mediated environments, product design and new product introduction, service and after sales support, reverse logistics and green alliances, outsourcing and strategic alliances, metrics and incentives, and global issues (Basak *et al.,* 2014; Ebrahimifard *et al.,* 2024).

Meanwhile, Olusakin S Akindipe found several inconsistencies in the raw material management of manufactured garments. He said that very low level of computer usage, level of inability to use models for inventory decision-making, involvement of uneducated and unprofessional personnel for raw material and inventory maintenance, etc. are hampering raw material management (AKINDIPE , 2014). Thus till now research works have been carried out on various aspects of readymade garments industry, but no single study has been done on the problems faced by garment factories only with procurement of raw materials. Hence this article discusses this topic.

3. Methodology

This research is mainly qualitative in nature. The data and information of the study are collected entirely from secondary sources. Sources include books, peer-reviewed journals, journal reports, blogs, and other online media. The article is concluded through content analysis.

Readymade Garment Industry and Supply Chain Management

History of Garment Industry

There were not many garment factories in Bangladesh before the seventies. Those that existed were made only on an individual level by customers who ordered their own clothes with specific instructions. Among them is a small tailor shop named 'Riaz Store' established in Dhaka in 1960. Later, in 1973, it changed its name to 'Mrs. Riaz Garments Limited' and expanded its scope of activities. In 1978, it debuted as the country's first garment exporter by selling ten thousand pieces of boys' clothes in Paris (BGMEA, n.d.). Another early company named 'Baishakhi Garment' was established in 1977 for export purpose. 'Desh Garments Limited' was established in 1979 as the first non-equity joint venture in the country for the purpose of 100% export. At that time, Desh Garments had a technical and marketing cooperation relationship with Daewoo Corporation based in South Korea. Another company from South Korea "Yangons Corporation" set up its first equity joint venture in 1980 with the country's "TexGym Limited". In that joint venture named "Yangons Bangladesh", Bangladeshi shareholding was 51 percent of the total equity. The company exported jackets to Sweden in December 1980 as the first shipment Bangladeshi shareholding was 51 percent of the total equity. The company exported jackets to Sweden in December 1980 as the first shipment (Islam, 2016).

Thus, from the late 1980s, garment factories started to grow for the purpose of export. Gradually, only 9 in 1978, 47 before 1982, 587 between 1984-1985 and 1999, the number of export-oriented garment production units stood at about two thousand and nine hundred (Jabbar & Shaker, 2016). Here is what the online newspaper Deutsche Welle (DW) has to say about the total number of garment factories in the country: According to the report of Bangladesh Bank, the number of garment factories in the country was 5 thousand 876, which has now reduced to 4 thousand 621. A total of 1,255 were closed in four years (Swapan, 2019). Regardless of the number of factories, the industry is currently going through several problems. Among them, the uncertainty in the procurement of raw materials is mainly highlighted in the article.

Supply Chain Management

The concept of supply chain is quite new in business. Its first evolution was organized in 1910 by Ford Motor Company, a US-based automobile manufacturer. Basically, supply chain refers to all the activities related to the process of getting a product or service from the raw material supplier to the producer to the final consumer. Supply chain management involves planning, designing, and controlling the flow of materials, information, and money through the supply chain to deliver higher value to the end customer with efficiency and effectiveness (Shah, 2016). This point can be illustrated by the following figure.

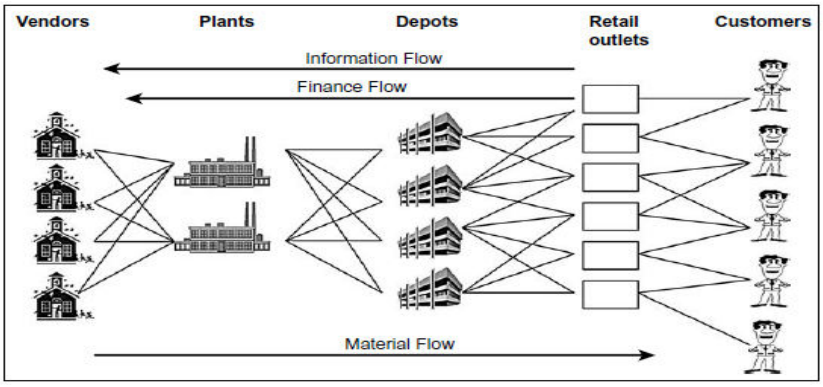

Fig. 1: A supply chain network (Bangladesh's key garments sector hits a wall with shortage of raw material, 2020).

Supply Chain Management in Readymade Garment Industry

(Nuruzzaman, 2007) has tried to highlight the supply chain of the garment industry in Bangladesh very easily with the help of following image -

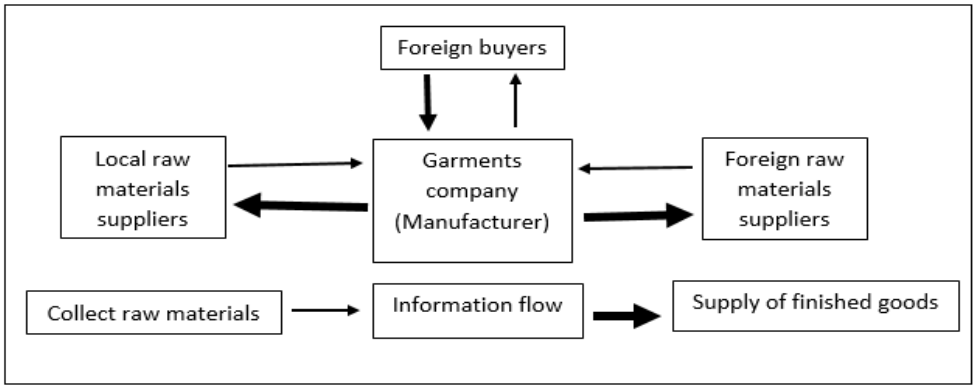

Fig. 2: Business Structure of Bangladeshi RMG Industries (Nuruzzaman, 2007).

Raw materials of readymade garment industry

Although cloth is the main material for making clothes, several other types of raw materials are required. The raw materials of garment industry can generally be divided into 5 categories. 1) Fiber, 2) Yarn, 3) Fabric, 4) Dyes, and 5) Chemicals and Auxiliaries. Each of these again has a classification. For instance, fiber can be divided into following parts:

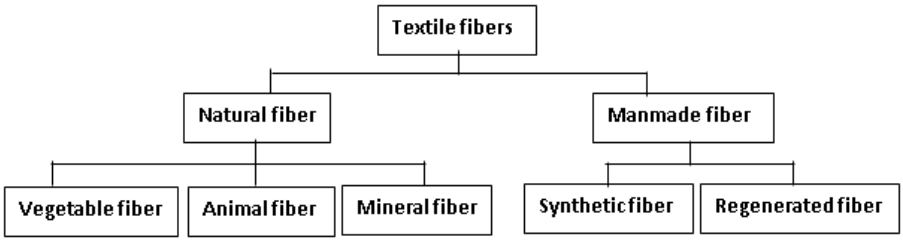

Fig. 3: Classification chart of textile fibers (Jabbar & Shaker, 2016).

The staple fiber is made into yarn and the yarn is made into cloth. Cloth can again be divided into two parts. 1) Woven and 2) Knitted. Commercially, fabric or cloth is known by various names. For example, Aertex, Angora, Braid, Brocade, Chiffon, Canvas, Chambray, Denim, Fleece, and Hopsack. Again, dyes are water soluble substances. It is very important to know which dye works on which fabric. Chemicals and auxiliaries greatly help in carrying out garment manufacturing operations such as preparation, dyeing, printing and finishing more efficiently.

Raw material collection from Different countries

The RMG industry in Bangladesh is largely dependent on imported goods from nations like China, India, and Turkey. With 70% of the raw ingredients for clothing made of man-made fibers coming from China in 2021, India came in second with 10%. Imports of cloth and yarn are also largely dependent on China and India. Here is the table that showing which materials comes from which countries:

Table 1: Raw materials procurement from foreign countries.

Material	Countries
Yarn	India, China, Bangladesh
Fabric	India, China
Dyes	India, China, Turkey
Fibers	China (70% in 2021), India (10% in 2021),Bangladesh
Chemicals	India, China, Turkey

Bangladesh's RMG sector heavily depends on imports for raw materials, yarn, fabric, dyes, and chemicals.

- **Yarn:** Yarn imports mainly come from India and China, with a 10% import duty. Export-oriented factories can utilize a duty drawback incentive.In order to offer yarn to the local markets, around 300 spinning mills are involved (Ahmed, 2024) (Sarder *et al.,* 2024) (TextileToday Analysis, 2023).
- **Fabric:** Bangladesh sources fabric from India and China, with a 25% import duty, offset by duty drawback incentives for export-oriented factories (Ahmed, 2024) (Sarder *et al.,* 2024).
- **Dyes:** Textile chemical dyes are imported with a 5% duty, primarily from India, China, and Turkey.(Kabir, 2019).
- **Fibers:** In 2021, 70% of man-made fiber raw materials were imported from China, while 10% came from India.There are about 430 spinning mills in operation, with just 27 mills producing man-made yarn, specifically polyester. The mills' output can barely meet 20% of national demand for the product.(RMG Bangladesh, 2023) (Sarder *et al.,* 2024) (Setu, 2022).
- **Chemicals:** Most chemicals for textile processing are imported from India, China, and Turkey (VOLZA GROW GLOBAL, 2024).

This reliance on imports renders the sector vulnerable to global supply chain disruptions, emphasizing the significance of diversifying sources and increasing domestic production to maintain sustainability and cost savings.

Raw material collection process

Ready-made garment manufacturers are just like a tailor, they first get orders from foreign buyers, then they import cloth as the main raw material mostly from abroad as per their instructions. Butin some cases it is procured from local suppliers. It then manufactures garments from it and exports it to those foreign buyers (Quddus & Rashid, 2000). Nuruzzaman has shown the method of raw material collection through the following figure.

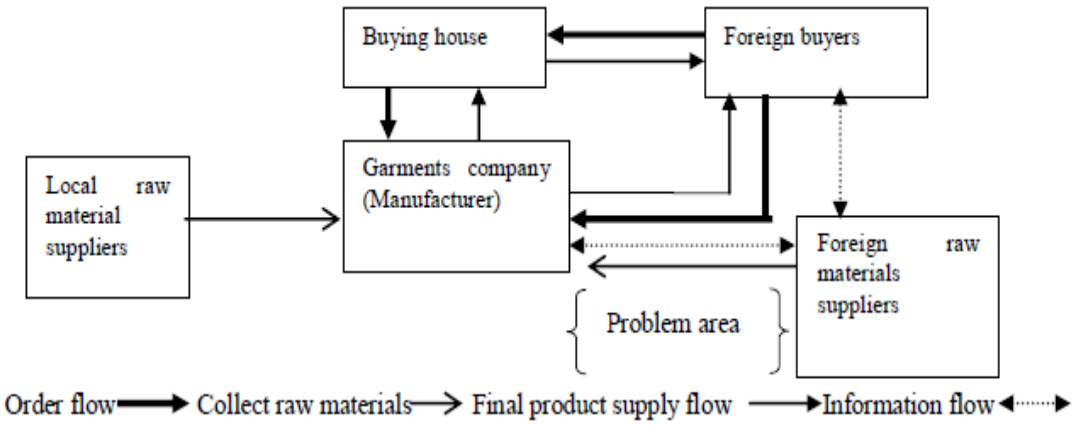

Fig. 4: Business structure and raw materials collection process (Nuruzzaman, 2007) (Nuruzzaman & Haque, 2009).

Constraints of raw material collection

The main raw materials for ready-made garments are fabrics which have to be imported mainly from China, Indonesia, and India. Some of the supporting materials in this industry are buttons; label tags, collars, etc. are also procured from domestic suppliers (Nuruzzaman & Haque, 2009). For a long time, the domestic manufacturers have been going through several problems in procuring raw materials which are discussed below.

Effect of COVID

The dreaded claw of Corona has touched more or less almost all the industries of the world. Some industries have completely shut down and many industries are struggling. The garment industry of Bangladesh is not left out. Garment factories in Bangladesh mainly produce two national garments, one is knit and the other is woven. Out of these two, the oven garment factories are the most at risk. Because about 85 percent of the yarn of knitwear is produced in the country. On

the other hand, 80 percent of the fabrics required for oven garments come from China. Not only that, 85 percent of the accessories for all types of clothing such as buttons, zippers, labels, etc. come from same country. Since the origin of Corona is China, it's not shipped from there as previous time. So, the supply is halved as the garment industry is dependent on China. As a result, it is not possible to fully fulfill the product orders. This has had a negative impact on exports. It also impacted on the order cancelation due to health and security issues for both workers and importers. The workers faced several problems included salary cut job losses or sent home without any wages which create the financial and economic problems for them (Islam *et al.,* 2020).

Price increase

The increase of dollar price and the price related to row materials procurement has increases day by day and resulted in the higher production cost and lower revenue for RMG industries. The higher procurement cost of raw materials has lead to the loss for industries and also the increases in export import duty resulted the problematic situation for RMG industries (Hasan *et al*., 2018).

Possibility of low quality raw material

Since most of the cases have to depend on foreign suppliers for raw materials, many times there is a possibility to get lower quality raw materials than what is demanded. As a result, it is not possible to produce high quality products even if desired. According to a study, 72 percent of the managing directors of the garment industry said that raw materials such as cotton, yarn, dyes etc. have to be imported from abroad. As a result, this dependence has hindered the development of their industry. In addition, foreign suppliers sometimes supply inferior raw materials resulting in inferior products (Chowdhury *et al.,* 2014).

Importers' order

Many times the importing company includes the specifications of the product as well as the conditions of where to procure the materials for making the product. This has a big impact on the price of the product. In this case, it becomes difficult to procure low cost or high quality materials from other sources. There is a possibility of creating such difficulties during the export of Bangladeshi products in the Indian market at zero duty. During Prime Minister Manmohan Singh's visit to Bangladesh, 47 textile items were allowed to enter India duty-free, including several ready-made garments. DK Nair, Secretary General of the Confederation of Indian Textile Industry (CTI), said in this regard,

"Chinese textiles are going to Bangladesh as raw materials and are being turned into ready-made garments. Later it enters the Indian market. I think India should give one condition. The condition is that Bangladeshi garments will be allowed to enter duty-free only if they are made from Indian raw materials" (Bagchi, 2012). On the other hand, clothes are available from China much cheaper than India. For example, the price of a denim fabric per yard is two dollars and two dollars and twenty cents in China and India respectively (Bagchi, 2012) .

Changes in Bond Policy

Through an order in 2012, several accessory products (cartons, hangers, plastic products, etc.) brought from bonded warehouse facility to duty-free facilities could be easily purchased by unbounded or non-bonded 100% exporters. However, as per the new rules, i.e. the bond commissioner at office has stopped the approval of raw material availability or utility permission (UP), the unlicensed companies will not be able to purchase any goods brought to the duty free facility from the bonded warehouse facility. Due to lack of raw materials, about three hundred factories are about to be closed (Tipu, 2021) .

Price Volatility and Supply Chain Disruptions

Price volatility in raw materials, including cotton and synthetic fibers, create a high risk to the RMG sector in Bangladesh. According to (Islam M., Sustainable procurement in the RMG sector of Bangladesh: a focus on ethical practices & environmental impact, 2023), differences in global markets contain by changes in demand, supply, and geopolitical factors create significant challenges for manufacturers and producers aiming to maintain and stabilizedproduction costs. The unpredictability of raw material prices forces manufacturers to find and measure an unstable financial landscape, impacting their ability to plan and

executed production efficiently. Additionally, supply chain disruptions further even worse these challenges, as events like pandemicsand natural disasters can became a huge problem for availability of raw materials, leading to increased costs of raw materials procurement which resulted production delays. According to (Hossain & Akter, 2022), such problem and risks disrupt the entire supply chain, affecting not only the procurement process but also the timely delivery of finished goods or products. Price volatility and supply chain disruption highlighted the need for reform and boosts risk management strategies in the RMG sector to mitigate potential economic losses and ensure sustainable operations.

Customs Delays and In-Transit Risks

Customs clearance delays represent a high and impactful procurement challenge for the RMG sector, often disrupting production timelines and hampering supply chain work ability and efficiency. According to (Bala *et al.,* 2019), bureaucratic inefficiencies at ports or transits, such as export-import paperwork processing and weak infrastructure, can create a reason of delays. These issues slow down the delivery of essential raw materials, causing bottlenecks in production and procurement which impacting the timely fulfillment of orders. Such delays not only stop or harm operational workflows but also affect the industry's competitiveness and meeting global demands in markets.

In addition to customs delays, in-transit risks like theft, damage, and lose of products are one of the considerable threats to the supply chain. According to (MURSHID, 2011), improper handling during transportation of goods and raw materials, along with insufficient security measures, mostly leads to material loss or damage. These incidents increase procurement costs, create supply gaps, and force manufacturers to depends on costly emergency purchases to meet production needs.

Theft and Dumping Risks

Theft and dumping of materials are serious problems for the RMG sector in Bangladesh, creating challenges for manufacturers and companies which are resulted in reducing profits. High-value materials like fabric and silk are often stolen by the thief, especially during transportation from supplier to producer. (Arman *et al.,* 2021) highlighted that this ongoing issue not only causes financial losses but also disrupts production schedules and also created the problem in supply chain, as manufacturers have to replace stolen goods to keep their operations running it increases the cost already which finally reached to use bad quality of raw materials to maintain the cost. This shows the need for better security measures and tracking systems to prevent theft and ensure materials are delivered safely to the manufacturer.

Another issue is the dumping of poor-quality or problematic materials in the Bangladeshi market, which makes the situation even worse (Noman, 2024) explained that these low-quality materials often do not meet the standards required for production as per foreign requirement and standards, leading to extra work, wastage, and inefficiency of product sell and storage. Using contaminated or problematic materials can also harm the reputation of manufacturers, especially in global markets where quality is essential and it must be followed. To solve these problems, it is important to have strict rules and regulations to stop the entry of problematic materials and stronger quality checks to make sure only reliable and good materials are used in production.

Quality and Supplier Reliability Issues

The lower quality of raw materials is a major problem for the RMG sector in Bangladesh, as manufacturers often face challenges in ensuring that the quality of materials meets the required standards as per global perspective (Hoque) points out that poor-quality raw materials can cause delays, wastage, and extra costs due to the need for rework to meet the requirements. This is especially harmful in a competitive industry where maintaining good quality and performance is essential to satisfy international buyers and protect the reputation of manufacturers.

Without reliable and good quality materials, production schedules are disrupted or harmed, and there is a risk of losing customers or buyers and also resulted to facing financial losses from rejected orders. Another big issue is supplier reliability, which plays a key role in keeping the supply chain running smoothly and corruption free (Rahman, 2023) explains that

depending too much on a small number of suppliers can cause extensive problems, especially if these suppliers fail to deliver raw materials on time. Late deliveries of raw materials can delay production, while unreliable suppliers may also charge higher prices of delivery, increasing costs for manufacturers and production cost also. To solve these problems, manufacturers need to work with multiple suppliers, build strong relationships with reliable and trusted ones, and set clear quality standards to ensure they get good and high-quality materials on time.

Regulatory and Compliance Challenges

The rules and regulations around raw material procurement also create challenges for the RMG sector in Bangladesh. Changes in import/export laws and tariffs can lead to higher costs and delays of delivery sometimes manufacturers take wrong steps to gain the materials, as noted by (Islam M., Sustainable procurement in the RMG sector of Bangladesh: a focus on ethical practices & environmental impact, 2023). Additionally, manufacturers face extra pressure to meet international standards for eco-friendly or ethically sourced materials to meet the sustainability. While these certifications are important, they add more complexity and expenses to the process of acquiring raw materials, making it harder for manufacturers to manage their operations smoothly and reducing the cos as much as possible.

Lead Time Uncertainty and Geopolitical Risks

Uncertainty in lead times is a significant issue for raw material procurement in the RMG sector, creating challenges for manufacturers in meeting production and delivery deadlines (Arnob *et al.,* 2020) explain that sourcing raw materials from international suppliers often involves long and uncountable waiting periods, which can dysfunctional production schedules and delay order fulfillment.

These interruptions and problems can lead to increased operational costs and harmful in the relationships with buyers, who may expect timely delivery of products. Geopolitical risks, such as trade restrictions for specific region and enmity, further complicate the procurement process (Razzaque, 2022) highlights that tensions in international trade can result in supply scarcity, making it difficult for manufacturers to secure the raw materials they need for production. These issues not only cause delays in gaining the materials but also increase costs due to the limited availability of materials and the need for expensive and costly alternative sourcing. Together, lead time uncertainty and geopolitical risks pose major challenges for the RMG sector specially acquiring raw materials, emphasizing the need for better planning, diversified sourcing strategies, and effective risk management to ensure a smooth and fast supply of materials.

High impact risks

The COVID-19 pandemic caused significant supply chain disruptions, especially with regard to the importation of fabrics and accessories from China. This resulted in production delays and financial difficulties for workers as a result of job losses and pay reductions. Production prices have gone up and profit margins have shrunk due to rising raw material costs brought on by dollar exchange rate swings. The survival of numerous factories is at risk because to changes in bond policy those have limited access to duty-free raw supplies. Additionally, it has been difficult to maintain steady manufacturing costs due to price volatility and supply chain disruptions brought on by changes in the global market and geopolitical issues.

Medium impact risk

Dependence on overseas suppliers frequently results in lower-quality raw materials, compromising the manufacturing of high-quality products. Importer-specific procurement conditions might raise costs and reduce procurement flexibility. Customs delays and in-transit hazards, such as theft and damage, disrupt production schedules and drive up procurement prices. Material theft and dumping result in financial losses and interruptions to supply chains.

High Impact Risks

- Effect of COVID
- Price Increase
- Changes in Bond Policy
- Price Volatility and Supply Chain Disruptions
- Quality and Supplier Reliability Issues
- Regulatory and Compliance Challenges

- Lead Time Uncertainty and Geopolitical Risks

4. Results and Discussion

Table 2: Content analysis table for the constraints of raw material collection in the RMG sector.

Risk Category	Description	Impact Level	Sources
Effect of COVID	Disruption in supply chain, reduced imports from China, impact on production, order cancellations, worker salary cuts, job losses.	High	(Islam *et al.,* 2020)
Price Increase	Rising costs of raw materials and procurement, increased production costs, reduced revenue, higher export-import duties.	High	(Hasan *et al.,* 2018)
Possibility of Low Quality Raw Material	Dependence on foreign suppliers leading to the risk of receiving inferior raw materials, hindering production of high-quality products.	Medium	(Chowdhury *et al.,* 2014)
Importers' Order	Importers specifying procurement sources, affecting costs and procurement flexibility.	Medium	(Bagchi, 2012)
Changes in Bond Policy	New rules restricting access to duty-free raw materials, risking closure of factories.	High	(Tipu, 2021)
Price Volatility and Supply Chain Disruptions	Fluctuating raw material prices and supply chain disruptions due to global market changes, pandemics, and natural disasters.	High	(Islam M., Sustainable procurement in the RMG sector of Bangladesh: a focus on ethical practices & environmental impact, 2023) (Hossain & Akter, 2022)
Customs Delays and In-Transit Risks	Bureaucratic inefficiencies, delays in customs clearance, risks of theft, damage, and loss during transit.	Medium	(Bala *et al.,* 2019); (MURSHID, 2011)
Theft and Dumping Risks	Theft of high-value materials during transportation, dumping of low-quality materials in the market.	Medium	(Arman *et al.,* 2021); (Noman, 2024)
Quality and Supplier Reliability Issues	Poor-quality raw materials causing production delays and additional costs, unreliable suppliers impacting production schedules.	High	(Rahman, 2023)
Regulatory and Compliance Challenges	Changes in import/export laws, tariffs, and the need to meet international standards for eco-friendly materials, adding complexity and cost to raw material procurement.	High	(Islam M., Sustainable procu-rement in the RMG sector of Bangladesh: a focus on ethical practices & environ-mental impact, 2023)
Lead Time Uncertainty and Geopolitical Risks	Long and unpredictable lead times from international suppliers, geopolitical risks such as trade restrictions and tensions affecting raw material availability and increasing procurement costs.	High	(Arnob *et al.,* 2020); (Razzaque , 2022)

A number of significant limitations in the acquisition of raw materials for Bangladesh's Ready-Made Garments (RMG) industry are identified by the study. Here's a flowchart depicting the risks associated with raw material collection for the RMG sector, ranked by their impact levels:

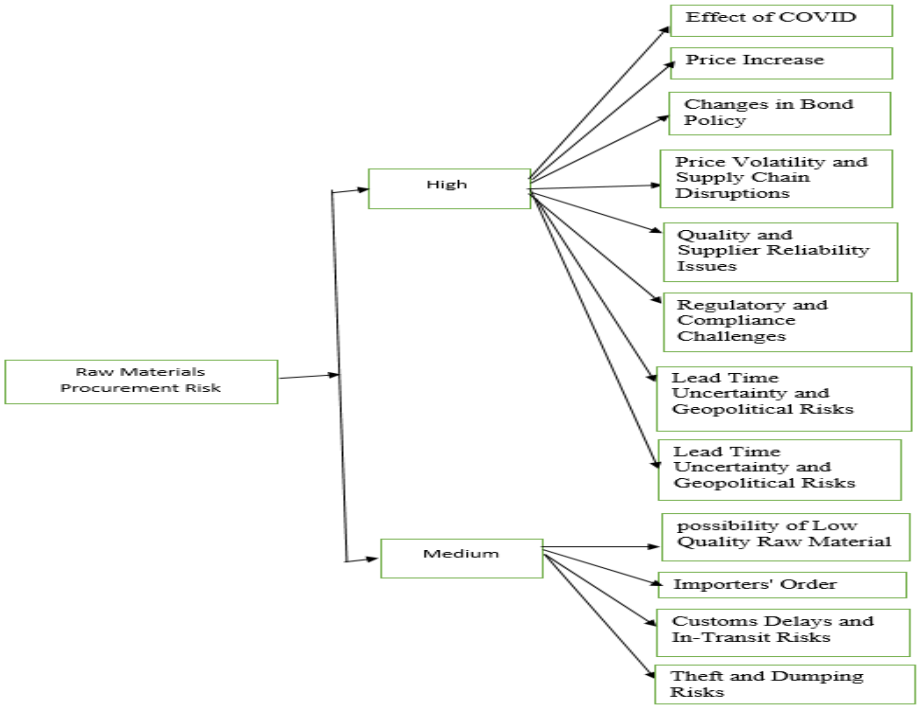

Fig. 5: Raw materials procurement Risk measurement.

Medium Impact Risks

- Possibility of Low Quality Raw Material
- Importers' Order
- Customs Delays and In-Transit Risks
- Theft and Dumping Risks

This visual representation helps in understanding the severity and flow of various challenges faced by the RMG sector in raw material procurement

Implications

If the problem of raw material procurement risk in the supply chain management of the Bangladeshi ready-made garment (RMG) industry is solved, multiple stakeholders and related will benefit, including:

Manufacturers

Improve in production efficiency by ensuring the timely and availability of raw materials, reducing delays in the manufacturing process. The high chance of cost savings by minimizing risks such as theft, transit delays, and emergency procurement expenses, it also improved product quality through timely and regular access to high-quality raw materials.

Exporters

Make strong reputation as a reliable and trusted supplier among international buyers by ensuring timely delivery of products. It also increased revenue opportunities due to the ability to fulfill larger orders without any disruptions and delays. Improved the competitive advantage in the global market through better supply chain trustworthy source.

International Buyers

Reliable and trusted sourcing from Bangladeshi suppliers, ensuring the availability of garments industry as per market demands in international markets. Timely and accurate delivery of orders, attracting buyers to maintain their supply chain schedules and meet customer expectations and trust.

5. Conclusion and Recommendation

Raw material is a very important component of readymade garment industry. The Bangladeshi garment industry has faced various complications in the procurement of that raw material. However, above all, the current corona epidemic has separately increased the fear of the survival of this industry. Not only the risk of raw material procurement, there is a big fear of reduced demand from buyer countries. Because, the main market of Bangladesh is Europe and America. And the Corona situation has had a major impact on their country as well. And during and after any calamity, people usually buy daily necessi-

ties, not fashionable things. There is already a glimpse of this in the loss of purchase orders from several factories (Swapan, 2019). The first wave of corona has gone and the second wave has arrived. Although the risk of damage this time is less than before. According to Arshad Jamal Dipu, Vice President of BGMEA, the goods sent earlier are stuck in the European market. They will sell last year's winter clothes this time. Therefore, it is estimated that this year, about 20 percent of the garment imports from Bangladesh will be in that market (Swapon, 2021). Again, the rest is exported to foreign buyers. However, due to the effect of Corona, the business of many buyers has stopped and many of them have become bankrupt. There is a fear of getting the money owed to them (Parveen, 2020) . The findings of the essay could have been better verified if information and data were collected from primary sources. To navigate raw material procurement risks in the RMG sector, collaboration between stakeholders is most impactful subject. Transparent & communication, payments on time, and negotiated trade terms and conditions can support mutual survival. Supply chain integration, with smooth and easy coordination between suppliers and buyers, enhances consistency and minimizes external dependencies. Adopting IT (Information Technology) solutions can enhance and streamline operations, improve order and supply tracking, and enable real-time decision-making, ensuring greater adaptability during crises. Future research should explore how IT adoption, such as ERP (enterprise resource planning) systems and AI, can improve supply chain consistency and reduce procurement risks in the RMG sector.

6. Ethical Clearance

This study was conducted in accordance to ethical research standards, ensuring integrity, honesty, and fairness throughout the whole research process. The study did not involve any sensitive or personal data that required any additional ethical approval. However, all ethical considerations were adhering to maintain transparency and confidentiality. No harm was caused to any individuals or organizations involved while conducting the study.

7. Author Contribution

K.B.S.: Conceptualization of the study, Research framework development, Guidance in data analysis, Interpretation of results, Critical review, editing of the manuscript, and Final approval of the version to be published. A.F.R.: Study conception and design, Data collection, Literature review, Analysis and interpretation of results, Manuscript preparation, Formatting and referencing. M.N.: Supervision, Validation, Critical revision of the manuscript, and Final approval of the version to be published. N.M.: Formatting support, review article, grammatical support.

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9. Conflicts of Interest

The authors declare that there are no conflicts of interest related to this research.

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