

A STUDY ON CARGO HANDLING PROCESS IN SHIPPING AND LOGISTICS AT LSA LOGISTICS

Submitted in partial fulfilment of the requirements for the award of

MASTER OF BUSINESS ADMINISTRATION

by

GOKUL KRISHNAN

Register No.40410229



SCHOOL OF MANAGEMENT STUDIES

SATHYABAMA

**INSTITUTE OF SCIENCE AND TECHNOLOGY
(DEEMED TO BE UNIVERSITY)**

**Accredited with Grade "A" by NAAC | 12B Status by UGC | Approved by AICTE
JEPPIAAR NAGAR, RAJIV GANDHI SALAI, CHENNAI - 600 119**

APRIL 2022



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SCHOOL OF MANAGEMENT STUDIES

BONAFIDE CERTIFICATE

This is to certify that this Project Report is the bonafide work of **GOKUL KRISHNAN 40410229** who carried out the project entitled “**A STUDY ON CARGO HANDLING PROCESS IN SHIPPING AND LOGISTICS AT LSA LOGISTICS**” under my supervision from January 2022 to March 2022.

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DECLARATION

I **GOKUL KRISHNAN (Reg.No.40410229)** hereby declare that the Project Report entitled “**A STUDY ON CARGO HANDLING PROCESS IN SHIPPING AND LOGISTICS AT LSA LOGISTICS**” done by me under the guidance of **Dr.DHIVYA SATHISH** is submitted in partial fulfillment of the requirements for the award of Master of Business Administration degree.

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R. GOKUL KRISHNAN

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ABSTRACT

In the literature, mostly, under the heading of maritime logistics, classical sea transportation issues have been studied. In actual fact, with broader scope, maritime logistics is a different field under the logistics scheme and sea transportation is just one of the functions that must be carried effectively and in an integrated manner with other logistics functions. This chapter focuses on the maritime logistics functions which were selected by the authors in accordance with the gap in the literature, namely transportation and traffic management, inventory management, demand management, demand forecasting, material handling, and packaging and labelling. In addition to the maritime logistics functions; port logistics, green maritime logistics and decision problems in maritime logistics topics are handled deeply with the aim of completing the selection of the maritime logistics concept by which an understanding of the clear definition of maritime logistics can be achieved. The practitioners can gain more integrated and holistic viewpoint about maritime logistics with the help of this chapter. A freight forwarder is a person or computer that organizes shipment for individuals or corporation to get large orders from the manufacturer or producer to market or final point of distribution. Forwarders will concern with a carrier to facilitate the movement of goods. A forwarder is not typically a carrier, but is an expert in supply chain management. In other words, a freight forwarder is a “travel agent” for the cargo industry, or a third party (non- asset- based) logistics provider. A forwarder will contract with asset-based carriers to move cargo ranging from raw agriculture products to manufactured goods.

Keywords: Sea transportation, cargo, maritime logistic, freight forwarder, manufactured goods.

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CHAPTER I

INTRODUCTION AND DESIGN OF THE STUDY

1.1 CONCEPT INTRODUCTION

"Cargo Handling Process" means loading, unloading, packing or unpacking of cargo and includes cargo handling services provided for freight in special containers or for non-containerized freight, services provided by a container freight terminal or any other freight terminal, for all modes of transport and cargo handling services incidental to freight, but does not include handling of export cargo or passenger baggage or mere transportation of goods;

Containers are the most transported method of cargo form in the world as they are transported by all the three transportation systems available i.e., land, air and water. The aspect of cargo handling of the containers on ships become very critical as they are subjected to harsh weather and strong wind in the mid sea. A research states that every year more than 10,000 containers fall overboard and spill their cargo into the ocean; 50 % of this happens due to negligence in the cargo handling.

Different types of cargo handling equipments are used to secure containers to the ship and to other containers stacked on top of other. The details of these equipments are given in cargo securing manual (CSM) present onboard.

Difference between Maritime, Shipping, Freight, Logistics

To the uninitiated (which included me at one stage), these industries are same or similar and it might come across that there is no difference between Maritime, Shipping, Freight, Logistics and Supply Chain. But once you are involved in the business or know about these businesses, you will very soon understand that these are very different industries with different workings, assets, architecture, requiring very different sets of qualifications, experience, expertise, knowledge and attitudes. The difference between Maritime, Shipping,

Freight, Logistics and Supply Chain and how it is all connected, starting with some simple definitions of these terms.

Maritime Industry = anything related to the ocean, sea, ships, navigation of ships from point A to point B, seafarers, ship owning and other related activities.

Shipping Business = the act of carriage of cargo from point A to point B using the ships which falls under the Maritime industry.

Freight = the cargo that is carried using the shipping services offered by the shipping lines using the ships which fall under the Maritime industry.

Logistics Services = the processes involved in getting the cargo from the manufacturer's warehouse to the receiver's warehouse including arranging for shipping services offered by the shipping lines using the ships which falls under the Maritime industry. Supply Chain = the whole granddaddy process comprising of all aspects in a product cycle, for example from picking of the fruit at a farm in Point A to delivering the fruit to the shelf at a store in Point B using all of the above-mentioned industries, businesses and services.

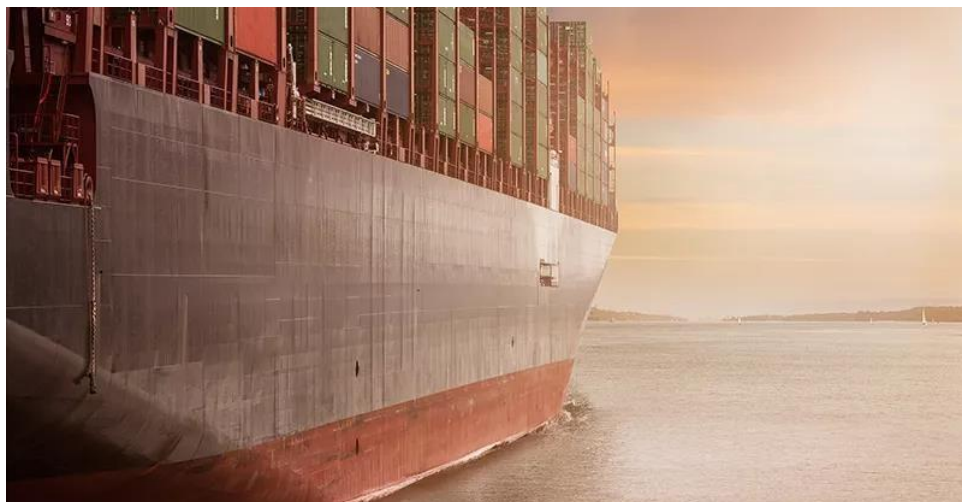


Figure 1: Difference between Maritime, Shipping, Freight, Logistics

Maritime Industry

It is fair to say that Maritime Transportation has been and still remains the backbone of global trade and has been so since the Egyptians, Greeks, Romans, Arabs, Indians, Chinese, Europeans all started sailing and improvising the sailing methods from sailboats, dhows, long boats, dragon boats, steamships to the current ULCVs, VLOCs, VLCCs etc.

Maritime transportation is a derived demand whose main purpose is to support trade, business and commerce – whether global or domestic, whether cargo or people. An estimated 89.5% of global trade is carried by sea. As per UNCTAD figures, in 2017, world seaborne trade reached a volume of 10.7 billion tons with a predicted expansion of 3.2% between 2017 and 2022.



Figure 2: Maritime Industry

The growth, numbers and the volume involved makes the maritime industry one of the most globalized industries in the world in terms of ownership and operations. Not just in terms of ownership, the Maritime industry also provides employment for an estimated 1.65 million seafarers working in the global merchant fleet across the world.

Here are a few stats for you to think of, about the Maritime Industry (all stats shared from UNCTAD).

WORLD FLEET BY VESSEL TYPE

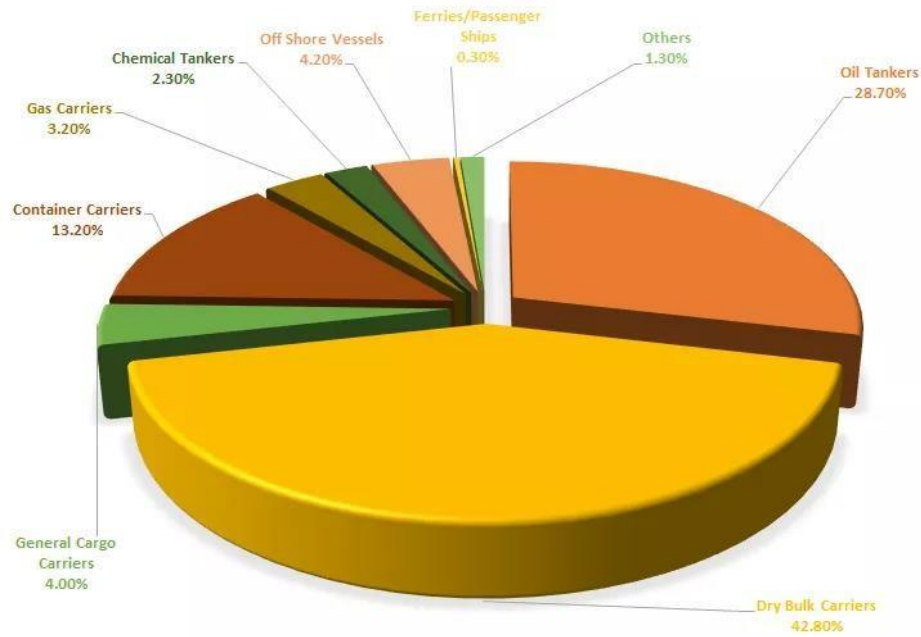


Figure 3: World Fleet by Vessel Type

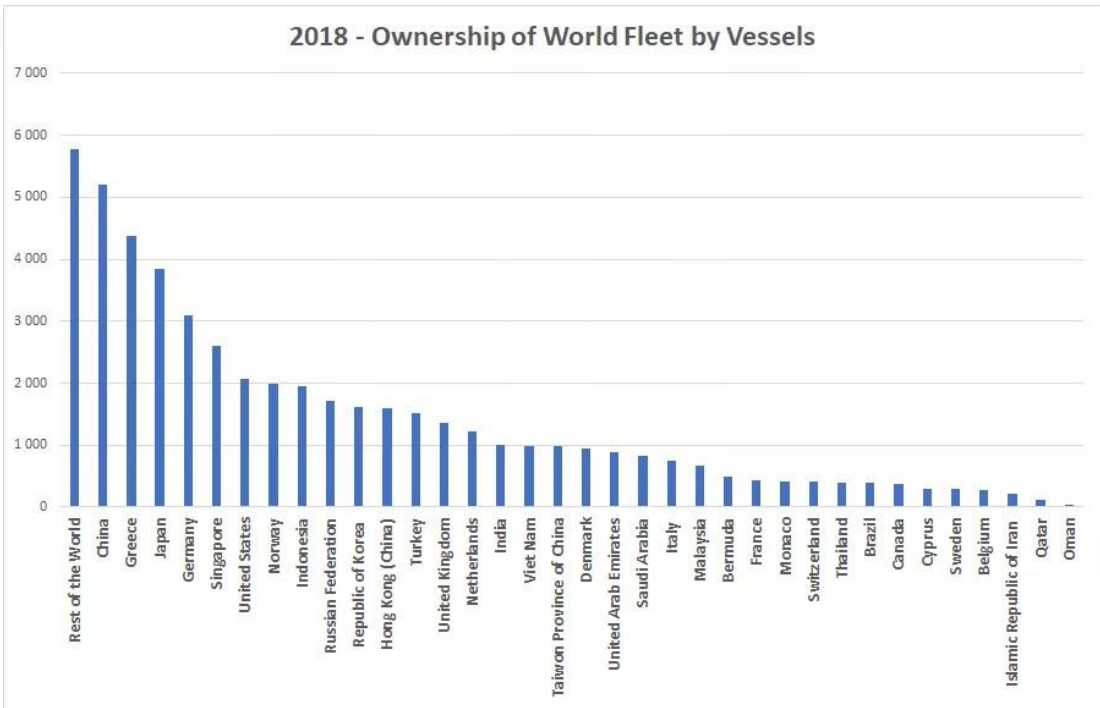


Figure 4: Shipping

SHIPPING

As briefly defined above, Shipping is the act of carriage of cargo from point A to point B using the ships which falls under the Maritime industry.

Cargoes are carried by various types of ships all around the world.

- Oil Tankers
- Dry Bulk Carriers
- General Cargo Carriers
- Container Carriers
- Gas Carriers
- Chemical Tankers
- Off Shore Vessels
- Ro-Ro ships
- Ferries/Passenger Ships
- Others

FCL

FCL – an abbreviation for “Full Container Load”. This term is commonly used to describe a sea freight service that is designed for shipments of cargo where shipper has exclusive use of sea multimodal container. As a rule, containers are loaded and sealed by shipper at the shipper's facility. Then it transported by ocean, rail and/or truck directly to the point of final destination.

Full Container Load (FCL), as the name implies, is the standard form of shipping freight for those who have a large amount of goods to send. The FCL definition seems to imply that you have to fill the container totally, but in fact, this is not the case – you are renting its exclusive use but if you cannot use every square meter, it may still be the cheapest method. You have to calculate, versus

the option of LCL Shipping (Less than Container Load), whether FCL transport is the more cost-efficient. As a rough rule of thumb, if you have 12 pallets or more, FCL freight is likely to be the better solution.

If you have a cargo sufficient to fill a 20-foot sea container, we still recommend you to compare FCL to LCL option. In certain circumstances you may find that using LCL service can be more convenient and cost-effective for you. As an example, when your self-deliver boxed cargo to a ship-terminal, you eliminate container pre-carriage and waiting charges. Also, you are not obligated to the container return to a carrier's destination container yard.

ADVANTAGES OF FCL

More cost effective when transporting over 15 cubic meters (approx half cubic space of 20ft GP container)

- More cost effective than air freight (although longer transit time)
- Generally faster transit (compared to LCL) due to less general handling and unforeseen delays
- High security and fewer risks of damage to the cargo because container is handled less

DISADVANTAGES OF FCL

- Not cost effective unless shipping more than 15 cubic meters (in a 20ft GP container)

LCL MEANING

LCL an abbreviation for “Less than Container Load”. This term is commonly used in the sea freight industry and by international moving companies to describe a sea freight service that designed for shipping boxed, crated or palletized cargo that cannot fill an entire 20' Ocean container. A freight forwarder may create a “Consolidation” by putting together multiple LCL shipments.

ADVANTAGES OF LCL

- It will decrease the shipping cost; you are paying for the portion of the space you are using.
- For inland, you can either drop or pick up the cargo from the CFS/bonded warehouse where they load or unload the container.
- Transit time will be the same as if you would have shipped a full ocean freight container.
- International moving company can also palletize smaller boxes to eliminate shipping cost extra volume charges.

DISADVANTAGES OF LCL

- More expensive per cubic meter when compared to FCL
- Possible delays waiting for other consignments being grouped in container
- Possible delays at customs due to other companies' cargo (incorrect documentation etc)
- Cargo can be damaged in transit if other consignments not correctly packaged or packed into the container.

DIFFERENCE BETWEEN LCL AND FCL

FCL and LCL are two of common terms used in shipping under Export and Import trade of international business.

If a shipper does not have enough goods to accommodate in a fully loaded container, he arranges with a consolidator to book his cargo. This type of shipment is called LCL shipment. The said consolidator arranges a full container (FCL) with a main shipping carrier, and consols the shipments of other shippers. Means the freight forwarder who books a full container accepts goods from different shippers and consolidates all such goods in to one container as a Fully Loaded Container – FCL. The freight forwarder sorts out these goods at

destination or at transshipment points, meant for different consignees at different ports.

LOGISTICS

Logistics is the process of planning, implementing, and controlling procedures for the efficient and effective transportation and storage of goods, including services and related information, from the point of origin to the point of consumption. The goal of logistics is to successfully meet customer requirements. This definition includes inbound, outbound, internal and external movements.

"Logistics" was initially a military-based term used in reference to how military personnel obtained, stored and moved equipment and supplies. Since its initial use, "logistics" is used widely in the business sector to refer to how resources are handled and moved along the supply chain.

In simple terms, "logistics" means having the right amount of a good at the right time, getting it to the appropriate location in proper condition and delivering it to the correct customer. Logistics is a web that links to businesses in every industry sector. The goal is to manage the fulfillment of each customer, moving quickly and efficiently from one section of the supply chain to the next.

CONTAINERIZATION

Containers are the most obvious element of international shipping; they are seen everywhere; trundling along the motorway, in the factory loading bay and stacked on special trains. Container were actually the units, which became common in factory and in a revolution spread across the world of cargo liner shipping in the 1960s and 1970s and totally changed the face of the maritime industry.

Containerships were technology's answer to the problem of long stays in port as cargo packed in bales, barrels, crates, and boxes and loose, slowly loaded and unloaded in lower holds and twenty deck using gangs of dozens. It

was not uncommon for atypical 15,000-ton cargo liner to spend 170 days each year in port and a ship in the Australian trades could spend two months on the coast, after a month's voyage from Europe. This was inefficient, which needed innovation.

The container revolution effectively abolished all the expensive and time-consuming handling of goods in and out of Lorries, train and warehouses. Loaded into 20ft or 40ft container at the point of origin and sealed, the goods will not be seen again until they are delivered to their final destination. To handle the containers and speed them on the way, a whole logistic system has been developing their specialist road and rail transport, ground handling equipment, like straddle carries and huge gantry cranes in the port terminals. And of course, the remarkable ships them.

Container shipping is a high technology, capital intensive operation, with heavy reliance on IT; computer being used to plan the stowage, to minimize handling of containers. The most modern container terminals now use a high degree of automatic for movement of boxes from shore container stacks to the ship's side. Recent years have seen containership sizes react to scale Economic, with the "1st generation" ship of 1,200 TEU having now grown to an average in excess of 5,000 TEU on the deep-sea trades. Giants of 10,000 TEU plus are now being planned.

ADVANTAGES OF CONTAINERIZATION

Containerization gained prominence with the open-source Dicker, which developed a method to give containers better portability -- allowing them to be moved among any system that shares the host OS type without requiring code changes. With Dicker containers, there are no guest OS environment variables or library dependencies to manage.

Proponents of containerization point to gains in efficiency for memory, CPU and storage as key benefits of this approach, compared with traditional virtualization. Because containers do not have the overhead required by VMs -- separate OS instances -- it is possible to support many more containers on the

same infrastructure. As such, containerization improves performance because there is just one OS taking care of hardware calls.

A major factor in the interest in containers is they can be created much faster than hypervisor-based instances. This makes for a much more agile environment and facilitates new approaches, such as micro services and continuous integration and delivery.

DISADVANTAGES OF CONTAINERIZATION

A potential drawback of containerization is lack of isolation from the host OS. Because containers share a host OS, security threats have easier access to the entire system when compared with hypervisor-based virtualization. One approach to addressing this security concern has been to create containers from within an OS running on a VM. This approach ensures if a security breach occurs at the container level, the attacker can only gain access to that VM's OS, not other VMs or the physical host.

Another minor disadvantage of containerization is each container must use the same OS as the base OS, whereas hypervisor instances can each run unique OSes. For example, a container created on a Linux-based host could not run an instance of the Windows Server operating system or applications designed to run on Windows Server.

There are a number of advantages / disadvantages for both LCL and FCL container shipping. If you are a small to medium sized company and do not have enough inventory to fill a standard container then it is recommended that LCL will be the most cost-effective method of shipping. If you are a large company with enough stock to fill a full container then FCL transportation is the way to go.

When shipping cargo using FCL transportation you can improve the economies of scale and increase profits by reviewing your supply chain strategy to maximize on full container load advantages. This could involve reducing the total weekly or monthly container shipments you receive in order to completely fill a container e.g., if you are shipping 14 cubic meters every month (LCL

shipment), why not wait an extra month and transport 28 cubic meters in one shipment. You could also consider increasing container size from a 20ft to a 40ft to further improve cost effectiveness.

Tuscor Lloyds have dedicated LCL and FCL container shipping teams to help you transport cargo around the world, no matter how much you need transporting or where it is being loaded / discharged. Our team can provide advice on the best container transportation method for your needs and help with every aspect of transportation including warehousing, cargo consolidation, road transport to port, loading / unloading, customs clearance and documentation.

1.2 INDUSTRY PROFILE

Logistics is the art and science of managing and controlling the flow of goods, energy, information and other resources like products, services, and people, from the source of production to the marketplace. It is difficult to accomplish any marketing or manufacturing without logistical support. It involves the integration of information, transportation, inventory, warehousing, material handling, and packaging. The operating responsibility of logistics is the geographical repositioning of raw materials, work in process, and finished inventories where required at the lowest cost possible.

1. Overview of Logistics

The word of logistics originates from the ancient Greek logos (λόγος), which means *“ratio, word, calculation, reason, speech, oration”*.

Logistics as a concept is considered to evolve from the military's need to supply themselves as they moved from their base to a forward position. In ancient Greek, Roman and Byzantine empires, there were military officers with the title ‘*Logistikas*’ who were responsible for financial and supply distribution matters.

The Oxford English dictionary defines *logistics* as: *“The branch of military science having to do with procuring, maintaining and transporting material, personnel and facilities.”* Another dictionary definition is: “The time related

positioning of resources." As such, logistics is commonly seen as a branch of engineering which creates "*people systems*" rather than "*machine systems*".

Military logistics

In military logistics, experts manage how and when to move resources to the places they are needed. In military science, maintaining one's supply lines while disrupting those of the enemy is a crucial—some would say the most crucial—element of military strategy, since an armed force without food, fuel and ammunition is defenseless.

The Iraq war was a dramatic example of the importance of logistics. It had become very necessary for the US and its allies to move huge amounts of men, materials and equipment over great distances. Led by Lieutenant General William Pagonis, Logistics was successfully used for this movement. The defeats of the British in the American War of Independence, and the defeat of Rommel in World War II, have been largely attributed to logistical failure.

2. Logistics Management

Logistics Management is that part of the supply chain which plans, implements and controls the efficient, effective forward and reverse flow and storage of goods, services and related information between the point of origin and the point of consumption in order to meet customers' requirements.

Business logistics

Logistics as a business concept evolved only in the 1950s. This was mainly due to the increasing complexity of supplying one's business with materials and shipping out products in an increasingly globalized supply chain, calling for experts in the field who are called Supply Chain Logisticians. This can be defined as *having the right item in the right quantity at the right time for the right price* and is the science of process and incorporates all industry sectors. The goal of logistic work is to manage the fruition of project life cycles, supply chains and resultant efficiencies.

In business, logistics may have either internal focus (inbound logistics), or external focus (outbound logistics) covering the flow and storage of materials from point of origin to point of consumption (see supply chain management). The main functions of a logistics manager include Inventory Management, purchasing, transport, warehousing, and the organizing and planning of these activities. Logistics managers combine a general knowledge of each of these functions so that there is a coordination of resources in an organization. There are two fundamentally different forms of logistics. One optimizes a steady flow of material through a network of transport links and storage nodes. The other coordinates a sequence of resources to carry out some project. Logistics as a concept is considered to evolve from the military's need to supply themselves as they moved from their base to a forward position. In ancient Greek, Roman and Byzantine empires, there were military officers with the title 'Logistikos' who were responsible for financial and supply distribution matters.

Production logistics

The term is used for describing logistic processes within an industry. The purpose of production logistics is to ensure that each machine and workstation is being fed with the right product in the right quantity and quality at the right point in time.

The issue is not the transportation itself, but to streamline and control the flow through the value adding processes and eliminates non-value adding ones. Production logistics can be applied in existing as well as new plants. Manufacturing in an existing plant is a constantly changing process. Machines are exchanged and new ones added, which gives the opportunity to improve the production logistics system accordingly. Production logistics provides the means to achieve customer response and capital efficiency.

3. Commercial vehicle operation

Commercial Vehicle Operations is an application of Intelligent Transportation Systems for trucks.

A typical system would be purchased by the managers of a trucking company. It would have a satellite navigation system, a small computer and a

digital radio in each truck. Every fifteen minutes the computer transmits where the truck has been. The digital radio service forwards the data to the central office of the trucking company. A computer system in the central office manages the fleet in real time under control of a team of dispatchers.

In this way, the central office knows where its trucks are. The company tracks individual loads by using barcoded containers and pallets to track loads combined into a larger container. To minimize handling-expense, damage and waste of vehicle capacity, optimal-sized pallets are often constructed at distribution points to go to particular destinations.

A good load-tracking system will help deliver more than 95% of its loads via truck, on planned schedules. If a truck gets off its route, or is delayed, the truck can be diverted to a better route, or urgent loads that are likely to be late can be diverted to air freight. This allows a trucking company to deliver a true premium service at only slightly higher cost. The best proprietary systems, such as the one operated by FedEx, achieve better than 99.999% on-time delivery.

1.3 COMPANY PROFILE

LSA Logistics Private limited is an Indian based full service global logistics provider, priding ourselves on meeting and exceeding the needs and expectations of our agents and clients, partnering with them to support their current needs and future growth. Our services include international air and ocean freight forwarding, consolidation services, break-bulk handling, domestic air and surface transportation, warehousing and distribution, order fulfillment, bonded and CFS warehousing, customs brokerage, ocean projects, letters of credit expediting, insurance and bonds, compliance audits, consulting and training services.

At partner they combine advanced technology with intelligent human resource to provide a single-source solution for moving high value, time definite freight, anywhere in the world.

MISSION

- To provide complete logistic solutions that are not only efficient but also reliable & affordable
- To gain confidence & trust of our valued clients by conducting business with complete honesty and integrity

QUALITY

Our operational excellence provides the foundation for the integrated logistics solutions that we offer to our customers. The team of skilled professionals constantly monitors operational performance by maintaining a PDCA (Plan / Do / Check / Action) cycle for continuous improvements. We focus on the development of highly advanced logistics technology and the global training of personnel. By providing in-depth analyses of the transportation environment and of various other technical services, our mission is to add critical value to our logistics solutions. Our strong competitiveness relies on our proven track record of high-quality operations, a tradition maintained throughout our growing global network.

SERVICES OFFERED

As a leading logistic service provider, we hold expertise in offering transportation and relocation of any kind of cargo across India and the world. Our well-established global network as well as services of professionals provide us a strong & secure base for all the logistical needs our clients. All our consignments are covered by insurance therefore assuring complete safety of goods without any liability.

1.4 PROBLEM OF THE STUDY

The major problems caused in shipping are:

Breakage of objects like glass, glass products, Pilferage, Spillage of liquid products, etc. The Inconvenience of Loading / discharging operations due to usage of inappropriate Lcl, Fcl cargos and to convince the customer by

conducting shipping to and from the hinterland of the port. These are the available problems in the present scenario.

By keeping these issues in mind, the present study “A Study on Cargo Handling Process in Shipping and Logistics”

1.5 SCOPE AND SIGNIFICANCE OF THE STUDY

In the present study,

- The study is confined to the customer who is directly and indirectly related to the container trade.
- The study can be used for further analysis to develop present trade.
- This study also provides a base for understanding the various problems faced by the user, and mean to develop the Cargo handling.

1.6 OBJECTIVES OF THE STUDY

Primary objective

To study the Cargo Handling Process in shipping and logistics

Secondary objectives

- To assess Lcl & Fcl containers and different size of cargos / containers in shipping
- To find out the satisfaction level among the user in the present Cargo handling.
- To find out the major difficulty faced while export/import of goods through sea mode transportation.
- To find out the most used equipment currently available in Cargo handling.

Load-tracking systems use queuing theory, linear programming and minimum spanning tree logic to predict and improve arrival times. The exact

means of combining these are usually secret recipes deeply hidden in the software. The basic scheme is that hypothetical routes are constructed by combining road segments, and then poor ones are eliminated using linear programming.

1.7 CHAPTER PLAN

The entire research work will run into five chapters.

Chapter I deal with the introduction of what the project is with the problem that has been taken for study. It also deals with Scope and significance if the study and a brief review of literature. In addition to that the Objectives that are set based on the problem are mentioned in the same chapter. It also carries the information regarding the research design. Chapter II gives us brief information regarding the profile of the company taken for this study. Chapter III provides a detailed data analysis of the data that has been collected which targets upon the objectives. Finally, Chapter IV deals with providing the findings, summary and suggestions.

CHAPTER II

REVIEW OF LITERATURE

2.1 BRIEF REVIEW OF STUDIES

Sergazy Akhmetovich Dzhienkulov (2013)

The increase in efficiency of cargo transportation and its processing at transport terminals requires a rational allocation of resources, transport and handling equipment. Container transportation stabilizes the work of all the key players in this process. It is proposed to simulate the processes of the transport system, describing their probability and simulation models and on the basis of the results of the study to synthesize the logistic ways of transportation and handling of cargo containers that meet the criteria of quality and efficiency. The technological process of reloading of large containers with overhead cranes passes under option ship-loader-vehicle-richstraker-warehouse-railway. A task of optimal processing of containerized cargo using the facility of mass service is currently being formalized. Several analytical models simulating process in stationary regime allow linking the qualitative indicators with economic indicators. A number of solutions to problems such as selecting an optimal number of berths and determine an optimal production program for a Container terminal being introduced.

Kyoung Taik Park (2008)

This paper presents the energy saving methods and energy storage system to be required for the highly efficient cargo system in container terminal. The best proper method of energy saving is decided by the operation method of cargo handling system and the saving effect of this method is studied. The advantage and disadvantage of battery as energy saving system is studied. The battery in several kinds of energy saving system has the economical propriety in cost and technological side currently and it is investigated as the expected energy saving system in consideration of the future progress of technology. And also, the saving effect and economical propriety of battery energy saving system

and hybrid system of transfer system in container port and yard are very highly evaluated.

A.S.M. Shahjahan (2000)

A study of port cargo handling equipment and its productivity in order to find out the possible solutions to improve the efficiency of equipment and the port as well. Ports are the key points of the global transport network. Presently, World Sea borne trade constitutes more than 90% of world trade in volume. Hence, the importance of ports for handling cargo is unanimously recognized. In the present era of competition, a cost-effective and reliable cargo handling service at Chittagong port is important not only for the port but also for the economy of the country as a whole. Containerization is an important revolution in the maritime field. With the rapid technological developments, many state-of-the-art techniques and innovations are contributing enormously to this phenomenon. Chittagong port is also influenced by this global and regional trend. The introduction of Information Technology (IT), dedicated container terminals, sophisticated cargo handling equipment, skilled manpower and a sound environment can ensure and enhance the performance of Chittagong Port Authority (CPA) in the future.

S. Shiraishi; T. Nagai; T. Hiraishi; H. Yoneyama (2004)

We proposed two new methods to evaluate wharf operation ratio in the port taking into account vessel motions. One is so called "standard analysis method" and another is "particular analysis method". Proposed new methods are compiled to "the manual to evaluate the effect of long-period waves in the port" as well as other information on wave observation of long-period waves, wave deformation analysis, numerical simulation method of vessel motions and countermeasures to improve wharf operation ratio in the port

Dosunmu Victor A (2016)

This research analyzed the relationship between the adequacy of dock workers and cargo handling equipment available at the selected seaports in Nigeria.

Similarly, it assessed the level of deployment of cargo handling equipment at the selected ports and finally examined the differences between cargo handling equipment and expected volume of cargo handled at the selected seaports.

Also, cargo operations performance is positively related with dock worker's operations with coefficient value of $r=0.303$ which is also significant at $p < 0.05$. Finally, there is low positive relationship between cargo handling equipment and dock worker's activities with r value of 0.107 at $p < 0.05$. Using Chi-square analytical technique, there are not enough cargo handling equipment to handle the geometric progression rate of cargo traffic at the ports with the calculated value of 2.04 which is less than the tabulated value of 9.49 at 95% level of confidence at degree of freedom $= 5-1 = 4$. The research concluded that, there is not enough cargo handling equipment at the selected Seaports and there is need to train qualified personnel as dock workers not only those that will operate this equipment, but also those that will perform manual operations.

The controlled routes allow a truck to avoid heavy traffic caused by rush-hour, accidents or road-work. Increasingly, governments are providing digital notification when roadways are known to have reduced capacity.

A good system lets the computer, dispatcher and driver collaborate on finding a good route, or a method to move the load. One special value is that the computer can automatically eliminate routes over roads that cannot take the weight of the truck, or that have overhead obstructions.

Usually, the drivers log into the system. The system helps remind a driver to rest. Rested drivers operate the truck more skillfully and safely.

When these systems were first introduced, some drivers resisted them, viewing them as a way for management to spy on the driver. A well-managed intelligent transportation system provides drivers with huge amounts of help. It gives them a view of their own load and the network of roadways.

- Air & sea consolidations
- Hazardous consolidation
- LCL & FCL forwarding
- Customs clearance

AIR & SEA CONSOLIDATIONS



Figure 2.1: Air & Sea Consolidations

Consolidation is LSA lead activity & offers LCL services by Truck, Sea, Air throughout the world. No matter how far the destination we are sure to reach your shipments through our consolidations to various countries and ports with guaranteed competitive rates and exclusive service. Our global network of agents ensures that cargo is most efficiently and speedily delivered to the end customer.

- **HAZARDOUS CONSOLIDATION**



Figure 2.2: Hazardous Consolidations

LSA provides a unique service for the transportation of international shipments of liquid chemicals, oxidizing agents, powders and granules both packed and in bulk, in short, we carry almost all UN classified cargo. LSA qualified team and Warehouse ensures that we are up to date in all aspects of handling dangerous goods, and as a company we monitor our operations to confirm to the latest environmental guidelines.

- **LCL & FCL FORWARDING**



Figure 2.3: LCL & FCL Forwarding

In addition to our LCL consolidations, LSA also offers FCL (Full Container Load) forwarding services to its customers.

With our huge volumes and multiple contracts with various Shipping lines, we are also able to offer cost effective FCL forwarding solutions to our customers.

Our value additions such as door to door deliveries, ex works pick up, duty paid/unpaid deliveries in various countries

Apart from the direct shippers, our services are also being used by various forwarders viz., Panalpina, Agility, Expeditors, Flyjac, AFL, Helmann etc.,

Having strong overseas network in more than 36 countries.

Competent agents in U.S.A., EUROPE (Germany, France, Switzerland, Italy, U.K.,) MIDDLE EAST (Dubai, Jebelali) and FAR EAST (China, Taiwan, Malaysia, Singapore, Thailand, Hongkong)

- Our Overseas agents understand the Indian Customers requirements.
- They also establish good contact with shippers.
- They have fairly good rapport with airlines and shipping lines.
- All agents are flexible to accept the choice of our carriers.
- All agents are capable of negotiating good rates with carriers.
- Agents are very prompt in sending us the shipment pre-alert dox.
- All agents are capable of handing DDU / DDP shipments of both air & sea exports / Imports.

CUSTOMS CLEARANCE



Figure 2.4: Customs Clearance

Our Service support both inbound and outbound logistics, distribution industries.

- Core product
- EDI / ON-LINE FILING
- Expertise in handling bonding cargo.
- Good track record with all concerned departments.
- Competent & dedicated staff for both air / sea cargo.
- Experience of handling diversified industries.

CHAPTER III

RESEARCH METHODOLOGY

3.1 METHODOLOGY

Research methodology is a way to systematically solve the research problem as it guides how research is done scientifically. It consists of different steps that are generally adopted by the researcher to study the research problem along with the logic behind them.

3.2 RESEARCH DESIGN

Research is the search for knowledge. It is a scientific and systematic search for pertinent information on a specific topic. Research design is the blue print for the collection, measurement and analysis of data. Thus, research design is conceptual framework within which the research is conducted

3.3 *DESCRIPTIVE RESEARCH*

When the researcher is interested in knowing the characteristics of certain group such as age, educational level a descriptive study is necessary. In this study, the researcher has adopted design.

Descriptive statistics utilize data collection and analysis techniques that yield reports concerning the measures of central tendency, variation and correlation. The combination of its characteristic summary and correlation statistics, along with its focus on specific types of research questions, methods and outcomes is what distinguishes descriptive research from other research types.

Three main purposes of research are to describe, explain and validate findings. Description emerges following creative exploration and serves to organize the findings in order to fit them with explanations and then test or validate those explanations.

3.4 *TARGET RESPONDENTS*

The present study is based on both primary and secondary data. For the collection of primary data, the researcher has used questionnaire. Secondary data were collected from the various periodicals, journals, records, university library, books, web pages and the like.

Due to time the number of respondents for primary data collection is limited to 100. The sample size of 100 is small when compared to large number of populations of the study.

3.5 *PROPOSED SAMPLING METHOD*

Keeping the objectives of the study in mind the researcher had a discussion with his guide. Based on the discussion, the researcher constructed a questionnaire to elicit the required information from the customer.

Samples of 100 customers were selected on the basis of random sampling technique. The information relating to container trade awareness was collected from the selected respondents with the help of the supplied questionnaire.

Random Sampling is a sampling method in which all members of a group (population or universe) have an equal and independent chance of being selected. Random sampling can also refer to taking a number of independent observations from the same probability distribution, without involving any real population. The sample usually is not a representative of the population from which it was drawn this random variation in the results is known as sampling error. In the case of random samples, mathematical theory is available to assess the sampling error. Thus; estimates obtained from random samples can be accompanied by measures of the uncertainty associated with the estimate. This can take the form of an error, or if the sample is large enough for the central limit theorem to take effect, confidence may be calculated.

3.6 DATA PROCESSING

NATURE OF DATA:

There are two types of data through which information is extracted. They are Primary and Secondary sources of data.

PRIMARY DATA:

For the collection of primary data, the researcher has used questionnaire.

SECONDARY DATA:

Secondary data were collected from

- Periodicals,
- Journals,
- Records,
- University libraries,
- Books,
- Web pages and the like.

3.7 TOOLS FOR ANALYSIS

- **PERCENTAGE ANALYSIS**

Percentage refers to a special kind of ratio in marketing comparison between two or more data to describe Relationships. Percentage can be used to compare the relative terms. The distribution of two or more series of data.

$$\text{PERCENTAGE} = \frac{\text{NUMBER OF RESPONDENTS}}{\text{TOTAL RESPONDENTS}} \times 100$$

- **CHI-SQUARE TEST:**

A Chi-square test is a statistical hypothesis test in which the sampling distribution of the test statistic is a chi-square distribution. The formulae used to calculate the chi – square value is

$$\chi^2 = \sum \frac{(O - E)^2}{E}$$

χ^2 = Pearson's cumulative test statistic, when Asymptotically approaches a χ^2 distribution.

O_i = an Observed Frequency.

E_i = an expected frequency, asserted by the null hypothesis.

n = the number of cells in the table.

CHAPTER IV

DATA ANALYSIS AND INTERPRETATION

4.1 PERCENTAGE ANALYSIS

TABLE 4.1.1: DURATION

Duration	Frequency	Percentage
Below 5 years	16	16
5-10 years	30	30
10-15 years	22	22
15 and above	32	32
Total	100	100

Inference

30% of the respondent is in between 5-10 years and 32% are above 15 years of experience.

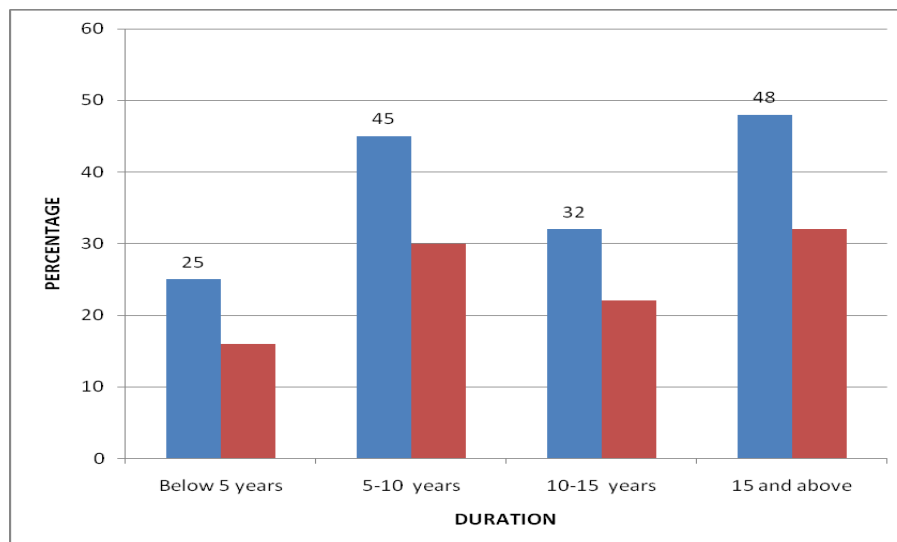


Figure 4.1.1: Duration

TABLE 4.1.2: VOLUME PER MONTH

No of TEU	Frequency	Percentage
>25 Teu	35	35
>10 <100 Teu	37	37
>100<200 Teu	19	19
>200 Teu	9	9
Total	100	100

Inference

37% of the organization has monthly lifting are in between 1 to 100 Teu.

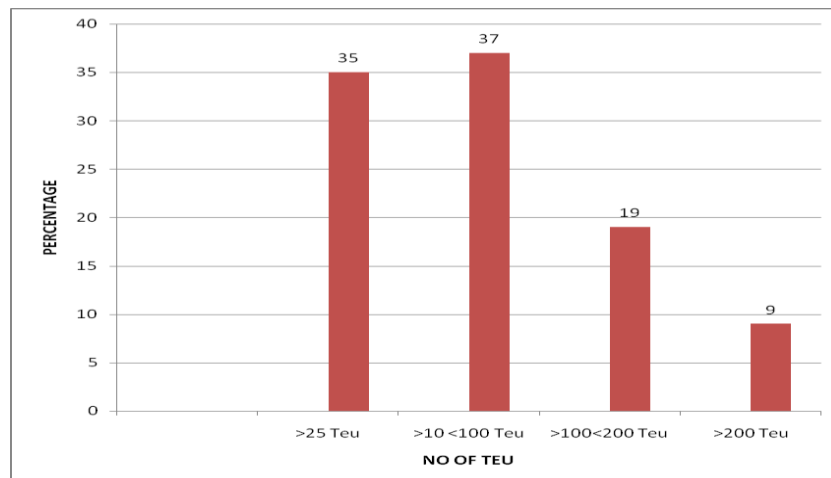


Figure 4.1.2: Volume Per Month

TABLE 4.1.3: PERCENTAGE OF CONTAINER USAGE

Type of container	Frequency	Percentage
20 ft Gp	27	27
40 ft Gp	19	19
40 ft Hc	14	14
20 ft Ot	12	12
40 ft Ot	6	6
20 ft Flat	8	8
40 ft Flat	4	4
20 ft Reefer	5	5
40 ft Reefer	2	2
40 Hc Reefer	3	3
Total	554	100

Inference

Out of 100 respondent 142 use 20 ft Gp, 106 use 40 ft Gp and 85 use 40 ft Hcl.

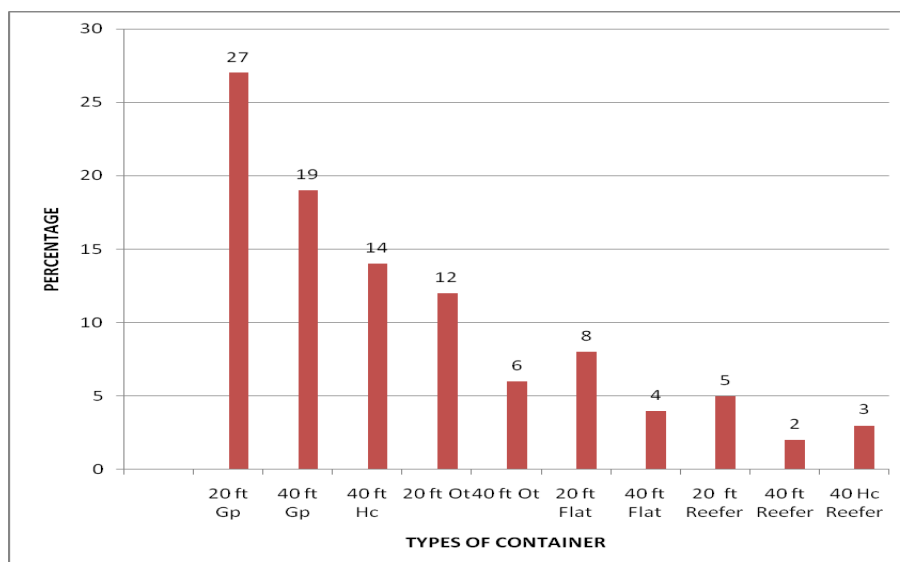


Figure 4.1.3: Percentage of Container Usage

TABLE 4.1.4 : THE TYPE OF CONTAINER USAGE AMONG 150 CUSTOMERS

Type of commodity	Frequency	percentage
Light & voluminous	41	41
Light	18	18
Heavy & voluminous	32	32
Heavy	9	9
Total	100	100

Inference

41% of the respondents use light and voluminous commodity and 32% of the respondent use heavy & voluminous.

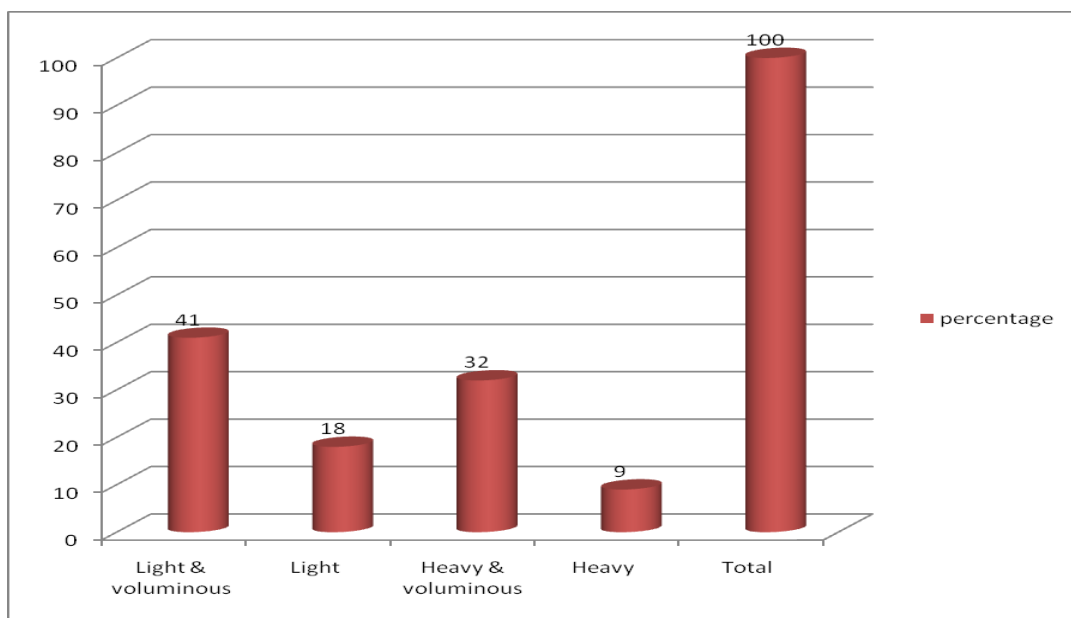


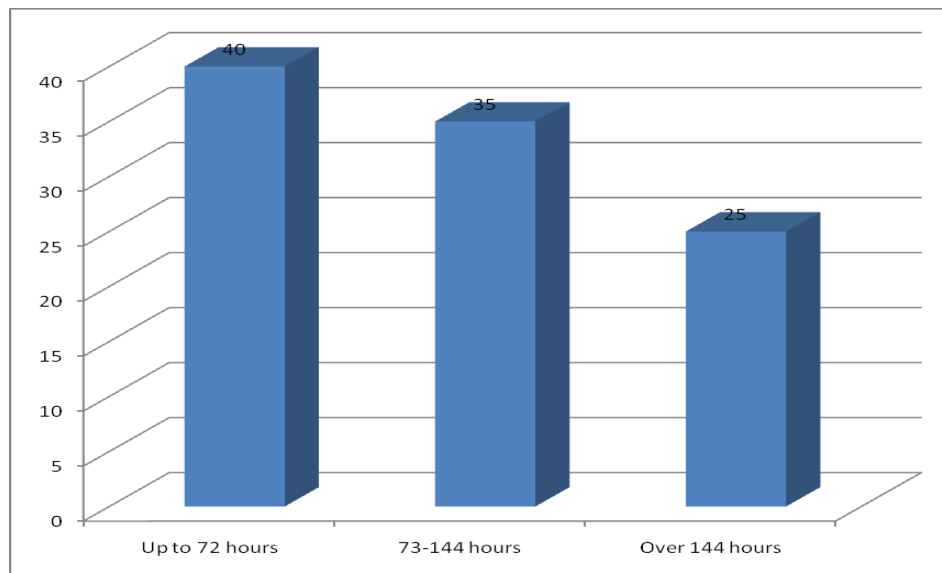
Figure 4.1.4: The Type of Container Usage Among 100 Customers

**TABLE 4.1.5 : AVERAGE DWELL TIME OF CARGOS IN THE UNIT
(nON-CONTAINERIZED)**

Dwell time	No of respondents	Percentage
Up to 72 hours	40	40
73-144 hours	35	35
Over 144 hours	25	25
Total	100	100

Inference:

It is inferred that majority((40%) of the respondent says that it is up to 72 hours as an average dwell time of cargos in the unit(non- containerized) 35% of them says that it is 73-144 hours and 25% of them says that it is over 144 hours.



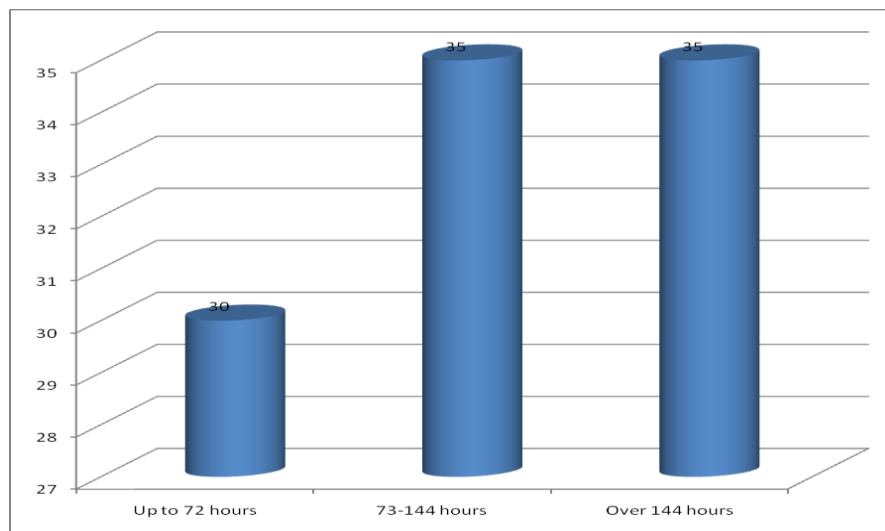
**Figure 4.1.5: Average Dwell Time of Container / Cargos in The Unit
(non-Containerized)**

**TABLE 4.1.6 : AVERAGE DWELL TIME OF CARGOS IN THE UNIT
(CONTAINERIZED)**

Dwell time	No of respondents	Percentage
Up to 72 hours	30	30
73-144 hours	35	35
Over 144 hours	35	35
Total	100	100

Inference:

It is inferred that majority((35%) of the respondent says the it is up to 72 hours and 73-144 hours as well as an average dwell time of cargos in the unit(non-containerized and 30% of them says that it is over 144 hours.



**Figure 4.1.6: Average Dwell Time of Container / Cargos in the Unit
(Containerized)**

**TABLE 4.1.7: GUARANTEED RESPONSE TIME
(ACTUAL RESPONSE TIME)**

Response time	No of Respondents	Percentage
12 hours or less	40	40
13-24 hours	35	35
More than 24 hours	25	25
Total	100	100

Inference:

It is inferred that majority((40%) of the respondent says that it is 12 hours or less for guaranteed response time(actual response time), 35% of them says it is 13-24 hours and 25% of them says it is more than 24 hours.

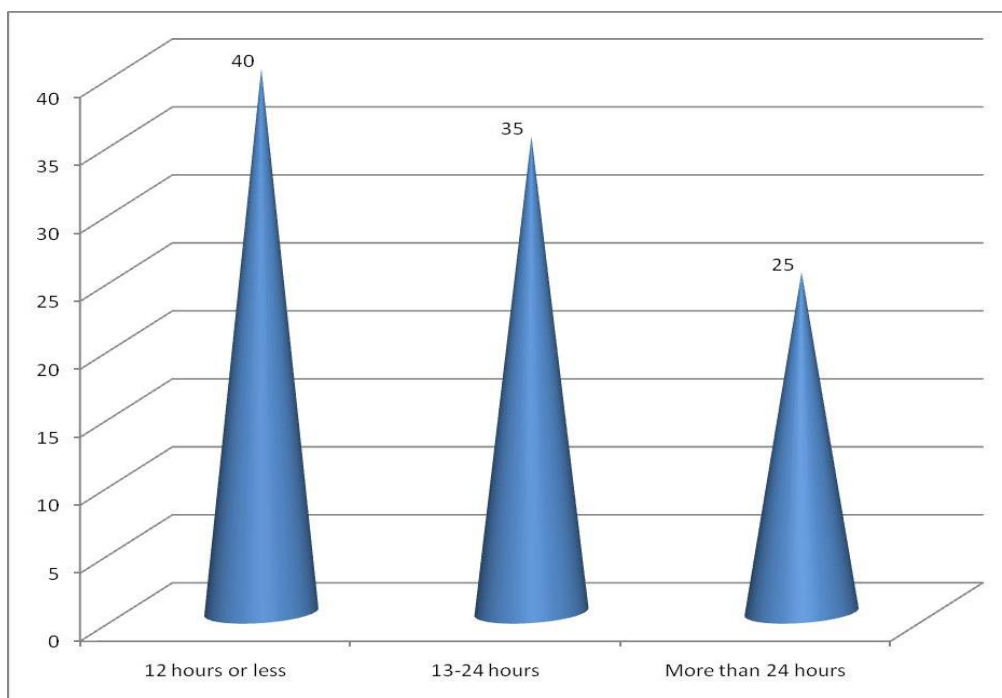


Figure 4.1.7: Guaranteed Response Time (Actual Response Time)

TABLE 4.1.8 : TYPES OF HAULERS

Types of haulers	No of respondents	percentage
Merchant hauler	45	45
Carrier hauler	35	35
others	20	20
Total	100	100

Inference:

It is inferred that majority((45%) of the respondent have chosen merchant hauler, 35% of them have chosen carrier hauler, 20% of them have chosen others.

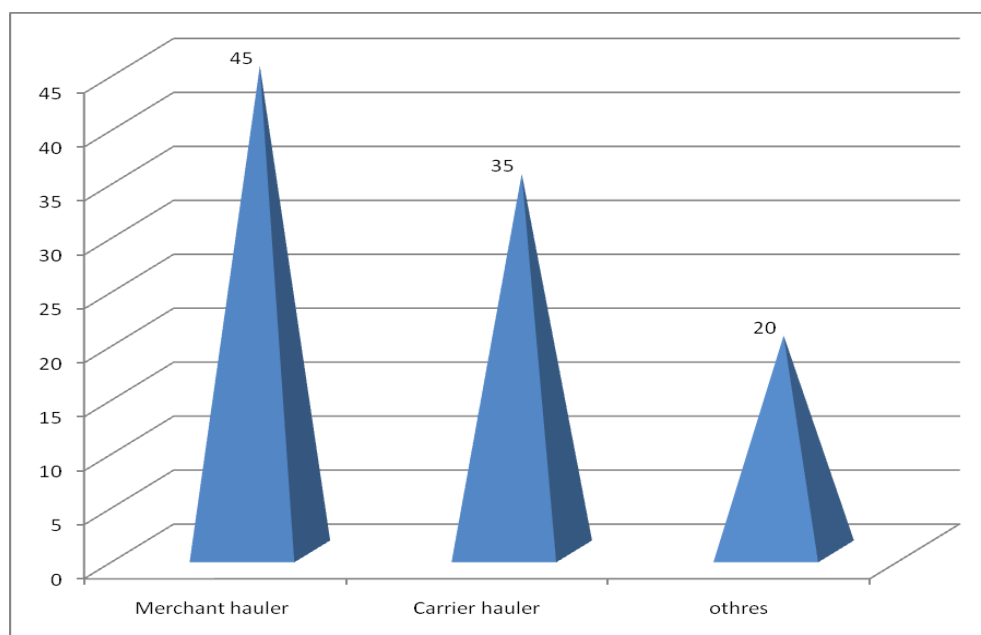


Figure 4.1.8 : Types of Haulers

TABLE 4.1.9 : COMPUTERIZED SYSTEM

Does the unit have computerized system	No of respondents	Percentage
yes	62	62
no	10	10
Not sure	28	28
Total	100	100

Inference:

It is inferred that majority((62%) of the respondent says yes for computerized system, 10% of them says no and 28% of them says not sure.

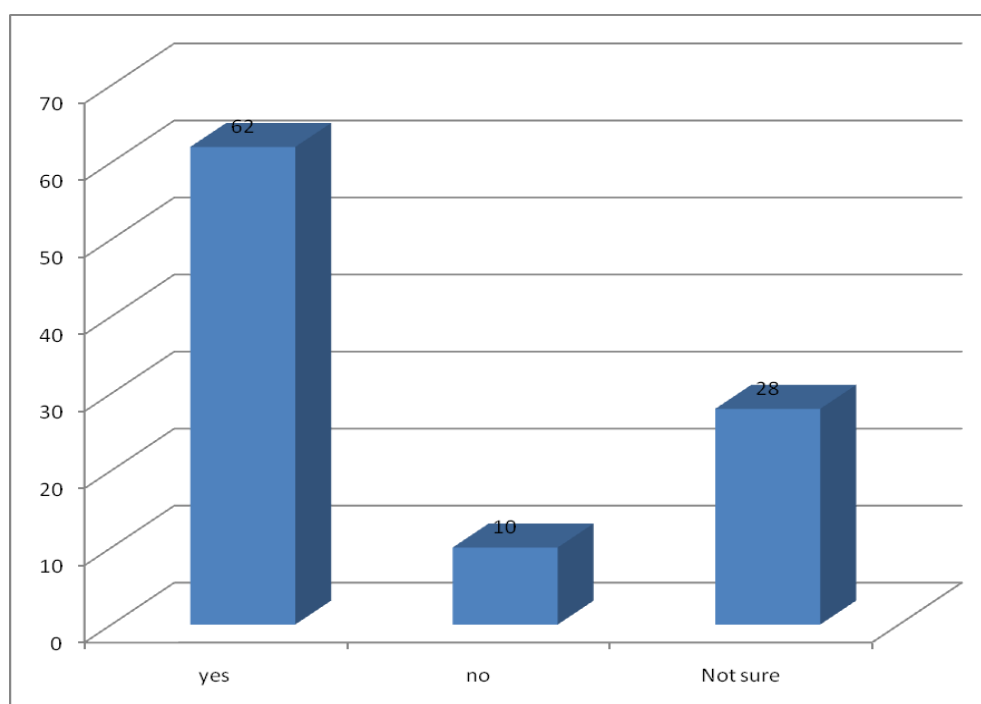


Figure 4.1.9 : Computerized System

TABLE 4.1.10 : DIFFICULTY FACED IN PRESENT CONTAINER TRADE IN SHIPPING

Respondent	Frequency	Percentage
Yes	22	22
No	78	78
Total	100	100

Inference

Out of 100 respondents, 78% respondent has no difficulties in present container trade.

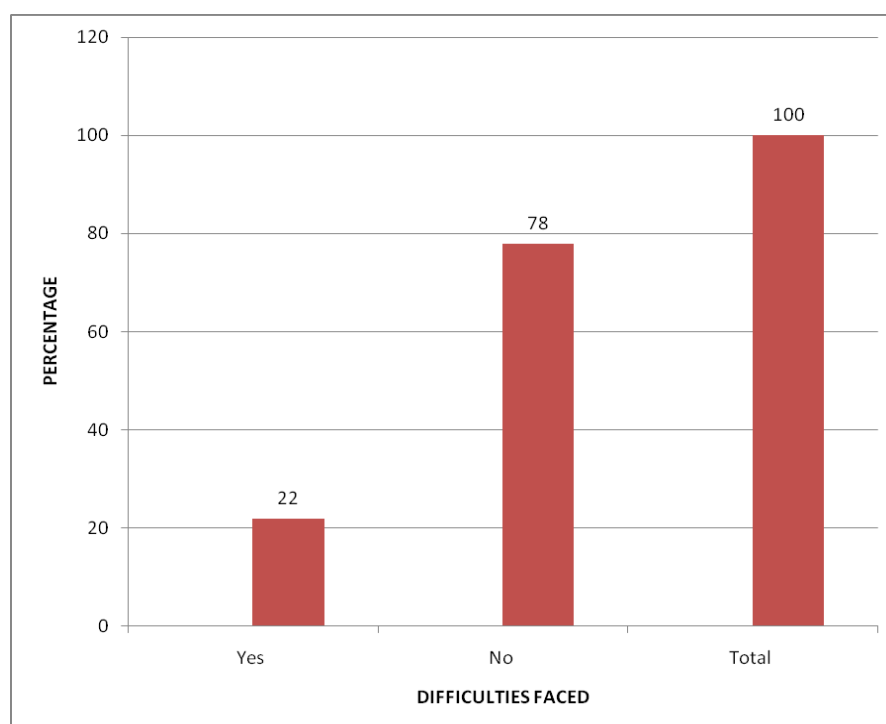


Figure 4.1.10 : Difficulty Faced in Present Container Trade in Shipping

TABLE 4.1.11: PREFER LCL CONTAINER OR FCL CONTAINER IN SHIPPING

Respondent	Frequency	Percentage
LCL	78	78
FCL	22	22
Total	100	100

Inference

Out of 100 respondents, (78%) respondent prefers LCL and 28% FCL.

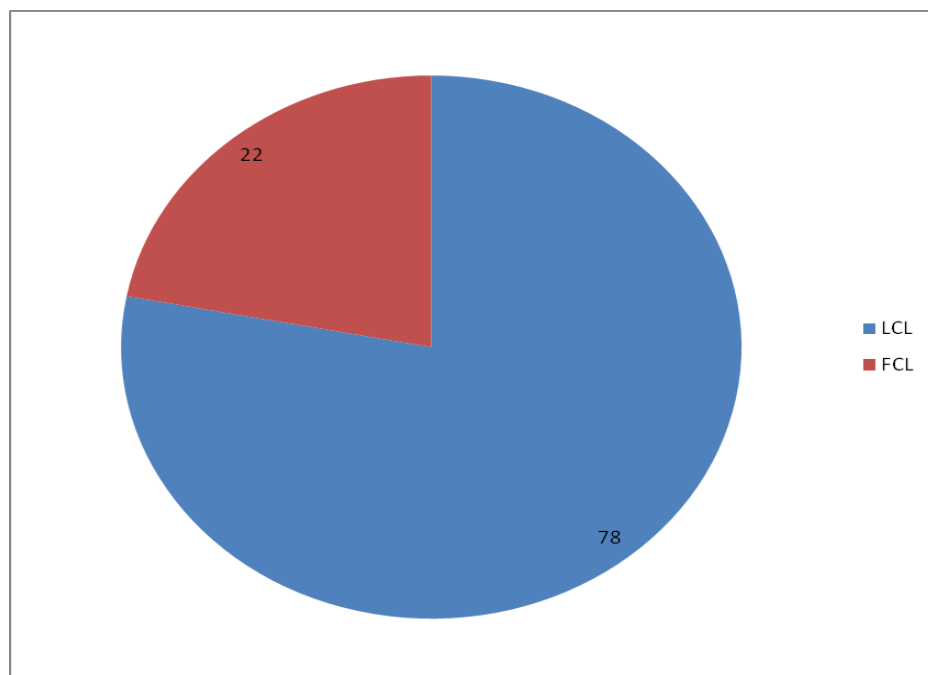


Figure 4.1.11 : Prefer LCL Container or FCL Container in Shipping

TABLE 4.1.12 : INTRODUCTION OF 10FT CONTAINER LCL

Ranking	Frequency	Percentage
Strongly agree	59	59
Agree	26	26
Neutral	4	4
Disagree	8	8
Strongly disagree	3	3
Total	100	100

Inference

59% of the respondents strongly agree where introduction of 10ft container will divert less cargo load shipper to 10ft container.

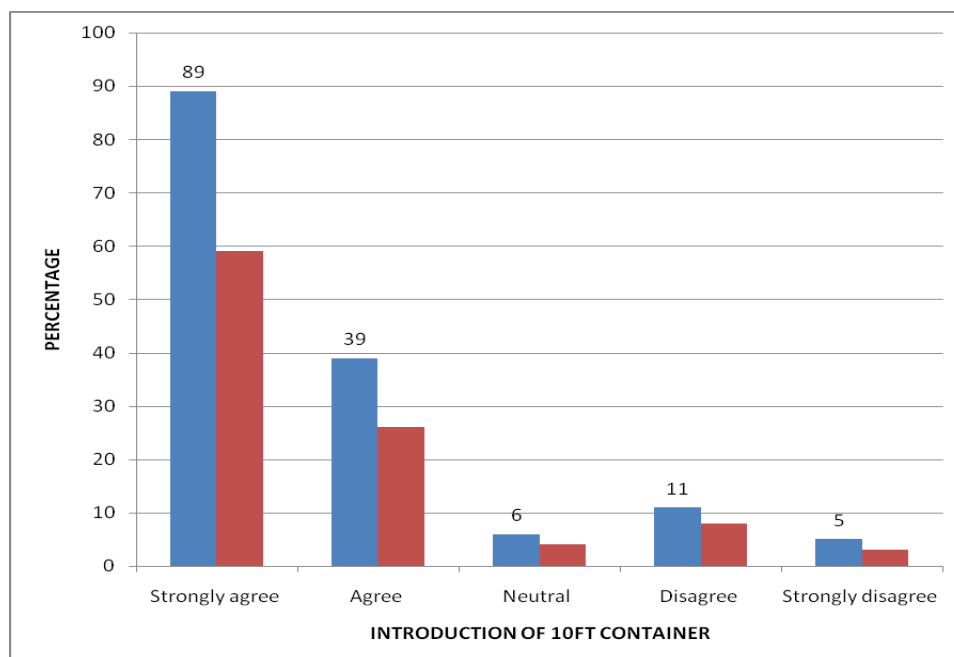


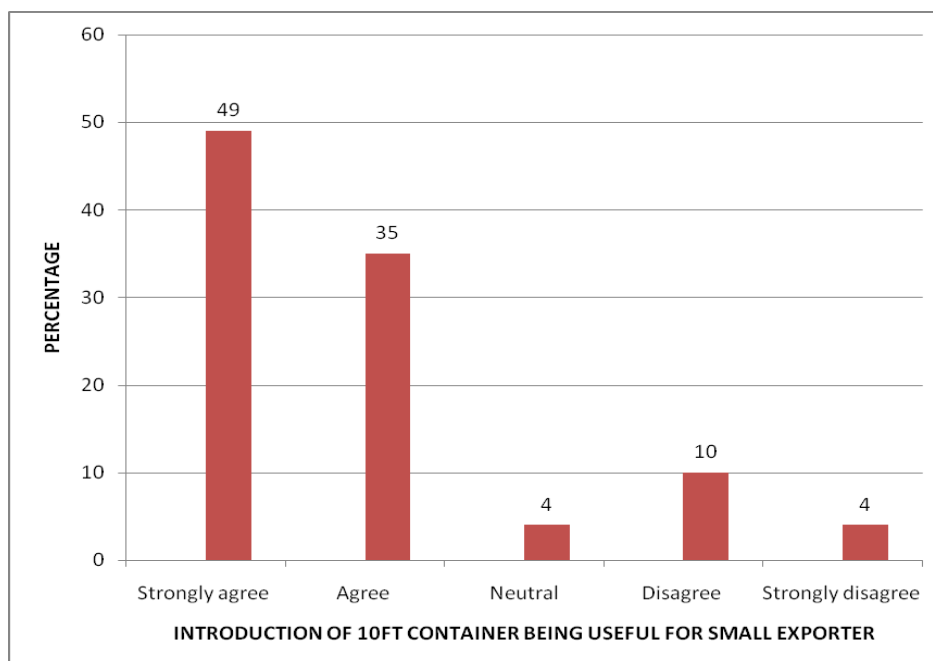
Figure 4.1.12 : Introduction of 10ft Container LCL

**TABLE 4.1.13 : INTRODUCTION OF 10FT CONTAINER BEING USEFUL FOR
SMALL AND NON-EXPORTER**

Ranking	Frequency	Percentage
Strongly agree	49	49
Agree	35	35
Neutral	4	4
Disagree	10	10
Strongly disagree	2	2
Total	100	100

Inference

49% of the respondents agree the introduction of 10ft container will be useful for small and non-exporter.



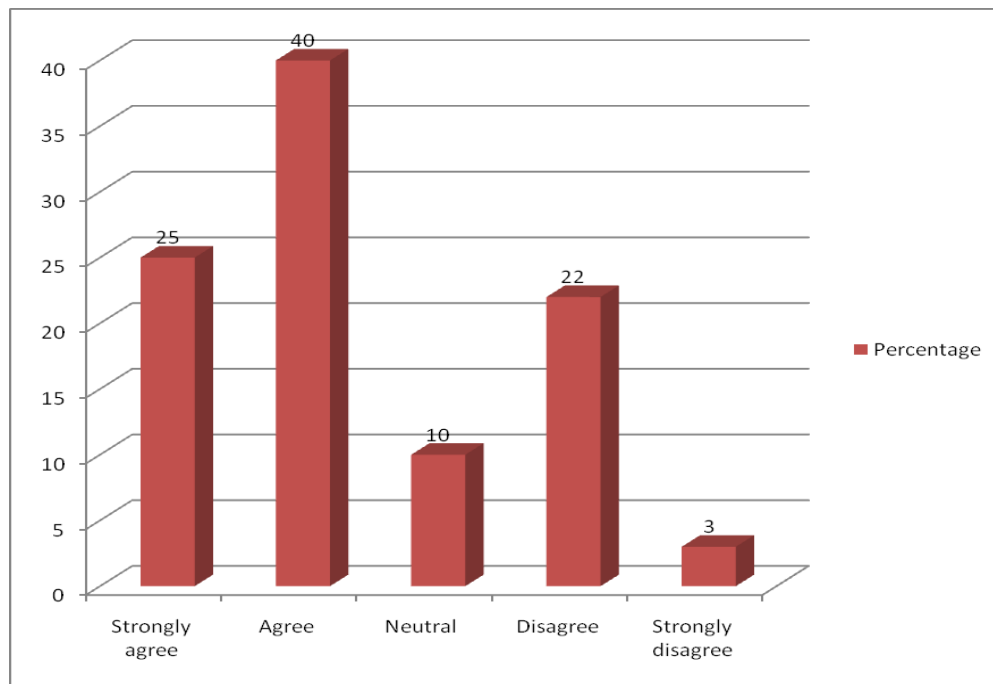
**Figure 4.1.13 : Introduction of 10ft Container Being Useful for
Small and Non-Exporter**

**TABLE 4.1.14 : INTRODUCTION OF 50FT CONTAINER FCL IS USED FOR
LIGHT AND VOLUMINOUS COMMODITY**

Ranking	Frequency	Percentage
Strongly agree	25	25
Agree	40	40
Neutral	10	10
Disagree	22	22
Strongly disagree	3	3
Total	100	100

Inference

40% of respondents agree 50ft container being useful for light and voluminous commodity.



**Figure 4.1.14 : Introduction of 50ft Container FCL is used for
Light and Voluminous Commodity**

**TABLE 4.1.15 : INTRODUCTION OF 30FT IS BEST ALTERNATIVE
FOR 40FT CONTAINER**

Ranking	Frequency	Percentage
Strongly agree	7	7
Agree	31	31
Neutral	12	12
Disagree	36	36
Strongly disagree	14	14
Total	100	100

Inference

36% of respondents have disagreed on 30ft container being the best alternative.

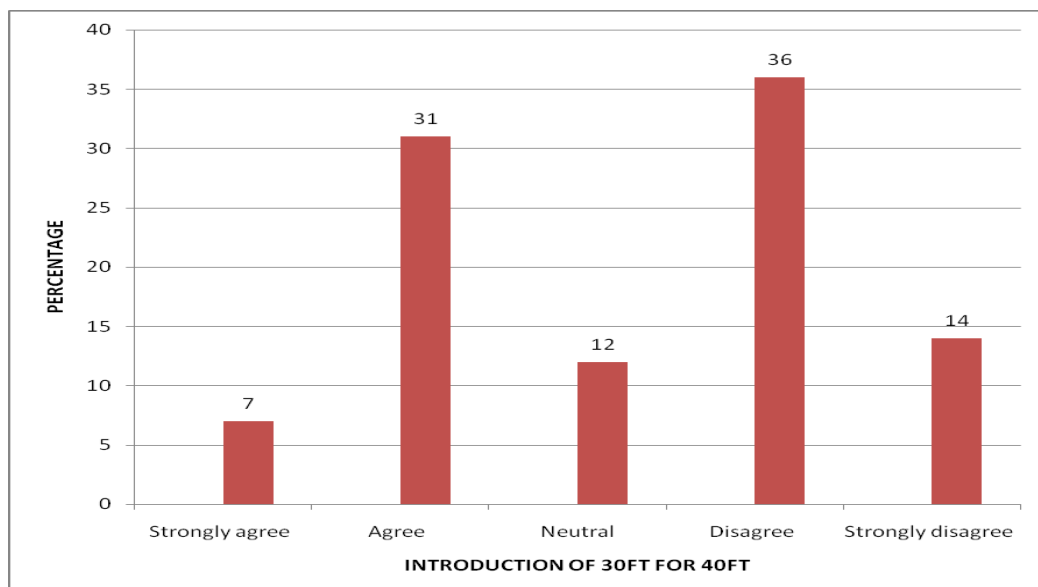


Figure 4.1.15 : Introduction of 30ft is best alternative for 40ft Container

TABLE 4.1.16 : THE SERVICE OF LSA LOGISTICS.

Ranking	Frequency	Percentage
Excellent	36	36
Very poor	30	30
Good	7	7
Fair	2	2
Poor	25	25
Total	100	100

Inference

36% of the respondent says that the service level of chennai container terminal limited was excellent.

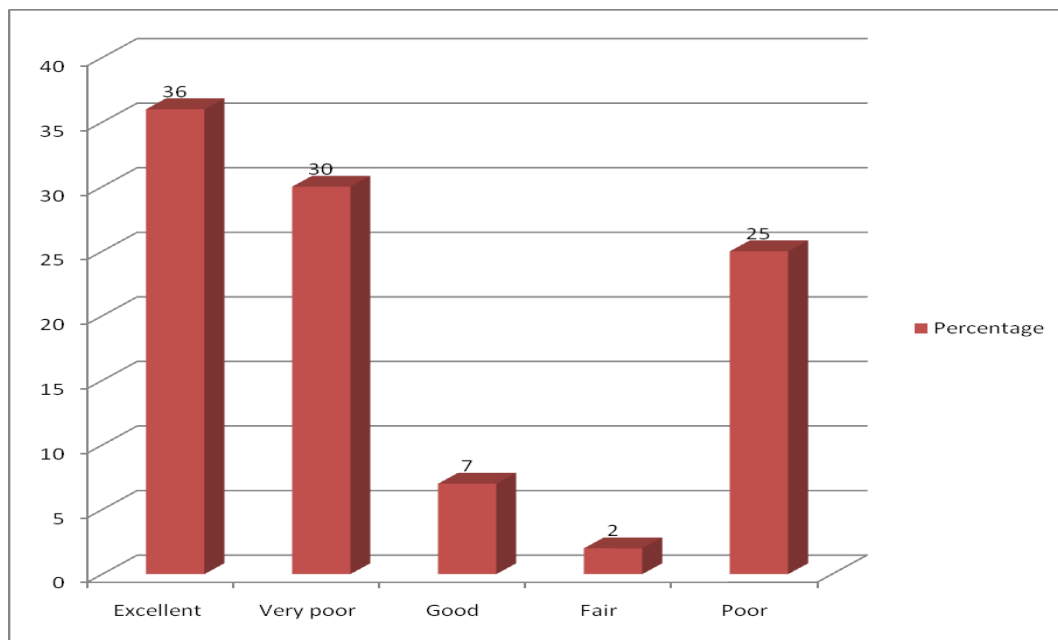


Figure 4.1.16 : The Service of LSA Logistics

TABLE 4.1.17 : THE SERVICE OF CHENNAI CUSTOM

Ranking	Frequency	Percentage
Excellent	21	21
Very poor	41	41
Good	22	22
Fair	8	8
Poor	8	8
Total	100	100

Inference

41% of the respondent says that the service level of Chennai customs was very good.

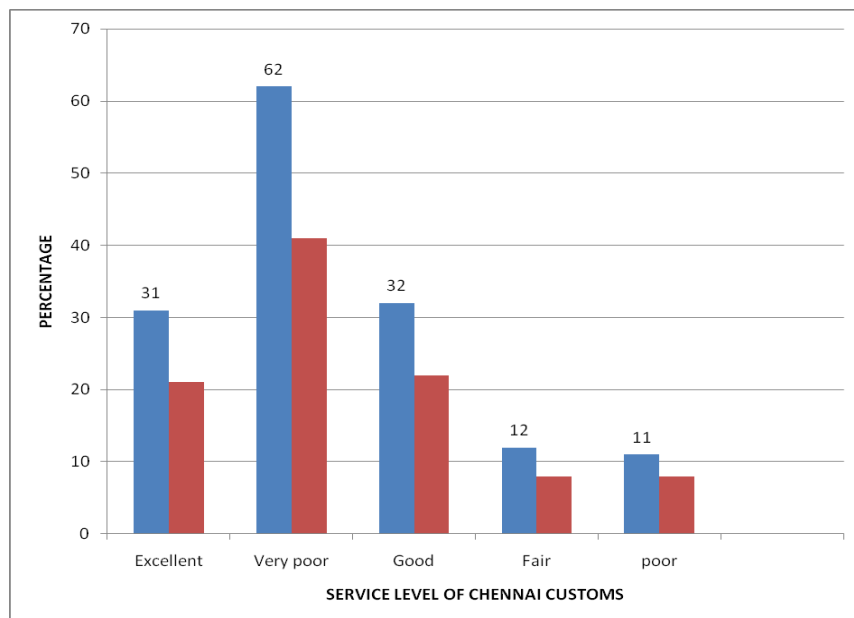


Figure 4.1.17 : The Service of Chennai Custom

TABLE 4.1.18 : SERVICE LEVEL OF CHENNAI FREIGHT STATION

Ranking	Frequency	Percentage
Excellent	43	43
Very poor	30	30
Good	4	4
Fair	20	20
Poor	3	3
Total	100	100

Inference

43% of the respondent says that the service level of chennai container freight station was excellent.

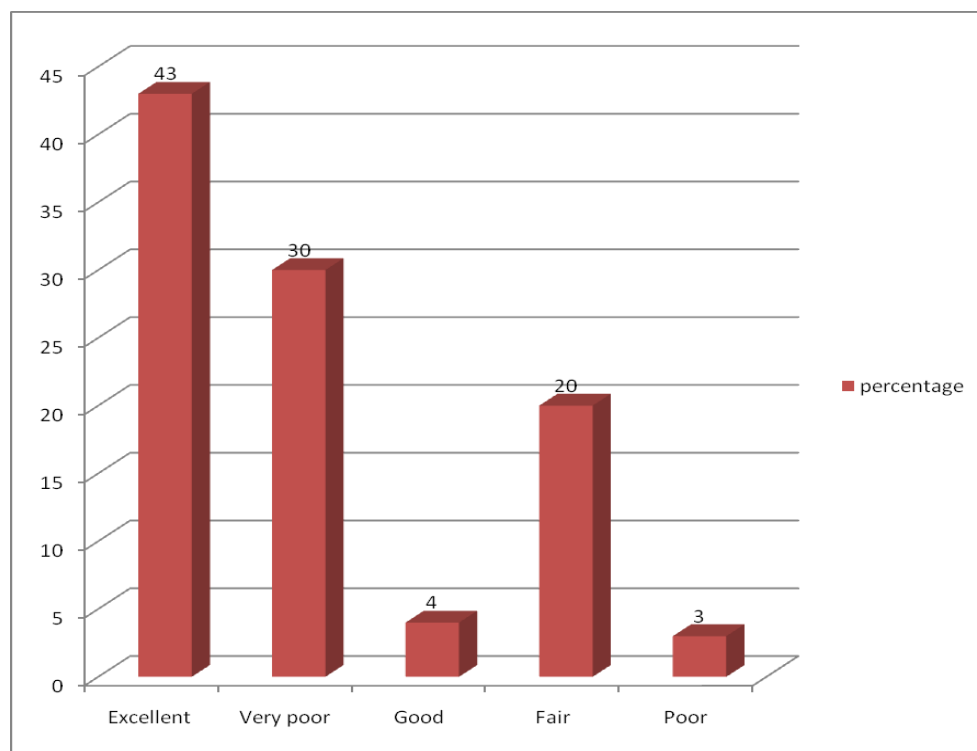


Figure 4 .1.18 : Service Level of Chennai Freight Station

TABLE 4.1.19 : FEEDER VESSEL SERVICE AT CHENNAI PORT

Ranking	Frequency	Percentage
Excellent	35	35
Very poor	28	28
Good	23	23
Fair	11	11
Poor	3	3
Total	100	100

Inference

35% of the respondent says that the feeding vessel service at chennai port was excellent.

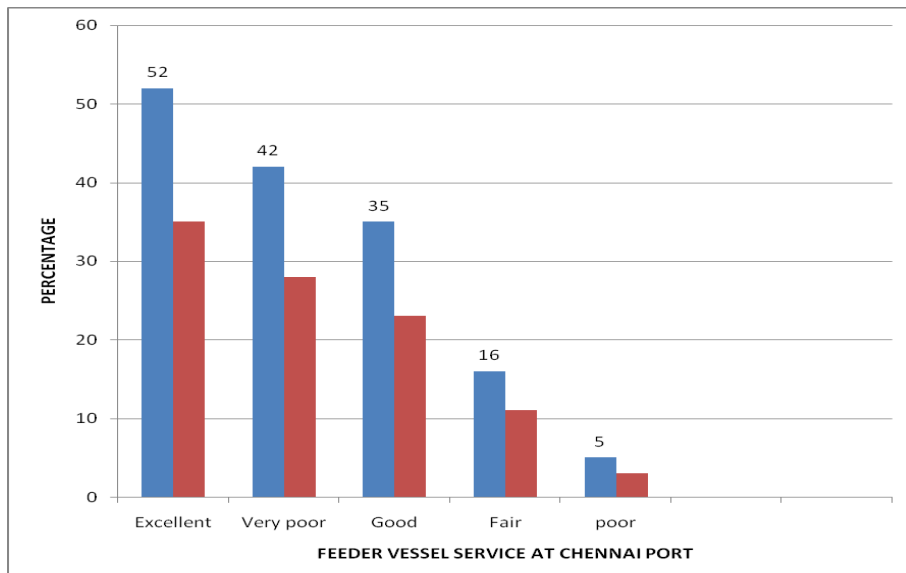


Figure 4 .1.19 : Feeder Vessel Service at Chennai Port

4.2 STATISTICAL TOOLS

CHI-SQUARE TEST

RELATIONSHIP BETWEEN CONTAINER TRADE AND HANDLING VOLUMES CONTAINER.

AIM:

To find whether there is any significant relation between the container trade and handling volumes cargo.

Null hypothesis (Ho)

There is no significant difference container volume handled and difficulty encountered in present container trade does not depend on container volume handled.

Alternate hypothesis (H1)

There is significant difference between container volume handled and difficulty encountered in present container trade does not depend on container volume handles.

CONTAINER AND HANDLING VOLUME CARGO

	Yes	No	Total
Below 25	4	35	39
25-30	10	25	35
30-35	9	8	17
Above 35	2	7	9
Total	25	75	100

O	E	$(O - E)^2$	$(O - E)^{2/E}$
6	11.9	34.81	2.92
14	12.6	1.96	0.15
11	6.53	19.98	3.05
4	3.96	0.16	0.04
45	39.1	34.81	0.87
40	41.4	1.96	0.047
17	21.46	19.89	0.92
13	13	0	0
Total			7.997

$$\chi^2 = \sum \frac{(O - E)^2}{E}$$

Calculated $\chi^2 = 7.997$

Tabulated for $(4-1)(2-1)=3$ def. at 5% level of significant is 7.81 Since

calculated χ^2 is $>$ tabulated χ^2 null hypothesis is rejected I.e., null hypothesis H_0 is rejected.

Decision:

There is a significant difference on difficulty encountered in present container trade and volume container handling.

CHAPTER V

SUMMARY OF FINDINGS AND CONCLUSION

5.1 SUMMARY OF FINDINGS

- 30% of the respondent is in between 5-10 years and 32% are above 15 years of experience.
- 37% of the organization has monthly lifting are in between 1 to 100 Teu.
- Out of 100 respondent 142 use 20 ft Gp, 106 use 40 ft Gp and 85 use 40 ft Hc.
- 41% of the respondents use light and voluminous commodity and 32% of the respondent use heavy & voluminous.
- 40% of the respondent says that it is up to 72 hours as an average dwell time of cargos in the unit (non- containerized) and 25% of them say that it is over 144 hours.
- 35% of the respondent says the it is up to 72 hours and 30% of them say that it is over 144 hours.
- 40% of the respondent says that it is 12 hours or less for guaranteed response time (actual response time) and 25% of them says it is more than 24 hours.
- 45% of the respondent have chosen merchant hauler, 20% of them have chosen others.
- 62%) of the respondent says yes for computerized system, 10% of them says no
- Out of 100 respondents, 78% respondent has no difficulties in present container trade.
- Out of 100 respondents, 78% respondent prefers LCL and 28% FCL.

- 59% of the respondents strongly agree where introduction of 10ft container will divert less cargo load shipper to 10ft container.
- 49% of the respondents agree the introduction of 10ft container will be useful for small and non-exporter.
- 40% of respondents agree 50ft container being useful for light and voluminous commodity.
- 36% of respondents have disagreed on 30 ft container being the best alternative.
- 36% of the respondent says that the service level of Chennai container terminal limited was excellent.
- 41% of the respondent says that the service level of Chennai customs was very good.
- 43% of the respondent says that the service level of Chennai container freight station was excellent.
- 35% of the respondent says that the feedering vessel service at Chennai port was excellent.

5.2 SUGGESTIONS & RECOMMENDATIONS

1. Volume of lifting can be increased by way of giving duty exemption or reduction of duty, simplified procedure of documentation, good availability of equipment and frequent vessel.
2. The present container trade it can be further improved with higher satisfactory level.
3. Introduction of 10ft container will divert LCL shipper. It reduces spill over and damage of cargos.
4. 10ft container will be helpful to small exporter and motivate Non-exporter Company for exporting.

5. There is mixed view over acceptance of 30ft container as best alternative for 40ft container.
6. 50ft container can be promoted in trade, which will improve the load capacity then 40ft container.
7. Usage of adequate containers can improve business.

5.3 LIMITATIONS OF THE STUDY

- Geographical area was restricted to Chennai city only.
- The survey covered 100 samples.
- Due to time constraint the sample size was restricted to 100 respondents.
- Even though care has been taken in preparing the questionnaire; there is a possibility that respondent bias could have crept in.

5.4 CONCLUSION

The study has reflected the respondents have already accepted on introduction of 10ft container as best alternatives for LCL shipper and non / small exporter and importer, 50 ft container FCL can be used for light and voluminous cargo, 30 ft container can be as alternative for 40ft container. Cargo handling and modern vessels will be equipped with some type of specialist rig for operation within the medium to heavy-lift range.

Cargo handling as an activity has evolved from being purely manually driven to an activity that is performed using the latest materials handling equipment money can buy. But humans still have an important role to play in cargo handling, which essentially throws the doors opens for a diverse and serious range of safety concerns.

It's important that shipping personnel are well aware of the various considerations that need to be kept in mind to perform cargo handling operations on ships with utmost safety. Knowing the essential safety features, and making appropriate use of materials handling equipment are just some of the ways you can make sure you're able to handle cargo safely on ships.

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- <http://www.lsalogistics.com/>

QUESTIONNAIRE

A STUDY ON CARGO HANDLING PROCESS IN SHIPPING AND LOGISTICS AT LSA LOGISTICS

1. Name:
2. Email ID:
3. Gender:
4. Phone Number:
5. Age:
6. How long you been in the shipping trade?
 - a. >5 yrs
 - b. >5<10 yrs
 - c. >11<15yrs
 - d. >15 yrs
4. Volume per month in Teus?
 - a. >25
 - b. 50<100
 - c. >100<200
 - d. >200
5. Tick type of container which you generally use?

a. 20' GP	40' GP	40'Hc
b. 20'OT	40'OT	
c. 20'Flat	40'Flat	
d. 20' Reefer	40' Reefer	40'Hc Reefer
6. What type of commodity you have been exporting / importing?

- a. Heavy& voluminous commodity
- b. Light and voluminous commodity
- c. Light commodity
- d. Heavy commodity

7. Average dwell time of cargos in the unit (non- container)

- a) Up to 72 hours
- b) 73-144 hours
- c) Over 144 hours

8. Average dwell time of cargos in the unit(container)

- a) Up to 72 hours
- b) 73-144 hours
- c) Over 144 hours

9. Guaranteed response time

- a) 12 hours or less
- b) 13-24 hours
- c) More than 24 hours

10. Type of hauler

- a) Merchant hauler
- b) Carrier hauler
- c) other

11. Does the unit have computerized system?

- a) Yes
- b) No
- c) Not sure

12. Do you have any difficulty in the present container trade in shipping?

- a. Yes
- b. No

13. Do you prefer LCL container or FCL container in shipping?

- a. LCL
- b. FCL

14. Introduction of 10' container largely diverts the LCL shipper to 10 ft container?

- a. Strongly agree
- b. Agree
- c. Neutral
- d. Strongly disagree
- e. Disagree

15. Introduction of 10ft container is useful for small and non-exporter companies?

- a. Strongly agree
- b. Agree
- c. Neutral
- d. Strongly disagree
- e. Disagree

16. Introduction of 30ft container is a best alternative for 40ft container?

- a. Strongly agree
- b. Agree
- c. Neutral
- d. Strongly disagrees
- e. Disagree

17. Introduction of 50ft container is a best alternative for FCL is useful for light and voluminous commodity exporters?

- a. Strongly agree
- b. Agree
- c. Neutral
- d. Strongly disagree
- e. Disagree

18. Rate the service level of LSA logistics?

- a. Excellent
- b. Very good
- c. Good
- d. Fair
- e. Poor

19. Rate the service of level of Chennai customs?

- a. Excellent
- b. Very good
- c. Good
- d. Fair
- e. Poor

20. Rate the service level of Chennai container freight satiation?

- a. Excellent
- b. Very good
- c. Good
- d. Fair
- e. Poor

21. Rate the Feeder vessel service at Chennai port?

- a. Excellent

- b. Very good
- c. Good
- d. Fair
- e. Poor

22. Suggestion in improving?

ANNEXURE – II RESEARCH ARTICLE

A STUDY ON CARGO HANDLING PROCESS IN SHIPPING AND LOGISTICS AT LSA LOGSTIC

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ABSTRACT

This chapter focuses on the maritime logistics functions which were selected by the authors in accordance with the gap in the literature, namely transportation and traffic management, inventory management, demand management, material handling, and packaging and labelling. In the literature, mostly, under the heading of maritime logistics, classical sea transportation issues have been studied. The practitioners can gain more integrated and holistic viewpoint about maritime logistics with help of this chapter. The term logistics management or supply chain management is that part of Supply Chain Management that plans, implements and controls the efficient, effective, forward, and reverse flow and storage of goods, services, and related information between the point of origin and the consumption in order to meet customer requirements. Knowing the essential safety features, and making appropriate use of materials handling equipment are just some of the ways you can make sure you're able to handle cargo safely on ships.

Keywords: Maritime, Logistics management, Supply Chain Management, equipment, Cargo.

I. INTRODUCTION

Containers are the most transported method of cargo form in the world as they are transported by all three transportation systems available i.e., land, air, and water. The study is confined to the customer who is directly and in directly related to the container trade in shipping. The study can be used for further analysis to develop present trade. This study also provides a base for understanding the various problems faced by the user, and mean to develop the Cargo handling. "Cargo Handling Process" means loading, unloading, packing or unpacking of cargo and includes cargo handling services provided for freight in special containers or for non-containerized freight, services provided by and the saving effect of this method is studied. The advantage and disadvantage of battery as energy saving system is studied. The battery in several kinds of energy saving system has the economical propriety in 13 cost and technological side currently and it is investigated as the expected energy saving system in consideration of the future progress of technology. And also, the saving effect and economical propriety of battery energy saving describing their probability and simulation models and on the basis of the results of the study to synthesize the logistic ways of transportation and handling of cargo.

Kyoung Taik Park (2008) This paper presents the energy saving methods and energy storage system to be required for the highly

system and hybrid system of transfer system in container port and yard are very highly evaluated. A container freight terminal or nay other freight terminal, for all modes of transport and cargo handling services incidental to freight, but does not include handling of export cargo or passenger baggage or mere transportation of goods.

2. REVIEW OF LITERATURE

Sergazy Akhmetovich Dzhenkulov (2013) The increase in efficiency of cargo transportation and its processing at transport terminals requires a rational allocation of resources, transport and handling equipment. Container transportation stabilizes the work of all the key players in this process. It is proposed to stimulate the process of the transport system,

efficient cargo system in container terminal. The best proper method of energy saving is decided by the operation method of cargo handling system and the saving effect of this method is studied. The advantage and disadvantage of battery as energy saving system is studied. The battery in several kinds of energy saving system has the economical propriety in 13 cost and

technological side currently and it is investigated as the expected energy saving system in consideration of the future progress of technology. And also, the saving effect and economical propriety of battery energy saving system and hybrid system of transfer system in container port and yard are very highly evaluated.

A.S.M. Shahjahan (2000) A study of port cargo handling equipment and its productivity in order to find out the possible solutions to improve the efficiency of equipment and the port as well. Ports are the key points of the global transport network. Presently, World Sea borne trade constitutes more than 90% of world trade in volume. Hence, the importance of ports for handling cargo is unanimously recognized. In the present era of competition, a cost-effective and reliable cargo handling service at Chittagong port is important not only for the port but also for the economy of the country as a whole. Containerization is an important revolution in the maritime field. With the rapid technological developments, many state-of-the art techniques and innovations are contributing enormously to this phenomenon.

S. Shiraishi; T. Nagai; T. Harish; H. Yoneyama (2004) They proposed two new methods to evaluate wharf operation ratio in the port taking into account vessel motions. One is so called "standard analysis method" and another is "particular analysis method". Proposed new methods are compiled to "the manual to evaluate the effect of long-period waves in the port" as well as other information on wave observation of long-period waves, wave 14 deformation analysis, numerical simulation method of vessel motions and countermeasures to improve wharf operation ratio in the port.

Dosunmu Victor A (2016) This research analysed the relationship between the adequacy of dock workers and cargo handling equipment available at the selected seaports in Nigeria. Similarly, it assessed the level of deployment of cargo handling equipment at the selected ports and finally examined the differences between cargo handling equipment and expected volume of cargo handled at the selected seaports. The research concluded that, there is not enough cargo handling equipment at the selected Seaports and there is need to train qualified personnel as dock workers not only those that will operate this equipment, but also those that will perform manual operations.

2. OBJECTIVES OF THE STUDY

Primary objective

- To study the Cargo Handling Process in shipping and logistics

Secondary objectives

- To assess Lcl & Fcl containers and different size of cargos / containers in shipping
- To find out the satisfaction level among the user in the present Cargo handling.

- To find out the major difficulty faced while export/import of goods through sea mode transportation

3. RESEARCH METHODOLOGY

A. RESEARCH DESIGN

Research methodology is a way to systematically solve the research problem as it guides how research is done scientifically. It consists of different steps that are generally adopted by the researcher to study the research problem along with the logic behind them. Research is the search for knowledge. It is a scientific and systematic search for pertinent information on a specific topic. Research design is the blue print for the collection, measurement and analysis of data. Thus, research design is conceptual framework within which the research is conducted.

B. DESCRIPTIVE RESEARCH

When the researcher is interested in knowing the characteristics of certain group such as age, educational level a descriptive study is necessary. In this study, the researcher has adopted design. Descriptive statistics utilize data collection and analysis techniques that yield reports concerning the measures of central tendency, variation and correlation. The combination of its characteristic summary and correlation statistics, along with its focus on specific types of research questions, methods and outcomes is what distinguishes descriptive research from other research types.

C. TARGET RESPONDENTS

The present study is based on both primary and secondary data. For the collection of primary data, the researcher has used questionnaire. Secondary data were collected from the various periodicals, journals, records, university library, books, web pages and the like. Due to time the number of respondents for primary data collection is limited to 100. The sample size of 100 is a small when compare to large number of populations of the study.

D. PROPOSED SAMPLING METHOD Keeping the objectives of the study in mind the researcher had a discussion with his guide. Based on the discussion, the researcher constructed a questionnaire to elicit the required information from the customer. Samples of 100 customers were selected on the basis of random sampling technique. The information relating to container trade awareness was collected from the selected respondents with the help of the supplied questionnaire. Random Sampling is a sampling method in which all members of a group (population or universe) have an equal and independent chance of being selected. Random sampling can also refer to taking a number of independent observations from the same probability distribution, without involving any real population

V. DATA ANALYSIS

TABLE 1: DURATION

Duration	Frequency	Percentage
Below 5 years	16	16
5-10 years	30	30
10-15 years	22	22
15 and above	32	32
Total	100	100

Source: Primary Data

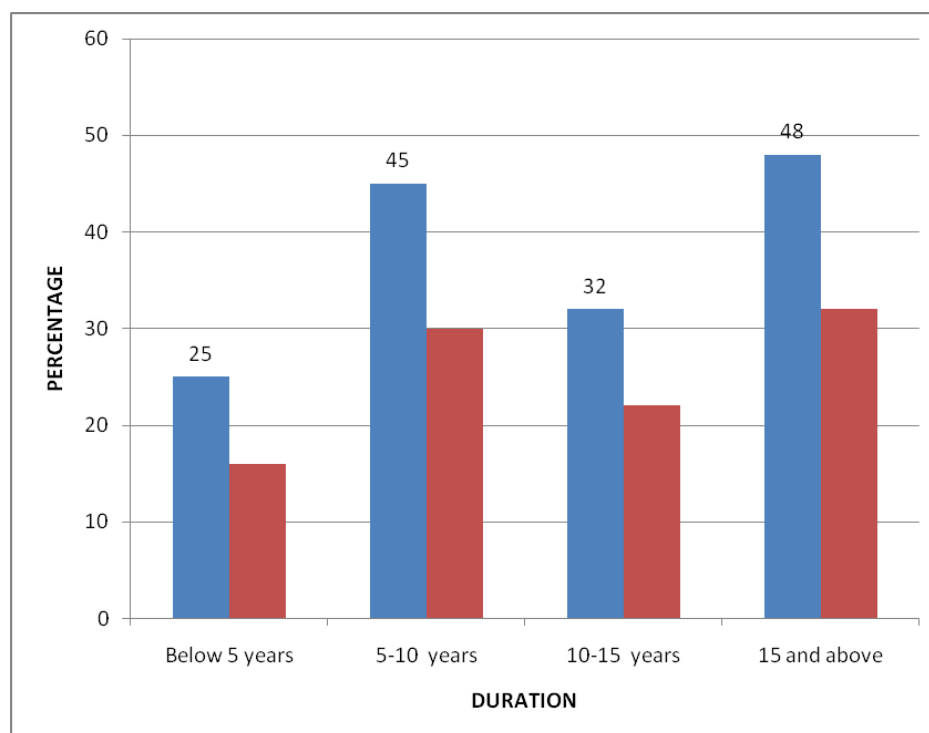


Chart 1. DURATION

Inference

30% of the respondent is in between 5-10 years and 32% are above 15 years of experience

TABLE 2: PERCENTAGE OF CONTAINER USAGE

Type of container	Frequency	Percentage
20 ft Gp	27	27
40 ft Gp	19	19
40 ft Hc	14	14
20 ft Ot	12	12
40 ft Ot	6	6
20 ft Flat	8	8
640 ft Flat	4	4
20 ft Reefer	5	5
40 ft Reefer	2	2
40 Hc Reefer	3	3
Total	554	100

Source: Primary Data

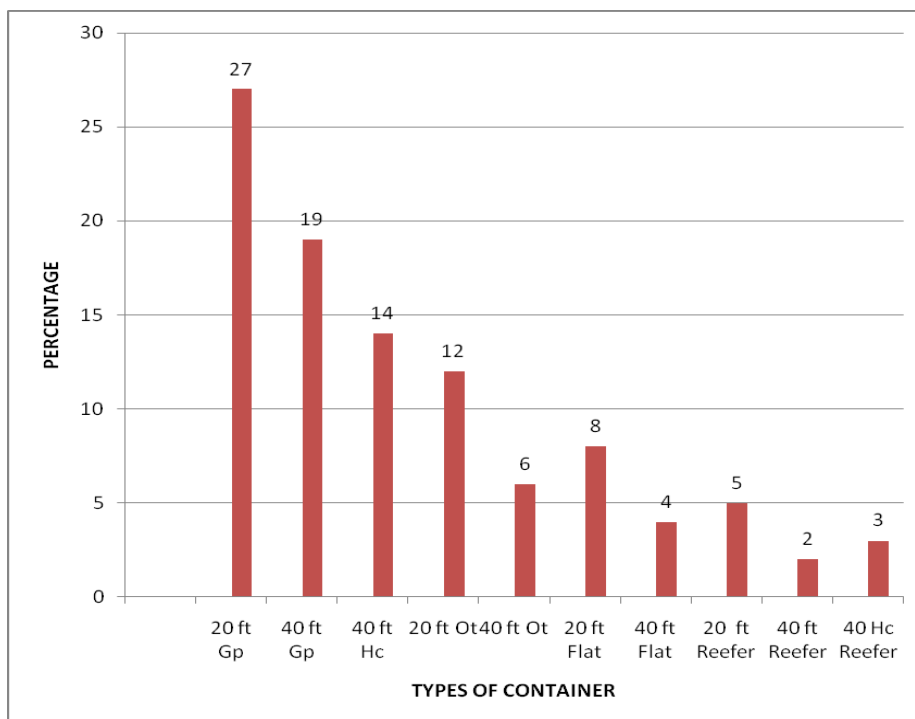


CHART 2: PERCENTAGE OF CONTAINER USAGE

Inference

Out of 100 respondent 142 use 20 ft Gp, 106 use 40 ft Gp and 85 use 40 ft Hcl.

TABLE 3: THE TYPE OF CONTAINER USAGE AMONG 150 CUSTOMERS

Type of commodity	Frequency	percentage
Light & voluminous	41	41
Light	18	18
Heavy & voluminous	32	32
Heavy	9	9
Total	100	100

Source: Primary Data

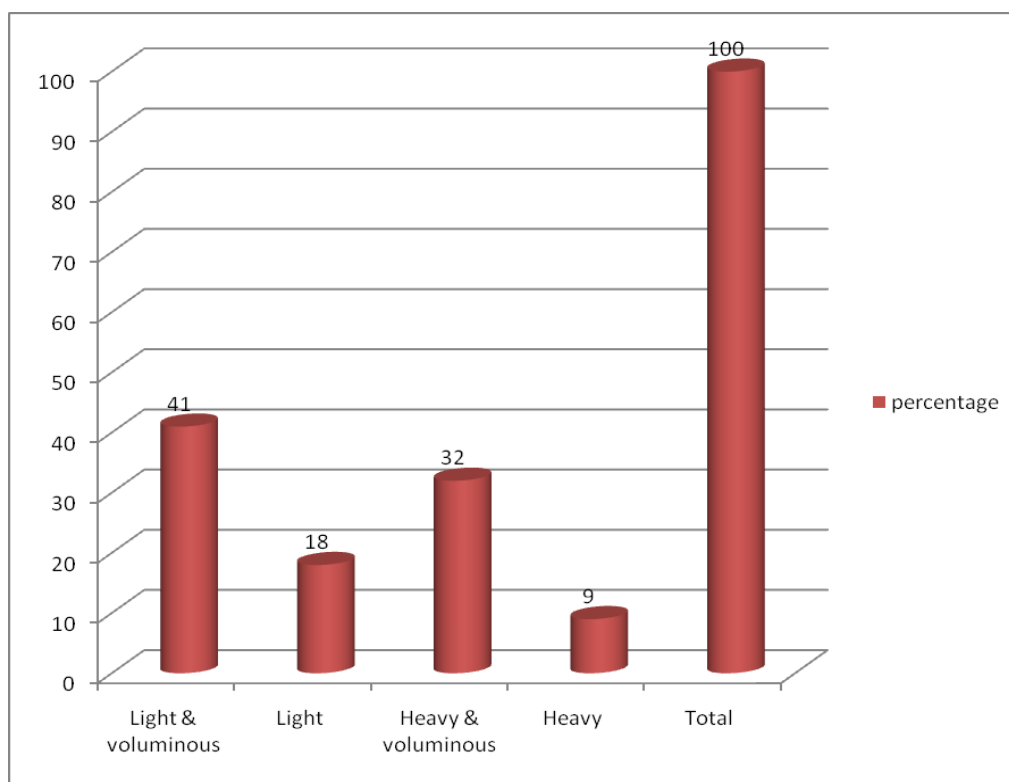


CHART 3: THE TYPE OF CONTAINER USAGE AMONG 150 CUSTOMERS

Inference

41% of the respondents use light and voluminous commodity and 32% of the respondent use heavy & voluminous.

TABLE 4: AVERAGE DWELL TIME OF CARGOS IN THE UNIT (NON- CONTAINERIZED)

Dwell time	No of respondents	Percentage
Up to 72 hours	40	40
73-144 hours	35	35
Over 144 hours	25	25
Total	100	100

Source: Primary Data

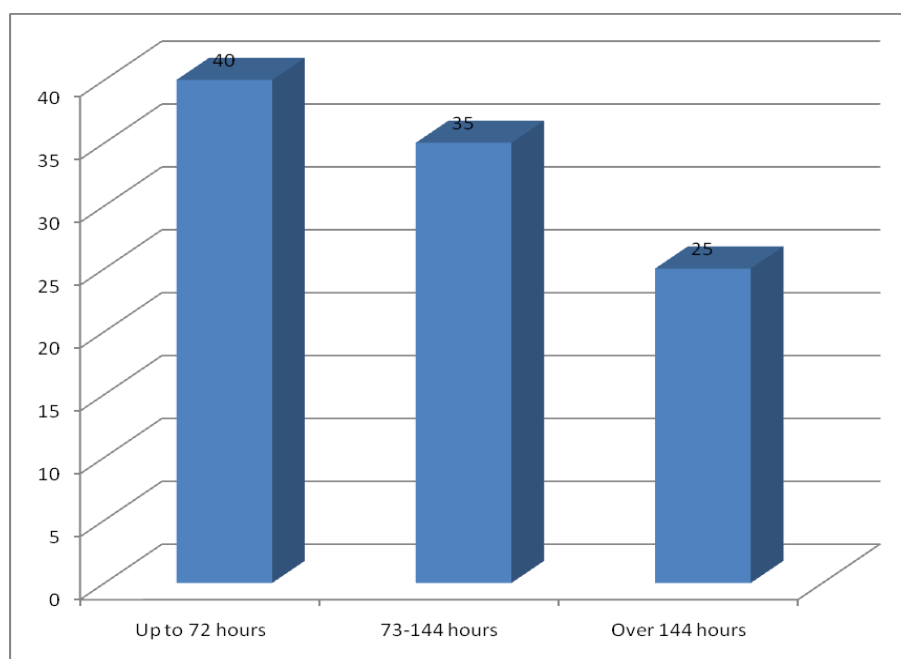


CHART 4: AVERAGE DWELL TIME OF CARGOS IN THE UNIT (NON- CONTAINERIZED)

Inference:

It is inferred that majority ((40%) of the respondent says that it is up to 72 hours as an average dwell time of cargos in the unit (non-containerized) 35% of them says that it is 73-144 hours and 25% of them says that it is over 144 hours.

TABLE 5: FEEDER VESSEL SERVICE AT CHENNAI PORT

Ranking	Frequency	Percentage
Excellent	35	35
Very poor	28	28
Good	23	23
Fair	11	11
Poor	3	3
Total	100	100

Source: Primary Data

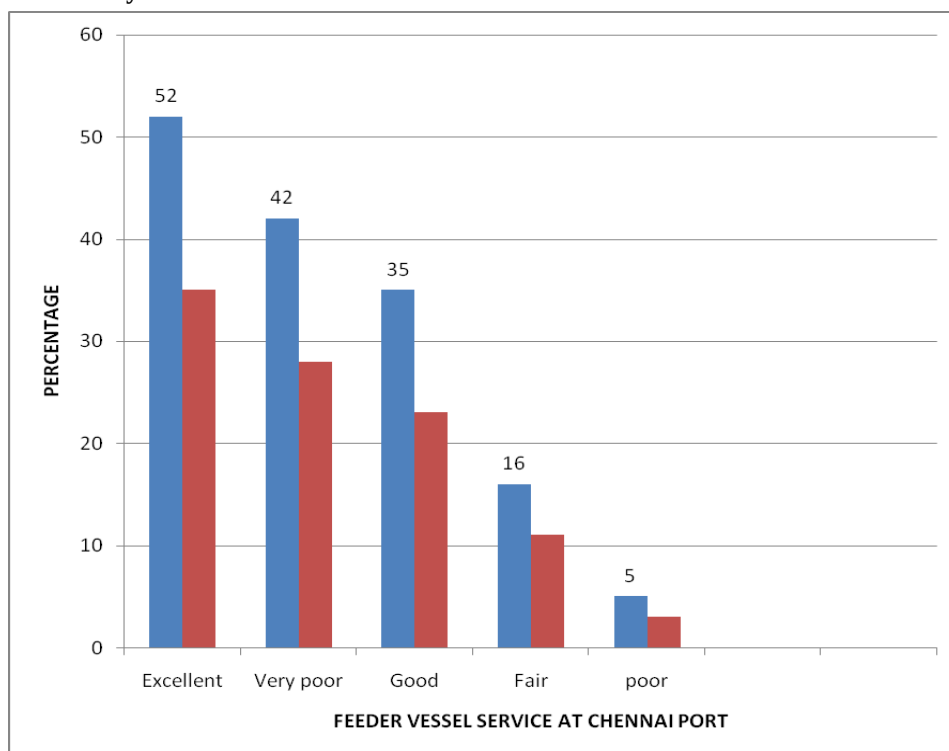


CHART 5: FEEDER VESSEL SERVICE AT CHENNAI PORT

Inference:

35% of the respondent says that the feedering vessel service at Chennai port was excellent.

V. SUMMARY OF FINDINGS

1. 0% of the respondent is in between 5-10 years and 32% are above 15 years of experience.
2. 37% of the organization has monthly lifting are in between 1 to 100 Teu.
3. Out of 100 respondent 142 use 20 ft Gp, 106 use 40 ft Gp and 85 use 40 ft Hc.
4. 41% of the respondents use light and voluminous commodity and 32% of the respondent use heavy & voluminous.
5. 40% of the respondent says that it is up to 72 hours as an average dwell time of cargos in the unit (non-containerized) and 25% of them say that it is over 144 hours.
6. 35% of the respondent says the it is up to 72 hours and 30% of them say that it is over 144 hours.
7. 40% of the respondent says that it is 12 hours or less for guaranteed response time (actual response time) and 25% of them say it is more than 24 hours.
8. 45% of the respondent have chosen merchant hauler, 20% of them have chosen others.
9. 62% of the respondent says yes for computerized system, 10% of them says no
10. Out of 100 respondents, 78% respondent has no difficulties in present container trade.
11. Out of 100 respondents, 78% respondent prefers LCL and 28% FCL.
12. 59% of the respondents strongly agree where introduction of 10ft container will divert less cargo load shipper to 10ft container.
13. 49% of the respondents agree the introduction of 10ft container will be useful for small and non-exporter.
14. 40% of respondents agree 50ft container being useful for light and voluminous commodity.
15. 36% of respondents have disagreed on 30 ft container being the best alternative.
16. 36% of the respondent says that the service level of Chennai container terminal limited was excellent.
17. 41% of the respondent says that the service level of Chennai customs was very good.
18. 43% of the respondent says that the service level of Chennai container freight station was excellent.
19. 35% of the respondent says that the feedering vessel service at Chennai port was excellent.

VI. CONCLUSION

Volume of lifting can be increased by way of giving duty exemption or reduction of duty, simplified procedure of

documentation, good availability of equipment and frequent vessel. The present container trade it can be further improved with higher satisfactory level.

Introduction of 10ft container will divert LCL shipper. It reduces spill over and damage of cargos. 10ft container will be helpful to small exporter and motivate Non-exporter Company for exporting. There is mixed view over acceptance of 30ft container as best alternative for 40ft container.

50ft container can be promoted in trade, which will improve the load capacity then 40ft container. Usage of adequate containers can improve business.

The study has reflected the respondents have already accepted on introduction of 10ft container as best alternatives for LCL shipper and non / small exporter and importer, 50 ft container FCL can be used for light and voluminous cargo, 30 ft container can be as alternative for 40ft container.

Cargo handling and modern vessels will be equipped with some type of specialist rig for operation within the medium to heavy-lift range.

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