Skill India
कौशल भारत - कुशल भारत

सत्यमेव जयते
GOVERNMENT OF INDIA
MINISTRY OF SKILL DEVELOPMENT
& ENTREPRENEURSHIP

N·S·D·C
National
Skill Development
Corporation
Transforming the skill landscape

LSC
Logistics Skills Council

Participant Handbook

Sector
Logistics

Sub-Sector
Land Transportation

Occupation
Vehicle Operations

Reference ID: **LSC/Q1119, Version 3.0**
NSQF Level 4

Transport Consolidator

Scan the QR code to access the e book

This book is sponsored by

Logistics Sector Skill Council

Logistics Sector Skill Council Contact Details:

Address: No. 480 A, 7th floor Khivraj Complex 2,

Anna Salai, Nandanam, Chennai – 600 035

Email: reena@lsc-india.com

Phone: 044 4851 4605

"Skilling is building a better India. If we have to move India towards development then Skill Development should be our mission."

Shri Narendra Modi
Prime Minister of India

Skill India
कौशल भारत-कुशल भारत

LSC
Logistics Skill Council

N•S•D•C
National
Skill Development
Corporation
Transforming the skill landscape

Certificate

CURRICULUM COMPLIANCE TO
QUALIFICATION PACK - NATIONAL OCCUPATIONAL STANDARDS

is hereby issued by the

LOGISTICS SECTOR SKILLS COUNCIL

for the

SKILLING CONTENT: PARTICIPANT HANDBOOK

Complying to National Occupational Standards of
Job Role/ Qualification Pack: **'Transport Consolidatorr'** QP No. **'LSC/Q1119,V3.0 NSQF Level 4'**

Date of Issuance: 27/01/2022
Valid up to*: 27/01/2025

**Valid up to the next review date of the Qualification Pack*
'Valid up to' date mentioned above (whichever is earlier)

Authorized Signatory
(Logistics Sector Skill Council of India)

Acknowledgements

We wholeheartedly thank all the organizations who have immensely helped us in endorsing the contents of this Participant Handbook thus contributing towards Government of India's initiative in skilling based on the Qualification Pack (QP) & National Occupation Standards for Transport Consolidator.

We thank the subject matter experts who have helped us in developing the content of this Participant Handbook.

About this book

This Participant Handbook is designed to facilitate training to the Transport Consolidator Qualification Pack (QP). Each National Occupational standard (NOS) is covered across Units.
It provides the learners with the necessary knowledge of various tasks to be performed while planning and scheduling deliveries. It explains in detail the consolidation activities to be performed in detail.
The orientation provides the learners with a real-world approach focusing on both large scale and small scale industries. Insights about multiple activities performed by Transport Consolidator have been covered in this book.

Key characteristics of this handbook:

(i) It discusses the concept of Transport consolidator in an easy to learn manner.
(ii) It presents Transport Consolidator concepts in interactive and professional way.
(iii) It gives opportunity for learners to foresee themselves in a professional set-up.

Key Learning Objectives for the specific NOS mark the beginning of the Unit/s for that NOS. The symbols used in this book are described below.

Symbols Used

Key Learning Outcomes

Summary

Unit Objectives

Tips

Notes

Exercise

Table of Contents

Skill India
कौशल भारत-कुशल भारत

सत्यमेव जयते
GOVERNMENT OF INDIA
MINISTRY OF SKILL DEVELOPMENT
& ENTREPRENEURSHIP

N·S·D·C
National
Skill Development
Corporation
Transforming the skill landscape

1. Introduction to Transport Consolidator

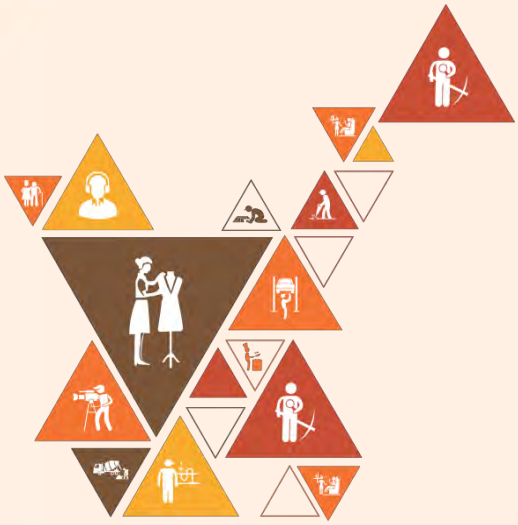
LSC
Logistics Skills Council

Unit 1.1 – Supply Chain Management & Logistics Overview

Unit 1.2 – Logistics Sub Sectors & Opportunities

Unit 1.3 – Activities, Job Roles & Interfaces of Transport consolidator

Unit 1.4 – Transport Yard Activities, MHE, Documentation



Key Learning Outcomes

At the end of this module, participant will be able to:

1. Describe Supply Chain and Logistics Management
2. Detail the various sub-sectors and the opportunities in them
3. Explain transportation industry and opportunities in it
4. Detail your job role as Transport Consolidator and its interface with other job roles
5. Discuss the employment opportunities in land transportation

UNIT 1.1 : Supply Chain Components

Unit Objectives

At the end of this unit, participant will be able to:

1. Explain supply chain management & logistics.
2. Explain the concept of inbound, in-plant & outbound areas of a supply chain.
3. Identify the three flows in a supply chain.
4. Discuss the concept of reverse logistics.

1.1.1 What is Supply Chain Management?

Supply Chain Management (SCM) is the management of the flow of goods and services and includes all processes that transform raw materials into final products.
It is, therefore, the broad range of activities required to plan, control and execute a product's flow from materials to production to distribution in the most economical way possible.
Supply Chain is also classified as

Fig. 1.1.1. Types of Supply chain

- **Inbound Supply Chain** - Materials/parts, flowing from various suppliers/vendors to the factory/producer.
- **In-plant Supply Chain** - Movement of materials within the factory premises. (say) factory stores/warehouse to the assembly line etc.
- **Outbound Supply Chain**- Finished goods from the producer/factory to the wholesaler/retailer & customer.

The supply chain covers the end to end movement - starting from the supply of raw materials from vendors until the finished products reach the customers. This is the flow across the entire supply chain. The reverse flow from the customer to the factory in case of any "defects/returns" is also a part of the supply chain covered under "reverse logistics".

A supply chain has therefore, three distinct flows:

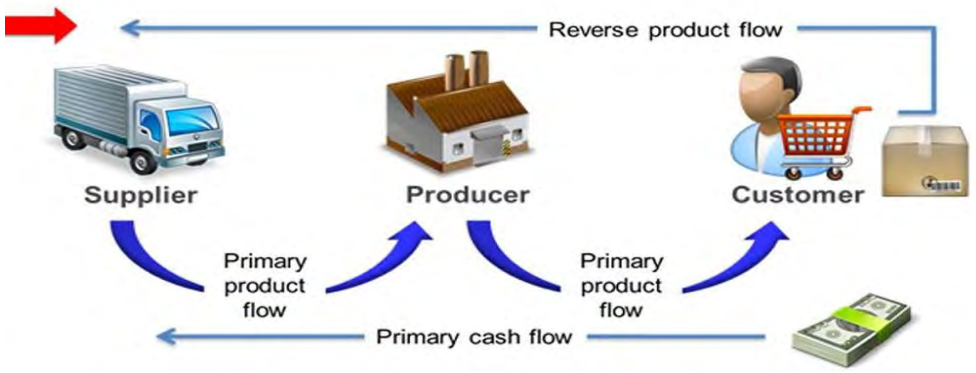


Fig. 1.1.2. Overview of SCM

- Product physical flow
- Cash flow
- Information flow

- **Product physical flow** – Raw material from suppliers to a manufacturing factory and the finished goods from the factory to the final customer through Distribution Centres (DC) Wholesalers/Retailers. It can also include returns/rejections if any from the end customer. (material/goods flow in both directions)
- **Cash flow**- From the end customers to the producers/suppliers against the sale of goods
- **Information flow** - Both ways from the customers to the producer/suppliers and vice versa. (Indicated by red arrows)

1.1.2. Logistics

Logistics is defined as the process of planning and executing the 'efficient transportation and storage of goods from the point of origin to the point of consumption'.
The objective of logistics is to meet customer requirements in a timely, cost-effective manner.

Components of a Supply Chain

- Lean suppliers, who can respond to changes in demand, maintain lower prices, improve quality and deliver on time.
- Lean procurement of materials/components through a web-based automated process
- Lean manufacturing generates what the customer wants in the right quantity, at the right time and with minimum resources.
- Lean warehousing eliminates wastes in product storage processes.
- Lean transportation creates a smooth flow of goods through quality transportation by the right mode and cost.

"**Lean**" above stands for efficient & cost-effective

Agility of a supply chain means having a capacity to cope with a volatile demand (fluctuating demand) – "the reaction time". If a supply chain is not agile, there will be a stock build-up at any point vendor/factory or producer/distribution warehouse etc

A long supply chain makes it complicated, costly and less agile while a shorter supply chain makes it more lean, efficient & agile

Visibility in a supply chain is critical for information to quickly get transferred from one end of the chain to another. You can imagine a supply chain like a transparent pipe for the factory/suppliers to quickly get the information on changes in customer demand and react accordingly to avoid storage of excess inventory and meet the demand effectively & quickly.

Notes

Scan the QR code to watch the related videos

https://youtu.be/HN5dDOGgKVA

Supply chain

UNIT 1.2 : Logistics Sub Sectors & Opportunities

Unit Objectives

At the end of this unit, participant will be able to:

1. Discuss the various logistics sub-sectors & opportunities in them

1.2.1. Logistics – Sub Sectors

Fig.1.2.1. Sub sectors of Logistics

WAREHOUSING – STORAGE AND PACKAGING

The warehousing sub-sector focuses on the requirement of management of inventory keeping, inbound material, distribution, and dispatch. Tertiary packaging for transportation is an important part of this sub-sector.

LAND TRANSPORTATION

Carriage by land transport is about 60% of the modal mix as compared with rail (33%) and water freight (7%), in India. The proportion varies based on the type of product. The transportation subsector involves consolidation of cargo, transportation and coordination of the transport network. Currently, there is a shortage of Commercial Vehicle Drivers (CVD), especially in the heavy vehicle segment.

COURIER AND EXPRESS SERVICES

Courier and Express Industry handles time-critical and many a time high-value consignment and in India, documents form a sizeable percentage of the segment. This is also a sub-sector with high employability as many companies also provide services to E-Commerce.

PORT TERMINALS, ICDs AND CFS OPERATIONS

With the focus on port infrastructure under the 'Sagarmala Project', both the velocity and quantum of cargo movement will substantially be enhanced along with economic growth. There is bound to be more consolidation of port user community, and multi-skill trained manpower would be the necessity as the new projects get underway.

EXIM LOGISTICS - FREIGHT FORWARDING & CUSTOMS CLEARANCE

EXIM refers to exports & imports. Freight forwarders run in a very dynamic environment affected by global currency fluctuations. They would need to know the rules of carriage, international trade documents etc. and leverage their domain expertise to arrange cost-effective freight.

E-COMMERCE

E-commerce involves buying and selling of goods and services, and also the transferring of funds or data over an electronic network, principally the internet. These business transactions occur either as Business-to-Business (B2B), Business-to-Consumer (B2C), Consumer-to-Consumer (C2C) or Consumer-to-Business (C2B).

AIR CARGO OPERATIONS

With increased regional connectivity, time-sensitive and high-value cargo movement will witness an increase. Most courier and express companies would be leveraging on this regional connectivity to ensure faster and more reliable delivery schedules. This will create the need for more dispersed work locations and consequently, more demand for local candidates who are skilled to take up the job roles.

COLD CHAIN LOGISTICS SOLUTIONS

Agricultural produce and fruits postharvest need to be kept in a controlled atmosphere to prevent their deterioration. Similarly, fish and meat need to be adequately stored and transported in a refrigerated atmosphere where humidity control becomes very important. Refrigerated vehicles used for cold chain are also called as “reefer vehicles.”

RAIL LOGISTICS

Rail carries around 35 % of the freight for dense cargo like steel cement, coal etc. Rail is the preferred mode of transportation. However, the share of rail transportation has come down from over 75% during independence to just around 30 to 35 % today. This is mainly due to the competition from the road, which offers greater flexibility. Moreover, rail is less competitive for many goods over shorter distances due to an inverted freight structure. Further, the track capacity and speeds are limited. Goods get a lower priority over passengers, and this results in delays & an increased transit time over the road transportation

COASTAL MOVEMENT (SHORT SEA SHIPPING) & INLAND WATERWAYS

India has a long coastline of about 7500 Kms., with access to the sea on three sides and eleven major and one sixty eight minor/intermediate ports. Major ports come are under the direct administrative control of the Central Government, whereas minor and intermediate ports are governed by the respective maritime state governments. Shipping has always been regarded as an essential transport sector of national activities in all maritime countries, and it is well fitted for transportation of bulk cargos at low cost. Coastal shipping as a complementary mode of transport is not only an economic necessity but also a valuable asset in times of emergency. Coastal Shipping involves movement of cargo through ships between different ports along the coastline. When compared to road, rail and air, coastal shipping is the most cost-effective, energy-efficient and environmentally green & clean mode for transporting goods. Waterways currently contribute around 6% to India's transportation modal mix, which is significantly less than that in developed economies and some of the developing economies as well. The focus on inland waterways over the Ganga & Brahmaputra rivers have just begun with the development of National Waterways 1 & National Waterways 2. The primary issue is that of maintaining the minimum draft throughout the entire stretch for vessels to navigate through.

MULTIMODAL TRANSPORTATION

Multimodal transport refers to the movement of good from point A to point B utilizing different modes of transportation by a single transport operator. In a country like India, where end to end delivery poses challenges, multimodal transport is an effective solution. Roads are the most common Railways are catching up quickly. Inland waterways have just started while air freight is expensive. Port led cargo movement is inclined heavily towards the west coast due to the presence of natural harbours

and economic weight of Maharashtra and Gujarat. To allow this growth to continue, there is a need for more private investments in logistics infrastructure with simpler regulations.

As seen, there are many areas & sub-sectors in Logistics which give a variety of employment opportunities.

Summary

The Indian logistics sector is on a significant growth tide. According to the domestic rating agency ICRA, the Indian logistics sector is expected to grow at a rate of 8-10 per cent over the medium term. (2020-23). The logistics industry of India is currently estimated to be around US$ 160 billion. With the implementation of GST, the sector is expected to benefit and touch US$ 215 billion by 2023.

Fig. 1.2.2. Logistics Operations

The government focused on bringing down the cost of logistics which presently is estimated at 14.4 per cent of India's GDP. The goal is to reduce to the cost to 10 per cent in the next four years. This is a very significant move and will boost the competitiveness of the sector and will be vital for its further growth.

Notes

Scan the QR code to watch the related videos

https://youtu.be/NuLzlZuQoLA
Logistics

UNIT 1.3 : Activities, Job Roles & Interface of Transport Consolidator

Unit Objectives

At the end of this unit, participant will be able to:

1. Discuss the various activities in land transportation
2. Explain the job role of Transport consolidator, and it's interface with other job roles

1.3.1 Job Role of Transport Consolidator

A Transport Consolidators are also known as Transport Order Mergers or Consolidators. Individuals in this role typically consolidate smaller or numerous loads/orders according to destination that pass through their station or hub into outbound trucks for final delivery

Fig.1.3.1. Job Roles of Transport Consolidator

1.3.2 Few examples of some job roles in logistics

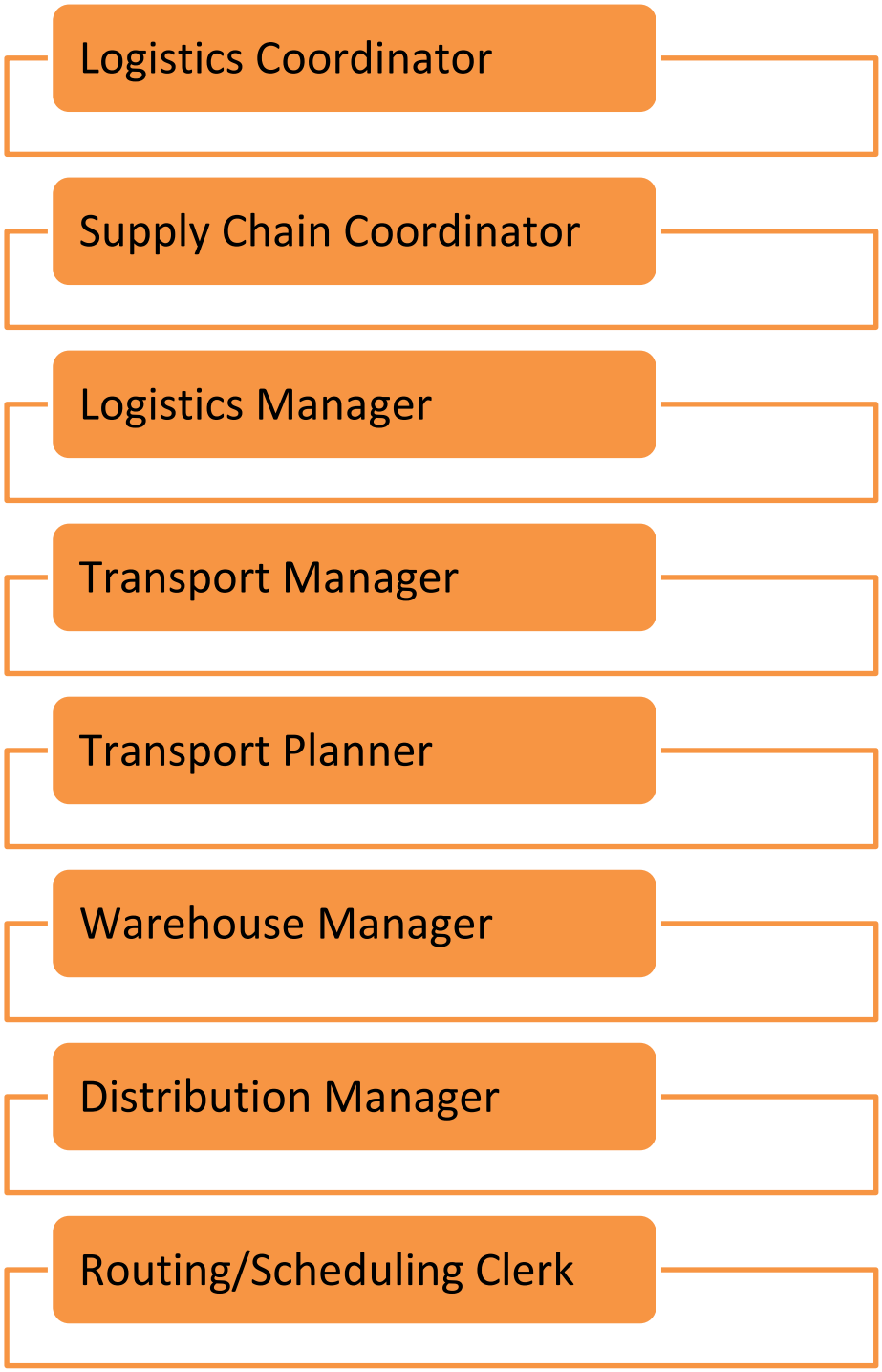


Fig.1.3.2. Job Roles in Logistics

Notes

UNIT 1.4 : Transport Yard Activities, MHE, Documentation

Unit Objectives

At the end of this unit, participant will be able to:

1. Explain the various activities that are carried out in a transport yard.
2. Discuss the appropriate Material Handling Equipment (MHE) used in logistics
3. Discuss the various documentation requirements

1.4.1 Transport Yard Activities

Usually, a truck driver parks the vehicle on the road when it is waiting for a load confirmation. This is to avoid paying any charges to a yard. However, due to controls & restrictions by NHAI (National Highway Authority of India) & local police, truck drivers are fined when they leave their vehicle unattended on the state roads & national highways. It is also subject to thefts and pilferages when the drivers are not in their vehicles or when vehicles are not under their supervision on a 24x7 basis.

Vehicle maintenance activities, cleaning & repairs (if necessary) along with tyre checks are generally carried out while the vehicles are at any transport yard. Yards are equipped with good rest facilities where a driver could relax and be fit and energetic for his next trip. Bathing facilities and restrooms are also available. To improve hygiene, even barber facilities are generally available.

Recreation facilities with TV and food also are available in large yards. ATMs are available to plan their cash required for the forthcoming trip.

Generally, the vehicle & driver related documents are checked in advance for compliance to ensure a valid driving license, a valid pollution certificate, local & national permits based on the states through which the vehicle is planned to be routed with tax paid receipts, vehicle registration & fitness & valid Insurance etc.

In short, the driver is in a state of readiness to make their next trip/journey no sooner the load is confirmed. All activities in preparation for this is completed while the vehicle is idling for a load and is parked in the transport yard.

1.4.2 Material Handling Equipment in Logistics

- Material Handling Equipment (MHE) is a general term for the machines used to make logistics work more efficient.
- There are many material handling devices used commonly at logistics worksites. These include forklifts, carts, pallets, conveyors, conveyance robots, sorters, picking systems and automated warehouses

Reach stackers are used for handling and storing 40 ft & 20 ft containers at ports, Inland Container Depots (ICD) & CFS (Container Freight Stations) for stacking containers one above the other. Forklifts are very commonly used at all warehouses.

Fig. 1.4.1. Reach Stacker

Fig. 1.4.2. Forklift

Few Examples of Warehouse Material Handling Equipment

Fig. 1.4.3. Warehouse Material Handling Equipment

Tata/Leyland /Mahindra Trucks are used for Goods Transportation

Trucks of different length for goods transport

Fig. 1.4.4. Different length of Truck

Prime Mover (Also called Horse/Hauling Equipment) to which a trailer is coupled

Fig. 1.4.5. prime Mover

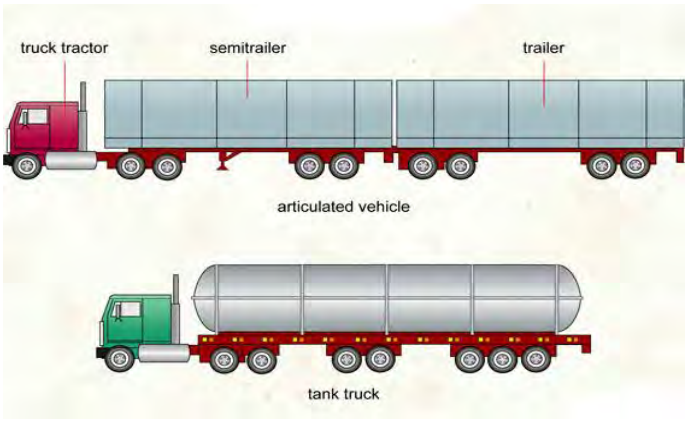


Fig. 1.4.6. Truck

Earth Moving/Mining & Transportation Equipment

Fig. 1.4.7. Earth Moving / Mining & Transportation Equipment

Example of a Tata Tipper used in Mines for Transportation of Coal/Earth/Cement/Iron Ore etc.

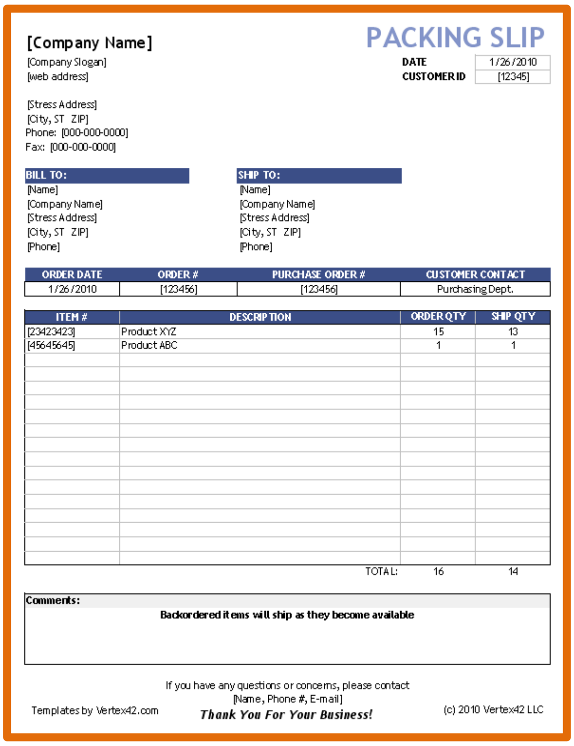
Fig. 1.4.8. Tata Tipper

1.4.3 Documentation - Goods Transportation in India

1. Transport Document

- Lorry Receipt (LR) or consignment note for road transportation
- Railway Receipt (RR) when goods are moved by rail transport
- A Bill of Lading (BL) used for ocean transportation
- An Air Waybill (AWB) used for air transportation

2. Commercial Invoice & Packing List



[Company Name] PACKING SLIP
[Company Slogan]
[web address]

DATE 1/26/2010
CUSTOMER ID [12345]

[Stress Address]
[City, ST ZIP]
Phone: [000-000-0000]
Fax: [000-000-0000]

BILL TO:
[Name]
[Company Name]
[Stress Address]
[City, ST ZIP]
[Phone]

SHIP TO:
[Name]
[Company Name]
[Stress Address]
[City, ST ZIP]
[Phone]

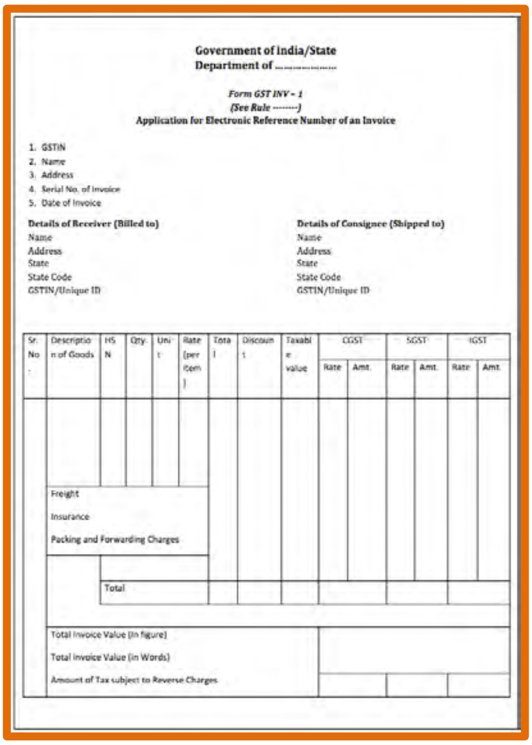
ORDER DATE	ORDER #	PURCHASE ORDER #	CUSTOMER CONTACT
1/26/2010	[123456]	[123456]	Purchasing Dept.

ITEM #	DESCRIPTION	ORDER QTY	SHIP QTY
[23423423]	Product XYZ	15	13
[45645645]	Product ABC	1	1
	TOTAL:	16	14

Comments:
Backordered items will ship as they become available

If you have any questions or concerns, please contact
[Name, Phone #, E-mail]
Thank You For Your Business!
Templates by Vertex42.com
(c) 2010 Vertex42 LLC

Fig. 1.4.9 packing Slip



Government of India/State
Department of ....

Form GST INV - 1
(See Rule --------)
Application for Electronic Reference Number of an Invoice

1. GSTIN
2. Name
3. Address
4. Serial No. of Invoice
5. Date of Invoice

Details of Receiver (Billed to)
Name
Address
State
State Code
GSTIN/Unique ID

Details of Consignee (Shipped to)
Name
Address
State
State Code
GSTIN/Unique ID

Sr. No.	Description of Goods	HSN	Qty.	Unit	Rate (per item)	Total	Discount	Taxable value	CGST		SGST		IGST	
									Rate	Amt.	Rate	Amt.	Rate	Amt.
	Freight													
	Insurance													
	Packing and Forwarding Charges													
		Total												
	Total Invoice Value (In figure)													
	Total Invoice Value (In Words)													
	Amount of Tax subject to Reverse Charges													

Fig. 1.4.10 Invoice

(A bill of entry in case the goods are imported will be an additional document

3. E-Way Bill

Generated electronically in the E-Way bill portal and should accompany the goods from consignor to consignee location.

FORM GST EWB-01
(See rule 138)
E-Way Bill

PART-A		
A.1	GSTIN of Recipient	
A.2	Place of Delivery	
A.3	Invoice or Challan Number	
A.4	Invoice or Challan Date	
A.5	Value of Goods	
A.6	HSN Code	
A.7	Reason for Transportation	
A.8	Transport Document Number	
PART-B		
B.	Vehicle Number	

Fig. 1.4.11 Format of E-way Bill

4. Other Documents –

Permission letter for dangerous unique goods say petrol or ODC (Over Dimensional Consignments)

SHIPPER'S DECLARATION FOR DANGEROUS GOODS

Shipper	**Air Waybill No.** Page 1 of 1 Pages *(optional)*
Consignee	
Two completed and signed copies of this Declaration must be handed to the operator	**WARNING** **Failure to comply in all respects with the applicable Dangerous Goods Regulation may be in breach of the applicable law, subject to legal penalties.**
TRANSPORT DETAILS This shipment is within the limitations prescribed for: *(delete non-applicable)* **PASSENGER AND CARGO AIRCRAFT** / **CARGO AIRCRAFT ONLY** Airport of Departure	
Airport of Destination	Shipment type: *(delete non-applicable)* **NON-RADIOACTIVE** XXXXRADIOACTIVE

Fig. 1.4.12. Shipper's Declaration for Dangerous Goods

Tips

Logistics primarily deals with the reduction of waste in any system. Identify the wastages in a specific logistics activity selected and list them.

Notes

Summary

This chapter provides a summary of supply chain & logistics with its forward and backward linkages. It introduces the concepts of lean, agility, visibility and transparency of supply chains. The concepts of inbound, in plant & outbound part of a supply chain, is also discussed. The main subsectors like transportation & warehousing & other value-added services were highlighted to know the exciting opportunities for employment. The job role of a transport consolidator and other related jobs in land transportation were examined. Lastly, the various Material Handling Equipment's (MHE) used & the mandatory documents handled in inland transportation were examined.

Exercise

1. What are the three flows in a supply chain?
2. Define the terms lean, agility & visibility in supply chain?
3. Describe the job role of transport consolidator in land transportation?
4. Transportation & _____are the main sub sectors of logistics.
5. Air, Water and_____ are considered as modes of transportation?
6. Sea & _____ are ways of water transport.
7. Name any three Material Handling Equipment used in warehousing & land transportation?

Skill India
कौशल भारत - कुशल भारत

सत्यमेव जयते
GOVERNMENT OF INDIA
MINISTRY OF SKILL DEVELOPMENT
& ENTREPRENEURSHIP

N·S·D·C
National
Skill Development
Corporation
Transforming the skill landscape

LSC
Logistics Skills Council

2. Planning and Scheduling Deliveries

Unit 2.1 – Scheduling of Deliveries

Unit 2.2 – Route planning

Unit 2.3 – Compute Loading Requirements to identify type of vehicle required.

LSC/N1114

Key Learning Outcomes

At the end of this module, participant will be able to:

1. Detail the various tasks to be performed while planning and scheduling deliveries
2. List the information to be collected for scheduling such as available capacity based on load, list of orders that are to be routed, various locations etc.
3. Explain the process of planning and scheduling deliveries
4. Detail the process of analyzing delivery/ transport costs for all order
5. Determine optimal routes for trucks based on final destination for deliveries

UNIT 2.1: Scheduling of Deliveries

Unit Objectives

At the end of this unit, participant will be able to:

1. Detail the process of planning and scheduling deliveries
2. Plan truck and dispatch schedule
3. Prepare a freight consolidation plan

2.1.1 Truck and Dispatch Scheduling

Truck scheduling is planning for the right size of a truck for an available load on hand while a dispatch schedule is ensuring the truck is made available on the correct date/time when the load is ready, and dispatch is affected without the load or truck idling.

Fig. 2.1.1. Dispatch

Therefore, S/he has to collect all the available load details- such as based on the trucks available, an appropriate truck for the possible load has to be planned and informed to the transporter concerned. This is the essence of truck scheduling.

Basis the exact date and time of a load being available, the dispatch has to be scheduled. The truck planned for the load has to arrive at the right time and place for loading the consignment.

It is to be ensured that idling of load (Inventory) for a truck or idling of a truck for a load has to be minimized, as when a truck is idling, it does not generate revenue for the transporter. This is the essence of dispatch scheduling

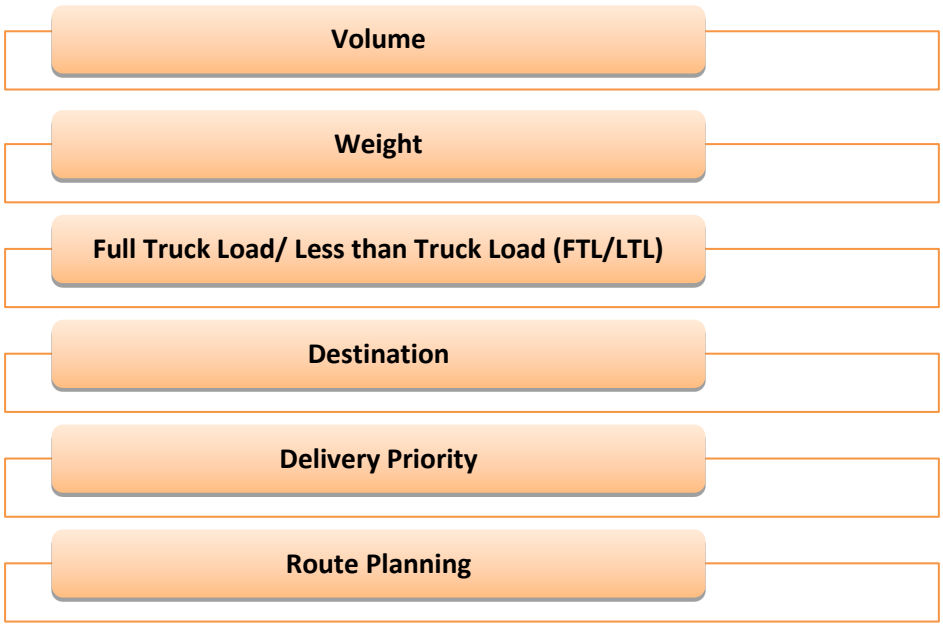


Fig. 2.1.2. Truck

2.1.2 Plan – Freight Consolidation

A consolidation plan is required when cargo is to be grouped in a truck to reach different distribution centres/customers so that we minimize the number of trucks used to reach cargo to its destination. Freight consolidation should consider the lower of the weight or volume whichever a limiting factor is. Let us say the payload of a truck is 8 tons (based on axle load as per Motor Vehicle Rules) Then the volume or packing dimensions should be considered accordingly in such a manner that the space inside a vehicle is fully utilized. This is also referred to as maximization of cubic space or minimizing the air gaps inside. LTL freight usually takes up less than 12 linear feet of the trailer, and since the typical pallet measures 40" x 48", six pallets arranged side-by-side would take up precisely 12' of linear space on each side of the trailer.

Truckload: A full truckload shipment can range from 24 to 30 pallets.

- The origin, destination, routing & priority of delivery are essential factors to be also considered in a freight consolidation plan.
- The selection of the proper type of truck, e.g., a Tata Ace, Bolero pick up, Tata 407, Eicher 14 ft, 17 ft etc. are essential aspects of freight consolidation. The quantity of load available determines FTL or an LTL load.

- Based on time, such as contract or express, have to be factored in a consolidation plan.
- Distance – long haul or short haul can affect a consolidation plan

Freight Consolidation

One of the fundamental principles behind shipping costs is that when volume goes up, the per-unit shipping costs goes down. In practical terms, this implies it is often to 'shippers' benefit to combine shipments when feasible to get a higher total volume, which will ultimately lower overall transportation cost.

The other benefits of consolidation besides saving money are as follows:

- Faster transit times
- Less congestion at loading docks
- Fewer, but stronger carrier relationships
- Less product handling
- Reduced accessorial charges at consignees
- Reduced fuel and emissions
- More control overdue dates and production schedules

In today's market environment, considering a consolidation solution is more necessary than it was a few years ago.

Retailers prefer smaller but more repeated orders. This implies shorter lead times and less product to fill a full truck.
Shippers of Consumer Packaged Goods (CPG) generally have no options but to use Less-Than-Truckload (LTL) configurations more frequently.
The initial hurdle for shippers is to figure out whether they have enough volume to take advantage of consolidation.

2.1.3. Implementing a Strategy through Reconfiguration

Theoretically, LTL volumes can generally be consolidated into effective cost-efficient, multi-stop, full truckload shipments. However, in reality, for emerging brands and small- to mid-sized companies, having large enough pallet quantities isn't always possible.
A third-party logistics service provider can potentially combine LTL orders with those from other like clients. With outbound freight frequently going into the same distribution centres or general region, reduced rates and efficiencies can be shared among customers.
Other possible consolidation solutions includes fulfilment optimization, pooled distribution, and sailing or batched shipments.
The strategy best used is different for each shipper and is based on factors such as network footprints, customer flexibility, order volume, and production schedules.
The key is to find the best process that meets the delivery requirements of your customers while keeping the workflow as continuous as possible for your operations.

We could also do the consolidation either off-site or on-site (Refer Illustration)

Fig.9.1.3. On Site Consolidation

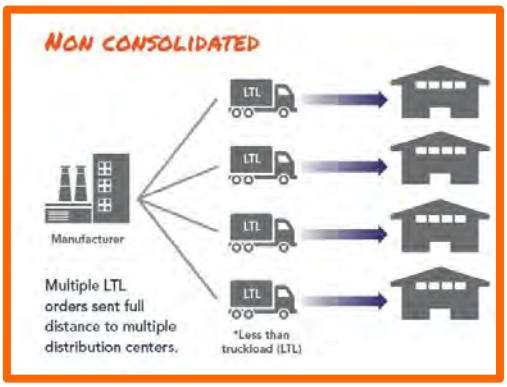


Fig.2.1.4. Non-Consolidation

On-site consolidation is the practice of consolidating shipments at the original point of manufacture or distribution centre where the product is shipping from. Proponents of on-site consolidation believe the fewer products get handled and moved the better from both an efficiency and cost standpoint. For producers of ingredients and snack food products, this particularly is true.

The concept of on-site consolidation is best fitting for shippers having more superior visibility of their orders to view what is pending, as well as the space and time to consolidate the shipments physically. Preferably, on-site consolidation occurs as far upstream as feasible at the point of order pick/pack or even manufacture. It can require extra staging space within the facility, however, which is an apparent constraint for some companies.

Off-site consolidation is the procedure of taking all the shipments, often unsorted and in bulk, to a separate location. Here, the loads can be categorized and combined with those going to similar destinations.

The possibility of off-site consolidation is typically good for shippers who have less visibility to what orders are coming but have more flexibility with transit times and due dates. The drawback is the extra cost and additional handling needed to move the product to a place where it can be consolidated

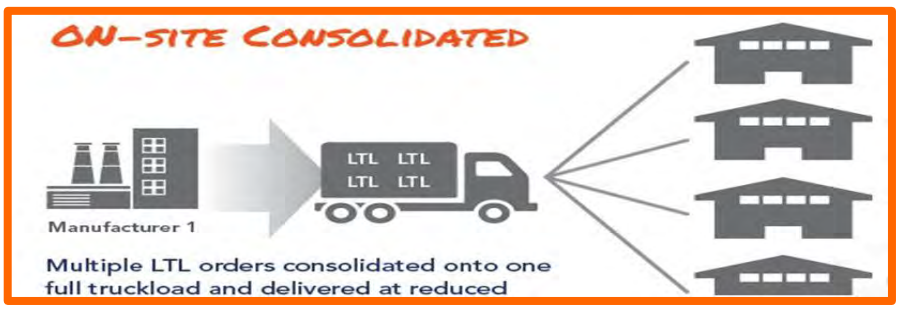


Fig.2.1.5 On Site Consolidation

UNIT 2.2: Route Planning

Unit Objectives

At the end of this unit, participant will be able to:

1. Determine optimal routes for trucks based on final destination for deliveries

2.2.1 Routing

Routing, route scheduling & route optimization are all critical processes for creating reliable and cost-effective routes. By knowing the difference between route optimization and routing/route scheduling, transporters can reduce their fuel expenses, make fewer trips but deliver more goods with the same number of vehicles and make the delivery operations more efficient.

What is Route Planning?

Routing (also called route planning) is a process of creating the most cost-effective route by minimizing the distance or travel time needed to reach a destination with a set of planned stops. Routing is a highly important process of any logistics systems, due to the very high competition and shrinking margins in the market. Route planning of goods and services incurs enormous costs for vehicle operation, fuel, labour and maintenance.

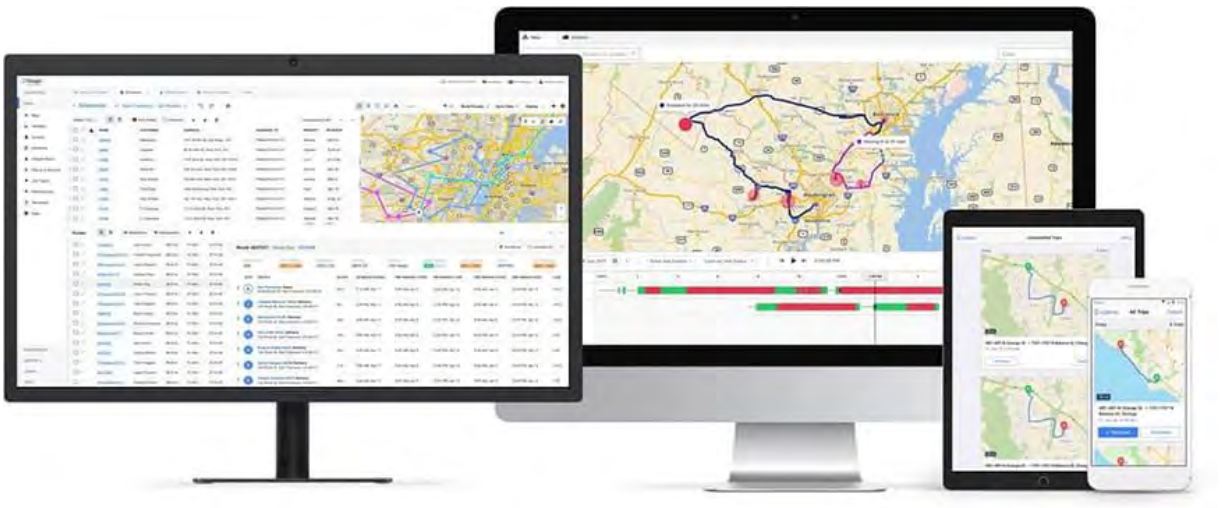


Fig 2.2.1 Routing

What is Route Scheduling?

Route scheduling can be defined as the process of assigning an arrival and service time for each stop, with drivers being assigned shifts who would strictly adhere to their hours of work.

The main purpose of both routing and route scheduling is to reduce costs, such as mileage and vehicle capital costs. (Both owning & operating costs)

For example, on a school bus, the objective of routing and route scheduling could be to reduce the total number of student-minutes on the bus. For food delivery, the aim is to deliver within the period that you promised to your customers. Every industry has different goals.

Fig 2.2.2. Route Scheduling

What is Route Optimization?

Route optimization is defined as the process of planning one or multiple routes, with the sole purpose of minimizing overall transportation costs while achieving the highest possible efficiency under a set of given operating constraints and considering other alternative routes which share the same goal.

Thus, route optimization in simple terms is the process of determining the most cost-efficient route.

It is more complicated than merely locating the smallest path between two points. It requires to include all relevant factors such as the number and location of all the required stops en route.

Fig 2.2.3. Route Optimization

2.2.2. Advantages of Route Planning

Cuts Transportation Costs Route planning can save time and fuel by efficiently planning routes that factor in locations and avoids backtracking. Thus, drivers spend less time driving; less fuel is necessary as less backtracking is taking place and companies can reduce the wear and tear of the vehicle, ultimately saving on maintenance costs too.

Cuts Transportation Costs Route planning can save time and fuel by efficiently planning routes that factor in locations and avoids backtracking. Thus, drivers spend less time driving; less fuel is necessary as less backtracking is taking place and companies can reduce the wear and tear of the vehicle, ultimately saving on maintenance costs too.

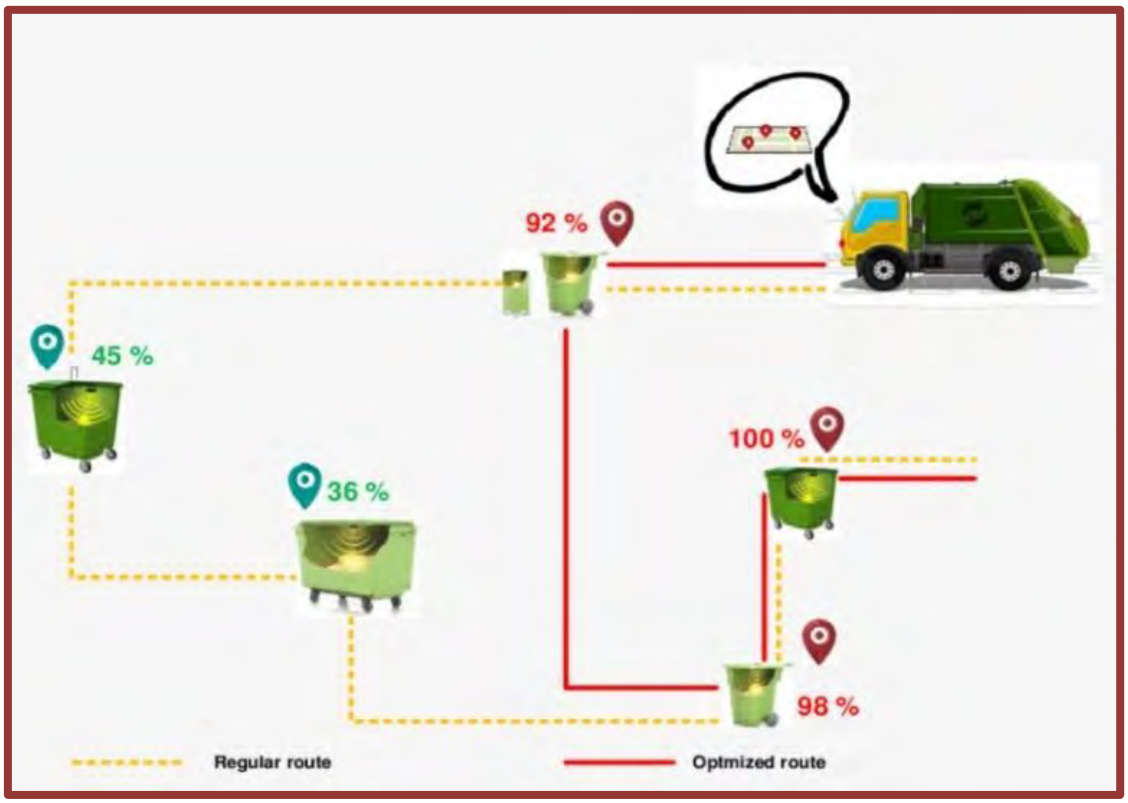


Fig 3.2.1 Cuts Transportation Costs

Improves Customer Service

Speedy deliveries and faster response times not only increase productivity but also creates attractive delivery experiences - ensuring customers will come back for more. With a planner, businesses can make last-minute changes and meet tight schedules, so no customer is left behind.

Fig 2.2.4. customer service

Increases Productivity

As a business owner, one needs to consider time frames, driver shifts, the number of stops, stop changes etc. Route planner solutions helps avoid backtracking, as it organizes one's stops based on location. It also ensures that business is reaching all set destinations - with buffer spare time. Route planners cut transportation costs, provides with a more flexible budget, helps in getting to the customers more efficiently and on time. It also increases the number of destinations one can reach in a day, thereby effectively saving the business time and money on the road.

Fig 2.2.5. Productivity

How do we differentiate between Route Planning and Route Optimization?

As against route planning, route optimization would include all additional factors, such as schedules, time constraints, weight capacity, road restrictions and many more.

Therefore, route optimization can be defined as the action of solving a complex routing problem.

How does one plan routes with all three Processes viz., routing, route scheduling and route optimization?

There is a need to use all these three processes to design the most efficient routes. However, manual planning will be time-consuming.

Why? Let us Understand

- Firstly, it is required to map out every single stop. If one has only a couple of stops that need to be visited in a day, it should not be too difficult. However, if one has many more stops than that, do not make any plans for later as you will most likely to get stuck on your computer.
- There is a need to consider the amount of time it takes to visit each stop. Many other factors also need consideration such as traffic conditions, distance travelled, possible interruption along these routes, etc. How does one account for all that?
- Lastly, it is needed to figure out which routes will allow to reach all stops in the shortest amount of time possible and distribute each route to your drivers in a clear way that they will easily understand. Also to be noted is that the shortest route in terms of distance aren't always the best choice, making the process even more confusing.

- The very thought is enough to make anyone tired by just thinking of how to solve this issue.
- The process is tedious & would lead to a lapse of concentration & error-prone, resulting in many hours of wasted productivity.

2.2.3. GPS devices

GPS devices help in keeping the drivers on track, but they have limitations.

When a driver has already left the depot, or if something changes in the last minute, the route cannot be changed.

While google maps for traffic updates are helpful, they are only useful for getting the current traffic status – it does not predict future traffic.

Therefore, a route optimization software is generally preferred.

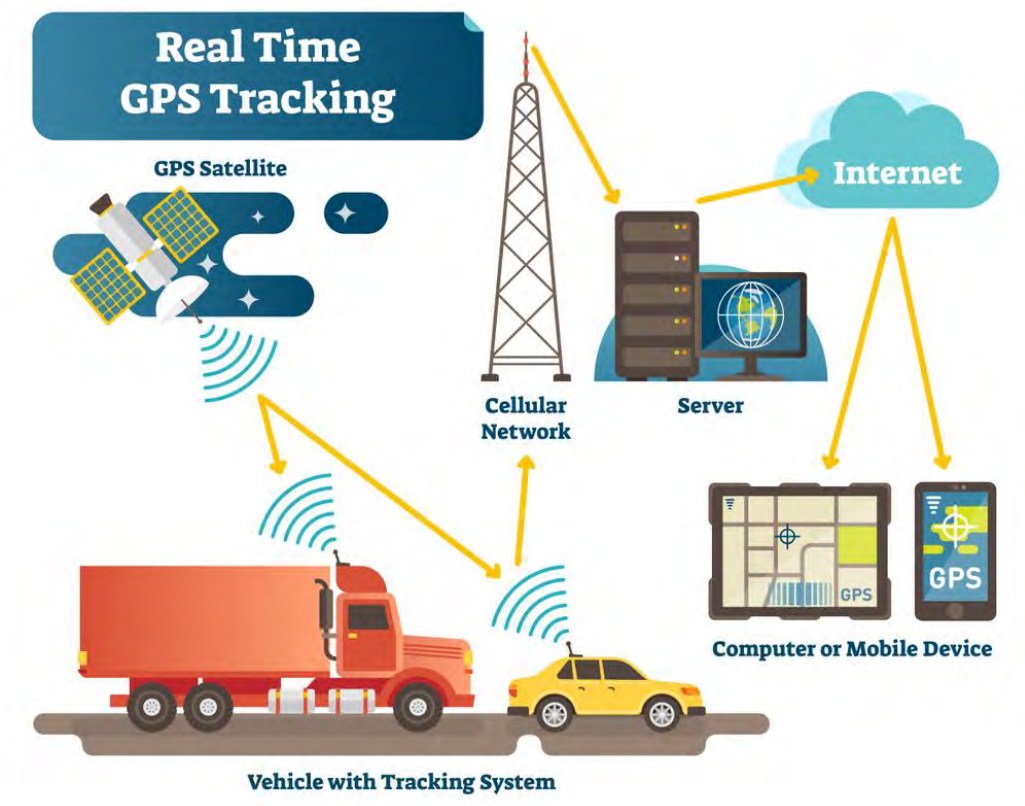


Fig. 2.2.6. Real Time GPS Tracking

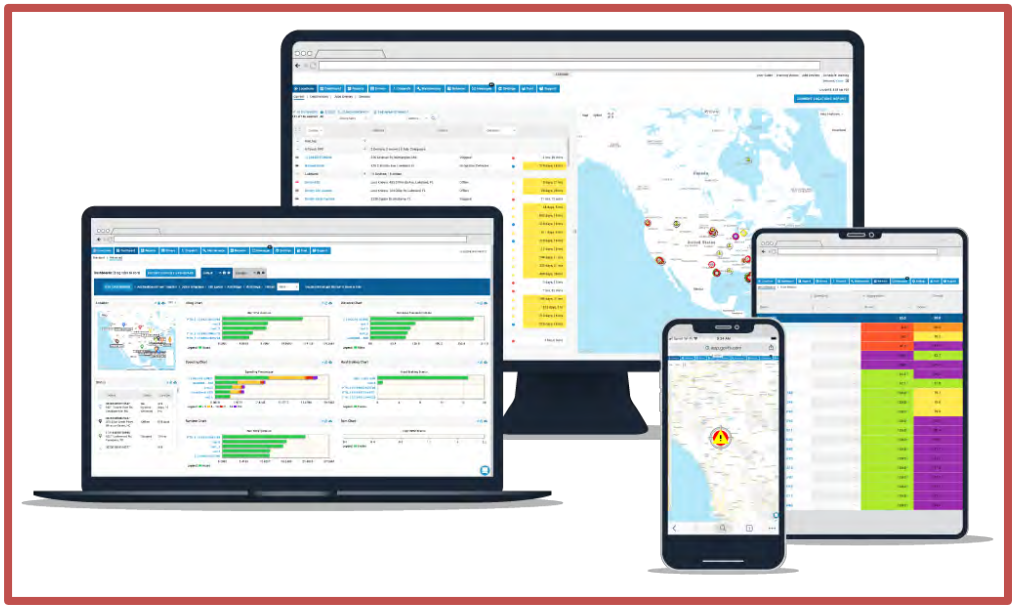


Fig 2.2.7. Route Tracking and Tracing On Desktop and Mobile devices

Tips

Participants may use routing software to decide the most optimal route for picking up school children from different locations in the city and reach the school five minutes ahead of the scheduled time.
Actual data may be taken as a sample to understand the concept of route planning clearly.
The total distance travelled, and the overall time taken is to be minimized and the route selected is to minimize the total time spent by each of the school students in the school bus.

Notes

UNIT 2.3: Compute loading requirements to identify the type of vehicle required

Unit Objectives

At the end of this unit, participant will be able to:

1. Explain the process of calculating load requirement to decide on the right vehicle for the given load

2.3.1 Understanding the load

Pickup	Drop	Truck Type	Distance	Date	Material Type	Weight
Rourkela	Surat	32 feet Single axle / 7 Ton	1525KM	2020/02/22	Electronics	7 Ton
Rourkela	Cuttack	21 Ton / 12 Wheel	310KM	2020/02/22	Round	21 Ton
Rajkot	Jodhpur	16 Ton / 10 Wheel	619KM	2020/02/22	Fertilizer	16 Ton
Navi Mumbai	Gaya	20 feet Closed Container / 6.5 TON	1778KM	2020/02/22	Helmet	6.5 Ton
Guwahati	Mysuru	21 Ton / 12 Wheel	3011KM	2020/02/22	Machinery Parts (Loose & Mix)	21 Ton
Surat	Aurangabad	21 Ton / 12 Wheel	362KM	2020/02/22	medicines	21 Ton
Rajkot	Vapi	32 feet Multi axle / 14.5 Ton	543KM	2020/02/22	Catering Equipment	14.5 Ton
Raipur	Udaipur	EICHER 19 FEET	1123KM	2020/02/22	Wooden Pallets	7 Ton
Cuttack	Rajkot	32 feet Multi axle / 14.5 Ton	1862KM	2020/02/22	Car Accessory	14.5 Ton
Mangalore	Mysore	21 Ton / 12 Wheel	255KM	2020/02/22	Chana Bags	21 Ton

The table below shows the details such as origin, destination, distance, truck size (length /capacity) type of cargo, the weight that are required to be analyzed in detail to decide the right vehicle for a given load on hand.

Fig 2.3.1. Understanding the load

Multiply the 3 dimensions of the carton L X W X H to get the cubic volume. Further multiplying it by 167 (The air freight conversion factor) gives us the air freight volumetric weight.
As an accepted practice we take the gross weight or volumetric weight (calculated in accordance with the mode (road/rail/ air) etc. and take the higher of the two values to determine the freight.

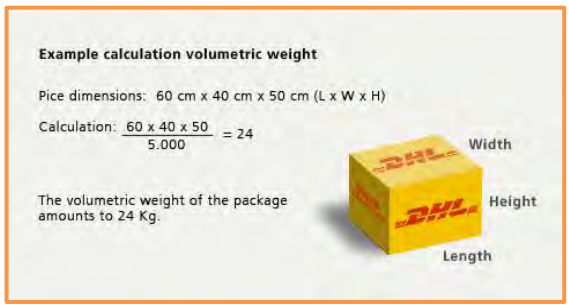
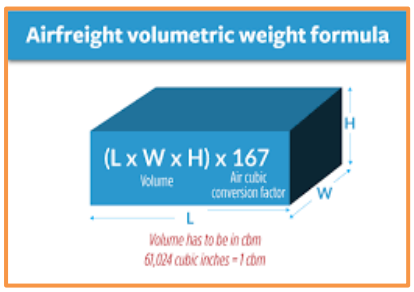


Fig. 2.3.2. Example of Volumetric Weight Calculation

n air shipments, the gross weight is the sum of wooden pallet weight + cardboard carton weight + product weight. In container shipping, the total weight of all the cartons that can be stuffed into a container calculated as per the volume should not exceed the net limiting load of that container.

Cubic Meter Calculator



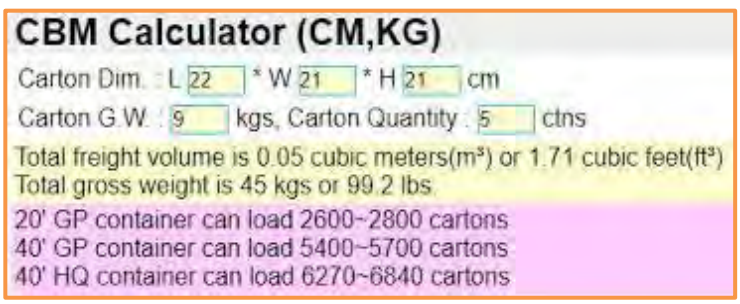


Fig.2.3.2. CBM Calculator

To understand the concept of chargeable freight, let us see the example of cotton & steel

Fig. 2.3.3. Cotton Vs Steel

In the case of cotton, which is high in volume, the volumetric weight will meet the criteria for freight calculation. The volumetric weight would be far higher than the gross weight.

However, in the case of steel which has a higher density, the actual gross weight will be taken for freight calculations.

Calculation of the air freight chargeable weight

Steps

The following example explains how air freight chargeable weight can be calculated:

Air Freight Shipment E.g. 1:

In regular shaped shipments when the (Gross weight in kg> volumetric weight)

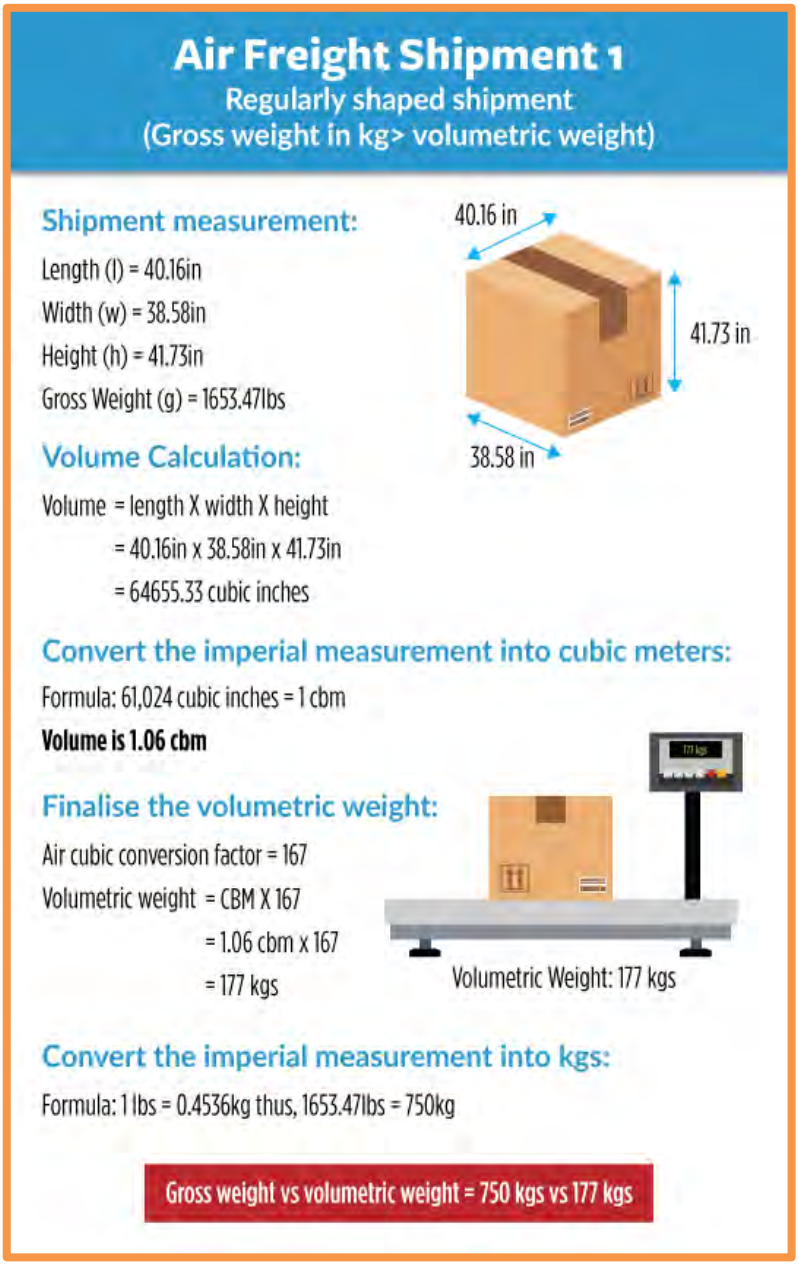


Fig. 2.3.4. Calculation of air freight chargeable weight

The gross weight of an air shipment can be higher in value compared to its volumetric weight. The gross weight, makes it the chosen chargeable weight for the cargo, as shown in the below example.

Shipment measurement:

- Length (l) = 40.16in
- Width (w) = 38.58in
- Height (h) = 41.73in
- Gross Weight (g) = 1653.47lbs

Step 1: Calculate the volume of the air freight shipment

Volume = length X width X height
= 40.16in x 38.58in x 41.73in
= 64655.33 cubic inches

Step 2: Convert the imperial measurement (cubic inches) into cubic meters

To convert cubic inches into cubic meters, follow this formula: 61,024 cubic inches = 1 cbm

Thus: 64655.33 cubic inches = 1.06cbm

Step 3: Finalise the volumetric weight

Air cubic conversion factor = 167
Volumetric weight = CBM X 167
= 1.06cbm x 167
= 177kgs

Step 4: Convert weight into kilograms

To convert pounds (lbs) into kilograms, follow this formula: 1 lbs = 0.4536kg

Gross weight is 750kg

Step 5: Compare the gross weight with the volumetric weight

Gross weight vs volumetric weight = 750 kgs vs 177kgs

Fig. 2.3.6. Steps of calculation of shipment measurement

Chargeable weight is the higher value which is 750 kgs.

Air Freight Shipment 2:

Regularly shaped shipment 2 pcs (Gross weight in kg < volumetric weight)

At times, the volumetric weight becomes a more significant value than the gross weight. In this instance, the volumetric weight is taken as the chargeable weight.

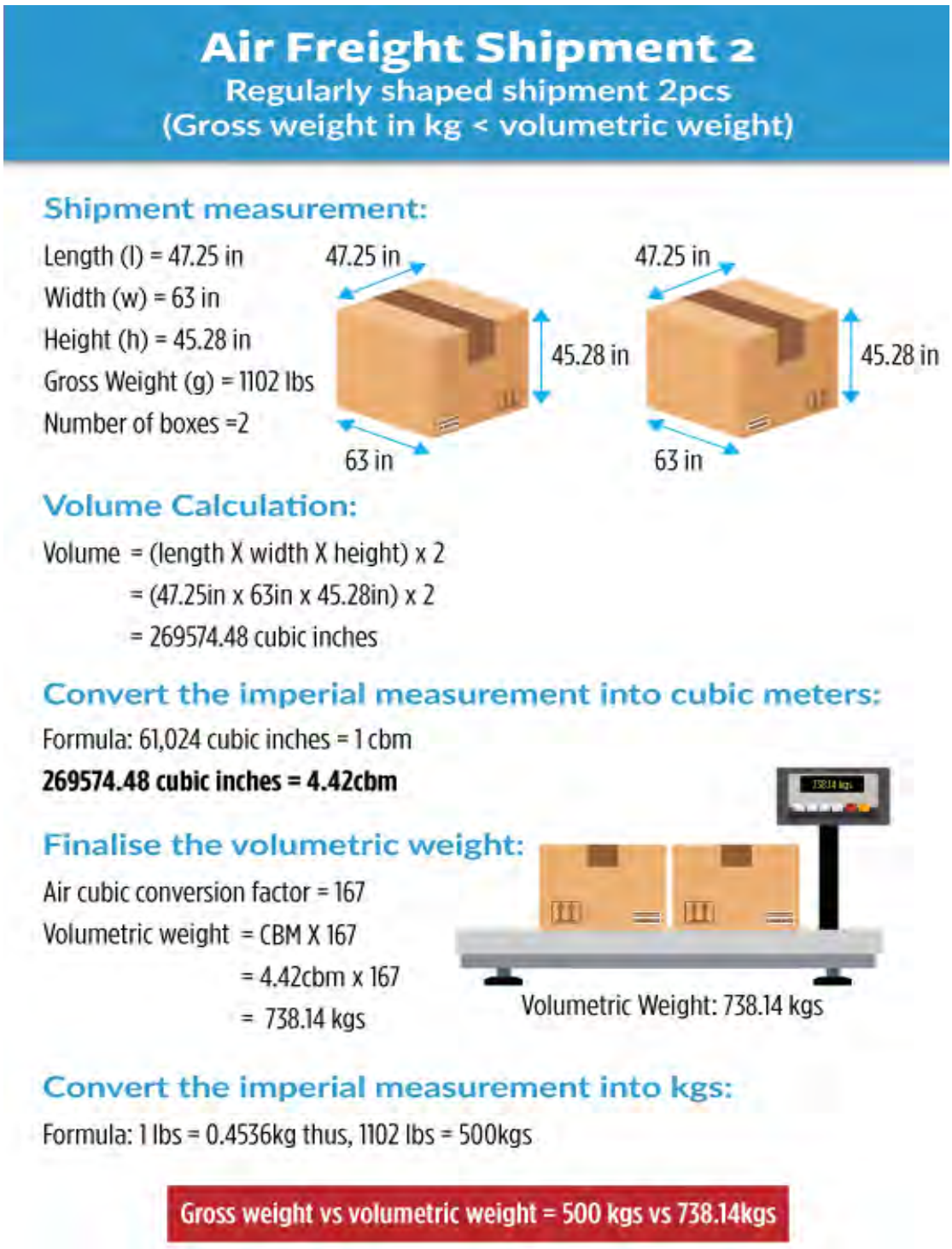


Fig. 2.3.7. Air Freight Shipment Calculation

Shipment measurement:

- Length (l) = 47.25 in
- Width (w) = 63 in
- Height (h) = 45.28 in
- Gross Weight (g) = 1102 lbs
- Number of boxes =2

Step 1: Calculate the volume of the air freight shipment

Volume = (length X width X height) x 2
= (47.25in x 63in x 45.28in) x 2
= 269574.48 cubic inches

Step 2: Convert the imperial measurement into cubic meters

To convert cubic inches into cubic meters, follow this formula: 61,024 cubic inches = 1 cbm

Thus: 269574.48 cubic inches = 4.42cbm

Step 3: Finalise the volumetric weight

Air cubic conversion factor = 167
Volumetric weight = CBM X 167
= 4.42cbm x 167
= 738.14 kgs

Step 4: Convert weight into kilograms

To convert pounds (lbs) into kilograms, follow this formula: 1 lbs = 0.4536kg

Thus 1102 lbs = 500kgs

Step 5: Compare the gross weight with the volumetric weight

Gross weight vs volumetric weight = 500 kgs vs 738.14kgs

Fig. 2.3.8. Steps of Calculation

Chargeable weight is the higher value which is 738.14 kgs.

Calculation of the air freight chargeable weight of an irregularly shaped container (Some Examples)

In practice there are many instances wherein the item that has to be shipped is irregularly shaped. How is this to be calculated?

It is calculated in the same manner; however, you need to know the right measurements of your shipment as illustrated in this image:

Fig. 2.3.9. Calculation of irregular Shaped Shipment

Some examples of general-purpose vehicles used in goods transportation

Popular Truck Types

Fig. 2.3.10. Example of Trucks

2.2.2 Which vehicle to choose for a given load?

After studying the load entirely as described above, we choose an appropriate vehicle based on the Gross/Volumetric weight of the cargo to be loaded and matching the same with the payload capacity (sum of the axle weights) and the volume of the vehicle.

Suppose you get 48 feet for the trailer *length.* Multiply the figures together *to calculate* the trailer *volume.* You have 8.17 feet times, 8.5 feet times 48 feet. The *truck* trailer *volume* is, therefore 3332 cubic feet.

The maximum payload (Actual Cargo Weight) that can be loaded on to a vehicle is the rated gross weight of vehicle or GVW minus the empty weight of the vehicle itself.

Therefore, to summarize the cargo loaded in a vehicle should neither exceed the total volume of the vehicle nor the weight of the cargo should exceed the maximum payload so that the vehicles don't get overloaded as per CMVR (Central Motor Vehicle Rules). Else vehicles would end up paying fines to the RTO check posts/ en-route inspectors.

Notes

Summary

This module discussed all activities to be performed by a transport consolidator for planning and scheduling of deliveries. It explains clearly on how to select the right type of vehicle-based on factors such as weight/volume/origin/destination/distance/ type of cargo/etc. The criteria to be used for calculating the freight, namely the actual weight or the Volumetric Weight, whichever is higher was explained. The unit also discusses on route planning and optimization.

Exercise

1. The higher of two weights- gross weight & volumetric weight is taken for freight calculation.
2. True or False
3. POD (Proof of Delivery) is obtained after delivering the cargo to the consignee – True or False
4. The gross weight of cargo should be more than the payload of the transporting vehicle.
5. Name the fields that are important in a Lorry Receipt?
6. What are the key fields in an E - Way Bill generated from the E - Way Bill portal?

Scan the QR code to watch the related videos

https://youtu.be/24MqQEj4ing

Scheduling of deliveres

https://youtu.be/CG029 2wvP4o

Route Planning

Skill India
कौशल भारत-कुशल भारत

सत्यमेव जयते
GOVERNMENT OF INDIA
MINISTRY OF SKILL DEVELOPMENT
& ENTREPRENEURSHIP

N·S·D·C
National
Skill Development
Corporation
Transforming the skill landscape

3. Verification and Consolidation of Deliveries

LSC
Logistics Skills Council

Unit 3.1 – Verification of Orders

Unit 3.2 – Consolidation of Deliveries

LSC/N1115

Key Learning Outcomes

At the end of this module, participant will be able to:

1. Detail the various steps involved in verification and consolidation of deliveries
2. Explain how to verify orders on incoming trucks
3. List the various checks to be performed such as errors/ damages in goods, for any hazardous material etc.
4. Explain the process of checking the costs

UNIT 3.1: Verification of Orders

Unit Objectives

At the end of this unit, participant will be able to:

1. Detail the various steps involved in verification of deliveries

3.1.1 Verification Process

The transport consolidator requires to perform several checks upon the arrival of the deliveries. S/he needs to ensure that the trucks have arrived on time, check the quality of the goods, etc.

Listed below are the important things which are to be verified:

- The truck arrival timing
- Errors/ damages in goods
- Appropriate handling technique for hazardous goods (this is detailed in chapter 5)
- Cost incurred on the trip should match against the budget

Hazardous goods are goods or items with hazardous properties. If not properly controlled, they may present a potential hazard to human and animal health and safety, the environment and infrastructure.

Hazardous goods need to be classified, packaged, marked, labelled and packed as per the regulations set out by the IMDG Code by the International Maritime Organization (IMO) and also needs to be handled with the utmost care and consideration of its dangerous nature. Any mis-declaration, mis-communication or incorrect documentation could have severe consequences and could prove disastrous to human lives onshore or in the vessel.

Transportation of hazardous goods both domestically & internationally is subject to various regulations depending on the country of origin and destination. The parties involved in the transportation of dangerous goods must strictly adhere to these regulations. For intermodal transport, these rules and regulations may be related to transport within a political or economic union or trading zone etc. Most of these regulations are based on the United Nations Recommendations on the Orange Book (transport of dangerous goods). However, a few international rules like the ADR and national rules like the CFR49 may differ from the United Nations Recommendations on the transport of dangerous goods.

Some of these regulations are

Fig. 3.1.1. International Maritime Dangerous Goods

- The European agreement covering the international carriage of dangerous goods by road transport (ADR).
- The European agreement of the international carriage of dangerous goods through inland waterways/Short Sea Shipping (ADN);
- Regulations covering the International Carriage of Dangerous Goods by Rail (RID); and Title 49 of the Code of Federal Regulations of the United States (IMDG) Code apply.
- The Code outlines the detailed provisions on the aspects of the transportation of packed goods by sea that are categorized dangerous.

Note that dangerous goods or hazardous goods have been given this name for a reason. A transport consolidator is expected to follow the motor vehicle rules regulatory compliance. Let us see an example of what are the requirements for '**Emergency Information 'Panel'** for vehicles carrying dangerous goods on roads?

Rule no. 134 of CMVR India, states

(1) All goods carriage that are used for transporting any dangerous or hazardous goods shall be legibly and conspicuously marked with an emergency information panel and shall contain the following information, namely: —

(2) The exact technical name of the dangerous or hazardous goods in letters not less than 50 millimetres in height;

(3) The UN class number for the dangerous or hazardous goods in numerals not less than 100 millimetres in height;

(4) The label of the dangerous or hazardous goods should be of the size of not less than 250 Sqmm;

(5) The name & telephone number of the emergency services to be contacted in the event of a fire, or any other accident, in letters and numerals that are not less than 50 mm in height and the name & telephone number of the consignor of the dangerous or hazardous goods or of any other person from whom expert information & advice can be obtained about the measures that should be taken in the event of an emergency involving such goods.

Reassessing of routes

Upon finalization of the orders, the delivery plan is prepared.

UNIT 3.2: Consolidating Deliveries

Unit Objectives

At the end of this unit, participant will be able to:

1. Explain the steps to be followed for consolidating deliveries

3.2.1. Steps for Consolidating Deliveries

Based on the final delivery plan prepared, the transport consolidator will instruct the loaders to move the respective loads to the respective trucks for final delivery.

- S/he has to ensure that the orders are consolidated as per capacity and destination
- Instruct the drivers on destinations for deliveries as per schedule
- Coordinate with the truck drivers to ensure that all documentations are available with them
- Ensure that there are no deviations from anticipated costs, re-assess delivery routes and truck loads to ensure optimal utilization of resources

3.2.2 Estimation of Freight

The freight calculation is as per the gross weight of the cargo or the volumetric weight so calculated based on the mode of transportation and the higher of the two figures is taken. It also takes into account the distance (Km) between the origin & destination. Other factors that play a part are the availability of vehicles where the trucks are required for loading. (Higher the availability lower the freight & vice versa) i.e. market condition. Lastly, we need the owning and operating cost of the vehicle, based on parameters such as cost of the vehicle, interest, depreciation & taxes fuel cost, repairs, insurance and other administrative overheads.

The transport consolidator needs to check from the market from the transporters available in the contact list. Based on the quotes, he may check the correctness of the freight rates based on the above factors and choose the most optimum freight payable.

Fig: 3.2.2 Estimation of Freight

3.2.3 Mandatory Documents

engineered for accuracy

Visit us at www.spoton.co.in

Hot Line: 1860 420 1414
contactus@spoton.co.in

700000000

SENDER

BANGALORE 560048

DELIVERY ADDRESS

Cochin 682035

TIN NUMBER

CONTACT

TEL

BOOKING DATE & TIME
25 Jan 2013 , 20:41

DECLARED VALUE
1420

BOOKING MODE
Credit Sender

CUST REFERENCE No.
1351/13

PRODUCT TYPE
ROAD EXPRESS

PERMIT DETAILS -
-

DESCRIPTION OF GOODS
ELECTRICAL GOODS

SHIPMENT DIMENSIONS (in Cms.)

No of Pcs	Dimensions		
1	36	30	30

No. Of Pieces.
1

Actual Weight
9.0

Charged Weight
12.0

SAMPLE

Lorry Receipt (Consignment Note)

The following information is available in a consignment note or as popularly called lorry receipt/bill.

Fig 3.2.1 Lorry receipt

- Transporters name & address
- Consignment note serial no
- Date of the consignment note
- Total number of packages/dimensions/weight
- Freight - prepaid or to pay
- Description of goods carried
- Consignor & consignee address – whether goods are on door delivery or need to be cleared by the consignee from the warehouse of the transporter

E – Way Bill

"FORM GST EWB-01

(See rule 138)

E-Way Bill

E-Way Bill No. :
E-Way Bill date :
Generator :
Valid from :
Valid until :

PART-A		
A.1	GSTIN of Supplier	
A.2	Place of Dispatch	
A.3	GSTIN of Recipient	
A.4	Place of Delivery	
A.5	Document Number	
A.6	Document Date	
A.7	Value of Goods	
A.8	HSN Code	
A.9	Reason for Transportation	
PART-B		
B.1	Vehicle Number for Road	
B.2	Transport Document Number/Defence Vehicle No./ Temporary Vehicle Registration No./Nepal or Bhutan Vehicle Registration No.	

Fig.3.2.2 Sample of E-way Bill

How does one generate E -Way Bills?

A user has to FIRST register on the common portal of E - Way Bills before he can start using the services. E-Way Bills can be generated in several ways. GSTN has provided following modes for generating E -Way Bills:

1. Online: Anyone can log in to the E-Way Bill portal as the user or sub-user as the case may be and click on 'generate 'new' option under the main tab 'E-Way 'Bill' that appears on the left-hand side(LHS) of the dashboard.
2. Via SMS: A very convenient on-the-go option for generating E-Way Bills has been introduced under GST. Use this mode at times of emergency.
3. Use the bulk-generation offline tool to generate multiple E-Way Bills by a single upload of JSON (JavaScript object notation) file. This facility may be used by a large corporate having plenty of consignments to be delivered

Marine/Inland Transit Insurance

Marine insurance/ inland transit insurance policy's coverage includes the insured's business goods or personal belongings while being transported by land. Marine cargo policy includes the cost of damage

to goods that are imported or exported to/from the nation as well within the national boundaries through any means of transport.

Generally, it is safe to cover goods being exported/imported on a warehouse to warehouse basis to ensure it includes the first-mile movement originating from the exporter's factory/warehouse, the ocean leg & tail end journey from the discharge port to buyers warehouse including customary transshipments.

Fig. 3.2.3. Cargo Insurance

Generally, Marine Insurance offers three types of policies -
A Specific Policy

- Provides cover against specified perils under marine cargo sent/received during the policy period

An Open Policy

- Designed for firms and establishments with vast volumes of trade and transactions
- Assures automatic and continuous insurance protection
- That extends the cover for all shipments sent/received during the policy period

Open Cover

- Similar to open policy.
- Covers any loss or damage to cargo where a specific stamped certificate is issued as per the declaration.

Covers loss or damage to cargo in relation to and in connection with its carriage by:

- By Land (whether by motor vehicle or by railway),
- By Waterways (by ship, which includes every description of vessel used in navigation).
- By Air (by aircraft used for the transport of cargo, among others), and government or private postal services

Provides cover against loss or damage to cargo during transit from one place to another/coverage provided under marine cargo policies range from a restricted form of cover, e.g., fire and lightning perils only, to the broadest available form of cover, namely, all risks, at the option of the insured.

Special Features:

- Worldwide claims survey and settlement assistance
- A surveyor network across the country
- Customized and innovative covers based on your needs
- Extensions for multi-transit, incidental storage, FOB, riot and strikes perils etc.
- Discounts for a voluntary higher excess or lesser distance etc.

Marine cargo insurance could have exclusions such as:

- Willful misconduct of the insured
- Inadequate or unsuitability of the packing or preparation of the cargo insured
- Leakage, or any ordinary loss in weight or volume, normal wear and tear, and inherent flaws in the cargo insured
- Delay
- Insolvency and financial distress of the carriers
- Un-seaworthiness of the vessel

Notes

Summary

This chapter explains the process of consolidation of deliveries. It also details on the procedure for handling hazardous goods. The unit also elaborates on the mandatory documents for land transportation.

Exercise

1 Discuss the process of freight estimation?
2 List the mandatory documents in land transportation?
3. Detail the process of handling hazardous goods?

Scan the QR code to watch the related videos

https://youtu.be/SV6eHDV_cE s

Verification of orders

https://youtu.be/eePhu3VMNQo

Consolidation of Deliveries

Skill India
कौशल भारत-कुशल भारत

सत्यमेव जयते
GOVERNMENT OF INDIA
MINISTRY OF SKILL DEVELOPMENT
& ENTREPRENEURSHIP

N·S·D·C
National
Skill Development
Corporation
Transforming the skill landscape

LSC
Logistics Skills Council

4. Post Consolidation Activities

Unit 4.1 – Updating Tracking Information

Unit 4.2 – Reporting Activities

LSC/N1116

Key Learning Outcomes

At the end of this module, participant will be able to:

1. Discuss the various activities to be performed after consolidation
2. Explain the procedure for updating tracking information in the system
3. Detail the steps in carrying out the reporting activities

Unit 4.1: Updating Tracking Information

Unit Objectives

At the end of this unit, participant will be able to:

1. Perform updating of tracking information in the system

4.1.1 Recording Information

All details on the consignment its specifications, etc. are to be recorded in the ERP to facilitate GPS tracking of the consignment and send periodic alerts to the consignee on the scheduled arrival and abnormal delays if any.

Fig. 4.1.1 GPS Tracking

Fig. 4.1.2. ERP Software

4.1.2 Proof of Delivery

Your Company Name

123, your street name, town, city, county and postcode
Tel :
Email :
Web :

PROOF OF DELIVERY
CONSIGNMENT NOTE
No.

	VEHICLE/TRAILER/TANK No.
SENDER:	CONSIGNEE:
FREIGHT CHARGES TO:	SPECIAL DELIVERY INSTRUCTIONS:
COLLECTION ORDER No.	TEMPERATURE - ON LOADING: °C
COLLECTED BY:	TEMPERATURE - ON DISCHARGE: °C
COLLECTION DATE:	The Loaders must satisfy themselves the vehicle/trailer/tank is fit and clean to load as claims for contamination cannot be accepted after loading.

QTY	DESCRIPTION OF GOODS	WEIGHT/KILOS

DELIVERED BY (Print):	RECEIVED BY (Print):
DRIVER'S SIGNATURE:	RECEIVER'S SIGNATURE:
HAULIER:	DATE: RECEIVED IN GOOD ORDER AND CONDITION

Fig. 4.1.3. Proof of Delivery

When the consignment is delivered as per the consignment booking to the consignee, a Proof of Delivery acknowledgement is taken by the driver of the vehicle. Any delays or damages also get recorded on this document, which in most cases is used for freight processing. Nowadays a POD is electronically generated through the system by the consignee, which helps in making timely payments to the transporter by the consignor.

Various Checks

- In the case of perishable goods, check for regulatory compliance of the vehicle in terms of hygiene, the functionality of the refrigerated vehicle, etc.
- Counter check if the consignments are loaded/unloaded against the Lorry Receipt (LR) details in the ERP and in case of discrepancy, interact with customer and transporter to receive clarification.
- Update the transporter on any changes in route or consignment paperwork.
- Track the movement of vehicles through GPS.
- Identify and note down if any truck that has been reported with any issues/ delays in the system and communicate to the supervisor for alternative arrangements.
- Coordinate with the driver periodically to ensure adherence to transportation schedule and provide any support if required.
- Escalate to the executive or the transport coordinator in case of documentation problems, accidents, GPS failure, or any other emergency.
- Remind drivers of route changes/special weather conditions if any.
- Input the location of each consignment, reasons for delays if any and update the information in the system at regular intervals.

Scan the QR code to watch the related video

https://youtu.be/-4pFI8psSI0

Updating Tracking Information

Unit 4.2: Reporting Activities

Unit Objectives

At the end of this unit, participant will be able to:

1. Detail the steps in carrying out the reporting activities

4.2.1 Communication & Coordination

Any change in the vehicle or pick up plan or schedule needs to be promptly communicated to the customer well in advance. Advance communication will ensure that customers do not get upset due to such changes which may be inevitable at times. By communicating in advance any changes, a transport consolidator can ensure to have a good working relationship with his customers.
Therefore, communication is the key! Similarly, the transport consolidator has to be in touch with or in close coordination with the specific vehicle driver to ensure the compliance with the schedule notified.

End to End Visibility (Tracking/Tracing)

Once the consignment is picked up as per the planned schedule, the details are carefully recorded in the ERP. This helps in sending advance shipment alerts to the consignee (Say the moment the vehicle is out of the gate after loading or when it reaches any distribution warehouse/hub) before touching the final destination. These get programmed in advance to ensure the complete visibility of the consignment from origin to destination. Further tracking the consignment at predefined time intervals

enables all stakeholders like consignor, transporter, consignee to get the exact location of the vehicle on a real-time basis and to estimate when it would reach the final destination. Tracking & route tracing are vital so that the consignee & other stakeholders are not in the dark no sooner the vehicle crosses the loading premises; else it would only be "Management by Hope" as regards to when the vehicle would reach its destination based on the statistics of historical movements on the same route.
The availability of GPS devises on the vehicle has enabled end to end visibility and to check its compliance to schedule during its movement from the planned origin to destination.

The Transport consolidator also needs to appraise his executive immediately, & customer, whenever there are issues related to documentation problem, accidents, a GPS failure or any such contingencies.

However, in reality, due to the uncertainties & road conditions, there are occasions when a truck scheduled for a pickup is not able to report on the said date and time. Here, a transport consolidator has to have a backup plan for an alternate vehicle in coordination with his executive. This is to ensure the trust placed by a customer is not lost for want of a vehicle. Any delay in despatching the consignment is never tolerated by any customer for reasons such as non-availability of the vehicle or any delay in the arrival of the vehicle due to emergencies on the road etc. all his customers.

4.2.2. Escalation Matrix

Let us understand the escalation matrix as to how such issues on integrity and ethics violations are handled in an organization.

Fig 4.2.1. Escalation Matrix

Escalation Matrix- Another Example Of "Credit Suisse" Handling Integrity Violation

The escalation process is always handled in confidence.

Fairness, integrity and professional conduct are very vital. Employees are encouraged to report any alleged violations and misconduct.

Our most valuable assets are the reputation for integrity and fair dealing.

Let us examine the case of "Credit Suisse" which always encourages its workforce, including contract workers to report any violations of laws, rules, regulations or the code of conduct internally.

Reports are made directly to the relevant line managers, compliance, human resources, the general counsel or, where appropriate, straight to the corresponding higher level within Credit Suisse following their laid out policies and procedures.
Reports could be made on a private & in an anonymity basis if required, & as permitted by law.
Credit Suisse Integrity Lines thus serve as another channel to escalate potential legal, regulatory or ethical misconduct.

In the case of alleged violations by very senior positions like the chief executive officer or top financial officers (Chief Financial Officer, Head of Accounting or Controlling and persons performing similar functions) reports are made to the Credit Suisse General Counsel or the Audit Committee of the Board of Directors.

Retaliation against any person for reports that are made in good faith is also prohibited.

This process is subject to supervision by an Audit Committee of the Board of Directors of Credit Suisse. It also receives regular updates on significant reports received as well as on measures taken.

Persons outside Credit Suisse who wish to report violations of laws, rules and regulations or the Credit 'Suisse's code of conduct address their reports either in writing directly to the Secretary of the Board of Directors of Credit Suisse, or may call the Swiss Integrity Hotline (+41 800 12 13 14) when located in Switzerland, Belgium, Italy, Austria, Liechtenstein, Luxembourg, France, or Germany; or the US Integrity Hotline (+1 877 248 1180), when located in the USA or any other country not mentioned above.

Summary

This module discussed all activities to be performed by the transport consolidator post the consolidation of delivery. The unit elaborates on the recording of several information in the system. It also discusses on the reporting mechanism to be followed.

Notes

Skill India
कौशल भारत - कुशल भारत

सत्यमेव जयते
GOVERNMENT OF INDIA
MINISTRY OF SKILL DEVELOPMENT
& ENTREPRENEURSHIP

N·S·D·C
National
Skill Development
Corporation
Transforming the skill landscape

LSC
Logistics Skills Council

5. Compliance to Health, Safety & Security Norms

Unit 5.1 - Health, Safety & Security at Ports, CFS &ICD

Unit 5.2 - 5S at Workplace.

Unit 5.3 - SOP while handling Dangerous & Hazardous Goods

Unit 5.4 - Standard Protocol in case of Emergencies /Accidents/Breach of Safety

Unit 5.5 - Document Health, Safety & Security Violations/ Escalation Matrix

LSC/N1127

Key Learning Outcomes

At the end of this module, participant will be able to:

1. Describe health, safety and security procedures in port terminals, CFS & ICD.
2. Implement 5S at workplace.
3. Inspect the activity area and equipment for appropriate and safe conditions.
4. Identify unsafe working conditions.
5. Inspect adherence to standard operating procedures (SOP) while handling dangerous and hazardous goods.
6. Implement standard protocol in case of emergencies, accidents, and breach of safety
7. Document all health, safety and security violations.
8. Explain the escalation matrix for reporting deviation.

UNIT 5.1: Health, Safety & Security at Ports, CFS & ICD

Unit Objectives

At the end of this unit, participant will be able to:

1. Explain Health safety & security policy at Ports/CFS/ICDs.
2. Describe health, safety and security procedures in port terminals, CFS & ICDs

5.1.1. Health & Safety Policy

Health & safety policy aims to reduce to the absolute minimum, accidents and cases of ill health in the workplaces. Good health, safety and high standards of performance in health and safety are of the utmost importance and integral to an efficient organization. To minimize accidents & cases of ill health, the health and safety policy of any port should ensure:

- To develop & maintain effective health, safety, and welfare arrangements to safeguard its staff and all who come into contact with its operations.
- Constantly improving health and safety performance and following industry best practices.
- Complying with legal and other relevant requirements.
- Providing an active Health & Safety Management System (HSMS) to manage all health & safety risks
- Providing suitable resources to deliver these commitments.

Health and safety is always a line management responsibility. Effective implementation of the HSMS is a key responsibility of all senior management. All managers should show their commitment & leadership by periodically visiting the workplace to observe, discuss and seek ways to improve health & safety. Every employee has to recognize his/her responsibility to ensure the safety & health at work of all by following the port rules and also by using their own prior experience.

- Information systems to be effective and consultation are to be maintained, including those on incident reporting, investigation and taking corrective actions, plus reporting even near-miss cases. All persons to go through systematic management of risk to which they are likely to be exposed to in the workplace. Every employee should undergo appropriate health & safety training.
- To ensure positive health & safety, culture is not only developed but also sustained.
- All first aid arrangements are to be made available.
- To ensure that the policy and the HSMS are made known to all employees.
- This policy is to be reviewed annually or following any significant change to legislation or circumstances. The provision and maintenance of a workplace, plant, equipment and systems of work that are safe and without risks to health.

- Safe arrangements for the use, handling, storage and transportation of articles and substances at work.
- The provision of safety instruction and training to enable employees to contribute positively to their health and safety at work.
- Compliance with all relevant health and safety legal requirements which relate to its undertakings.
- The port will provide competent advice on all matters of health, safety and welfare to assist management, employees and their representatives in their tasks and responsibilities. Sufficient resources will be allocated to ensure compliance with this policy

Fig.5.1.1. Safety arrangements

5.1.2. Security

The port facility security officer is the nodal officer responsible for the preparation of the Port Facility Security Plan (PFSP). Like the ship security plan, the port facility security plan shall indicate the minimum operational and physical security measures the port facility shall take at all times, i.e. while operating at a security level.

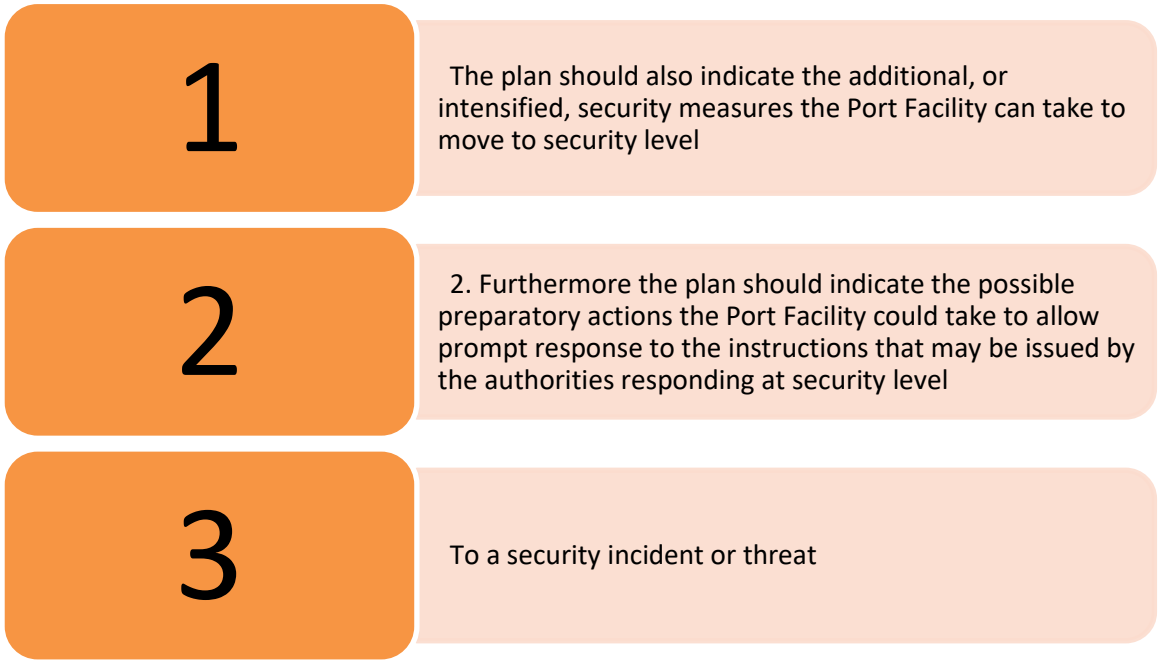


Fig.5.1.2. Security

The port facility security plan is generally cleared by the port facility's contracting government or by the designated authority. The port's security officer must ensure that its provisions are implemented and monitor the continuing effectiveness and relevance of the approved plan, including commissioning independent internal audits of the application of the policy. The effectiveness of the plan is also tested by the authorities. The port's security assessment covering the port facility is also reviewed. All these activities may lead to amendments to the approved plan. Major amendments to an approved plan will have to be submitted to the approving authority for re-approval.

Under the ISPS legislation, the Ports are obliged to:

- To develop & maintain an appropriate Port Facility Security Plan (PFSP), which meets the requirements of the ISPS Code
- To nominate a port facility security officer and deputy.
- Coordinate, communicate and facilitate the implementation of security measures required by the PFSP to the port community.
- To establish a port's security committee, of relevant port facility groups, regulators, agencies and other stakeholders of the port.
- Provide up to date advice, best practice and information on current security developments and the implementation of the Port Facility Security Plans (PFSP) to the port community.
- Coordinate and facilitate security training, and testing of the PFSP and where necessary, & also coordinate the overall port's response to a security threat.
- To ensure the effective management and resourcing of internal security arrangements to meet the requirements of the port PFSP.
- Review this security policy and recommend revisions to the board at least every three years

General safety guidelines at port terminals/CFS & ICDs

Fig.5.1.3 Safety Symbols

- No one should enter the docks without a valid Dock Entry Permit or Smart Card.
- Do not smoke on the port premises.
- Obey traffic signals. Do not drive your vehicles like bike, car etc., on the wharf.
- Maintain a driving speed limit on the dock roads at 20 Kmph and 8 Kmph on the wharf.
- All vehicles are to be parked in the earmarked parking areas only.
- Resting/sleeping/climbing on stacked cargo is prohibited.
- No one should sleep below vehicles or on the heap/pile of cargo.
- On getting injured, ensure to have "FIRST AID FIRST" and inform your supervisor.
- Keep gangways and aisles free from obstructions.
- To always walk very carefully on a wet or oily floor.
- Never take short cuts when a safe road or safe method is available.
- When you observe any unsafe working conditions or hazardous methods practiced by a colleague, report immediately to your supervisor.
- Practice good teamwork and have cooperation among the workers.
- Never distract the attention of a worker while he is working.

- All should comply with the warning signs displayed in the port.
- Never use make-shift arrangements, like using a barrel as a Ladder, Spanner for plies etc.
- While climbing down the stairs, hold the railings and climb down slowly.
- All to comply with all safety practices/rules and take an active part in all safety activities. Also insist on the observance of safety.
- Never sleep inside the dock which is prohibited during a break or shift change over.
- On completion of shift, no worker should continue to remain on board without valid permission from approval authority.
- For the security of cargo and containers, only authorized security guards are deployed.
- While operating any hatch covers, the ship's officer/crew members shall ensure that nobody is on the hatch cover.
- No one should be allowed to rest or sit or sleep on the hatch cover, irrespective of whether loading/unloading operations are going on or not.
- All contractors engaged by the agents for lashing, the supply of dunnage, etc. need to have strict control and supervision on their workers.
- All drivers of the vehicle/equipment should ensure that no one is sleeping below / near vehicle/equipment before starting his vehicle.
- Two-wheeler riders should invariably use helmets while riding their vehicles inside the docks and CFS areas.
- Do not leave your trucks/trailers parked in the docks without drivers/cleaners.
- Encourage all workers to use nearby rest shelters.

Guidelines for the use of transportation equipment

- Speed limits for forklift trucks/automobiles should not exceed 20 kmph and 8 kmph respectively on the dock roads & wharves.
- Drivers must sound the horn at all intersections, blind corners and while reversing.
- At road junctions of road, the drivers should stop, observe and then proceed.
- No one shall get 'IN" or get "OUT" of moving vehicles.
- Vehicles are not be parked near gangways, aisles or close to the wharf.
- Keep a safe distance when driving behind another truck & at a safe speed that allows to stop in case of an emergency.
- Driving in a standing position and horseplay are to be avoided.
- When reversing, all drivers to look behind and make sure all is clear.
- Passenger or fellow worker should never be permitted to sit on a forklift truck. It is solely the responsibility of the driver to keep off the rider.
- Set the brakes/gears and block the wheel if the truck is left on the gradient.
- Mobile crane operators handling containers must not allow anybody to ride on the spreader.
- The cargo handling equipment operators operating cranes, forklifts, payloaders, etc. should not leave the keys of the equipment on the unattended equipment. He should hand over the same to the reliever or the operator of the next shift.

Fig 5.1.4. Guidelines for Transport Equipment

5.1.3. Health Norms

Role of Port Health Officer

Port Health Officer shall be responsible for surveillance and application of public health measures at the ports and shall:

- Have the authority for inspecting ship/vessels, including health screening, medical examination of travellers, monitoring baggage, cargo, containers, goods, postal parcels and human remains from departing and arriving ships/vessels, so that they are maintained in such a condition that they are free of sources of infection or contamination, including vectors and reservoirs;
- Shall supervise and coordinate measures, that facilities used by travellers at points of entry are maintained in a sanitary condition and are kept free of sources of infection or contamination, including vectors and reservoirs.
- Be responsible for the supervision of any de-ratting, disinfection, dis-inspection or de-contamination of cargo, baggages, postal parcels, conveyance, goods and human remains or any sanitary measures for persons, as necessary.

- To advise all conveyance operators, in advance, of their intent to apply control measures to a conveyance, and shall provide, written information regarding the methods that need to be adopted.
- To be responsible for the supervision of the removal & safe disposal of any contaminated water or food, human or animal rejects, dejects, wastewater and any other infected matter from a conveyance. Take all practicable measures consistent with rules to control and monitor the discharge by ships of refuse, sewage, ballast water and other possibly disease-causing matter which might pollute the waters of a port, canal, river, strait, lake or other international waterways.
- Be responsible for the supervision of service providers for services regarding travellers, containers, cargo, baggages, postal parcels, conveyance, goods and human remains at points of entry, including the conduct of inspections and medical examinations as necessary.
- To have all contingency arrangements in place in dealing with unexpected PHEIC and/or any other infectious diseases and to communicate such information and the measures to all concerned agencies at the port & to effectively deal with to the same.
- Shall be in communication with the National IHR Focal Point on the relevant surveillance activities, potential public health risk, and public health measures by the fastest means of communication.
- Shall be responsible for coordinating additional health measures at the port as decided by the central government in the event of PHEIC. (Public health emergency of international concern)

Port Health officer may consider reapplication of health measures for travelers, baggage, cargo, containers, ships/vessel, goods, postal parcels and human remains arriving from an affected area may on arrival, if there are valid indications and/or evidence that the measures applied on departure from the affected area were unsuccessful.

Notes

UNIT: 5.2: 5S at Workplace

Unit Objectives

At the end of this unit, participant will be able to:

1. State the concept of 5S at the workplace.

5.2.1 5S Concept

The concept of 5S originates from Toyota, Japan. All Japanese words start with the alphabet 'S' along with their meaning in English is given below:

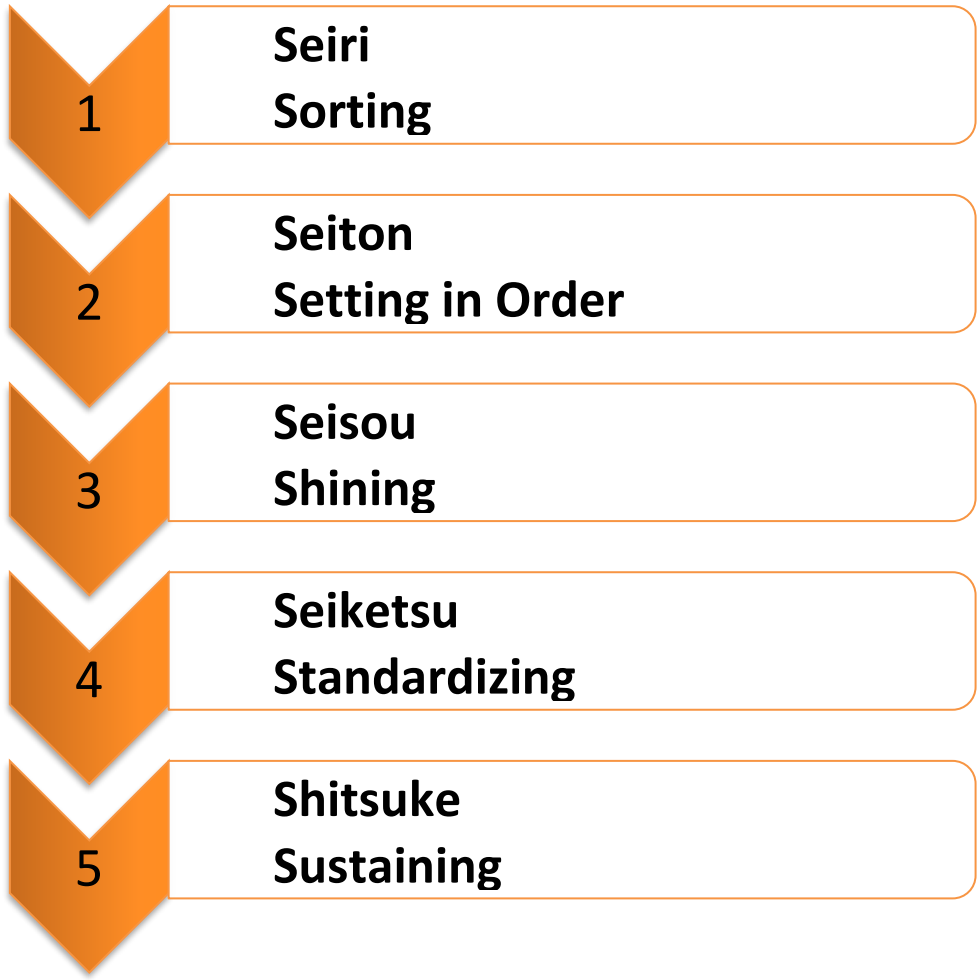


Fig 5.2.1. 5s concept

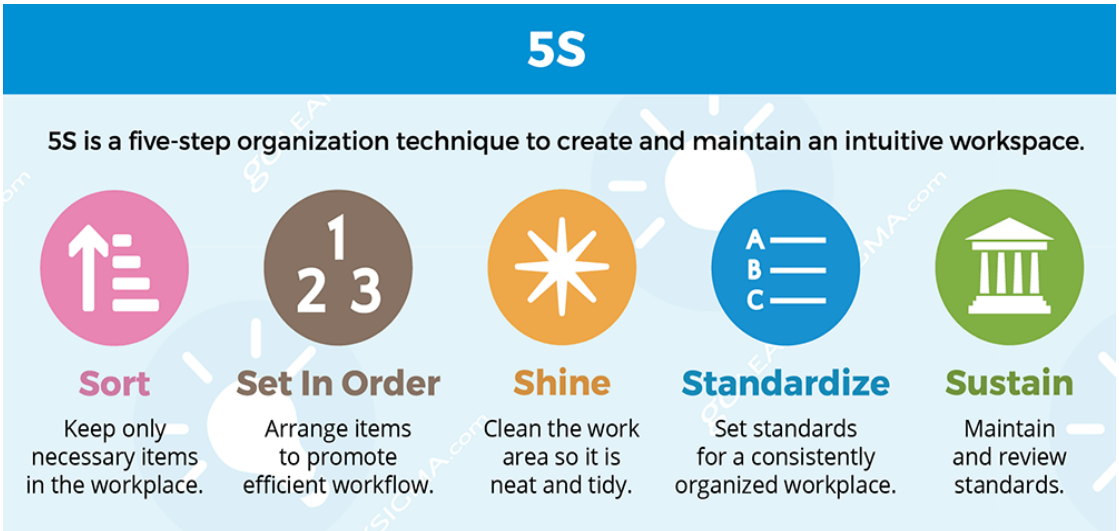


Fig 5.2.2. 5s technique

1.Sort –

Sorting is eliminating any obstacles that may get into the way of the production process. It starts by removing all items that are not needed and making sure that the right people perform the right jobs.

2.Set in Order –

This is to arrange things so that they are located where they need to be used. A place for everything & everything in its place. This involves reducing or eliminating the need for employees to walk to another area say to get a tool which in turn will help to prevent wasted time & effort.

3. Shine –

Clean workplaces are generally more efficient as compared to dirty ones. Also, clean tools and machines last longer and cause fewer issues during operation.

4. Standardize –

Setting work standards as to how work should be done would decrease errors and increase efficiency. Though standards can be improved upon, having everyone operating, in the same way, will help increase production.

5. Sustain –

It is important to ensure that any improvements implemented awill be effective in the long run. Audits and inspections helps to sustain the improvement achieved through the 4 steps. implementation of 5S in an organization starts with identifying the core team of people to lead the effort. The 5S implementation team should consist of people from all levels of the organization, including the following:

- **Senior Management** - Having the support from senior management is essential. They might not play an active role but are needed for approving changes and bringing the group together.

- **Middle Management** – Middle management will take a more direct role in coordinating what types of changes and improvements are to be made in the areas for which they are responsible. Based on the size of the organization, middle management should also be included in the implementation team.

- **Direct Supervisors** - The front-line supervisor will take the responsibility for making the maximum changes and ensuring that the new strategies are followed. Involvement of direct supervision ensures that they would support the 5S changes and make the project a success.

Fig 5.2.3. Implementing 5S

- **Front-Line Employees** - The front-line employees will be the ones to directly "feel" the modifications. It is vital to have them in the team. They usually point out various improvement opportunities and also help to address the potential problems which the management may not be aware of.

- Normally any 5S team is made up of people from all levels of the company; they must know how to work cohesively. Keeping everyone in the loop concerning all decisions and ensuring every input that people give is valued is vital for the success of any 5 S strategy implementation. The total number of people on an implementation team can vary from 4 to about 12 in most cases. In large teams, some members will not have a direct role to play but would act as advisors.

Notes

Scan the QR code to watch the related videos

https://youtu.be/C9_pXe2oYOU

Health, Safety

https://youtu.be/douZ98_glZE

5S

UNIT:5.3: SOP for Dangerous & Hazardous Goods

Unit Objectives

At the end of this unit, one will be able to:

1. Inspect activity area for appropriate & safe condition.
2. Examine the SOP for dangerous & hazardous goods

5.3.1. Inspection of Activity Area for Appropriate & Safe Condition

Why are workplace inspections necessary?

Workplace inspections help in preventing incidents, injuries and illnesses. Through a critical examination of the workplace, reviews help to detect and record hazards for further corrective action. Health and safety committees can help plan, conduct, report and monitor inspections.

A safety inspection ensures that the (say a truck used in land transportation) equipment is in a safe operating condition: brakes; lights; horn; steering mechanism; windows and windshield wipers (including tinting levels); directional signals; tires; mirrors; and the exhaust system if the vehicle is not subject to an emissions test.

A safety checklist is a document that is used during safety inspections for the identification of any potential hazard. OSHA has provided a wide range of checklists for the identification of potential hazards in a variety of industries and applications. Inspections can be either formal or informal, recorded or unrecorded. Inspections are normally carried out as per an agreed standard and at a pre-determined frequency.

Formal inspections that are carried out include:

1. By safety tours – inspecting the workplace generally
2. By safety sampling – thoroughly examining specific dangerous activities, processes or areas
3. By safety surveys – generally inspecting specific dangerous activities, processes or areas
4. By incident inspections – looking at the cause of accidents, incidents and events that could have resulted in an injury or ill health.

The findings of all formal inspections are to be recorded and maintained.

Closure of inspection issues

- It is as important to take action to remedy or correct any issues discovered during inspections as it is to identify them.

- A procedure should be in place which ensures that sekected employees have responsibility for completing the tasks by a set date.
- Another named individual should be given the responsibility for examining the actions that has been taken by the agreed time.
- Also, risk assessments and work procedures related to the issue must identified and updated.

Frequency of workplace inspections

- The type of work you do will influence how often you need to carry out checks.
- A low-risk working environment like an office may need to be inspected less often.
- A workplace with areas or carrying out activities that are high risk or fast-changing. For instance, construction project, may require inspections more frequently.
- Risk assessment should be used to identify the frequency of inspections.
- If monthly inspections are carried out without ever encountering an issue, this can be reduced to once in every two to three months. If every review identifies a problem, you checks should be carried out a higher frequency.
- Advance notice of safety inspections for examining health and safety standards can be given or they can be carried out without prior information.

Dangerous goods can be corrosive, flammable, explosive, spontaneously combustible, toxic, oxidizing, or water-reactive. They need to be identified in the Workplace (and when being transported) by different coloured 'diamond' symbols.

- Key point: A hazardous substance can be any substance, whether solid, liquid or gas, that may cause damage to health.
- Hazardous substances are classified based on their potential health effects, whether acute (immediate) or chronic (long-term).
- Dangerous goods are classified based on immediate physical or chemical effects, such as fire, explosion, corrosion & poisoning. An accident concerning dangerous goods could have serious damage on property or the environment.
- Harm to health may happen suddenly (acute), such as nausea, dizziness, itchy eyes or skin; or it may happen gradually over the years (chronic), e.g. dermatitis or cancer. Some people are more susceptible than others.
- We use dangerous goods and substances almost every day of our lives. It could be an antiseptic for a cut, paint for the walls, or a cleaning product for the bathroom. Though it may seem harmless, even these ordinarily things can lead health issues if not correctly used.
- Key point: It is the responsibility of the employer to provide the employee with safe work procedures, appropriate information, training and supervision while handling hazardous substances... First aid treatment for hazardous substances and dangerous goods is an integral part of the training.

Guidelines for Handling Dangerous &Hazardous Goods

Material Safety Data Sheet (MSDS)

Material safety data sheet (MSDS) provides very comprehensive information about a hazardous substance or dangerous good. It gives more data than found on a label. Suppliers and Manufacturers of hazardous substances and dangerous goods are legally obliged to provide MSDSs to the employer if requested.

It is essential that dangerous goods and hazardous substances in workplaces are used strictly as per the manufacturer's or supplier's written instructions. Any risk controls stipulated by the MSDS and the procedures developed by the workplace must also be carefully followed.

Let us take chemicals as an example to explain the SOP (Standard Operating Procedure)

- Acids and alkalies are highly corrosive. If a chemical falls on the skin, it may cause burns. Do not handle them without wearing protective equipment.
- When there is an acid or alkali splash, flush it with a lot of cold water and after that, get medical attention.
- Absorb acid spillages with a mixture of sand and soda ash only.
- Do not smoke or carry open flame where inflammable solvents/chemicals are handled or stored. (e) Before starting maintenance work on chemical/gas pipelines etc. where chemicals are processed or stored, ensure upmost safety precautions.
- A person required to work in a gas tank/holder where there is the possibility of poisonous gas existing MUST wear gas mask with life belt attached with a safety line. At least one man at the top of the gas tank/holder should stay as a watchman who can control the safety line if it is necessary to pull him out.
- When you suspect the existence of poisonous gas, do not enter the area without wearing a suitable gas mask.
- If any gas leakage occurs or is suspected, immediately inform the concerned authority.
- If light is required in a chemical/gas tank for maintenance work, use only a 6V torch or flameproof light

Eleven Rules for Safe Handling of Hazardous Materials

Rule #1. Follow all established processes while performing duties.

Rule #2. Be cautious and plan. Think about what could possibly go wrong and pay attention to what you are doing while you work.

Rule #3. Always use required PPE—and scrutinize it before each use to make sure it is safe to use. Replace worn out or damage PPE; it will not provide adequate protection.

Rule #4. Ensure all containers are properly labelled and the material is placed in the right container. Material not contained or labelled properly should not be used. Do not use any material not contained or labelled correctly. Report damaged containers or illegal labels to the supervisor immediately.

Rule #5. The labels and material safety data sheet (MSDS) has to be read carefully before using any material to ensure proper understanding of hazards and precautions.

Rule #6. Use all materials exclusively for their intended purpose. Do not, for instance, use solvents to clean hands, or gasoline to wipe down equipment.

Rule #7. Never eat or drink while handling any material. Do not use cosmetics or handle contact lenses if the hands are contaminated.

Rule #8. Read the labels carefully and refer to MSDSs to recognize properties and dangers of chemical products and materials.

Rule #9. Store all materials appropriately, separate incompatibles, and store in ventilated, dry, cold areas.

Rule #10. Keep you and your work area clean. After handling any material, wash your hands thoroughly with soap and water. Clean work surfaces at least once a shift to ensure contamination risks are minimized.

Rule #11. Learn about emergency procedures and equipment. Understanding emergency measures means understanding evacuation procedures, emergency reporting procedures, and processes for dealing with fires and spills. It also means knowing what to do in a medical emergency if a co-worker is injured or overcome by chemicals.

Fig.5.3.1. Symbols of hazardous goods

Notes

Scan the QR code to watch the related videos

https://youtu.be/12o1cjci7fI
Hazardous Goods

Unit:5.4 - Standard Protocol in case of Emergencies /Accidents/Breach of Safety

Unit Objectives

At the end of this unit, participant will be able to:

1. Explain the criticality & follow the SOP while handling dangerous & hazardous goods.

5.4.1. Procedures for staff and volunteers to follow in an Emergency

- Raising the alarm and informing the public.
- Onsite emergency response, i.e. the usage of fire extinguishers.
- Call For the emergency services and continuing to liaise with them.
- Crowd management, including evacuation, where necessary.

When an incident occurs

- Provide first aid immediately and ensure the worker gets the proper care.
- Take care not to disturb the incident site until an inspector arrives. You can help an injured person and ensure the safety of the site.
- Record it in the register of injuries.
- Notify your insurer within 48 hours.

Six Steps to an Accident Investigation

- Step 1: Collect information. Ask for a brief overview of the situation from witnesses and employees directly involved in the incident.
- Step 2: Search for and establish facts.
- Step 3: Establish essential contributing factors.
- Step 4: Find the root causes.
- Step 6: Implement corrective actions.

5.4.2. What are the reporting procedures?

A straightforward **reporting procedure** will help in obtaining important information about health and safety issues in the workplace & to identify any problems when they arise and address them. Safety **reporting procedures** make it simpler for all concerned to manage safety issues and prevent recurrences of incidents and injuries. Why should accidents be reported?

Accidents, which result in injury, are cautions that there are uncontrolled hazards. These hazards have to be recognized and eliminated from the workplace. It is vital that all injuries and **accidents**, including

near misses, must be **reported** so that they can be investigated and the reasons determined and removed.

Fig 5.4.1. Emergency Response Planning

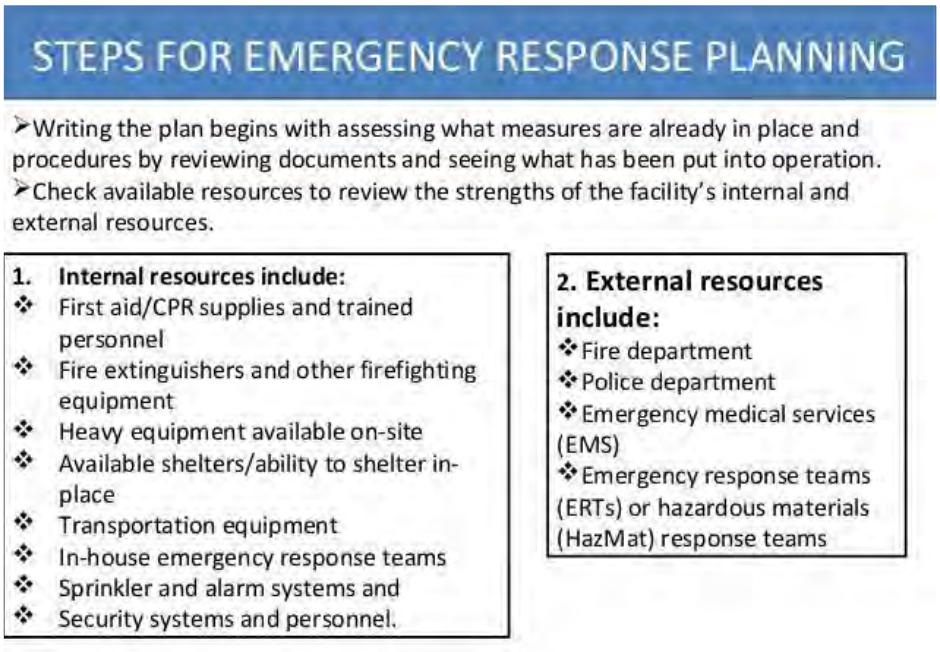


Fig.5.4.2. Steps for Emergency Response Planning

A Command & Control Centre in coordination with various Sections to handle Emergencies

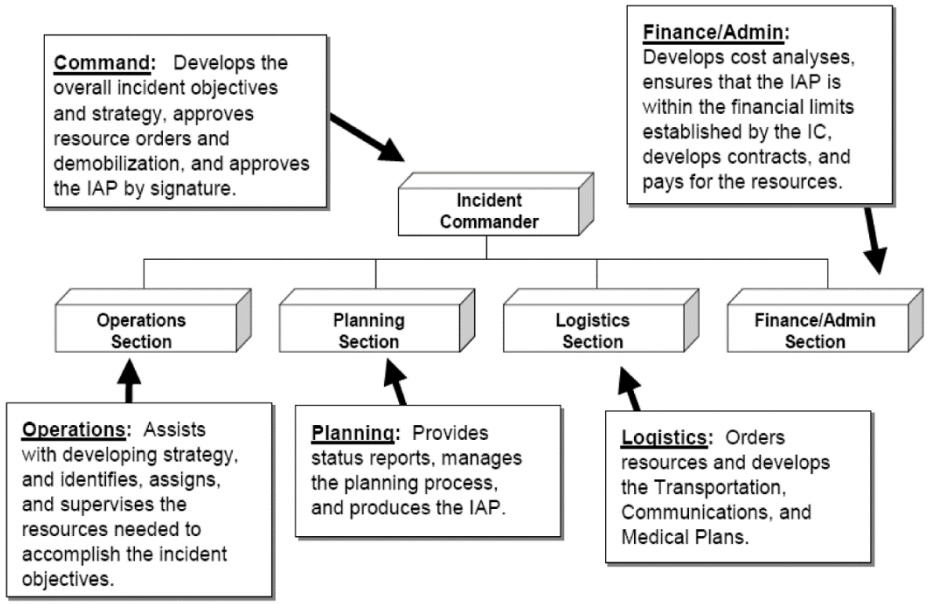


Fig.5.4.3. Handle Emergency

During an emergency, an Emergency Coordinator (EC) is immediately appointed by the emergency control room. Personnel appointed as EC should be adequately trained on emergency response system and should be familiar with contractor's site locations. On arrival at the emergency location, the EC will formally take control of the situation and conduct the appropriate emergency response. The EC shall:

- Ensure the emergency location is evacuated.
- Manage and coordinate the activities of the emergency response teams and ensure that the emergency response effort observes the following priorities:

  Preserve lives of people,

  ← Protect the environment,

  ← Protect assets,

  ← Preserve damage to the reputation of owner and contractor
- The EC shall make sure that the EM is fully aware of the ongoing situation, paying particular regard to the potential escalation.
- Ensure that ample firefighting and rescue techniques are utilized during execution of emergency activities.
- Be responsible for the complete safety of personnel at the emergency location.
- Identify requirements for additional workforce & resources and ask for these from the Emergency Control room.

Will ensure the emergency locations are safe before informing the EM to sound the "All Clear" signal. The EC will ensure that the emergency location is properly cordoned off and satisfactorily safeguarded to allow investigation.

Fire Fighting Team

The members of this team, nominated by the EM, should be competent, specially trained and adequately equipped to deal with emergencies due to the outbreak of fire. Upon hearing the (fire), they should immediately and safely stop their activities at that moment, obtain their fire fighting equipment, proceed to the designated assembly point and wait for instructions from the Fire fighters/first aider/team leader, who will be the pivotal point to liaise with the emergency coordinator. Upon arrival together, they will proceed to the emergency location, and once they assess the situation at the scene and decide upon the fire fighting technique to be used.

Medical Emergency Team

This team comprises of the medical officer or first aider at the site along with several competent first aiders. The first aider will be the central point to liaise with the emergency coordinator. Upon hearing the (fire), they shall immediately and safely stop their activities, obtain their first aid equipment, proceed to the emergency location and render the required medical help to the victims/injured.

Safety Officer/Safety In-Charge

Endorsed by the emergency control room, A safety officer should make sure that provisions for sufficient emergency response are in place. This will include but is not limited to the following:
Establishing safe assembly points.

- Identify emergency response teams and train them.
- Periodically set up mock drills and exercises.
- Make arrangements to procure fire fighting and medical equipment. Evaluate and decide
- whether any additional resources could be required in dealing with possible; future incidents& ensuring they are in place.

Duties and Responsibilities of Security Guards

- In an instance of fire, declare the emergency by shouting the fire.
- Whenever the emergency happens, call the emergency control room and the emergency.
- coordinator through the emergency contact telephone numbers.

The following emergency contact numbers are displayed

- Call the Fire Fighting Team Leader :
- Call the Emergency coordinator :
- Call the Emergency Control room

In case of visible smoke or Fire:

- Call the Fire Brigade (FIRE) : 101
- Call Ambulance : 102

Training

An emergency control room has the responsibility to provide the resources and to ensure that all members of the ER teams are trained adequately to carry out their roles & duties within the framework of the emergency response plan.

Fire fighting teams are formed & trained by a 3rd party specialist with training sessions through mock drills.Also, during the HSE induction, the potential hazards that are involved in various activities and control and recovery measures are briefed to work teams by the HSE team.

Communication

Officials in responsible position are always provided with a mobile telephone information is generally updated by the admin/HR department and widely circulated for the information of all Also, a list of emergency contact numbers is attached to this ERP for information of all concerned. Also, this gets updated as and when required.

Fire Fighting

In the site, an appropriate kind of fire extinguishers shall be positioned at all applicable areas including vehicles. For emergency at work spot, during any hot work, provision of enough number of fire extinguishers are ensured. Also, first aid boxes are kept at fixed locations to give first aid in case of any injury.

Notes

UNIT 5.5: Documenting Health/Safety/Security Violation & Escalation Matrix

Unit Objectives

At the end of this unit, you will be able to:

1. Report violations and escalate the same to their superiors as per the standard escalation matrix protocol.

5.5.1. Health, Safety and Security Procedures

Common workplace health safety hazard include infectious disease, transportation accidents, workplace violence, slipping and falling, toxic events, mainly chemical and gas exposure, getting struck by objects, electrocution or explosion, repetitive motion and ergonomic injuries, and hearing loss.

Examples of Breaches of Health, Safety And Security Procedures May Include:

Loss of keys.

Strange or suspicious persons.

Broken or malfunctioning equipment.

Loss of property, goods, or materials.

Damaged property or fittings.

Lack of suitable signage when required.

Fig 5.5.1. Most Frequently Cited Violations

Common safety hazards at a workplace include slips and fall accidents, violence, failure to warn about hazardous material, fire and others.

- Fall protection, construction
- Hazard communication standard, general industry
- Scaffolding, general requirements, construction
- Respiratory protection, general industry
- Control of hazardous energy (tagout,lockout), general industry
- Powered industrial trucks, general industry
- Electrical, wiring methods, components and equipment, general industry
- Ladders, construction
- Electrical systems design, general
- Machines, general requirements, general industry

Fig 5.5.2. Most Frequently Cited Violations

General Safety Rules

- Any accidents, injuries or near misses, regardless of their nature, shall be promptly reported to the safety officer.
- Clothing shall be such, that they are appropriate to the duties being performed. Long pants, a clean, neat shirt and steel-toed shoes are the least requirements.
- Hard hats and safety vests are given for all warehouse employees and must be worn at all times in the warehouse and during loading or unloading of vehicles in the yard.
- Running is not permitted except under extreme emergencies.
- Smoking is never permitted in any part of the warehouse or office. You may only smoke in designated areas.
- Visitors and customers are generally escorted by staff while on company property.
- Hand tools are to be necessarily used for their meant purpose only.

- Licensed personnel may only operate forklifts or other warehouse equipment and must wear a seatbelt while doing so.
- Riding on any equipment is prohibited except the operator in control.
- Strict prohibition on Horseplay, fighting or tomfoolery is strictly prohibited on your company name or in its premises.
- All spacers are to be of equal ratio and undamaged. Damaged spacers are dangerous.
- Open lifts are to be stored on the floor or in assigned bunks. No stacking of open lift; this act will result in disciplinary action up to and including dismissal. All lumber lifts must be banded.
- Usage of only solid spacers on lumber products, no particle board spacers.
- All bunked products should be placed securely in the bunks.
- Any spill has to be cleaned up instantaneously and reported.
- Drawers and filing cabinets should be kept closed when not in use.
- Filing cabinet drawers has to be filled from the bottom up, or the cabinet is to be securely fastened /anchored.
- Lifts and clutter has to cleaned up before the end of your workday.
- Aisles have to be kept clear at all times.
- No unloading of truck alone under any situations, if someone cannot help you then wait or call someone else for help.

Safety Tips

- If you are not sure, ask.
- Follow instructions and don't take chances.
- Wear your personal safety equipment.
- Never operate equipment you have not been trained for.
- Keep your work area clean.
- Stay clear of forklifts while they are being operated.
- Avoid injury by lifting correctly. If it's heavy, ask for help. Max weight to be lifted is 75lbs.
- Make sure the job can be done safely.
- Do not unload a truck alone.
- Portable Ladders- Portable ladders must be secured against movement and placed on a base that is stable; the base of an inclined portable ladder is to be no further from the base of the wall or structure than ¼ of the height to where the ladder contacts the wall or structure.
- Pallets & Storage Racks All employees must ensure that pallets used to transport, or store materials/containers are loaded, moved, stacked, arranged and stored in a manner that does not create danger to workers. You must ensure that racks used to store materials or equipment are designed, constructed and maintained to support the load placed on them and are placed on firm foundations that can support the load. Employees must report any damage to a storage rack to the manager as quickly as is practical. All managers and employees must take all reasonable steps to prevent storage racks from being damaged to the extent that their integrity as a structure is compromised.

Accident & Near- Miss Reporting:

The following protocol must be followed.

- Employees must immediately report occupational injuries, accidents or any near-miss cases to their safety officer or their supervisor.
- Supervisors have to tend to injuries immediately and then report them to the safety officer.
- Branch managers have to discuss the incident with their safety officer and the injured individual (s).

The objective of this procedure is to comply with the occupational health & safety act, workers compensation board and to establish the cause of the accident and make recommendations to prevent further re-occurrences. All reports of any injury must be filed. If an injury happens, a record must be kept and should include the following:

- Worker's Name
- Name and qualifications of the person giving first aid
- A description of illness or injury
- the first aid is given to the worker
- the time and date the illness or injury
- the time and date the illness or injury was reported
- Who was at the worksite when the incident occurred?
- the work-related cause of the incident.

Employers must retain the records for a period of at least 3 years. Additionally, any person who has the custody of such records must ensure that no person other than the worker has any access to workers records unless:

- The records are maintained in such a manner that does not establish the workers identification.
- the worker has given written permission to the person
- the director of medical services or a person authorized by the director needs to be produced under the act. An employer must provide a worker a copy of the records relating to the worker if the worker asks for a copy. Critical injury procedure first and foremost, always take whatever actions are needed to deliver proper care of an injured worker. If a critical injury has happened and the worker has been cared for, the branch manager, safety officer and WCB must be notified. The relevant report must be completed as soon as possible; this is to ensure that important details are not forgotten.
- A critical injury is an injury that
    1. Places life in jeopardy
    2. Produces unconsciousness
    3. Results in substantial loss of blood
    4. Involves the fracture of arm or leg, but not a toe or finger
    5. Involves the amputation of arm, leg, hand or foot, but not a toe or finger.
    6. Consists of burns to a significant portion of the body.
    7. Causes loss of sight in an eye.

Accident Investigation Policy

Incidents are investigated and arbitrated by the branch manager. Employees have the duty to ensure alcohol and drug-free atmosphere. In case of suspicion that any employee, supplier or visitor is under the influence of illegal narcotics or alcohol, they will be removed from the premises immediately. If an employee reports to work while under the influence of such substances, the employee will be taken home either in a cab or by the branch manager. This is a zero-tolerance policy

Disciplinary action careless work and irresponsible behaviour affect the quality of health and safety in a workplace. Even absenteeism influences security by placing more responsibilities on fellow employees. The instances mentioned below shall be cause for verbal or written warning and possible dismissal.

Fig 5.5.3. Possible dismissal

Compliance as per company and legislative safety standards is essential to keep a safe and healthy work environment. As with any program, non-compliance concerns must be dealt with.

Mentioned below is a guideline for disciplinary actions for breach in safety standards based on the seriousness of the offence.

- First offence, the employee will be given a documented verbal warning
- Second offence, the employee will be given a written warning and a one-day suspension.
- Third offence, the employee may be suspended or terminated (suspension or termination to fit the seriousness of the offence).

5.5.2. Escalation Matrix

The general meaning of Escalation: Increase in magnitude or intensity by bypassing the immediate person. An escalation matrix is generally a formal process to highlight the issue at hand to a higher authority as per the pre-defined escalation mechanism defined for the project. In a factory let us say there is an incident on the shop floor due to a deviation in the standard safety practice by a worker resulting in a crane accident. The matter gets reported right up to the level of the chairman & managing director in case of any fatalities.

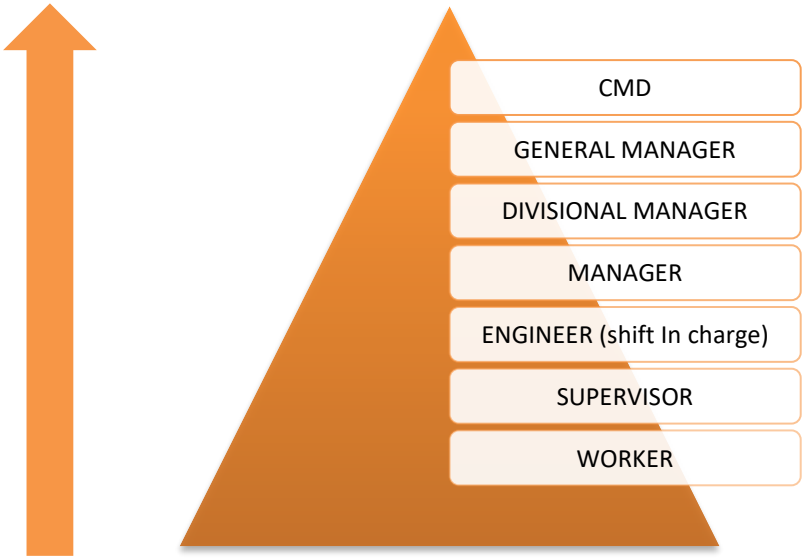


Fig.5.5.4. Escalation Matrix

The documentation protocol could also specify time limits at each stage of the hierarchy to ensure the information gets reported promptly, and a decision is taken within a set time at an appropriate level to avoid any delays.

Tips

- Improve safety by always using PPE.

Notes

Summary

In this chapter, we saw the health, safety, & security policies applicable to ports. We also discussed the general safety guidelines to be followed at Ports, CFS & ICDs. We discussed the concept of 5S & its implementation at the workplace. How do we carry out an inspection of our activity area for appropriate & safe condition & how do we handle dangerous and hazardous goods? We saw the standard protocol in case of emergencies, accidents & breach of safety in detail and how an emergency response planning team handles such situations from a command centre. Lastly, we saw how to document health, safety and security deviations and the escalation matrix of reporting in organizations

Exercise

1. What does the code ISPS stand for?
2. Give a few safety rules for transport equipment working at Ports, CFS & ICD's.
3 Who is responsible for health issues at a Port?
4. List each of the S in the 5S principle at a workplace
5. Explain the terms Dangerous & Hazardous goods?
6. List a few SOP in case of emergencies?
7. List some basic steps in accident investigation?
8. Give some examples of breach of health, security and safety norms?

S.No.	Chapter No.	Unit No.	Topic Name	URL	Page No.	QR Code (s)
1	Chapter 1- Introduction to Transport Consolidator	Unit 1.1 - Supply Chain Management & Logistics Overview	1.1.1 What is Supply Chain Management?	https://youtu.be/HN5dDOGgKVA	5	Supply chain
2	Chapter 1- Introduction to Transport Consolidator	Unit 1.2-Logistics Sub Sectors & Opportunities	1.2.1. Logistics – Sub Sectors	https://youtu.be/NuLzlZuQoLA	9	Logistics
3	Chapter 2- Planning and Scheduling Deliveries	Unit 2.1 – Scheduling of Deliveries	2.1.1 Truck and Dispatch Scheduling	https://youtu.be/24MqQEj4ing	43	Scheduling of deliveries
4	Chapter 2- Planning and Scheduling Deliveries	Unit 2.2- Route Planning	2.2.1 Safety Procedures	https://youtu.be/CG0292wvP4o	43	Route Planning
5	Chapter 3 - Verification andConsolidation ofDeliveries	Unit 3.1 – Verification of Orders	3.1.1 Verification Process	https://youtu.be/SV6eHDV_cEs	54	Verification of orders
6	Chapter 3- Verification andConsolidation ofDeliverie	Unit 3.2- Consolidating Deliveries	3.2.1. Steps for Consolidating Deliveries	https://youtu.be/eePhu3VMNQo	54	Consolidation of Deliveries

7	Chapter 4- Post Consolidation Activities	Unit 4.1 – Updating Tracking Information	4.1.1 Recording Information	https://youtu.be/-4pFI8psSI0	60	Updating Tracking Information
8	Chapter 5 - Compliance to Health, Safety & Security Norms	Unit 5.1 - Health, Safety & Security at Ports, CFS &ICD	5.1.1. Health & Safety Policy	https://youtu.be/C9_pXe2oYOU	76	Health, Safety
9	Chapter 5 - Compliance to Health, Safety & Security Norms	Unit: 5.2- 5S at Workplace	5.2.1 5S Concept	https://youtu.be/douZ98_glZE	76	5S
10	Chapter 5 - Compliance to Health, Safety & Security Norms	Unit- 5.3 SOP for Dangerous & Hazardous Goods	5.3.1. Inspection of Activity Area for Appropriate & Safe Condition	https://youtu.be/12o1cjci7fI	80	Hazardous Goods

Skill India
कौशल भारत-कुशल भारत

सत्यमेव जयते
GOVERNMENT OF INDIA
MINISTRY OF SKILL DEVELOPMENT
& ENTREPRENEURSHIP

N·S·D·C
National
Skill Development
Corporation
Transforming the skill landscape

Scan the QR code to access the e book

LSC
Logistics Skills Council

Address: No. 480 A, 7th floor Khivraj Complex 2,
Anna Salai, Nandanam,
Chennai - 600 035.
Email: reena@lsc-india.com
Web: www.lsc-india.com
Phone: 044 4851 4605