Supply Chain Dynamics for Sustainable RMG Growth in Bangladesh

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Background

- During the last few decades, the global economic environment has been transformed dramatically.
- It has seen a greater integration of the global economy, which is being propelled by capital flows and trade links along with the unprecedented advancement of international trade compliance technologies and innovations.
- Against the backdrop of these global trends, many production centers in the manufacturing sector have been greatly diffused to developing countries from developed countries through the networks of transnational corporations and global supply chains.
- During the COVID-19 pandemic, the industry showed its resilience with greater dependence on local supply chains of inputs and raw materials. The industry is now dependent on more imported raw materials due to difficulties faced by local suppliers after the COVID-19 pandemic.
- The industry will be facing daunting challenges when it has to operate in a duty-free and quota- free (DFQF) environment after Bangladesh's graduation from LDC status in 2026.
- Efficient supply chain management is one of the key aspects of the RMG industry for its sustainability in the DFQF environment.

Objectives

- **Objectives of the study are:**
  - To identify and analyze different stakeholders in the global supply chain of the RMG industry
  - To explore the complexities, weaknesses, and challenges of the existing system
  - To explore barriers and identify solutions for an efficient and cost-effective supply chain for the RMG sector in Bangladesh in the post-LDC environment
  - To suggest solutions to overcome the difficulties and inefficiencies for the sustainable growth of the sector.

- Total 63 firms (medium and large) were surveyed.

- FGD with RMG suppliers and stakeholders

Literature Review

- While Bangladesh has been incorporating the latest technology in its operations, the productivity of its RMG workforce still falls short compared to countries like Vietnam, Cambodia, China, Pakistan, and India. Consequently, Bangladesh is experiencing a gradual decline in its market share, losing ground to competitors such as India and others (Jasmine and Afrin, 2016).

- Hossain and Roy (2016)1 reveals that decision-makers and planners within the RMG sector in Bangladesh should synchronize their supply chain strategies, collaborate closely with all supply chain partners, exchange information across different stages of the supply chain, establish standardized SCM procedures, adhere to industry codes of conduct, adopt emerging technologies, mitigate corruption and bureaucratic challenges in customs processes, and reduce lead times. These actions are crucial for sustaining the growth of the RMG industry.

- Various stages of the supply chain often have conflicting goals and objectives. Asgari and Hoque (2013) explored the potential of integrated supply chains to provide a competitive advantage to the Bangladesh RMG sector. With end consumers in the apparel fashion market becoming increasingly time-sensitive, reducing lead times, in addition to meeting quality and cost criteria, is crucial to securing more orders from buyers.

Literature Review (cont..)

- Tanvir and Muqaddim (2013) conducted an analysis focusing on the compilation of supply chain management within the Bangladesh garment industry. They highlighted the complexity of supply chain management within the RMG sector, particularly due to the intricate nature of global supply chains.

- In the global supply chain context, navigating across borders introduces numerous challenges such as tariffs, non-tariff barriers, exchange rates, and disparities in product requirements, consumer preferences, and business practices. These factors contribute to the complexity of managing supply chains within the RMG sector.

- Lam and Postle (2006) stated that Bangladesh apparel industry lacks awareness of supply chain management concepts and industrial benchmarks, both in manufacturing and retail sectors. Consequently, the performance of the supply chain falls below the global average.
- However, whatever the wage level or lead time (the period from order confirmation to shipment), without proper management of the supply chain, the business could not be viable and sustainable (Hasan, 2017)

- Nuruzzaman (2007) endeavored to enhance the efficiency of the supply chain in the Bangladeshi RMG sector, aiming to attain competitive edge in the global apparel market. This was achieved through an analysis of the current supply chain and a investigation into the relationships among the various stakeholders involved.

- Additionally, Islam (2012) examined critical aspects of the apparel supply chain, including new orders, raw material procurement, production processes, and logistics for finished goods delivery. He emphasized the importance of employing efficient supply chain processes and highlighted the need for improvement within the Bangladesh garment industry to reduce lead times for order fulfillment. His research findings suggested that the adoption of modern, fast, and effective machinery could significantly reduce the time required to deliver orders.

How Does the Supply Chain in RMG in Bangladesh Work?

- **Participant in supply chain system of RMG:** Brands, business providers, materials suppliers, and garment manufacturer

- **Intermediary parties:** freight forwarders, mainline operators (carriers), banks, customs agencies, export promotion bureaus (EPB), ports, transportation services, and clearing and forwarding (C&F) agents.

- Lead Time: Duration from order confirmation to handing over the products to the forwarder for shipment is known as the lead time (previously 120 to 150 days now 90 days)
- Lead time for woven garments (principal materials are imported): 60-90 days
- Lead time for knit items (fabrics are predominantly procured locally): 30-60 days.

- RMG in Bangladesh operates primarily on Cut-Make-Trim (CMT) & FOB process.

How Does the Supply Chain in RMG in Bangladesh Work?

- Production of finished garments relies on the integration of three key stages:
  i) converting fiber/cotton into yarn,
  ii) processing yarn into grey fabric, and
  iii) transforming grey fabric into dyed, printed, designed, and finished products (Habib, 2011).

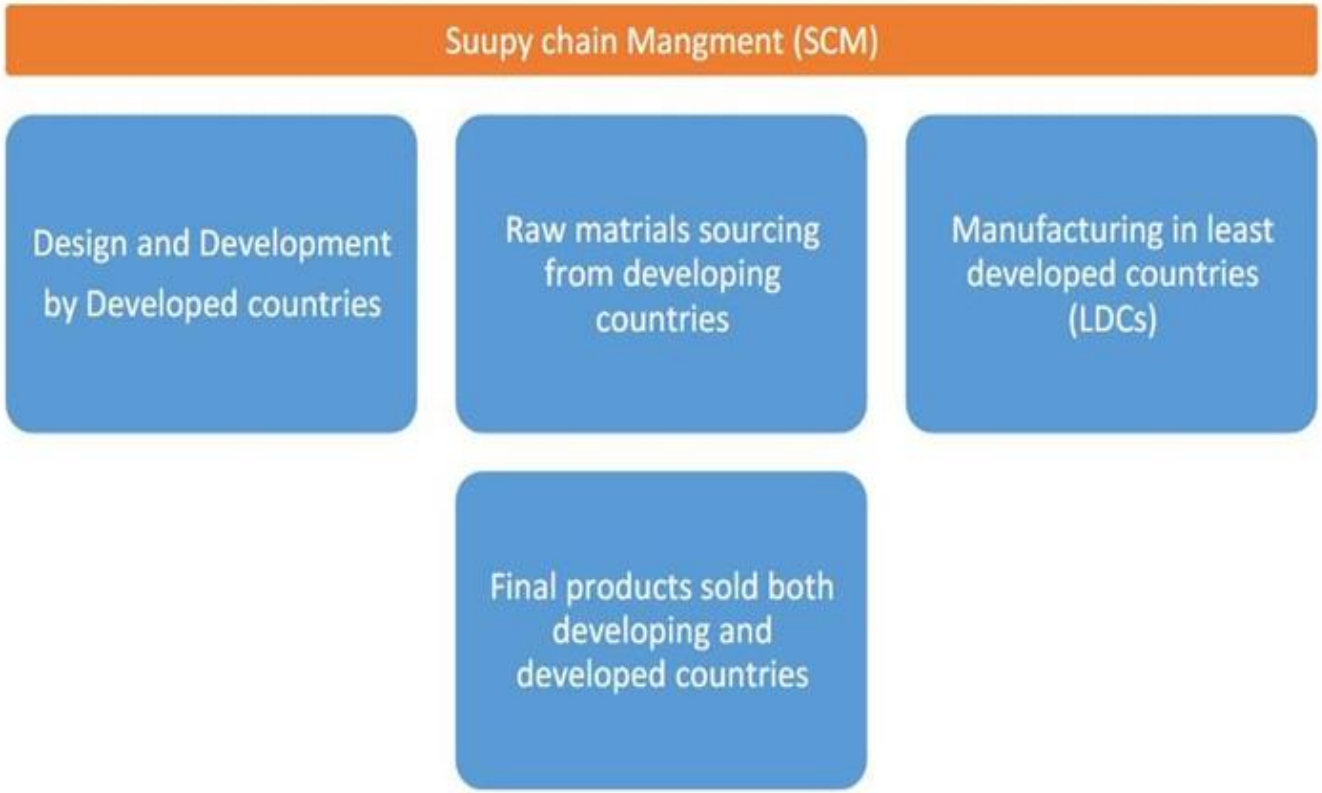
- Bangladesh demonstrates significant capability in converting cotton to yarn, & in knitting and finishing within the knitwear sector.

- However, there is a heavy reliance on foreign sources for dye chemicals to color grey fabric (Habib, 2011), resulting in extended lead times.

- Approximately 80% of accessories demand being fulfilled domestically (Habib, 2011), although concerns persist regarding the quality.

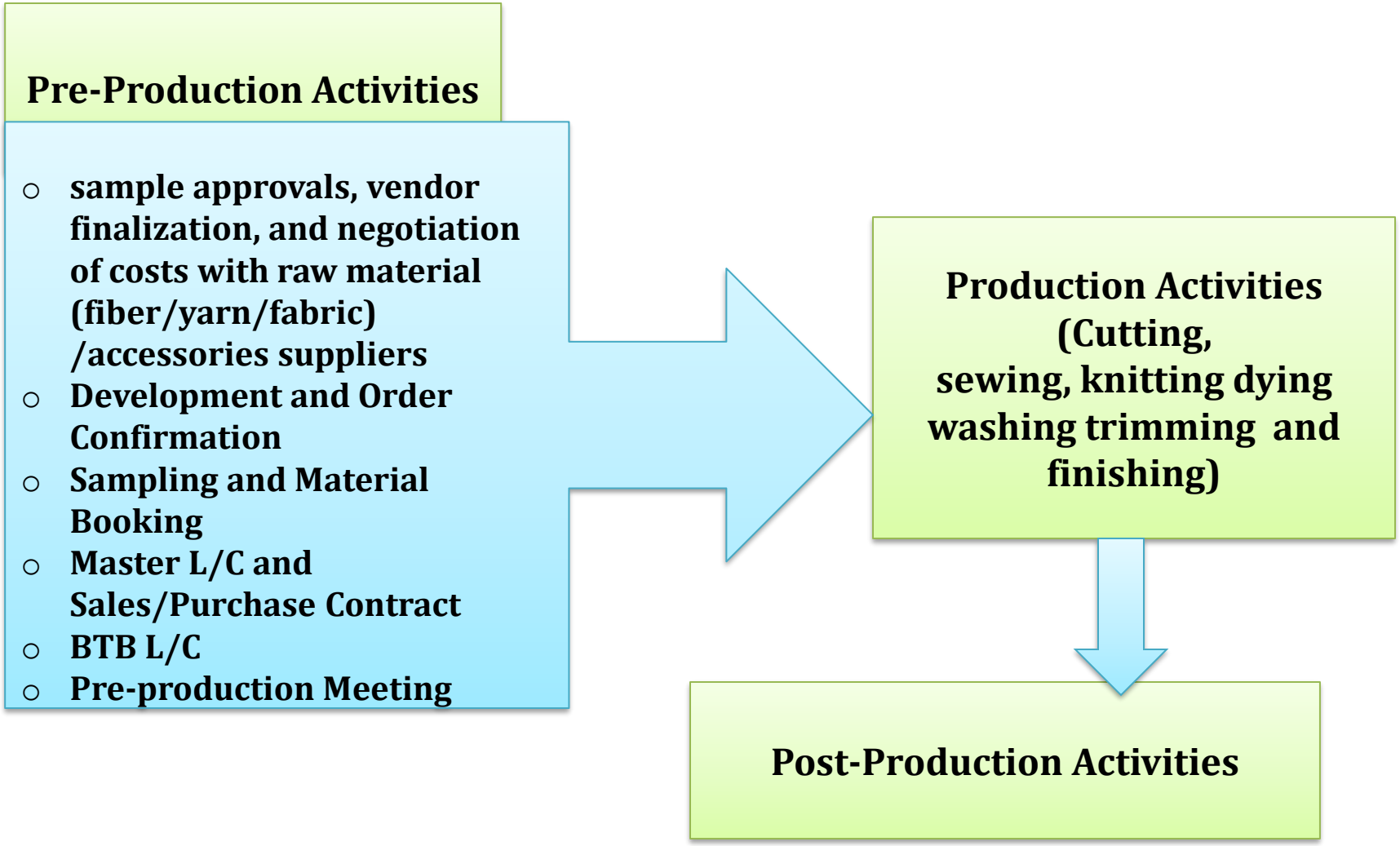
- Strength for the RMG sector: backward linkage , as local textile and spinning mills are expanding, currently meeting about 90% of the local demand for knit yarn (BGMEA and BKMEA)

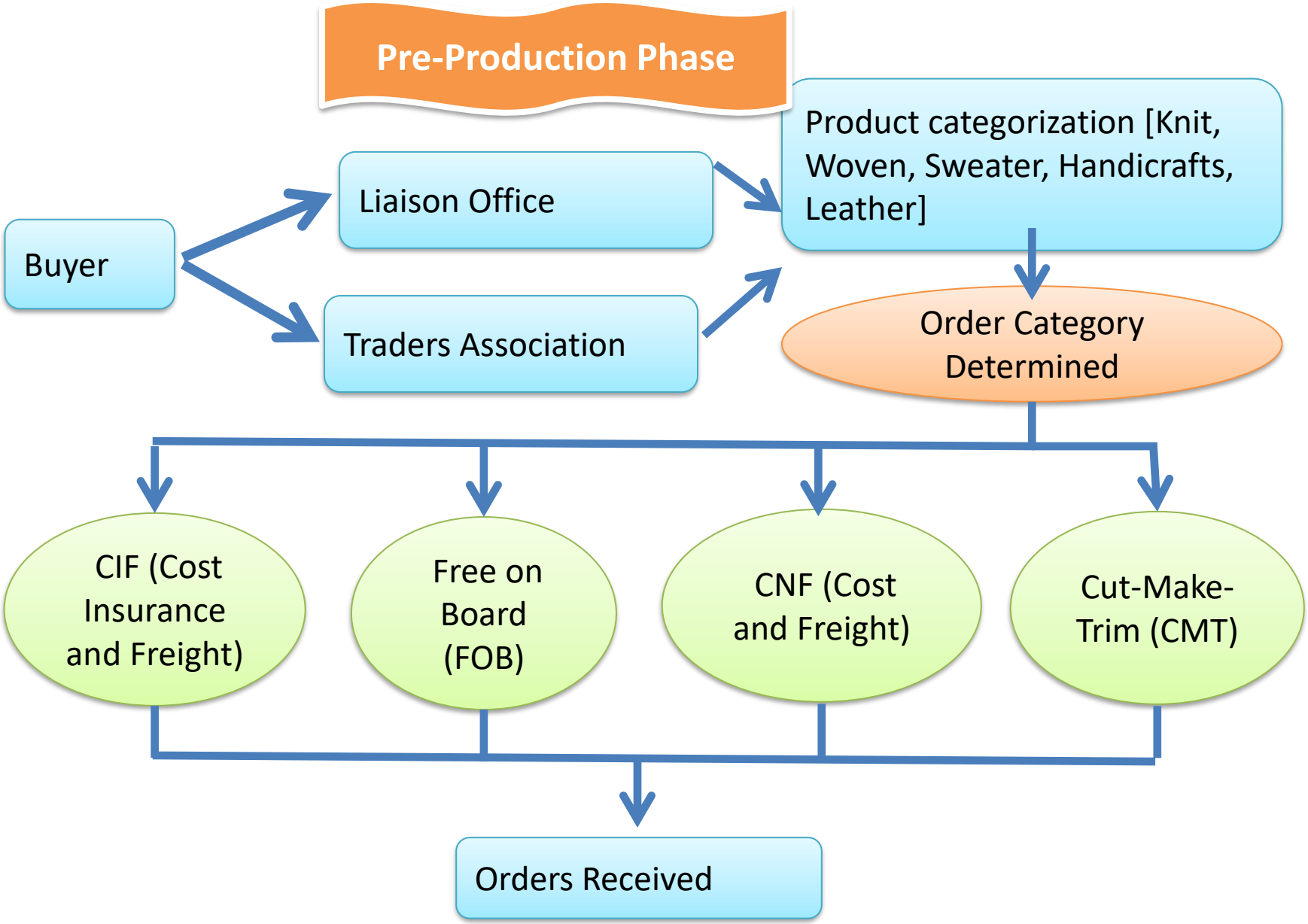
How Does the Supply Chain in RMG in Bangladesh Work?

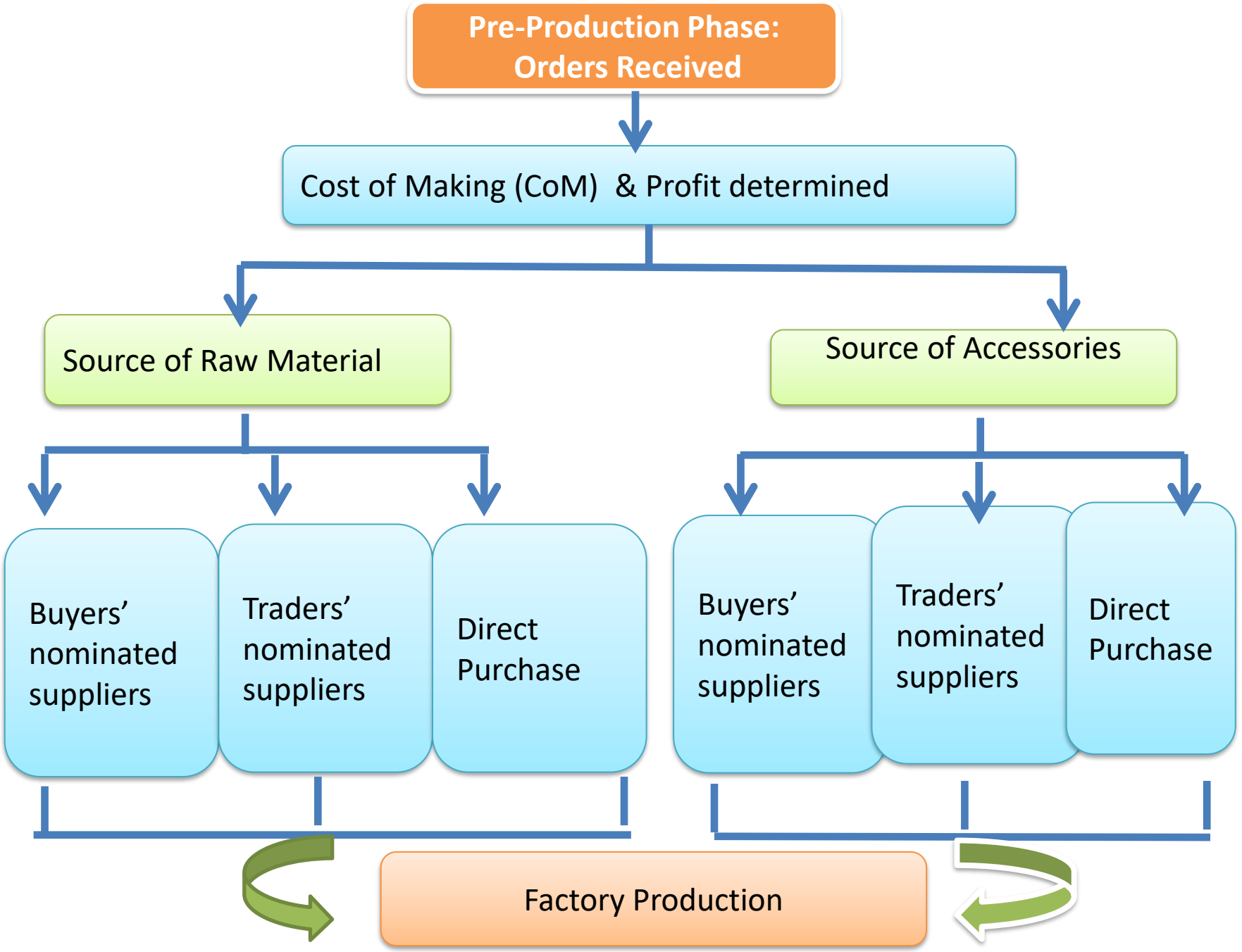


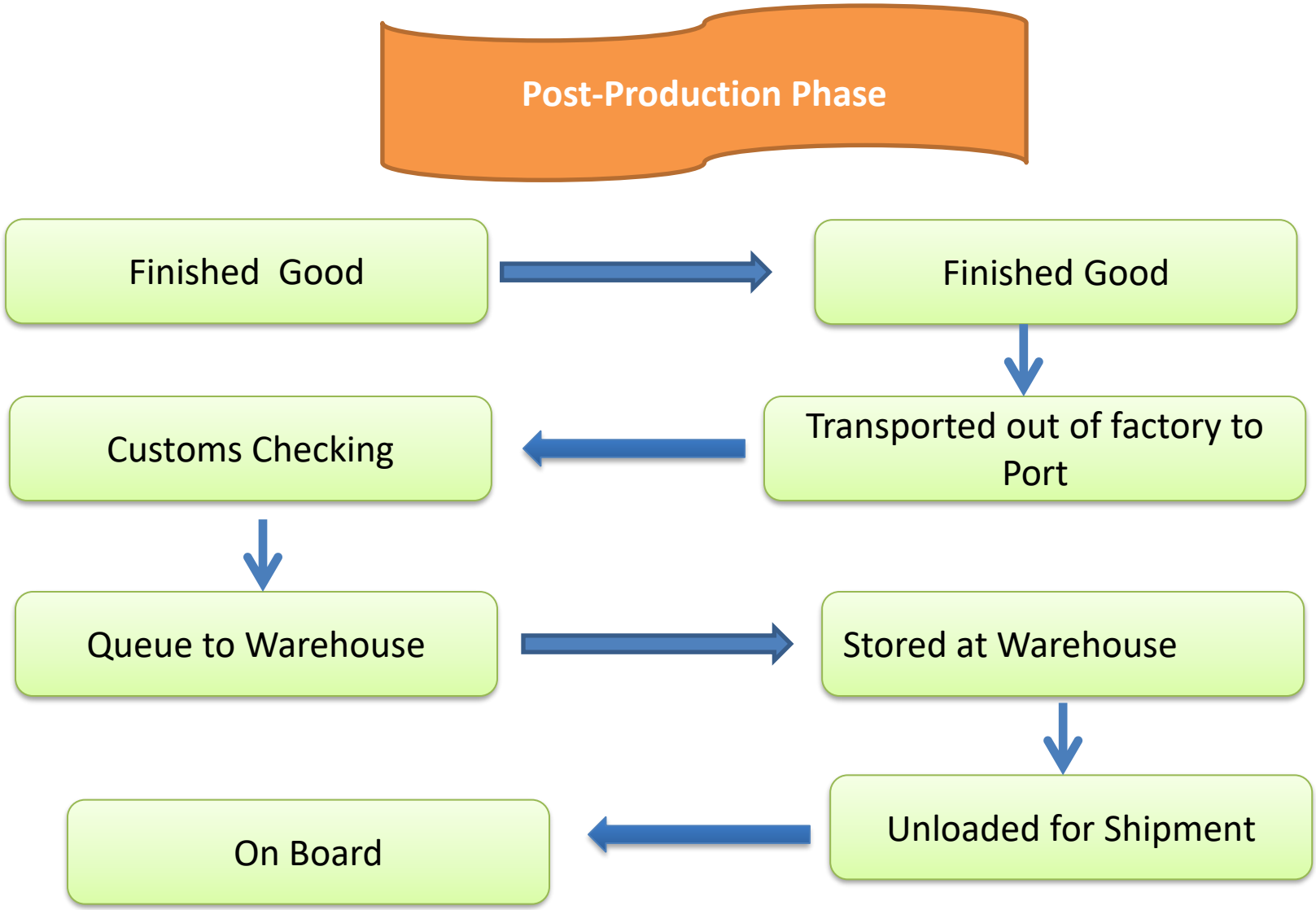
Source: Hasan, 2017

Three Stages of RMG Supply Chain




Pre-Production Phase
Product categorization [Knit, Woven, Sweater, Handicrafts, Leather]
Liaison Office
Buyer
Traders Association
Order Category Determined
CIF (Cost Insurance and Freight)
Free on Board (FOB)
CNF (Cost and Freight)
Cut-Make-Trim (CMT)
Orders Received


Pre-Production Phase:
Orders Received
Cost of Making (CoM) & Profit determined
Source of Raw Material
Source of Accessories
Buyers' nominated suppliers
Traders' nominated suppliers
Direct Purchase
Buyers' nominated suppliers
Traders' nominated suppliers
Direct Purchase
Factory Production


Post-Production Phase
Finished Good
Finished Good
Transported out of factory to Port
Customs Checking
Queue to Warehouse
Stored at Warehouse
Unloaded for Shipment
On Board

Sustainable Supply Chain : Post LDC Graduation

Impact of LDC graduation on GDP, export	
Loss of Preferential Market Access	▪ Bangladesh will no longer enjoy duty-free market access to most developed markets under the Duty-Free, Quota-Free (DFQF)arrangement of the WTO. ▪ Lose preferential rules of origin reserved for LDCs. ▪ The EU has a post-LDC tariff protection of about 4% fo fabrics, 8% for semi-finished garments, and a 12% MFN rate fo clothing. ▪ May face high tariffs (9.6% in the EU) exporting to most of the developed market ▪ Elimination of export subsidy
Decline in Export Earnings	▪ Bangladesh's RMG exports could fall by 10.8% by 2031 ▪ Potential loss of RMG export earnings due to losing MFN tariffs and DFQF facilities may range from 7% to 14%. ▪ For the 9.6 % tariff, the total production of textiles and clothing declined by about 6.1 % in the EU
Impact on GDP and Total Exports	▪ Negative balance of trade that could affect GDP ▪ Real GDP may fall by about 0.38 % if developed countries impose tariffs (except the USA). ▪ Total exports could fall by about 6 % (in the apparel sector about 14% decline)

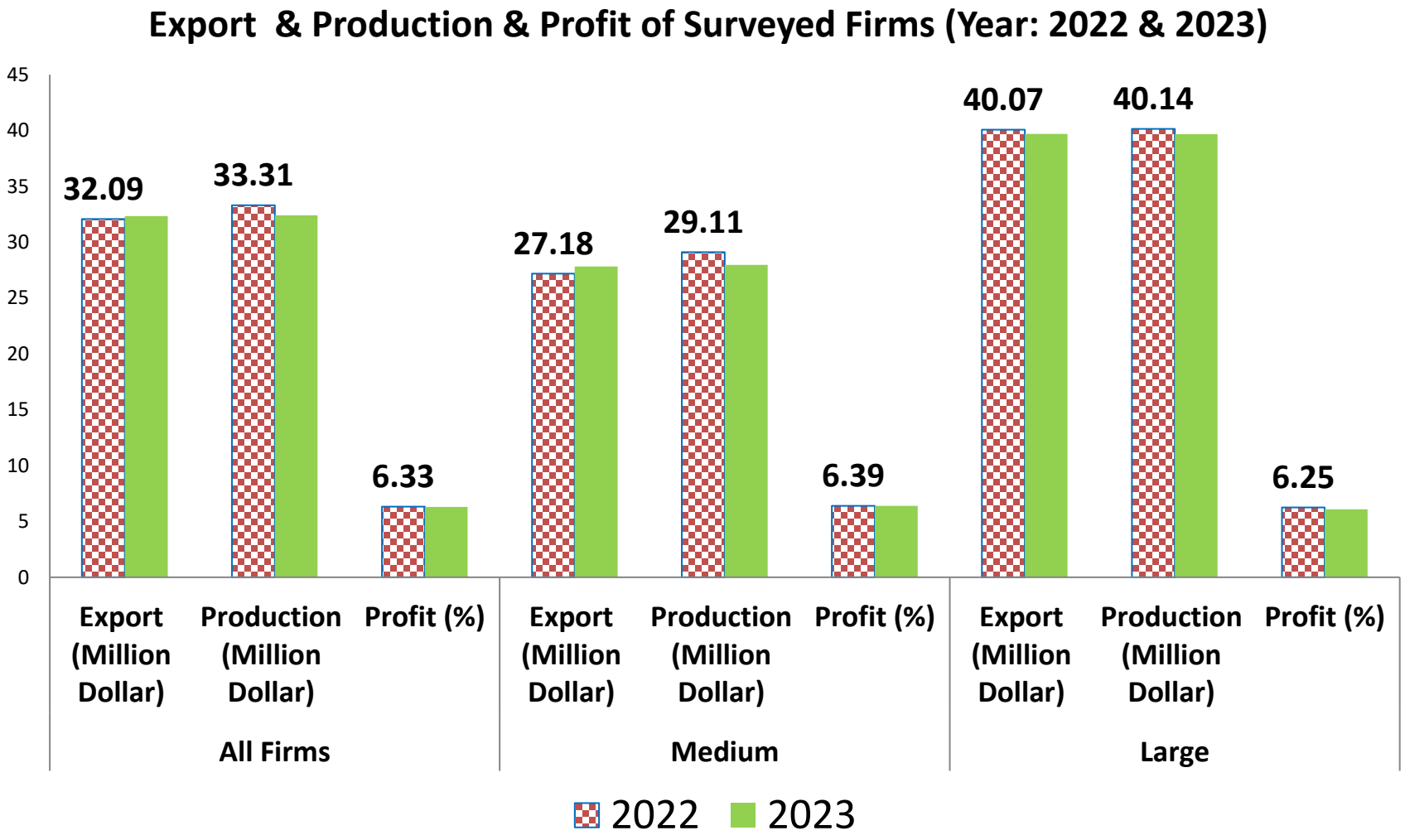
Source: Rahman & Strutt (2024) & UNCTAD projection 2023

Description of Sample

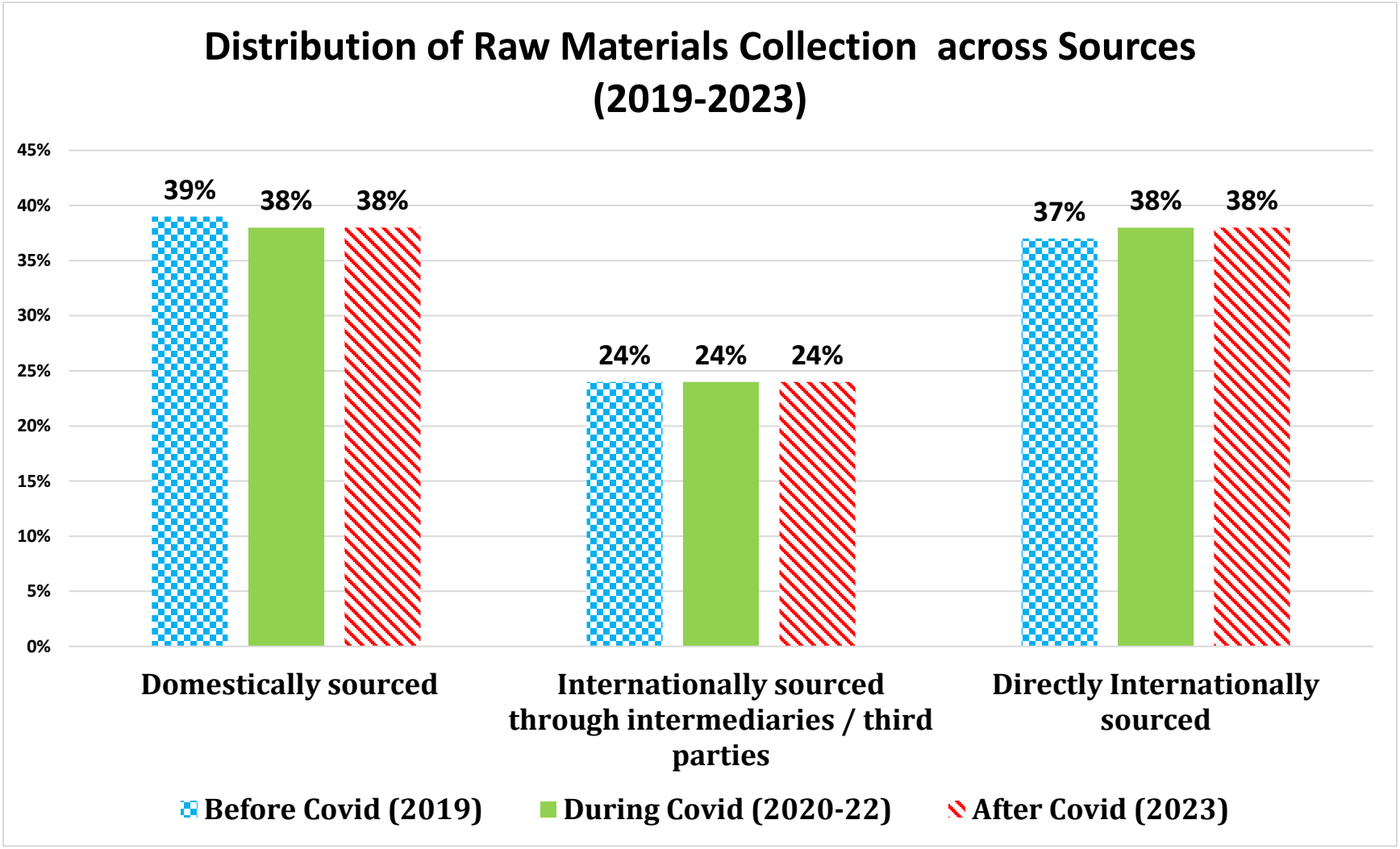
	No of Firms			%		
	Knit	Woven	Total	Knit	Woven	Total
Large	8	16	24	22	62	38
Medium	29	10	39	78	38	62
All	37	26	63	100	100	100

Average number of male and female workers in production are 415 and 570 respectively; (Large firms: average no of male workers in production is 731 and female is 1033 and medium firms : male 219 and female 293)

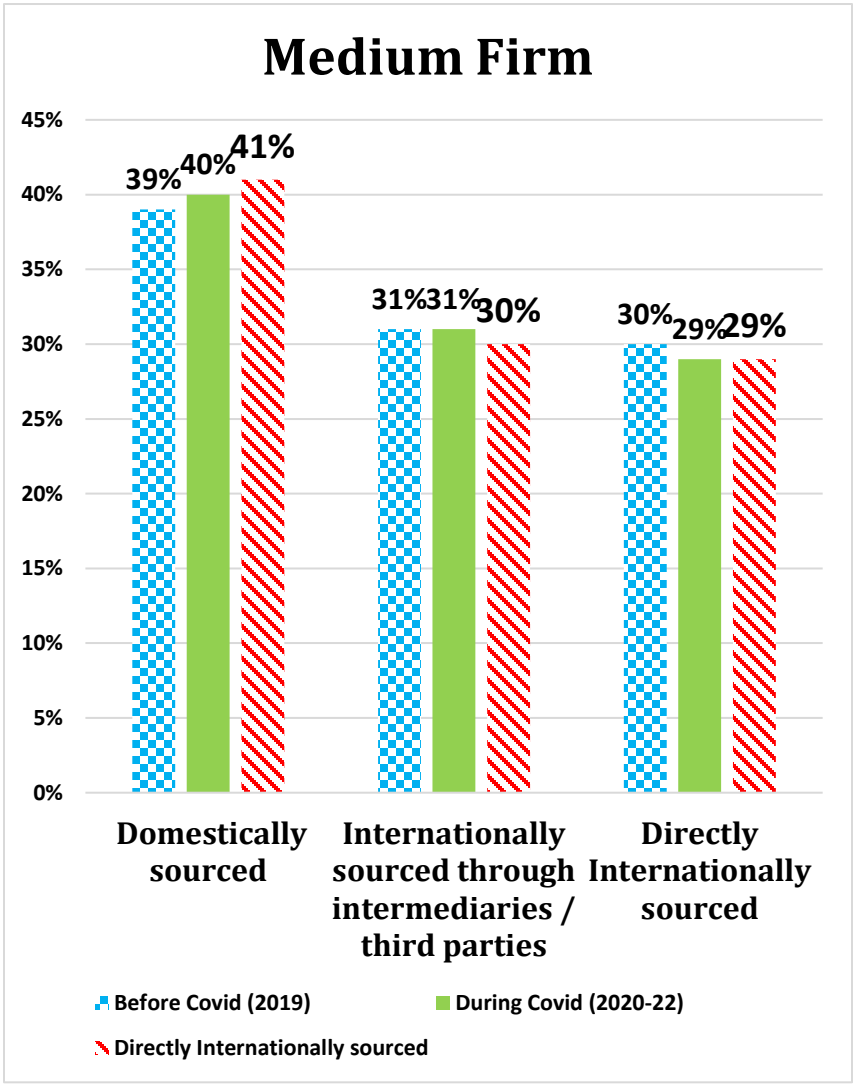
Description of Sample

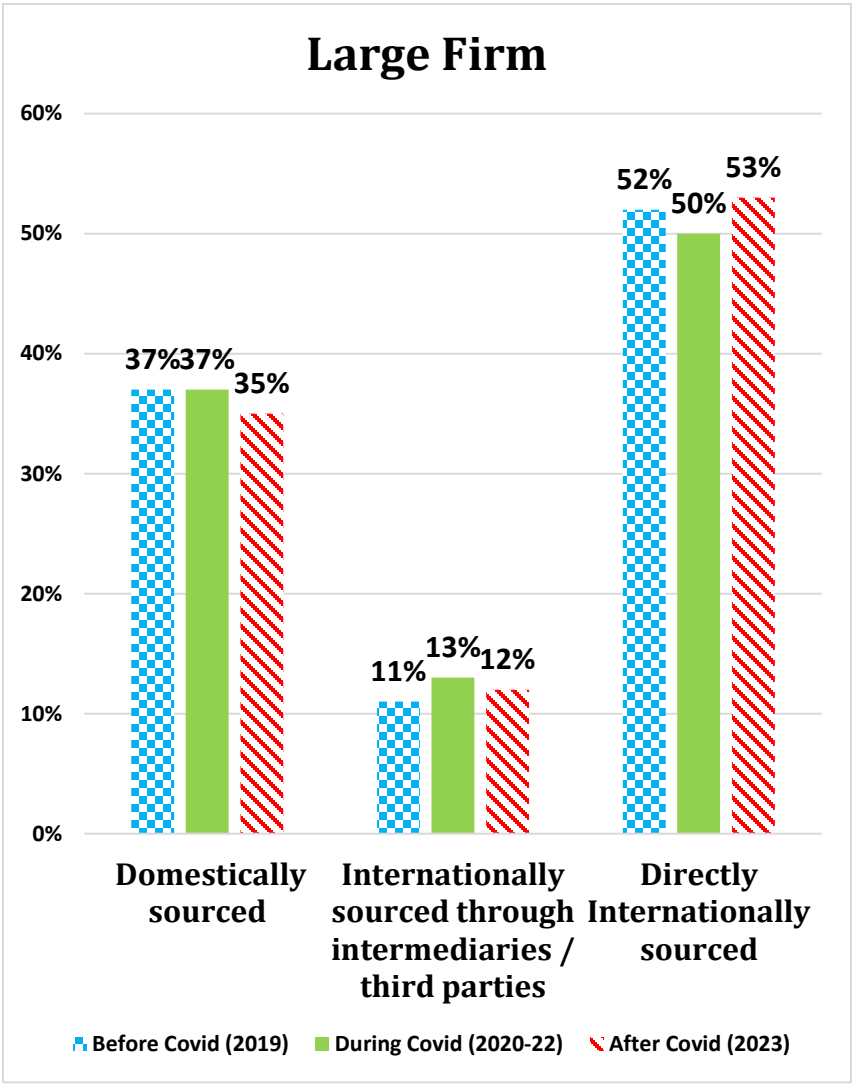


Source of Raw Materials (2020-23)

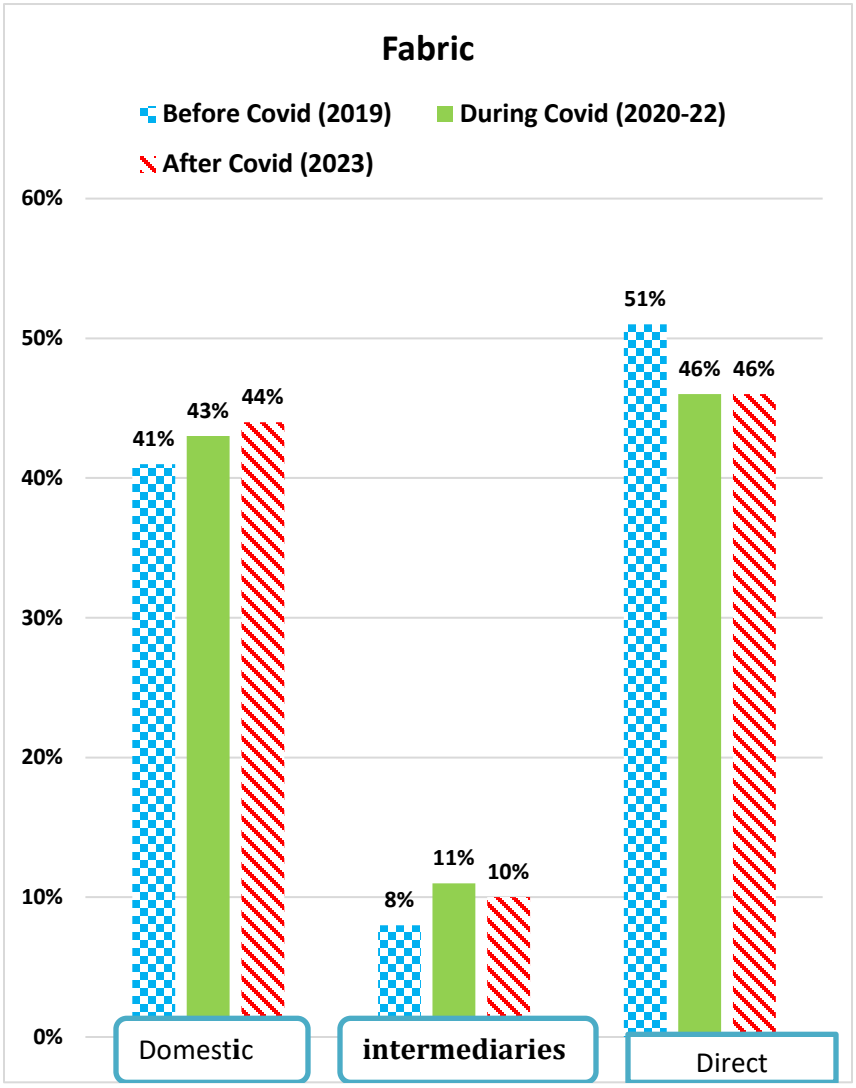


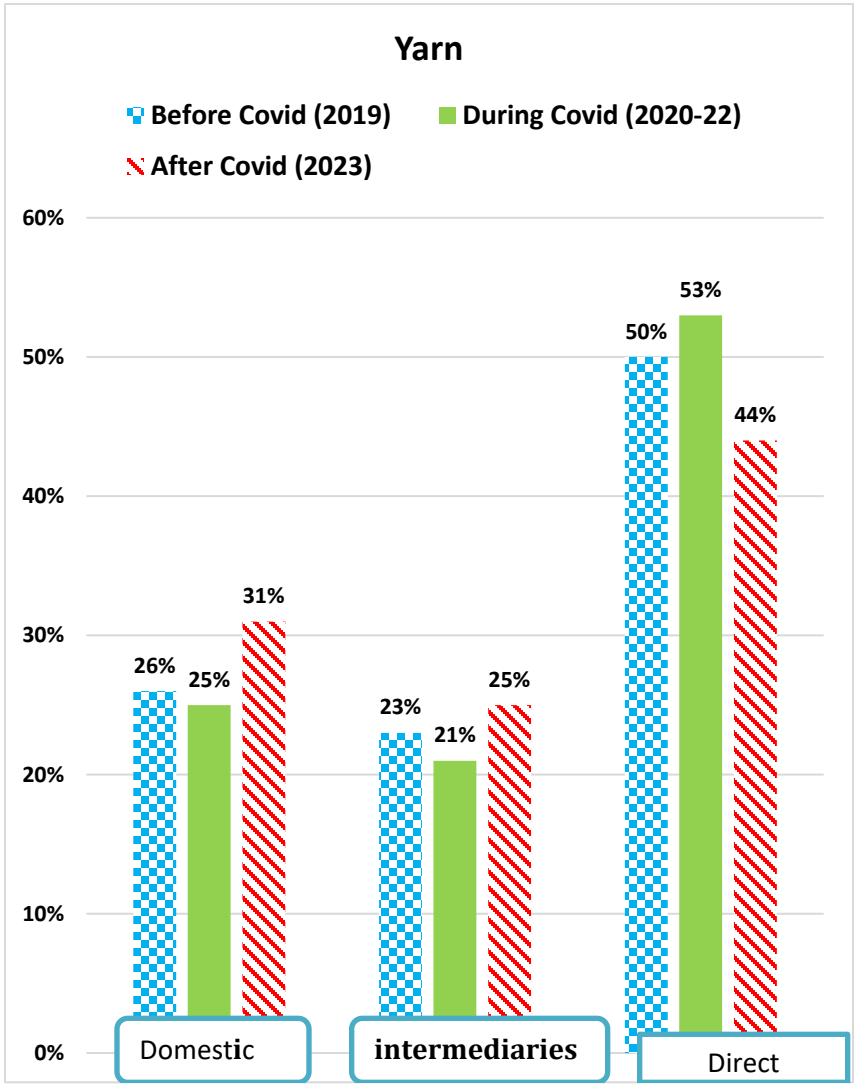
Source of Raw Materials (2020-23) : Large vs Medium Firms



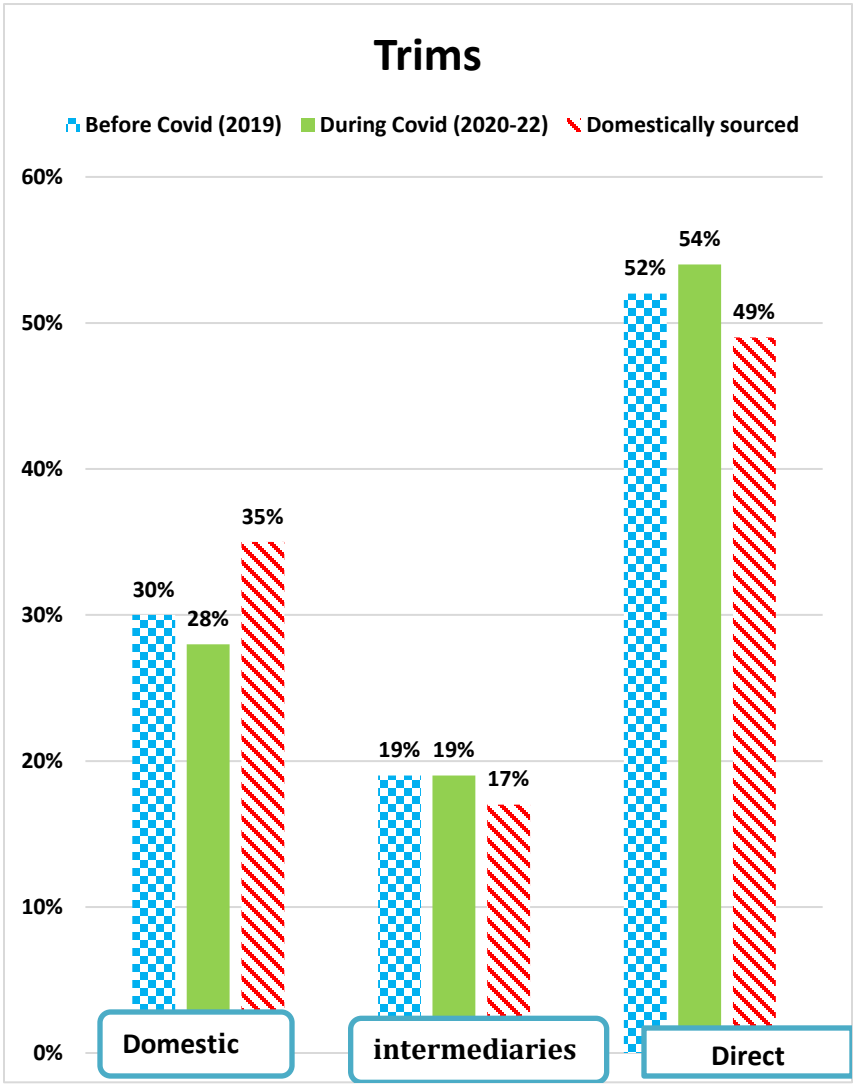


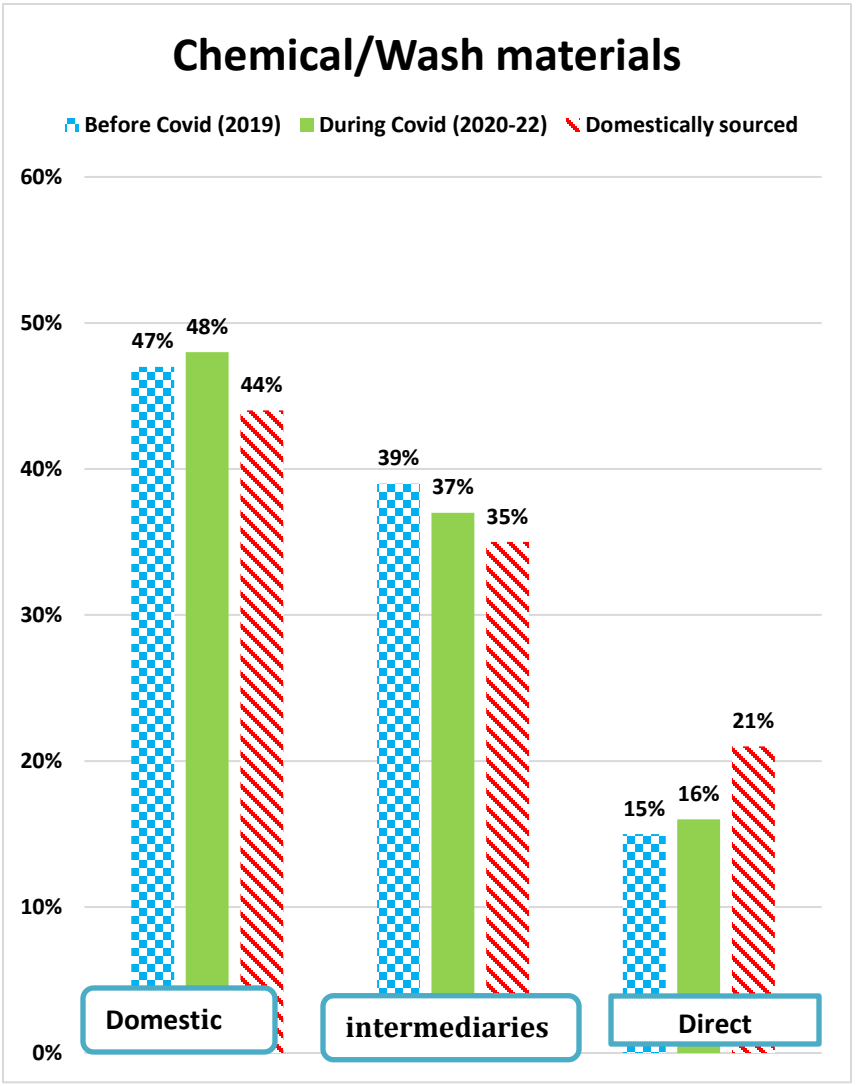
Distribution of Source of Raw Materials (2020-23)



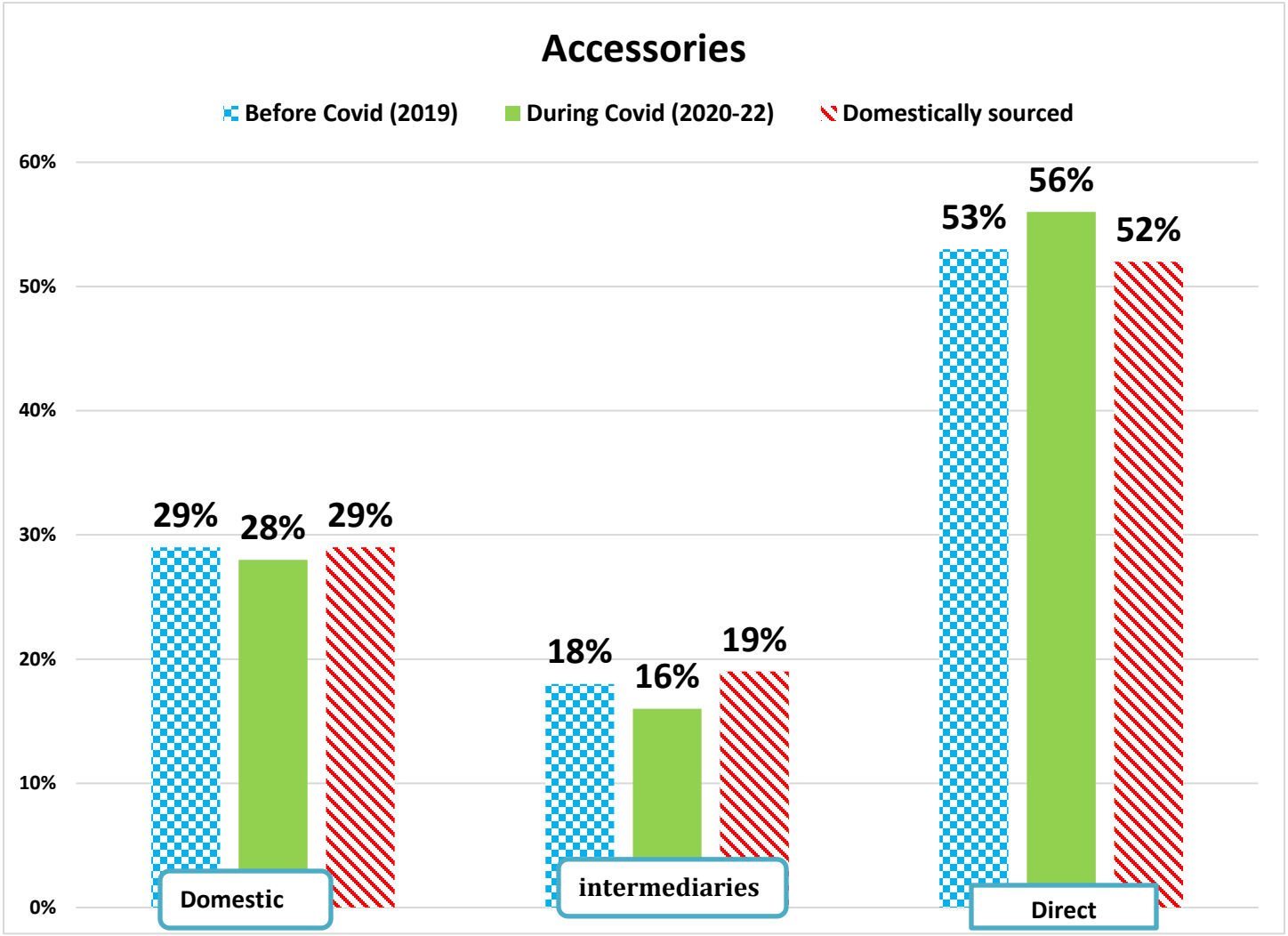


Distribution of Source of Raw Materials (2020-23)

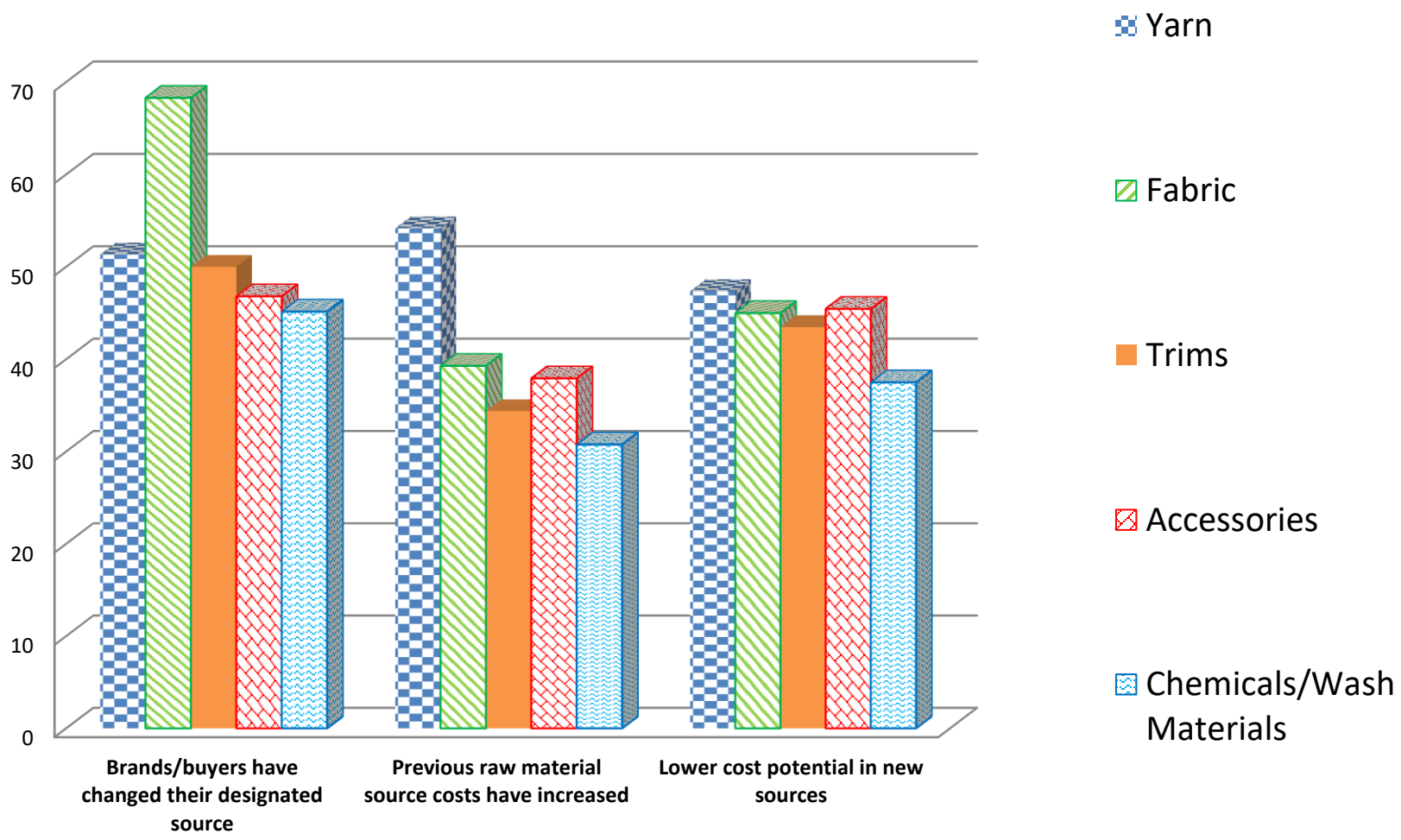




Distribution of Source of Raw Materials (2020-23)

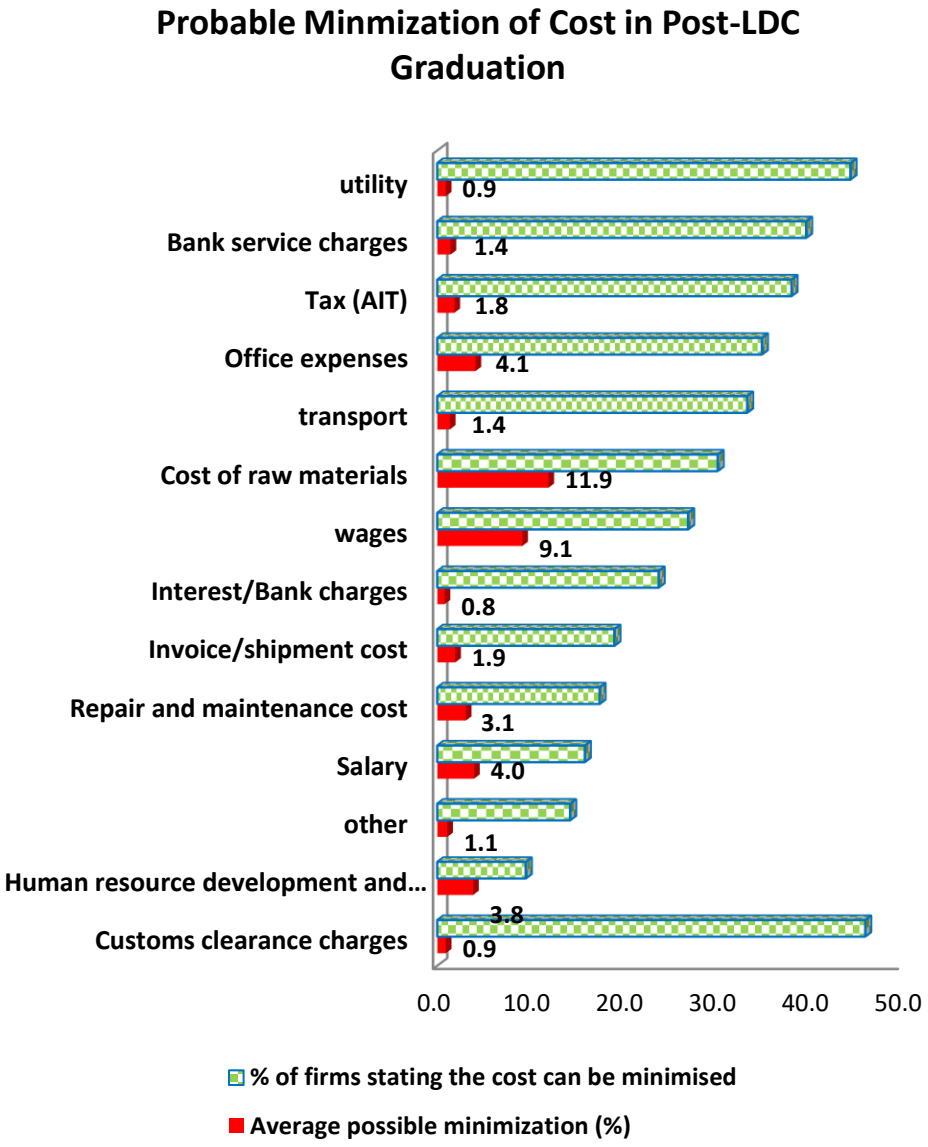


Reasons of Changes the source of Raw Material

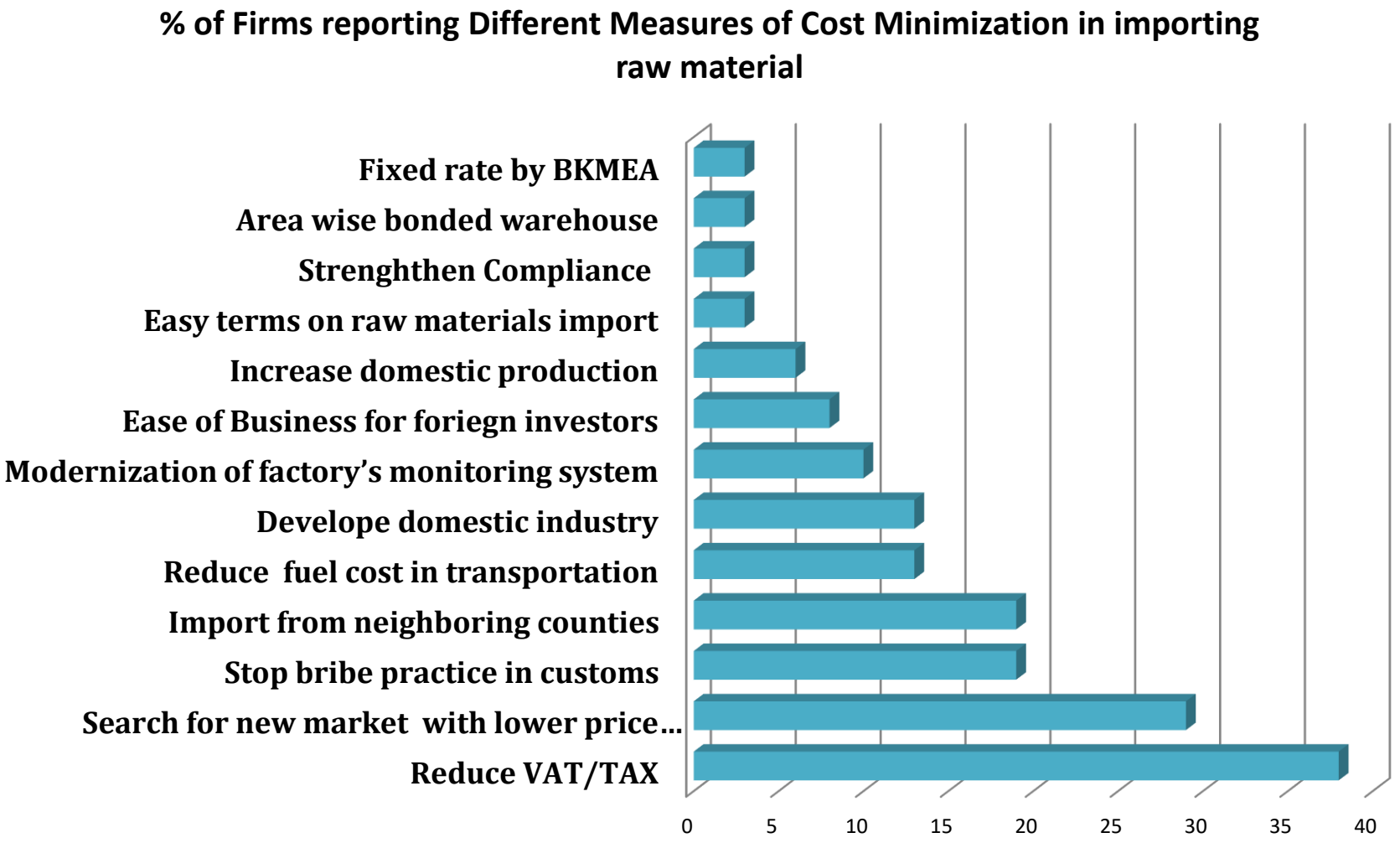


Cost Minimization

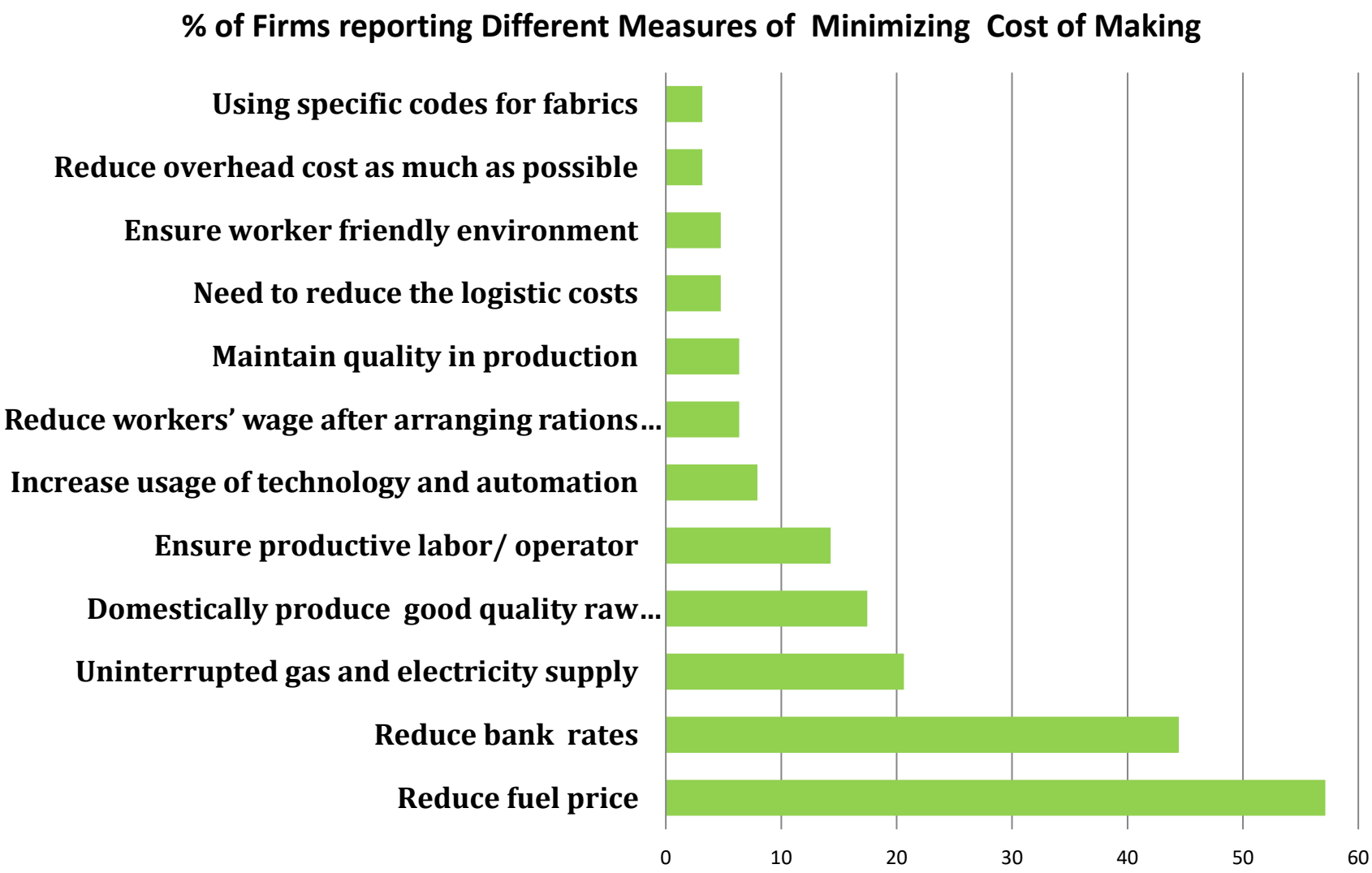
- Highest potential minimization found in cost of raw materials at 11.947%, followed by wages at 9.135%, and cost of product quality testing at 8.583%.
- Research and Development shows promising reduction potential at 6.275%, while office expenses and repair/maintenance costs could be reduced by 4.103% and 3.064% respectively.
- These figures suggest that companies should primarily focus their cost optimization efforts on raw materials management, wage restructuring, and quality testing processes, as these areas offer the most substantial opportunities for meaningful cost reduction.
- Other expense categories show relatively modest potential for minimization, with most falling below 2% in possible reduction.



Cost Minimization: importing raw material



Cost Minimization: Cost of Making

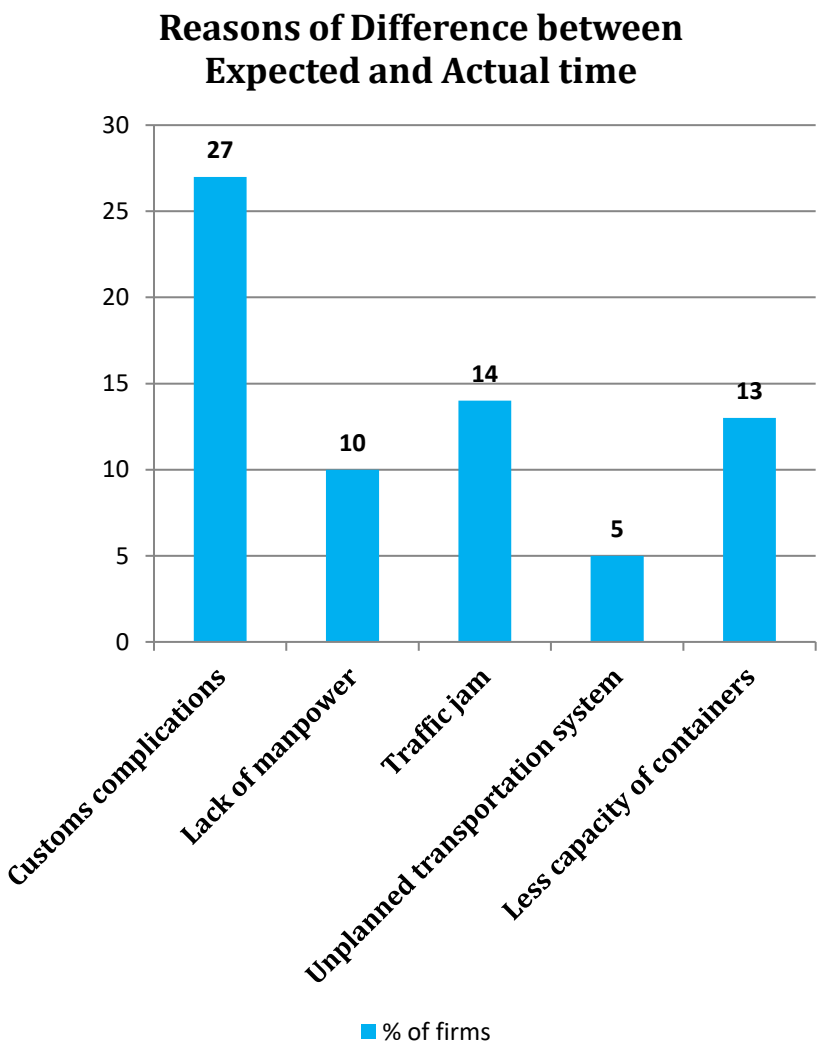


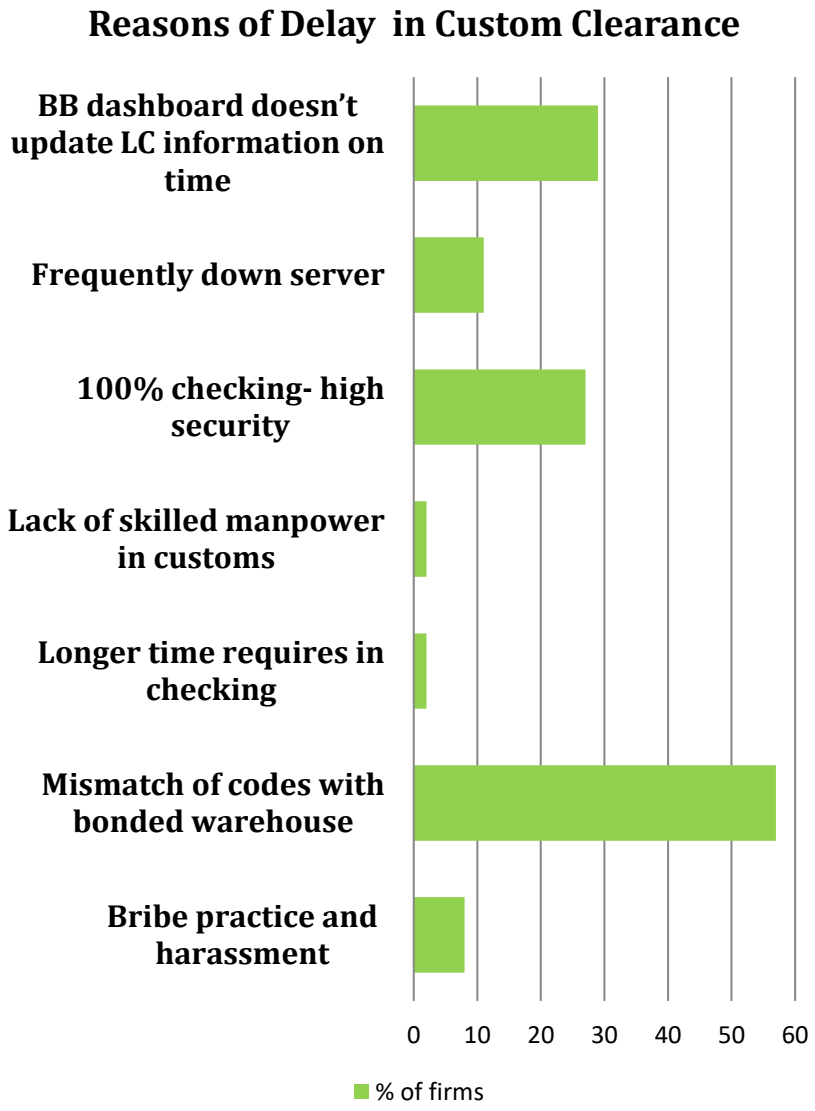
Firms (%) stating Problems faced in bank transactions for raw materials import and product export and Recommendations

Problems faced in bank transactions	% of firms
Problems in opening LC for dollar crisis	3
Delay in LC opening	40
Higher bank charges	13
Complications in banks online system	3
Delay in payment receipt	16
Problems in opening LC for dollar crisis	3

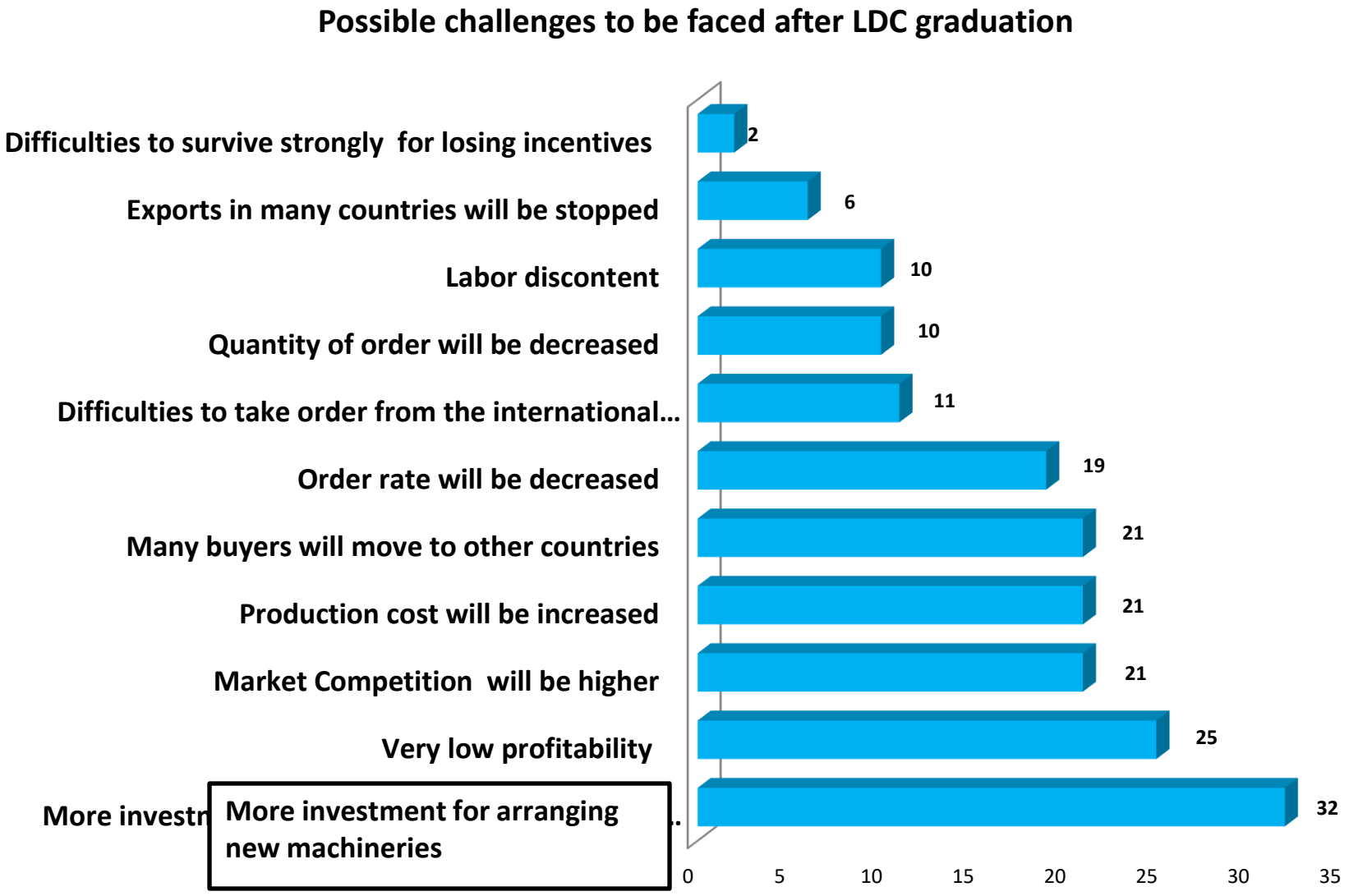
Recommendations to solve the problems faced in bank transactions	% of firms
Have to reduce the bank transaction cost/ bank charge	46
Arrange payments by TT	22
Precise rate for dollar	6
Same LC charge for all banks	6
Reduce tax	3
Usage of advanced technologies	2
Need to go for domestic sources to avoid bank complications	2

Difference between Expected and Actual time & Delay in Custom Clearance





Possible challenges to be faced after LDC graduation



Measures Taken to address Challenges in Sourcing Raw Materials after LDC Graduation

	% of firms
No precautions taken	21%
100% import of fabrics as domestic collection is more costly	13%
Selecting sources with lower prices of better quality raw materials	21%
Finding new markets	10%
Making commercials strong to buy raw materials	10%
More production and usage of domestic raw materials	21%

Measures Taken to address Challenges in Ensuring Market access after LDC Graduation

	% of firms
No precautions taken	17%
Taking order at lower rate to survive in the market	6%
Emphasizing on the quality of products	19%
Building strong network through fares and seminars and find new markets	46%
Taking direct order than through third parties/buying houses	3%

Measures Taken to address Challenges in Delivery of Products after LDC Graduation

	% of firms
No precautions taken	21%
Timely delivery maintain product quality	38%
Skill development of workers	2%
Uninterrupted gas and electricity supply	13%
Govt. should bear the insurance	2%
Reduction of transportation cost	5%

Challenges in Pre-Production Phase

- **Timely sourcing of raw materials from foreign suppliers become challenge :**

Due to extended lead time as Bangladesh's geographic location and the predominant shipping routes, shipments from through transshipment hubs like Singapore or Malaysia (as direct shipping to Bangladesh is not feasible).In contrast, competitors such as China, India, and Cambodia to some degree, benefit from self-sufficiency in this regard.

- **Lack of control over pre-production processes:**

Challenges in Pre-Production Phase (Cont…)

❑ Meeting Lead Time Commitment

- In the event of lead time failure, manufacturers are left with three options: (**1)air shipment with the manufacturer bearing the cost under Cost and Freight (CNF) mode, (2)securing discounted sea shipment, or (3) facing order cancellation.**
- Cancellation of orders is typically not feasible
- Manufacturers often opt to send consignments via air freight (Hasan, 2017).
- However, manufacturers may encounter restrictions, as buyers typically dictate the choice of airlines and negotiate the freight rates through their nominated forwarders.
- Unfortunately, manufacturers are often compelled to accept these arrangements, which may result in paying freight charges at least 10 percent higher than prevailing market rates.
- A mismatch or delay of even a small material can jeopardize the entire order.

❑ Missing shipment schedule for a specific order disrupts whole production plan.

- Conversely, unplanned and early importation of materials increases inventory levels.
- Additionally, if finished goods are not shipped on time due to pending approvals, the factory incurs high-interest costs from BTB L/Cs against bank loans.
- To avoid shipment delays, factories often resort to overtime work, which doubles production costs. If overtime doesn't suffice, they risk unauthorized subcontracting.
- Excessive overtime and unauthorized subcontracting both violate compliance standards, a critical aspect of the industry.

Challenges in Production Phase

- ***Prolonged time for Production & Product Quality compromised due to inadequate time***

- Pressure and urgency intensify in the preparatory phase (cutting sewing) when factories commence production processes as significant portion of the allotted time for all activities has already been consumed due to the accelerated pace of orders.
- Consequently, factories often push their entire teams towards maximizing quantity production & attention to product quality often takes a backseat.
- Ignoring standard procedures can lead to issues with stitching quality or related problems. As a result, repair and re-inspection become primary processes, further prolonging production time.

- ***Low Labour Productivity***

- Over-reliance on unskilled labor in garment factories leads to diminished productivity and higher costs for apparel production.
- Bangladesh's labor productivity is notably lower compared to countries like Sri Lanka, South Korea, and Hong Kong.
- Evidence suggests that despite investing in the latest machinery used by competitor countries, the suppliers of Bangladesh continue to struggle with low workers' productivity.

- ***Cost Escalation due to Utility Difficulties***

- Establishment Effluent Treatment Plant (ETP), leads to extra cost ; but due to unreliable utility services, businesses are forced to rely on diesel generators, leading to substantial additional expenses.

- **Low Logistic and infrastructural support:**

- Out of the 139 countries, **Bangladesh ranked 88** which indicates that compared to its textile competing countries (China, India, and Vietnam), Bangladesh lags behind in terms of logistic performance.

Challenges in Post Production Phase

- **Shipment Difficulties**

- ***Delay in highways***: prohibition of truck movement during the day; Traffic jam; Large vehicles movement not possible due to flow quality roads; Harassment n roads;

- ***Delay in Custom Clearance***: high security but inefficiencies ; malpractice and harassment; Frequently down server; BB dashboard doesn't update LC information on time; Longer time requires in checking; Lack of skilled manpower in customs; Mismatch of codes with bonded warehouse

- ***Delay in Bonded Warehouse:***
- Longer entry and unloading-reloading time due to long queue & insufficient manpower & space;
- Less storing capacity in the warehouse
- World Bank (2023) reported that Chattogram Port is Asia's least efficient for container handling.
- MRP, or Material Requirements Planning (Computer-based system designed to streamline the scheduling and ordering of products with dependent demand) is not used
- Heizer and Render (2004) concluded that solely establishing local industries or stockpiling raw materials would not necessarily shorten lead times. Instead, they emphasized the importance of effective inventory management and linkage with a common bonded warehouse

Conclusion

- Paying only minimum wage is not enough to sustain the business. Without effective management of the supply chain, meeting the buyer's specified lead times becomes impossible.
- ***Direct marketing and the elimination of intermediaries*** can contribute to the establishment of an efficient supply chain system. However, creating a unified and coordinated system among all parties involved is challenging.
- Any errors, miscommunication, or misinformation at any stage can disrupt the entire process. In addition to the primary parties, the supply chain also includes freight forwarders, carriers, postal services, customs, transportation, and others. Customers are often unwilling to accept delays in shipment, even when the delay is caused by the buyer's nominated supplier. A performance-based supply chain system cannot be achieved without ***collective effort and strong commitment from all stakeholders.***
- ***Leveraging cost efficiencies across multiple areas***: Key actions include investing in infrastructure modernization, optimizing power and utility resources, enhancing the skills of the workforce, promoting effective management practices, adopting advanced technologies, and implementing state-of-the-art supply chain management techniques.
- ***Strategically shift focus towards high-value-added*** *RMG products* that naturally provide higher profit margins. By targeting more advanced and niche market segments, exporters can secure higher prices,
- Strengthening backward linkages is a crucial strategy to enhance competitiveness in apparel exports and achieve higher markups.
- A key focus should be expanding fabric production capacity. Investing in the textile sector to support export-oriented production will improve efficiency, rather than relying on tariff protection for backward linkage production units. This approach can help mitigate the challenges expected from higher tariff rates following LDC graduation, allowing the country to boost markups and improve profitability.