

ROOT CAUSE ANALYSIS OF MISSING CARGO IN LCL/FCL

Internship Organization
Transworld Shipping Ltd.

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Submitted in Partial Fulfillment of the Requirements for the Degree
Bachelor of Business Administration



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Internship/Project Report Approval Form

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Letter of Transmittal

December, 2024

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Subject: Root cause analysis of missing cargo in LCL/FCL

Dear Sir,

It is with honor that I would like to tell you that I have done my internship project report with the title of Root Cause Analysis of Missing Cargo in LCL/FCL Shipments: Bangladesh Maritime Logistics Case. The report has been written to fulfill my internship program in my Bachelor of Business Administration (BBA) in Supply Chain Management at the University of Liberal Arts Bangladesh (ULAB). Throughout this report, I have combined the theoretical information using my coursework with the practical experience with my internship in Transworld Shipping Ltd. as well as research on cargo loss issues in Chattagram Port. I wish it is in your liking and that you will give me your constructive comments.

Sincerely,

Khalid Bin Abdullah

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List of Abbreviations

- ADB - Asian Development Bank
- AWB - Air way Bill
- B/L - Bill of Lading
- BOE - Bill of Entry
- C&F agents - Clearing and forwarding Agents
- CFS - Container Freight Station
- CPA- Chittagong Port Authority
- DTO - Drug Trafficking Organization
- e-BL - Electronics Bill of Lading
- ETA - Estimated Time of Arrival
- FCL - Full Container Load
- FTA - Fault Tree Analysis
- FTZs - Free Trade Zones
- GFI - Global Financial Integrity
- ICD - Inland Container Depot
- IGM - Import General Manifest
- IVA - Intelligent Video Analysis
- LCL - Less than container load
- LPI - Logistics Performance Index
- TMS - Transportation Management System
- TBML - Trade Based Money Laundering

Executive Summary

This internship report was compiled by me, Khalid Bin Abdullah, a student of Supply Chain Management at ULAB, as a description of a practical assignment experience in Transworld Shipping Ltd., a major Bangladeshi freight forwarder, and a root cause analysis (RCA) of missing cargo in LCL/FCL shipments at Chattogram Port.

I was also involved in freight quoting, advising clients, tracking their shipments through the company portal, sourcing, marketing fieldwork in Nawabpur, and documentation. Important lessons were made between theory and practice, academic (logistics, procurement) with practical communication, data analysis, and ERP development. Rapid workflow and short onboarding were also problematic, which were solved through self-reflection and suggestions of a formalized training, projects, and mentorship.

In the context of the thriving maritime commerce in Bangladesh (95% through Chattogram), the loss of cargo (e.g. 295 containers 2016-18) can be attributed to congestion of the yard, CCTV loopholes, fraudulent documentation (forged BLs) and collusion with the insider and LCL (multiple handlings). Results of 40 stakeholder interviews rank port handling as the most risky area, with LCL being the more operationally vulnerable as well as FCL being targeted to steal high value. Systemic failures are explained by such theoretical frames as Rational Choice and HFACS. This report also introduces GPS/RFID tracking, e-BL/digital customs, better CCTV/seals, LCL SOPs and a separate investigation unit to improve security, transparency, and efficiency.

Part: A

Chapter 1: Internship Preparation

1.1 Motivation for Internship

Being a Bachelor of Business Administration (BBA) student and majoring in Supply Chain Management at the University of Liberal Arts Bangladesh (ULAB), I have always been keen on relating my coursework with the industry practices. The supply chain management is all about the effective flow of goods, information, and service between a given point and another point, and I needed to know how this process is carried out in practice, particularly in international trade and logistics.

The main reason that prompted me to join Transworld Shipping Ltd. as a Business Intern was to have a better appreciation of freight forwarding, export-import business, and the plethora of documentation and coordination efforts that are involved in the movement of goods across the borders. I also wanted to see myself how shipping is conducted, how it is cleared by the customs and how business is conducted to deliver on time in the competitive world market.

As a result of this internship, I would like to acquire the practical basis of strong practical experience in logistics operations, freight management, and international trade compliance. Moreover, I would also like to work on my soft skills, which are communication, negotiation, and teamwork, as these play a fundamental role in organizing the work with various stakeholders in the form of suppliers, freight agents, and customers. My opinion is that such practical experience will not only enhance my knowledge base on the concepts of supply chain but will also equip me to have a career in the future workforce in the field of logistics and international business operations.

1.2 Internship Search Process

It was a very demanding but profitable endeavor to find a pertinent internship that was in line with my academic major. I used various websites like LinkedIn, Bdjobs, and other online job boards but the market offered showed either no interest on my part or did not have close association with supply chain operations.

Eventually, I found an internship opportunity in Transworld Shipping Ltd via facebook internship group. It was a Business Intern and this instantly caught my attention because Transworld Shipping is in the freight forwarding business, which is one of the major areas of global supply chain. After updating my CV and cover letter, and a day later, I got a call in their HR department, who invited me to be interviewed at their Gulshan corporate office.

Such a professional communication and prompt response made a good impression on me about the recruitment process in the company. It also encouraged me to do my best to be ready before the next interview reading both my academic content and the background of the company so that I would be ready to present myself with confidence.

1.3 Internship Interview Experience

The interview process in Transworld Shipping Ltd. was an important learning experience to me. The HR was going to send me the interview schedule through mail and I reached their office in Gulshan at the intended time. The interview team was comprised of two interviewers one, of the HR department and the other of the operations team. The whole session was about 30 minutes and in a professional and structured type.

The questions were largely situational, and were centred on the real life challenges in supply chain and logistics. In illustration, they questioned me about how I would manage delays in shipment, miscommunication with suppliers, and how I would ensure that documentation was made in time as during the export or import activities. My background at the university and knowledge on the supply chain theories, logistics models and risk management concepts helped me to fit my answers very well to their queries.

I ensured that I was confident during the interview and made use of analytical thinking, even though some of the questions posed were very difficult. I was delighted that the interviewers were pleased with the interest I showed in learning about the logistics industry and my knowledge of the basics of SCM. Some days after that, I got an email confirmation of the HR with which I was granted the position of an internship post, which was not only exciting but also rewarding to me.

1.4 About the Organization

Transworld Shipping Ltd. is a well known freight forwarding and logistics firm in Bangladesh that deals with the transportation of cargo by sea, air and land. The company offers the diverse services, which are import and export forwarding, custom brokerage, warehousing services, project logistics services, and supply chain consulting services. It has its head office in Gulshan, Dhaka and a significant operating branch in Chattogram and this facilitates harmonious domestic and international shipping operations.

Transworld Shipping was created with the aim of offering efficient, reliable and customer oriented logistics to the local and international customers. The company has also over the years, established good relationships with the world leading carriers and freight networks that enable it to provide competitive, as well as timely delivery across the international routes. Concentrating on the technology-oriented solutions, Transworld Shipping provides its clients with real-time updates, clarity in tracking, and end-to-end logistics assistance.

1.4.1 Mission

To offer effective, seamless and cost-efficient freight forwarding and logistics services that link businesses globally. Transworld Shipping aims at making global trade simple by providing professional solutions to shipping with integrity and reliability and customer satisfaction as one of its core values.

1.4.2 Vision

To be a reliable leader in Bangladesh based on the logistics and freight forwarding sector, which is known to be founded with excellent operating models, international connectivity and innovative supply chain models that enable companies to transcend beyond geographical borders.

1.4.3 Commitments

-Customer Focus: This is providing credible and prompt logistics services to its clients according to their needs.

-Operational Excellence: Delivering precision, productivity and openness in all the stages of the supply chain process.

-Innovation: To remain a leader in logistics, it is constantly striving to better itself in technology and efficiency of processes.

-Integrity and Compliance: Sticking to ethical standards and strictly following the regulations on the rules of international trade and customs.

-Sustainability: To ensure that the logistics processes are environmentally friendly and that the resources are used efficiently to minimize environmental effects.

Chapter 2 : About the Internship

2.1 Job Position and responsibilities

I was assigned to Transworld Shipping Ltd. as a Business Intern where I was mostly posted to work in the freight forwarding department. I also had a short time experience in marketing and sourcing during my internship which provided me with a more comprehensive idea of how the company works. My primary tasks and functions were:

The Primary Role is Freight Forwarding:

- Composing and offering freight rate quotes on a periodical basis to current and new clients (air, sea, and rail quotes).
- Giving advice to clients on the estimation of the transit time, the best routes and cost-time trade-offs based on their requirements (air vs sea vs train).
- Automating the shipment status and documentation in Transworld portal to enable clients to track consignments in real time.
- Arranging pick-up, shipping and delivery of cargo with carriers, C&F agents and inside operations.
- Observing booking confirmations, ships/flights schedules, and approximate time of arrivals (ETAs); informing clients about any delays or changes in the schedule.

Sourcing (Activities associated with Procurement):

- Conducting market searches in order to identify suppliers or vendors that might satisfy the customer needs at favourable prices.
- To examine the comparison of the offers and the negotiation of initial terms to meet the demand of the clients to the lower-cost procurement options.
- Helping to match customer requirements with the capabilities of suppliers and reporting the results to supervisors.

Marketing (Field Work & Lead Generation):

- Field visit to Nawabpur to establish importers and businesses that transport goods across the border on a regular basis.
- Gathering of contact information and general profile of shipments and follow up with official freight quotes based on their normal shipments.
- Preparation of simple marketing materials and rate sheets to be applied during outreach of clients.

Documentation: You are the records manager at the largest corporation in the United States.<|human|>Documentation & Client Service:

- Helping in the preparation and verification of shipping documents (e.g. booking confirmations, BL/air way bill references) and making sure that they were uploaded to the portal.
- Answering customer questions regarding shipment status, basic documents and freight cost break down.

2.2 My Takeaways from the position

Abilities in Communication and Collaboration.

- I got to know how to effectively communicate and in time with various stakeholders (clients, carriers, C&F agents, and internal teams). Client trust was enhanced by explaining transit differences in simple terms, route decisions or documentation requirements.
- The experience in the freight forwarding, sourcing, and marketing sector helped me develop skills in cooperating with cross-functional teams and altering my communication approach based on whether I was interacting with a technical operations co-worker or a non-technical customer.

Data-Analysis Skills and Market Research.

- Practical market-mapping, learning how to find the most common importers, how to determine the type of cargo, and how to predict prices, was taught to me in Nawabpur.
- The process of comparing freight rates between different carriers and routes also enhanced my analytical strategy on cost benefit trade-offs (e.g. when should we recommend air over sea and vice versa).
- Easy mental arithmetic to make quotations and organizing rate sheets in a way that clients needed to compare easily.

Portal and other Software.

- My frequent work on the Transworld portal provided me with practical knowledge about the work with the operations dashboard: updating the status of shipment and uploading documents, as well as checking the tracking data of clients.
- I got familiar with fundamental logistics software processes and how vital proper and timely updates are in a client-facing platform - minor data errors will result in massive business problems.
- The experience of using internal booking and tracking tools improved my digital literacy and demonstrated the role of technology in the work of modern freight.

2.3 Relating Educational Learning to Internship Roles

My duties as an intern were directly informed and assisted by my undergraduate major in Supply Chain Management (ULAB):

- Logistics and Transportation Theory- Freight Forwarding practice: The classroom theory on modal choice, lead times, and routing assisted me to recommend to clients to use air, sea, or rail, depending on the cost, urgency, and type of cargo.
- Procurement & Supplier Management - Sourcing Activities: The procurement principles that I learned (supplier selection, price negotiation, total landed cost) were very relevant when I was seeking suppliers who were cheaper to satisfy the needs of the clients.
- Operations management - Shipment coordination: Knowledge of the order to delivery flow helped me to know how bookings, carrier schedules and documentation can be put together to prevent delay.
- Business Communication - Client Interactions: Professional communication coursework enhanced my etiquette in emails and telephone during quotations, follow-ups and clarifying the shipment status.
- Data Interpretation (Excel basics) - Rate Comparison and Quotation Preparation: My educational background in data management skills assisted me in organizing rate comparisons, forming the elements of freight costs as well as presenting explicit quotations.

Chapter 3 : Self Reflection

3.1 Feedback on the Internship

Reverting to the time I worked in Transworld Shipping Ltd., I understand that this internship was a crucial process leading to the bridging of my Supply Chain Management knowledge with the actual practice of logistics. The experience in general was very good: I got serious responsibilities at an early age, collaborated with operational teams, and got an insight into the freight forwarding, sourcing, and field marketing. These chances enabled me to observe theory in action, and made me gain some confidence in a working setting.

What I liked

-Practical freight forwarding: I was assigned to prepare freight quotes, advise customers on the modal choice (air/sea/rail), and shipment tracking on the Transworld portal as it provided me with direct exposure to the core logistics processes. These were the activities in which I was most enthusiastic about as it was closely aligned to my studies on SCM.

-Exposure to cross-functions: Rotations in the sourcing and marketing (field visits in Nawabpur) helped me see the business not just as forwarding but as the entire process that includes using vendor searches and price negotiation through to lead generation and reaching out to clients.

-Client responsibility: Being charged with the responsibility of providing routine quotations and discussing routing and transit-time trade-offs increased my communication and commercial awareness.

-Operation portal usage: I learned that in systems that interact with clients, the accuracy of the data is essential.

What I disliked/challenges faced

-Fast and even unclear: Sometimes the workflow was hectic and priorities switched fast. There was no formal onboarding and task lists were not written, so I occasionally took up additional time to figure out minor details of processes.

-Poor organized training: The majority was on-the-job. Although this is worth it, I was in a bit of a hurry to become productive and an initial orientation of the internal tools and standard operating procedures (SOPs) would have helped me faster.

-Multitasking: Shifting between freight forwarding, sourcing and marketing was interesting, but it was accompanied by a lack of such free time to work on a single quantifiable project. Sometimes I wondered that I could have done more in the case that I had been given a specialized small project.

Nevertheless, all these difficulties were taken as learning opportunities. Hard questions posed by customers, pressing matters on the portal, and negotiation on supplier options during sourcing all enhanced my ability to solve problems, be flexible and maintain a professional demeanor.

3.2 How I could do better and how the organisation could utilize me better

How I could do better

- 1.Be more active at asking feedback and tasks: I will increasingly ask supervisors to make brief check-ins with me to ensure I have the right priorities and get actionable feedback. This would assist me in iterating at a faster rate and adding more value to work.
- 2.Improve technical capabilities prior to joining tasks: I will develop more competence in Excel modelling (pivot tables, VLOOKUP/XLOOKUP, simple macros) and become more acquainted with the general features of TMS/ERP, as I will be able to compare rates, use landed-cost calculations and portal updates much faster.
- 3.Manage my time effectively: I will prioritize to-do lists and time-block urgent and non-urgent tasks to manage stress when tasks are overlapped (e.g., quoting, document uploads and field work).
- 4..Get acquainted with the trade documents and documentation: With better familiarity with the trade document (B/L, AWB, BOE, LC basics) and standard phrasing of clauses, I will do the business better and feel less nervous when communicating with clients.

What Transworld Shipping Ltd. can use me better.

- 1.Give me a small project with specific objectives: Allocate a small project to me that has a specific objective (e.g.: develop and maintain a rate matrix in a group of trade lanes; test the accuracy of portal-updates over three months and suggest improvements to the process). Project ownership would enable me to show impact and have more experience.
- 2.Organized onboarding and documentation of the SOPs: A brief outline of how the portal works, the naming of documents, and the common templates of quotations would help me to shorten the time to ramp up and exclude any unnecessary errors.
- 3.Specialized training: Brief workshops about portal use, how to prepare a quotation, and the fundamentals of customs documentation would allow me to work more quickly and confidently.

3.3 Insights, future focus and recommendations for the internship program

Aspects that I would like to keep practicing in my next job.

-Technical competence: Keep gaining expertise in Excel and data-analysis and familiarize myself with the advanced functions of any ERP/TMS that I employ. This will assist me to make clearer rate analysis and quicker quotes.

-Client communication: Continue to perfect the method of communicating complex logistics decisions in a simple way (cost vs time trade-offs), and compose brevity and professional status and quotations of the same.

-Process orientation: Establish an un-check documentation of repetitive activities, make checklists with regards to portal updates and shipment handovers to eliminate omissions.

-Commercial mindset: Become more sensitive to commercial drivers (pricing, lead time, margins) so I could offer value-adding solutions to the clients and internal teams.

Suggestions on how to enhance the internship program in Transworld Shipping.

1.Structured Onboarding (2-3 days):

-Concise description of divisions and contacts in the company.

-Live demonstration of the Transworld portal and general work flows (how to post documents, change statuses, and where to locate information about booking).

-A checklist of one page SOP for daily (quotations, booking, uploading documents) activities.

2.Clearly Stated learning objectives and given project:

-Give a small project which I could own and present at the end of internship.

3.Mentorship & Feedback:

-Have assigned mentors (operations or commercial executive) and also have weekly/bi-weekly feedback and review.

-A mid-internship check to modify learning objectives.

4.Training Sessions:

-Monthly micro-workshops: quotation best practices, calculation of landed-cost and the fundamentals of documents of customs.

-A brief discussion of professional communication and email templates to clients.

5.Facilities & Wellbeing:

-Provide me with a working space and an access to the systems they need in order to be more productive.

-Minor wellbeing interventions: There should be clear policies on taking breaks, short onboarding about workload expectations and help-seeking.

Chapter 4 : Personal Development

4.1 Career plan and next course of action

The internship experience at Transworld Shipping Ltd. provided me a clear career orientation, which is to make myself known in the profession of logistics, freight forwarding and international supply chain operations. Over the coming few years, I would want to begin as an executive in logistics or freight operations, acquire the knowledge of freight management, and slowly progress to the managerial level where I can control the operations and coordination of clients.

Short-Term Goals (Next 6-12 months):

- Profit a full-time position or long-term internship at a logistics or freight forwarding company.
- Enhance my technical skills with trade documentation, freight pricing and coordination of shipments.
- Develop a business connection and LinkedIn and industry conferences.

Mid-Term Goals (1-3 years):

- Be assigned to a minor project of operations or a trade route.
- Full certifications in logistics, supply chain analytics or ERP/TMS systems.

Long-Term Goals (3-5 years):

- Move to a managerial or supply chain planning position where I will have a small team to lead and make data-oriented operation decisions.

4.2 Technical and Interpersonal Skills Development

Technical Skills to Develop

- High-level excel and data analysis: To make proper quotations and calculate freight cost effectively.
- Freight Documentation: To obtain full knowledge of such documents as Bill of Lading, Airway Bill, and customs clearance procedures.
- ERP/Portal Operations: To enhance my capacity to revise and handle shipment tracking frameworks with precision.
- Calculation of Costs on land: To enhance my understanding of costs constructions in air, sea, and rail logistics.

Skills in Interpersonal Strengthening.

- Professional Communication: To write short and convincing emails to clients and handle a conversation.
- Negotiation Skills: The skill of negotiating with the vendors and clients with confidence and getting good terms.

- Time Management: In order to be able to balance many shipments, quotations, and documentation.
- Collaboration in Teams: To collaborate effectively with cross-departmental teams and keep the coordination effective.

Conclusion

The experience during the internship period in Transworld Shipping Ltd. has become a very significant turning point in my studies and career life. It enabled me to take the abstracted knowledge on my Supply Chain Management major at ULAB and translate it into a practical practical skills in an active logistics setting. Being actively engaged in the sphere of freight forwarding, sourcing and marketing, I managed to have a broad perspective on the way in which international trade and logistics work in fact, including estimates of freight rates and freight transportation, management of documentation and communication with clients.

Along with enhancing technical knowledge of logistics operations, documentation, and data management, this internship reinforced such essential soft skills as communication, teamwork, adaptability, and time management. The adversities that I underwent such as being able to multitask and adapt to the operational demands that kept changing at a rapid pace helped me to develop the strength of resilience, confidence, and problem-solving skills that are key to becoming a professional.

The experience was also useful in offering me an idea of my future career. It confirmed my interest in freight forwarding and supply chain management, and made me want to continue learning in ERP systems, data management and international logistics practices. I am now more aware of my short and long term career objectives: to start in operational position and learn the technical and analytical side of logistics and then moving slowly to managerial role in the global supply chain industry.

Conclusively, my internship experience in the Transworld Shipping Ltd. has not only been a useful training experience but also a transformational experience that has helped me to bridge the gap between what I learned in the classroom and what I have applied in the practical world. It equipped me to join the working society with a lot of confidence, discipline and sense of direction. I have never felt stronger in my resolve to develop a successful career in the logistics and international trade sector, toward a successful, sustainable, and innovative future of the global supply chain management.

Part B

Root cause analysis of missing cargo in LCL/FCL

Chapter 1 Introduction

1.1 Background of the study

Maritime logistics and containerised cargo systems in Bangladesh has experienced very fast growth in the recent years, and this has been fuelled by the flourishing export industries, and rising reliance on imports. Chittagong Port Authority (CPA) which is the main gateway at Chittagong Port handles approximately 95 percent of the international trade by sea. Through such an increase, both Full-Container Load (FCL) and Less-than-Container Load (LCT) shipments have increased, establishing complicated logistical paths that involve ports, depots, customs, inland transport and freight forwarders. This complexity increases chances of dislocation of cargo, mis-placement and even loss of goods especially with many stakeholders and hand-offs.

Even though the trade route is important, there have been frightening cases of the containerization of goods disappearance or loss even of supposedly safe yards in Bangladesh. As an example, two containers that had fabrics valued at Tk 1.5 crore were stolen in the secure section of Chittagong Port despite all the formalities being carried out. These types of incidents point to weaknesses in monitoring, documentation, physical tracking, hand-over of custody and coordination of stakeholders all of which are relevant in both FCL and LCL shipments (but where LCL can introduce an additional level of complexity through common containers and multi-consignment). Not only the revenue loss and lack of trade credibility but also how structural, procedural and human-factor root causes may be contributing systematically to lost cargo are matters of concern in these high-profile cases.

It is against this background that this specialized study on the underlying causes of cargo miss in LCL/FCL within the Bangladesh setting is relevant. It provides the privilege to chart the whole chain of supply, which is stuffing in containers, yard operations, customs, inland transportation, and final delivery, and pinpoint failure points, peculiar to the Bangladesh context, including infrastructure limitations, governance, discrepancies between paperwork, human fallacies and unofficial parallels (e.g., container loading delays, in-yard congestion). An example is that congestion and yard piling at Chittagong Port has been identified as one of the severe functional challenges that may enhance risk. These underlying causes can be used to facilitate the enhancement in documentation methods, tracking systems, systems of accountability and operations, and, in such a way, the integrity of both the FCL and LCL cargo flows can be enhanced in Bangladesh.

1.2 Problem statement

Even though a number of studies and industry reports have reported high-level concerns in the ecosystem of container and freight forwarding in Bangladesh, including the loss of good inside containers at the Chittagong Port Authority (CPA) (e.g., the loss of goods inside 295 containers across 2016-18) these studies have a tendency to be descriptive but not analytical in nature. They tend to report incidence or point out the lack of port-infrastructure (e.g. port inefficiency, congestion) without strictly defining and quantifying the underlying cause of the lost cargo in LCL (Less-Than-Container Load) versus FCL (Full-Container Load) situations and the various phases (stuffing, transit, port yard, delivery) of the process where the loss takes place. Moreover, the causes of the gap in the research is that previous studies rarely separate forwarder level practices, internal control failures and visibility/traceability constraints in the Bangladeshi freight-forwarding context, which has a gap in comprehension of micro-level factors that drive cargo disappearance.

Thus, the key question of this study is: How and why do cargo shipments (both LCL and FCL) get lost in the freight forwarding and container logistics chain in Bangladesh and what are the root-causes of the problem the most critical and solvable? Particularly, this paper will examine the inception and cause of missing cargo in all the logistics chain steps (booking to delivery), contrast LCL and FCL vulnerabilities, and offer a prioritized root-cause framework of Bangladesh. In so doing, it seals the gaps in the existing literature, which disregard the interaction of forwarding-agent controls with the container tracking and visibility systems, auction/custody risks, and structural port/practice weaknesses. The inferences are expected to assist the logistics firms and policy-makers in formulating specific interventions (e.g., process restructuring, digital trace, audit models) to diminish missing-cargo risk within the export-import supply chain in Bangladesh.

The majority of the available studies and reports on the logistics and port operations in Bangladesh have focused on macro-level logistics inefficiencies, including port congestion, delayed customs inspection, and infrastructure bottlenecks (Rahman and Karim, 2021; Hossain, 2020; World Bank, 2022). Although useful, these studies do not provide a micro-level attention to the operational risk in freight forwarding and in container handling, especially in the distinction of LCL and FCL shipments vulnerabilities. Previous literature tends to assume that a loss of cargo is a security or a customs problem, rather than breaking down the causes of such a problem into its components: either document mistakes, poor handling during consolidation or de-consolidation, poor inventory control, or internal collusion among the handlers.

Moreover, there are no empirical studies that quantitatively mapped missing-cargo incidents at different stages of the supply chain and associated them with the container type (LCL or FCL) or route or responsibility of handling agents. This has left the problem under-researched and responding to it as opposed to systematically analyzing it. This gap marks the necessity of the data-driven root cause analysis

that incorporates both the operational, technological, and behavioral elements that are specific to the Bangladesh logistics ecosystem.

1.3 Research Question

1. At which stages of the logistics chain (stuffing,transit,port handling, or delivery) are LCL/FCL shipments most vulnerable to cargo loss or disappearance?
2. What practical control measures and policy interventions can be implemented to minimize the risk of missing cargo in the Bangladeshi freight forwarding industry?

1.4 Research Objectives

1. To examine and discover the processes of the logistics chain at the stuffing, transit, port handling and delivery where LCL (Less-than-Container Load) and FCL (Full-Container Load) can be most susceptible to loss or disappearance of cargo.
2. The purpose of the study is to create and prescribe efficient control strategies and policy initiatives that will reduce cargo loss cases and enhance security, transparency, and accountability within the freight forwarding and logistics business of Bangladesh.

1.5 Potential Contributions or Significance of the study

This research has a great academic and practical importance because it examines the fundamental causes of missing cargo in both LCL and FCL shipments in the logistics and maritime industry of Bangladesh- a subject that has not received much scholarly attention. It contributes to the scholarly research gap by transcending the general arguments about port inefficiencies and operational susceptibilities on micro-scale, such as documentation errors, ineffective internal controls, and lack of coordination among the freight forwarders, port authorities, and transport operators. The study will come up with a systematic root-cause model to gain more insights and eliminate cargo loss within containerized supply chains. In practice, the results will help the freight forwarders, shipping agents, and the Chittagong Port Authority (CPA) to determine the weakest links in the logistics chain and introduce specific measures like improved cargo tracking, improved custody documents, and electronic monitoring. Also, the results of the study can guide the policy-makers to develop regulations that increase the levels of transparency and accountability in the freight management which can eventually enhance the security of cargo, reliability of trade and competitiveness of Bangladesh as a country in global logistics.

Chapter 2 Literature Review

2.1 International Cargo Trends in Cargo Theft and Loss.

The problem of cargo theft is a significant threat to the global supply chain, with the USD 30-50 billion losses every year around the globe (Njiru et al., 2025). In 2022 alone, the United States 1,778 cases of theft were reported with the average loss per case being USD 200,000, which is 49 percent higher than that of the past (HQE Systems, 2024). The British Standards Institution and TT Club found that, due to the post-COVID-19 normalization of trade and inflation, the black-market value of goods has been enhanced, and subsequent to this, the value of goods has gone high, thus causing a surge in theft (Njiru et al., 2025). Munich Re (2024) also announced ongoing expansion of organized and high-value theft of electronics, pharmaceuticals and automotive goods, and this is in line with the CRAVED model of the attractiveness of theft (Gumba, 2024).

The geographical location of cargo theft is also highly concentrated in the economically weak regions of the world like Brazil, South Africa, Nigeria, Kenya, India, and Mexico (AEP, 2021). Miami and Los Angeles ports in the United States have the greatest scores on risk because of high volumes of trade and geographic location to the trafficking routes (AEP, 2021). The ways of theft have changed since the physical hijacking to the identity theft, fictitious pickups, and digital manipulation of shipping documents (Gumba, 2024; Identec Solutions, 2024). The cyberattack on the Antwerp Port (2011-2013) is one of the examples of this contemporary sophistication due to which hackers altered the information about the release of containers and tried to cover the smuggling of the drugs.

Trends in time demonstrate that theft is concentrated on late nights (1:00-3:59 a.m.) and weekends, and December had the highest number and occurrences because of the peak shipping around the festivity (Gumba, 2024). These are in line with Rational Choice Theory (Clarke and Cornish, 1986) according to which offenders can act when there is low risk of being caught and high reward.

2.2 Cargo Loss Causation at Stages of the Supply Chain.

Research indicates a number of root causes at the sea, port and documentation levels. Using the NASAHFACS framework, Singh and Totakura (2024) identified the latent factors including the environmental conditions, poor coordination of the crew, and lack of organizational resources as the principal causes of vessel accidents and at-sea losses. Skill errors and human decision-making were very dominant. In the same vein, Sadowski and Czaplicki (2022) discovered that 40 per cent of cargo damages happen due to improper cargo stuffing, misdeclared mass, and structural weaknesses of the containers. Asik (2023) conducted Fault Tree Analysis to show that human error and organizational weaknesses are the primary factors that affect the chances of container losses.

LCL (Less-than-Container Load) deliveries face more risk because of numerous handling stages, the lack of co-ordination of documentation between freight forwarders, and the lack of packing regulations (IARJSET, 2024). Conversely, FCL (Full Container Load) shipments are associated with the threat of seal tampering, fake Bills of Lading, insider collusion, and failure to track shipments in real-time (Chattogram Port case, 2025). Although FCL is less prone to handling points, it is appealing to advanced criminal profiling of valuable cargo.

2.3 Bangladesh Situation: The Chattagram Port Case Study.

Chattogram Port in Bangladesh has been experiencing continuous cases of container disappearance. In early 2025, the Anti-Corruption Commission announced that three missing containers were worth more than BDT 1.5 crore with permission to have falsified import papers with defunct companies (BSS News, 2025). Generally, 295 missing containers between 2016-2018 represent systemic and not isolated failures. According to experts, the key cause is insider collusion between port, customs and terminal employees (Syed M. Arif, cited in BSS, 2025). There are gaps in tracking and surveillance where there were valid Import General Manifest (IGM) entries of lost containers but could not be tracked. Losses are also increased by inadequate CCTV, ineffective surveillance in the yard, and congestion (80-83% capacity) (Rahman and Khan, 2024). The delays of customs averaging 9-14 days, as opposed to the international standard of 24 hours, make a person more vulnerable (Business Inspection Bangladesh, 2023). The inability to move to a fast digital environment, the presence of infrastructure bottlenecks, and inefficient accountability practices have led to the repetitive losses at NBR (Ahmed et al., 2025).

2.4 Theoretical View and Analytical Frameworks.

The hierarchical relationships between documentation fraud and insider facilitation and operational tracking failures are captured in Fault Tree Analysis (Asik, 2023). Human and organizational dimensions are also further incorporated in the NASAHFACS framework (Singh & Totakura, 2024).

The Rational Choice Theory (Clarke and Cornish, 1986) is used to explain theft decisions as a result of perceived low risk and high reward, and the Defensible Space Theory (Newman, 1972) states that physical port design features are low-risk lights, surveillance and access control and deter theft. Yards that have lights and monitor ports report the lowest cases of theft (AEP, 2021).

2.5 Research Gaps and Opportunities.

Although the problem of cargo theft has been in the spotlight around the world, little empirical literature exists on the dynamics of cargo theft in Bangladesh. The generalizations in most studies are the generalization of container security without differentiating the LCL and FCL vulnerabilities (Njiru et al., 2025). This gap can be addressed through your study since it quantitatively maps cargo loss incidents,

pinpoints weaknesses in LCLs, and analyses human and procedural causal factors. In addition, the barriers to the adoption of technology, including cost, expertise, and infrastructure, should be evaluated to make practical security recommendations (MDPI, 2023; IEEE, 2024). The insider threat mitigation and enhanced documentation integrity have not been a widely discussed but critical part of the enhancement of the cargo security at Chattagram.

The losses of cargo are connected with the interlaced human, organizational, and technological vulnerabilities. High-value goods are the most sought-after objects of theft worldwide because of the black market, and insider collusion, lack of good tracking, weak governance and infrastructural limitations enhance risks at Chattogram. The use of systematic RCA tools, including Fishbone, FTA, and NASAHFACS will be useful in identifying the root causes of missing cargo in the Bangladesh maritime logistics system.

Chapter 3 Research Methodology

3.1 Research Design

The study follows a qualitative case study design to examine the real cause of missing cargo in LCL (Less-than-Container Load) and FCL (Full-Container Load) shipments in the Bangladesh setting and with particular reference to the approaches taken in Chattagram Port in Bangladesh together with the key stakeholders in the freight. The most appropriate research type is qualitative since the phenomenon includes complicated anthropological, organizational, and process-based elements, including insider collusion, documentation flaws, and bottlenecks of operations that should be examined with the help of profound descriptive research (Creswell, 2018; Gammelgaard, 2012). As opposed to using generalizations based on numbers, the approach can result into the in-depth views of persons who are directly engaged in global logistics, freight forwarding, and supply chain security.

Independent variable: Risk factors and causes of LCL/FCL logistics chain. (e.g. stage of movement, quality of documentation, security mechanisms, insider behavior)

Dependent variable: Missing cargo outcome (frequency and severity of missing cargo in LCL/FCL operation in Bangladesh)

3.2 Data Collection Methods

The main means of data collection will be semi-structured interview with the key stakeholders:

- Freight forwarders and C&F agents.
- Cargo owners/importers/exporters
- Ship owners/vessel operators (that lease to forwarding companies)

The following are 10 questions that are put in a structured questionnaire or interview to the freight forwarders, C&F agents, cargo owners/importers/exporters and ship owners (those who rent vessel space). All the questions are streamlined to reveal salient reasons, weaknesses, and accountable reasons in lost cargo of LCL/FCL in the Bangladesh setting.

1. Based on your professional experience, in what place in the logistics chain is the cargo most vulnerable to loss or theft, and what makes this place unique in this respect?
2. In your own opinion what are the most common major determinants or contributory factors in regard to missing cargo in LCL or FCL shipments?

3. During the past two years, what number of cargo disappearance cases, both of LCL and FCL, have you personally handled, and could you give a brief description of one such case?
4. Knowing your experience in practice, what kind of shipment, in your opinion, LCL or FCL are more likely to lose the cargo, and why can it be considered a relatively weak one?
5. What do you feel are the most frequent types of documentation deficiencies that you experience and how do you think they cause the cargo to be lost or misrouted?
6. Which are the most vulnerable sectors of port or cargo-handling security to include gates, yards, stuffing areas, vessel operations, etc. and how this vulnerability impacts on cargo security?
7. Have you ever noticed or suspected anyone involved with the insider side of cargo loss: by staff, handlers, or agents? In case, how did such involvement occur in practice?
8. What do you consider the effectiveness of existing port-side tracking and monitoring system in deterring or identifying lost/misplaced cargo?
9. What are the usual steps of investigation, recovery, and compensation of the stolen cargo in your experience?
10. By given a chance to make one major change in curbing cases of lost cargo in the LCL/FCL supply chain, which exists in Bangladesh, what would you do, and why?

3.3 Sampling Technique

The sampling method was purposive, where the selected sample size will be purposely those who have interpersonal contact with the movement, documentation, or ownership of LCL/FCL cargo via Chattagram Port. This will provide information on the people who are best suited to understand the realities of cargo handling and losses. The sample size has been used in rich and thematic saturation is 40 participants, which is the optimal size to use in qualitative supply chain research (Guest et al., 2017). Participants will span:

- Old time and active freight workers.
- Senior C&F agents (LCL and FCL)
- Representatives of the company of export/import.
- Ship owners/charterers in Bangladesh trade lane.

3.4 Data Analysis

All the answers to the questions (collected either in person or through phone) will be analyzed using unified approach. First, the responses will be documented and tabulated after every call or meeting and in a spreadsheet to make uniformity across modes.

Thematic analysis (Braun and Clarke, 2006) will be used as the major method and it will include:

1. Transcription: Each interview or each call will be transcribed immediately to include all the selected options of answers and any other comment.
2. Coding: The responses will be critically examined and coded in question and answer form. The same ideas or explanations (e.g., issues related to documentation, security issues, period of maximum risk) will be pointed out.
3. Theme Development: The codes will be grouped in larger categories like, operational process breakdowns, documentation issues and security vulnerabilities.
4. Interpretation: These themes will be interpreted against the literature and research objectives to provide reasons why and how cargo goes missing in the LCL/FCL at the Bangladeshi ports.

3.5 Thematic analysis

Thematic Analysis Process of this Study.

Step 1: Transcription, Familiarization and Selection of Quotations.

The entire 40 interviews (phone and in-person) will be transcribed. My next step will be to read and reread every transcript in order to familiarize myself with the data and pick the influential quotations that outline:

- where cargo goes missing,
- why it goes missing,
- how LCL/FCL differ,
- how enquires and the rescue labor,
- what are the solutions that respondents suggest.

Example quotations:

- "The system tells that the container is in the yard, but physically it is not there.
- "The container with LCL is opened three or four times; each time it opens, there is a possibility of things disappearing.
- "Without the aid of within you can never carry out a container out of this port.

Step 2: Identification of Keywords.

Keywords or short phrases will be highlighted or underlined out of each meaningful quote. These keywords reflect the essence of the meaning of what respondents say.

Examples:

- "in yard yet physically out of there" - tracking gap, record mismatch.
- "opened container 3 or 4 times" - numerous touchpoints, many handlings.
- "inside-help" - collusion of insiders, inside involvement.
- "forged identity, fake consignee name" - forged documents.
- yards are too choked- yard congestion, overcrowding.
- CCTV does not see the rear seats, - poor coverage, weak surveillance.

Step 3: Coding of Keywords

The next step would be grouping of similar key words and converting them into codes. A code is a brief label which depicts a certain issue.

Sample codes for your data:

- Yard congestion
- Non-real time tracking system.
- Documentation fraud
- Weak gate control
- Insider collusion
- Several LCL handling stations.
- Seal tampering FCL
- CCTV blind spots
- Slow customs clearance
- Ineffective investigation and salvaging.

Step 4: Searching for Themes

Next, similar codes are grouped into larger themes answering your research questions (where and why cargo is lost and what can be done).

Codices that are natural groupings to form themes that will be used in this study include:

1.Port Infrastructure & Security Vulnerabilities.

- Codes: congestion in the yard, CCTV blind areas, poor control at gates, poor physical layout.

2.Fraud in Documents and Processes Failure.

- Codes: counterfeit documents, non-real consignees, misweighing, paperwork, sluggish customs.

3.Hacker Threats and Weak Governance.

- Codes: collusion among insiders, lax supervision, corruption, shifting the blame amongst agencies, ineffective investigations.

4. Technology Misfits & Tracking Slackness.

-Codes: tracking system not in real-time, mismatch in records, obsolete IT, no integration among port/customs/forwarders.

5. Differential LCL/FCL Vulnerabilities.

-Codes: common LCL handling points, shared container space, seal violations on FCL, high value targeting.

6. Research, Recovery and Compensation Results.

-Codes: sluggish investigation, minimal recovery, share/ none recompense, indistinct liability.

7. Proposed Solutions and Control Measures.

-Codes: GPS / RFID tracking, stricter CCTV, expedited digital customs, employee vetting, even stiffer penalty.

Step 5: Themes Review and Refinement.

All the coded extracts are re-examined to observe whether:

- they are quite appropriate to the theme they belong to, and
- the subjects differ each other.

For example:

- With fake consignee name present under documentation fraud and insider collusion, I shall choose to treat it under Documentation Fraud, with Insider Threats as a secondary theme, or whether the relationship should be a common element between the two.
- Where two themes are too close to each other (e.g., Technology Gaps and Tracking System Failures), a single more distinct theme can be created.

Step 6: Interpretation and Development of Conceptual Framework.

Lastly, the themes will be discussed collectively in order to construct an imaginary model of the way the occurrence of missing cargo within LCL/FCL takes place at Chattogram Port.

Based on your data, the framework would appear as follows in words:

=Upstream risk factors

- Poor physical security and congested yards (Theme 1)
- Poor or fraudulent documentation procedures (Theme 2)
- Party and agency collusion (Theme 3)
- Weak points in tracking and surveillance technologies (Theme 4)

These interact differently in the case of LCL (complexity of the process, numerous touchpoints) or FCL (high value per unit, seal tampering) (Theme 5).

Resulting in: loss of containers or partial loss of cargo, poor recovery, poor compensation (Theme 6)

The controls suggested by stakeholders include GPS/RFID tracking, CCTV, digital customs (NSW), staff vetting, independent investigation cell, LCL SOPs (Theme 7).

This will tie together information - coding - themes - conceptual model in a logical, understandable manner, and thus your thematic analysis would be systematized and transparent, just like the sample framework in the picture, only based on the subject of missing cargo in LCL/FCL in Bangladesh.

Chapter 4: Findings and Discussions

4.1 Introduction

In this chapter, the author introduces the result of the research in connection with the two research problems:

1. determining the point in the logistics chain where LCL and FCL shipments are the most exposed to loss of cargo, and
2. what control strategies and policy measures are capable of minimising those losses and enhancing security, transparency, and accountability in the freight forwarding industry of Bangladesh?

According to the existing research, they are based on the thematic analysis of interview/questionnaire data of 40 stakeholders (freight forwarders, C&F agents, importers/exporters, and ship/space owners).

4.2 Objective 1: Weaknesses in the Logistics Chain.

The objective 1: To explore and identify the operations of the logistics chain at stuffing, transit, port handling and delivery where LCL and FCL is most vulnerable to loss or disappearance.

4.2.1 Port Handling and Yard Store.

The majority of the respondents have given port handling and yard storage in Chattogram as the weakest point in both LCL and FCL.

They pointed to:

- Congestion of yards (containers are stacked tightly, and they are hard to trace).
- Poor coverage of CCTV and blind spots.
- Weak gate-out verification.

These views are consistent with reported cases of containers going missing on the so-called secured port territory following customs auction or import discharge, even when records at the authority have them kept in the yard.

This is in line with the literature through which congestion and insufficient infrastructure in the yard elevate the chance of losing and stealing items [Rahman and Khan, 2024; Baki et al., 2023].

4.2.2 Stuffing/ Consolidation and De-consolidation (CFS, Warehouses) - LCL in particular.

In the case of LCL, stuffing and de-consolidation at CFS/warehouses was a significant risk area to the respondents:

- Several shippers on a common container.
- Container opened a number of times (consolidation, customs checks, de-consolidation).
- Poor supervision and counterneering.

These conclusions are in line with the studies demonstrating that LCL consolidation brings more exposure to pilferage, mismatches, and misrouting due to more handling points and more complicated documentation[Helm et al., 2024; IARJSET, 2024].

4.2.3 Transport to and from Port inland.

Other respondents also mentioned inland trucking (factory/CFS - port and port - ICD/warehouse) as a critical point because of:

- Seal tampering en route.
- Truck diversion.
- Absence of GPS positioning of cars.

This is a general trend in the world as stealing a parked or slow moving truck is a familiar issue in cases where there is a poor tracking and escort system in place [Njiru et al., 2025].

4.2.4The final delivery and the onboard transit are covered in Less popular ones among the respondents were onboard vessel transit and last-mile delivery:

- FCL containers targeted as an entity (diversion or illegal release).
- Wrongful or fraudulent delivery orders towards the conclusion of the chain.

These phases seem to be less risky than port yard and CFS, though FCL theft at sea and during diversion has been widely reported in the literature of maritime accidents and risks [Rahim and Sunaryo, 2019; Kaup et al., 2022].

4.3 Objective 1: LCL vs FCL - Comparative Vulnerability.

It was a belief of many stakeholders that LCL is more operationally vulnerable as it is:

- Increased handling and opening up of containers.
- Common area with other shippers, reducing personal control.
- Complexity of documentation (large number of Bills/entries in a box).

Simultaneously, there are those who emphasized that FCL is more appealing in organized theft due to:

- Where one container had high value.
- It is possible to divert or release containers and use forged papers or insider assistance.

This matches research that:

- Human fallacy and inadequate loading/handling lead to both types of damage/loss at sea [Kaup et al., 2022; Singh and Totakura, 2024].
- Full container theft and fraud: it is increasingly advanced and it occurs with the assistance of insiders and the use of forged identities [Njiru et al., 2025; GFI, 2021].

The following is Objective 2: Control Strategies and Policy Measures.

Goal 2: To develop and prescribe effective control measures and policy programs in order to decrease the loss of cargo and to improve security, transparency, and accountability.

Based on the interviews and literature, there are a number of control levers.

4.4.1 Tracking and Technology Controls.

The issues about enhanced tracking and visibility were mentioned by stakeholders several times:

- Live container tracking (GPS/RFID) to have the real picture of the location of boxes inside and outside the port.
- Electronic seals that provide an alert in case of improper opening.

Research indicates that ports and terminals with such systems (smart seals, GPS, built-in yard systems) are able to detect tampering at a more advanced stage and minimize successful thefts [Identec Solutions, 2024; Tavacioglu et al., 2024; Hanafiah et al., 2025].

Within the framework of Bangladesh, this would entail:

- Connecting the movements of containers in the yard to an electronic map.
- Freight Forwarder and cargo owners to access position and status independently.

4.4.2 Controls over Documentation Integrity and Processes.

The results highlighted documentation fraud (appearances of fake consignees, changed BLs, discrepancies between weights) as one of the fundamental facilitators of cargo disappearance.

To overcome that, the major strategies are:

- Complete computerisation of customs and shipping documents (e-BL, online manifests).
- Close verification and cross-checking of proclaimed cargo and real physical data.
- Travel toward a National Single Window to it reduce the number of manual steps, delays and discretionary treatment.

International accounts on cargo security alert that one of the most significant weaknesses is the trade-based money laundering, falsified invoicing and identity theft in which the documentation is not digitalised or verified in a robust manner [GPI, 2021; AEP Team, 2021].

4.4.3 Security, Surveillance and Insider Threat Management.

The respondents were repeatedly referring to:

- The lack of good CCTV coverage and monitoring.
- Perceived inside collusion(yard employees, gate people, intermediaries).

This calls for a mix of:

- High-risk zones (yards, CFS, gates) are strongly covered by CCTV.
- Live tracking and tracking of investigations.
- Background checks are systematic, duties are rotated, and there should be sanctions that are evident to the staff that have been involved in stealing or tampering of documents.

According to the international studies, organized crime and insider risk are at the center of container theft in ports and terminals, notably in those where there is low wages and a weak oversight (Njiru et al., 2025; GPI, 2021; Maritime Fairtrade, 2024).

4.4.4 Governing and Coordinating Measures.

The research also proposes that the control strategies will not work in case the governance is disjointed.

Both the respondents and the literature point out:

- Misunderstood functions between port authority, customs, private operators.
- There were weak, slow or inconclusive investigations into containers lost.

The following are therefore effective policy responses:

- Better division of regulatory and operational functions at Chattogram Port.
- The loss of cargo and port security risk investigation is an independent unit (or task force) with authority to access all the data provided by the parties.
- Frequent assessment of jointly with freight forwarders, customs and port officials to discuss the incidents, exchange data and enhance controls.

This is in line with the suggested integrated port governance in developing nations [ADB, 2019; Mustafizur Rahman et al., 2023].

4.5 Summary of Key Findings

Theme	Main Issue	Implications	Supporting References
	Collusion among port/customs/ forwarders, fragmented accountability, corruption		
Port Infrastructure & Security	Shallow draft, yard congestion, limited berths, CCTV gaps, weak gate control	Higher cargo loss risk, especially in yard/storage; enables undetected removal	World Bank (2020); ADB (2019); Rahman & Khan (2024); BSS News (2025)
Documentation & Process	Counterfeit BLs, fake consignees, manual systems, Delayed customs clearance	Creates confusion, enables fraud, extends cargo dwell time, increases theft window	GFI (2021); Njiru et al. (2025); Holguín-Veras et al. (2021); IARJSET (2024)
Insider Threats & Governance		Systematic vulnerability; investigations delayed; low deterrence	Maritime Fairtrade (2024); TT Talk (2025); GFI (2021); Mustafizur Rahman et al. (2023)
Technology & Tracking	No real-time tracking, inadequate CCTV, outdated systems, cybersecurity risks	Containers untraceable; loss discovered late; data manipulation possible	Identec Solutions (2024); Sjödin (2025); AEP Team (2021); Singh & Totakura (2024)

LCL vs FCL Vulnerability	LCL: multiple handling, shared space; FCL: high-value targets, seal tampering	LCL operationally exposed; FCL attractive for organized theft	Helm, Malikova & Kembro (2024); Rahim & Sunaryo (2019)
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4.6 Discussion: Relating Findings to Theoretical Frameworks.

These results are very much in favor of the Rational Choice Theory (Clarke and Cornish, 1986) implemented by Njiru et al. (2025): the theft of cargo takes place when the perceived benefits (high-value goods) exceed the perceived costs (weak surveillance, low chances of detection, slow investigation, etc.). The temporal patterns of operations that were identified such as late-night, weekends, and rainy season are consistent with the opportunity structures where monitoring is minimal.

The state of port yards and CFS areas is also high-risk, which can be attributed to the lack of territorial reinforcement (poor fencing, unclear delimitation), lack of surveillance (CCTV holes), and the lack of activity-supportive environments (staff overwhelmed by congestion) facilitating criminal activity, as explained by Defensible Space Theory (Newman, 1972).

A modified version of Human Factors Analysis and Classification System (HFACS) allows classifying root causes: organizational (two factors such as fragmented governance and corruption), unsafe supervision (poor monitoring), preconditions (congestion, document gaps), and unsafe acts (insider collusion, seal tampering).

4.7 Regional and International Comparison.

The situation in Bangladesh is opposite of that of peers in the region. Although Vietnam and Sri Lanka have established deep-sea ports, which incorporate a digital system, and have robust governance structures (Saha & Rahman, 2023), Bangladesh continues to rely on feeder services and manual processes. According to the LPI provided by the World Bank, Bangladesh is ranked lower in the comparison with India and Vietnam in terms of efficiency of customs and infrastructure (World Bank, 2020), which is directly related to increased rates of cargo losses.

International benchmarking (MDPI, 2023) and Identec Solutions (2024) recommend using real-time tracking, automated gates, and blockchain-based documentation technologies in successful ports, the application of which has not yet become widespread in Bangladesh ports. Bangladesh default in relation to world standards is therefore a cause and result of continued loss of cargo.

4.8 Conclusion

In the case of Objective 1, the research indicates that:

- The most susceptible phases of both LCL and FCL include port yard/handling and LCL cons/de-consolidation, inland transport is also mentioned.

Multiple handling and complexity expose -LCL more than FCL, and planned, high-value theft is more attractive on FCL.

In the case of Objective 2, the results reveal that the effective controls should:

- Enhance visibility and tracking (GPS/RFID, real time yard systems).
- Secure document integrity (digital documents, powerful verification, single window).
- Enforce security and insider countermeasures (CCTV, vetting, sanctions).
- Explain ownership and responsibility (external audit, more defined roles).

These findings combined indicate a multi-layered control system in which technology, process discipline, and governance reforms strengthen to mitigate the lack of missing cargo cases and create a more stable and responsible freight setting in Bangladesh.

Chapter 5: Recommendations

5.1 Introduction

Considering the results of missing cargo in the LCL/FCL transportations at Chattogram Port, the chapter is structured on brief, practical recommendations as per four pillars; technology, security, processes, and governance and capacity building.

5.2 Technology and Tracking

1.Implement real time container tracking (GPS/RFID).

- Install GPS/RFID tags on containers and particularly high value and LCL consignments to ensure that their position inside and outside the yard are monitored at all times.
- This directly responds to instances where the system will indicate that a container is in yard, yet it is not there physically.

2.E-BL, e-customs, blockchain-ready records) 2.Digitize and secure documentation (e-BL, e-customs, blockchain-ready records).

- Replace paper-based Bills of Lading and manual customs forms with secure and fully digital forms of documentation with time-stamped custody records.
- This minimizes the possibilities of false consignees, forged BLs and identity frauds that now allow release of containers without actual authorization.

3.Automate gate operations

- Install gate systems that have license plate recognition, automatic and computerized matching with manifests and computerized release authorization to avoid containers leaving the port without clearance.

5.3 Security and Surveillance

4.Increase CCTV surveillance and coverage.

- Yards, gates, stuffing/de-stuffing, fully covered by CCTV with increased camera resolution and 24/7 coverage.
- Simple analytics (notifications about the out-of-hours work or unauthorized movements) should be used to identify suspicious processes in the shortest amount of time.

5.Enhance integrity of containers seals.

- Standardize the use of high security or electronic seal on FCL containers and sealed LCL units and seal numbers and tamper incidents documented in system.

5.4 Process and Documentation Controls.

6.Standardize LCL consolidation/de-consolidation.

- CFS and off-dock yard- Develop and implement LCL handling SOPs (pre-stuffing checks, counting, weighing, photo evidence, de-stuffing verifications)
- This is a direct response to LCL being more vulnerable because of the numerous points of handling and lack of responsibility.

7.Streamline the customs process and decrease the dwell time.

- Adopt an efficient National Single Window and risk-based clearance to reduce international levels of clearance time.
- Shorter dwell time minimises the time of opportunity to steal as containers wait in congested yards.

5.5 Governance, Integrity and Capacity Building.

8.Establish a separate cargo loss investigation unit.

- A small specialized unit empowered with the authority to investigate missing cargo incidents, CCTV, gate logs and documentation and prescribe the disciplinary or criminal measures.

9.Improve employee screening and anti-corruption.

- Background and regular checks on personnel in sensitive positions (yard, gates, customs, CFS) and provide severe penalties of collusion or falsifying documents.

10.Train the interested parties on cargo risks and LCL/FCL risks.

- Frequent brief training of freight forwarders, C&F agents, port and CFS employees on how to identify fraud patterns, red flags in documentation, and safe handling of the same.

Chapter 6: Conclusion

This paper investigated the innermost reasons of missing cargo in LCL and FCL delivery in Bangladesh applying to Chattogram port and associated freight forwarding operations. In the form of qualitative data gathering of 40 industry stakeholders and reviewing the international literature, there were several fundamental insights.

To begin with, it has been observed that cargo is the most vulnerable when it is located within the port and the LCL/CFS facilities, not just when the cargo is in transit around the inland or the vessel. Crowded yards, lack of full coverage by the CCTV cameras, and ineffective control of the gates provide viable options of having containers or partial loads vanish without their being noticed at that moment.

Second, fraudulent documentation and process flaws, including false consignees, forged BLs and mismatched cargo/weight declaration and sluggish and paper-based customs processes allow theft and complicate the ability to track where to go in the chain of responsibility. Those were obvious weak points in the real-life instances of lost containers of high value at Chattogram Port.

Third, a significant number of respondents are sure that it is insider collusion between the port workers, security personnel, gate personnel and external actors. Poor governance and sharing of duties with port authority, customs and the private operators render accountability weak and investigations tedious.

Fourth, the researcher observed significant variations between LCL and FCL vulnerability:

Operationally, -LCL is more vulnerable because it has several points of handling, shared space and complicated documentation in one container.

The organized theft is strategically directed to FCL due to its high price per unit, and reliance on seals and documents as its control means.

All in all, the failure of cargo in Bangladesh is not an incidental security but a result of the interrelationship of people, process, technology, and governance failures.

This study adds value in that it:

- Offering a dedicated and Bangladesh-specific root cause analysis of LCL/FCL cargo loss.
- Bringing together the frontline experience (through forwarders, C&F agents, cargo owners, ship interests) with theoretical perspectives such as insider threat, and rational choice.
- To make practical and concrete, step-by-step suggestions that are technically sound and in line with other experience in other ports around the world.

It has limitations: the sample is small (only 40 stakeholders); the detailed official records of the incidents are not available; the research is focused on Chattagram, and not on Mongla or Payra. Future studies have

the potential to include the quantitative analysis of incident data, study SMEs and smaller ports, and evaluate the effect of any reforms that are enacted.

In spite of these, there is one thing that is clear, unless something is done, the issue of missing cargo will keep costing Bangladesh, in terms of trade credibility and expenses by the honest businesses. Through real-time tracking, enhanced surveillance, more tidy documentation, independent investigation and improved training of people, Bangladesh can greatly minimize the LCL/FCL cargo loss and take a step closer to international standards of port and supply chain security.

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RECOMMENDATION LETTER

Date: 30 November, 2025

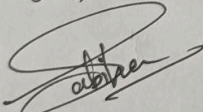
EXPERIENCE CERTIFICATE

We are pleased to write this letter to inform you that Khalid Bin Abdullah, (Roll- 213011010), has successfully completed a period of 12 weeks long Internship on Sales and Marketing from Transworld Shipping Limited.

From the very beginning he performed his duty with determination and sincerity. As we observed, he is an active and very qualified person besides he performed all of the assigned tasks effectively. We found him to be a very sincere, reliable, professional, hard-working and innovative person.

Moreover, Khalid Bin Abdullah demonstrated excellent behavior during his job here. We wish him all the best.

Regards,



Sabiha Sabrin

Admin and Corporate Affairs

Pidex Limited

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