East African Community
(EAC)

Federation of East African Freight
Forwarders Associations (FEAFFA)

THE EAST AFRICA CUSTOMS AND FREIGHT FORWARDING PRACTICING CERTIFICATE

FREIGHT FORWARDING MODULE

- FREIGHT FORWARDING OPERATIONS
- PORT OPERATIONS
- CARRIAGE OF GOODS

FEAFFA in collaboration with East Africa Revenue Authorities

BR
KENYA REVENUE AUTHORITY
RRA Rwanda Revenue Authority
TANZANIA REVENUE AUTHORITY
URA Uganda Revenue Authority

East African Community (EAC)

The East African Community (EAC) is a regional intergovernmental organization of six (6) Partner States, comprising Burundi, Kenya, Rwanda, South Sudan, Tanzania and Uganda, with its headquarters in Arusha, Tanzania.

Federation of East African Freight Forwarders Associations (FEAFFA)

The Federation of East African Freight Forwarders Associations (FEAFFA) is a regional private sector apex body of the Customs Clearing and Freight Forwarding (CFA) industry in East Africa. It aims at promoting a professional freight logistics industry for trade facilitation and regional economic growth. FEAFFA strives to address the challenges experienced by its members through training, provision of information, and other aspects of capacity building. It advocates for the full implementation of the East African Community (EAC) Customs Union. The East Africa Customs and Freight Forwarding Practicing Certificate (EACFFPC) is the Federation's and the industry's premier training program in East Africa since 2007.

C/O. Federation of East African Freight Forwarders Associations
P.O. Box 22694-00400, Tom Mboya, Nairobi.
Hillcrest Court, Waiyaki Way, Slip Road Westlands, Nairobi, Kenya

Tel: +254 202-684802 | Cell: +254 738 150 673
Email: info@feaffa.com | Website: www.feaffa.com

East African Community
(EAC)

Federation of East African Freight
Forwarders Associations (FEAFFA)

THE EAST AFRICA CUSTOMS AND FREIGHT FORWARDING PRACTICING CERTIFICATE

FREIGHT FORWARDING MODULE

- FREIGHT FORWARDING OPERATIONS
- PORT OPERATIONS
- CARRIAGE OF GOODS

FEAFFA in collaboration with East Africa Revenue Authorities

BR

Kenya Revenue Authority

RRA Rwanda Revenue Authority

Tanzania Revenue Authority

URA Uganda Revenue Authority

Table of contents

FOREWARD

Customs Clearing Agents, Freight forwarders, and Warehouse Operators in the East African Community (EAC) region continue to play a vital role in the facilitation of trade particularly with regards to the assessment tax, storage of goods, transportation, and last-mile delivery to clients. This, in turn, facilitates cargo movement and clearance from all ports.

The agents handle goods worth millions of dollars on behalf of the shippers. Besides, they originate documents that facilitate movement and clearance of cargo culminating in errors that slow down the flow of business. The movement of cargo depends on how fast and correctly documentation is done for verification by the respective Customs Authorities. A delay in customs clearance increases the cost of doing business.

This pointed to the need for these agents to be equipped with the requisite knowledge, skills, and attitudes to carry out their work efficiently, just as their counterparts from customs.

The EAC region, with support from TradeMark East Africa (TMEA), has made significant steps towards bridging the knowledge and skills gap in the customs clearing and freight forwarding industry. The introduction of the East Africa Customs and Freight Forwarding Practicing Certificate (EACFFPC) in 2006, a regional training programme jointly implemented by the EAC directorate of customs, the East African Revenue Authorities (EARAs), the National Association of the Freight Forwarding Industry, and FEAFFA was a big step. Since its inception, over 7000 agents have graduated from this training.

A review of the programme in 2015 and a market survey conducted in 2020 supported by TradeMark East Africa (TMEA) highlighted key areas of improvement for the EACFFPC programme to achieve the aim of producing competent customs agents, freight forwarders, and warehouse keepers. The revised curriculum has therefore been designed to address these challenges and shortcomings. The revamped EACPPFC programme is designed to enhance the ability of freight forwarders to provide competitive and high-quality end-to-end services thereby reducing inventory costs and increasing safety levels in warehousing operations in the East African region.

With the revised EACFFPC curriculum, the dream of attaining a professional and compliant freight logistics industry in the East African region has been strongly boasted.

ACKNOWLEDGMENT

The Curriculum Implementation Committee (CIC) is grateful to the EAC sectoral council on Trade Industry Finance and Investment for adopting the EACFFPC as an EAC training programme for clearing and forwarding agents in the region. This is a testimony to the effect the programmeme has had on the clearing and forwarding industry in the EAC region.

The CIC is also grateful to the EAC Directorate of Customs, the Commissioners of Customs of the East Africa Revenue Authorities, the Chairpersons of National Associations of clearing and forwarding agents, and the President of FEAFFA for their dedication and support to the EACFFPC programmeme.

Special appreciation for the National Curriculum Implementation Committees for providing their trainers to participate in the development and validation of the curriculum and training materials. CIC also acknowledges the FEAFFA secretariat for excellently coordinating the curriculum and training materials development and validation process.

The CIC in a very special way recognizes TradeMark East Africa (TMEA) who provided the financial support to update the curriculum, develop and publish the 2021 edition of the EACFFPC training materials. We remain indebted to you forever.

We also appreciate all EACFFPC trainers, students, and stakeholders for the constant feedback that has been incorporated in this edition of the training materials.

UNIT 1:

FREIGHT FORWARDING OPERATIONS

Table of contents

LIST OF ABBREVIATIONS AND ACRONYMNS

AWB	Airway Bill
BOQ	Bill of Quantity
C&F	Carriage and Freight
CIF	Carriage Insurance and Freight
CIF	Carriage Insurance and Freight
CIM	Convention International Merchandise for Rail Transport
CMR	Convention Merchandise for Road Transport
DWT	Deadweight Tonnage
EACMA	East Africa Customs Management Act
ECOWAS	Economic Community of West African States
EDI	Electronic Data Interchange
FAA	Federal Aviation Administration
FAS	Free Alongside Ship
FIATA	International Federation of Freight Forwarders Associations
FOB	Free On Board
GRT	Gross Registered Tonnage
HBL	House Bill of Lading
IATA	International Air Transport Association
ICAO	International Civil Aviation Organization
ICC	International Chamber of Commerce
ICS	International Chamber of Shipping
INCOTERMS	International Commercial Terms
IRU	International Road Transport Union
IRU	The International Road Transport Union
ISF	International Shipping Federation
KMA	Kenya Maritime Authority
L.A.S.H.	Lighter Aboard Ship
LCL	Less Container Load
MSDS	Material Safety Data Sheet
NRT	Net Registered Tonnage
NVOCCC	Non-Vessel Operating Common Carrier Company
OTI	Ocean Transport Intermediate
SDS	Safety Data Sheet
SMDG	Ship Message Design Group
SOP	Standard Operating Procedures
SSN	Standard Shipping Note
STC	Standard Trading Conditions
TASAC	Tanzania Shipping Agencies Corporation
UCP	Uniform Customs and Practice for Documentary Credits
UIC	International Union of Railways
UNCLOS	United Nations Convention on the Law of the Sea

Unit 1: FREIGHT FORWARDING OPERATIONS

1.0 UNIT OVERVIEW

1.1 Unit Description

This unit specifies the competencies required to carry out Freight Forwarding. It involves performing duties of a Freight forwarder, performing under different work environments, complying to Standard trading terms and conditions, using relevant documents in clearing, and forwarding process, handling goods using relevant modes of transport, advising client on appropriate containers and relevant charges and selecting appropriate incoterms.

1.2 Unit Summary Learning Outcomes

At the end of the sub-module, the trainee should be able to:

1. Identify, prepare and utilize Import/ export documents
2. Perform under different work environments
3. Comply to Standard trading terms and conditions
4. Use relevant documents in clearing and forwarding process
5. Handle goods using relevant modes of transport
6. Advice client on appropriate containers and relevant charges
7. Select appropriate INCOTERMS

2.0 OVERVIEW OF FREIGHT FORWARDING OPERATIONS

2.1 Specific Learning Outcomes

At the end of this topic the trainee should be able to:

i. Explain the meaning of Freight Forwarder
ii. Identify the roles of a Freight Forwarder
iii. Describe the legal framework of a Freight Forwarder
iv. Identify the rights and obligations of a Freight Forwarder
v. Identify parties in international freight forwarding

2.2 Defining A Freight Forwarder and Freight Forwarding

Freight Forwarder

A freight forwarder can be a person or a company, that dispatches the shipments or arranges carriers as well as space and transportation for the goods to within the country and outside the country.

A freight forwarder undertakes many complex activities and is known by several names in the industry each depending on the range of services provided and country of origin. Some of the alternative names include forwarding agent, freight broker, freight agent, and ocean transport intermediate (OTI), Freight Forwarding agent, customs agent, Third party logistics, Fourth party logistics, Economic Operator and Freight logistics. In East Africa they are known as clearing agents, or customs Agents which basically mean a freight forwarder.

Freight Forwarding Services

Freight Forwarding Services means services of any kind relating to the carriage, consolidation, storage, handling, packing or distribution of the Goods as well as ancillary and advisory services in connection therewith, including but not limited to customs and fiscal matters, declaring the Goods for official purposes, procuring insurance of the Goods and collecting or procuring payment or documents relating to the Goods.

2.3 Roles of a Freight Forwarder

A freight forwarder acts **as an agent when he performs functions on behalf of, and under the instructions of**, the principal (the exporter or importer). As an agent, the forwarder will procure the services of third parties who will perform the packing, storage, transport, handling, and customs clearance of the goods

A freight forwarder plays different roles including the following:

- The Freight forwarder advises the exporters about their responsibilities and responsibilities as per law
- They help the exporter in choosing the most affordable means of freight shipping; they also bargain for the best cargo shipping rates.
- They make the exporter choose the best way to ship their goods.

- Give marking and packaging recommendations.
- Give explanations of port functionality.
- Makes clear what tasks they would perform and what the exporter would require to perform during the shipping process.
- Inform in advance about the possible problems of freight shipping.
- Channelizing the process of empty container to be sent/returned after filled in with the goods
- Deal with booking and shipping of the shipment, which need special considerations like port of destination.
- Offer Non-Vessel Owners Operating Common Carriers (NVOCC) consolidation facility to exporters for Full Container Load and Less Container load.
- A forwarder is also responsible for getting insurance certificate, inspection certificate, special customs invoices, and certificate of origin
- Some also assist or prepare commercial invoice, packing list, export license, drawback forms, consular invoices, draft and shipper's export declaration for the exporters
- Track the shipment when need, and help the shipper fill claim and learn from the errors made earlier
- Assist with freight quotes and other costs of international forwarding.
- Give a precise and itemized list of forwarding costs.
- Consolidate shipments from various suppliers.
- Prepare necessary documents and certifications for shipment.
- Handle legalization procedures whenever necessary.
- Provide facilities or warehouses in foreign destinations.
- Provide adequate information on hazardous materials for shipment when necessary.
- Give other specialized services when needed.

2.4 Responsibilities of a Freight Forwarder to Exporter

Freight forwarders engage in many activities. The activities vary depending on the type and size of business but typically include:

- Investigating and planning the most appropriate route for a shipment, taking into account the perishable or hazardous nature of goods, cost, transit time and security;
- Arranging appropriate packing, taking into account the climate, terrain, weight, cost and nature of goods and also the delivery and warehousing of goods at their final destination;
- Negotiating contracts, transportation and handling costs;
- Obtaining, checking and preparing documentation to meet customs and insurance requirements, packing specifications, and compliance with other countries' regulations and fiscal regimes;
- Offering tailored IT solutions and electronic data interchange (EDI) connections;
- Arranging payment of freight and other charges or collection of payment on behalf of the client;
- Arranging air transport for urgent and high-value freight and managing the risk door-to-door shipments;
- Maintaining communication and control through all phases of the journey, including the production of management reports and statistical and unit-cost analysis;

2.5 Responsibilities of a Freight Forwarder to Importer

- Offering advice to the importer
- Perform documentation and custom clearance.
- Make accurate declarations for purposes of customs tax collection.
- Prepare and facilitate goods for examination.
- Facilitate and avails warehousing facilities
- Act as a transport specialist advising consignee on most cost efficient and best means of transport.
- Determining the correct harmonised tariff heading of the goods for customs duties, if applicable.
- Assist with the clearing instruction to confirm that all information received from shipper and consignee is accurate before submitted for customs clearance – strict rule that is adhere to and if not, huge penalties that could follow both the clearing agent and the importer / consignee.
- Arranging the customs clearance / release

with the relevant requirements, i.e. customs stops, port health exams, and many more requirements per specific cargo requirements that needs to be met before a release could be obtained, as well as to avoid penalties / delays.

2.6 Rights and Obligations of a Freight Forwarder to Various Parties

Freight Forwarder as a customs Agent-

A customs agent is a person who is licensed by the Commissioner of Customs for transacting business relating to the declaration or clearance of goods or baggage (other than accompanied un-manifested baggage) subject to customs control of a person travelling by air, land, or sea on behalf of the owner.

A freight forwarder as a customs agent performs his/her duties under the authority of the owner of the goods. In accordance with section 146 of the EACCMA 2004, the agent has the authority in writing by the importer or exporter.

East Africa Customs Management Act (EACMA) 2004 which regulates customs operations in East Africa recognizes the freight forwarder where a customs agent is to be licensed by the commissioner of customs to make preliminary documentation on behalf of customs for purposes of tax collection.

The licensed agent is expected to:

- Acts as an intermediary between an importer/exporter and other parties in clearance of goods.
- Make accurate declarations for purposes of customs tax collection.
- Re-export with compliance strictly in line with requisite customs formalities.
- Ensure that correct taxes are paid to customs prior to cargo release and delivery to the Consignee.
- Prepare and facilitate goods for examination.
- Facilitate and avails warehousing facilities.
- Provide import/export consultancy services.
- Provide bond guarantees for goods under clearance where necessary.
- Provides network with other related government agencies.

Freight Forwarders rights and obligations to importers and exporters:

Freight Forwarders also have rights and obligations to Importers and exporters. They act as agents of shippers and consignees in regard to facilitation and processing of cargo clearance from customs areas.

- They also advice the shipper correctly on all his obligations.
- Collect all requisite dues payable on behalf of all institutions e.g., Customs, Bureau of standards, Ports authorities etc.
- Ensure that funds collected are used specifically for purposes of collection in the goods therein.
- Ensure that the goods are delivered safely to the consignee.

Other Parties:

A freight forwarder by virtue of being a customs agent and on the other hand an agent of the shipper/ exporter/ importer must interact with other parties during the process of clearance of goods that may include but not limited to government agencies and ship agents.

Specific Roles;

- Ensure conformity on regulations and or restrictions as may be determined by the Government agencies. (Trainer to give examples)
- Ensure that requisite documents are lodged on time with other trade logistic interveners like ship agents, container freight stations etc.
- Collect such documents as may be issued by interveners.

2.7 The Legal Framework of a Freight Forwarder

Locally (EAST AFRICA):

At regional level, there are no laws tailored specifically for the freight forwarder, however, there are some laws that guide the customs clearance of goods such as the East Africa Community Customs Management Act 2004 (EACCMA, 2004), which regulates customs operations in East Africa.

The Agency law under commercial law sets out the relationship when an agent is authorized to act on behalf of another called a principal. It talks about

the liability of an agent to the third party, principal and vice versa to mention but a few.

At International Level:

International conventions relating to transportation of goods.

These are rules and regulations that govern the transportation of goods by various modes of transport. They govern the relationship between the transporter and the cargo owner. In the event of delay, damage or loss during transportation, these rules will determine the party liable and the amount of compensation. The rules specify in advance the duties and the responsibilities of the cargo owner and the transporter.

- **The Hague Visby Rules:**

Initially, they were known as Hague rules which were adopted in 1924. As amended by the Brussels protocol 1968 and called The Hague-Visby Rules. These laws govern the carriage of Goods by sea and are employed by the shipping lines on their bills of ladings under contract of carriage. They define who the carrier is, the consignee, shipper etc. They spell out the liability of the carrier and the time allowed reporting loss and damage to the goods while under the custody of the carriage. e.g. In Article III section 6 the article talks about the reporting the loss, damage to the good in writing to the carrier at the port of discharge immediately at time of removal of the goods at delivery or when such damage is not immediately apparent with 3 days.

- **Hamburg Rules (United Nations Convention on Carriage of Goods by Sea 1978).**

They define the carrier, shipper, consignee etc.

Application:

- Applied when the port of lading is in a contracting state.
- Applied when the port of destination is in a contracting state. They are applied regardless of the nationality of the ship, consignee, and shipper.
- They are not applied to charter parties (renting a ship for your personal or business use) unless if a Bill of Lading is issued –it will apply.
- They are applied if for every shipment in the case where you have been contracted for a series of shipments in the future. Just like in the Hamburg rules, these rules talk about the time given to report in writing the loss and damage to the goods to the carrier, however, under these rules, notice should be given with 1 day of delivery and 15 days when the loss and damage is not immediately apparent. PART V. CLAIMS AND ACTIONS Article 19:1 & 2

The Hague-Visby Rules and the Hamburg Rules govern the carriage of goods by sea under bill of lading.

- **Warsaw Convention**

As amended at The Hague, 1955 and by protocol no. 4 of Montreal, 1975.

These laws apply to the carriage of goods by air in regard to persons, baggage and cargo transported by air. For example, in Article 17 & 18, the carrier is liable for the loss & damage to person, cargo and baggage under the contract of carriage.

- **International Chamber of Commerce (ICC Rules):**

Also referred to as Incoterms they spell out the responsibilities, obligations of the buyer and the seller in an international sales contract. In some of these incoterms like DDP (Delivered Duty Paid), the buyer is responsible for shipping, clearance, and delivery of the goods at a named place of destination and therefore will engage a freight forwarder to execute this contract.

- **Convention Merchandise for Road Transport (CMR)**

The **CMR Convention** (**Convention on the Contract for the International Carriage of Goods by Road**) is a United Nations convention that was signed in Geneva on 19 May 1956. It relates to various legal issues concerning transportation of cargo by road. These rules govern the transportation of goods by road. It applies to contract of carriage evidenced by consignment note (Road Consignment Note). The rules specify the duties and responsibilities of the carrier and the cargo owner in the event of any loss or damage to the goods, the carrier's responsibility is limited to 8.33 SDR per kilogram.

- **Convention International Merchandise for Rail Transport (CIM).**

These rules govern transportation of goods by rail. It specifies the duties and responsibilities of the cargo owner and the carrier. It applies to contract of carriage evidenced by consignment note (Rail Consignment Note). In the event of loss or damage, the liability of the carrier is limited to 17 SDR per kilogram.

- **Rotterdam Rules 2008**

Adopted by the General Assembly on 11 December 2008, the Convention establishes a uniform and modern legal regime governing the rights and obligations of shippers, carriers and consignees under a contract for door-to-door carriage that includes an international sea leg. The Convention builds upon, and provides a modern alternative to, earlier conventions relating to the international carriage of goods by sea, in particular, the International Convention for the Unification of Certain Rules of Law relating to Bills of Lading (Brussels, 25 August 1924) ("The Hague Rules"), and its Protocols ("The Hague-Visby Rules" 1968), and the United Nations Convention on the Carriage of Goods by Sea (Hamburg, 31 March 1978) ("the Hamburg Rules").

The Rotterdam Rules provide a legal framework that considers the many technological and commercial developments that have occurred in maritime transport since the adoption of those earlier conventions, including the growth of containerization, the desire for door-to-door carriage under a single contract, and the development of electronic transport documents. The Convention provides shippers and carriers with a binding and balanced universal regime to support the operation of maritime contracts of carriage that may involve other modes of transport (Multimodal Transport).

If a freight forwarder enters into a contract with a sub-carrier in its own name, it is a shipper under the Rotterdam Rules. If a freight forwarder enters into a contract with a carrier on behalf of a customer (as an agent), it is not the carrier or the shipper under the Rotterdam Rules and is not liable as such.

The freight forwarders' responsibilities as specified by international conventions

The international conventions have specified the responsibilities of freight forwarders, which include:

- Providing CMR insurance, valid for the transportation period.
- Notification before the transportation begins
- Compliance to the requirements of the convention for ADR forwarding of dangerous cargo.
- Compliance to the requirements for transportation of oversize loads in the countries through which the forwarding route passes.

Conclusion:

- Contract of goods by sea is evidenced by the issuance of a bill of lading, The Hague-Visby Rules and Hamburg Rules.
- Contract of carriage of goods by Rail and Road are evidenced by the issuance of Road/ Rail Consignment Note, CIM AND CMR.
- Contract of carriage of goods by air is evidenced by airway bill, Warsaw Convention.

2.8 Parties in International Freight Forwarding

International Transport Organizations play an important role in trade facilitation, as they represent their members in trade facilitation negotiations and are often instrumental in promoting trade facilitation measures and in implementing trade facilitation tools and solutions amongst their communities.

FIATA - The International Freight Forwarders Association

FIATA, the International Freight Forwarders Association, represents the freight forwarding industry, and is a non-governmental organization with members covering approximately 40,000 forwarding and logistics firms, and employing around 8 - 10 million people in 150 countries.

FIATA has created standard documents and their electronic equivalents for use by freight forwarders worldwide:

- Forwarders Certificate of Receipt
- Forwarders Certificate of Transport
- FIATA Warehouse Receipt
- negotiable FIATA Multimodal Transport Bill of Lading
- non-negotiable FIATA Multimodal

Transport Waybill
- Shippers Declaration for the Transport of Dangerous Goods
- Shippers Intermodal Weight Certificate
- FIATA Forwarding Instructions

International Air Transport Association (IATA)

IATA is a non-governmental organization representing the airline industry, with members covering some 240 airlines comprising 84% of total air traffic. IATA provides a standard approach for cargo facilitation to comply with government regulations requiring the provision of cargo information. IATA has developed several regulations including:

1. IATA has developed Dangerous Goods Regulations (DGR) to prepare and document dangerous shipments.
2. IATA's Live Animals Regulations (LAR) is a standard for transporting live animals. The Convention on International Trade in Endangered Species (CITES) recommends in its Resolution for Transport of Live Specimens (Conf. 10.21) that all parties dealing with the preparation and transport of live animal specimens follow the instructions provided by the LAR and incorporate them in their national legislation.
3. IATA's Perishable Cargo Regulations (PCR) is a reference guide for all parties involved in the packaging and handling of perishables for air transportation. CITES recommends that all parties dealing with the preparation and transport of live plant specimens follow the instructions of the PCR and incorporate them in their national legislation.
4. For electronic communication, IATA has developed solutions through e-freight, which aims to remove paper from the air cargo supply chain and replace it with cheaper, more accurate and more reliable electronic messaging. Both traditional EDI messages through IATA's CARGO-IMP standards and XML messages are used.

International Chamber of Shipping (ICS) and International Shipping Federation (ISF)

The International Chamber of Shipping (ICS) and the International Shipping Federation (ISF) are the principal international trade association and employers' organization for merchant ship operators, representing all sectors and trades and about 80% of the world merchant fleet.

They represent the industry on trade facilitation issues, such as:
- maritime safety
- shipbuilding standards
- cargo liability
- shipping policy and free trade

International Road Transport Union (IRU)

IRU is the world road transport organization representing the interests of truck operators (as well as the interests of bus, coach and taxi operators) for the mobility of people and goods by road.

IRU is active in trade facilitation for road transport and aims to harmonize, as far as possible, all legislation currently governing road transport, in order to ensure inter-operability, avoid duplication and unnecessary confusion leading to costly delays, law infringements and fines.

International Union of Railways (UIC)

UIC, the International Union of Railways, is a non-governmental organization representing the railway industry. UIC sets and publishes standards for railway sectors, such as for wagons, railway equipment and railway stations. UIC holds responsibility for the railway consignment note (the CIM).

UIC has developed standards for the exchange of information between railway companies and railway infrastructure operators, called TSI (Technical Specifications for Interoperability).

Ship Message Design Group (SMDG)

SMDG is a user group for shipping lines, container terminals and port authorities, and has developed standards for the maritime container industry, for the exchange of information of stowage plans and of individual movements of sea containers to, within, and from ports.

2.9 Learning Activities

(a) Discuss the key issues arising from the international conventions with regard to transportation of goods by road and sea.

(b) Compare and contrast The Hague Visby rules and Hamburg rules in relation to the obligations and liabilities of the carrier to the cargo owner.

2.10 Self-Assessment Questions and Activities

1. Explain the roles of international conventions in freight forwarding.
2. Explain the roles of a freight forwarder as a customs agent

2.11 References

- Glass, D. (2012). Freight Forwarding and Multi Modal Transport Contracts, 2nd Edition. Routledge
- Wang, X. (2015). Operational Transportation Planning of Modern Freight Forwarding Companies. Springer
- Bektas, T. (2019). Freight Transport and Distribution Concepts and Optimization Models. Routledge
- Monios, J. & Bergqvist, R. (2019). Intermodal Freight Transport and Logistics. Routledge
- UN Conventions on Transport https://treaties.un.org/Pages/ViewDetails.aspx?src=IND&mtdsg_no=XI-B-11&chapter=11&clang=_en
- FIATA, the International Freight Forwarders Association - https://fiata.org
- IATA, the International Air Transport Association - https://www.iata.org
- ICS, the International Chamber of Shipping - https://www.ics-shipping.org
- International Chamber of Commerce (ICC) - https://iccwbo.org
- IRU, the International Road Transport Union - https://www.iru.org
- UIC, the International Union of Railways - https://uic.org
- SMDG - https://smdg.org/

3.0 WORK ENVIRONMENT OF A FREIGHT FORWARDER

3.1 Specific Learning Outcomes

At the end of this topic the trainee should be able to:

i. Explain the meaning of work environment
ii. Describe the types of work environment
iii. Evaluate the intervening parties in Work Environment of a Freight Forwarder

3.2 Operating Environment

"A freight forwarding business operating Environment" is the atmosphere within which the organization operates. The factors within such atmosphere will go a long way in influencing directly or indirectly the pattern of organizational performance of a freight forwarder either negatively or positively.

There are two types of organizational environment being the internal and external environment.

3.3 Internal Environment

Internal environment is a component of the business environment, which is composed of various elements present inside the organization that can affect or can be affected with, the choices, activities and decisions of the organization or is the aggregate of all inside factors that influence the operations and performance of an organization from within.
In other words, the internal environment refers to the culture, members, events, and factors within an organization that has the ability to influence the decisions of the organization, especially the behavior of its human resource. Here, members refer to all those people who are directly or indirectly related to the organization such as owner, shareholders, managing director, board of directors, employees, and so forth.

Elements/Components of the internal environment

- **Organizational guidelines**

Freight Forwarding Organizations should have written documents as guidelines or corporate charters, by-laws, Standard Operating Procedures (SOP). These guidelines spell out the organizations stand points. All Managers in these organizations are directed by what these documents guide. Organisational policies and procedures provide **guidelines for decision making processes** and the way that work in an organisation should be carried out. The result of having clear, well-written policies and procedures are increased transparency, accountability, uniformity, and stability. Organizations use policies and procedures to outline rules outline courses of action to deal with problems.

Organization's policies and procedures to make employees understand the organization's views and values on specific issues, and what will occur if they are not followed. Policies are general statements of how an organization want to behave and procedures define exactly how to do a task or perform step by step. A policy can be security related also and that can be used to identify risks and mitigate risks.

Here are some examples of common workplace policies that could be in a workplace:

- Code of conduct.
- Recruitment policy.
- Internet and email policy.
- Mobile phone policy.
- Non-smoking policy.
- Drug and alcohol policy.
- Health and safety policy.
- Anti-discrimination and harassment policy.
- Grievance handling policy
- Discipline and termination policy
- Using social media.

- **Organizational Rules**

Organizational rules specify the desired behaviour of the actors in the organization. They are part of the organizational model. An organization must develop rules pre-determined to place limits on what an organization must abide by. For instance, a policy specifying that all organization's cleared cargo must be accompanied by a letter headed; signed and endorsed delivery note by the consignee must be obeyed to the latter.

A rule specifying that employees must follow the chain of command upwards in seeking redress to a grievance limits the lower staff/employees to go straight to top management for redress.

Remember that there may be many unwritten rules of the organization that dictate the way things are done or handled in an organization, for instance an unwritten rule that all staff must put on company T shirts with logos on every Friday becomes a rule that must be followed by all staff.

Below are some workplaces rules that are can be found in your organization

- Strict dress codes.
- Inflexible working hours and banning remote work.
- Requiring employees to always be available.
- Restricting employee internet use.
- Keeping track of bathroom breaks.
- Strict attendance policy.
- Overbearing performance review policy.

- **Organizational Structure**

Organization structure means such things as the composition of board of directors, the number of the independent directors, the extent of professional management and share-holding pattern. The nature of the organizational structure has a significant influence over decision making process in an organization.

An efficient working of a business organization requires that its organization structure should be conducive to quick decision making. Delays in decision making can cost a good deal to a business firm.

The structure of the organization determines the way in which activities are directed in the organization so as to reach the ultimate goal. These activities include the delegation of the task, coordination, the composition of the board of directors, level of professionalization, and supervision. It can be matrix structure, functional structure, divisional structure, bureaucratic structure, etc.

Organizational structure affects organizational action and provides the foundation on which standard operating procedures and routines rest. It determines which individuals get to participate in which decision-making processes, and thus to what extent their views shape the organization's actions. Organizational structure can also be considered as the viewing glass or perspective through which individuals see their organization and its environment.
Freight forwarding organization structure should be well organized from top to bottom with specific outlined roles and duty with clear cut reporting chains.

3.3.1 External Environment

External Environment for freight forwarding organization can be defined as the interventions from outside the organization which are normally beyond their control. Factors outside or organization are the elements of the external environment. The organization has no control over how the external environment elements will shape up the organization.

The external environment embraces all general environmental factors and an organization's specific industry-related factors. The general environmental factors include those factors that are common in nature and generally affect all organizations. Because of their general nature, an individual organization alone may not be able to substantially control their influence on its business operations.

Managers have to continuously read signals from the external environment to spot emerging opportunities and threats. The external environment presents opportunities for growth leadership, and market dominance, it also poses the threat of obsolescence for products, technology, and markets. While one section of an organization faces opportunities, the other faces threats from a similar environment, perhaps because there is differentiation in their respective resources, capabilities and entrenched positions within the industry.

- **Political Legal Factors**

  The political factors of the general environment refer to the business-government relationship and the overall political situation of a country. A good business-government relationship is essential to the economy and most importantly for the business.

  The government of a country intervenes in the national economy through setting policies/rules for business in a country; we see many such policies – import policy, export policy, taxation policy, investment policy, drug policy, competition policy, consumer etc.

  Another important issue is political stability that affects the operations of business firms substantially. Every decision about investment is highly affected by political

stability. In many countries, political instability or political/ disturbances substantially affected businesses.

Trade monopoly from influential competitors in the supply chain management e.g. shipping agents working against SME freight forwarders

- **Legal Factors**
  The legal environment consists of laws and regulatory frameworks in a country. Many laws regulate the business operations of enterprises such as the Contract Act, and the Company law, just to name a few. Business laws primarily protect companies from unfair competition and also protect consumers from unfair business practices. The overall situation of law implementation and justices in a country indicates that there is a favorable situation in business in a country.

  Labor Unions: Through contracts negotiated with management, labor unions reflect what management may do in such areas as wages and salaries, vacations, retirement plans, working conditions and employment policies.

  Educational constraints are such things like level of education of the available work force and the availability of workers with relevant training and skills. For example, it will be extremely difficult to operate highly technical machinery if there were few technically skilled people in the catchment. This factor will have a direct bearing and effect on management.

- **Economic Factors**
  The economic factor of an organization is the overall status of the economic system in which the organization operates. The important economic factors for business are inflation, interest rates, and unemployment. These factors of the economy always affect the demand for products. During inflation, the company pays more for its resources and to cover the higher costs for it, they raise commodity prices.

  A country's economic conditions affect market attractiveness. The performance of business organizations is affected by the health of a nation's economy. Several economic variables are relevant in determining business opportunities. Examples of economic factors include the trend in economic growth, income levels of population, inflation rate, tax rates for individuals and business organizations, etc.

- **Socio-Cultural Factors**
  Customs, morals, values and demographic characteristics of the society in which the organization operates are what make up the socio-cultural factors of the general environment.

- **Technological Factors**
  It denotes to the methods available for converting resources into products or services. Managers must be careful about the technological factor. Investment decisions must be accurate in new technologies, and they must be adaptable to them.
  Technological factors include information technology, the Internet, biotechnology, global transfer of technology and so forth. None can deny the fact that the pace of change in these technological dimensions is extremely fast.

  Technological changes substantially affect a firm's operations in many ways. The advancement of industrialization in any country depends mostly on the technological environment. Technology has major impacts on product development, manufacturing efficiencies, and potential competition.

  Since freight forwarding industry is dynamic and ever changing, a firm must be aware of technological changes to avoid obsolescence arid promote innovation. It means that strategy managers of an organization must be adept in – technological forecasting.

- **Environmental / Natural Factors**
  Strategy-makers need to analyze the trends in the natural environment of the country where it is operating its business. The most pertinent issues in the natural environment that strategy-makers should consider include the availability of raw materials and other inputs, changes in the cost of energy, levels of environmental pollution, and the changing role of government 'in environmental protection. Changes in physical/natural environment, such as global warming, will heavily affect our daily lives and the functioning of our organizations with a variety of consequences.

- **Demographic Factors**
  The demographic environment is concerned with a country's population. Specifically, it is related to the population's size, age structure, geographic distribution, ethnic mix, and income distribution.
  In many countries, rural-urban migration is rampant. These trends suggest numerous opportunities for firms to develop products and services to meet the needs of diversified groups of people in society.

  Strategy-makers must make an analysis of the demographic issues, especially, size and growth rate of population, age distribution, ethnic mix, educational level, household patterns, and inter-regional movements.

- **International Factors**
  Virtually every organization is affected by international factors. It refers to the degree to which an organization is involved in or affected by businesses in other countries.
  Global society concept has brought all the nation together and modern network of communication and transportation technology, almost every part of the world is connected.

General external environmental factors are interrelated with organizational success. Therefore, strategy-makers need to analyze all of them in an interrelated fashion to understand and visualize the 'whole of the environment.

3.4 Intervening Parties and how they influence the Freight Forwarding Industry

In the Private sector, the freight forwarder has to deal with several parties that include:

- **Ship Owners**

The shipowner according to the general definition is a natural or legal person who operates his own or a rented ship. A ship owner employs the captain and crew, and he also is civilly liable for obligations arising from the operation of the ship. So it is the owner of the ship or a person authorized to dispose of the ship on his behalf. In the maritime trader's law, a shipowner is specified by such phrases as: "shipping company" or "ship trader. The shipowner mainly deals with service business activities. He is responsible for issues such as the carriage of cargo and passengers and their baggage, the exploitation of marine living, and mineral resources. Furthermore, he participates in the construction and use of artificial islands, structures, and other floating devices. He also deals with towing, a rescue of sea-going vessels, pilotage. Freight forwarders collect delivery orders from the shipowners or their agents to enable then collect cargo from the port operators

- **Road Transport operators,**

Road transport means **transportation of goods and personnel from one place to the other on roads**. Sometimes road transport is the only way for carrying goods and people to and from rural areas which are not catered to by rail, water or air transport. Freight forwarders often engage road transporters for transportation of goods to various destinations.

- **Railway Authorities,**

Railroads are the oldest means of mechanized transportation, but the global economy still depends on rail. From moving freight across continents to moving passengers underneath the streets of some of the busiest cities on earth, trains and related technologies help keep the economy "on track by transporting containers from the seaport to hinterlands."

- **Airlines**

An airline is a company that provides air transport services for traveling passengers and freight.

- **Inland Waterway operators**

The inland waterway operators are very important in arranging the schedule and booking of space for cargo transported through inland waterways.

- **Insurance Companies**

It is crucial to request insurance for the cargo being forwarded. When you are forwarding goods and cargo to various destinations, the member companies offer insurance for the goods and the equipment transporting the cargo. We want our customers to receive a full set of services to ensure that the goods are transported and also that all necessary measures are taken to ensure that the quality and integrity of the goods is maintained, as well as the possibility for receiving compensations in case damage occurs due to unfavourable weather conditions or for other unforeseen factors.

- **Commercial Banks**

A commercial bank is a financial institution offering a variety of services to individuals, businesses, and capital markets. International trade in banking services is commonplace, but contracts can be challenging to enforce in riskier countries for arranging LCs/BOE, IDF to importers and exporters of goods.

3.5 Learning Activities

Discuss the external environmental factors that can affect the operations of a freight forwarding company.

3.6 Self-Assessment Questions and Activities

1. Explain the impact of intervening parties in freight forwarding organization.
2. Explain how organizational rules in a freight forwarding company can affect smooth clearance of cargo at the airport

3.7 References

- FIATA, the International Freight Forwarders Association - https://fiata.org
- International Chamber of Commerce (ICC) - https://iccwbo.org

4.0 STANDARD TRADING TERMS AND CONDITIONS.

4.1 Specific Learning Outcomes

At the end of this topic the trainee should be able to:

i. Describe the concept of standard trading terms and conditions
ii. Explain the purpose of trading terms and conditions
iii. Use the applicable standards trading terms and conditions
iv. Identify others guidelines.

4.2 Concepts of Standard Trading Terms and Conditions

Standard Trading Conditions (STC) are **standardized terms imposed by some countries for accepting cargo by shipping lines, airlines and logistics services providers** like freight forwarders and customs agents. They are often based on the standardized trading rules suggested by FIATA.

Terms of Trade, also known as Conditions of Sale or Terms and Conditions, are **designed to protect the seller's rights, to limit potential liabilities and provide some degree of security for the recovery of the debt**, following the supply of goods or services.
Standard Trading Terms may be written or otherwise, any how it is highly recommended that the standard trading terms be documented for references purposes.

Usually, these terms and conditions are for accepting and delivery of cargo by/to shipping lines, air lines and logistics services providers like freight forwarders and or customs agents
For shipping lines and air lines they are usually printed in fine print behind shipping documents like bill of lading, air waybill on consignee note.

In the case of service providers like freight forwarders or customs agents they can be printed at the back of the letter heads or better still in the email boxes as foot notes read by recipients each time the parties communicate. They may also be printed as a separate document on its own.

These standard trading conditions state the general contract terms and conditions between the contracting parties in cases of transportation, storage and or otherwise handling of goods in the case of customs agents or freight forwarders.

The trade terms are standard contracts for the international sale of goods: they are derived from **mercantile customs**, because, in the end, the import and export of goods between countries has been going on for centuries, right.

4.3 Purpose of Trading Terms

- For compliance of each concerned party
- For information and awareness of each concerned parties
- For monitoring obligations and responsibility of each concerned party
- To act as a reference point in case of enforcement
- To regulate business trends in the freight industry
- To assist each contracting party in costing depending on party obligations and services.
- Reduce Freight Forwarders' liability

4.4 Key Components of Standard Trading Conditions

- Interpretation/definition
- Application of the Conditions
- Obligations of the contractual parties
- Warranties
- Discretion and obligations in absence of instructions
- Special goods e.g. containerized, prior arrangements, perishable, goods requiring prior consent of the owner
- Charges
- Exceptions
- Liability limitations
- Timing
- Jurisdiction and law

4.5 Trading Guidelines for Freight Forwarding Business

4.5.1 FIATA Guidelines

Standard Trading Conditions are commonly adopted by national associations in FIATA, spelling out the general contractual obligations of the freight forwarder in his relationship with the customer

as well as his rights, obligations, liabilities and defences. These STCs are formulated in accordance with the business practices, laws and regulations of the specific country and may take some guidance from the general principles of FIATA Model Rules. Member companies of these associations or other freight forwarders may incorporate such Standard Trading and Conditions into their own trading terms and conditions.

In an attempt to harmonize and professionalize the freight forwarding business FIATA has come up with guidelines for freight forwarding companies when undertaking their business. As the name of the document proposed is a guideline for trading conditions. These are rules that have been documented by FIATA that specifically have the freight forwarder in mind as FIATA model rules. The FIATA guide line rules will supersede any other rule when referred to which may be in conflict with the FIATA rules.

4.5.2 FEAFFA Standard Trading Conditions

The FEAFFA STC are modelled on the FIATA Model rules. The FEAFFA STC are based on 30 different Articles. The Articles cover critical areas of business that protect the Company, its agents and the customer. The 30 Articles spell out the relationships that are inherent at different levels of business performance. The Articles are:

Article 1: Introduction
Article 2: Special Attention
Article 3: Interpretation
Article 4: Owner's Risk
Article 5: Application of Trading Terms and Conditions
Article 6: Applicable Legislation
Article 7: The Company as A Principal or an Agent
Article 8: Sub Contracting
Article 9: Company's Discretion in The Absence of Instructions
Article 10: Company's General Discretion
Article 11: Insurance
Article 12: Company's Obligations in The Ab sence of Instructions
Article 13: Customer's General Responsibilities
Article 14: Customer's Responsibilities for Packaged and Containerized Goods
Article 15: Customers Instructions
Article 16: Goods Requiring Special Arrangements
Article 17: Goods Requiring Prior Consent of the Company
Article 18: Perishable Goods
Article 19: Acceptance of Delivery
Article 20: Collection of Expenses
Article 21: Examination of Landed Goods
Article 22: Duties, Taxes, Imports, Levies and Deposits
Article 23: Charges
Article 24: Risk of Posted Items
Article 25: Lien
Article 26: Indemnity by The Customer
Article 27: Limitations of The Company's Liability
Article 28: Breach
Article 29: Arbitration
Article 30: Variation of These Trading Terms and Conditions

4.5.3 IATA Guidelines

The IATA trading guidelines are closely related to the FIATA guidelines only that they are more inclined to the air transport. IATA has introduced a New Conditions of Contract in IATA Air Waybill. The new provisions in the Conditions of Contract make reference to the Montreal Convention in addition to the Warsaw Convention.

4.6 Learning Activities

Discuss reasons why a freight agent should have standard trading terms for their operations.

4.7 Self-Assessment Questions and Activities

1. Explain sources of standard trading terms
2. Explain benefits of using standard trading terms

4.8 References

- FIATA Standard Trading Conditions - https://fiata.org
- IATA Standard Trading Guidelines - https://www.iata.org
- International Chamber of Commerce (ICC) Guidelines - https://iccwbo.org
- FEAFFA Standard Trading Guidelines - https://feaffa.com

4.9 DOCUMENTS AND PROCESSES OF FREIGHT FORWARDING

4.10 Specific Learning Outcomes

By the end of this topic, the trainees should be able to:

- Explain the meaning of document
- Explain the meaning of freight forwarding documentation
- Classify Freight forwarding documents
- Describe the types source and functions of Freight forwarding documents

4.11 The Need for Documentation

A document is a piece of written, printed, or electronic matter that provides information or evidence or that serves as an official record.

Documentation plays a very important role in effecting Import as well as Export transactions. The availability of right documents, the correctness of the information available in the document as well as the timeliness in submitting the documents and filing the necessary applications for the Customs Clearance determines the efficiency of the Customs Clearance process.

Any delay in filing or non-availability of documents can delay the process and thereby importer/exporter stands not only to incur storage/demurrage/ detention/customs warehouse rent on the imported/ exported cargo but also stand to lose business opportunities.

Customs Clearance process requires set of documents to be submitted by the Importer/exporter, by the airline, shipping line or concerned Freight Forwarder as well as the Customs documentation prepared and submitted by Clearing Agent on behalf of the Importer /exporter.

Freight Forwarders function mostly involves processing various documents related to movement of cargo in international trade through various players. A Freight Forwarder joins the supply chain to a single system. By doing so, he or she is involved in processing various documents in international trade and those documents should be processed appropriately and timely to avoid delay in the supply chain.

4.12 Types, sources and functions of various documents in Freight Forwarding

Documents can be mainly divided into three categories;

1. Documents related to the sale of goods – commercial invoice, Pro-forma invoice, quotation, bill of quantity, letter of credit, bill of exchange, consular invoice
2. Documents related to the transport of goods- bill of lading, airway bill, packing list, consignment notes, multimodal transport documents, shipping order, mate's receipts, stowage order/plan, loading/discharging receipts, cargo manifest, charter party agreement, MDG/IATA/FIATA declaration of dangerous goods form, delivery order
3. Other Documents - certificate of conformity, certificate of origin, donation certificate, customs entry etc

4.12.1 Documents Related to The Sale of Goods

These include the following;

- **Pro-forma Invoice**

A pro forma invoice is a preliminary bill of sale sent to buyers in advance of a shipment or delivery of goods. It describes the items and other important information such as the kind of goods, quantity, their value, and other important information such as weight and transportation charges. Pro forma invoices are commonly used as preliminary invoices with a quotation, or for customs purposes in importation.

PROFORMA INVOICE TEMPALTE

Invoice to:	**Deliver to:**	**Note:**
Address:	Address:	Any Notes??
		Invoice Date:
		Invoice No:
Tel:	Tel:	
Fax:	Fax:	Customer Ref:

Stock Ref	Full description of goods	Qty	Unit price	Total
Reminder - have you entered the Commodity Code and VAT number if value is over £600?				

Country of origin: **Currency:**

We declare that the above information is true and correct to the best of our knowledge. For and on behalf of the above named company.

Signed..... **Position**.....

Total nett	
Total VAT	
Total incl. VAT	
VAT No.	

- **Commercial Invoice**

It is a document required by customs to determine true value of the imported goods, for assessment of duties and taxes. A commercial invoice (in addition to other information) must identify the buyer and seller, and clearly indicate the date and terms of sale, quantity, weight and/or volume of the shipment, type of packaging, complete description of goods, unit value and total value, and insurance, Terms of delivery and payment, Vessel/flight details, Port/ Airport of Discharge, Place of delivery, shipping and other charges (as applicable).

COMMERCIAL INVOICE

Vendor/Exporter:	Invoice Number:	Date of Shipment:
	Letter of Credit Number:	AWB/BL Number:
	Currency:	Country of Origin:
	Conditions of Sale /Terms of Sale:	
Consignee:	Importer:	
Transportation: -- Via: -- From:	Total Number of Packages: -- Total Net Weight: -- Total Gross Weight:	Total Invoice:

Product Description	Qty	Weight	Unit Price	Total Value

These commodities, technologies, or softwares were exported from the United States in accordance with export administration regulations. Diversion contrary to United States law prohibited. We certify that this commercial invoice is true and correct.

Name	Signature	Date

- **Consular Invoice**

It is an invoice that describes the goods being transported. The exporter authenticates the accuracy of the invoice by appearing before the Importer Country's Consul who is stationed in the exporter's country.

- **Quotation:**

This is an inquiry regarding the price and quantity of goods and services. It also includes the terms of payment and delivery. It also gives a range of product items and hence the time of supply is not fixed.

- **Bill of quantity (BOQ)**

This document is a full list of items, quantity and value of the items to be delivered for projects.

- **Letter of Credit**

A **letter of credit** (**LC**) also known as a **documentary credit** or **bankers' commercial credit**, is a payment mechanism used in international trade to provide an economic guarantee from a credit worthy bank to an exporter of goods.

A letter of credit is extremely common within international trade and goods delivery, where the reliability of contracting parties cannot be readily and easily determined. Its economic effect is to introduce a bank as underwriting the credit risk of the buyer paying the seller for goods.

A letter of credit is issued by a bank to another bank (especially one in a different country) to serve as a guarantee for payments made to a specified person under specified conditions.

Purpose of Letters of Credit

The purpose of this document is to reduce credit risk to sellers in both domestic and international sales arrangements. By having a bank issue, a letter of credit, in essence, one is substituting the bank's credit worthiness for that of the customer.

Types of Letters of Credit

There are two basic forms of letters of credit: Standby and Documentary. Documentary letters of credit can be either Revocable or Irrevocable, although the first is extremely rare. Irrevocable letters of credit can be Confirmed or Not Confirmed. Each type of credit has advantages and disadvantages for the buyer and for the seller.

Documentary Revocable Letter of Credit

Revocable credits may be modified or even canceled by the buyer without notice to the seller. Therefore, they are generally unacceptable to the seller.

Documentary Irrevocable Letter of Credit

This is the most common form of credit used in international trade. Irrevocable credits may not be modified or canceled by the buyer. The buyer's issuing bank must follow through with payment to the seller so long as the seller complies with the conditions listed in the letter of credit. Changes in the credit must be approved by both the buyer and the seller. If the documentary letter of credit does not mention whether it is revocable or irrevocable, it automatically defaults to irrevocable.

There are two forms of irrevocable credits:
Unconfirmed credit (the irrevocable credit not confirmed by the advising bank)
In an unconfirmed credit, the buyer's bank issuing the credit is the only party responsible for payment to the seller. The seller's advising bank pays only after receiving payment from the issuing bank. The seller's advising bank merely acts on behalf of the issuing bank and, therefore, incurs no risk.

Confirmed credit (the irrevocable confirmed credit)
In a confirmed credit, the advising bank adds its guarantee to pay the seller to that of the buyer's issuing bank. Once the advising bank reviews and confirms that all documentary requirements are met, it will pay the seller. The advising bank will then look to the issuing bank for payment. Confirmed Irrevocable letters of credit are used when trading in a high-risk area where war or social, political, or financial instability are real threats. Also, common when the seller is unfamiliar with the bank issuing the letter of credit or when the seller needs to use the confirmed letter of credit to obtain financing its bank to fill the order. A confirmed credit is more expensive because the bank has added liability.

Standby Letter of Credit

This credit is a payment or performance guarantee used primarily in the United States. They are often called non-performing letters of credit because they are only used as a backup should the buyer fail to pay as agreed. Thus, a stand-by letter of credit allows

the customer to establish a rapport with the seller by showing that it can fulfill its payment commitments. Standby letters of credit are used, for example, to guarantee repayment of loans, to ensure fulfillment of a contract, and to secure payment for goods delivered by third parties. The beneficiary to a standby letter of credit can cash it on demand. Stand-by letters of credit are generally less complicated and involve far less documentation requirements than irrevocable letters of credit. See Credit Administration, Sample Procedure for Administration of a Standby Letter of Credit for a systematic procedure for establishing a standby letter of credit.

Special Letters of Credit

The following is a brief description of some special letters of credit.

- **Back-to-Back Letter of Credit**

This is a new letter of credit opened based on an already existing, non-transferable credit used as collateral. Traders often use back-to-back arrangements to pay the ultimate supplier. A trader receives a letter of credit from the buyer and then opens another letter of credit in favor of the supplier. The first letter of credit serves as collateral for the second credit.

- **Deferred Payment (Usance) Letter of Credit**

In Deferred Payment Letters of Credit, the buyer accepts the documents related to the letter of credit and agrees to pay the issuing bank after a fixed period. This credit gives the buyer a grace period for payment.

- **Red Clause Letter of Credit**

Red Clause Letters of Credit provides the seller with cash prior to shipment to finance production of the goods. The buyer's issuing bank may advance some or all of the funds. The buyer, in essence, extends financing to the seller and incurs the risk for all advanced credits.

- **Revolving Letter of Credit**

With a Revolving Letter of Credit, the issuing bank restores the credit to its original amount once it has been used or drawn down. Usually, these arrangements limit the number of times the buyer may draw down its line over a predetermined period.

- **Transferable Letter of Credit**

This type of credit allows the seller to transfer all or part of the proceeds of the original letter of credit to a second beneficiary, usually the ultimate supplier of the goods. The letter of credit must clearly state that it is transferable for it is to be considered as such. This is a common financing tactic for middlemen and is common in East Asia.

Basic Procedures for Establishing a Letter of Credit

The letter of credit process has been standardized by a set of rules published by the International Chamber of Commerce (ICC). These rules are called the Uniform Customs and Practice for Documentary Credits (UCP) and are contained in ICC Publication No. 500. The following is the basic set of steps used in a letter of credit transaction. Specific letter of credit transactions follows somewhat different procedures.

- After the buyer and seller agree on the terms of a sale, the buyer arranges for his bank to open a letter of credit in favor of the seller. Note: The buyer will need to have a line of credit established at the bank or provide cash collateral for the amount of the letter of credit.
- The buyer's issuing bank prepares the letter of credit, including all of the buyer's instructions to the seller concerning shipment and required documentation.
- The buyer's bank sends the letter of credit to the seller's advising bank.
- The seller's advising bank forwards the letter of credit to the seller.
- The seller carefully reviews all conditions stipulated in the letter of credit. If the seller cannot comply with any of the provisions, it will ask the buyer to amend the letter of credit.
- After final terms are agreed upon, the seller ships the goods to the appropriate port or location.
- After shipping the goods, the seller obtains the required documents. Please note that the seller may have to obtain some documents prior to shipment.
- The seller presents the documents to its advising bank along with a draft for payment.
- The seller's advising bank reviews the documents. If they are in order, it will forward them to the buyer's issuing bank. If a confirmed letter of credit, the advising bank will pay the seller (cash or a bankers' acceptance).

- Once the buyer's issuing bank receives and reviews the documents, it either (1) pays if there are no discrepancies; or (2) forwards the documents to the buyer if there are discrepancies for its review and approval.

Bank Letter Of Credit

Date:

Address:

The irrevocable letter of credit no. _____ on behalf of _____

Dear sir,

We have opened the Irrevocable letter of credit in your favour and available to you by your draft(s) drawn on _____, payable at sights for any sums not exceeding _____ (the principal amount) for the account of _____. The drafts made against the above Credit letter lead to the following:

Drawn under _____

Each draft against the Irrevocable letter of credit _____ must be accompanied by a written certificate of _____ (commission) that the draft is presented resulting in _____ having defaulted or failed to complete the following improvements on or before the expiration of _____—the estimated costs of meeting the specifications required modifications secured by this letter of Credit.

Post-Shipment Finance: There are several ways in which an exporter can obtain finance under a Documentary Credit (DC) each depending upon how the DC is payable. Finance under DCs is usually based on inter-bank rates which can show an interest advantage over other forms of finance such as bank overdrafts.

Pre-Shipment Finance: There are two ways in which pre-shipment finance can be raised from a documentary credit. The simplest if for the DC terms to include a clause (known as red clause) permitting an advance of funds to the beneficiary (exporter) prior to presentation of the shipping documents. In this way, the importer directly finances the exporter. Alternatively, the exporter's bank can provide a short-term loan, for a percentage of the DC value, which is repaid from the proceeds of the subsequent presentation under the DC. The existence of the DC does not, itself, normally constitute security for such loans; a bank facility, subject to normal lending criteria would be required. The term Packing Credit Advance is generally used to describe loans of this type.

Bill of Exchange (BoE):

A Bill of Exchange is legally defined as an 'unconditional' order in writing addressed by one person to another, signed by the person giving it, requiring the person to whom it is addressed to pay on demand or at a fixed or determinable future time a certain sum in money to or to the order of a specified person, or bearer. The Bill of Exchange looks something like a cheque and is prepared by the exporter and drawn on an overseas buyer, or even a third party, as designated in the export contract for the sum agreed as settlement. (Source of document- A bank).

Use/Purpose/Function of a Bill of Exchange

By using a Bill of Exchange with other shipping documents through the banking system, an exporter can ensure greater control of the goods, because until the Bill of Exchange is paid or accepted by the overseas buyer the goods cannot be released. Conversely, the buyer does not have to pay or agree to pay by some agreed date until delivery of the goods from the exporter. Drafts vary in shape, size and layout and may be generated by computer or printed on company stationery. They can also be purchased from commercial stationers. In the case of a usance draft, the drawee bank accepts future liability for the exporter's claim for payment by signing its acceptance across the face of the draft. The draft must be drawn on the party nominated in the credit as drawee (usually the issuing or confirming bank), the currency must be unambiguous (e.g. US dollars not dollars), they must be made out for the correct amount, words and figures must agree, and the tenor must be required in the credit. The credit terms may also stipulate that the draft bears reference to the credit e.g., is marked "Drawn under documentary credit number… of (issuing) bank". Provided that the credit does not stipulate those drafts are required in duplicate, a single draft (sole or sola of exchange) may be presented. If the draft is payable to your own order, it must be endorsed on the reverse before presentation to the bank. The endorsement can be "in blank" or specifically to the order of the bank handling the document on your behalf.

4.12.2 Documents Related to Transport of Goods

- **Bill of Lading (B/L)**

A bill of lading (B/L) is a legal document issued by a carrier to a shipper that details the type, quantity, and destination of the goods being carried. A bill of lading also serves as a shipment receipt when the carrier delivers the goods at a predetermined destination.

This document must accompany the shipped products, no matter the form of transportation, and must be signed by an authorized representative from of the carrier.

- A bill of lading is a document signed by a carrier (whether ship owner or master or charterer) which states that certain goods have been shipped on board a particular ship in order to be transported from one place to another and be delivered to a particular party named in the bill of lading.
- The word "lading" means "loading", it specifically refers to the loading of cargo aboard a ship.

A receipt of goods shipped on board a ship signed by the person (or his agent) who contracts to carry them and stating the terms on which the goods are carried. It is a document of title and as such is required by the importer to clear the goods at the port of destination.

The bill of lading is the major shipping document in the liner trades but in chartering it is governed by the terms and conditions of the charter party which is the actual contract of affreightment and therefore the paramount document.

Information on Bill of Lading

- Name of the Shipping Company/Carrier that has issued it.
- Shipper's full style address/details (Usually the exporter).
- Name and Address of the Importer/ Consignee or Order.
- Name and address of the Notify Party (The person to be notified on arrival of goods at destination-usually the importer or agent).
- Name of the carrying vessel and voyage details.
- The names of the Port of Loading/Port of destination.
- The Marks and numbers identifying the cargo.
- A brief description of the goods, possibly including weights and dimensions.
- The shipping terms, CIF, FOB, and Freight collect or pre-paid.

- The number of original documents printed; all retained at origin port or retained by the carrier in this case a T.R will prevail.
- The signature of the shipper or his agent.
- The date on which the goods were received for shipment/ Date cargo was shipped on board.

MAERSK

MAERSK LINE

RFC GHE092502HK5

BILL OF LANDING FOR PORT TO PORT SHIPMENT

Shipper (Complete Name And Address) **Shenzhen Ailisheng Trade Co., Ltd.** **Phoenix Road,Luohu district, Guangdong** **Shenzhen city,China** **Telephone and fax: 086-755-36922075**	Packing List No.: **219618043-1** Bill of Landing No.: **SSOF090406718** Freight And Charges Payable By: **Shipper at shen zhen /Guangdong** Terms Of Sale: **FOB (2010)**
Consignee (Complete Name And Address) **Alejead Pc S.A.S - Aptdo Postal 28059** **Carrera 100 5-39 – Cali - Valle - Colombia** **Telephone and email: 059-032-4491451 - alejead@hotmail.com**	Number of Original Bill of Landing Issued: **Three (3)**
Notify Party (Complete Name And Address) **Same as consignee**	Place and date of issue: **15 – August – 2010** **Shen zhen / China**
Place of Receipt: **Shen Zhen / China** Port Of Loading: **Shangai / China**	For Release Of Shipment, Please Contact: **Agencia de Aduanas Siacomex Ltda – Buenaventura** **Calle 2 No. 2ª-58 – PBX: (052) 242 2798** **Fax: (052) 242 4823 - buenaventura@siacomex.com**
Place of Delivery: **Cali / Colombia** Port Of Discharge: **Buenaventura / Colombia**	Total No. Of Container/Package Received By The Carrier: **1 / 0**
	For Transshipment To: **Maersk Line** Vessel/Voyage: **CSCL LE HAVRE / 0029W**

Marks And Numbers	No. of PKGS	Description of Packages And Goods	Gross Weight	Measurement
20' steel Dry Cargo Container No: **CSQU3054383**	**500 packages**	**500 units of 15.6 inch laptop with core i7 8GB RAM, In 6 pallets with 80 packages each one with a volume of 1.63 M^3 and 1 pallet with 20 packages with a volume of 0.41 M^3**	**1650 Kg**	**10.2 M^3**

The above particulars are according to the declaration of the shipper. The carrier received the above goods in apparent good order and condition, unless otherwise specified, for carriage to the place as agreed above subject to the terms of this Bill of Landing including those on the back pages. If required by the Carrier, one original of this Bill of Landing must be surrendered duly endorsed in exchange for the goods or delivery order. In witness whereof original Bill of Landing has been signed in the number stated below, one of which being accomplished the other(s) to be void.
IN ACCEPTING THIS BILL OF LANDING, the Shipper, Consignee, Holder hereof, and Owner of the goods, agree to be bound by all of its stipulations, exceptions and conditions, whether written, printed or stamped on the front or back hereof, as well as the provisions above Carrier's published Tariff Rules and Regulations.

	Prepaid	Collect	
Ocean freight	**USD 3.300**		Shipped on Board: **20 – August – 2010** Place: **Shangai**
In Witness Whereof **3** original Bills of Lading have been signed, not otherwise stated above, one of which being accomplished the others shall be void			Signature: ---------- B/No: SSOF090406718 Terms of landing continued on reverse side

The contract evidenced by Bill of Landing is governed by the laws of the Hong Kong Special Administrative Region. Any proceeding against the carrier must be brought in the courts of the Hong Kong Special Administrative Region and no other court.

Functions of a Bill of Lading

It is the carrier's receipt for carriage of goods by sea. It therefore has several functions:

- The issuance of a Bill of Lading by the carrier is a proof that the goods have been received from the shipper or their agent in a apparent good order and condition as handed over by the shipper.
- A bill of lading issued by the carrier or their agent to the shipper or their agent as proof of receipt of the cargo
- A bill of lading is an acknowledgement of receipt of goods specified in it (in its free space known as the margin)
- A bill of lading is a prima facie evidence or conclusive evidence of facts contained in it as stated by the shipper

Contract of carriage of goods by sea

- A bill of lading is the evidence of contract of carriage of goods entered into between the carrier and the shipper or cargo owner in order to carry out the transportation of the cargo by sea.
- It has long been accepted that the terms set out on the reverse of the bill of lading are only evidence of the contract of carriage as between the shipper and the carrier
- The contract is agreed before the bill of lading is issued; the contract is made before the goods are sent to the ship
- The bill of lading terms of the contract of carriage are conclusive and the carrier is estopped from adducing external evidence to the contrary.

Document of title to the goods

If the right to possession of goods from the carrier is determined by the possession of a document, such as a bill of lading, then that document is a document of title. Therefore, the person presenting an original bill of lading is entitled to delivery of goods at the place of destination. The title in the context of bills of lading means right to possession of the goods from the carrier but does not mean right to ownership.

The bill of lading is a legal document between the shipper and carrier, detailing the type, quantity, and destination of goods being carried.

The negotiable bill of lading is distinguished by the fact that it is a contract of carriage that can be transferred to a third party. A bill of lading is a standard form document that is transferable by endorsement (or by lawful transfer of possession).

Most shipments by sea are covered by The Hague Rules, The Hague–Visby Rules or Hamburg Rules, which require the carrier to issue the shipper with a bill of lading identifying the nature, quantity, and leading marks of the goods.

It is a document of title of the goods. As such it is quasi-negotiable. This means that the title of the holder is only as good as the title of previous holder; the transferee does not get a better title of the document that the transferor had-which is the case with a fully negotiable document. Bills of lading are made out in sets with either two or three originals or a variable number of copies which are not negotiable. The number of originals must be shown in writing on the bill of lading and the presentation of one renders the other null and void.

Forms of Bills of Lading

Two main types of Bills of Lading exist which are long form Bill of Lading with its attendant clauses found on the reverse of the document, and short form Bill of Lading. Under the latter, instead of the mass of small print/clauses on the reverse side, there is an approved "short form" clause on the face which incorporates the carrier's standard condition with full legal effect. The forms of bills of lading include the following;

Combined transport bill of lading: Also known as port-to-port bill of lading. With the development worldwide of containerized services, the need to provide a bill of lading embracing not only the maritime voyage(s) portion of the transit, but also the overland distribution to the port of departure and from the port of destination involving road, rail or canal has been paramount. This is contained in the combined transport bill of lading, which may also be used for port-to-port shipments.

Under the terms of the Combined transport bill of lading, the carrier as principal accepts 'through liability' for the contracts that he or she makes with sub-contractors. Hence the carrier is liable as soon as his or her subcontractor has received the goods from the merchant or shipper. Accordingly, the combined transport bill of lading provides for the carrier or ship-owner to accept responsibility from the place of the goods acceptance to the place of the merchandise destination after the discharge of the goods from the carrying vessel. This may involve

road/rail/canal transit to the departure port: the actual voyage(s), which may involve transshipment; and finally, the journey from the final destination port embracing road, rail or canal. A through rate is quoted for the transit throughout.

Order bills of lading: These have no named consignee, the word "order" being inserted in the "consignee" box while the intended consignee is shown as a "notify party" immediately underneath. Before forwarding the bills of lading through the bank system under a documentary collection, the shipper must blank endorse the originals by signing his name and putting his stamp on the reverse of the bill. He will then give instructions to the collecting bank to release the bills of lading only against payment (documents against payment) or against acceptance of his accompanying bill of exchange (documents against acceptance). In this way he can retain the title of the goods if the buyer refuses to accept them. Furthermore, since the buyer is only a notify party, he cannot lay claim to the goods without producing the bills of lading to the carrier.

Through bills of lading: A through bill of lading is used when goods are being transshipped. It covers both legs of the journey. It is issued by the major carrier but will have an accompanying local bill of lading, with the major carrier shown either consignor or consignee for the other part of the transit. Transshipment traffic occurs either because there is no direct route or in order to get a faster transit. It covers the whole spectrum of commodities and at the time of original shipment the final destination of a consignment is known, so that it is possible to make out a through bill of lading.

Cover bills of lading: Where cargo is short shipped from an earlier consignment (sometimes by accident, the cargo being left in a shed in error) it has to be sent on by the first available ship. This may be the first ship of the line in question, or a different line may be used in order to preserve goodwill with the shipper or the customer abroad. In such circumstances bills of lading to cover the consignment will be made out addressed to the first carrier's agent in the port of delivery. They will be specific in that they explain the problem and the action taken to rectify the matter. Freight will normally have been paid on the original bill of lading. Such cover bills of lading would only be met in the case of conventional break-bulk shipping, which, although still present in trade with sophisticated areas is steadily declining in importance.

Clean, dirty and stale bills: Bills of lading may be clean, dirty or stale. "Clean" indicates that at the time of shipment the hatch tally which records the physical conditions of the goods as they are loaded had no clause indicating shortage or damage to the goods or insufficiency of packing. A clean, shipped –on-board bill of lading is the normal requirement of a letter of credit. "Claused" or "dirty" bills have clauses relating to shortage or damage the goods or insufficient packing and as such are not normally acceptable under letter of credit.

Sea waybill is a non-negotiable document that also functions as a receipt for shipment and as evidence of the contract of carriage. However, the document need not be presented in order to obtain delivery of the goods from the carrier. Sea waybills, therefore, do not provide constructive possession of the goods covered, an aspect, which has a number of consequences.

On the one hand, the utility of this type of document is limited by the fact that the document itself cannot be used to transfer possession and property. Sea waybills are thus not suitable (a) if sale of the goods in transit is envisaged or (b) if independent, documentary security is required by a buyer or by a bank involved in a letter of credit or other finance arrangement.
Moreover, the document may not - at any rate without express contractual incorporation - attract the mandatory application of The Hague or Hague-Visby Rules, which is restricted to "bills of lading or similar documents of title". Non- negotiable sea waybills are not expressly covered by The Hague and Hague-Visby Rules. However, as they are also standard form documents, issued by a carrier and operating as a receipt and as evidence of a contract of carriage, the national legislation of some States extends the protection of The Hague and Hague-Visby Rules to non-negotiable sea waybills.

In some cases, such (statutory) application is, however, only triggered if the contract evidenced in the document effectively incorporates the Rules. Moreover, where - under national law- the Rules are applicable to sea waybills, the evidentiary value of statements in the document relating to the goods shipped may be less strong.

They therefore overcome the problem of stale bills of lading and are particularly useful for shipments

sold on "open account" terms. "Open account terms" are used where the exporter and importer deal with one another on a regular basis and with complete confidence that payment will be made. There is no need to use any system which ensures payment is made before the goods are released, such as a "letter of credit" system. Instead, the customer is treated like an ordinary debtor in the home trade, and is rendered a "statement of account" at regular intervals –often-monthly intervals.

EVERGREEN LINE
A Joint Service Agreement

SEA WAYBILL
PROOFREAD
NON-NEGOTIABLE

(2) Shipper / Exporter

(5) Document No.

(6) Export References

(3) Consignee(complete name and address)
INTERNATIONAL CARGO EXPRESS PTY LIMITED(BRISBANE)
UNIT 1, 789 KINGSFORD SMITH DRIVE
EAGLE FARM QLD 4009, ABN NUMBER :
54003500347 TEL: +61 (07) 36381300,
FAX: +61 (07) 3868 1776

(7) Forwarding Agent-References

(4) Notify Party (complete name and address)
INTERNATIONAL CARGO EXPRESS PTY LIMITED(BRISBANE)
UNIT 1, 789 KINGSFORD SMITH DRIVE
EAGLE FARM QLD 4009, ABN NUMBER :
54003500347 TEL: +61 (07) 36381300,
FAX: +61 (07) 3868 1776

(8) Point and Country of Origin (for the Merchant's reference only)

(9) Also Notify Party (complete name and address)

(12) Pre-carriage by

(13) Place of Receipt/Date
SHANGHAI

This Sea Waybill is issued at the request and for the convenience of the Merchant, but is nevertheless subject to the terms and conditions of the Carrier s standard long form Bill of Lading for this trade which may be viewed online at [http://www.evergreen-line.com] or a copy obtained from the Carrier or its agents.

(14) Ocean Vessel/Voy. No.

(15) Port of Loading
SHANGHAI

(10) Onward Inland Routing/Export Instructions (which are contracted separately by Merchants entirely for their own account and risk)

(16) Port of Discharge
BRISBANE

(17) Place of Delivery
BRISBANE

Particulars furnished by the Merchant

(18) Container No. And Seal No. Marks & Nos.	(19) Quantity And Kind of Packages	(20) Description of Goods	(21) Measurement (M³) Gross Weight (KGS)
CONTAINER NO./SEAL NO.			136.0000 CBM 16,250.000 KGS
89871/40H/EMCWFW1758/ 70795/40H/EMCWFW2358/ N/M	2 X 40H	334 ROLS 5250.000 KGS 68.0000 CBM (HI-CUBE) 442 ROLS 11000.000 KGS 68.0000 CBM (HI-CUBE) REPROCESSED SPONGE UNDERLAY	

* THE BALANCE OF BILL OF LADING SEE ATTACHED LIST *
TOTAL NUMBER OF ATTACHED 1 PAGE
"OCEAN FREIGHT PREPAID"
SHIPPER'S LOAD & COUNT
776 ROLLS

(22) TOTAL NUMBER OF CONTAINERS OR PACKAGES (IN WORDS) TWO(2) CONTAINERS ONLY

(24) FREIGHT & CHARGES	Revenue Tons	Rate	Per	Prepaid	Collect

(25) B/L NO.

(27) Number of Original B(s)/L
NIL (0)

(29) Prepaid at
SHENZHEN, CHINA

(30) Collect at

(28) Place of B(s)/L Issue/Date
SHENZHEN, CHINA AUG.14,2019

(31) Exchange Rate

(32) Exchange Rate

(26) Service Type/Mode
FCL/FCL O/O

(33) Laden on Board
AUG.14,2019

PROOFREAD

Non Negotiable Sea Waybill

Consignor (name, address, tax reference)			Shipper's reference Forwarder's reference Unique consignment reference		Bill of Lading number	
Consignee (name, address, tax reference)			Carrier (name, address, tax reference)			
Notify party (name, address, tax reference)			Additional notify party (name, address, tax reference)			
Pre-carriage by Vessel/voyage no Port of discharge	Place of receipt Port of loading Final place of delivery by on-carrier					
Marks and numbers; transport unit ID	Number and kind of packages; shipping description of goods				Gross weight	Measurement
Container no(s) Seal no(s)	Freight details, charge etc.		Rate	Per	Prepaid	Collect
	Freight payable at Number of original Bill of Lading		Carrier's name Place (+ ISO code) and date of issue (yyyy-mm-dd)			
Received for carriage as above in apparent good order and condition, unless otherwise stated hereon. The goods described in the above particulars			Authenticating Signature			

House bills of lading: With the development of consolidation/groupage by sea consequent upon containerization, the house (or forwarding agent's) bill of lading is increasing in importance. Like the carrier's bill of lading, it is a negotiable original and non-negotiable copy. Obviously, these can only be issued against a carrier's shipped bill of lading taken out by the forwarder and consigned to his agent at destination. The forwarder then issues separate house bills to the various consignors, to be forwarded to their consignees, who then apply to the forwarder's correspondent agent for delivery of the goods at destination. Banks are not prepared to accept such bills of lading under the terms of a letter of credit, unless specifically authorized to do so in

the credit. If you are using a groupage forwarder, ask your customer to word the letter of credit accordingly.

Non-negotiable bills of lading: Also referred to as Straight bill of lading. These are not capable of being negotiated. These also fall under the "short form" type of bills of lading, in that they are only printed on one side and do not bear on the reverse side the detailed fine print conditions of carriage to be found on the ordinary bill of lading. Instead, a standard clause on the face of the document incorporates the carrier's conditions of carriage into the contract. These will be supplied on request. They are essentially "received for shipment" documents though they may be endorsed as "shipped on board" if required.

Air Waybill (AWB)

An air waybill (AWB) is a document that accompanies goods shipped by an international air carrier to provide detailed information about the shipment and allow it to be tracked. It also refers to a document which corresponds to the Warsaw Convention and subject to the IATA regulations.

An air waybill (AWB) serves as a receipt of goods by an airline (the carrier), as well as a contract of carriage between the shipper and the carrier. It's a legal agreement that's enforceable by law. It becomes an enforceable contract when the shipper (or shipper's agent) and carrier (or carrier's agent) both sign the document. It should not be issued "to order" or to be endorsed as it is not a title of the property of the merchandise. Since it is not negotiable and does not evidence title to the goods.

Functions of an airway bill

- Evidence of receipt of goods by the carrier
- Contract of carriage of goods by air
- Freight bill
- Certificate of insurance
- Customs declaration

An airway bill is marked with serial number and the three-digit code of the airline. Airway bill number ranges are assigned to the IATA agents. This serial number shall be as follows, 020-1234567-5.

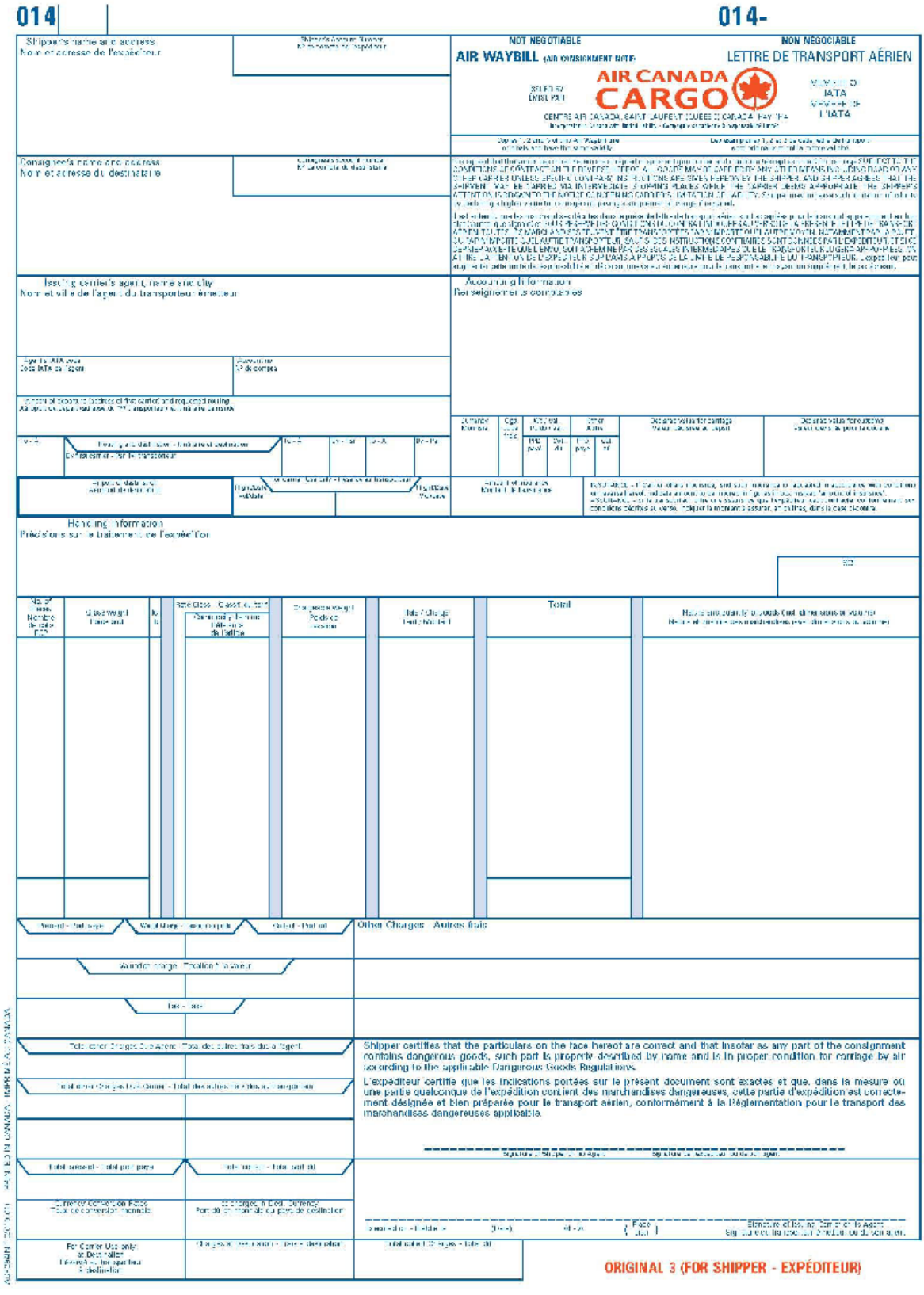
- Airway bill number has 11 digits, and 3 parts as follows: -
    - The first 3 digits are the airline prefix, *020*
    - The next 7 digits is the serial number of the airway bill, *1234567*
    - The last digit is the check digit of the airway bill, *5*
    - The check digit is derived by dividing the 7-digit serial number by 7. (Without the carrier code)
- The remainder determines the check digit
  Example: Serial number 8114074 divided by 7 is 1159183 with remainder 4. Therefore, the serial number + check digit is 81140744

Since we are dividing the serial number by constant number 7, the remainder will be a number less than 7, i.e a number between 0 to 6.

- If the remainder is 7, divide it by 7 and the remainder is 0
- If the remainder is 8, divide it by 7 and the remainder is 1
- If the remainder is 9, divide it by 7 and the remainder is 2

When completing the Air Waybill note it ought to be taken that;

- When more than one package is involved, the carrier can require the consignor to make out separate Air Waybills.
- The air consignment note must be printed in one of the official languages of the country of departure, e.g., French, German, etc.
- Erasures are not admissible, but alternations can be made provided they are authenticated by the consignor's signature or initials.
- If quantities, weights, or values are altered, they must appear in words as well as in figures.
- The cargo description must be identical to on all documentation accompanying the consignment.



A **packing list** is a document that includes details about the contents of a package. The **packing list** is intended to let transport agencies, and customers know the contents of the package. These details help each of these parties handle the package

accordingly. It also allows the customer and others involved in the transaction to check what has been shipped against the package contents.

PACKING LIST (Prepared by commercial dept.)

EXPOTER/SHIPPER NAME: ..... LTD. ...., BANGLADESH.	INVOICE NO.: ..... DATE: 20-06-2011 EXP NO.: ..... DATE: 20-06-2011 L/C NO.: ..... DATE: 02-02-2011 CAT : H.T.S. CODE NO.:				
Applicant: E.S. SUTTON INC. 1400 BROADWAY, 26TH FLOOR NEW YORK, NY 10018, USA.	B/L NO.: DATE: CARRIER: E.R.C. NO.: RA-79178 TERMS OF PAYMENT: IRREVOCABLE LETTER OF CREDIT AT SIGHT.				
NOTITY: A) E.S. SUTTON INC 115 KENNEDY DRIVE SAYREVILLE, NJ 08872, CANADA.	L/C ISSUIN BANK: HSBC BANK USA, N.A. 2 HANSON PLACE, BROOKL YN, NEW YORK 11217, USA. ADVISING BANK: FIRST SECURITY ISLAMI BANK LTD. BANANI BRANCH, PLOT # 80, BLOCK # B, KEMAL ATATURK AVENUE, DHAKA-1213				
PORT OF LOADING : DHAKA AIRPORT,	FINAL DESTINATION : VANCOUVER, CANADA.				
PORT OF DISCHARGE : VANCOUVER, CANADA.	SHIPPED PER : AIR				
SHIPPING MARKS	DESCRIPTION OF GOODS	CTN NO	CTN QTY	PCS CTN	TOTAL PCS
SHIP TO: WAL-MART CANADA DEPT: 33 BRAND NAME: GEORGE ITEMDESCRIPTION: FUR TRIMMED DUSTER SWEATER MEASURMENTS: 17 X 17 X 12 INCH MADE IN BANGLADESH	FUR TRIMMED DUSTER SWEATER STYLE NO: GRF120307G PO NO: 84233VM	1-445	445 Ctn	8 Pcs	3,560 Pcs

Packing List Sample

Stowage Plan:

This is a plan depicting location of cargo stowed in ship or unit of carriage. To the exporter or shipper, it is paramount he/she is aware of the principle of cargo stowage, particularly in an era where more shippers are stuffing containers or operating their own TIR international haulage vehicle or inter-modal service. Overall, the prime consideration is the safety of the transport unit employed which may be a container, vessel, aircraft, or road vehicle. It is the overriding factor to be borne in mind throughout the transit that merchandise does not impair the general safety of the transport unit and likewise it is not a danger to others. Moreover, one must bear in mind that stowage standards are raising all the time and the shipper should always seek prior advice if in doubt. This is particularly relevant to containerization where most major container operators provide a free advisory service on the principles of container stowage.

A good stowage plan will reflect four main factors that is;

- The best possible should be made of the available dead weight or cubic capacity. It may be a container, road vehicle, ship or aircraft. Broken stowage which is space wasted by cargo of irregular-shaped packages or irregularity of cargo spaces, should be kept to a minimum consistent with the general stability of the transport unit. Generally, 10-15% of the total cubic capacity is allowed for broken stowage.
- The need to prevent damage to the transport unit. Not only must there be a proper distribution of the cargo to ensure adequate stability and trim, but also it must be properly secured to prevent shifting. This situation is more serious when dangerous cargoes are involved irrespective of the transport mode.
- A proper segregation of different consignments for various destinations/ areas/ports/countries must be made to prevent delay in distribution and avoid double handling. This is a primary task of the ship owner, airline, container operator or freight forwarder-the latter two being particularly involved in consolidated / groupage consignments.

- Fragile cargo that is liable to leakage, scratches easily, has strong odor, or is liable sweat, taints easily requires proper segregation, otherwise the carrier will be faced with heavy claims and possible loss of much goodwill amongst shippers.

Stowage plan for container ship

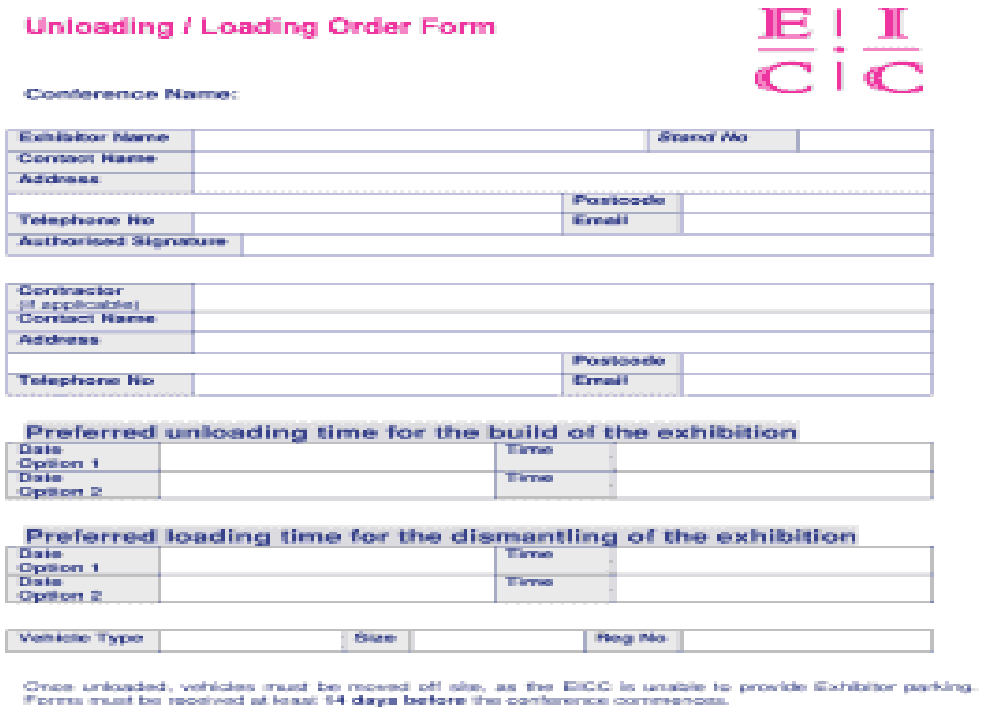
Stowage Order:

A document issued by the ship-owner indicating acceptance of a specified cargo on a particular ship sailing from a port and featuring the ship owner's reference. It is usually associated with the movement of dangerous classified cargo by sea. The stowage order will indicate where the cargo is to be stowed on the ship. The master has the right to refuse to ship dangerous cargo if the circumstances warrant such a decision.

Mate's Receipts:

This is a document issued to the shipper for ship's cargo loaded from lighterage and later exchanged for Bill of Lading. In some trades the Standard Shipping Note (SSN) described above is also referred to as the Mate's Receipt.

Dennis Bager, Ralph Bugg and Geoffrey Whitehead have defined a Mate's Receipt as a receipted lighterage note evidencing shipment on board of goods delivered by lighter or barge to a vessel. This receipt must be exchanged in due course for a bill of lading. A similar receipt is given to port authorities for cargo loaded via quay.



Unloading / Loading Order Form

Conference Name:

Exhibitor Name		Stand No	
Contact Name			
Address			
		Postcode	
Telephone No		Email	
Authorised Signature			

Contractor (if applicable)			
Contact Name			
Address			
		Postcode	
Telephone No		Email	

Preferred unloading time for the build of the exhibition

Date Option 1		Time	
Date Option 2		Time	

Preferred loading time for the dismantling of the exhibition

Date Option 1		Time	
Date Option 2		Time	

Vehicle Type		Size		Reg No	

Once unloaded, vehicles must be moved off site, as the EICC is unable to provide Exhibitor parking.
Forms must be received at least **14 days before** the conference commences.

Mate's Receipt

Use/purpose/function

Before issuing a shipped bill of lading for cargo which has been loaded direct over side from craft, the carrier will require the shipper to hand over the mate's receipt. If it is not surrendered the shipper would have two receipts signed on behalf of the master for the same goods.

Manifest (cargo, freight): Cargo Manifest

A shipping document used by customs personnel reviewing a particular transport vessel's intended trip that summarizes all bills of lading that have been issued by the carrier or its representative for that shipment.

For example, a cargo manifest might be used for shipments made by sea, air or land, and will generally show the shipment's cosigner and consignee, as well as listing product details such as number, value, origin and destination.

A summary of cargo loaded on a ship (usually) or aircraft. This would include its weight, measurement, freight details and total amount-whether prepaid or payable at the destination, port departure and destination, nature of cargo and so on. Such a manifest is usually termed a freight manifest. Today manifests are transmitted to interested parties, such as the port authorities in destination countries, by electronic data interchange (EDI). Such computer-to computer interchanges are virtually instantaneous, and the information can be accessed by interested parties at any time.

Purpose of a Cargo Manifest

The customs and port authority at the port of shipment require a full manifest of cargo and, similarly each port of destination is provided with a complete manifest, plus a number of copies of its section of the manifest together with a copy bill of lading/airway bill required by the carrier is the one used for freighting and checking the shipment and is retained in the freight department, along with an

extended copy of the manifest which includes details of the freight. Another extended freight manifest is held by the accounts department.

Delivery Order (D/O)

A **delivery order** (abbreviated **D/O**) is a document from a shipping carrier instructing a terminal operator or shipping agent to release cargo or freight to the agent or consignee designated on the Bill of Lading. This document is required by the agent or consignee to clear the goods through customs and marks the end of the transport contract between the shipping carrier and consignee.

A delivery Order gives details of imported goods that are to be delivered to a consignee or agent by a port authority. The cargo description must accord with the details found on the bill of lading and other shipping or customs documents. It also features details of the vessel and arrival date. Overall, it is an authority for the goods to leave the port sea. It is usually in triplicate and may be called Delivery or Shipment Note.

Purpose of a D/O

The document serves as a delivery note for imported cargo, where applicable as a remittance advice for an account holder to return (the relevant option) to the port authority with the appropriate payment.

MEDITERRANEAN SHIPPING COMPANY (AUST) PTY LIMITED A.B.N. 12003760638
as agent for MSC Mediterranean Shipping Company S.A. (MSC)

Import Delivery Order

Date: 18/12/2015
Time: 11:46:54AM

Consignee		Bill Of Lading Number :		
		Container Number Type Seal No. Gross Container Weight		
Discharging Vessel & Voyage	Arrival Date	Port of Load	Port of Discharge	Final Destination
Hazardous Info: Reefer Info:		Container Place of Availability Status:		
Over Dimension Details :		E-IDO PIN NUMBER:		
Signature of issuing officer MEDITERRANEAN SHIPPING COMPANY (AUST.) PTY. LIMITED AS AGENTS ABN 12 003 760 638		Signature of driver (Container received in apparent good order)		
Date of Issue	OR	Container received damaged-refer damage report		
Shipping Company/Agent to overstamp these 2 items of information				
Transport Co. Truck Co.		Date Time		

Cargo Arrival Notice:

An (Air) Cargo Arrival Notice is a letter of advice and request to the consignee, issued only when the client has failed to contact the airline regarding the processing of the imported goods. Source of document: Airline e.g., Kenya Airways; or IATA Air Freight agent.

Use/purpose/function

To inform the consignee of the arrival of the goods at the specified airport; and to request the appropriate documents to enable the consignment to be cleared through customs.

MDG/IATA/FIATA declaration of dangerous goods form:

The shipper's declaration for dangerous goods together with an Airway Bill of lading MUST accompany a consignment of dangerous classified cargo on each occasion when it is dispatched by air.

Legal Context: The shippers Declaration for dangerous goods must conform and comply with the regulations governing the movement of dangerous goods classified by air as laid down by IATA. The document carries a warning that failure to comply in all aspects with the applicable law is subject to legal penalties. Under no circumstances shall it be signed by IATA cargo agent or the Consolidator or Freight forwarder.

Dangerous Goods Declaration

Shipper/Consignor/Sender of Record		Transport document number -		
		Page _____ of _____ pages.	Shipper's reference	
		Booking No.	Freight Forwarder's reference	
Consignee		Carrier (to be completed by carrier)		
Vessel Name and voyage		Emergency contact telephone (with international access code)		
Place of receipt	Port/place of loading	Additional handling information:		
Port/place of discharge	Destination	Placards/Signs:		
Shipping marks	No. and kind of packages	description of goods	Gross mass (kg)	Net Explosive Qty. *(class 1 only)*
Container identification no./ vehicle registration no.	Seal number(s)	Container/vehicle size & type	Tare mass (kg)	Total gross including tare (kg)
CONTAINER/VEHICLE PACKING CERTIFICATE It is declared that the packing of the goods into the container/vehicle identified above has been carried out in accordance with the applicable provisions. MUST BE COMPLETED AND SIGNED FOR ALL CONTAINER/VEHICLE LOADS (other than tanks) BY THE PERSON RESPONSIBLE FOR PACKING/LOADING.		**SHIPPER'S DECLARATION** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labelled/placarded and are in all respects in proper condition for transport according to the applicable international and national governmental regulations. MUST BE COMPLETED AND SIGNED FOR ALL DANGEROUS GOODS CONSIGNMENTS BY THE PERSON RESPONSIBLE FOR OFFERING THE DANGEROUS GOODS FOR TRANSPORT PER IMDG CODE 5.4.1.1.11.		
Name of company packing container		Name of company of shipper		
Name/status of declarant		Name/status of delcarant		
Place container/vehicle packed Date packed:		Place and date		
Signature of declarant		Signature of declarant		

Road Consignment Note (CMR)

Road consignment note is a document with details of goods sent from a seller to a buyer by **road**, and that travels with the goods: This **road consignment note** confirms that the haulage company has received the goods.

It is prepared by a consignor and countersigned by the carrier as a proof of receipt of **consignment** for delivery at the destination. Used as an alternative to bill of lading (specially in inland transport), it is generally neither a contract of carriage nor a negotiable instrument (document of title)

CMR	LETTRE DE VOITURE INTERNATIONALE INTERNATIONAL CONSIGNMENT NOTE

1. Sender (name, address, country) / Expeditor (nume, adresa, tara) **Rage Solutions** **Strada 1, Tg Mures, Mures, Romania CUI:23423** **2. Sender (name, address, country) / Destinatar (nume, adresa, tara)** **test**	**6. Carrier (name, address, country, other references) / Expeditor (nume, adresa, tara)** Car's Number / Numar Masina: Driver's Name / Nume Sofer:
3. Sender (name, address, country) / Locul incarcarii Place / Locul: Country / Tara: Time of departure / Ora plecarii _____	**7. Successive carriers / Transportatori succesivi**
4. Delivery of the goods: / Locul livrarii Place / Locul: Country / Tara: Time of arrival / Ora sosirii _____	**8.Taking over the goods: / Locul incarcarii**
5. Sender's instructions / Instructiuni ale expeditorului	**9. Documents handed to the carrier by the sender / Documente primite de transportator de la expediator**

10. Marks and Nos Marci si numere	11. Number of packages Numar de colete	12. Method of packing Mod ambalare	13. Nature of the goods Natura marfurilor	14. Gross weight in kg Greutate Bruta	15. Volume in m3 Volum m3

16 Special agreements between the sender and the carrier Acorduri speciale "intre expeditor si transportator"	17. To be paid by / Se va plati de catre:	Sender / Expeditor	Consignee / Destinatar
	Carriage charges / Pretul transportului		
	Supplementary / Taxe suplimentare		
	Customs duties / Taxe vamale		
	Other charges / Alte taxe		

18. Other useful particulars / Alte informatii	**19. Other useful particulars / Alte informatii**

20. This carriage is subject, notwithstanding any clause to the contrary, to the Convention on the Contract for the international Carriage of Goods by Road (CMR) / Acest transport este supus, în pofida oricarei clauze contrare, la Conventia privind contractul de transport international rutier de marfuri (CMR)

21. Established in / Intocmit in on / la

22. **Signature or stamp of the sender / Semnatura si stampila expeditorului**	23. **Signature or stamp of the carrier / Semnatura si stampila transportatorului**	24. **Goods received / Marfuri primite** **Place** **Locul** **Signature or stamp of the consignee / Semnatura si stampila destinatar**

4.12.3 Other Documents

Certificate of Origin (COO)

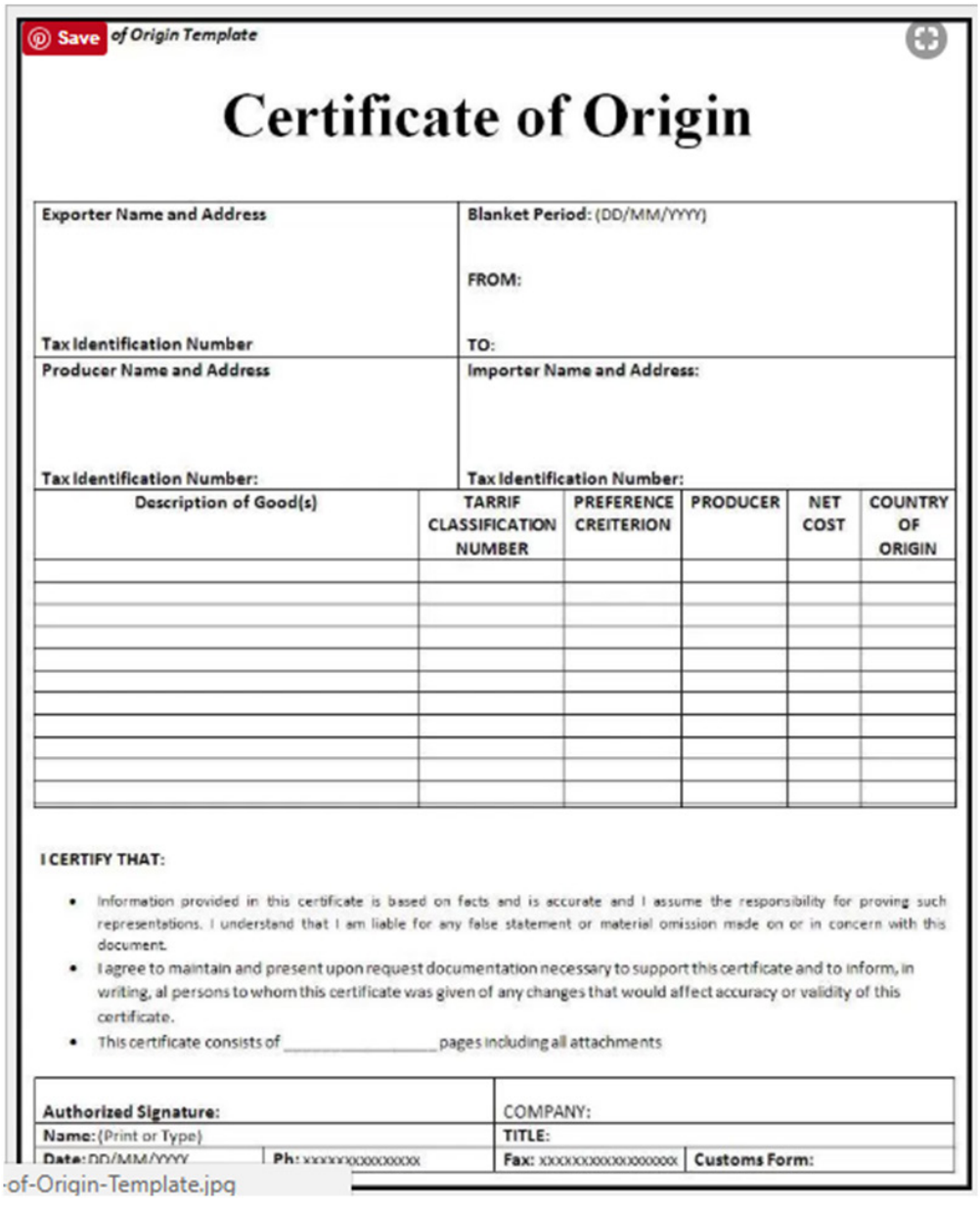
A Certificate of Origin (COO) is an important international trade document that certifies that goods in a particular export shipment are wholly obtained, produced, manufactured, or processed in a particular country.

The *certificate* contains information regarding the product, its destination, and the country of

export, it is widely used in international transactions which attests that the product listed therein has met certain criteria to be considered as originating in a particular country.

A certificate of origin is generally prepared and completed by the exporter or the manufacturer and may be subject to official certification by an authorized third party.
It is often submitted to a customs authority of the importing country to justify the product's eligibility for entry and/or its entitlement to preferential treatment.

When goods are presented to customs for clearance purposes at the time of importation the certificate of origin accompanies the goods and empowers the authorities to permit preferential import duties where appropriate. Such an arrangement usually reflects a bilateral trade agreement between two nations. Overall, the certificate of origin is a declaration stating the country (or countries) of origin of all imported goods (or their components) or where there are quotas or other import restrictions in force. Alternatively, it may prove to customs that the goods qualify for a special rate of import duty


Save of Origin Template

Certificate of Origin

Exporter Name and Address Tax Identification Number	Blanket Period: (DD/MM/YYYY) FROM: TO:
Producer Name and Address Tax Identification Number:	Importer Name and Address: Tax Identification Number:

Description of Good(s)	TARRIF CLASSIFICATION NUMBER	PREFERENCE CREITERION	PRODUCER	NET COST	COUNTRY OF ORIGIN

I CERTIFY THAT:

- Information provided in this certificate is based on facts and is accurate and I assume the responsibility for proving such representations. I understand that I am liable for any false statement or material omission made on or in concern with this document.
- I agree to maintain and present upon request documentation necessary to support this certificate and to inform, in writing, al persons to whom this certificate was given of any changes that would affect accuracy or validity of this certificate.
- This certificate consists of _____ pages including all attachments

Authorized Signature:		COMPANY:	
Name: (Print or Type)		TITLE:	
Date: DD/MM/YYYY	Ph: xxxxxxxxxxxxxx	Fax: xxxxxxxxxxxxxxxxx	Customs Form:

-of-Origin-Template.jpg

Certificate Of Conformity

A document certified by a competent authority that the supplied goods or services meet the required specifications. Also called certificate of conformance or certificate of compliance.

It is document given to exporters or importers to show that the goods or services bought or supplied meet the required standards.

Kenya Bureau of Standards
Standards for Quality life

intertek
Total Quality Assured.

PRE-EXPORT VERIFICATION OF CONFORMITY (PVOC)

CERTIFICATE OF CONFORMITY FOR GOODS EXPORTED TO KENYA

IDF NO.	E181098529	COC NO.	DRAFT/Hong Lam
DATE OF RFC RECEIPT	08 NOVEMBER 18	UCR NO.	UCR201801366942
REFERENCE NO.	KPV-119143/1 Partial	ISSUANCE DATE	

IMPORTER	EXPORTER
AVAIADIKA	NEW DE YUAN TRADING LIMITED
IMPORTER ADDRESS	EXPORTER ADDRESS
28799 80100	YEXHIBITIONCENTRE
MOMBASA	NO. 155 HENG FU ROAD GUANGZHOU
KENYA	CHINA
TELEPHONE NO.	TELEPHONE NO.
FAX NO. 0722711961	FAX NO. 83759635
EMAIL ADDRESS wadika2004@yahoo.com	EMAIL ADDRESS saraf@126.com

INSPECTION DATE	INSPECTION LOCATION	PORT OF DESTINATION
13 NOVEMBER 18	CHINA	MOMBASA, KENYA
GROSS WEIGHT	SHIPMENT MODE - AIR/ RAIL/ ROAD/ SEA	COUNTRY OF SUPPLY
15419 KGS	OCEAN	CHINA

FOB VALUE	INVOICE NO.	DATE
24,800.10 USD	181010	10 OCTOBER 18

SEAL NO. 2027319	QUANTITY DELIVERED (FULL/PART) Full

REMARKS

COC WAS ISSUED ON THE BASIS OF INSPECTION AND TEST REPORT
CONTAINER NUMBER: PCIU9116809

SIGNATURE

PVOC COUNTRY OFFICE KOWLOON, HONG KONG

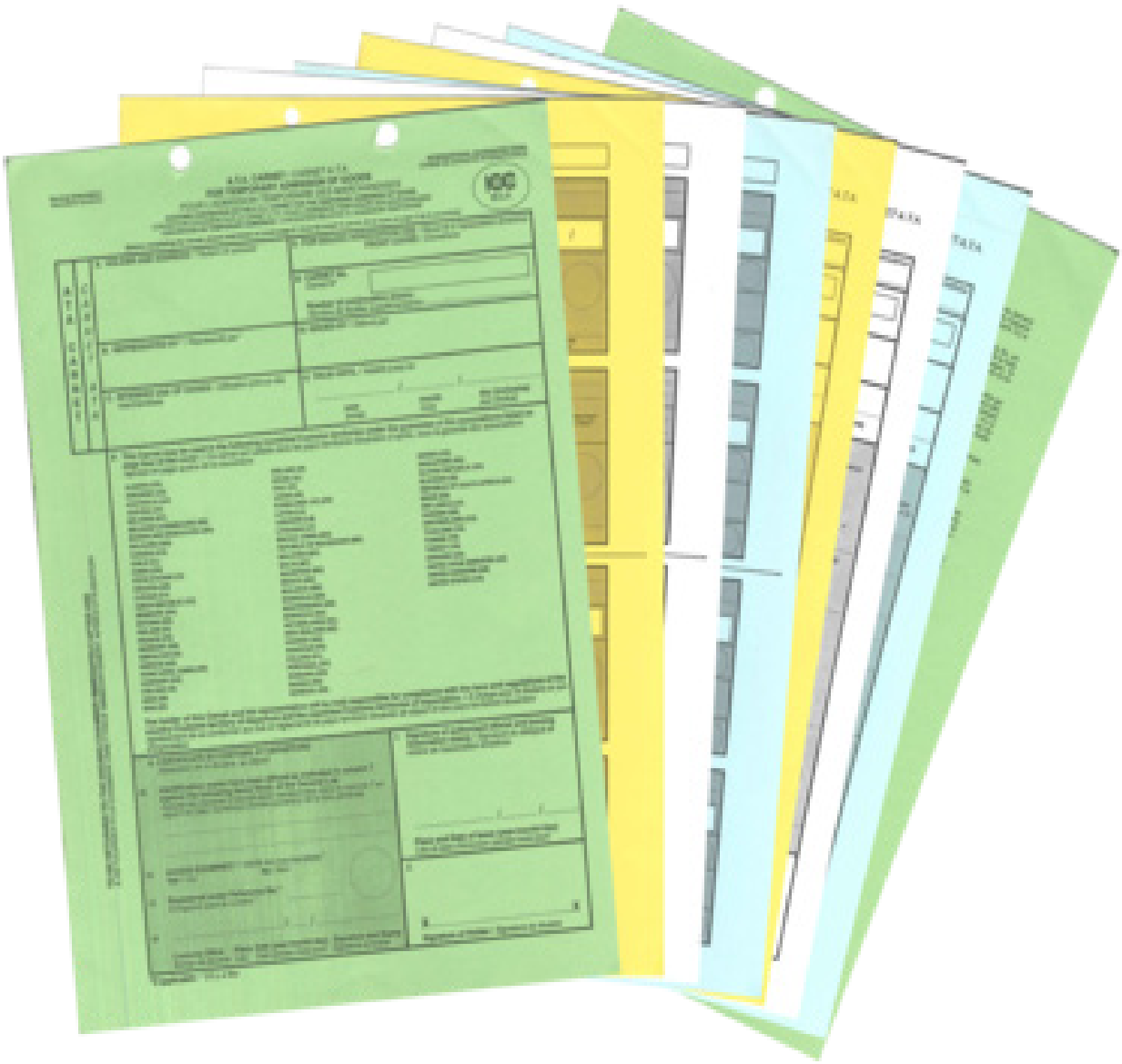
This document is issued under the authority of the Pre-Export Verification of Conformity Programme, for and on behalf of the Kenya Bureau of Standards, KENYA, and is valid for a period of three months from its issue date.

This document does not discharge exporters from their contractual obligations in relation to quality and quantity of the goods referred to herein, nor does it discharge the exporter or the importer from exercising all their rights and discharging all their liabilities under the Contract of Sale. Stipulations to the contrary are not binding on Intertek. Intertek's responsibility and liability are limited to the terms and conditions of its agreement with its client and it assumes no liability to any other party for losses, expenses or damages occasioned by the use of this certificate. This document does not evidence shipment. Irrespective of this document KEBS may reject the consignment if found to be non-conforming on verification at the port of entry.

Carnet

The **Carnet** often referred to as the "*Passport for goods" or "Merchandise passport"*, is an international customs document that permits the tax-free and duty-free temporary export and import of non-perishable goods for up to one year. It consists of unified Customs declaration forms which are prepared ready to use at every border crossing point. It is a globally accepted guarantee for

Customs duties and taxes which can replace security deposit required by each Customs authority. It can be used in multiple countries in multiple trips up to its one-year validity.



Association Emettrice - UNIONE ITALIANA CAMERE DI COMMERCIO INDUSTRIA ARTIGIANATO E AGRICOLTURA - *Issuing Association*

CARNET DE PASSAGES EN DOUANE POUR L'ADMISSION TEMPORAIRE

CARNET DE PASSAGES EN DOUANE FOR TEMPORARY ADMISSION

C P D C H I N A T A I W A N

À RETOURNER À LA CCI ÉMETTRICE APRÈS UTILISATION / *TO BE RETURNED TO OFFICE OF ISSUE AFTER USE*

A. TITULAIRE ET ADRESSE / Holder and address	RESERVE A L'ASSOCIATION EMETTRICE / *For issuing Association use* COUVERTURE / *Front cover* a) CARNET N°/ *Carnet N°*
B. REPRESENTE PAR * / *Represented by**	b) DELIVRE PAR / *Issued by*
C. UTILISATION PREVUE DES MARCHANDISES / *Intended use*	c) VALABLE JUSQU'AU / *Valid until* ..... / ..... / ..... année *year* — mois *month* — jour (inclus) *day (inclusive)*

(Avant de remplir le carnet, lire la notice en page 3 de la couverture)
(Before completing the Carnet, please read Notes on cover page 3)

Ce carnet est valable dans les pays ci-après, sous le garantie des associations suivantes: /
This carnet may be used in the following countries under the guarantee of the following associations:

AUSTRIA (AT) - Austrian Federal Economic Chamber, Vienna

BELGIUM / LUXEMBOURG (BE) - Fédération des Chambres de Commerce et d'Industrie de Belgique, Bruxelles

CYPRUS (CY) - Cyprus Chamber of Commerce and Industry, Nicosia

CZECH REPUBLIC (CZ) - Economic Chamber of the Czech Republic, Praha

DENMARK (DK) - Danish Chamber of Commerce, Copenhagen

ESTONIA (EE) - Estonian Chamber of Commerce and Industry, Tallinn

FINLAND (FI) - The Central Chamber of Commerce of Finland, Helsinki

FRANCE (FR) - Chambre de Commerce et d'Industrie de Paris, Paris

GERMANY (DE) - Deutscher Industrie und Handelskammertag, Berlin

GREECE (GR) - Athens Chamber of Commerce and Industry, Athens

HUNGARY (HU) - Hungarian Chamber of Commerce and Industry, Budapest

IRELAND (IE) - Dublin Chamber of Commerce, Dublin

ITALY (IT) - Unione Italiana delle Camere di Commercio, Industria, Artigianato e Agricoltura, Roma

LATVIA (LV) - Latvian Chamber of Commerce and Industry, Riga

LITHUANIA (LT) - Association of Lithuanian Chambers of Commerce, Industry and Crafts, Vilnius

MALTA (MT) - The Malta Chamber of Commerce, La Valletta

NETHERLANDS (NL) - Amsterdam Chamber of Commerce and Industry, Amsterdam

POLAND (PL) - Polish Chamber of Commerce, Warsaw

PORTUGAL (PT) - Camara de Comercio e Industria Portuguesa, Lisbon

SLOVAK REPUBLIC (SK) - Slovak Chamber of Commerce and Industry, Bratislava

SLOVENIA (SI) - Chamber of Commerce and Industry of Slovenia, Ljubljana

SPAIN (ES) - Consejo Superior de las Cámaras Oficiales de Comercio, Industria y Navegación de España, Madrid

SWEDEN (SE) - The Stockholm Chamber of Commerce, Stockholm

UNITED KINGDOM (GB) - London Chamber of Commerce and Industry, London

CHINA-TAIWAN (TW) - TAIWAN EXTERNAL TRADE DEVELOPMENT COUNCIL, TAIPEI

ATTESTATION DES AUTORITES DOUANIERES /
Certificate by Customs Authorities

a) **Apposé les marques d'identification mentionnées dans la colonne 7 en regard du (des) numéro(s) d'ordre suivant(s) de la liste générale/** *Identification marks have been affixed as indicated in column 7 against the following item(s) No(s). of the General List* .....

.....

b) **Vérifié les marchandises** * / *Goods examined** — **Oui** / *Yes* ☐ **Non** / *No* ☐

c) **Enregistré sous le numéro*** ..... *Registered under Reference N°*

.....

Bureau de Douane *Custom Office* — **Lieu Date (année/mois/jour)** *Place Date (year/month/day)* — **Signature et Timbre** *Signature and Stamp*

Signature du délégué et timbre de l'association émettrice /

Signature of authorised official and stamp of the Issuing Association

..... / ..... / .....

Lieu et date d'émission (année/mois/jour)
Place and date of Issue (year/month/day)

X.....X

Signature du titulare / *Signature of Holder*

***S'il y a lieu** / **If applicable*

Donation Certificate

Donation Certificate is a document which is used as a way to transfer property well within an owner's lifetime, and without any monetary consideration. Specifically, it acts as a liberality whereby a person disposes gratuitously of a thing or right in favor of another, who accepts it.

Insurance Document:

To protect goods in transit from loss or damage from the time they leave the exporter's warehouse and until they reach the importer's warehouse, the goods are insured by the importer. The insurance cover must specify the value insured (such as CIF), the risks covered, the date from which the insurance cover is effective, and the currency in which the insurance document is expressed. All details regarding the goods in the insurance document must conform to those given in other documents such as the bill of Lading, or the consular invoice.

Charter party:

A charter party is a document under which a vessel is hired or chartered. There are basically two types of charter party; demise and non-demise.

- In a demise (or bareboat) charter, the charterer takes responsibility for the crewing and maintenance of the ship during the time of the charter. ...
- In a time charter, the vessel is hired for a specific amount of time.

Use/purpose/function

The charter party serves as a contract whereby a ship-owner agrees to place the ship, or part of it, at the disposal of a merchant or other person (known as the charterer), for the carriage of goods from one port to another port on being paid freight, or to let the ship for a specified period, the ship owner's remuneration being known as "hire money".

Codeword for this Charterparty
"BPVOY4"

VOYAGE CHARTER PARTY

Date .....

It is this day agreed between .....
of .....

.....
("Owners") being owners/disponent owners of the motor/steam tank vessel (delete as

applicable) called ..... ("Vessel")

and .....

of .....

.....
("Charterers") that the service for which provision is herein made shall be subject to the terms and conditions of this Charter which comprises PART 1 and PART 2 and the "BP Shipping Questionnaire" (which term shall mean the document attached as Appendix 1 of this Charter or such subsequent editions of the BP Shipping Questionnaire as may be correct as at the date of this Charter).

Unless the context otherwise requires, words denoting the singular include the plural and vice versa.

In the event of any conflict between the provisions of PART 1 and PART 2 of this Charter, the provisions of PART 1 shall prevail.

In the event of any conflict between the provisions of PART 1 or PART 2 of this Charter and any provisions in the BP Shipping Questionnaire, the provisions of PART 1 or PART 2 of this Charter shall prevail.

Voyage Charter Party Agreement

Customs pre-described forms: Customs Entry

Declaration of information on imported or exported goods, prepared by a customs broker (customs agent) on a prescribed form called entry Form or duty entry Form, and submitted to the customs. It states the customs classification number, country of origin, description, quantity, and customs value of the goods, and the estimated amount of duty to be paid.

4.13 Learning Activities

(a) Identify three types of documents for transportation of goods and discuss how they are used in clearing of cargo at various entry points.

4.14 Self-Assessment Questions and Activities

1. Explain the functions of a sea way bill
2. Explain the use of the following documents
   - Pro-forma invoice
   - Certificate of donation
   - Customs entry

4.15 References

- Glass, D. (2012). Freight Forwarding and Multi Modal Transport Contracts, 2nd Edition. Routledge
- Monios, J. & Bergqvist, R. (2019). Intermodal Freight Transport and Logistics. Routledge
- UN Conventions on Transport https://treaties.un.org/Pages/ViewDetails.aspx?src=IND&mtdsg_no=XI-B-11&chapter=11&clang=_en
- FIATA, the International Freight Forwarders Association - https://fiata.org
- IATA, the International Air Transport Association - https://www.iata.org
- ICS, the International Chamber of Shipping - https://www.ics-shipping.org
- International Chamber of Commerce (ICC) - https://iccwbo.org
- IRU, the International Road Transport Union - https://www.iru.org
- UIC, the International Union of Railways - https://uic.org

5.0 GENERAL PROCEDURES FOR HANDLING OF GOODS

5.1 Specific Learning Outcomes

By the end of this topic, the trainees should be able to:

a) Describe the general procedure for handling of goods including:

- Packing and Packaging.
- Marking and Labelling.
- Break Bulking
- Cargo Consolidation

b) Describe the documentation required in handling of goods

5.2 Introduction

The use of freight containers, swap bodies, vehicles or other cargo transport units substantially reduces the physical hazards to which cargoes are exposed. However, improper or careless packing of cargoes into/onto such units, or lack of proper blocking, bracing and lashing, may be the cause of personnel injury when they are handled or transported. In addition, serious and costly damage may occur to the cargo or to the equipment.

The types of cargoes carried in freight containers has expanded over many years and innovations such as use of flexitanks and developments allow heavy, bulky items which were traditionally loaded directly into the ships' hold (e.g. stone, steel, wastes and project cargoes), to be carried in cargo transport units.

The person who packs and secures cargo into/onto the cargo transport unit (CTU) may be the last person to look inside the unit until it is opened at its final destination. Consequently, a great many people in the transport chain will rely on the skill of such persons, including:

- Road vehicle drivers and other road users when the unit is transported by road;
- Rail workers, and others, when the unit is transported by rail;
- Crew members of inland waterway vessels when the unit is transported on inland waterways;
- Handling staff at terminals when the unit is transferred from one transport mode to another;
- Dock workers when the unit is loaded or unloaded;
- Crew members of a seagoing ship during the transport operation;
- Those who have a statutory duty to inspect cargoes; and
- Those who unpack the unit.

All persons, such as the above, passengers and the public, may be at risk from a poorly packed freight container, swap body or vehicle.

5.3 Packing and Packaging

Warehouses receive, handle, and store a wide variety of goods. Except for bulk cargoes, generally goods are usually packed in some way and for some purpose.

PACKING is the enclosure of something in a package or box. Packing is also the protection and containment of the consignment during its transit from the seller's to the buyer's premises.

PACKAGING is the science, art and technology of enclosing or protecting products for distribution, storage, sale, and use. Packaging is also considered as one way of securing cargo putting them in cartons, drums, sacks etc.

Packaging is a coordinated system of preparing goods for safe, secure, efficient, and effective handling, transport, distribution, storage, retailing, consumption and recovery, reuse or disposal combined with maximizing consumer value, sales and hence profit.
To attain a package, one needs to have the following in mind issues such as:

- Resources to purchase the packaging materials;
- equipment that may be used to develop the package and other requisite items like marking;
- handling, and;
- in some cases, preservative material for short or long term requirements for storing purposes.

5.3.1 Factors to consider when packing

Today, as freight forwarders offer value added services, they also engage in activities such as packing and removals. It is then paramount that the freight forwarder knows some of the factors to take

into account when packing especially for export purpose. These considerations include but are not limited to the following;

- The nature of the goods
- Their fragility
- Their value
- Their hazardous nature
- Their propensity to suffer from damp
- Their propensity to sweat or taint
- Their duration of transport in different transit corridors
- Their modes of transport and their handling equipment

Metal and Plastic Drums

Packaging maybe discussed in relation to the type of product being packaged: medical device packaging, bulk chemical packaging, over-the-counter drug packaging, retail food packaging, military material packaging, pharmaceutical packaging, etc.

It is sometimes convenient to categorize packages by layer or function: "primary", "secondary", etc.

- **Primary packaging** is the material that first envelops the product and holds it. This usually is the smallest unit of distribution or use and is the package which is in direct contact with the contents.
- **Secondary packaging** is outside the primary packaging – perhaps used to group primary packages together.
- **Tertiary packaging** is used for bulk handling, warehouse storage and transport shipping. The most common form is a palletized unit load that packs tightly into containers.

These broad categories can be somewhat arbitrary. For example, depending on the use, a shrink wrap can be primary packaging when applied directly to the product, secondary packaging when combining smaller packages, and tertiary packaging on some distribution packs.

5.3.2 Purpose/Function of a Package

- Protection against common hazards of warehousing and transportation, e.g. Stacking compression due to multiple handling, shock and vibration, elements of the weather (Temp/moisture/air/corrosion/dirt/contamination), infestation, Loss/theft (mysterious disappearance)
- Containment – to resist leakage, spillage, or subsequent loss. This detail is, however, based on the type of commodity.
- Information – Advertisement of the commodity to cargo content and ingredients
- Identification details
- Handling instructions
- Packages also assist with the utility of the commodity and package. This applies especially to convenience of opening or closing the packages and with commodity retrieval.
- Space utility in the warehouse is also quite dependent on the packaging. Just like in the warehouse, packaging improves utility in transportation.

5.3.3 Guidelines on the choice of Packaging

- Cost of packaging in relation to the strength and suitability of the packing to fulfill the regulatory requirements is essential to be considered.
- The way the package is done, and the nature of the packing play a key role in packaging system. Too little packaging mode exposes cargo to damage, while too much packaging results in higher overall cost.
- Warehouses, generally deal with the distribution package. The characteristics of the packages has direct effect on efficiency of handling and storage, e.g. Size and strength, stacking height, rack space usage, stack pattern, Pallet stacking etc.
- In many instances package design is done without due consideration of its effect or challenge to the warehouseman especially in relation to size, height and even potential fire risks.
- Materials also react differently to different elements of the weather, e.g. moisture, temperature and also duration of stay in storage which sometimes affects package strengths.
- Packaging as a method of unitization has been used to reduce handling costs, i.e. consolidating smaller packages into one large unit, e.g. by shrink, wrapping, consolidating small packages into large cartons, banded on pallet or with the use of strappers. In unitization care has to be taken not to damage the content of the primary packages as you may have to re-unitize.
- Packages should be clearly identified to assist handling and storage. The identity must be well understood conspicuous and simple.

5.3.4 The purposes of packaging and package labels

Packaging and package labeling have several objectives

- **Physical protection** - The objects enclosed in the package may require protection from, among other things, shock, vibration, compression, temperature, etc.
- **Barrier protection.** A barrier from oxygen, water vapor, dust, etc., is often required. Permeation is a critical factor in design. Some packages contain desiccants or Oxygen absorbers to help extend shelf life. Modified atmospheres or controlled atmospheres are also maintained in some food packages. Keeping the contents clean, fresh, sterile and safe for the intended shelf life is a primary function.
- **Containment or agglomeration** - small objects are typically grouped together in one package for reasons of efficiency. For example, a single box of 1000 pencils require less physical handling than 1000 single pencils. Liquids, powders, and granular materials need containment.
- **Information transmission** - Packages and labels communicate how to use, transport, recycle, or dispose of the package or product. With pharmaceuticals, food, medical, and chemical products, some types of information are required by governments.
- **Marketing** - The packaging and labels can be used by marketers to encourage potential buyers to purchase the product. Package graphic design and physical design have been important and constantly evolving phenomenon for several decades.

Marketing communications and graphic design are applied to the surface of the package and (in many cases) the point of sale display.

- **Security** - Packaging can play an important role in reducing the security risks of shipment. Packages can be made with improved tamper resistance to deter tampering and also can have tamper-evident features to help indicate tampering. Packages can be engineered to help reduce the risks of package pilferage: Some package constructions are more resistant to pilferage and some have pilfered indicating seals. Packages may include authentication seals and use security printing to help indicate that the package and contents are not counterfeit. Packages also can include anti-theft devices, such as dye-packs, tags, or electronic article surveillance, tags, that can be activated or detected by devices at exit points and require specialized tools to deactivate. Using packaging in this way is a means of loss prevention.
- **Convenience** - Packages can have features that add convenience in distribution, handling, stacking, display, sale, opening, reclosing, use, dispensing, and reuse.
- **Portion control** - Single serving or single dosage packaging has a precise amount of contents to control usage. Bulk commodities (such as salt) can be divided into packages that are a more suitable size for individual households. It is also aids the control of inventory: selling sealed one-liter-bottles of milk, rather than having people bring their own bottles to fill themselves.

5.4 Marking and Labelling

Marking and labeling are the practical way to differentiate packed cargo in order to fulfill some regulations applied in the Freight Logistics chain. It aims to safe arrival to destination, speed identification, compliance with official regulations, prevention of unnecessary damage, compliance with customs and other regulatory bodies.

Correct marking of packages helps to prevent incorrect handling and delivery, accidents, losses of weight and volume and Customs fines. Marking must be clear. Its colour should stand out clearly from that of the package.

Marking and labelling is done by;

- Handwriting
- Printing
- Stencilling
- Bar coding

5.4.1 Marking Practice

The five essential aims of marking packages are;

- Safe arrival at destination
- Speed identification
- Compliance with official regulations
- Prevention of unnecessary damage
- Compliance with customers or other contractual requirements

Marks and labels should be simplistic and should appear appropriately on all packages. Enormous costs can be incurred in providing detailed shipping marks to meet requirements listed above, when in fact they are not really necessary to the safe arrival of goods. According to international bodies concerned with the simplification of international trade procedures and cargo handling, under the auspices of the United Nations, have drawn up a simpler shipping marks recommendation which they urge member nations, international bodies and those engaged in international trade to adopt. The "simpler mark" is four –line mark consisting of;

- The buyer's initials or abbreviated name
- A reference number
- A destination
- A package number

5.4.2 Essential details on labels

- Name and address of consignor
- Name and address of consignee
- Warnings/instructions, e.g. hazardous goods
- Product information/description/codes
- Protective service symbol, e.g. temperature, air, light, moisture, exposure, etc.
- Special handling symbols
- Pictorial labels should be exhibited within a border and with contrasting colors.

5.4.3 Effects of poor marking and labelling

- Reduced efficiency/more time during order selection/sorting.

- Possible errors of delivery due to identifications problems.
- Customer dissatisfaction arising from above errors.
- Rejection in importing country

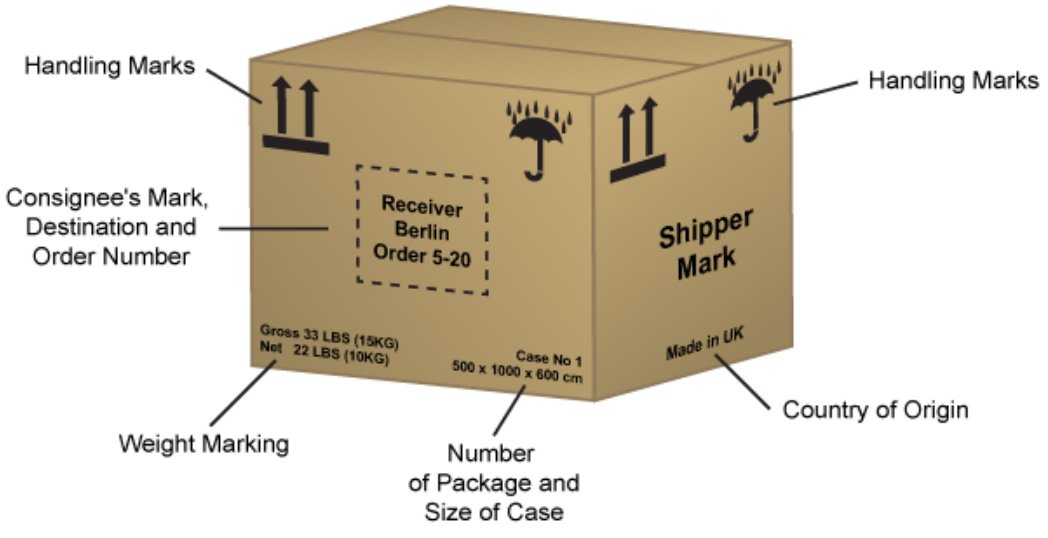
5.4.4 Considerations in marking and labelling

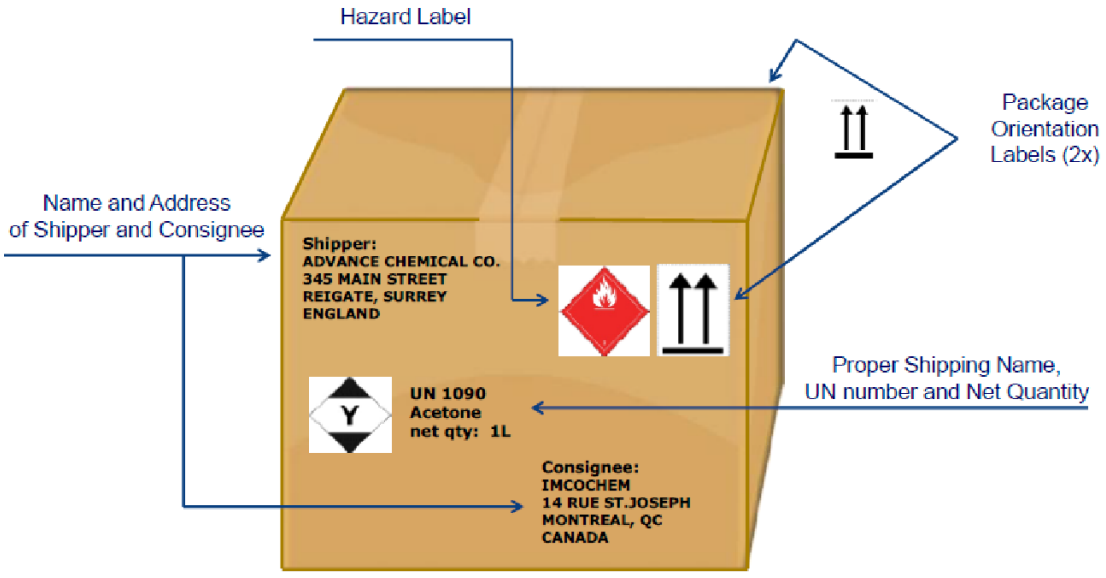
- Marks and labels must be such that they survive and remain legible and identifiable throughout the logistics cycle.
- Marks and labels should be fixed to the packages in a manner resistant to tear and wear or accidental removal.
- They should be easily visible and recognizable.
- Advertisement should not obscure or shadow package identification codes. Avoid complicated markings that are difficult to read or understand or recall otherwise the purpose will not be achieved.
- Product identification systems should be legible in warehouse storage environment and use within number of letter and number combinations necessary for identification otherwise the product/package may be misallocated. Where further making is carried out of the warehouse, packages should have sufficient space for this and not in conflict with existing marks which would otherwise be confusing.

5.4.5 Marking in Shipping

In shipping it is extremely important for those handling cargo to be able to identify what they are dealing with and to take the appropriate measures necessary to ensure safety and ease of transport. In order to make certain that the handlers are able to identify the shipment it is crucial to provide shipping marks which show the handler what type of product is present within the carton or cardboard box used to pack the materials. The International Maritime Organization (IMO), the International Labour Organization and the United Nations Economic Commission for Europe (UNECE), addresses these concerns through a non-mandatory global code of practice for the handling and packing of shipping containers for transportation by sea and land. In partnership, the three organizations developed Guidelines for Packing of Cargo Transport Units (CTUs) popularly known as the CTU Code. The CTU Code is an update of the 1997 IMO/ILO/UNECE Guidelines for Packing of Cargo Transport Units and was endorsed by the IMO Maritime Safety Committee, the UNECE Inland Transport Committee and the ILO Governing Body in 2014.

The CTU Code identifies various marks are essential to communicate nature of the cargo as shown in the two diagrams below for packaging in cartons.





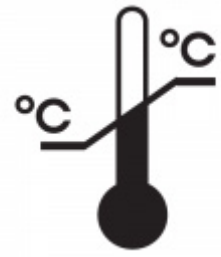
There are a few key shipping marks related rules that shipping companies need to follow and these include:

- The port and identification marks that indicate destination and transfer points should be applied by stencil with waterproof ink in a large clear font on three sides of the package.
- Coded marks rather than trade names should be present in the shipping mark in order to help ensure that the handlers are less aware of the contents and therefore that the goods are less subject to theft. The codes should be changed from time to time to minimize any familiarity handlers may develop with the codes.
- If the shipment requires any sort of specialist handling or treatment, then the shipping marks should indicate it; this information should also be present on the bill of lading.
- All cautionary and handling shipping marks must be permanent and very legible. Ensure that the languages at the origin and destination are the same, and if not make sure that shipping marks are in both languages.
- It is highly recommended that a stencil is used when creating shipping marks as it increases legibility – try to avoid materials which are not waterproof.

Most freight shipping will require a certain level of handling at the target destination and as such it is a good idea to print the handling instructions on the exterior of the shipping crates or cardboard boxes in the language of the destination country.

5.4.6 Pictorial Marking in Shipping

It is important to note that during freight shipping, the cargo may be handled by those who do not speak either the language of the country of origin or destination. It is also a possibility that the cargo may come into contact with a worker who is illiterate. In order to solve this particular issue, it is prudent to use pictorial markings on the shipping box in order to make sure that no confusion is elicited. When packing material into shipping crates or cartons, make sure that you are noting down the contents of each carton and applying the correct shipping marks to each shipping crate. Below are various pictorial marks that are widely used in shipping.

			
Temperature Sensitive	Keep Dry	Fragile	Handle With Care
			
This Way Up	Centre Of Gravity	Use No Hooks	Protect From Heat
			
Do Not Stack	Photographic Materials	Lift Box Here	Food

5.5 Cargo Consolidation

1.1.2 Definition/Concept

Cargo Consolidation is the process under which a freight forwarder/consolidator at the port of loading (POL) combines/consolidates several small consignments to make up a full container load (FCL). In this arrangement containerized goods are shipped hence offering greater security at lower shipping/freight rates.

At the port of discharge/destination, the consolidated shipment is separated (deconsolidated or de-grouped) back into the original individual consignments for delivery to their respective consignees. While at this point, individual consignees will be entitled to House bill of lading (HBL).

Consolidation takes care of smaller individual cargo shipments to minimize on huge freight charges on full container load (FCL) which would otherwise be undertaken by a consignee because then the shippers pool together to meet the full container load (FCL) freight charges.

5.5.1 Advantages and Disadvantages of Cargo Consolidation

The major advantages of cargo consolidation include;

- Consolidation of freight by different individual consignees thus minimizing on the freight cost.
- Maximizing on the container utilization.
- Cutting on the freight cost thus minimizing on the final cargo destination cost.

- Minimize on the time for shipment thus discouraging dumping at the supply point.

The disadvantages are as below;

- It may take long to fill up a full container load which may result to the delay of shipment
- High charges by consolidators at the port of loading and discharge
- Depending on one consolidator controlling the whole consignment since he holds the master bill of lading (MBL), therefore no control of own goods.

5.6 Break Bulking

5.6.1 Definition

This is the point at which a cargo is unloaded and broken up into smaller units prior to delivery, minimizing transport costs. This frequently happens at waterfront sites where imports are often processed to cut costs.

A break-in-bulk point is a place where goods are transferred from one mode of transport to another, for example the docks where goods transfer from ship to truck.

Break Bulk Cargo: This is cargo, which is transported en masse, in large volumes, in specially constructed ships. The cargo may be dry, liquid or gas.

5.6.2 Illustrations on Break Bulk Operations

Break bulk was the most common form of cargo for most of the history of shipping. Since the late 1960s the volume of break bulk cargo has declined drastically worldwide as containerization has grown. Moving cargo on and off ship in containers is much more efficient, allowing ships to spend less time in port. Break bulk cargo also suffered from greater theft and damage.

Although cargo of this sort can be delivered straight from a truck or train onto a ship the most common way is for the cargo to be delivered to the dock in advance of the arrival of the ship and for the cargo to be stored in warehouses. When the ship arrives the cargo is then taken from the warehouse to the quay and then lifted on board by either the ship›s gear (derricks or cranes) or by the dockside cranes. The discharge of the ship is the reverse of the loading operation.

Loading and discharging by break bulk is labor intensive. The cargo is brought to the quay next to the ship and then each individual item is lifted on board separately. Some items such as sacks or bags can be loaded in batches by using a sling or cargo net and others such as cartons can be loaded onto trays before being lifted on board. Once on board each item must be stowed separately.

Before any loading takes place any signs of the previous cargo should be removed. The holds should be swept, washed if necessary and any damage to them repaired. Dunnage may be laid ready for the cargo or may just be put in bundles ready for the stevedores to lie out as the cargo is loaded. There are many sorts of break bulk cargo but amongst them are;

- Bagged cargo: Should be stowed on double dunnage and kept clear of the ship's sides and bulkheads. Bags should be kept away from pillars and stanchions by covering with matting or waterproof paper.
- Baled goods: These should be stowed on single dunnage at least 50mm thick. The bales should be clean with all the bands intact. Stained or oily bales should be rejected. All fibers can absorb oil and are liable to spontaneous combustion. As a result, they should be kept clear of any new paintwork. Bales close to the deck head should be covered to prevent damage by dripping sweat.
- Barrels and casks: Wooden barrels should be stowed on their sides on "beds" of dunnage which keeps the middle of the side (the bilge) off the deck, and they should be stowed with the bung at the top. To prevent movement wedges called quoins are put in on top of the "beds". Barrels should be stowed fore and after and not athwart ships. Once the first tier has been loaded the next tier of barrels fits into the hollows between the barrels, this is known as stowing "bilge and cantline".
- Corrugated boxes: Corrugated boxes should be stowed on a good layer of dunnage and kept clear of any moisture. Military and weather resistant grades of corrugated fiberboard are available. They should not

be over stowed with anything other than similar boxes. They are frequently loaded on pallets to form a unit load; if so the slings that are used to load the cargo are frequently left on to facilitate discharge.

- Wooden shipping containers: Wooden boxes or crates should be stowed on double dunnage in the holds and single dunnage in the tween decks. Heavy boxes should be given bottom stowage. The loading slings are often left on to aid discharge.
- Drums: Metal drums should be stowed on end with Dunnage between tiers.
- Paper reels: Reels or rolls are generally stowed on their sides, but care must be taken to make sure they are not crushed.
- Cars: These are lifted on board and then secured using lashings. A great deal of care should be taken to make sure they do not get damaged. Vehicles must also be prepared by ensuring potentially hazardous liquids (gasoline, etc.) have been removed. (This is in contrast to Ro-Ro (Roll on-roll off) vessels where vehicles are driven on and off the ship on their own wheels.)
- Steel girders: Any long heavy item should be stowed fore and aft. If they are stowed athwart ships, they are liable to shift if the ship rolls heavily and pierce the side of the ship.

5.6.3 Methods of Handling Bulk Cargo

Different methods are used for handling different types of bulk cargoes. Dry bulk cargo handling facilities at Mombasa port for example include Bamburi cement, soda ash (Magadi), grain, and grain handling, (Grain Bulk Handlers).

Bulk cargo can be handled using different methods namely:

- **Grabs:**

A grab is made up of a set of twin buckets similar to those fitted on earthmovers. The grab is connected to the crane by wire or chain. The buckets open to collect and close to retain the bulk cargo in the buckets. To disgorge the cargo, the two buckets open outward, releasing the bulk cargo. For example, grabs are used to handle most bulk grains and cereals.

Grab

- **Magnetic grabs:**

This method is used for handling bulk steel scrap metal. The system consists of a solid steel plate fitted on a crane hook. The crane driver magnetizes the steel plate by flicking a switch located inside the crane cabin. The magnetized grab attracts and retains the steel scrap. To discharge the scrap metal, the driver once again flicks the switch thereby de-energizing the steel plate and releasing the steel scrap.

Magnetic Grabs

- **Evacuators:**

The types of cargoes handled using evacuators include cereals and grains. Evacuators use vacuum generators situated along the pipeline to suck cargo from the ship's hold, pressurize it through a system of pipes or along conveyor belts into storage facilities ashore or from storage silos ashore into the ships. Cargo sucked from the ships holds can also be pressurized through pipelines or along conveyor belts into vehicles or rail wagons waiting at ships side. At Mombasa and Dar-es-salaam ports, grain and cereal imports discharged from ships by evacuators are usually bagged on board before discharge and in other cases; the bagging is done ashore on the quayside.

Evacuator

- **Conveyor belts**

Conveyors are sets of inter-linked belts, powered by motors, used to convey cargo from storage ashore directly to the ships hold and vice versa. At Mombasa port, the Magadi Soda Ash Company uses conveyors to convey the cargo from storage ashore directly into ships. Similarly, Grain Bulk Handlers use evacuators and a system of conveyor belts to suck grains and cereals from importing ships into storage silos located outside the port.

Conveyor belt

5.7 Learning Activities

A milling company imports 150 tons of bulk wheat to be loaded onto trucks and to transported from port of Mombasa to Kampala Uganda. Discuss various methods that will be used and the equipment for loading cargo onto the awaiting trucks.

5.8 Self-Assessment Questions and Activities

Which cargo handling method would you used to remove bulk maize from the port to a silo which is located outside the port?

5.9 References

- United Nations (2009). IMO/ILO/UN ECE Guidelines for Packing of Cargo Transport Units (CTUs). UN Geneva
- IMO/ILO/UN ECE (1997). Guidelines for Packing of Cargo Transport Units (CTUs). IMO
- IMO/ILO/UNECE (1997). Code of Practice for Packing of Cargo Transport Units (CTU Code) https://unece.org/transportintermodal-transport/imoilounece-code-practice-packing-cargo-transport-units-ctu-code
- European Commission (2014). European Best Practice Guidelines on Cargo Securing for Road Transport
- International Road Union (IRU) (2014). International Guidelines on Safe Load Securing for Road Transport. Geneva, Switzerland
- Glass, D. (2012). Freight Forwarding and Multi Modal Transport Contracts, 2nd Edition. Routledge
- Monios, J. & Bergqvist, R. (2019). Intermodal Freight Transport and Logistics. Routledge
- UN Conventions on Transport https://treaties.un.org/Pages/ViewDetails.aspx?src=IND&mtdsg_no=XI-B-11&chapter=11&clang=_en
- FIATA, the International Freight Forwarders Association - https://fiata.org
- IATA, the International Air Transport Association - https://www.iata.org
- ICS, the International Chamber of Shipping - https://www.ics-shipping.org
- International Chamber of Commerce (ICC) - https://iccwbo.org
- IRU, the International Road Transport Union - https://www.iru.org
- UIC, the International Union of Railways - https://uic.org
- ILO, International Labour Organization - https://www.ilo.org/global/industries-and-sectors/transport-including-civil-aviation-railways-road-transport/lang--en/index.htm

6.0 SPECIAL GOODS

6.1 Specific Learning Outcomes

By the end of this topic, the trainees should be able to:

a) Analyze the types of Special goods
b) Discuss the procedures for handling special goods
c) Discuss the documentation required in handling special goods

6.2 Definition of Special Goods

Special cargo means cargo which requires special attention in terms of procedures for acceptance at the port of loading, handling at port of discharge and general clearance. Special cargo includes:

- Live animals
- Perishables
- Project cargo
- Dangerous goods.

6.3 Live Animals

Live animal transport is a complex, high-touch process involving everyone from the shipper to freight forwarders to airline staff, including the handlers. Inappropriate container use or misunderstanding carrier or government regulations can have catastrophic consequences. Handling and transportation of live animals is governed by IATA Live Animals Regulations (LAR).

The LAR has all the information you need to make sure your live animal shipments are handled and transported in the most expedient and humane manner and at their destination in good health, whether it's a pet, day-old chicks, racehorses, or something a little more exotic. Whether it is a pet, an animal transported for zoological or agricultural purposes or for any other reason, the objective of the LAR is to ensure all animals are transported safely and humanely by air.

Need special requisite documents like veterinary certification by relevant line government agencies, packaging in isolation with good ventilation, proper and timely animal feeding procedure before the animal is allowed in and out of a port.

Every person involved with the commercial transport of animals has a responsibility as appropriate to their role in planning, organising, and carrying out the journey – to comply with the Regulation and to protect the welfare of the animals, in particular not to cause them injury or undue suffering. In the case of air transport such responsibility may be broadly, but not exclusively, described as follows.

- Animal shippers (i.e. those who arrange for animals to be transported from one place to another) must plan the journey and have contingency arrangements in place should any delay occur. Examples might be delayed loading onto the aircraft; or its late departure caused by adverse weather or mechanical failure.
- They must ensure that the animal container or aircraft fittings are suitable and conform to the appropriate IATA LAR Container Requirement, that the aircraft operator is prepared to carry live animals, and that water feed and rest intervals for the animals can be complied with.
- Airport ground-staff and Handling Agents must ensure that animal welfare is protected whilst the animals are waiting to be loaded onto the aircraft, or awaiting collection after unloading from the aircraft, and whilst being moved within the airport.
- Arrangements should be made for suitable equipment to be available for transfer of the animals from or to the road vehicle, and for loading into or unloading from the aircraft and/or containers.
- Animals must not be shipped when the effects of weather conditions anticipated for the journey are likely to cause them injury or suffering

Customs normally have special documents to facilitate customs clearance on preference, in the case of Tanzania form C15 is filled for purposes of customs clearance. However different countries have their own requirements to import live animals. The process and formalities to import Birds, Cats, Dogs, Horses and Rabbits differs from one another and in country to country. Also, different procedures and formalities to import each items under Live Animals head.

One of the common requirements to import most of the items under live animals is Sanitary import permit issued by health department of respective importing country. As mentioned above, the human and animal health population of the country do not

adversely be effected by import of any live animals from foreign countries. So, necessary Certificate from Veterinary office or, Animal Husbandry. Authority is required to be submitted along with other required documents to import most of the items under Live Animals.

6.3.1 Pre-Import, Import and Post import procedures and formalities

In some countries, there are many processes before import of live animals, at the time of import and process after import have to be completed to meet the respective country's foreign trade policy to import live animals. The animals shall be vaccinated against other significant infectious or contagious diseases. Import permit before import, inspection on arrival of imported animals at entry port by International Animal Quarantine Station to meet animal health requirement of importation of live animals, examination of animal disease status of the country of origin, periodical assessment on health of imported animals etc. are some of the processes to import live animals. In case the imported animals are imported for breeding purposes, pedigree certificate or other evidence should be presented to a veterinary official. The imported live animals are moved to quarantine area and necessary samples are drawn to verify and confirm the health status. Necessary precautions and emergency measures are taken to control on disease outbreak, if death of any animal on transit to import.

6.4 Perishable Goods

These are goods that do not have a long shelf life like flowers, fish, fruits and beef to mention a few. In Kenya most flowers from Naivasha are airlifted to Amsterdam airport via Jomo Kenyatta International Airport for same day sales while fresh.

- Most perishable goods are transported by air for faster delivery to destination.
- Handling of special cargo must be done in designated special areas normally with a three-phase power point at the port of discharge or exit.
- A serviceable well fueled Generator set (GENSET) must always be mounted on the container to maintain the already running required temperature of the cargo until the container is plugged for continuous temperature maintained.
- Before taking receipt of the import cargo, a freight forwarder must double check with the documents to confirm the actual state of goods.
- In the case of export then a PTI (Pre-Treatment Inspection) report must be verified by a competent reefer equipment technician to ascertain actual condition of the container prior to cargo loading.
- In the cases of large volumes of perishable cargo then reefer containers are used to maintain requisite temperatures (Trainer to explain on what a reefer container is)
- Prior arrangement must be done to have all requisite documentation prepared beforehand like export permits clearance from relevant line government agencies.
- The freight forwarder must book with the airlines or vessel beforehand for quick and timely dispatch of cargo.
- Freight forwarders must always remember to double check with the required set temperatures for each shipment as may be required.

Perishable goods are the most sensitive consignments that need professional and special attention by the freight forwarder since any slight negligence will definitely compromise the state and quality of the goods that may result into huge losses normally passed to the freight forwarder in case the consignee/consignor finds fault in the part of the freight forwarder. In some cases, the whole consignment may be rejected by the consignee at the expense of the consignor, the freight forwarder or the carrier. Technology can now verify at what point of the carriage laxity/negligence occurred since a thermograph chart or Ryan recorder is inbuilt in most reefer containers.

6.5 Project Cargo

Project Cargo is a term used to broadly describe the national or international transportation of large, heavy, high value or a critical (to the project they are intended for) pieces of equipment.

One of the value-added services provided by a modern freight forwarder is project cargo forwarding. It's thus paramount that a forwarder pays keen interest in the management of such cargo. Some forwarders have formed departments within

their organizations specifically to focus on project cargo management. It has increasingly become a common issue in corporate boardrooms of global forwarders.

Project cargo forwarding has proved to be more lucrative worldwide. In East Africa the future is certainly promising for forwarders that will be ready to professionally manage such cargo.

The discovery of minerals, Government commitment to develop infrastructure, power projects and Oil exploration among others all point at the need for qualified project managers.
Some of the key issues in project cargo forwarding include:

a) Feasibility Study – technical and financial.
b) Route Survey
c) Survey on customs clearance and transport requirements
d) Pre-customs clearance
e) Advance bookings
f) Port facilities
g) Competency of other service providers within the project supply chain
h) Delivery schedules/timelines
i) EHS (Environment, Health & Safety)
j) Cost management
k) Journey management plan
l) Emergency Response Strategy
m) Communication & feedback Strategy
n) Cash flow Management
o) Fit for Purpose Equipment
p) Reverse Logistics
q) Camping Services
r) Out of Gauge Shipments
s) Dangerous Cargo Transportation and Storage
t) Risk Management etc.

6.6 Dangerous Goods

Freight forwarders throughout the world are from time to time involved in handling different types of cargo, including what is now commonly referred to as 'dangerous cargo'. The subject of handling dangerous goods is therefore, one of the most important in the industry today. As such, quite a detailed account on dangerous cargo is discussed in this module. However special dedicated courses on dangerous cargo regulation (DGR) are available for one to qualify as a dangerous cargo handling specialist. The account in this module is only a guide. It is paramount that anyone involved in the handling and documentation of dangerous goods be certified by the appropriate authorities.

A survey carried out worldwide indicated that 80% of the practicing freight forwarders handle dangerous goods, but less than 30% feel competent in understanding the regulations related to the carriage and transportation of these goods. The proper management of handling dangerous goods is critical for all forwarders, but because information on awareness is not abundant, forwarders handle the goods without knowing these goods are in fact dangerous.

6.6.1 Definition

Dangerous goods are described as items of cargo which are likely to pose significant danger to the health of human beings, or other living creatures and threatening the safety of property/environment when carried under certain conditions.

Research has revealed that approximately 40-50% of the cargo carried on various transport modes fall directly under the category of dangerous goods. These include:

- Solids, liquids, or gases that can harm people, other living organisms, property, or the environment.
- Also commonly referred to as hazardous materials, (abbreviated as HAZMAT or HazMat).
- Dangerous goods include materials that are radioactive, flammable, explosive, corrosive, oxidizing, asphyxiating, bio hazardous, toxic, pathogenic, or allergenic.
- Also included are physical conditions such as compressed gases and liquids or hot materials, including all goods containing such materials or chemicals, or may have other characteristics that render them hazardous in specific circumstances.
- Thus, important that all staff involved in freight handling should be made aware of dangerous goods regulations.

6.6.2 Importance of Awareness of Dangerous Goods to A Freight Forwarder

- Transportation & shipping of goods with a dangerous /hazardous nature is subject to numerous regulations and guidelines.

- In recent years, such after the 11/09/2001 incident and previous incidents such as 1973 the fatal crash of B707 freighter in Boston, the need for DGR awareness has become paramount in the freight industry.
- The forwarder shoulders a lot of responsibility thus must acquire from the customer/shipper ALL the relevant information in compliance with relevant rules and regulations prior to proceeding with execution of the transportation.
- Relevant certificates and shipper's declaration must be correctly filled out and signed by the shipper.
- Marking and Labeling of the cargo must be correctly done using the correct placards.
- Shippers, agents, carriers, freight forwarders all have a responsibility to make safety the number one requirement

6.6.3 Rules and Regulations Governing Dangerous Goods by Transport Mode

For each mode the regulations and guidelines cover packing, storing, stowage, co-loading with other goods as well as the required labeling of dangerous goods.

The United Nations Economic and Social Council issues the *UN Recommendations on the Transport of Dangerous Goods*, which form the basis for most regional and national regulatory schemes

- **AIR TRANSPORT IATA/ICAO DGR**
  International Air Transport Association Dangerous Goods Regulations which are revised periodically.
- **SEA/OCEAN TRANSPORT IMDG**
  International Maritime Dangerous Goods Code which was published by International Maritime Organization.
- **ROAD TRANSPORT SDR/ADR (Europe)**
- **RAILWAY TRANSPORT RSD/RID (Europe)**
  Organization for International Carriage by Rail

6.6.4 Examples of Cases on Dangerous Goods Accidents

Case I: Value Jet

In 1996 a DC 9 jet Flight 592 clashed in Florida, USA, killing 105 passengers and a crew of 5. The cause of the crash was a fire that originated from one of the cargo holds where oxygen canisters (containing oxygen) had been loaded. The packaging list declared them as empty and non-dangerous when in fact they were "live". Post-accident investigations revealed that the canisters ignited quickly through a chemical reaction reaching temperatures of 1000 degrees Fahrenheit. The generated heat combined with oxygen from the canisters and an aircraft tyre which had grease to form a massive fire.

The crew of the DC9 did not have smoke detectors on the aircraft and did not know ahead of time the impending danger until smoke had filled the cockpit while the fire consumed the plane causing it to crash.

Case II: Mont Blanc

In 1917, Mont Blanc, a French ship, while sailing to Halifax (Canada) to moor prior to joining a 1st World War military convoy across the Atlantic exploded when it collided with a Belgian relief ship which was sailing away from the harbor. On board Mont Blanc was a consignment of 35 tons of benzoyl, 300 rounds of ammunition, 10 tons of gun cotton, 2,300 tons of picric acid (used in explosives) and a large amount of TNT. On collision, the picric acid spilled over on the deck and was ignited by sparks causing the benzoyl on board to burn. Efforts by the crew to save the ship were fruitless and the unmanned vessel drifted towards the city of Halifax from the force of the collision. The Halifax first caught fire while the ship exploded in a huge white flash causing the biggest man-made explosion before the advent of nuclear weapons. Over 1900 people perished and about 9000 were injured while 325 acres of Northern Halifax was leveled. The ship was shattered into pieces. The barrel of one of her cannons flew 7 KM away while its half-torn anchor flew about 3 miles away. Windows in nearby homes were shattered over as area 80 KM away.

NOTE

The explosion in Halifax and the devastating effects the blast caused on human life became useful to the US Military when they were designing the atomic weapons which they used to destroy Hiroshima and Nagasaki in Japan during the Second World War.

Case III: Bow Marine

Bow Mariner sank in the Atlantic Ocean in 2004 off the Coast of Virginia because the 35 million gallons of industrial ethanol which is highly flammable caught fire and exploded. This blast was seen 22 KM away.

Case IV: Canadian Pacific Tanker

In 1979, a Canadian Pacific Rail Tanker carrying dangerous goods derailed from a train bound for Mississauga. The twenty-three wagons which derailed contained dangerous liquid that was lit by sparks arising from the effect of the derailment. The resulting fire rose 1,500 meters high and was seen over 100 km away. The dangerous liquid of chlorine which mixed with large quantities of leaking styrene and propane burst into a massive chlorine cloud. The police and the fire fighters who were rushed to the scene evacuated 220,000 people from their homes making it the largest peace-time evacuation in the history of North America. The residents did not return to their homes until after three days when the City was eventually re-opened.

NOTE

The experience obtained from this incident became useful in developing emergency response around the world. The need for legislation to govern carriage of dangerous goods became more urgent.

Other Examples

In October 1999 the Federal Aviation Administration (FAA) levied a fine of $59,000 against a shipper for trying to transport a car battery on a scheduled flight. The ground handling staff discovered the leakage of the battery acid in the fireboard box and promptly reported this. It was marked "dangerous" as required by American Law. In the same month, another shipper was fined $50,000 for offering two cans of paint (flammable liquid) on a scheduled flight.

6.6.5 Factors to consider when transporting Dangerous Goods

In order to have safe transport of dangerous goods the following important issues must be taken into account:

- Classification of dangerous goods
- Safety packing of dangerous goods
- Hazard warning signs
- Documentation
- Safe transport operations
- Safe storage
- Segregation of incompatible goods

6.6.6 Classification of Dangerous Goods

The process of classification of Dangerous Goods involves the following steps:

STEP 1: Assignment of goods to hazard classes according to defined criteria. Generally dangerous goods are classified under Hazard Classes 1-9 (as illustrated below).

Class Description of cargo

- Class 1: Explosive substances and articles
- Class 2: Compressed, liquefied, or dissolved gases
- Class 3: Flammable liquids
- Class 4.1: Flammable solids, self-reactive substances
- Class 4.2: Spontaneous combustible substances
- Class 4.3: Water-reactive substances
- Class 5.1: Oxidizing substances
- Class 5.2: Organic peroxides
- Class 6.1: Toxic substances
- Class 6.2: Infectious substances
- Class 7: Radioactive material
- Class 8: Corrosive substances
- Class 9: Miscellaneous dangerous substances and articles.

STEP 2: Clear identification by UN-number

- UN-number has four digits whereby class 1 starts with zero.
- Single entries for well-defined substances e.g. UN1090 acetone.
- Generic entries for well-defined substance group e.g. UN1133 adhesives.
- Specific N.O.S. entries covering a substance group e.g. UN1477 nitrates, Inorganic N.O.S.

STEP 3: Frequently transported goods mentioned by name in dangerous goods list.

STEP 4: Generic entries (N.O.S – shipping name to assign goods not listed by name.
For proper description of Dangerous goods, the following must be noted

UN Model Regulations

- Developed by UN economic and social council – committee of experts on the transport of dangerous goods.
- Addressed to government and international organizations concerned with regulations for dangerous goods.
- Not applicable for bulk transport of dangerous goods in ships.
- Basic scheme or provisions allowing uniform development of dangerous goods regulations for various modes of transport.
- Contribution to worldwide harmonization of transport regulations.

Subdivision of Class 1

Subdivision according to the extent of hazard:

1.1 Mass explosive substances and articles.
1.2 Substances and articles with projection hazard, not being mass explosive.
1.3 Substances and articles which have a fire hazard and a minor blast hazard or a minor projection hazard or both, but not a mass explosion hazard.
1.4 Substances and articles which present no significant hazard.
1.5 Very insensitive mass explosive substances.
1.6 Extremely insensitive articles which do not have a mass explosion hazard.

Compatibility group class 1

- Assignment according to the nature of the substance or article.
- Designated to determine permitted mixed loading
- Following compatibility groups exist: A, B, B, D, E, F, G, H, J, K, L, N, S.

Subdivision of Class 2

1.1 Flammable gases
1.2 Nonflammable, nontoxic gases
1.3 Toxic gases

Subdivision of Class 4.1

- Flammable solids
- Self-reactive solids and liquids
- Desensitized explosive substances.

Subdivision of class 7

- Excepted package
- Category I – low radiation level (<0.005mSv/h on the packaging)
- Category II – medium radiation level (<0.5mSv/h on the packaging)
- Category III – high radiation level (>0.5 mSv/h on the packaging)

Classification of substances not listed by name

According to the properties:

- Physical state (solid, liquid, gaseous)
- Chemical formulation (e.g. alcohol, ketone, cyanide)
- Explosive properties
- Flammability
- Liability to spontaneous combustion
- Gas evolution upon reaction with water.
- Oxidizing properties
- Toxicity
- Corrosive effects

Effect of the marine environment assigned by the shipper to the n.o.s. (not otherwise specified) entry which most exactly describes the properties

Classification of substances listed by name

- Special requirements
- Explosive substances and articles
- Self-reactive substances
- Organic peroxides

Subsidiary risks

- Substances with multiple hazards
- Mixtures of substances with different hazards

UN – Members

- Four digits (Class 1 starts with "O")
- Assignment for specific substances or specific groups of substances

This is assigned by United Nations Committee of Experts on the Transport of Dangerous Goods.

Packing Groups

Dangerous goods must be assigned to right packers' group since it is very sensitive to handle such cargo. Three (3) groups of packers have been defined according to degree of hazard.

- Group I = High Hazard
- Group II = Medium Hazard
- Group III = Low Hazard

The criteria to assign dangerous goods to packing groups I, II and III have been appointed for class 3,4, division 5.1 as well as for class 6 and 8 following the distribution schedule:

No:	CLASS/DIVISION	GROUP I	GROUP II	GROUP III
1.	3 Liquid or viscous substances	-	v	V
2.	4.1 Flammable Solids	-	v	V
3.	4.2 Spontaneous combustible substances	-	v	V
4.	4.3 Water reactive substances	-	v	V
5.	5.1 Oxidizing Substances	V	v	V
6.	6.1 Toxic Substances	V	v	V
7.	8 Corrosive Substances	V	v	V

Specific remarks

- Packaging for class 1 must comply with packaging group II requirements.
- For classes 2, 6.2 and 7 no packing groups are assigned.
- In class 9 packing groups are assigned not for all substances and articles.

Identification Packing Code:

i. Unique or External Packing:

A three numbers code used to identify packing other than internal is done as follows:

- An Arabic number indicating the type of packing
- Followed by a capital letter indicating the nature of the item
- Followed, if necessary, by an Arabic number indicating the category of packing within the type to which it belongs to.

For the mixed packing, two capital letters are used to indicate the nature of items used: The first letter the item contained in, and the second indicating the nature of the container. For the mixed packing, only the code of the container is used.

Codes of Items and Types of containers:

ITEMS		TYPES	
CODE	DESCRIPTION	CODE	DESCRIPTION
A	Steel	1	Drum
B	Aluminum	2	Wooden barrel
C	Natural Wood	3	Jerry Cans
D	Polly wood	4	Case
F	Conditioned wood	5	Mix packing
G	Box	6	Under pressure container
H	Plastics		
L	Textiles	7	
M	Polly paper		
N	Metal other than Steel or aluminum		
P	Glass, Porcelain or Sandstone		

ii. Inner Packaging:

A three or four numbers code is used to identify the inner packing;

- Capital letters <<IP>> meaning <<Inner Packaging>> or internal packing;
- Followed by an Arabic number identifying the type of packing;
- And, if necessary, by a capital letter indicating the category of packing to which it belongs.

Code of Inner Packing (Containers):

CODE	DESCRIPTION
IP1	Sandstone, glass or wax
1P2	Plastics
1P3	Jerry cans, boxes or metal tubes other than aluminum
1P3A	Jerry cans, boxes or aluminum tubes
1P4	Sacs in Polly papers
IP5	Polyethylene sacs
IP6	Jerry cans or cartons
IP7	Metal containers (aerosols) single use
IP7A	Metal containers (aerosols) single use (.)
IP7B	Metal containers (aerosols) single use (..)
IP8	Glass tubes
IP9	Metal or plastics flexible tubes
IP10	Paper sacks with plastics/aluminum

Identification of Dangerous Goods

- UN – Number
- Proper shipping name
- Supplemented by chemical name (if applicable)
- Class
- Subsidiary risks (if applicable)
- Packaging Group (when assigned)

Examples of proper dangerous goods description

- UN 1830 SULPHURIC ACID, class 8, II
- UN 2902 PESTICE, LIQUID, TOXIC N.O.S. (draxozolon) class 6.1, II
- UN 1902 ACROLEIN, stabilized, class 6.1 (3), I
- UN 1992 FLAMMABLE LIQUID, TOXIC, N.O.S. (ethanol and toluidine), class 3 (6.1), II.

Selection of containments

- Packing instruction for each UN – Number in dangerous goods list
- Packing instructions for:
  - Regular packaging
  - Large packaging
  - Intermediate bulk containers (IBC)
  - Tanks
  - Bulk containers

Types of containment

- Regular packaging (Volume max. 450L)
- Large packaging (volume max. 3000l) for inner packaging)
- IBC (volume max. 3000l) for liquids or solid bulk.
- Tank (volume not restricted) for liquid or solid bank.
- Bulk container (for low hazard goods only)

Chemical and Physical Properties of dangerous goods

Dangerous goods are classified based on chemical and physical properties and how the same react in other substances. The major grouping is as follows:

Class 1: Explosives

Division 1.1: Substances and articles which have a mass explosion hazard
Division 1.2: Substances and articles which have a projection hazard but not a mass explosion Hazard
Division 1.3: Substances and articles which have a fire hazard and either a minor blast hazard or a minor projection hazard or both, but not a mass explosion hazard
Division 1.4: Substances and articles which present no significant hazard
Division 1.5: Very insensitive substances which have a mass explosion hazard
Division 1.6: Extremely insensitive articles which do not have a mass explosion hazard.

Class 2: Gases

Class 2.1: flammable gases
Class 2.2: non-flammable, non-toxic gases e.g. oxygen, carbon dioxide
Class 2.3: toxic gases e.g. tear gas

Class 3: Flammable liquids e.g paints, varnishes

Class 4: Flammable solids; substances liable to spontaneous combustion; substances which, in contact with water, emit flammable gases e.g. matches, plastics

Class 4.1: flammable solids, self-reactive substances and desensitized explosives
Class 4.2: substances liable to spontaneous combustion. They are either solids or liquids Possessing the common property of being liable spontaneous to heat e.g. Phosphorus
Class 4.3: Substances which, in contact with water, emit flammable gases e.g. Calcium, Aluminium powder.

Class 5: Oxidizing substances and organic peroxides

Class 5.1: oxidizing substances
Class 5.2: organic peroxides

Class 6: Toxic and infectious substances:

Toxic Substances are poisonous material, other than a gas, that is known to be as toxic to humans as to cause death, injury, or harm to human health if swallowed, inhaled, or brought into contact with skin.

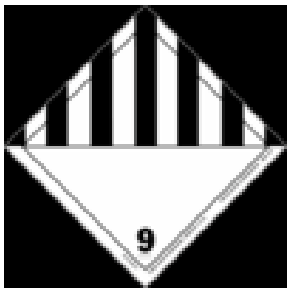
Class 6.1: toxic substances e.g. tear gas
Class 6.2: infectious substances e.g. Blood for blood transfusion

Class 7: Radioactive material

Class 8: Corrosive substances:

One that will destroy or irreversibly damage another substance in which it comes in contact with e.g. acid.

Class 9: Miscellaneous dangerous substances and articles



NOTE: The numerical order of the classes and divisions is not that of the degree of danger.

The rest of the substances not elsewhere specified fall in class 9. This includes several substances and articles which are not properly covered in other classes. Several items grouped in this class cause relatively low transportation hazards. Examples of these are asbestos, dry ice and internal combustion engines.

Classification

- Assignment of goods to hazard classes according to defined criteria
- Clear identification by UN- number
- Frequently transported goods mentioned by name in dangerous goods list
- Generic entries (n.o.s.-shipping names) to assign goods listed by name.

6.6.7 Marking and Labelling of Dangerous Goods

Marking:

The consignor is responsible for all marks and labels which have to appear on each package of dangerous cargo or over-packing gathering dangerous cargo packages;

There are two types of marks;

i. Marks identifying the mode or specification of packing without considering its use for a certain consignment (done by a manufacturer).
ii. Marks identifying the use of a special packing for a special consignment (done by the consignor).

Labelling:

i. Label of Danger:

The alphabetical list of dangerous goods gives the labels of danger to be fixed on the parcels. The label corresponding to the primary risk first is clearly indicated for each item or substance, then, for items or substances presenting a subsidiary risk, the label or labels corresponding to that risk. Only the labels indicating a primary danger must indicate, on the down corner, the class or division number.

The minimum size of labels are of 100 * 100 mm for all classes and division of danger, while the minimum size of figures indicating the divisions 1.4, 1.5 and 1.6 is of 30 mm of high for 5 mm of large.

Handling Labels:

The handling labels must be used up the labels of danger

a. The label **<<Magnetized Material>>**, must be put on the parcels contained magnetized mass (minimum size: 90* 110 mm);
b. The label **<<Cargo Aircraft Only>>,** must be put on parcels containing dangerous goods allowed on the air cargo with minimum size 110 * 120 mm;
c. The labels **<<Package Orientation>> (THIS SIDE UP or THIS WAY UP or again some orientation arrows)** to be pasted or printed on at least two opposite sides of a

parcel in such a way to indicate in which direction the parcel should be put to avoid the inner packing being oriented towards down (minimum size of the orientation arrows:(74 * 105 mm).

6.6.8 Special Requirements of Transportation of dangerous goods

i. By Sea

The following are supplementary regulations for sea transport of dangerous goods.

- **IFN Code**-this is a code which contains additional requirements for ships engaged in transport of irradiated nuclear fuel material containing Uranium, Thorium and Platinum. The code is mandatory as per ***Solas chapter vii part'd'.***
- **BC Code-**code that governs the transportation of solid bulk cargo on ships and it originates from ***Solas chapter vii part 'a'***
- **IBC Code-**this refers to the international code of construction and equipment of ships that carry dangerous chemical in bulk. This is according to ***Solas chapter vii part 'b'***
- **IGC Code**-this is the international code for the construction and equipment of ships carrying gases in bulk according to ***Solas chapter vii part 'c'***

ii. By Air

International Civil Aviation Organization (ICAO) is the UN technical instructions for the safe transport of dangerous goods by air and is legally enforceable while IATA regulations are published by the International air transport association mainly for operational purposes. The latter has additional guidelines. They cover the following areas; General provisions, applicability, classification, packing, marking, labelling, documentation, identification handling and responsibilities of the various parties. Also important is the consideration for suitability for transportation of dangerous goods by air, either in cargo or passenger planes

Training of staff and security preparation (especially for high consequence dangerous goods) is critical in the application of these regulations. IATA/ ICAO regulations outline requirements for the transportation of goods in excepted and limited quantities with regard to marking, segregation and the relevant documentation. Package test specifications and inner packaging requirements are also outlined. Details of marking packages and preparation of shipper's declaration documents including the need to provide any additional handling information is also provided for.

iii. By Road

Within East Africa guidance may be sought by local environmental protection authorities such as NEMA in Uganda. The traffic and road safety rules will also be a guide. Clearance ought to be sought from these authorities. In some cases, additional clearance might be required from the National Bureau of Standard. The labelling in accordance to classification is however generally similar to what has been given in the sections above.

Elsewhere in the Europe, the conditions relating to the movement of dangerous goods by road are found in the European Agreement concerning the international carriage of dangerous goods by road (ADR) OF 1968. Hauliers intending to carry dangerous goods to or through European countries require clearance in form of an ADR certificate after inspection by the Department of Transport Goods Vehicle Testing Stations.

Operators wishing to take vehicles by sea to continental ports should also bear in mind that the carriage of dangerous goods by sea in the UK is governed by the Merchant Shipping (Dangerous Goods and Marine Pollutants) Regulation 1990.

iii. By Rail

The merchandise by rail is primarily bulk cargo and regulations are very stringent elsewhere in Europe. In East Africa not much enforcement has been seen in this respect. The environmental protection authorities however intervene from time to time as and when need arises. Within Europe they are found in the international regulations concerning the carriage of dangerous goods by rail (RID) of 1978.

Unlike the IMDG; 49CFR we have substances, which are listed as Inhalation hazards (because of their toxic properties), and these are special regulations for the US.

Under US-law, combustible liquid means a flammable liquid with a flashpoint between 61 and 93 degrees Celsius and placards for labelling combustible liquids measures 273mm x 273mm.

6.7 Learning Activities

1. Review the IATA Live Animals Regulations. Map out the process and requirements of exporting live animals from the EAC to North America
2. Undertake a search in the Internet on accidents resulting from dangerous goods in the recent past (10 years) in the following areas:
    a. Air Transportation
    b. Sea Transportation
    c. Land Transportation (Rail or Road)
    d. Goods in storage
3. In the above situations, what was the role of a freight forwarder in regards to handling the dangerous goods? What would have been done different?

6.8 Self-Assessment Questions and Activities

1. What are the documents used in exportation and importation of special goods?
2. State four requirements for safe transportation of dangerous goods.
3. Explain what is meant by "Orange Book" in respect to dangerous goods.
4. What are the roles of a clearing and forwarding agent in handling special cargo?

6.9 References

- IATA (2021). Dangerous Goods Regulations, 62ND Edition. IATA
- United Nations Economic Commission for Europe (UNECE) (2020). Agreement concerning the International Carriage of Dangerous Goods by Road (ADR 2021). UNECE
- United Nations Economic Commission for Europe (UNECE) (2019). Recommendations on the Transport of Dangerous Goods – Model Regulations (Rev.21). UNECE
- The International Maritime Organization (2020). The International Maritime Dangerous Goods (IMDG) Code, 2020 Edition (inc. Amendment 40-20). IMO
- CITES. (2021, 08 05). www.cites.org. Retrieved from https://cites.org/eng/resources/transport/index.php#2: https://cites.org/eng/resources/transport/index.php#2
- ICE CARGO. (2021, 08 05). www.icecargo.com.au. Retrieved from https://www.icecargo.com.au/out-of-gauge-cargo/: https://www.icecargo.com.au/out-of-gauge-cargo/
- United Nations (2009). IMO/ILO/UN ECE Guidelines for Packing of Cargo Transport Units (CTUs). UN Geneva
- IMO/ILO/UN ECE (1997). Guidelines for Packing of Cargo Transport Units (CTUs). IMO
- IMO/ILO/UNECE (1997). Code of Practice for Packing of Cargo Transport Units (CTU Code) https://unece.org/transportintermodal-transport/imoilounece-code-practice-packing-cargo-transport-units-ctu-code
- European Commission (2014). European Best Practice Guidelines on Cargo Securing for Road Transport
- International Road Union (IRU) (2014). International Guidelines on Safe Load Securing for Road Transport. Geneva, Switzerland
- Glass, D. (2012). Freight Forwarding and Multi Modal Transport Contracts, 2nd Edition. Routledge
- UN Conventions on Transport https://treaties.un.org/Pages/ViewDetails.aspx?src=IND&mtdsg_no=XI-B-11&chapter=11&clang=_en
- FIATA, the International Freight Forwarders Association - https://fiata.org
- IMO, International Maritime Organization - https://www.imo.org/
- IATA, the International Air Transport Association - https://www.iata.org
- ICS, the International Chamber of Shipping - https://www.ics-shipping.org
- IRU, the International Road Transport Union - https://www.iru.org
- UIC, the International Union of Railways - https://uic.org
- ILO, International Labour Organization - https://www.ilo.org/global/industries-and-sectors/transport-including-civil-aviation-railways-road-transport/lang--en/index.htm

7.0 CONTAINERIZATION

7.1 Specific Learning Outcomes

At the end of this lesson the trainee should be able to:

i. Define a freight container and its characteristics
ii. Explain the evolution of containerization
iii. Explain the standardization of containers
iv. Explain the advantages and disadvantages of containerization
v. Types and Classification of freight containers
vi. Container Identification Number and Marking
vii. Discuss various container charges.

7.2 Overview of Containerization

7.2.1 Definition

A container is a standard sized metal box used to consolidate and ship/ convey freight aboard a specifically configured oceangoing vessel or Aircraft. It is also a "large reusable receptacle that can accommodate smaller cartons or cases in a single shipment, designed for efficient handling of cargo".

Containerization is a system of freight transport based on a range of steel intermodal containers (also "shipping containers", "ISO containers" etc.). Containers are built to standardized dimensions, and can be loaded and unloaded, stacked, transported efficiently over long distances, and transferred from one mode of transport to another without being opened.

7.2.2 Characteristics of a Container

It holds together and protects the goods/cargoes carried within. Maritime Containers are available in different types and are configured to accommodate different kinds of goods.

- They are also multimodal compatible enabling the movement of goods fairly seamlessly across the various transport modes by using a minimum amount of labor as they are mechanically handled.
- It serves as load unit of cargoes in support of international trade.
- Containers are made strong enough for repeated use.
- They are designed to be stackable up-to eight tiers high while loaded.
- It is fitted with lockable devices at all the four corners for ease of securing them during conveyance or shipment.

7.2.3 Evolution of Containerization

Containerisation has evolved into the key physical and logistical support of international trade and globalization. Although available in several sizes, all containers adhere to a single standard, which accelerated containerization by permitting full access to the distribution system by reducing the risks of capital investment in modes and terminals. Another notable reason for the accelerated adoption of containerization was the speed at which it can be transferred intermodal that is, transferring between ships, railcars, truck chassis, and barges using a minimum amount of labour. The container, therefore, serves as the load unit rather than the cargo it carries. Their relevance does not relate to what they are - simple boxes - but what they enable: the movement of goods fairly seamlessly across a variety of modes.

Containerisation came from a number of strands developing over slightly different timescales until it was upon us. There is no definite creator of containerisation as a number of organisations have claimed credit to it, examples are Malcolm, Maclean, the president of Sealant, British Rail and Pickford just to mention a few.

Before the development of containerisation, the following list of components was put into consideration;

i) The ship
ii) Port handling – straddle carriers, gravity cranes, forklift trucks, tractor and trailer units
iii) The freightliner system
iv) The skeletal trailer and tractor units
v) The inland clearance depots (ICD) and container bases
vi) The container
vii) Through pricing

7.2.4 Advantages and Disadvantages of Containerization

Advantages

- Flexibility between different types of transport

- Handling elimination- only opened at destination once sealed
- Labour saving- only handled during packing and unpacking
- Little damages- does not occur because it is sealed
- Eliminates, theft, pilferage- when it is sealed
- Time saving- loading and unloading using a crane

Disadvantages

- Heavy loads damage roads
- It is not suitable to transport smaller amounts
- The cost of labour is expensive- port dues are expensive
- Delays in deliveries

7.3 Development of Containerization

All that was required in the early days of containerisation was an intermodal through transport systems with a standard unit which can be transferred quickly between one form of transport to another.

The earliest users in the 1920s were British Rail and Pickford who designed containers which by means of cranes and which would be transferred between lorry and rail wagons. It was not until containers started to be stacked on top of each other that the container age really began.

It was until 1950s when American company, Matson Navigational Incorporated, developed the corner casting system. This was a means whereby hooks could be inserted into standard measurement holes in the four corners of the top of the container could be lifted onto another, resting on these slightly raised castings. They also developed the cell guide principle where containers could be slotted on top of one another without the need for further securing them.

7.3.1 Standardization of Containers

In the 1950s, Sealant and Matson had different sized containers as both had started as the initiators and then found themselves caught up by standardisation. It was as early as 1959 that the Van Container Subcommittee of the MK5 sectional committee (of the American Standard Association) recommended sizes of eight feet for the width and height and 12; 17; 20; 24; 35- and 40-feet length were all concessions to various regulations in USA and Europe. In 1960, various regulatory bodies in USA and Europe agreed to drop their standard and allow the sub- committee to adopt 10; 20; and 40 feet length.

7.3.2 Development of Cellular Vessels

In the early years, containers were carried by convectional ships until in 1964 when a Australian company associated steamship who built Kooringa which was a fully cellular ship with cell guides in holds-purposely for containers. The first generation of cellular ship had their own gantry cranes, a capacity of 300-500 twenty-foot equivalent units (TEUS) and a speed of about 12 knots.

The second generation of gearless ships were required with (1500 TEUS) with a speed of 21 knots with a full back up facilities at ports and for packing and unpacking of containers near to the industrial centres of the country (inland clearance depots).
The third-generation ships were larger and had the capacity of 2660 TEUS and the fourth-generation ships with the capacity of 4400 TEUS linking USA and Europe which involves the most extreme use of a select number of major ports round the world for instance only one in Northern Europe, Rotterdam and Marseilles with a number of feeder ships servicing the mother ship.

7.4 Common Features of Maritime Shipping Intermodal Containers

- Standard containers would cater for majority of general dry cargoes and goods.
- All types have steel frame with cross beams providing the body support.
- Strong side and top rail are provided to frame the doors of the container.
- Corner casting at each of the four corners permitting stacking and secured one to another during shipment.
- The floor is usually timber for ease of stuffing and incorporates lashing points to secure the cargo.
- The corner castings are ISO Standards which allows containers to be secured by locking devices.
- The locking devices are only locked into the corner casting at only specific positions
- Majority of TEUS containers have a height of 8.6 feet, however the 40 feet have embraced the higher height of 9.6 feet as they offer higher cube and lower costs to shippers

7.5 Containers Design

The development of through transport system resulted in the shipping companies having to provide standard containers which would cater for most of the general dry cargo. The design of intermodal containers varies depending on the source of manufacture. However, all types show the following features;

i) All types have metal frames (usually steel) surrounding the container floor with cross beams providing the support.

ii) The floor or deck is usually timber and may incorporate lashing points to attack ropes or other cargo securing devices.

iii) At each corner of the container floor are corner castings constructed to specifications laid down by the international standard organisation (ISO) which allow the container to be secured by locking devices.

iv) The locking devices can only enter the corner casting when in a particular position once turned to another position the device is locked into the casting.

v) Strong side and top rails are provided to frame the doors of the container.

vi) Corner castings are provided at each of the top corners thereby permitted containers to be secured one to another.

Although initially containers were provided in 10', 20', 30' and 40', 10', and 30' soon disappeared from widespread international use. In many areas the handling cost of 10' and 20' feet containers were the same although the revenue earning potential of a 20 feet container is clearly greater. The 30 feet container did not easily fit the configuration of the cellular ship stowage arrangements and frequently resulted in space being wasted.

A similar process of evolution has affected the height of the container. All the containers provided were 8ft in height. Later containerisation programmes took into consideration an increasing requirement for higher containers. Currently there is a demand for containers which are 9.5 feet higher. While these offers higher cube to and lower costs to shippers.

7.6 Types/Classification of Containers

Containers are classified based on material of construction, size and use.

i. Classification based on material of construction

- Steel containers are rigid and stiff hence tough and watertight when welded. They are easy to repair and comparatively cheaper. They easily rust and are difficult to insulate.
- Aluminum containers are lighter than steel containers and are corrosion resistant. Since aluminum is easy to bend it can be easily insulated. Steel plates are required to reinforce because of flexibility. Aluminum is also expensive. It is also prone to corrosion by acids.
- GRP containers are strong and stiff and free of corrosion. They are very expensive to fabricate and are easily damaged if mishandled. They are heavy with instructive projections.

ii. Classification based on size

- Standard Containers are 20 or 40 feet long, 8 feet 6 inches high and 8 feet wide.
- High Cube Containers are 20 or 40 feet long, 9 feet 6 inches high and 8 feet wide.
- Super High Cube Containers have dimensions, which exceed the standard ISO sizes. The dimensions vary and may reach up to 53 feet long. These types of containers are used for transporting light but high-volume cargo and over height cargoes up to a maximum of 2.70 m tall.

20 ft. Dry Container

Length:	5.90 m	Door Width:	2.34 m
Width:	2.35 m	Door Height:	2.27 m
Height:	2.39 m	Max Payload:	28.19 Ton

20 ft. Open Top Container

Length:	5.90 m	Door Width:	2.34 m
Width:	2.35 m	Door Height:	2.24 m
Height:	2.35 m	Max Payload:	21.55 Ton

20 ft. Flat Rack Container

Length:	5.96 m		
Width:	2.02 m		
Height:	2.08 m	Max Payload:	27.76 Ton

40 ft. Dry Container

Length:	12.03 m	Door Width:	2.34 m
Width:	2.35 m	Door Height:	2.27 m
Height:	2.39 m	Max Payload:	26.19 Ton

40 ft. High Cube Dry Container

Length:	12.03 m	Door Width:	2.34 m
Width:	2.35 m	Door Height:	2.58 m
Height:	2.69 m	Max Payload:	26.49 Ton

40 ft. High Cube Reefer Container

Length:	11.67 m	Door Width:	2.29 m
Width:	2.29 m	Door Height:	2.44 m
Height:	2.54 m	Max Payload:	27.70 Ton

40 ft. Open Top Container

Length:	12.02 m	Door Width:	2.34 m
Width:	2.35 m	Door Height:	2.24 m
Height:	2.38 m	Max Payload:	26.46 Ton

40 ft. Flat Rack Container

Length:	11.99 m		
Width:	2.24 m		
Height:	1.97 m	Max Payload:	39.02 Ton

45 ft. High Cube Dry Container

Length:	13.58 m	Door Width:	2.34 m
Width:	2.34 m	Door Height:	2.58 m
Height:	2.69 m	Max Payload:	26.18 Ton

iii. Classification based on use

- **Dry Freight or General Cargo Containers**
  - It is enclosed and waterproof
  - The frame and bottom cross members are made of steel.
  - The sides and top are made of corrugated steel, aluminum or plywood with fiber glass coating.
  - The floors are made of wood.
  - At least one end wall has sealable doors.
  - For ease of lifting, they are usually fitted with forklift pockets for handling when empty.
  - They are used for all types of dry cargo.

A general purpose container is also known as a "dry container". These shipping containers are fully enclosed, protected from the elements and weather proof, with a rigid roof, side walls and floor. Dry containers are by far the most common type of container, and as such are used to load most types of normal cargo. In addition, general purpose containers can have adaptations such as liner bags or flexi-tanks for shipping certain types of liquid bulk cargo or dry bulk cargo.

General Purpose Container

- **Ventilated Containers**
  - Used for the transportation of farm produce such as coffee, cocoa and tea.
  - Ventilation is provided by openings in the top and bottom side rails.
  - The openings prevent water ingress. Actively ventilated containers have adjustable ventilation.
  - Ventilated containers are also known as passive (naturally) ventilated or coffee containers. Ventilation is provided by ventilation openings in the top and bottom side rails. The openings do not let in spray, to prevent depreciation of the cargo by rain or spray, for example.
  - If actively ventilated containers are required, i.e. containers with adjustable ventilation, "porthole" containers may be used, which simultaneously act as insulated or refrigerated containers.
  - Lashing rings, to which the cargo may be secured, are installed in the upper and lower side rails and the corner posts. The lashing rings may take loads of up to 1,000 kg. The common size for ventilated containers is 20'.

Ventilated Containers

- **Thermal Containers**
  - These are used to carry cargoes requiring temperature control.

- **Reefer Containers**

Have insulated walls, doors, roof, and floor, which limit the extent of temperature loss or gain. They are used for transporting perishable goods like meat, fruits, and vegetables. An ISO shipping container is used for the shipment of temperature sensitive, perishable cargo such as meats, fruits, and vegetables. This container type relies on external power to keep the temperature regulated. Reefers generally come in 20' and 40 and are commonly made from weathering steel known as 'Cor-ten' steel.

- **Insulated Containers**

These containers do not use any device for cooling and-or heating. Like the ISO Reefer container, an insulated or thermal container has a regulated temperature control that allows them to withstand a higher temperature. They are equipped with an electrical compliance (mechanical compressor) to cool or heat the air within the container. Insulated containers are typically constructed of a vacuum flask, similar to a "thermos" bottle. As such, they are most suitable for long distance transportation of products such as foods, pharmaceuticals, organs, blood, biological materials and chemicals.

- **Refrigerated Containers with Expendable refrigerant**
  - These use dry ice or liquefied gases. They do not require external power supply or fuel supply.
- **Mechanically refrigerated containers**
  - These use a refrigerating appliance (mechanical compressor) or absorption unit.
- **Heated Container**
  - This uses a heating appliance. Examples in east Africa are the containers for bitumen.
- **Refrigerated and heated container**
  - This uses a refrigerating appliance (mechanical or expendable refrigerant) and a heater.

Refrigerated Container

- **Tank Containers**

Used for the carriage of bulk gases and liquids. Examples in East Africa are the tank tanners used by Mukwano to transport palm oil from Mombasa to Kampala. Tank containers, or tankers, are made of strong steel or other anti-corrosive materials for the transportation and long-life protection of liquid

materials. A tank container must be at least 80% full to prevent dangerous surging of liquids in transit, but it must also not be over 95% full or there would not be sufficient room for thermal expansion.

Tanker Container

- **Dry Bulk Containers**

This consists of a cargo carrying compartment or structure secured within the intercontinental container framework. Used for carriage of dry solids in bulk without packaging such as grains and dry chemicals. A dry-bulk container is a shipping container transporting raw materials (such as grain, powder or sand) in large, unpackaged parcels. A dry-bulk container is loaded from the top and discharged from the bottom.

- **Open Top Containers**

These are general purpose containers with no rigid roof. They may have flexible or removable canvas cover. An open top shipping container has a convertible top that can be completely removed. This is suitable for cargo that is over-height and cannot be easily loaded through the door, such as tall machinery or other heavy / bulky finished products whose handling and loading can only be performed with a crane or rolling bridge. Open top containers have lashing rings installed to the upper and lower side rails and corner posts to secure cargo, and are available in 20' and 40'.

- **Platform Based Container (open sided)**

Has no rigid sidewalls but has rigid ends. This is intended for cargoes that may extend beyond the width or height of the container. Open side containers are very similar to regular, general purpose shipping containers, the only difference being that the doors can open completely on the side too. This feature provides much wider room and access, which makes loading and unloading materials easy. Open side shipping containers generally come in 20' and 40', and they provide adequate room for extra-large items that can't fit through the regular doors.

- **Special Cargo Containers**

These containers are built for specific cargoes. They are also built to ISO specification. Examples are automobile, livestock and wildlife containers. Not the ordinary containers, these are the container units, custom made for specialized purposes. Mostly, they are used for high profile services like the shipment of weapons and arson. As such, their construction and material composition depend on the special purpose they need to cater to. But in most cases, security remains the top priority.

Special cargo container

Flat rack container

With collapsible sides, these are like simple storage shipping containers where the sides can be folded so as to make a flat rack for shipping of a wide variety of goods

- **Half Height Containers**

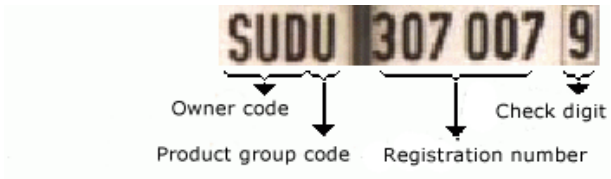
Half-height shipping containers are designed for transporting bulk cargo that is heavy and dense. These are good for transporting goods such as coal and stones, so they are perfect for use in the mining industry. Half height containers have a low centre of gravity so they can better handle heavier loads than taller containers, making them versatile and they're robust enough to withstand the rough industrial environment. Half-height containers are also easy for loading and unloading.

Car Carriers

Car carriers are container storage units made especially for shipment of cars over long distances. They come with collapsible sides that help a car fit snugly inside the containers without the risk of being damaged or moving from the spot.

7.7 Container Markings /Container Identifications

The current standard which deals with the coding, identification and marking of containers is DIN ENISO 6346, dated January 1996. Among other things, this standard specifies that the previous standards with similar content have equal validity, since a number of older versions of containers with different markings naturally remain in service alongside the brand-new ones.



A distinction is drawn between compulsory and optional marking. Compulsory ISO marking must be used on all containers, while optional marking does not have to be: they are included in the standard to improve understanding and to promote uniform application of marking. However, if a particular style of representation is specified for an optional mark, it must be complied with.

The terms "compulsory" and "optional" used in the standard do not apply to the requirements of any legislative bodies; however, the following is a basic version of horizontal container marking.

The container identification system specified in DIN ENISO 6346 consists solely of the elements shown, which can only be used together:

- owner code, consisting of three capital letters
- product group code, consisting of one of capital letters U, J or Z

- six-digit registration number
- check digit

The owner code must be unique and registered with the International Container Bureau (BIC, either directly or through a national registration organization. In the Figures shown, the owner code consists respectively of the letter combinations SUD and TEX.

The product group code consists of one of the following three capital letters:

U	-	for all freight containers
J	-	for detachable freight container-related equipment
Z	-	for trailers and chassis

The term owner code may also apply to the combination of owner code and product group code, which is also known as an alpha prefix.

If the owner code is absent, the container cannot be identified. The registration or serial number consists of six digits. In the examples shown, these numbers are 307007. If the container number consists of fewer than six digits, it is preceded by enough zeros to make a six-digit number sequence.

The check digit, 9 in the examples shown, is always a single-digit number. It is usually in a box, to make it stand out from the registration number.

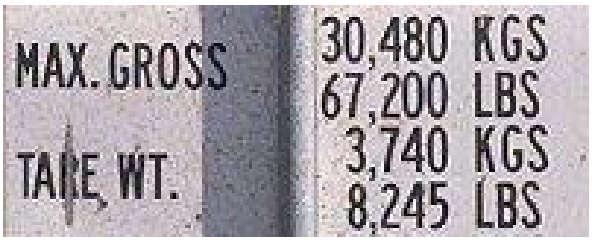
The check digit can be used to validate whether the owner code, product group code and registration number have been accurately transmitted. No freight information system (FIS), transport information system (TIS) or similar data processing system will accept a container number, if the result of the automatic checking procedure does not show agreement with the check digit. The procedure is deliberately designed to ensure that a number of transmission errors cannot cancel one another out, resulting in the acceptance of incorrect data.

Other markings

Many containers carry instructions about using particular structural elements, which are intended to serve as warnings.

The operational markings according to DIN ENISO standard 6346, January 1996, are intended to simplify use of the container by providing additional information and warnings. These markings also include both compulsory and optional markings. Examples of compulsory markings are those indicating gross weight and tare weight, which naturally have to agree with those on the CSC Approval Plate, (International Convention for Safe Containers)

The standard prescribes the following form and sequence for marking of gross and tare weights.



Standard Operational Markings

Gross and tare weights

It is also compulsory to affix certain warning symbols. These include pictograms for air/surface containers, the danger posed by overhead power cables and height markings for containers which are higher than 2.6 m (8'6").

Importance of container identifications marks and numbering.

a) They are used mainly for correct and precise identification of the specific boxes/ units/ Containers.
b) They are used for ease in tracking and tracing the movements of containers worldwide during voyages.
c) Other marks show the country of origin, size and type of the container. Example; US2200, means; (US)country of origin, (22)20 ft container general purpose, (00) basic type.

7.8 TIR Convention - Transport International Routier (International Road Transport)

Subject to the conditions laid down in Articles 4 to 9, each Contracting Party shall grant temporary admission to containers, whether loaded with goods or not under customs seal. Each Contracting Party reserves the right not to grant temporary admission to containers which have been the subject of purchase, hire-purchase, lease, or a contract of a similar nature, concluded by a person resident or established in its territory.

- The TIR convention is an international system which simplifies and accelerates the international transport of goods by road.
- The principle is straight forward –rather than multiple customs controls at every border, customs authorities seal compartments from the country of origin and unseal them at the country of arrival.
- Multiple controls are thus avoided whilst maintaining optimal reliability.
- This streamlining of procedures provides the advantage of reduced waiting times at borders and reduced transport costs.
- The TIR system was created by the convention relative to the international transport of goods by road in 1959.
- The TIR convention of the United Nations, created in 1975 has been in application since 20 March 1978.
- It's worth pointing out that international transit operations under TIR do not require national customs documents. The containers are secured, and goods do not require additional checks.

The advantages of the TIR convention

- The reduction in transport costs;
- Simplification of formalities;
- Reduction in transport delays;
- Minimized interference;
- Elimination of customs guarantee deposits at borders.

Customs services are in favour of the TIR Convention for the following reasons;

- The TIR represents a reduction in physical checks;
- Customs documentation is simplified;
- The system is protected, especially by the transporters' registration system;
- The TIR allows for improved deployment of customs personnel;
- National associations guarantee payment of duties and taxes up to 100,000 euros per transit operation.

7.9 Container Charges

Intermodal services often involving door to door transport provided by one operator, have required different approach to pricing from that applied previously. While the customer may want a single door to door price for this particular commodity, the operator is more likely to construct his tariff in parts, where he can build up the through rate from separately identified charges for the various stages of the movement.

On deep sea trade routes, a major influence in the pricing of through transport movement has been the existence of shipping conferences with the established methods of charging which date well before the advent of containerisation.

Most pricing in containerisation are set by shipping conferences. These are companies that have formed an association to agree on and set freight rates and passenger fares over different routes. There are different shipping conferences for different regions of the world. Apart from setting rates, they adopt a wide number of policies such as allocation of customers, loyalty contracts, and open pricing contracts.

The attitude of pricing structure is therefore now more closely linked to the pricing activities of their competitors. The conference tariff for sea transport has traditionally been based on:

i. The weight or measurement of container.
ii. The commodity involved and how much it can afford to pay in relation to its value.
iii. Any special requirements in handling or looking after the cargo, eg hazardous cargo.

With the advent of containerisation, most conferences continue to charge in a similar fashion with the container itself being provided without additional charge to the customer, but normally specifying a minimum charge to be paid if the customer wishes to have exclusive use of the

container. An operator will always have additional charges for anything which increases his costs, e.g. refrigerated containers, hazardous cargo and high cost ports etc.

Containers are provided free of charge by the carrier for the transportation goods and to be returned within a specified period allotted by the carrier. However, any delay to return the empty or loaded container within the period allotted attracts penalty imposed by the carrier.

7.9.1 Types of Container Charges

The following are some of the charges:

Demurrage on import and export

- Demurrage refers to costs incurred by a customer for using equipment when loaded cargo containers are left at the port terminal for longer than the allowed free time.
- Demurrage is charged when containers are still full and under the control of the shipping line, and have not been cleared through customs or picked up by the consignee.
- On imports, demurrage can occur if the containers are not picked up once they have arrived at the port and the free for pick up set by the shipping line expires for the container.
- Demurrage charges are applied for storage of container while in the shipping line terminal/port full of cargo.
- When it comes to exports, demurrage can occur if the exporter delivers goods to the port prior to the agreed upon dispatch date (when the vessel arrives) and cannot be shipped out or when the container was left by the vessel due to non-carrier related errors once the allotted free time has expired.
- Under such circumstance, the steamship will be unable to load the container on to the originally scheduled vessel. Demurrage charges will apply until the container is shipped out of the port.

Detention on imports and exports

- Detention refers to costs incurred by the customer for using equipment beyond the given free time, typically outside of the terminal.
- Detention is charged when the carrier's equipment is still in use by the shipper or consignee beyond the Last Free Day (LFD), regardless of if full or empty.

There are two main types of detention fees: per diem and driver detention.

- Shippers often confuse detention with demurrage. The easiest way to discern between the two is to think of demurrage as fees assessed on laden containers inside a port, and detention as fees assessed on containers outside a port, whether they are laden or empty.
- Per diem (per day) is a detention fee where a fixed rate is charged per container per day until the equipment is returned to the port or container yard.
- Many terminals use the terms detention and per diem synonymously. In both cases, the fees are the result of a late container return and are applicable to both imports and exports
- Driver detention refers to a fee, typically charged at an hourly rate, that a carrier may assess when driver wait time, either at the origin/pickup or destination/delivery location, exceeds the given free time for loading or unloading the truck.
- Delays can cause a driver to run out of legal driving hours and therefore be unable to complete their delivery. Missing or showing up late to their next scheduled appointment can result in the drivers getting fined or even worse, being put out of service. Holdups can also cause the driver to potentially lose their next load and the income that comes with it.

7.9.2 Container Charges – LCL or FCL

The terms LCL and FCL refer to the two main modes of container shipments: FCL for Full Container Load and LCL for Less than Container Loads.

- An FCL shipment, or full container shipment, as its name suggests, is a shipment that occupies the entire space of a container without having to share it with other merchandise.
- LCL, or groupage, as it is otherwise known, refers to shipments that take up only a portion of the entire container, and is shipped alongside other merchandise from other shippers in the same container.

Freight forwarders often book cargoes under the LCL category and create a 'consolidation' by merging several of their LCL cargoes. They do so by booking an FCL container and consolidating the same with cargo accepted from different shippers. The cargoes are then sorted as per their port of destination or trans-shipment.

In determining charges various container shipment statuses are considered as discussed below:

1. HOUSE/HOUSE (FCL/FCL)

A full container load (FCL) is an ocean shipment in which the cargo occupies a full container (of any size). A Full Container Load shipment can be stuffed at the supplier premise and then trucked directly to the Container Yard (CY) and the container can either be live unloaded at the destination, or the trucker can do a drop. A live unload is trucking term, meaning that the trucker will wait for the container to be unloaded, instead of doing a drop. If an exporter has goods to accommodate in one full container load, he books an FCL (Full Container Load) to stuff his cargo. In an FCL cargo, the complete good in the said container owns by one shipper. In an FCL owned by one shipper, the cargo in the container need not have fully loaded cargo in the container. Let the cargo be half loaded or quarter loaded container, if booked by one shipper under one shipment, the said shipment is called FCL shipment

2. HOUSE/PORT (FCL/LCL)

A FCL shipment is used when a shipper bears the cost of the entire container and uses it exclusively for a single shipment, even if they do not have enough goods to fill it up. The unpacking of the container at destination must be carried out by the carrier and the consignee collects his cargo as LCL.

3. PORT/HOUSE (LCL/FCL)

A Less Container Load/Full Container Load is a way of quoting container freight rates in which the carrier agrees to pack the container at the outset Less Container Load (LCL) but unpacking at destination must be carried out by the receiver or consignee. It is a common approach for importers who wish to consolidate small purchases from multiple suppliers in a foreign market into container shipments.

4. PORT/PORT (LCL/LCL)

Less Container Load (LCL) shipment means shippers share the containers with other shipments and only need to pay for the space used Less than Container Load (LCL) is a mode of shipping via ocean. If you don't have enough cargo to fill up an entire container. An LCL shipment will be consolidated with other LCL shipments into one container. It is a way of quoting container freight rates in which the carrier agrees to pack the container on departure as well as unpack the container at destination.

7.10 Learning Activities

As a freight forwarder, you have been tasked by your clients to move the following cargos:

1. Coal from Australia to EAC
2. Meat products from EAC to Europe
3. Flowers from EAC to Europe
4. Avocadoes from EAC to Europe
5. Liquefied Petroleum Gas (LPG) from Tanzania to Ghana
6. Cars from Europe to EAC
7. Ammunition from the US to EAC
8. Heavy machinery from China to EAC
9. Gold from DRC to the United Kingdom

Required

(a) The appropriate type of containers for each export situation. Justify your choice for the container

(b) The markings and labels which are found in such containers

(c) The determination of container charges to your clients.

7.11 Self-Assessment Questions and Activities

1. Explain the advantages and disadvantages of containers
2. Explain why a freight forwarder may opt to ship cargo in a dry container made of steel.
3. Explain how an exporter of coffee would incur detention charges at the port of Mombasa as well as other related charges

7.12 References

- Dong-Ping Song, D. (2021). Container Logistics and Maritime Transport. Routledge
- Monios, J. & Bergqvist, R. (2019). Intermodal Freight Transport and Logistics. Routledge
- FIATA, the International Freight Forwarders Association - https://fiata.org
- IMO, International Maritime Organization - https://www.imo.org/
- ICS, the International Chamber of Shipping - https://www.ics-shipping.org
- International Chamber of Commerce (ICC) - https://iccwbo.org
- IRU, the International Road Transport Union - https://www.iru.org
- UIC, the International Union of Railways - https://uic.org
- SMDG - https://smdg.org/
- United Nations (2009). IMO/ILO/UN ECE Guidelines for Packing of Cargo Transport Units (CTUs). UN Geneva
- IMO/ILO/UN ECE (1997). Guidelines for Packing of Cargo Transport Units (CTUs). IMO
- IMO/ILO/UNECE (1997). Code of Practice for Packing of Cargo Transport Units (CTU Code) https://unece.org/transportintermodal-transport/imoilounece-code-practice-packing-cargo-transport-units-ctu-code

8.0 BASIS OF INTERNATIONAL TRADE AND TRANSPORT

8.1 Specific Learning Outcomes

At the end of this lesson the trainee should be able to;

i. Explain the meaning of INCOTERMS 2020
ii. Describe the evolution of INCOTERMS
iii. Explain the scope of INCOTERMS
iv. Explain the purpose of INCOTERMS
v. Explain importance of using appropriate INCOTERMS
vi. Classify INCOTERMS 2020
vii. Identify the duties and responsibilities of parties under incoterms 2020

8.2 Overview of INCOTERMS

8.2.1 Definition of INCOTERMS

These are a set of rules which define the responsibilities of buyers and sellers for the delivery of goods under sales contract for domestic and international trade. They are authoritative rules for determining how costs and risks are allocated to parties and can significantly reduce misunderstanding among traders, thereby minimize trade disputes and litigations. They facilitate trade by promoting common understanding of the specific tasks of trading parties.

The **Incoterms** rules or **International Commercial terms** are a series of pre-defined commercial terms published by the International Chamber of Commerce (ICC) widely used in international commercial transactions. A series of three-letter trade terms related to common sales practices, the Incoterms rules are intended primarily to clearly communicate the tasks, costs and risks associated with the transportation and delivery of goods. The Incoterms rules are accepted by governments, legal authorities and practitioners worldwide for the interpretation of most commonly used terms in international trade. They are intended to reduce or remove altogether uncertainties arising from different interpretation of the rules in different countries.

8.2.2 Purpose of INCOTERMS

They provide a set of international rules for common interpretation in international and domestic sales contracts of physical and movable goods across borders. They outline when and how delivery of goods take place depending on which term is used.

They address specific questions related to:

- Delivery of physical goods from the sellers to buyers across international borders.
- Carriage of goods;
- Export and import clearance responsibilities;
- Who pays what;
- Who arranges what
- Who has risks for the loss/damage of goods at different locations in total logistic chain;

International commercial terms or Incoterms are a series of sales terms that are used by businesses throughout the world. Incoterms are used to make international trade easier. They are used to divide transaction costs and responsibilities between buyer and seller.

8.2.3 Historical Background of INCOTERMS

The international regulations all started way back over 200 years ago: In 1812, British Courts established Free on Board (FOB) shipment terms indicating who is liable for damaged goods in shipping were established. These established rules were the seeds that would eventually grow into Incoterms. **1895:** 83 years later, thanks to the expansion of world trade, a second Incoterm was born, Carriage Insurance and Freight (CIF).

One of the initiatives of the International Chamber of Commerce (ICC) to facilitate trade was to explore the understanding of the terms in the 1920s to publish the results of their study in 1923. The study was limited to six common trade terms used by 13 different countries and was to be followed by a second published study in 1928 expanding the scope to the interpretation of trade terms in more than 30 countries. The study demonstrated disparities in the interpretation of the trade terms which required further measures resulting in the first version of incoterms 1936.
At that time, trade terms involving carriage of goods focused on carriage by sea and reflected the worldwide use of the terms FAS (Free Alongside Ship), FOB (Free On Board), C&F (Carriage and Freight), CIF (Carriage Insurance and Freight), Ex-Ship and EX-Quay.

Further revision of incoterms was done in 1950s after the Second World War which resulted in the 1953 version. Terms for non-maritime were added namely: - FOR (Free On Rail, FOT (Free On Truck), and DCP (Delivered Cost Paid. Ex-Works Incoterm was also added.

In 1967, further trade terms were added addressing Delivery At Frontier (DAF) and Delivery in the country of destination, Delivered Duty Paid (DDP). Amendments to the incoterms continued to be made, with additional terms added in 1976 and 1980. In 1976, a particular term was for air transport was added, FOB Airport.In 1980, Free Carrier term was introduced with reason being the growth of carriage of goods in containers signifying that the goods were not actually received by maritime carrier at the ship's side but rather at some reception point ashore.

The 1990 version had 13 terms namely: EXW (Ex Works), FCA (Free Carrier), FAS (Free Alongside Ship), FOB (Free On Board), CFR (Carriage and Freight) CIF (Carriage Insurance and Freight), CPT (Carriage Paid To), CIP (Carriage Insurance Paid), DAF (Delivered At Frontier), DES (Delivered Ex-Ship), DEQ (Delivered Ex-Quay), DDU (Delivered Duty Unpaid) and DDP (Delivered Duty Paid). Note that the terms "FOB Airport" and "FOR/FOT" (free on rail/free on truck) have been replaced by the more general term FCA. Avoid other non-standard variations, such as "franco (named place)", "free (named place)", or C&F. There was no amendment to the year 2000 version, but additional obligations and responsibilities were added to the terms.

The eighth published set of pre-defined terms, *Incoterms 2010* defines 11 rules, reducing the 13 used in Incoterms 2000 by introducing two new rules ("Delivered at Terminal", DAT; "Delivered at Place", DAP) that replaced four rules of the prior version ("Delivered at Frontier", DAF; "Delivered Ex Ship", DES; "Delivered Ex Quay", DEQ; "Delivered Duty Unpaid", DDU). In the prior version, the rules were divided into four categories, but the 11 pre-defined terms of *Incoterms 2010* are subdivided into two categories based only on method of delivery. The larger group of seven rules applies regardless of the method of transport, with the smaller group of four being applicable only to sales that solely involve transportation over water.
Synopsis of change of risk

- **E Terms** – risk passes at supplier's premises
- **F Terms** – risk passes when cargo is passed to carrier in the country of dispatch
- **C Terms** – risk passes when cargo is passed to carrier in the country of dispatch
- **D Terms** – risk passes in country of arrival (destination)

8.3 INCOTERMS 2020

8.3.1 Classification of INCOTERMS 2020

"E" DEPARTURE term – Seller makes the goods available to the buyer at the seller's premises or other place named by the seller.

"F" MAIN CARRIAGE UNPAID terms – Seller is responsible to deliver the goods to the export shipment point and carrier designated by the buyer.

"C" MAIN CARRIAGE PAID terms – Seller is responsible for contracting carriage of goods to the place of destination but does not assume risk of loss or damage to goods or additional costs due to events occurring after shipment.

"D" ARRIVAL terms – Seller is responsible for all costs and risks associated with delivering goods to the named place in the country of destination.

8.3.2 Importance of INCOTERMS 2020

- They define roles of buyers and sellers or exporters and importers in the transport arrangement of the transportation of the goods
- They establish who bears risks in case of any loss or damage to goods at any specific point in an international journey.
- They establish parties' obligations relating to procurement and preparation of documents ensuring delivery of goods.
- They provide solutions and give certainty over costs and reduce risk of disputes and disagreements.
- They eliminate inconsistencies in language by all giving parties the same definition of specific terms within the trade agreement.

8.3.3 Key changes in INCOTERMS 2020 Version

- DAT Incoterm changed to DPU (Delivery at Place Unloaded)

Following on from several rounds of consultation, the Drafting Group made the choice of removing the word 'terminal' as it often caused confusion. DAT required Delivery at Terminal (unloaded), however, following on from feedback to the drafting committee, it was decided to change the term to DPU (Delivery at Place Unloaded), to broadly cover '**any place, whether covered or not**'.

- **Insurance cover differs between CIF and CIP**

Under CIF / CIP, the seller buys insurance for the buyer. In Incoterms 2010, insurance is required under clause C, but in Incoterms 2020, CIP requires insurance complying with Institute Cargo Clause (A) whereas CIF requires insurance under Clause C. Why? Because Clause A covers a more comprehensive higher level of insurance (e.g., for the manufactured goods), whereas a lower level of cover from Clause C would probably apply to the commodities world.

- **The Listing of Costs**

All costs are now listed in the 'Allocation of Costs' sections for each rule, to avoid confusions. Because the ordering of articles within the Incoterms 2020 rules have also changed, these now appear in the A9/B9 section of each rule.

Costs were a big issue in the 2010 Incoterms. Carriers often changed their pricing structure to deal with add ons and sellers were often surprised by being back charged terminal handling charges. The A9 sections in the Incoterms rules guide now collects together the costs, with the principle aim of clearly stating the costs to each party.

- **Security Requirements**

Cargo security has been particularly important since 9/11, and the 2020 rules now address many of the security-related requirements that became so prevalent in the early part of this century. From a carriage requirements perspective, security related allocations have been added to each Incoterms rule, and the necessary costs associated have been added.

- **Own transport**

Incoterms 2010 rules assumed that goods carried from the seller to the buyer were via a 3rd party. Incoterms 2020 allows for own means of transport by the buyer in the FCA rules and by the seller in the D rules.

- **FCA and Bills of lading**

According to FCA, the buyer must contract **or arrange** at its own cost for the carriage of the goods'.

There is a gap in delivery between FCA and FOB. If you're selling FCA, your delivery point is different to FOB. The difference between FCA and FOB to the seller is a significant cost and risk. In the 2010 Incoterms rules, exporters of goods in containers were encouraged to use FCA, which seemed best for both parties. However, many people were using FOB when they should've really been using FCA.

Why? Even sophisticated sellers said they wanted to use FOB, because a standard Letter of Credit requires an onboard Bill of Lading to be presented. Therefore, the sellers were often taking the risk and using FOB instead, because they wanted to get paid under the LC. The Incoterms® 2020 FCA extra provision now states that if the parties have so agreed, the buyer must instruct the carrier to issue to the seller, at the buyers cost and risk, a transport document stating that the goods have been loaded (such as a Bill of Lading with an on-board notation)'.

- **Presentation and design**

Incoterms 2020 rules have much more extensive explanatory notes, with better diagrams, a different structure for users and a reordering of rules to make delivery and risk more obvious. Maritime related rules still haven't changed and remain at the back of the rule book as they still might be used for bulk commodities.

- **EXW** – Ex-Works *(named place of delivery)*
- **FCA**- Free Carrier *(named place of delivery)*
- **FAS**- Free Alongside Ship *(named port of shipment)*
- **FOB**- Free On Board *(named port of shipment)*
- **CPT**- Carriage Paid To *(named place of destination)*
- **CIP**- Carriage Insurance Paid *(named place of destination)*
- **CFR**- Cost and Freight *(named port of destination)*
- **CIF**-Cost Insurance and Freight *(named port of destination)*
- **DPU**- Delivered At PLACE Unloaded

(named terminal at port or place of destination)

- **DAP**- Delivered At Place *(named place of destination)*
- **DDP- Delivered Duty Paid (named place of destination**

8.4 Rules for Any Mode(s) of Transport

EXW – Ex Works (named place of delivery)

The seller makes the goods available at its premises. This term places the maximum obligation on the buyer and minimum obligations on the seller. The Ex-Works term is often used when making an initial quotation for the sale of goods without any costs included. EXW means that a seller has the goods ready for collection at his premises (works, factory, warehouse, plant) on the date agreed upon. The buyer pays all transportation costs and bears the risks for bringing the goods to their final destination. The seller doesn't load the goods on collecting vehicles and doesn't clear them for export. If the seller does load the good, he does so at buyer's risk and cost. If parties wish seller to be responsible for the loading of the goods on departure and to bear the risk and all costs of such loading, this must be made clear by adding explicit wording to this effect in the contract of sale.

FCA – Free Carrier (named place of delivery)

"Free Carrier" means that the seller delivers the goods to the carrier, or another person nominated by the buyer at the seller's premises, or another named place. The parties are well advised to specify as clearly as possible the point within the named place of delivery, as the risk passes to the buyer at that point. The seller hands over the goods, cleared for export, into the disposal of the first carrier (named by the buyer) at the named place. The seller pays for carriage to the named point of delivery, and risk passes when the goods are handed over to the first carrier.

CPT - Carriage Paid To (named place of destination)

Carriage Paid To" means that the seller delivers the goods to the carrier, or another person nominated by the seller at an agreed place (if any such place is agreed between parties) and that the seller must contract for and pay the costs of carriage necessary to bring the goods to the named place of destination. The seller pays for carriage. Risk transfers to buyer upon handing goods over to the first carrier.

CIP – Carriage and Insurance Paid to (named place of destination)

This is the containerized transport/multimodal equivalent of CIF. Seller pays for carriage and insurance to the named destination point, but risk passes when the goods are handed over to the first carrier.

DPU - Delivered At Place Unloaded

"Delivered at Place Unloaded" "or DPU, can be used for any mode of transport. The seller delivers the goods and transfers the risk to the buyer when goods once unloaded from the arriving means of transport are placed at the disposal of the buyer at a named destination at the agreed point within that place. The seller bears all risks involved in bringing the goods to and unloading them at the named place of destination. Therefore, the delivery and arrival at the destination are the same.

DAP – Delivered at Place (named place of destination)

The seller delivers when the goods are placed at the disposal of the buyer on the arriving means of transport ready for unloading at the named place of destination. The seller bears all risks involved in bringing the goods to the named place. Seller pays for carriage to the named place, except for costs related to import clearance, and assumes all risks prior to the point that the goods are ready for unloading by the buyer.

DDP – Delivered Duty Paid (named place of destination)

The seller delivers the goods when the goods are placed at the disposal of the buyer, cleared for import on the arriving means of transport ready for unloading at the named place of destination. The seller bears all the costs and risks involved in bringing the goods to the place of destination. They must clear the products not only for export but also for import, to pay any duty for both export and import and to carry out all customs formalities. This term places the maximum obligations on the seller and minimum obligations on the buyer.

8.5 Rules for Sea and Inland Waterway Transport.

The four rules defined by Incoterms 2020 for international trade where transportation is entirely conducted by water are:

FAS – free alongside Ship (named port of shipment)

The seller delivers when the goods are placed alongside the vessel (e.g., on a quay or a barge) nominated by the buyer at the named port of shipment. The seller must clear the goods for export. It is suitable only for maritime transport but **NOT** for multimodal sea transport in containers. The risk of loss of or damage to the goods passes when the goods are alongside the ship, and the buyer bears all costs from that moment onwards

FOB – Free on Board (named port of shipment)

The seller must load the goods on board the vessel nominated by the buyer. Cost and risk are divided when the goods are actually on board of the vessel. The seller must clear the goods for export. The term is applicable for maritime and inland waterway transport only but **NOT** for multimodal sea transport in containers. The buyer must instruct the seller the details of the vessel and the port where the goods are to be loaded, and there is no reference to, or provision for, the use of a carrier or forwarder.

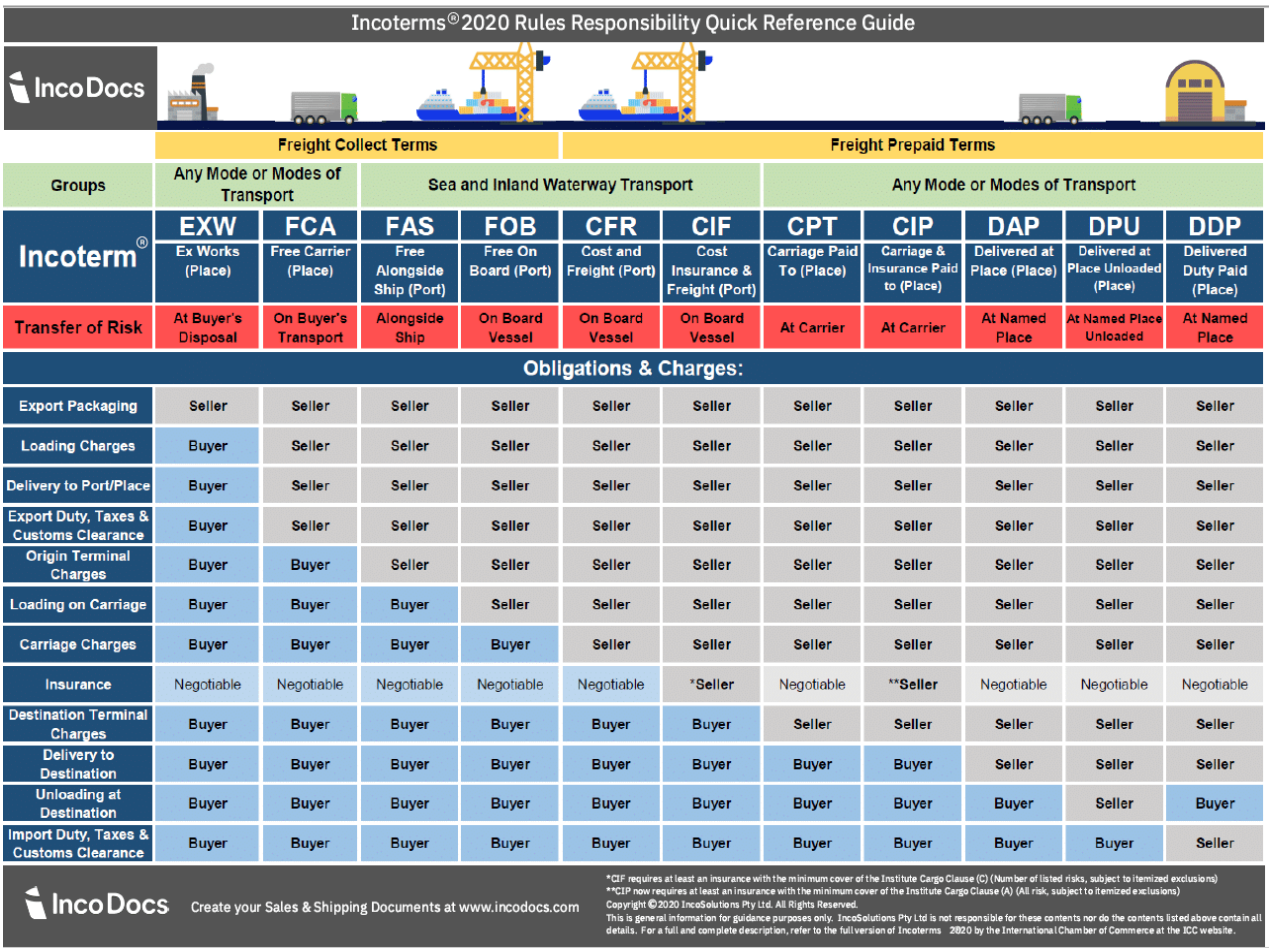
It is important that the shipment term in the Bill of Lading must carry the wording "Shipped on Board' it must bear the signature of a transporter or carrier or his authorized representative with the date on which goods were "Boarded". The buyer chooses the ship and pays freight. Transfer of expenses and risks is done once the goods passes ship's rail

CFR – Cost and Freight (named port of destination)

Seller must pay the costs and freight to bring the goods to the port of destination. However, risk is transferred to the buyer once the goods are loaded on the vessel. Maritime transport only and Insurance for the goods is **NOT** included. The risk of loss of or damage to the goods passes when the goods are on board the vessel. The seller must contract for and pay the costs and freight necessary to bring the goods to the named port of destination.

CIF – Cost, Insurance and Freight (named port of destination)

"CIF "means" that the seller delivers when the goods pass the ship's rail in the port of shipment risk passes to buyer when goods are delivered on board the ship by seller who pays transportation and insurance cost to destination port. This Term involves insurance with FOB price and ocean freight. The marine insurance is obtained by the exporter at his cost against the risk of loss or damage to the goods during the carriage. The CIF extends additional obligation to the seller for providing a maritime insurance against the risk of loss or damage to the goods. But buyer should **ALSO** take insurance cover. He takes delivery of the goods from the carrier to the appointed port or destination but risks at port of origin.



Incoterms®2020 Rules Responsibility Quick Reference Guide

IncoDocs

	Freight Collect Terms				Freight Prepaid Terms						
Groups	Any Mode or Modes of Transport		Sea and Inland Waterway Transport				Any Mode or Modes of Transport				
Incoterm®	EXW	FCA	FAS	FOB	CFR	CIF	CPT	CIP	DAP	DPU	DDP
	Ex Works (Place)	Free Carrier (Place)	Free Alongside Ship (Port)	Free On Board (Port)	Cost and Freight (Port)	Cost Insurance & Freight (Port)	Carriage Paid To (Place)	Carriage & Insurance Paid to (Place)	Delivered at Place (Place)	Delivered at Place Unloaded (Place)	Delivered Duty Paid (Place)
Transfer of Risk	At Buyer's Disposal	On Buyer's Transport	Alongside Ship	On Board Vessel	On Board Vessel	On Board Vessel	At Carrier	At Carrier	At Named Place	At Named Place Unloaded	At Named Place
Obligations & Charges:											
Export Packaging	Seller	Seller	Seller	Seller	Seller	Seller	Seller	Seller	Seller	Seller	Seller
Loading Charges	Buyer	Seller	Seller	Seller	Seller	Seller	Seller	Seller	Seller	Seller	Seller
Delivery to Port/Place	Buyer	Seller	Seller	Seller	Seller	Seller	Seller	Seller	Seller	Seller	Seller
Export Duty, Taxes & Customs Clearance	Buyer	Seller	Seller	Seller	Seller	Seller	Seller	Seller	Seller	Seller	Seller
Origin Terminal Charges	Buyer	Buyer	Seller	Seller	Seller	Seller	Seller	Seller	Seller	Seller	Seller
Loading on Carriage	Buyer	Buyer	Buyer	Seller	Seller	Seller	Seller	Seller	Seller	Seller	Seller
Carriage Charges	Buyer	Buyer	Buyer	Buyer	Seller	Seller	Seller	Seller	Seller	Seller	Seller
Insurance	Negotiable	Negotiable	Negotiable	Negotiable	Negotiable	*Seller	Negotiable	**Seller	Negotiable	Negotiable	Negotiable
Destination Terminal Charges	Buyer	Buyer	Buyer	Buyer	Buyer	Buyer	Seller	Seller	Seller	Seller	Seller
Delivery to Destination	Buyer	Buyer	Buyer	Buyer	Buyer	Buyer	Buyer	Buyer	Seller	Seller	Seller
Unloading at Destination	Buyer	Buyer	Buyer	Buyer	Buyer	Buyer	Buyer	Buyer	Buyer	Seller	Buyer
Import Duty, Taxes & Customs Clearance	Buyer	Buyer	Buyer	Buyer	Buyer	Buyer	Buyer	Buyer	Buyer	Buyer	Seller

IncoDocs Create your Sales & Shipping Documents at www.incodocs.com

*CIF requires at least an insurance with the minimum cover of the Institute Cargo Clause (C) (Number of listed risks, subject to itemized exclusions)
**CIP now requires at least an insurance with the minimum cover of the Institute Cargo Clause (A) (All risk, subject to itemized exclusions)

INCOTERMS 2020 Chart

8.6 Learning Activities

1. An exporter from the East Africa region has approached you as a competent freight forwarder to advice on the best INCOTERM to use for exporting his cargo to the European market. Discuss as a group by providing various options considering that the exporter is in business of selling his goods and also making maximum profit.

2. ABC KENYA LIMITED a Kenya based trading company in Nairobi dealing in various general merchandise is buying from their China based supplier the following goods on CIF Mombasa basis. All the containers are FCL with some to be delivered in a Nairobi warehouse. The five containers are on one bill of lading number MSKU 0218543. Fifty percent of the cargo is for home use with the rest to be sold to Southern Sudan on DDP Juba terms.

   The five containers are each said to contain the following:
   a) 1X20 FCL STC Fire works
   b) 1X20 FCL STC 200 pcs Flat screen television
   c) 1X40 FCL STC Various types of shoes in different sizes
   d) 1X40 STC 200 pcs Un assembled motor bikes of different ratings
   e) 1X20 STC Wheat flour in 100 kg bags for re packaging in 2kg packages and branded

   Required
   a) What are the duties and responsibilities of ABC Kenya limited under the above INCOTERMS?
      - Consider both duties and responsibilities of freight forwarders under CIF and DDP terms.

b) Describe the likely port charges for the above consignment
   - The port charges should include all cargo related charges such as wharfage, cargo handling charges, removal charges and storage charges.

c) Describe the required type of ware housing and the requisite activities
   - Consider aspect of bonded warehouses (for Juba consignment where duty is not paid), specialized warehouses (fireworks), sorting warehousing and distribution warehousing (for Nairobi based consignments).

d) During customs clearance at a CFS in Nairobi the customs officer chose not to verify 100% as he was exhausted. The CFS operator provided casual laborers for offloading and loading. The customs officer wrote a verification account (V/A) based on the parking list as seals were intact. The customs agent countersigned but upon arrival at the bonded warehouse on a shunting truck it was noted that 10 flat screens were missing, 5 were broken and 20 were a size smaller than what was ordered. As an experienced freight forwarder, you are required to advise on the following:
   i. Where the loss could have occurred?
   - The loss could have occurred during staffing the container in China, while transporting from China to Mombasa, Mombasa port, Transport from Mombasa to Nairobi and during customs verification.

   ii. What steps should have been taken to avert the loss?
   - Proper monitoring and handling of cargo on all steps of transport and storage.

e) What parties shall ABC deal with in the process of port clearance and what will the role of each party be?
   - Refer to parties in cargo clearance process.

f) What steps shall ABC take to ensure shipping line charges are minimized on the container?
   - Expedite clearance process to avoid demurrage, choose shipping lines which give long demurrage grace period and lower demurrage rate.

g) What precautions should ABC take when selling to Southern Sudan under the stated INCOTERMS above to ensure the company meets its obligations whilst minimizing risk and without making loss?
   - Selections of carrier to Juba, insuring the cargo to avoid risk during transportation to Juba and undertake proper/ timely cargo clearance at the border.

h) What qualities should ABC look out for in a suitable forwarder for this business?
   - Consider the role of the freight forwarder

3. Tallow Oil Pty an oil and gas exploration company is set to drill a new oil well site on the shores of Lake Albert in western Uganda. The area is remotely located. Tallow will require expert logistics advise to mobilize and have a rig on site. The lead time will be short in order to minimize costs (The cost of hiring the rig is USD 300,000 per day). This should however not compromise EHS (Environmental Health Safety) standards. They have contracted the services of M/S FINA Logistics Ltd to ensure the rig arrives on time, safely and at the right cost.

<u>Note:</u>

a. Cargo shall include:
   i. 1x20ft explosives
   ii. out of gauge pieces
   iii. items from different countries and suppliers under different incoterms
   iv. Various small size drill bits that are urgent
   v. Various chemicals
   vi. 2x40ft Frozen food stuff

b. The contract value for these services is about USD 3 Million

Required:

a) What advance preparation should FINA Logistics make to ensure it meets project expectations?
b) How does FINA Logistics protect its interests in the process of execution of the contract?
c) How should FINA Logistics effectively execute the contract?

4. Degremonts Company Ltd the Contractor of lower Ruvu water project at Bagamoyo has ordered various types of pipes and pipe fittings from China for a project. The cargo tonnage is 5250 tones with the cbm of 8960. This cargo is to be cleared under donor funded project and according to the port of Dar es salaam regulations the cargo must be direct delivery from the ship. Degremonts contracted Kiwaepa International Company Ltd a freight and logistics firm to undertake clearance of the cargo at Dar-es-salaam port and transport the pipes to Bagamoyo site which is 60 km from Dar-es-salaam with 12KM comprising of rough and seasonal stretch.

Required:

a) Prepare a quotation for clearance and transportation
- Consider Port Charges, shipping charges, customs clearance, processing exemption, inland transport to Bagamayo and handling cost
- Consider the bad 12km bad road / seasonal road since it may result into storing the pipes outside the port until the road is passable.

b) What steps should Kiwaepa International Company take to ensure that they get the right trucks to deliver the pipes?
- They must carefully study the packing list and stowage plan in order to get pipe dimensions for the suitable trucks.

c) Describe the various options to minimize the job costs and meet port discharging schedule.
- Consider option of hiring storage place next to the port for keeping pipes to avoid truck delay and ship demurrage costs.
- Consider available suitable trucks to run 24-hour operations without stowing pipes next to the port. In this case, should increase number of trucks and avoid traffic congestion.

8.7 Self-Assessment Questions and Activities

1. Explain the specific points where risk passes under the following terms
   a) CIF
   b) DPU
   c) FAS
   d) EXW
2. Explain the importance of using INCOTERMS in international business transaction between sellers and buyers of goods.

8.8 References

- International Chamber of Commerce (ICC) (2020). Incoterms® 2020. France
- International Chamber of Commerce (ICC) - https://iccwbo.org
- International Chamber of Commerce (ICC). "History of the Incoterms rules". ICC. http://www.iccwbo.org/incoterms_history/.Retrieved 16 May 2011.
- Morrissey, Joseph F.; Jack M. Graves (March 2008). *International Sales Law and Arbitration: problems, cases and commentary*. Kluwer Law International. p. 148.ISBN978-90-411-2654-2
- Pierre David, Richard Stewart (2010). *International Logistics: the management of international trade operations* (3rd edition.). Cengage Learning. p. 113.
- Monios, J. & Bergqvist, R. (2019). Intermodal Freight Transport and Logistics. Routledge
- Thomas E. Johnson, "Export/ Import Procedures and Documentation." https://www.icontainers.com/us/2018/10/16/history-of-incoterms/

UNIT 2:

PORT OPERATIONS

Table of contents

LIST OF ABBREVIATIONS AND ACRONYMNS

EPB	Exploitation du Port de Bujumbura
FDA	Food and Drugs Authority
GRT	Gross Registered Tonnage
KMA	Kenya Maritime Authority
KPA	Kenya Ports Authority
NRT	Net Registered Tonnage
RMGs	Rail Mounted Gantries
RTGs	Rubber Tyred Gantries
SAP	System Application Products
SSGs	Ship to Shore Gantries
TASAC	Tanzania Shipping Agencies Corporation
TEU	Twenty-Foot Equivalent Unit
TPA	Tanzania Port Authorities

UNIT 2: PORT OPERATIONS

1.0 UNIT OVERVIEW

1.1 Unit Description

This unit specifies the competencies required to process cargo through different types of ports. It involves classifying ports, determining appropriate port infrastructure and superstructures to handle different types of cargo, clearing cargo through different types of ports, determining relevant port charges, and identifying roles of different parties in the port clearance process.

1.2 Unit Summary Learning Outcomes

At the end of this unit, the trainee should be able to:

1. Determine types of Ports based on the origin and destination of cargo
2. Handle goods in the ports based on nature of goods and appropriate equipment
3. Clear cargo through the ports based on port clearance procedures and documentation
4. Pay port charges based on services rendered

2.0 OVERVIEW OF PORTS AND PORTS OPERATIONS

2.1 Specific Learning Outcomes

At the end of this topic the trainee should be able to:

i. Define Ports
ii. Discuss evolution of ports
iii. Discuss the port terminologies
iv. Evaluate the types of Ports
v. Explain the functions Ports

2.2 Introduction to Ports

Traditionally, a Port was defined as a location on a coast or a shore containing one or more harbors where ships can dock and transfer people and/or cargo to and from land e.g. Mombasa Port, Dar-es-salaam Port, Port Bell, and Bujumbura Port.

With the dynamics of trade and transport today, **Ports** have become interfaces that facilitate the loading and offloading operations of cargo and passengers as well as the change of the mode of transport accordingly e.g. Magerwa in Rwanda, Multiple ICD in Uganda, Jomo Kenyatta International Airport, JK airport in Tanzania, and Garreroutiere in Bujumbura. A port is a place to facilitate loading as well as unloading of vessels. Technically speaking it is a convergence point between freight circulation domains.

Ports are the inhibitors which begin the social and economic growth of a region by not only allowing trade but also by serving a hub for social activities. Ports are strategic geographical locations which are situated at the edge of ocean, seas, rivers, or lakes. These locations are then developed to inculcate facilities for loading and unloading of cargo ships. The facilities provided for a port depends on the purpose for which the port is being used.

2.3 Evolution of Ports

Wherever ancient civilisations engaged in maritime trade, they tended to develop seaports. One of the world's oldest known artificial harbours is at **Wadi al-Jarf** on the Red Sea.[4] Along with the finding of harbour structures, ancient anchors have also been found.

Other ancient ports include **Guangzhou** during **Qin Dynasty** China and **Canopus**, the principal Egyptian port for Greek trade before the foundation of **Alexandria**. In ancient Greece, Athens' port of **Piraeus** was the base for the Athenian fleet which played a crucial role in the **Battle of Salamis** against the Persians in 480 BCE.

Ostia Antica was the port of ancient Rome with Portus established by Claudius and enlarged by Trajan to supplement the nearby port of Ostia. In Japan, during the Edo period, the island of Dejima was the only port open for trade with Europe and received only a single Dutch ship per year, whereas Osaka was the largest domestic port and the main trade hub for rice.

Post-classical Swahili kingdoms are known to have had trade port islands and trade routes with the Islamic world and Asia. They were described by Greek historians as "metropolises". Famous African trade ports such as Mombasa, Zanzibar, Mogadishu and Kilwa were known to Chinese sailors such as Zheng He and medieval Islamic historians such as the Berber Islamic voyager Abu Abdullah bin Battuta

Nowadays, many of these ancient sites no longer exist or function as modern ports. Even in more recent times, ports sometimes fall out of use. Rye, East Sussex, was an important English port in the Middle Ages, but the coastline changed and it is now 2 miles (3.2 km) from the sea, while the ports of Ravenspurn and Dunwich have been lost to coastal erosion.

Seaport, a 17th-century depiction by Claude Lorrain, 1638

Whereas early ports tended to be just simple harbours, modern ports tend to be multimodal distribution hubs, with transport links using sea, river, canal, road, rail and air routes. Successful ports are located to optimize access to an active hinterland, such as the London Gateway. Ideally, a port will grant easy navigation to ships and will give shelter from wind and waves. Ports are often on estuaries, where the water may be shallow and may need regular dredging. Deep water ports such as Milford Haven are less common, but can handle larger ships with a greater draft, such as super tankers, Post-Panamax vessels and large container ships.

Other businesses such as regional distribution centres, warehouses and freight-forwarders, canneries and other processing facilities find it advantageous to be located within a port or nearby. Modern ports will have specialised cargo-handling equipment, such as gantry cranes, reach stackers and forklift trucks.

2.4 Definition of various terms

1. **Port**- port is an interface that facilitates the loading and unloading operations of cargo and passengers from one mode of transport to another, or a port is a location on a coast or shore containing one or more harbours

where ships can dock and transfer cargo and passengers. Ports often have cargo handling equipment such as cranes, forklifts used for loading and unloading ships.

2. **Harbor**- is a body of water where ships, boats and barges seek shelter from stormy weather or used to store ships for future use. Harbours can be natural or artificial.
3. **Wharf**- it is a structure built on shore over a large area within the seaport. Wharf contains the following, quay, piers/jetties, warehouses, offices, yards etc.
4. **Berth**- it is a designated location in a port used for mooring ships (vessels) for loading and unloading of cargo, it is a place in the water near the quay where ship stops and stays in a port during loading and unloading operations.
5. **Quay**- it is a reinforced platform (made of stones or metals) lying alongside the water for loading and unloading ships. It is also part of coastline which has been modified so that ships can dock at it parallel to the shore ready for loading and unloading operations.
6. **Shore**- it is a land along the edge or bordering a large water body (sea, ocean and
7. **lake**)
8. **Jetty/pier**- it is a solid structure that is built out into water and used as a place to get off the ship (especially tankers) or to tie up ships.
9. **Dock-** it is an area of water for building, repairing or loading and unloading ships. It has gates to allow water out and to facilitate repairs and water is pumped in when repairs is over.
10. **Breakwaters-**it is a structure such as pier that projects into water to influence the current or tide or protect a harbor or shoreline from storms or erosion.
11. **Anchorage-** it is a location at sea where ships can lower the anchors to allow resting of a ship securely at sea while waiting to enter the port, as well as taking passengers and cargo where insufficient port facilities (berths) exist.
12. **Anchor-** it is a heavy object attached to a cable or chain and used to moor a ship to the sea bottom, typically having a metal shank with a pair of curved and barbed flukes at one end.

2.5 Classification of Ports

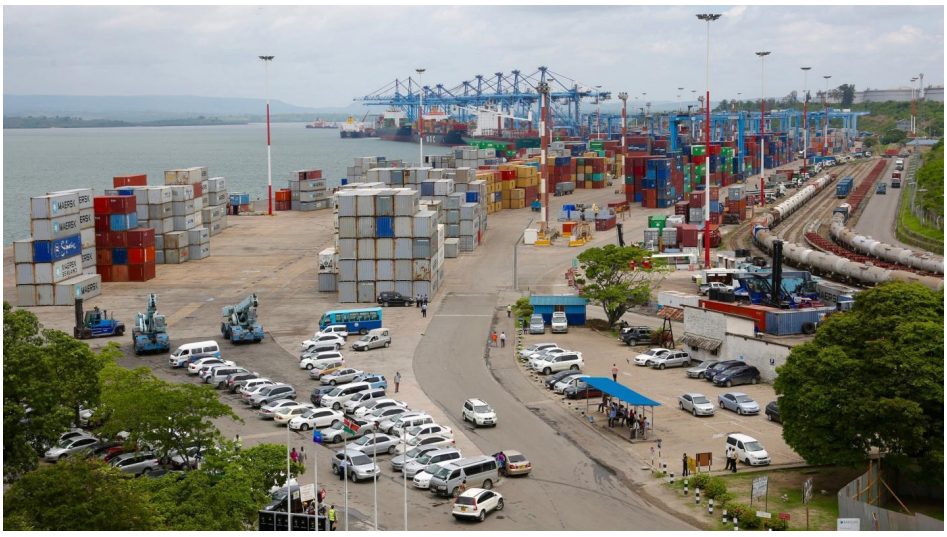
2.5.1 Types of Ports

Considering a variety of factors such as location, depth, purpose, and ship sizes, ports are classified into various types. Some of the main types are as follows:

Sea Ports

Seaports are the most common types of ports around the world which are used for commercial shipping activities. These ports are built on a sea location and enable the accommodation of both small and large vessels. Numerous seaports are situated along the coastline and actively handle the ongoing cargo transactions. A seaport can be further categorized as a cargo port or cruise port. Some of the oldest seaports are still used for recreational and fishing purpose.

Special warehouses are also constructed to store the shipment and to maintain the regular stocking. Added facilities such as hotels, restaurants, port reception facilities, restrooms and eateries can also be made available to rouse the interest of the people visiting the port. Seaport's form some of the biggest and busiest ports in the world.



Sea Port of Mombasa

Sea Port-Kilindini Mombasa

Dar Es Salaam port

Dar Es Salaam port

Tanga Sea Port

i) Cruise Home Ports

This type of port specializes in dealing with the activities of cruise ships and provides the platform for the passengers to enter and disembark the cruises at the beginning and the end of the journeys, respectively. A cruise home port is also capable of providing the essential provisions required for a luxurious cruise voyage. The supplying may vary from fuel resources to fresh drinking water, wines, foods etc.

A typical cruise home port is always congested and is buzzing with people boarding or leaving the cruises. In South Florida, Miami ports are considered as the modern cruise capital of the world. Also, Port Everglades and San Juan port of Florida and Puerto Rico respectively are also considered significant for their destination holiday cruises. Some of the popular cruise homeports include Florida's Port of Miami and Port Everglades, and Puerto Rico's Port of San Juan. In Mombasa, berth number one is dedicated to cruise ships

Mombasa (Kenya) cruise ship schedule

Cruise ship

Fishing Ports

Fishing ports are mainly related to the commercial sphere as they participate in fishing. The fishing activities can also be treated as a mode of recreation. The existence of a fishing port entirely relies upon the availability of fishes in that region of the ocean. A fishing port can be an inland port or a seaport.

Often, fishing ports are marketable port which is generally used for recreational purposes or aesthetics. These are the ports which allow controlled and disciplined fishing to their customers. These are the highest revenue-generating ports when properly operational.

Unlike other types of ports, the fishing port has an operational loophole that is this port is operational when there are fish available in the port area or locality. In the scarcity of fish in the vicinity these ports become uneconomical.

Also, fishing ports require more maintenance works as compared to other ports so many are on the verge of closing. These are the ports with smaller depth because of the draught of the fishing vessel is limited to a short depth. A fishing port comprises:

Fishing Port

- **Warm Water Ports**

A warm-water port is one where the water does not freeze in wintertime as they are available year-round. Warm-water ports can be of great geopolitical or economic interest. They are the ports in which the water is maintained at warmer temperature. The biggest advantage where a warm water port is concerned is that the water does not freeze during the frosty winters. Therefore, it is free to operate all year round without a temporary shutdown during the freezing time. Such ports help to a great extent to boost the economy of the nation.

These ports have a significant role in the economic growth of the region where these are located. Examples of such ports are: - Dalian in China, Vostochny Port, Murmansk and Petropavlovsk-Kamchatsky in Russia, Odessa in Ukraine, Kushiro in Japan.

The main reasons for which warm water ports are considered important and due to which important developed countries of the world quest for establishing and acquiring more warm water ports are as follows:

- It allows trade throughout the year, because in chilling winter when other ports deny their services, warm-water port is still operational and reaches the import-export demand of the nation.
- These warm water ports made inland waterway trading possible in countries like Ethiopia.
- These are the main reason for the expansion of an empire around the globe.

A few notable examples may include Ukraine's Odessa, Russia's Vostochny Port and Murmansk Port, Japan's Kushiro and Alaska's Valdez.

Port of Call

Also known as the mid-way port, Port of call is somewhere midway on ship's travel plan to accept fuel supply and stocking or unloading cargo. Port of Call is a type of port which is paid a brief visit by a ship on the voyage. It is also used for carrying out essential repair works. Many passengers can also leave the vessel at a "port of call". It serves as a stopover port, in between the home ports of a particular vessel.

Cargo Ports

As the name suggests, these ports act according to the cargo it manages and the amenities available differ from one port to the other. These are the special ports to handle cargo only. These ports are also known as "bulk ports", "break bulk ports" or "container ports".

The cargo ports involve many mechanical techniques to load or unload the shipment. A cargo port may be designed to deal with single, as well as multiple types of products. Items such as liquid fuels, chemicals, food grains, timber, machines and motorcars, are transported to various places, employing the adeptness of a cargo port. Deep water ports are sometimes used along with those cargo ports which do not have sufficient depth to allow big ships.

Cargo like wood, liquid chemicals or fuel, food grains, automobiles, etc. are handled by Bulk ports whereas containerized cargo or cargo in containers is handled by the Container ports. Sometimes a third category is also added in this series which is all-in-one port this s ort of port not only handle specific cargoes but can manage all sorts of cargoes on a single port.
Numerous operating terminals branch out from individual bulk ports and are assigned to maintain the various kinds of ship ladings. Stevedores are the companies which act as terminal operators and preside over the actions of the diverse operating terminals.

Ports should be classified based on the following;

A. Classification of Ports based on Physical Locations

Lake/River Ports (Inland Ports)

An inland port is a port on a navigable lake, river, or canal with access to a sea or ocean, which therefore, allows a ship to sail from the ocean inland to the port to load or unload its cargo.

Inland ports are ports built on comparatively smaller water bodies such as rivers or lakes. They can either be for cargo purpose or for passengers or for both. Conventionally Inland Ports are constructed or naturally maintained ports at the coastline of small waterways like lake, river or estuaries and rarely seen at seacoasts too.

Some of these inland ports can have access to the sea with the help of a canal system. As such ports are built on inland waterways, they usually behave like normal seaports but are not able to allow deep draft ship traffic. Some of the inland ports can also be specifically made for recreational purpose allowing only small-sized vessels or can be used just for ferrying people and fishing activities.

Inland ports are known for their quality to function in a smooth manner, unlike the clogged seaports. These ports can also sometimes be referred to as dry ports and are similar to active intermodal hubs. The inland port at Montreal is the biggest of its kind.
Inland ports are conventionally maintained for quenching the needs of stocking and dispatching of cargo but sometimes these are also made open to passengers too. These are shallower than seaports, so they don't allow deep docking, but only docking to ferries is allowed at inland ports.

Inland transport services are used to connect these inland ports (generally called rail or road terminal) through marine terminals. Example: St. Lawrence Seaway which allows ships to travel from the Atlantic Ocean several thousand kilometers inland to Great Lakes ports like Duluth- Superior and Chicago.

Intermodal transportation and tanker ships are on their peak in the international market due to the development of Inland ports which are also referred to as Inland freight distribution ports, which are a hub for inland waterway trades mainly due to their congestion-free space availability and adequate capacity.

Inland terminal is the key connector for trading expeditions between two regions, not only for inbound traffic but also in serving outbound traffic. This port also has to handle various concerned logistic activities. Important functions of Inland ports are summarized below as:

- There should be well-established distribution centers for freight distribution
- Inland port Depots should be made

Bujumbura Port Development

Bujumbura Port in Burundi

Airports

An airport is an aerodrome with extended facilities, mostly for commercial air transport. Airports often have facilities to park and maintain aircraft, and a control tower. An airport consists of a landing area, which comprises an aerially accessible open space including at least one operationally active surface such as a runway for a plane to take off and to land or a helipad, and often includes adjacent utility buildings such as control towers, hangars and terminals. Larger airports may have airport aprons, taxiway bridges, air traffic control centres, passenger facilities such as restaurants and lounges, and emergency services. In some countries, the US in particular, airports also typically have one or more fixed-base operators, serving general aviation. Therefore, an airport is a place where planes land and take off. In addition to the airports also handle

people and cargo. They are commonly found adjacent to water bodies.

Jomo Kenyatta International Airport

Kigali International Airport

Runway, Kigali International Airport

Bujumbura International Airport

Dry Ports

Dry ports are defined as inland terminals that can be interconnected with a seaport via road or rail transportation facilities, and they usually act as centers of multimodal logistics. A dry port proves useful in the trade of importing and exporting cargo and can help to lessen the inevitable congestion at a nearby seaport. Its functions are quite similar to that of a seaport, with the only difference that is not situated near the coastline.

These are specifically employed for transshipment of cargo to inland destinations. It is a trans-shipment port which is connected to a seaport and manages intermittent operation like billing and managing co-ordination between importer and exporters.

These ports serve the same purpose as the veins do in our body because these are used to connect importers and exporters from remote areas who cannot access to seaports for trading or other purposes.
A dry port consists of all the necessary machinery to handle the constant clearance of shipment, like proper cargo-instrumentations, rail sidings, storehouses, and even container yards. They are cargo centers located inland and may be seen as extensions of seaports.

Their main purpose is to bring services closer to the customers as a means of decongesting and improving the efficiency of the seaports. They are linked to seaports by road, rail or inland waterways.

Examples: Isaka, Kisumu, ICD, Magerwa

Dry port in Nairobi Kenya

APM Terminals in Uganda

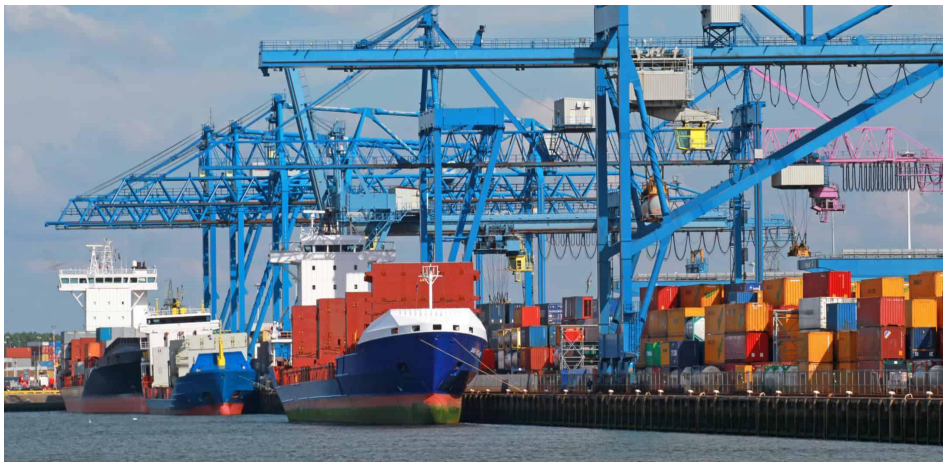
B. Classification of Ports based on Ownership

State owned

These are common user ports, owned entirely and are under the jurisdiction of the government. The Government appoints a Board of Directors to run the port on its behalf. These ports are established under an act of Parliament and incomes generated belong to the Government, which has direct control of its capital expenditure. Governments consider these facilities to be of national importance. Examples of State-owned ports are: the port of Mombasa and Dar-Es-Salaam

Municipal Owned Ports

These ports are owned and managed by the local authorities who undertake construction and maintenance of the facilities. Example: Port of Rotterdam.



Port of Rotterdam

Private Ports

Private ports are owned and operated by private Companies. In some cases, the Government may own some shares for purposes of control. Most of private ports specialize in handling specific commodities e.g., break bulking. Private ports are common in USA and Europe, it is anticipated that Kibuye in Rwanda may become a private port for handling Methane Gas terminal. These types of Ports are characterized by a professional and efficient management system and are very flexible in their procedures for operations as they are profit oriented.

C. Classification of Ports based on Services rendered

Free Ports

Freeport is a special kind of port where normal tax and customs rules do not apply. These can be airports as well as seaports. At a Freeport, imports can enter with simplified customs documentation and without paying tariffs. Businesses operating inside designated areas in and around the port can manufacture goods using the imports and add value, before exporting again without ever paying the full tariff on the original goods they imported, although a tariff may be payable on the finished product when it reaches its final destination, including if that destination is in the same country outside the Freeport.

Freeport is similar to free zones, or 'enterprise zones', which are designated areas subject to a broad array of special regulatory requirements, tax breaks and government support. The difference is that a Freeport is designed to specifically encourage businesses that import, process and then re-export goods, rather than more general business support or regeneration objectives.

Freeport and free zones are intended to stimulate economic activity in their designated areas. Economic studies have found the main advantage of Freeport is that they encourage imports by lowering duty and paperwork costs. Manufacturing businesses that are inside the Freeport can benefit from cheaper imported inputs in comparison to those outside the area.

Free Ports operate in an environment free of Government taxes. Facilities offered here include warehousing, industrial plants, banking and various support facilities. Traders import and sell goods within the port without paying duty Dubai and very soon Rwanda. Kenya is also coming up with Dongo Kundu Economic Zone and Free Port in Mombasa.

Djibouti International Free Trade Zone (DIFTZ) was officially inaugurated in July 2018 under the auspices of the heads of state of Djibouti, Rwanda, Ethiopia, Sudan, and Somalia as well as the

Chairperson of the African Union Commission, and key shareholders such as China Merchants. DIFTZ, set to be the largest free trade zone in Africa once complete, presents dynamic new opportunities for businesses from around the world

The pilot zone has four industrial clusters which focus on trade and logistics, export processing and business support:

1. Logistics Industry Cluster: transportation, bonded warehousing, logistics and distribution.
2. Business Industry Cluster: bulk bonded goods transactions, merchandise display, duty-free merchandise retail;
3. Business Support Cluster: financial services, information services, hotel dormitories, office buildings, training, intermediary services;
4. Processing Manufacturing Cluster: packaging production, light processing

5. of incoming materials, food processing, marine products, auto parts assembly.

As hub for the region, the project also creates major business opportunities for Djibouti and East Africa as the region's export manufacturing and processing capacity is expanded in key sectors such as food, automotive parts, textiles, and packaging.

Djibouti International Free Trade Zone

Djibouti International Free Trade Zone

Container Ports

Container terminals are designated for the handling, storage, and possibly loading or unloading of cargo into or out of containers, and where containers can be picked up, dropped off, maintained, stored, or loaded or unloaded from one mode of transport to another (that is, vessel, truck, barge, or rail).

Whereas a terminal is referred to as the set of facilities at a port where loading and unloading of cargo/container take place. Terminals are named on the basis of the type of cargo that can be handled by them. Some of the most common types of terminals are container terminal, bulk cargo terminal, Liquefied Natural Gas (LNG) terminal etc.

Container Ports specifically handle container vessels and containers like in Kenya and Dar-es-salaam they have specific container terminals, Singapore and also Inland Container depots (ICDs) like Nairobi ICD and Naivasha in Kenya.

General Cargo Ports

General cargo ports handle different types of cargo, which has to be loaded and unloaded by very different mechanical means. The port may handle one particular type of cargo or it may handle numerous cargoes, such as grains, liquid fuels, liquid chemicals, wood, automobiles, etc. Most cargo ports handle all sorts of cargo, but some ports are very specific as to what cargo they handle. Additionally, the individual cargo ports are divided into different operating terminals which handle the different cargoes, and are operated by different companies, also known as terminal operators or stevedores. General Cargo Ports are ports that handle multiple types of goods. Examples of these ports include Magerwa in Rwanda, Kenya Ports Authority Berth number 1 – 10 in Mombasa and Berth number 1-8 in Dar-es-salaam.

Gas and Liquid Product Ports

A liquefied natural gas terminal is a facility for managing the import and/or export of liquefied natural gas (LNG). It comprises equipment for loading and unloading of LNG cargo to/from ocean-going tankers, for transfer across the site, liquefication, re-gasification, processing, storage, pumping, compression, and metering of LNG. LNG as a liquid is the most efficient way to transport natural gas over long distances, usually by sea.

Terminal facilities include jetties and piers with articulated loading/unloading arms for transferring LNG between ship and shore. It also includes the piping used to transport LNG between the loading arms and the storage and processing facilities at the terminal. These are specialized ports for handling gas and liquid products. Examples of such ports include Dar-es-salaam, Shimanzi in Mombasa and Gatsata in Rwanda.

2.6 Importance and Functions of Ports

Ports are important transportation hubs that facilitate goods movement. They facilitate distribution of freight (including raw materials, parts and finished consumer products) by all modes of transportation including marine, air, rail and truck to businesses in local communities and worldwide markets.

The main functions of seaports are:

- To ensure safety for seagoing vessels entering, operation in and leaving the seaport.
- To provide facilities and equipment necessary for seagoing vessels to anchor, load and unload cargo, and embark and disembark passengers.

These are activities associated with ports which include operation of vessels, cargo handling equipment, locomotives, trucks, vehicles, and storage and warehousing facilities related to the transportation of cargo or passengers as well as the development and maintenance of supporting infrastructure.

In general, Ports are used for gathering huge amounts of goods both for local, regional and international needs. *Specific importance and roles may include;*

- International Trade Facilitation
- Revenue collection
- Immigration Control
- Limitation of International trade crimes
- Economic contribution to the country
- Creation of Employment and
- Facilitation of the supply chain
- Port as hub- country entry and exit point

2.7 Port Design and Layout

Port design requires thorough and proper evaluation to ensure safety and efficiency. By validating the port layout seen from the mariner's perspective, it is ensured that the layout is feasible for the ships it is designed for. Besides that, the limiting environmental conditions are then based on a navigator's experience and skills rather than theoretical calculations. Several factors affect the design and layout of a port as discussed below:

1. **The major purpose of the port:**
   Is it to be built to export a particular commodity, e.g. a mineral that is to be mined in the area? Will it be to provide another facility for the fishing industry? Will it be used mainly for container shipping or for vehicle shipments? This type of question needs to be asked to establish the main purpose of the port as well as the type and size of vessel that will use the port. Once its purpose and the type of ships expected to call have been established, the type of facilities within the port can be designed.

2. **The sustainability of the expected cargo volumes***:*
   Because the construction of a port involves such large expense, a constant flow of cargo must be assured for a long time. If only a small amount of cargo will move through the port, it might not be worthwhile to go to the expense of building it.

3. **A sheltered site for the port***:*
   As ships need to work cargo in calm conditions, ports need to be constructed to give as much shelter from the swell. Although it is difficult to shelter ships from wind, the alignment of berths might be necessary to reduce the effect of the prevailing wind on ships berthed in the port and on cargo operations.

4. **Size of the area to be developed for the port***:*
   This depends on the type and volume of cargo to be handled and the type of ship that is expected to call at the port. Mineral cargoes usually need large areas to keep the mineral before loading (this area is called the mineral ***stockpile***); container terminals also are usually large in area, although those ports handling a smaller volume of containers will obviously be smaller. If large ships are expected to call, there must be sufficient water area to turn these large ships. There should also be space for future expansion, and often the initial port plans include several possible stages of expansion for the port.

5. **Depth of water:**
   This also depends on the size of ship expected to call. Deep-droughted ships will require an appropriate water depth, but if only small fishing vessels will call, the depth of water need not be as great.

6. Flat land*:*
For cargo to be stored (either in sheds or in an open area) and for rail or road networks large areas of flat land surrounding the ports are required

7. Services (water, electricity):
For cargo handling equipment (cranes, mineral loaders, grain chutes, conveyor systems, pumps), large amounts of electricity are needed. All offices (including the vital port control centre) require electricity for their various electronic systems. Fresh water is also essential as ships often require tons of fresh water.

8. Labour:
A port requires workers of all levels of skills – from highly qualified engineers to supervise complex cargo loading machinery, building and harbor maintenance, and electronics systems, to lesser skilled people. Highly qualified and experienced seafarers are also required as harbor masters, pilots, tug engineers, and in other roles where they deal directly with the ships.

9. Transport access*:*
To move cargo to and from the port, adequate road and rail links are essential. Railway yards where trains are marshalled to carry the cargo to its destination are also needed, either at the port or close to the port. The large number of people employed in the port also need transport facilities close by.

10. Finance:
To build, operate and maintain a port costs a large amount of money. In some countries, the state operates all ports and therefore the state will fund or subsidize port construction. Because of the large costs involved in port construction, careful planning is necessary to ensure that the construction project will be financially worthwhile, i.e. that the earnings from the port will pay back the costs of its construction within a reasonable time, and that the earnings will cover operating costs.

11. Ancillary Services*:*
A port needs a large number of ancillary services, including pilotage, tug services, bunkering services, chandlery services, waste disposal services, ship repair and engineering services, and others. The scale of these services depends on the size of operations in the harbor. A small fishing port will require all of these services (except pilotage and tug services.

Lamu Port Design Layout

2.8 Learning Activities

Identify a port in each East Africa country. Study the various aspects of the port identified and addresses the issues below.

Required:

1. The what type of ports identified
2. The advantages of each of the identified ports
3. The possible factors considered in the design and layout of the specific ports chosen.

2.9 Self-Assessment Questions and Activities

1. What is the meaning of the following terms?
   i. Sea port
   ii. Dry port
   iii. Free port
   iv. Breakwaters
2. Explain any two functions of a port.
3. Explain two types of ports found in landlocked countries
4. Explain any three advantages of establishing a dry port

2.10 References

- Burns, M. G. (2015). Port Management and Operations. Routledge
- Saieva, G. (2013). Port Management and Operations. Taylor and Francis
- Pettit, S. & Beresford, A. (2017). Port Management: Cases in Port Geography, Operations and Policy. Kogan Page
- Bichou, K. (2013). Port Operations, Planning and Logistics. Routledge
- Haralambides, H. (Ed.). (2015) Port Management. Palgrave Macmillan
- Monios, J. & Bergqvist, R. (2020). Intermodal Freight Terminals: A Life Cycle Governance Framework. Routledge
- Dong-Ping Song, D. (2021). Container Logistics and Maritime Transport. Routledge
- Dowd and Fleming, maritime policy and management, 1994, vol. 21

3.0 PORTS CLEARANCE PROCEDURES

3.1 Specific Learning Outcomes

At the end of this topic the trainee should be able to:

i. Describe the port clearance procedure for different types of ports
ii. Prepare the port clearance documentation
iii. Clear cargo through different types of ports
iv. Handle goods in the ports
v. Discuss the challenges and possible solutions at the port in clearance process

3.2 Definition of Port Cargo Clearance

Port cargo clearance is process which involves an undertaking by a licensed Customs Agent on the preparation and submission of relevant documents required to facilitate export or import process (International trade) out of or into a country.

Port Clearance is part and parcel of customs clearance which focuses on how goods are inspected, paid for respective port dues and how the goods move in and out of the port area. Different ports have different clearance procedures depending on the level of automation particular ports have reached.

Port of Dar-es-salaam is in the final stage of full automation where they have established a web-based cargo clearance system where Clearing Agents in line with Port community system can clear port cargo through their offices.

Customs clearance involves the preparation and submission of documentations required to facilitate export or imports into or out of the country, representing client during customs examinations, assessments, payments of duties and taking the delivery of cargo from customs after clearance. The documents are checked for authenticity, goods undergo customs examination, verification, assessment, payment of duty, release of cargo, payment of port charges and thereafter taking delivery of cargo.

3.3 The Port Clearance Procedure for Different Types of Ports

Upon the arrival of the cargo at the port, the agent embarks on the preparation of customs documents which are picked-up from the importers. This is done through:

- Receiving of shipment alert from the shipping line for sea freight shipments
- Arrangement of local pick-up documents
- Preparing customs documents
- Clearing cargo through customs.

Customs Verification and / or Scanning

For scanning the container is loaded on a truck and passed through the scanning machines in the port. If the scanning image shows any discrepancies, customs will usually proceed to do verification. For customs verification, containers have to be placed down, opened and stripped.

Once the goods are cleared by customs, the receiving forwarder will now pick-up the goods at the port and processes involved are:

- Arrangement of local pick-up of goods
- Transport arrangement
- Preparation of transport documents
- Delivery to consignee

Automation of Port Clearance Process

Different port uses different clearance procedures depending on the level of automation. Modern ports have embraced full automation and their clearing procedures are paperless, while other ports still use manual cargo clearance process. Example; Mombasa port in Kenya is fully automated with the utilization of "KWATOS" System Application Product (SAP) in place on cargo clearance.

K – Kilindini.
W – Waterfront.
A – Automated.
T – Terminal.
O – Operations.
S – System.

SAP – System Application Products.

KWATOS Operating System

Clearing and Forwarding Companies are required to

Log in the KWATOS System during Cargo clearance by entering their user ID Account No and Password allocated to them by KPA after being trained on the usage of KWATOS System.

When clearing cargo from any of the KPA Managed Ports, one must indicate the station at which payment and Clearance will be done, either in Mombasa, Nairobi or Kisumu. In KWATOS System, the following various windows can be accessed for different services by the Freight Forwarder.

Port Clearance Procedure

a) Vessel Schedules window: -

It indicates all the vessels calling at the port on a particular date which will assist in booking space for export or confirmation of arrival date of import cargo.

b) Yard Operations Services option: -

It assists forwarder when requesting for special services from KPA; like the Gang hire, overtime request, and equipment request during pre-inspection/ pre-verification.

c) Documentation window:

It enables the Forwarder access to the Manifest window. It shows documents progression at various stages during cargo clearance period. Customs clearance for CFS Stations mostly private owned. (Not yet interfaced to KWATOS).

Terminal holds when cargo has been stopped by customs for reasons within customs laws or any other government agency operating at the port.

d) Gate operations window:

For issuance of pre-advice slip for export cargo, issuance of pick-up order slip for both imports and export containers to allow secure transport to deliver cargo out or in the port. Gate in/out list of all cargo delivered at the port daily.

e) Rail operations option:

Gives train schedules for the railage of cargo to various destinations at the hinterland Inland Container Depots from the main seaport (Kilindini) or vice versa. Rail transport booking option and other functions like Rail in/out list for the particular containers to be railed, Container Inventory at the port, (imports, export or empties).

f) Coding option window:

This window reflects the codes for various items and port users.

i. Port Partners: - e.g., transporters/ shipping lines or agents.
ii. Vessel Codes: - for different ships calling at the main seaport for ease of cargo booking.
iii. Size and type of containers' - 20 feet, 40 feet normal height of (8'6") or 40 feet high cube, i.e., with height of (9'6")

g) Administration window option

This window option is made to be accessed only by the Port Management and not accessed by the Clearing and Forwarding Agents or other port users.

3.4 Preparing Port Clearance Documentation

Preparation of various clearance documents is the first step and must be done accurately to avoid unnecessary cargo clearance delays. Documentation process is done online through various customs systems e.g. TANCIS for Tanzania, ICMS or SIMBA system for Kenya, ASYCUDA for Uganda, Rwanda and Burundi and Customs agents/importers are required to lodge the documents in the clearance system.

Import documents include:

- Agent's Authorization Letter from the importer
- Exemption documents (If applicable)
- Commercial Invoice
- Packing List
- Transport documents i.e. Bill of Lading/ Airway Bill/Road Consignment note
- Certificate of Conformity
- Certificate of Origin

3.5 Cargo Clearance through Different Types of Ports

This is the act of taking goods through the customs authority to facilitate the movement of cargo into a country (import) and outside the country (export). Also, it means a document issued by the customs authority to a shipper indicating that all duties have been paid and the shipper's goods is cleared for export.

In general, and for the purpose of releasing a consignment from the port, the owner of the

consignment or the owner's representative (customs agents) is required to show the following three documents:

- Delivery order – a certificate issued by the ship agent based on the original documents of the shipment, declaring that the recipient is the owner of the shipment, and he is entitled to receive it from the port;
- Customs clearance – confirmation from the customs authority, certifying that all due fees and taxes are fully paid.
- Port charges – confirmation from the port's Accounts department showing that port fees (all charges including storage wharfage as well as loading and unloading costs) have been paid in full.

Different ports in the world and the EAC region have different cargo clearance procedures. For the specific country clearance procedures see Learning activity below.

3.6 Handling of Goods in the Ports

Port handling services include the receiving, loading, unloading and even additional shipping of clients' products once they arrive at port and come off the ship. Port services also provide an overview of the product at arrival and departure, providing an extra layer of protection should any of your products arrive damaged.

Types of port handling services

1. Liquid bulk cargo

Liquid bulk cargo includes any cargo carried in closed tanks and poured or pumped into the carrying vessel. This would include:

- Hazardous chemicals in liquid form
- Petroleum
- Gasoline
- Liquefied Natural Gas (LNG)
- Liquid nitrogen
- Cooking oil
- Fruit juices
- Rubber
- Vegetable oil

2. Dry bulk cargo

Dry bulk cargoes cover a wide range of products. Some of the most commonly handled dry bulk materials are coal, cement, grain, sulphur, fertilizers, iron ore and sugar. These products are generally not packaged separately but transported in large quantities in the hold of a ship.

3. Motor vehicle handling operations

Motor vehicle handling operations, this involves loading movable goods with the Ro-Ro method which means that they can be loaded without the need to roll between terminal and ship. This approach ensures a high handling speed and low handling costs.

4. Container handling operations

Container handling operations, this is the activity of receiving and delivery of containers to and from landside partners arriving by road or rail; the receipt and delivery of containers to and from seaside partners arriving by barge or ship; the transfer of containers between sea and land for storage, and possibly loading or unloading of cargo into or out of containers, and where containers can be picked up, dropped off, maintained, stored, or loaded or unloaded from one mode of transport to another (that is, vessel, truck, barge, or rail).

3.7 Challenges and Solutions for the Port in Clearance Process

Ports play a critical role in the development of many countries. They represent a country's national heritage, culture, and local commercial attitudes. Simply, ports are the gate ways for trade. Unfortunately, despite the rapid globalization and modernization, most ports are not as efficient as they should be and are becoming barriers to international trade.

Most ports are plagued with problems like clearance delays, inadequate investments, increased port rates, lack of effective strategies, and inappropriate international mandates. This is causing many challenges. Here are factors affecting ports clearance:

- Lack of knowledge on clearing procedures
- Unavailability of original documents especially bill of lading
- Abandonment of cargo by agents due to various reasons
- Misdeclaration by customs agents
- Many documentation stages
- Poor training of clearing agents and other parties participating in cargo clearance
- Corrupt practices by other parties
- Inadequate cargo handling equipment

3.8 Learning Activities

Identify a sea or inland waterway port in each East Africa country. Study the various aspects of the port identified and addresses the issues below.

Required:

1. The main types of cargo handled in the ports identified
2. The cargo clearance procedure for clearing direct shipment from a landing vessel at a sea port or the transit cargo at the inland waterway port.

3.9 Self-Assessment Questions and Activities

1. Explain the meaning of the term port clearance
2. State systems used for clearance of cargo at the port of Dar Es Salaam and Kilindini Mombasa.
3. Explain any two benefits of automating cargo clearance process at the port.

3.10 References

- Burns, M. G. (2015). Port Management and Operations. Routledge
- Saieva, G. (2013). Port Management and Operations. Taylor and Francis
- Pettit, S. & Beresford, A. (2017). Port Management: Cases in Port Geography, Operations and Policy. Kogan Page
- Bichou, K. (2013). Port Operations, Planning and Logistics. Routledge
- Haralambides, H. (Ed.). (2015) Port Management. Palgrave Macmillan
- Monios, J. & Bergqvist, R. (2020). Intermodal Freight Terminals: A Life Cycle Governance Framework. Routledge
- Dong-Ping Song, D. (2021). Container Logistics and Maritime Transport. Routledge
- Dowd and Fleming, maritime policy and management, 1994, vol. 21

4.0 DETERMINING PORT CHARGES

4.1 Specific Learning Outcomes

At the end of this topic the trainee should be able to:

i. Identify the types of port charges
ii. Calculate relevant port charges
iii. Determining port charges

4.2 Definition of Port Charges

The Port Cargo Tariff is the total charges paid at the port by the cargo owner and ship owner for services rendered in respect of that cargo or ship. It does not matter what type of port it is these charges will always attach to cargo or ship passing through a port. These charges are normally based on unit tonnage and unit volume, but they may also be value related (ad valorem), or related to the nature of the cargo, such as passengers, live animals, dangerous cargoes.

4.3 Port Charges/ Pricing objectives

In formulating port charges/pricing policies and establishing tariffs, ports generally endeavor to incorporate the following pricing objectives;

a) To promote the most efficient use of the facilities: A principal objective of port pricing is to ensure that port facilities are used in the most efficient manner. The pricing system can influence the utilization of assets particularly when the demand for the services is price elastic. When demand for a service is inelastic, other measures, generally more authoritative than pricing, have to be found;
b) To retain the benefits resulting from investment within the country: An objective of port pricing of particular interest for ports in developing countries is to establish charges at a level that tends to retain the benefits arising from port improvements within the country;
c) To recover sufficient revenue to meet financial objectives: A third objective relates to building up financial reserves to prepare for unexpected falls in revenue or rises in costs. Nevertheless, the acceptable amount of the reserve may be limited, if other more important objectives, for instance the improvement of the utilization of assets, are to be achieved.
d) Other objectives of port pricing include minimizing total logistics costs from a national point of view; providing an incentive to port users to improve their facilities and services; and ensuring that the tariff is both practical and simple.

4.4 Who sets the rates?

1. The government if it is a state-owned port.
2. The local area authority if it is a municipal owned port
3. The Port - Even in the privatized situation the port may not be allowed free hand in setting its tariffs as most governments are concerned about unfair competition.

4.5 Methodology used in setting port price

- The historical costs of providing the service or facility.
- The imputed cost of unreimbursed and often unrecorded benefits provided by an outside entity (e.g fire, police, computer etc)
- The return on investment for both land and equipment.
- The competition from outside, what other ports within the region are charging for the same service.
- Important customers especially regular customers with high volumes and strictly use the services of the port.
- Political pressures where the landlocked counties within the region served by the port require favorable rate in order to use the port
- Goals of the port- the intention of building the port

Basic approaches in establishing port tariff structure

Among the considerable number of factors that should be taken into consideration, a review of actual practices and expert literature suggests that ports should take note of the following critical aspects:

a) Clarification of the relationship between port facilities and users: Although identifying the users of port facilities is not usually easy, most of the payers can be

identified under the current tariff system. Any port tariff structure should establish a clear framework for the relationship between the charges and the "who pays" factor and should provide fairness and flexibility;

b) Prevention of double payment: To assist in understanding the relationship between port facilities and relevant charges, the tariff structure should provide a one-to-one relationship between facilities and port tariffs;

c) Price mechanisms to prevent congestion: Facilities in which there is no cost input at all in the port areas should be exempt from charges. But congestion caused by 'free of charge' in the port may occur when traffic increases to such an extent that the level of traffic flow eventually becomes saturated. In that situation, congestion could be prevented by introducing congestion prevention charges;

d) Simplification of port tariffs: It is a common phenomenon for ports to be faced with continuous confusion on port charges and, therefore, a constantly increasing demand for a simplification of the tariff structure. Approaches to achieve simplification include reducing the number of charges and/or reducing the number of variables in the basis for each charge.

4.6 Types of Port Charges

a) Stevedoring:

Stevedoring refers to the function/process of loading and discharging cargo from a ship. Stevedoring costs should be directly related to the costs involved in handling commodities. Stevedoring companies in many ports are characterized by the high level of variable costs, for example, labor and a comparatively low level of fixed costs such as mobile plant, buildings. Therefore, in stevedoring operations the marginal costs and average costs may be identical.

The stevedoring charge is usually levied per freight ton, metric ton, cubic meters or TEU of cargoes. Stevedoring firms often reserve the right to calculate the charge on the volume or weight of the cargoes. It is common for all cargoes to be divided into groups according to various criteria and a uniform rate applied to each group.

b) Wharf age

Wharf age is a charge assessed by a shipping terminal/port when goods are moved through the port location/dock/pier. Wharf age is normally a cargo-related charge to recover the costs associated with the provision of the basic infrastructure and superstructure of the port to facilitate the movement of cargo from shipside to hinterland and vice versa. It includes the costs of providing roadways, railways, quays, parking areas, transit shed facilities, police surveillance etc. Similar to port dues, wharf age is charged by freight ton, metric ton, cubic meters or TEU, and its differentiation unit is the type of cargo.

c) Pilotage

Pilotage is the process of guiding the vessel in and out of the port/harbor. Pilotage arises in two areas: the seaway gaining access to the river estuary and the port area itself. In many instances, the pilot service is compulsory. The pilotage may be based on the Gross Registered Tonnage (GRT) of the vessel or a charge per ship. In general, as the cost of providing pilot service does not vary for different sizes of vessels, it is appropriate to charge pilotage simply based on the vessel's port call. However, it can be differentiated by the location where the pilotage starts and ends.

d) Berth Hire (Dock or Berth due)

This is a charge normally, related to the ship to recover costs with the berthing/anchorage of the vessel and for the use of the berth for a stated period of time. It may include expenditure on the provision, maintenance and operation of docks, maintenance of dredged depths alongside and in the dock basin, fendering, provision of quays and facilities provided on the quay apron. The charging unit of the berth due is meter-hours, computed as the length of the vessel multiplied by the hours that the vessel is at the berth. The unit of differentiation distinguishes among the berths by their characteristics, such as alongside depth, back-up area and cargo handling capacities.

e) Storage

This refers to the fee given by the Port Authority for late removal of cargo after a specified free period. Storage Charge is charged per day per unit of measure/charges. In most ports, there is a free period during which no charge is made for storage. Warehousing charges apply to goods that need to remain longer in the port and are, therefore, transported to special premises reserved for that purpose.

After the free period has expired, the tariff usually takes account of the length of stay of the goods in the storage place. In some cases, this charge per unit of time, usually the day, remains constant, regardless of how long cargo remains in storage after the given free period. However, in many cases, the charge per unit of time increases with the length of time spent in storage in order to discourage any abusive lengthy storage. This charge can be differentiated by type of storage, such as open, closed or frozen storage and by different types of cargo.

f) Transit storage

This is the charge to recover the costs of the storage of transit goods in transit sheds or areas. The temporary storage rates are usually set to minimize cargo dwell time and maximize throughput.

The charging unit is the amount of storage occupied multiplied by the period of storage measured in days. The storage can be differentiated based on the dwell time so as to charge higher rates for an extended period of storage. Separate tariffs can also be used to distinguish between open and closed storage and among different types of cargo.

g) Handling

This refers to activities involved in loading the cargo from the quayside to a truck for transfer to the storage area and handling at the stack for loading onto the cargo Owners' transport or railway wagon for delivery. The port uses its workers and cargo handling equipment such as forklift trucks, cranes, and stackers etc. to perform this function. The charges therefore relate to the equipment and labor used.

h) Removal Charges

This refers to late cargo documentation charges/ penalties. Each port has a different tariff and allowable time before being charged. For example, in Mombasa and Dar-es-salaam removal charges apply after 7 days.

i) Towing

This service is usually optional. Occasionally, the towage tariff is included in another charge such as pilotage. Towage is usually based either on the characteristics of the ship or the tugs performing

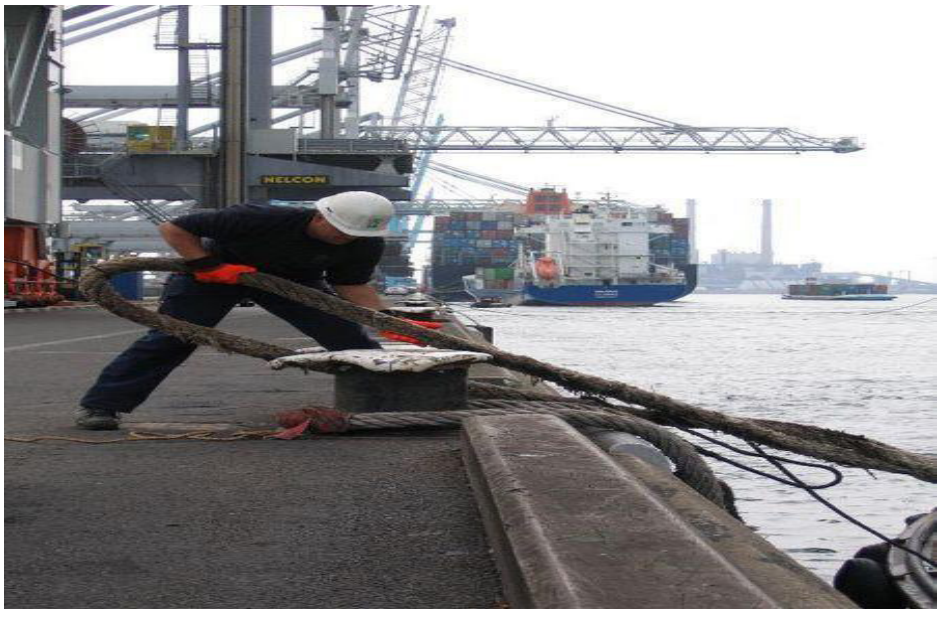
the operation. Towing costs increase with the size of the tugboat used and the time of use. Therefore, the common practice is to charge a towage per hour and to differentiate based on the size of the tugboat used. However, in some cases it is charged as a fixed rate irrespective of the time taken for the operation and differentiated by the vessel's type and size.

Tug boat

Tug boat in operation

j) Mooring/unmooring (berthing/unberthing)

This is a specific tariff applied for berthing/ unberthing and mooring operations. This tariff is charged simply by the vessel movement but can be differentiated by the vessel's size measured in Gross Registered Tonnage (GRT), Net Registered Tonnage (NRT) or some combination of length, beam, and draft.



Mooring in progress

k) Conservancy and port dues

It is common to establish a charge to recover the cost incurred in providing the facilities and services which are necessary to ensure the safe navigation of vessels within the area under the port's jurisdiction. It may include dredging, the provision of breakwaters, training walls, navigational aids and harbor surveillance facilities, but usually excludes the costs of providing pilot and tow services which are charged by separate tariffs.

Conservancy is a port charge which is levied for the utilization of general nautical facilities in the approaches to the port (i.e., outside the port area), whereas port dues are levied for the services or utilization of facilities within the port, including channels, vessel traffic service, emergency fire services, breakwaters, pollution control and marine security.

Port dues on ships are based on the type and size of the vessels. The charging units would be the carrying capacity of the vessel measured in gross registered tonnage (GRT), net registered tonnage (NRT) and deadweight tonnage (DWT) or some combination of length, beam and draft, and the unit of differentiation should be the type of the vessel.

l) Other charges

- **Lashing or Unlashing:**

In some ports, the ship may contract workers from outside the port to lash or unlash cargo on board the vessel. In other ports all such functions are undertaken by the port itself, in which case this cost is transferred by the port to the cargo owner

Lashing activity

- **Security:**

Certain cargoes, for example explosives, although not normally stored inside the port may require security guards. Ports are required to comply with and enforce international security standards according to the International Ship and Port Security Code (ISPS). The ISPS Code is a comprehensive set of measures to enhance the security of ships and port facilities, which was developed in response to the perceived threats to ships and port facilities. Shipping lines also levy a security charge in respect of all containers to meet the additional costs due to compliance with the ISPS.

- **Transfer charges:**

Transfer charges relate to the activity of moving cargo from the quayside to a storage stack and vice versa during discharge or loading. Another form of transfer is where the cargo owner may request the port to carry out activities outside the normal procedures. In the port of Mombasa, for example, transfer charges apply when a consignment is shifted within the port at the request of the cargo interest, such as positioning of containers for survey, weighing, customs verification etc. Because resources are used, the port levies additional charges to meet the additional costs.

- **Re-marshalling charge:**

Re-marshalling charge are levied on expiry of free period for both domestic import and transit Import containers. Re-marshalling involves any shifting, transfer, removal or handling of containers after the free period within the container terminal and includes movement within the bays, blocks, yards, or transfer to other areas within the Port or other designated areas outside the Port.

4.7 Categorization of Port Charges

Port charges can be categorized according to various service groups as illustrated below:

Service group	Component/ type of service	Charging system			
		Basis	Units	Payee	Recipient
Navigation	Port dues	Size of ship	GRT	Shipping line	Port operator
	Pilotage	Size of ship Time	GRT Hours	Shipping line	Port/Pilotage Association
	Tug services	Tug time involved Size of ship	Number GRT	Shipping line	Port/ Tug owner
	Mooring/un-mooring	Size of ship	GRT	Shipping line	Port operator
	Ancillary services	Various	Various	Shipping line	Port operator
Berth	Berth hire	Time of ship alongside Size of ship	Hours GRT	Shipping line	Port operator
	Wharf age	Volume/weight/size of cargo	Tons/ TEU/ m^3	Consignee/ Consignor	Port operator
	Ancillary services	Amount consumed	Various	Shipping line	Port operator
Cargo operations	Stevedoring	Volume/weight/size of cargo	Tons/ TEU/ m^3	Shipping line	Provider of service
	Wharf handling	Volume/weight/size of cargo	Tons/ TEU/ m^3	Consignee/ Consignor	Provider of service
	Extra-movement	Volume/weight/size of cargo	Tons/ TEU/ m^3	Consignee/ Consignor	Provider of service
	Special cargo handling	Volume/weight/size of cargo Type of special handling	Unit Types	Shipping line	Provider of service
	Storage	Time	Tons/TEU/ m^3 Days	Consignee/ Consignor	Provider of service
	Packing / unpacking	Volume/weight/size of cargo	Tons/TEU/ m^3 Unit type	Shipping line	Provider of service
	Equipment/ service / facility hire	Hours of use by item	Hours	Stevedore	Equipment/ services owner
Other Business	Real estate, licensing, management services and consultancy etc.	Various	Various	Hirer	Port operator
Lease	Dedicated costs	Lease area	Various	Lessee	Port operator
	Rental charge	Lease area	Various	Lessee	Port operator

4.8 Learning Activities

Your customer who is manufacturer has imported ten forty feet containers of raw materials. Unfortunately, the goods were not inspected at the origin as required by law. Advice your client on imminent port charges that might be incurred by the importer as a result of the delay while organising for local inspection.

4.9 Self-Assessment Questions and Activities

1. Differentiate between port dues and wharf age charges
2. Explain the mandatory charges levied on ships and cargo
3. Explain why government is concerned with setting port charges

4.10 References

- Burns, M. G. (2015). Port Management and Operations. Routledge
- Saieva, G. (2013). Port Management and Operations. Taylor and Francis
- Pettit, S. & Beresford, A. (2017). Port Management: Cases in Port Geography, Operations and Policy. Kogan Page
- Bichou, K. (2013). Port Operations, Planning and Logistics. Routledge
- Haralambides, H. (Ed.). (2015) Port Management. Palgrave Macmillan
- Monios, J. & Bergqvist, R. (2020). Intermodal Freight Terminals: A Life Cycle Governance Framework. Routledge
- Dong-Ping Song, D. (2021). Container Logistics and Maritime Transport. Routledge
- Dowd and Fleming, maritime policy and management, 1994, vol. 21

5.0 PORT INFRASTRUCTURE

5.1 Specific Learning Outcomes

At the end of this topic the trainee should be able to:

i. Explain the meaning of infrastructure and superstructures
ii. Identify the types of Port infrastructure
iii. Identify the types of Port superstructures
iv. Describe the functions of port infrastructure and superstructures

5.2 Definition of Infrastructure and its Composition

Infrastructure

Infrastructure can be defined as anything that facilitates the production of services and goods for example roads are important because they help in transporting goods and distributing them to the market. Infrastructure in some other context may also include hospitals, schools and various other basic social services.

The **port infrastructure** is the base for **port** operations to serve the vessel, cargo and passengers which pass through **ports**. This means that the design of **port** infrastructures should anticipate the needs of the Waterborne, logistics and transport sector.

In the context of the Port, we can divide Infrastructure into two categories namely Superstructure and Infrastructure. Superstructure may include port equipment, cargo handling equipment like fork lifts, pallets, cranes, excavators etc. Infrastructure may include buildings, roads, information technology, hospitals, police centres, etc. and Security Equipment.

5.3 Types of Port Infrastructure

Rail Infrastructure

Road Infrastructure

Road infrastructure

EABC recommends four lane road to ease congestion at Busia border

Port infrastructure

5.4 Various Operations of Superstructure and Infrastructure

Port superstructure' means **surface arrangements** (such as for storage), fixed equipment (such as warehouses and terminal buildings) as well as mobile equipment (such as cranes) located in a port for the provision of transport related port services. Port activities cover a wide range of functions. **Infrastructure investments and developments are usually made by port authorities**, while superstructure investments are made by terminal operators, many of which are private companies leasing the terminal.

- **Container handling equipment Ship to shore gantries (SSGs):** These are overhead cranes used to handle containers into and from the ships. SSGs are mounted and move on rails which run along the berth. They are equipped with twist locks which fit into the container corner pockets and automatically lock before the container is lifted.

Ship to shore gantry

Rubber tyred Gantries (RTGs): As the name implies unlike the SSGs that move on rails, RTGs move on rubber tyres. Their functions are similar in every respect to the SSGs but are used in the yard to load or offload trucks (terminal handling).

Rubber tyred Gantry

Rail Mounted Gantries (RMGs): These are also similar to SSGs and RTGs but are mounted on rails and are used to handle containers at rail terminals.

Rail mounted gantry crane

Top Loaders and Reach Stackers: These are custom made four wheeled trucks with telescopic lifting arms, extendable vertically in the case of top loaders and horizontally in the case of reach stackers. They are also equipped with twist locks and locking mechanisms similar to the SSGs, RTGs and RMGs.

Reach stacker

Reach stacker

Empty Container Handlers: These are similar to top loaders and reach stackers in construction but are designed to lift empty containers.

Empty container handlers

Forklift Trucks: These use their forks to lift containers. They are designed to lift varying tonnages.

Forklift

Terminal Tractors: These are custom-built heavy-duty trailers used to transfer containers within the port and on Ro/Ro vessels.

Terminal tractor

Pallets: Pallets are considered as handling equipment. The use of pallets is regulated by a Convention from Commonwealth called: Commonwealth Handling and Equipment Pool (CHEP) whose standards are 40" x 48" made in timber. Pallets facilitate the handling movement and ensure an easy location and identification. The first pallets were tested used and registered in 1945 in Australia.

Pallets

Roads and maneuverability ways: Roads and maneuverability ways enable faster movement of cargo within the port and also to and from the port. They must be tarmacked, stone paved and strong enough roads able to sustain the heavy equipment within the port and avoid slow movement of cargo to and from the port.

Buildings: Ports should have buildings that encompass administrative offices for customs, police, port authorities, bureau of standards, banks, hospitals, accommodation etc.

- **Security Equipment**

The ports should have sufficient security equipment to secure the ports and cargo depending on the level of security. These may include security cameras, surveillance boats, alarms, electrical fences, security radios etc.

5.5 Learning Activities

Discuss how port infrastructure influence the economics development of ports

5.6 Self-Assessment Questions and Activities

1. State and explain the usage of any four superstructures at the port of Bujumbura
2. Distinguish the difference between port infrastructure and port superstructure
3. Explain the importance of use of pallets at the port

5.7 References

- Burns, M. G. (2015). Port Management and Operations. Routledge
- Saieva, G. (2013). Port Management and Operations. Taylor and Francis
- Pettit, S. & Beresford, A. (2017). Port Management: Cases in Port Geography, Operations and Policy. Kogan Page
- Bichou, K. (2013). Port Operations, Planning and Logistics. Routledge
- Haralambides, H. (Ed.). (2015) Port Management. Palgrave Macmillan
- Monios, J. & Bergqvist, R. (2020). Intermodal Freight Terminals: A Life Cycle Governance Framework. Routledge
- Dong-Ping Song, D. (2021). Container Logistics and Maritime Transport. Routledge
- Dowd and Fleming, maritime policy and management, 1994, vol. 21

6.0 PARTIES IN PORT CLEARANCE PROCESS

6.1 Specific Learning Outcomes

At the end of this topic the trainee should be able to:

i. Identify the types of Parties in Port clearance process
ii. Identify the roles of Parties in Port clearance process
iii. Identify the different port community stakeholders

6.2 Intervening Third Parties

Intervening third parties means an entity or persons who have interest in the matter and have been granted leave to participate in the clearing process at the port.

Hence in cargo clearance there are other institutions by law are permitted to intervene in the processes in order to ensure that certain laws, regulations, policies and conditions are complied with for smooth delivery of the cargo.

6.3 Categories of Intervening Parties

In the freight industry, the forwarder has to deal with many intervening parties involved in port cargo clearance along the supply chain management in order to perform their business and efficiently deliver their services effectively.

These intervening parties are categorized into two major divisions namely;

i. Public (Government) Institutions
ii. Private Institutions

Both categories are vital in facilitating international trade and conveyance of goods across the globe within the supply chain. The main principal parties are the consignor and consignee who have direct relationship on the cargo supplied or traded.

i. Government and Other Public Institutions
ii. Revenue Authority (Customs Department).
iii. Port Authorities.
iv. Ministry of Finance. (Exemptions Letters).
v. Central Bank for Exchange Control permits.
vi. Foreign Consular and Trade Attaches'.
vii. Ministry of trade and Commerce.
viii. Ministry of Health.
ix. Ministries of Transport and Communications.
x. Chamber of Commerce.
xi. Bureaus of Standards
xii. Plants Inspectorate Institutions
xiii. Department of Mining and Exploration.
xiv. Environment Management Authorities.
xv. Radiations Inspectorate Regulatory Board.
xvi. Ministry of Agriculture.
xvii. Livestock and Fisheries.
xviii. Ministries of Defense and Internal Security.
xix. Ministries of Foreign Affairs and Immigrations.
xx. Kenya Maritime Authority (KMA)
xxi. Tanzania Shipping Agencies Corporation (TASAC)
xxii. Kenya Police Service etc. Department of Police

Private Parties

i. Freight forwarding Companies.
ii. Railway operators.
iii. Shipping lines/ Airlines/Truckers.
iv. Commercial Banks.
v. Insurance Companies
vi. Packaging companies.
vii. Marine surveyors.
viii. Courier Service providers
ix. Stevedoring companies etc.

a) Port Authorities

Port Authorities are entities mandated to operate and manage the ports. They are usually government departments or agencies e.g. Kenya Ports Authority (KPA), Exploitation du Port de Bujumbura (EPB) and Tanzania Port Authorities (TPA). Physical inspection of goods is done within the ports by customs or other authorities involved in controlling international cargo flow. Port Authorities act as custodians of goods before clearance to export or import.

b) Customs

Customs department is one of departments under Revenue authority charged with control of movement of goods, coming in and going out of the country. An efficient and effective Customs administration is key for facilitating trade and investment and, hence, growth. While the core roles and responsibilities of Customs administrations throughout the world have remained essentially the same for many years, the manner in which individual Customs administrations discharge these roles and responsibilities and the relative priority afforded to each has changed significantly in recent times. The drivers for this change are;

- Heightened international awareness and quantification of the high transitional costs associated with inefficient, time consuming and outdated border formalities;
- Increased investment by the private sector in modern logistics, inventory control, manufacturing and information systems, leading to increased expectations for prompt and predictable processing of imports and exports;
- Greater policy and procedural requirements associated with the implementation of international commitments;
- Increased regional and international competition for foreign investment;
- Proliferation of regional trading agreements which significantly increase the complexity of administering border formalities and controls; and
- Increased awareness of the importance of transparency, good governance and sound integrity within Customs;

Customs Authorities are the ones who license, control and give guidance to customs agents on matters related with the clearance of the goods. In fact, most of the documents are used by clearing agents to declare and clear goods.

c) Carriers/Shipping Lines

Carriers/shipping lines own the different modes of transport e.g. vessels, aircrafts, trucks etc. While freight forwarders are considered as architects of transport, they obtain this service of moving the cargo from one place to another from the carriers. Cargo manifests are generated by carriers and will be required for the clearance procedure. They also issue delivery orders.

d) Bureau of Standards

Bureau of Standards (BS) provides ISO certification through various laboratories and provides quality assurance and compliance certification of international standards. It also contributes to export growth by providing certification of exports commodities such as coffee, tea, and fish for consumption abroad. Bureau of Standards staffs move across various clearance points to check compliance of the imported and exported goods to the pre described international acceptable standards to the particular country or region. The performance of BS to some extent hinder fast clearance of goods as to some extent is not well coordinated with other players in clearance process.

e) Food and Drugs Authority-FDA (Each country has food and drugs authority)

FDA is a regulatory body responsible for controlling the quality, safety, and effectiveness of food, drugs, cosmetics, and medical devices imported into the region. FDA was established by combining two legacy agencies; the Pharmacy Board and the Food Control Commission. Freight Forwarders' must have approval from FDA before final release of cargo under this category.

f) Shipping Agents

Shipping Agents are shipping line representatives who ensure that the interest of shipping lines is met. They are intermediaries when freight forwarders' need to book space on the carriers or any other related activity to movement of cargo. Clearing Agents receive order to collect their goods from ports through shipping agents. Also, when Clearing agents process exports, they have to book the ship space through these shipping agents.

g) Truckers

Truckers provide transport services to send the cargo to and from ports to the owner of the goods through truckers. Clearing Agents when contracting with these third parties on behalf of the owner of the goods, they must make sure that standard trading conditions are compiled to that particular place.

6.4 Learning Activities

Identify parties that are responsible security and safety of cargo at the ports.

Required:

1. Discuss how each ensures safety and security of cargo at the ports
2. Explain the strategies that each can use to ensure safety and security of cargo

6.5 Self-Assessment Questions and Activities

1. Explain the term intervening parties in relation to port operations
2. Identify and explain the roles of any three parties at the airport
3. Explain the difference between the carrier and the shipping agent

6.6 References

- Burns, M. G. (2015). Port Management and Operations. Routledge
- Saieva, G. (2013). Port Management and Operations. Taylor and Francis
- Pettit, S. & Beresford, A. (2017). Port Management: Cases in Port Geography, Operations and Policy. Kogan Page
- Bichou, K. (2013). Port Operations, Planning and Logistics. Routledge
- Haralambides, H. (Ed.). (2015) Port Management. Palgrave Macmillan
- Monios, J. & Bergqvist, R. (2020). Intermodal Freight Terminals: A Life Cycle Governance Framework. Routledge
- Dong-Ping Song, D. (2021). Container Logistics and Maritime Transport. Routledge
- Dowd and Fleming, maritime policy and management, 1994, vol. 21.

UNIT 3:

CARRIAGE OF GOODS

Table of contents

LIST OF ABBREVIATIONS AND ACRONYMNS

AWB	Airway Bill
CFR	Cost and Freight
CIF	Cost, Insurance and Freight
CIM	International conventions for Rail transport, in Europe
CIP	Carriage and Insurance Paid To
CIS	Commonwealth of Independent States
CIT	International Rail Transport Committee
CNOOC	Shareholder -China National Offshore Oil Company Shareholder
CPT	Carriage Paid To
DAP	Delivered At Place
DDP	Delivered Duty Paid
DPU	Delivered at Place Unloaded
EC	European Commission
ECAC	European Civil Aviation Conference
EXW	Ex-Works
FAS	Free Alongside Ship
FCA	Free Carrier
FIATA	International Federation of Freight Forwarders Associations
FOB	Free On Board
HBL	House Bill of Lading
IATA	International Air Transport Association
ICAO	International Civil Aviation Organization
IMDG	International Maritime Dangerous Goods
INCOTERMS	International Commercial Terms
INOGATE	Interstate Oil and Gas Transport to Europe
IRU	The International Road Transport Union
LCL	Less Container Load
MEAs	Multilateral Environmental Agreements
MTO	Multimodal Transport Operator
NCIP	Northern Corridor Integration Projects
NVOCCC	Non-Vessel Operating Common Carrier Company
OECD	Organisation for Economic Co-operation and Development
OTIF	International Organization for international carriage by Rail
SITC	Standard International Trade Classification
SLA	Service Level Agreement
SOP	Standard Operating Procedure
TPDC	Tanzania Petroleum Development Corporation
TTA	The Tariff and Transportation Agreement
UNECE	United Nations Economic Commission for Europe
UNESCAP	United Nations Economic and Social Commission for Asia and the Pacific
WCO	World Customs Organization
WTO	World Trade Organization

Unit 3: CARRIAGE OF GOODS

1.0 UNIT OVERVIEW

1.1 Unit Description

This unit specifies the competencies required to facilitate carriage of cargo. This involves determining the scope of international carriage of goods; identifying the global traffic systems; selecting the mode of transport for goods; transporting goods using different modes of transport; determining freight rates; handling of special cargo; and ensuring cargo safety and security.

1.2 Unit Summary Learning Outcomes

At the end of the unit, the trainee should be able to:

1. Identify scope of international carriage of goods
2. Identify global traffic systems
3. Select the mode of transport for goods
4. Transport goods using different types of transport modes
5. Determine Freight rates
6. Handle special cargo in transportation
7. Ensure cargo safety and security.

1.3 INTERNATIONAL CARRIAGE OF GOODS

1.4 Learning objectives

At the end of this topic the trainee should be able to;

i. Explain the scope of international carriage of goods
ii. Explain the International trade and transportation
iii. Analyse the utilisation of the General Framework of International Carriage of Goods.

1.5 Introduction

Transport of goods is the physical movement of goods from origin to destination. In its most simple form, it involves a single pick-up and direct transport to a delivery point. Transport can become very complex when goods are moved between continents or through a number of countries using various modes of transport. This can involve consolidating and deconsolidating the goods into larger loads for transportation efficiency and costing purposes. Also, goods may pass through a number of ports, warehouses and storage locations, perhaps involving examinations and inspections where a considerable number of parties have a role in organizing and executing the total transport chain. And this whilst staying within the agreed dates and terms of delivery between seller and buyer, and keeping track of the goods during transport, delivering status reports to the owners of the goods, and dealing with the regulatory procedures of a number of authorities.

International carriage of goods includes any movement of goods on board any means of transport: rail, road, river, sea, air, across boarders etc. It is measured in ton-kilometres or, over a given journey, in tons.

1.6 Scope for International Carriage of Goods

International trade is the exchange of goods and services across international borders. In most countries, it represents a significant share of GDP. While international trade has been present throughout much of history, its impact has been on the rise in recent centuries, mainly because of industrialisation, advanced transportation, multinational corporations, etc.

International trade is based on the notion of exchange, which involves what is being traded, the partners involved as well as the transactional environment in which trade takes place, namely customs procedures (tariff and non-tariff barriers). International trade is seen as a **series of commercial transactions** between trade partners that tracks the value of what is being traded and the types of goods these transactions involve, classification regimes such as the Standard International Trade Classification (SITC), allow for well-defined trade categories to which customs rules can be applied. The extent of trade, either in value or volume, is an abstract expression of the quantity of goods being exchanged as they do not represent the actual physical flows supporting trade transactions.

The physical realization of international trade requires a **transport chain**. It is a series of logistical activities that organize modes and terminals, such as air, railway, maritime, and road transportation systems, and thus the continuity along the supply chain through a set of stages, the most common being:

1. The first stage in the transport chain is **composition,** where loads are assembled at the origin, often on pallets and in containers. Composition is an important process as it tries to achieve economies of scale over a transport chain by providing larger and easier ways to handle load units necessary for international trade.
2. The cargo being traded then moves along the transport chain using a transport mode, commonly rail or road, to reach a terminal where it is **transhipped** on an international transport mode (port or airport depending on the nature of what is being transported). Additional economies of scale become possible as several load units can be consolidated into a single large shipment, such as a containership.
3. Once cargo enters another country through a **gateway** (point of entry), customs inspection takes place as the cargo is transhipped over the inland transport system. Customs procedures and delays are among the most constraining factors in global freight distribution.
4. The final stage of the transport chain, **decomposition** (the last mile), occurs in proximity to the final destination. Loads are broken down into units corresponding to effective demand, such as store orders. If the demand concerns retail goods, urban freight distribution strategies may be required.

In the operational reality of modes and terminals, international trade is a series of **physical flows** that may not necessarily use the most direct path but the least cost path. Inland corridors where economies of scale are more effective shape the structure of freight flows and the selection of the port of exit.

On the maritime side, **transshipment hubs** have become strategic intermediary locations helping consolidate maritime flows and connecting different maritime systems of circulation. In such a setting, the container has become the fundamental element facilitating transfers between modes and supporting international trade flows. Distribution centres play an important role in physical flows since they can act as a buffer, helping reconcile the temporal and spatial requirements of demand.

Globalization, trade, and freight distribution are interrelated and concern a mobility scale that spans regions, nations, and often continents. This transnational mobility is subject to many geopolitical considerations, such as who controls trade routes and what forms of competition and cooperation have emerged with expanded trade relations. Processes related to economic integration, the fragmentation of production systems due to outsourcing and offshoring are interdependent. They favoured the setting of global commodity chains, from the extraction of raw materials, manufacturing, to final consumption. This requires an understanding of logistics and the growing level of integration between production, distribution, and consumption.

Trans-border and Cross-border Transportation

Cross-border transportation involves the activities, infrastructures, and flows that support the passage of passengers and freight across an international border.

1.7 International Trade and Transportation

The growth of the amount of freight being traded as well as a great variety of origins and destinations promotes the importance of international transportation as a fundamental element supporting the global economy. Economic development in Pacific Asia and China, in particular, has been the dominant factor behind the growth of international transportation in recent years. Since the trading distances involved are often considerable, this has resulted in increasing demands on the maritime shipping industry and port activities. As its industrial and manufacturing activities develop, China is importing growing quantities of raw materials and energy and exporting increasing quantities of manufactured goods. The ports in the Pearl River delta in Guangdong province now handle as many containers as all the ports in the United States combined.

International transportation systems have been under pressure to support additional demands in freights volume and the distance at which this freight is being carried. This could not have occurred without considerable technical improvements permitting to transport larger quantities of passengers and freight, and this more quickly and more efficiently. Few other technical improvements than containerization have contributed to this

environment of growing mobility of freight. Since containers and their intermodal transport systems improve the efficiency of global distribution, a growing share of general cargo is containerized.

Consequently, transportation is often referred to as an enabling factor that is not necessarily the cause of international trade but as a condition without which globalization could not have occurred. A common development problem is the inability of international transportation infrastructures to support flows, undermining access to the global market, and the benefits derived from international trade. International trade also requires distribution infrastructures that can support trade between several partners.

Three components of international transportation facilitate trade:

- **Transportation infrastructure**. Concerns physical infrastructures such as terminals, vehicles, and networks. Efficiencies or deficiencies in transport infrastructures will either promote or inhibit international trade.
- **Transportation services**. Concerns the complex set of services involved in the international circulation of passengers and freight. It includes activities such as distribution, logistics, finance, insurance, and marketing.
- **Transactional environment**. Concerns the complex legal, political, financial, and cultural setting in which international transport systems operate. It includes aspects such as exchange rates, regulations, quotas, and tariffs, but also consumer preferences.

About half of all global trade takes place between locations of more than 3,000 km apart. Because of this geography, most international freight movements involve several modes since it is impossible to have a physical continuity in freight flows. Transport chains must thus be established to service these flows, which reinforce the importance of intermodal transportation modes and terminals at strategic locations. Among the numerous transport modes, two are specifically concerned with international trade:

- **Ports and maritime shipping**. The importance of maritime transportation in global freight trade in unmatchable, particularly in terms of tonnage, as it handles about 90% of the global trade. Thus, globalization is the realm of maritime shipping, with containerized shipping at the forefront of the process. The global maritime transport system is composed of a series of major gateways granting access to major production and consumption regions. Between those gateways are major hubs acting as points of interconnection and transshipment between systems of maritime circulation.
- **Airports and air transport**. Although in terms tonnage air transportation carries an insignificant amount of freight (0.2% of total tonnage) compared with maritime transportation, its importance in terms of the total value is much more significant; 15% of the value of global trade. International air freight is about 70 times more valuable than its maritime counterpart and about 30 times more valuable than freight carried overland, which is linked with the types of goods it transports (e.g., electronics, perishables). The location of freight airports corresponds to high technology manufacturing clusters as well as intermediary locations where freight planes are refuelled, and cargo is transhipped.
- **Road** and **railway** modes tend to occupy a more marginal portion of international transportation since they are above all modes for national or regional transport services. Their importance is focused on their role in the "**first and last miles**" of global distribution. Freight is mainly brought to port and airport terminals by trucking or rail. However, there are notable exceptions in the role of overland transportation in international trade. A substantial share of the NAFTA trade between Canada, the United States, and Mexico is supported by trucking, as well as a large share of the Western European trade. The developing rail and road connections in Eurasia, spearheaded by China, also involved additional overland international trade. Despite this, these exchanges are regional by definition, although intermodal transportation confers a more complex interpretation of the geographical scale of these flows.

Trade and Customs Procedures

The procedures for declaring goods to customs administrations are usually based on international instruments, especially within the framework of the World Trade Organization's General Agreement on Tariffs and Trade (GATT 1994) and the World Customs Organization's Kyoto [Customs] Convention (WCO 1999). In many countries customs declarations can be made electronically (ASYCUDA 2016) but may still require supporting paper documents such as the import licence, origin declaration and copies of the commercial invoice.

Where transport routes involve several countries (e.g., to landlocked countries or via global logistics hubs) customs **transit procedures** come into play. These might be specific to the country or countries concerned though there are efforts to simplify transit arrangements, including the TIR (*Transports Internationaux Routiers*) Convention for sealed vehicles and containers used in international shipments that have at least one leg by road (UNECE 2014).

1.8 General Framework of International Carriage of Goods

The international movement of goods is generally regulated by **international agreements or conventions**. In all legal systems the law of carriage has been influenced by the idea that carriers enjoy a factual monopoly. The services that a customer may demand and the remuneration that a carrier may exact are generally regulated by legislation or administrative regulations.

The growth of competition among carriers and means of transport globally has led to a reduction in the scope of legislation in a number of countries, but international conventions and administrative regulations have proliferated. The right to carry on a transport business is still everywhere regulated through elaborate licensing systems by the respective bodies at National, regional, and international level, and the operations of transport are subject to continuous supervision and control by appropriate agencies.

The legal relation between the carrier and his customer is affected by this intervention of the public authorities, and public as well as private laws form the body of the law of carriage.

International transport provides an important legal function in international trade since it provides a link between the buyer and seller of the goods or services being traded. **A contract of carriage** must be entered in order to ensure seamless transport of goods from one place to another. Goods may be transported either by land, water, or air transportation systems. The transportation of a cargo using two or more modes of transportation is termed as multimodal transportation.

Contract of carriage

Carriage is simply defined as the transportation of goods or cargo from one location to another. It is however not as simple as it sounds as it includes other components such as loading, stowage, transportation, unloading and delivery.

A **carriage of goods contract** is therefore the legal document entered between a carrier and a sender (or consignor) where the carrier undertakes to move goods in return for payment to another person, usually the receiver (or consignee).

Parties in carriage of goods contract

i) Consignor

This is the person or firm that ships goods or gives goods to another party for care. The consignor can also be a retailer who sells the goods in the domestic market. For certain cases, the consignee functions as an exporter or shipper in foreign trade. A sourcing agent who is the main point of contact for your exports and owns the exports may also be referred to as a consignor, including locating your facilities and organizing the necessary paperwork.

ii) Consignee

The consignee is the importer of record for the shipment. He is also responsible for paying duties and any additional freight charges and is generally recognized as the legal owner for customs purposes. Nevertheless, only after payment of a seller's invoice should formal ownership of the consignment be passed to the consignee.

iii) Owner of cargo

The owner of the cargo would literally mean the owner of the freight. This could be an individual or an organization that has paid for the cargo under a legal contract. Legal precedent has acknowledged the right of the owner to sue for loss or damage to the goods.

iv) Financing Companies

International sale transactions are generally financed using letters of credit and financial institutions which have financial instruments and products that facilitate international trade and commerce. Business financing can help reduce global trade risks by integrating exporter and importer's differential needs.

iv) Intermediaries

Transport intermediaries or third-party logistics companies may be parties to shipping, warehousing, distribution, and other movements of goods on behalf of goods providers and shipping companies. Transport intermediaries (land, sea & air) play a key role in international trade and the growth of the global economy.

v) Ship owner

The ship owner is simply the owner of the ship carrying the cargo. Sometimes the ship owner will be the "carrier," of the cargo and the person responsible for any loss or damage.

1.9 Role of International Transport Conventions

International transport conventions provide a legal and documentary framework for the movement of goods by different modes of transport, and the documents accompanying them (CMR for road, CIM for rail, Air Waybill for air, Bill of Lading for maritime). Many of the documentary requirements stem from international conventions that have been approved over decades. Other requirements exist for multimodal or intermodal transport, partly to allow the use of more than one mode and partly for specific equipment used for intermodal transport.

Main trade facilitation issues in shipping are:

- Compliance with product-related regulations for the preparation of the consignment, its packaging and the transport equipment used,
- Preparing proper documentation to accompany the goods or to pass to parties in the transport chain, such as waybills, certificates of country of origin, certificates for agricultural goods,
- Passing relevant detailed information about the consignment to the parties that organize and execute (part of) the transport so that they can comply with regulatory requirements and procedures,
- Dealing with changes to the planned transport and hence changes in the required documents, for example when changing the mode of transport used,
- Dealing with changes in ownership of and responsibilities for the goods and transport, and
- Ensuring the security of goods during transport.

1.10 International Commercial Terms (INCOTERMS)

Incoterms are referred to as **International Commercial Terms.** They are a set of rules published by the International Chamber of Commerce (ICC), which relate to International Commercial Law. According to the ICC, INCOTERMS rules provide internationally accepted definitions and rules of interpretation for most common commercial terms used in contracts for the sale of goods.

All International purchases will be processed on an agreed Incoterm to define which party legally incurs costs and risks. INCOTERMS will be clearly stated on relevant shipping documents. They are the selling terms that the buyer and seller of goods both agree to during international transactions. These rules are accepted by governments and legal authorities around the world. Understanding Incoterms is a vital part of International Trade because they clearly state which tasks, costs and risks are associated with the buyer and the seller.

The INCOTERM states when the seller's costs and risks are transferred onto the buyer. It's also important to understand that not all rules apply in all cases. Some encompass any mode or modes of transport. Transport by all modes of transport (road, rail, air and sea) covers FCA, CPT, CIP, DAP, DPU (replaces DAT) and DDP. Sea/Inland waterway transport (Sea) covers FAS, FOB, CFR and CIF, which we explain below.

An Overview of Incoterms 2020

EXW – Ex-Works

- Ex-works is when the seller places the goods at the disposal of the buyer at the seller's premises or at another named place (i.e., works, factory, warehouse, etc.).
- The seller does not need to load the goods on any collecting vehicle. Nor does it need to clear them for export, where such clearance is applicable.

FCA – Free Carrier

- The seller delivers the goods to the carrier, or another person nominated by the buyer at the seller's premises or another named place.
- The parties are well advised to specify as explicitly as possible the point within the named place of delivery, as the risk passes to the buyer at that point.

FAS – Free Alongside Ship

- The seller delivers when the goods are placed alongside the vessel (e.g., on a quay or a barge) nominated by the buyer at the named port of shipment.
- The risk of loss of or damage to the goods passes when the products are alongside the ship. The buyer bears all costs from that moment onwards.

FOB – Free On Board

- The seller delivers the goods on board the vessel nominated by the buyer at the named port of shipment or procures the goods already so delivered.
- The risk of loss of or damage to the goods passes when the products are on board the vessel. The buyer bears all costs from that moment onwards.

CFR – Cost and Freight

- The seller delivers the goods on board the vessel or procures the goods already so delivered.
- The risk of loss of or damage to the goods passes when the products are on board the vessel.
- The seller must contract for and pay the costs and freight necessary to bring the goods to the named port of destination.

CIF – Cost, Insurance and Freight

- The seller delivers the goods on board the vessel or procures the goods already so delivered. The risk of loss of or damage to the goods passes when the products are on the ship.
- The seller must contract for and pay the costs and freight necessary to bring the goods to the named port of destination.
- The seller also contracts for insurance cover against the buyer's risk of loss of or damage to the goods during the carriage.
- The buyer should note that under CIF the seller is required to obtain insurance only on minimum cover. Should the buyer wish to have more insurance protection, it will need either to agree as much expressly with the seller or to make its own extra insurance arrangements.

CPT – Carriage Paid To

- The seller delivers the goods to the carrier, or another person nominated by the seller at an agreed place (if any such site is agreed between parties).
- The seller must contract for and pay the costs of carriage necessary to bring the goods to the named place of destination.

CIP – Carriage and Insurance Paid To

- The seller has the same responsibilities as CPT, but they also contract for insurance cover against the buyer's risk of loss of or damage to the goods during the carriage.
- The buyer should note that under CIP the seller is required to obtain insurance only on minimum cover. Should the buyer wish to have more insurance protection, it will need either to agree as much expressly with the seller or to make its own extra insurance arrangements.

DAP – Delivered At Place

- The seller delivers when the goods are placed at the disposal of the buyer on the arriving means of transport ready for unloading at the named place of destination.
- The seller bears all risks involved in bringing the goods to the named place.

DPU – Delivered at Place Unloaded (replaces Incoterm® 2010 DAT)

- DPU replaces the former Incoterm® DAT (Delivered at Terminal). The seller delivers when the goods, once unloaded are placed at the disposal of the buyer at a named place of destination.
- The seller bears all risks involved in bringing the goods to and unloading them at the named place of destination.

DDP – Delivered Duty Paid

- The seller delivers the goods when the goods are placed at the disposal of the buyer, cleared for import on the arriving means of transport ready for unloading at the named place of destination.
- The seller bears all the costs and risks involved in bringing the goods to the place of destination. They must clear the products not only for export but also for import, to pay any duty for both export and import and to carry out all customs formalities.

1.11 Learning Activities

Sesco Uganda Ltd, is a new importer based in Masaka, Uganda. He intends to import his first container from China, and the supplier told him they can sell on three international commercial terms and the supplier is asking him to choose one, the options available for the importer are EXW, FOB and CIF.

Guidelines

i. Explain to the importer his obligations in each of the 3 incoterms to enable him to make an informed decision.
ii. Explain to the customer the obligations of the seller in each of the 3 incoterms.
iii. Explain your obligations as a forwarder in each of the 3 incoterms.

1.12 Assessment Questions and Activities

1. Discuss the importance of carriage of good in international trade.
2. What is a contract of carriage and why is it important?
3. Discuss at least five (5) key parties and their roles in international carriage of goods.
4. What are INCOTERMS? Why are they important in international carriage of goods?

1.13 References

- Rodrigue, J., Comtois, C. & Slack, B. (2013). The Geography of Transport Systems, 3rd Edition. Routledge Francis Taylor.
- Wang, X. (2015). Operational Transportation Planning of Modern Freight Forwarding Companies. Springer
- CITES. (2021, 08 05). www.cites.org. Retrieved from https://cites.org/eng/resources/transport/index.php#2: https://cites.org/eng/resources/transport/index.php#2
- IATA. (2021, 09 02). https://www.iata.org/en/. Retrieved from www.iata.org: https://www.iata.org/en/
- KLG EUROPE. (2021, 09 10). 1968 Hague-Visby Rules. Retrieved from www.klgeurope.com: https://www.klgeurope.com/files/1968_hague-visby_rules.pdf
- LM-sisu-scribe. (2021, 09 14). Lex Mercatoria: - Convention on the Contract for the International Carriage of Goods by Road (CMR) - (Geneva, 19 May 1956). Retrieved from www.jus.uio.no: https://www.jus.uio.no/lm/un.cmr.road.carriage.contract.convention.1956/landsc
- UNCTAD. (2021, 09 13). United Nations Convention on the Carriage of Goods by Sea (Hamburg Rules) 1978. Retrieved from www.unctad.org: https://unctad.org/system/files/official-document/aconf89d13_en.pdf

2.0 WORLD GEOGRAPHY AND CLIMATE

2.1 Specific Learning Outcomes

At the end of this topic the trainee should be able to:

i. Identify the major world oceans and seas
ii. Identify the different world trade routes
iii. Discuss the world climate, weather, seasons and effects on cargo movement
iv. Identify sea ports, and inland terminals
v. Identify main world airport trade routes.
vi. Identify feeder services
vii. Describe the Hub and Spoke port-pair systems

2.2 Introduction

Extreme weather events, some of which are increasing in intensity and frequency, as well as slower onset climate changes (for example, sea level rise) and cumulative effects can result in transportation infrastructure damages, operational disruptions, and pressures on supply chain capacity and efficiency.

2.3 The Major World Oceans and Seas

The Arctic Ocean

The Arctic Ocean is divided by an underwater ocean ridge called the Lomonosov ridge into the 4,000-4,500 m deep Eurasian or Nasin basin and the 4,000 m deep North American or Hyperborean basin. The greatest inflow of water comes from the Atlantic via the Norwegian Current, although water also enters from the Pacific via the Bering Strait. Air traffic is common over the Arctic because it is the shortest route between the Pacific coast of North America and Europe. For boats, major ports are the Russian cities known as Murmansk and Arkhangelsk

The Southern Ocean

The Southern Ocean is the world's fourth-largest body of water. It encircles Antarctica and is actually divided among the Atlantic, Indian, and Pacific Oceans. Most people of North America and Continental Europe have no name for the area and regard the area as parts of the Atlantic, Pacific, and Indian Oceans simply extending to Antarctica. This ocean is predominantly deep water, averaging 4,000-5,000 m deep, and includes the Antarctic continental shelf, an unusually deep and narrow area with an edge of 400-800 m deep.

The Indian Ocean

The Indian Ocean is the third largest in the world and makes up approximately 20% of the Earth's water surface. It is bounded by southern Asia in the north, the Arabian Peninsula and Africa in the west, the Malay Peninsula, Sundra Islands and Australia in the east and the Southern Ocean in the south. The Indian Ocean is an important transit route between Asia and Africa.

The Atlantic Ocean

The Earth's second-largest ocean is the Atlantic, a name derived from the "Sea of Atlas" in Greek mythology. It covers approximately one-fifth of the entire global ocean. Water drains into the Atlantic from a land area four times the size of both the Pacific and Indian oceans. The geography of this ocean can be visualized by imagining a large S-shape basin extending north to south and divided into North Atlantic and South Atlantic by counter currents at the equator. In the west, the Atlantic stretches all the way to North and South America. In the east, the Atlantic is connected to the Pacific Ocean by the Arctic Ocean in the north and the south.

The Pacific Ocean

The Pacific is the world's largest body of water and was named by the Portuguese explorer Ferdinand Magellan who found the Pacific very peaceful for most of his journey from the Straits of Magellan to the Philippines. The Pacific Ocean covers a third of the Earth's surface, has an area of 179.7 million km^2 and extends about 15,500 km from the Bering Sea in the Arctic all the way to the icy waters of Antarctica's Ross Sea in the South. Its farthest western point is most likely the Strait of Malacca. The Pacific Ocean also contains the lowest point on earth and deepest part of the Ocean known as the Mariana Trench, an area that is 10,911 m below sea level.

The seas of the world include;

1. Mediterranean Sea
2. Red Sea
3. Black sea
4. Caspian Sea
5. Caribbean Sea
6. Sargasso Sea

2.4 The World Major Trade Routes

Container vessels navigate the ocean like trucks on busy highways, following specific shipping routes to and from the world's busiest seaports. These routes

support international trade by offering the fastest sailing times for ships carrying the goods we use and rely on every day.

These eight routes are the busiest shipping lanes for ocean cargo vessels:

The English Channel

Each day, more than 500 vessels cross the 350-mile-long English Channel — widely considered the busiest shipping lane in the world and a critical route in the European shipping network. Cargo vessels, carrying everything from oil to wheat, share the channel with passenger ferries, fishing vessels, pleasure craft and even the occasional swimmer. The body of water separates England from France and connects the North Sea and the Atlantic Ocean.

Strait of Malacca

A narrow, 580-mile stretch of water between the Malay Peninsula and the Indonesian island of Sumatra, the Strait of Malacca is the shortest sea route between India and China. It's one of the most heavily travelled shipping channels in the world and is a major route for oil transport and goods like Indonesian coffee, coal and liquefied natural gas.

Panama Canal

Completed in 1914, the Panama Canal is one of the most important international waterways, with more than 14,000 ships navigating it each year. The canal uses a system of three locks to raise the elevation of ships so they can travel across Gatun Lake (which is 85 feet above sea level) to reach the Pacific Ocean, a process that takes 8-10 hours. In comparison, bypassing the canal and traveling around Cape Horn at the southern tip of South America would take 2 weeks.

A $5.4 billion expansion in 2016 added a new lane of traffic to the Panama Canal, doubling its capacity and increasing the width and depth of the lanes and locks. It can now accommodate vessels carrying up to 14,000 TEUs (twenty-foot equivalent units).

Suez Canal

Providing the fastest crossing from the Atlantic Ocean to the Indian Ocean, the Suez Canal in Egypt is one of the world's most heavily used shipping lanes. It was completed in 1869 and is the first canal that directly links the Mediterranean Sea to the Red Sea. Because the narrow passage can't support two-way lanes, a trip through the 120-mile-long Suez Canal takes about 16 hours, with an average of 100 vessels completing the crossing each day.

Bosphorus Strait

Also known as the Strait of Istanbul, this narrow, natural strait in northwestern Turkey is 19 miles long and links the Black Sea with the world's oceans. It's one of the most important routes for transporting oil to regions including Asia and Western and Southern Europe. An estimated 48,000 ships move through the Bosphorus Strait each year.

Strait of Hormuz

The Strait of Hormuz is located in the waters of Iran and Oman in the Persian Gulf. Roughly 21 million barrels (or about one-third) of the world's sea-traded oil passes through the strait every day, headed primarily to Asian markets like India, China, Japan, Singapore and South Korea. Because it is just 21 miles wide at its narrowest point, ships moving through the strait are required to stay in separate inbound and outbound lanes, with a two-mile "median" or buffer zone between them as a safety measure.

The Danish Straits

With approximately 70,000 ships moving through them each year, the Danish Straits are some of the most trafficked channels in the world. They're made up of a system of three channels — the Oresund, the Great Belt and the Little Belt — that interlink the North Sea and Baltic Sea, and they provide a key pathway for oil shipping between Russia and Europe. The widest channel, the Great Belt, is the primary passage for large vessels.

St. Lawrence Seaway

Extending more than 2,300 miles from the Atlantic Ocean through Canada to the head of the Great Lakes, the St. Lawrence Seaway also called "Highway H2O" serves as a critical North American trade route. It was built in 1959 as a binational partnership between Canada and the U.S. and continues to operate that way. The St. Lawrence Seaway is not a single waterway; it's a system of locks, channels and canals extending from Montreal, Quebec to Lake Erie. It connects to more than 100 ports and commercial docks within the eight Great Lakes states, as well as the Canadian provinces of Ontario and Quebec. It's also a critical network for transporting goods between North America and 60 overseas markets, with more than 160 million metric tons of general cargo moving across the seaway each year.

2.5 The Major Intercontinental Routes in Airfreight

1. North Atlantic route (USA – Western Europe)
2. Asian/Pacific Destinations (USA)
3. Asian/Pacific Destinations (Europe)
4. Europe – Latin America
5. Europe – Africa
6. Europe – Middle East

2.6 World Climate, Weather, Seasons and Effects on Cargo Movement

Influence of climate, weather and seasons in international carriage of goods

Weather variation is the temporal stochastic variation of temperature, precipitation and other weather variables. Natural disasters are major adverse events resulting from natural processes which may cause serious damage and the death of human beings. Except for geological or space disasters, they are usually related to extreme outcomes of weather variables. Climate can be defined as the long-term distribution of weather variables. Hence, climate change refers to a change in the stochastic long-term distribution of weather. The key insights are that global average temperature increased by 0.85 °C between 1880 and 2012, precipitation patterns have changed, and the frequency and intensity of extreme weather events have increased in many parts of the world.

Natural disasters and weather variations may affect trade through different channels as explained below:

Direct Impacts of Climate Change on International Trade

- Climate change will impact trade through a number of channels, not all of which can be easily quantified. One prominent explanation for the rise in international trade in the last decades was a decline in international transportation costs. One key direct effect of climate change is that supply, transport, and distribution chains might become more vulnerable to disruptions due to climate change, thereby affecting future international trade patterns.
- Extreme weather events, for instance, may lead to the temporary shutdown of ports and transport routes; they might also damage infrastructure critical to trade and thus have longer-lasting effects. These and other interruptions can lead to delays, increase the costs of international trade, and could lead to a shift in trade patterns as companies involved in trade seek alternatives to increase reliability of shipping.
- Several issues on direct impacts of climate change on trade require further clarification. With uncertainties on the pace and extent of the logistical barriers, the lack of infrastructure, harsh weather conditions, short winter days, and on how melting ice may affect the stability of the Arctic climate, it is difficult to predict how large an effect Arctic shipping may have on international trade.
- Furthermore, infrastructure in developing countries may become more climate-resilient in the future as a result of international development support, not least when donor mainstream climate considerations in their development assistance. These remain key areas for further analysis.

The Indirect Consequences of Climate Change on International Trade

- Some sectors are directly impacted by specific climate impacts (e.g. services sectors are affected by health impacts, energy sectors by energy demand impacts). However, there are also substantial indirect effects that are induced by the full range of price changes that follow climate impacts. For example, impacts on the energy demands affect energy prices and thus induce changes in production in energy intensive industrial sectors.
- As another example, capital destruction from sea-level rise affects all sectors through changes in the marginal productivity of capital. Of the impacts modelled in few analysis by IPCC and FAO, changes in crop yields and in health (labour productivity) are projected to have the largest negative consequences on the macro economy, causing loss to annual global GDP of 0.9% and 0.8%, respectively, by 2060 for the central projection of the climate damages scenario.
- The GDP impacts of climate change damages as projected with the ENV-Linkages model *(The OECD ENV-Linkages Computable General Equilibrium (CGE) model is an*

economic model that describes how economic activities are inter-linked across several macroeconomic sectors and regions) can also be decomposed into changes in each specific primary factor of production. Climate impacts may directly affect labour, capital, land and natural resources. These direct effects have been calculated by multiplying the percentage change in productivity with supply of these production factors at their no-damage baseline levels of use, i.e. before any endogenous market adaptation effects. The indirect effects can be calculated as the difference between the total effect and the direct effect. For capital, the situation is different, as its supply is flexible in the long run, since consumers can adjust their savings patterns in response to changes in the economic situation. Thus, there is an additional effect, as changes in income levels affect savings and hence future capital accumulation. Thus, the climate impacts not only affect the level of GDP, but also the growth rate, through reduced capital accumulation.

- The volume of international trade is projected to be affected by climate change to more or less the same extent as global GDP. The world exports may decrease by 1.8% in 2060, relative to the baseline without climate damage, while global imports and GDP would be reduced by 1.6% (expressed in 2010 USD using PPP exchange rates).
- At the global level, the decline in exports is larger than that of imports, as both are measured in different prices (FOB and CIF, respectively). In principle, one could expect that increased trade flows are necessary to compensate for production losses in the most affected economies. However, as indicated by the GDP losses, there is a global contraction of final demands (compared to the no-damage baseline), and given the imperfect substitution between domestic and foreign goods and services, this will imply a reduction in both production and trade.

2.7 Sea Ports, and Inland Terminals

African ports have gained popularity over the years due to their very successful port management partnerships. These ports are responsible for a majority of the Africa's imports and exports.

2.7.1 Top 10 Ports in Africa

1. **Port Durban**
   This is the busiest port in Africa. Durban is one of the largest cargo ports in Southern Africa, with at least 59 berths. To this day, the port continues to expand and develop new areas. The port is linked to critical industrial areas.
2. **Port of Richards Bay**
   Port Richards Bay is one of the largest ports in the entire world and is around 40 years old. It is the leading coal export terminal internationally and is located quite close to the Durban port.
3. **Port of Mombasa**
   Mombasa port is Kenya's primary port and the main gateway for cargo belonging to a large hinterland of eastern and central Africa including the land linked countries of Uganda, northern Tanzania, Burundi, Rwanda, South Sudan, and the eastern regions of the Democratic Republic of Congo. The port is connected to Mogadishu, Dar es Salaam using a regular feeder system, and transshipment hubs such as Djibouti, Durban, and Salalah. Mombasa is both a feeder port and an important regional port. The port is home to two container terminals.
4. **Port Dar es Salaam**
   The port of Dar es Salaam (DSM) is located in the centre of Tanzania on the coast of the Indian Ocean, handling about 95% of Tanzania's international trade. Geographical position of Tanzania plays an important role in the logistic chain offering DSM Port with competitive advantage to serve a large hinterland, including the land linked countries of Burundi, Rwanda, Malawi, Zambia, and the Democratic Republic of Congo (DRC). In terms of the typology, Dar es Salaam is considered an important regional port. As a result, transit volumes represent approximately 35% of the total cargo throughput in the port of Dar es Salaam.

5. Port of Beira

This particular port is connected to the Pungue River and is one of the key ports of Africa. Its connection to Zimbabwe, Malawi, and Zambia via railways and roads is one reason why this port is so important. Port Beira also has a direct connection to Europe, Asia, and the Middle East through the sea.

6. Port Djibouti

One of the qualities of Port Djibouti, other than its exotic name, is its link to Ethiopia by rail. It also has the added advantage of being connected to over 40 international companies by being the main transit for imports and exports. This port is known for being the most efficient port in the trading business and is busy year-round. Traders and importers often have to book shipments in advance if they want to use Port Djibouti.

7. Port Suez Canal Container Terminal

This port is one of the most modern ports in Africa. Only a decade after its construction, the port gained a name for itself in the trading community. The Suez Canal port provides a huge geographical asset for Egypt to Africa. It is also a favourite for international collaborators and tourists.

8. Port Lagos

Port Lagos is one of the most famous ports of West Africa. Located in Nigeria, it is divided into three sections: The Lagos Port, Tin Can Port, and the Apapa Port. Each section is artfully situated in the Gulf of Guinea. It is connected to all close countries like Benin, Niger, and Cameroon.

9. Port Walvis Bay

This port is primarily responsible for the import and export business in Namibia, West Africa. When foreign exporters look into the African market, this port is their go-to choose, as it is one of the friendliest options in terms of business. The port is a beautiful destination and a great place for beginner import and exporters.

10. Port Saldanha Bay

This port is one of the oldest in Africa. It has been around since the 1970s and acts as a gateway to other continents and countries. Port Saldanha Bay is one of Africa's most efficient ports, and it has truly earned its name by modernizing itself with the times. Each year Saldanha Bay port makes accommodations for new businesses and increasing trade, making it a hotspot for foreign exports.

2.7.2 The 10 Busiest Seaports in the World

These are ranked by the total number of TEUs that travel through each location:

1. Shanghai Port

The Port of Shanghai took over, from its Singaporean counterpart, the title of the world's biggest port in the year 2019 handling a whopping 43.30 million TEUs of cargo volume. The port forms a very viable maritime porting channel for the River Yangtze and the East China Sea. The construction and development of the port have been acclaimed to be the crucial factor in the development of the city of Shanghai.

2. Singapore Port

Considered to be one of the world's leading busiest ports, the Singapore port is a collective identification to all porting terminuses encompassed with the port. Singapore has been instrumental in helping to re-shape the Singaporean economic system. Regarded to be the biggest hub for transshipment activities, about 30.9 million Twenty-Feet Equivalent Units (TEUs) were handled by the port in 2019.

3. Shenzhen Port

The port of Shenzhen caters to industrial units and companies situated on the delta of the River Pearl. It was in number 3 position with a total volume of trade > 24 million TEU in 2019. The port is regarded to be the second most engaged shipping port in China, especially in the Southern part of the Chinese mainland.

4. Ningbo Port

Another Chinese porting facility, the Ningbo port is a highly regarded port in the country of China. This is mainly because it helps facilitate ease in the marine activities carried out between the Northern and Southern part of the country. The Ningbo recently made headlines as it was effectively merged with the port of Zhoushan to help better the nation's freight handling operations doing a whopping ~21 million TEU trade in 2019.

5. Port of Busan

Catering to the South Korean city of Busan as a leading contributor to its economic activities, the port of Busan features fifth in this list. Its container handling touched a figure of over 19.9 million TEUs in the year 2019, making it a veritable challenger to its other Asian counterparts, in the years to come.

6. Port of Hong Kong

Serving to the South China Sea and a pivotal factor in the advancement of the Hong Kong province, the port of Hong Kong is the third on this list. Its inclusion as one of the busiest marine ports dates to as early as 1987 when it was rated as the top-most busiest port. In the year 2019, it did a trade of >19.7 million TEUs.

7. Port of Guangzhou

The nation's busiest port in its Southern part, the port of Guangzhou caters of its namesake city. It's a primary port for general transit and core shipping activities carried out in the surrounding provinces along with helping marine activities in the delta of the River Pearl. It recorded a trading volume of >18.9 million TEUs in 2019.

8. Port of Qingdao

The port of Qingdao caters to the province of Qingdao, located near the River Yellow. The port is well-known for handling bulk carrier (dry bulk) vessels, with its handling figures, crossing 18 million TEUs in 2019.

9. Port of Dubai

The port of Jebel Ali in Dubai is yet another star-studded attraction to the emirate of Dubai, of the United Arab Emirates. In 2019, the port recorded a TEU-handling of over 15.7 million, which was monumental.

10. Port of Tianjin, China

The port of Tianjin, which is in the Northern Part of China. It was formerly known as Port of Tanggu and considered to be the main Maritime Gateway to Beijing. The Port of Tianjin handled a Trade volume of 14.5 million TEUs in 2019.

2.7.3 Inland Container Depots

ICDs are sometimes referred to as Container Freight Stations [CFS], Inland Port Depots or dry ports because they are inland (away from the sea), intermodal terminals directly connected by road or rail to a seaport and operate as centres for the transshipment of sea cargo to inland destinations. In addition to their role in cargo transshipment, ICDs may also include facilities for storage and consolidation of goods, maintenance for road or rail cargo carriers and customs clearance services. Dry ports in the region include; the Nairobi ICD is located within a fenced area of 18.7ha at Embakasi and has a capacity of 180 000 TEU per annum, the Kisumu ICD in Kibosis designed for a capacity of 15,000 TEU per annum, the Naivasha ICD in Naivasha designed for a capacity of more than 418000 TEU per annum as per 2019 statistics, Masaka ICD in Rwanda was open in 2019, Multiple ICD in Nakawa Kampala, Maina ICD in Nakawa, Liberty ICD in Namanve among others.

These depots are linked to the Mombasa Port container terminal by a rail or truck service. Imports are delivered directly from Mombasa to the depots on a Through Bill of Lading, while exports can also be consolidated at the ICDs and railed to the Port for shipping.

2.8 World Airport Trade Routes

The following list is based on figures from Airports Council International (ACI) and displays the top 10 airports in order of tons of cargo handled in 2019. Figures are calculated by totalling all loaded and unloaded freight and mail at each airport throughout the course of the year.

1. **Hong Kong International Airport (HKG)**
   The world's busiest airport for 10 consecutive years in a row, Hong Kong International Airport is the main airport for the region and handled almost half a million tons more than its closest competitor airport in 2019. Tons of cargo handled: 4,809,485 Compared to 2018: 6.1 per cent decrease
2. **Memphis International Airport (MEM)**
   A civil-military airport, Memphis International Airport is home to the FedEx Express global hub, which processes the majority of the company's packages, subsequently resulting in such a high position in the list for the airport. Tons of cargo handled: 4,322,740 Compared to 2018: 3.3 per cent decrease
3. **Shanghai Pudong International Airport (PVG)**
   One of two international airports in the region, Shanghai Pudong International Airport is a major hub in the Chinese

aviation industry, serving predominantly international flights. Tons of cargo handled: 3,634,230 Compared to 2018: 3.6 per cent decrease

4. **Louisville Muhammad Ali International Airport (SDF)**
   A civil-military airport located in Kentucky, Louisville Muhammad Ali International Airport is home to a major UPS hub and is one of the most significant cargo facilities in the U.S. Tons of cargo handled: 2,790,109 Compared to 2018: 6.4 per cent increase
5. **Incheon International Airport (ICN)**
   The largest airport in South Korea, Incheon International Airport is one of the main transport hubs in Northeast Asia and is the national gateway to the Republic of Korea. Tons of cargo handled: 2,764,369 Compared to 2018: 6.4 per cent decrease
6. **Ted Stevens Anchorage International Airport (ANC)**
   Named after a U.S senator from Alaska, Ted Stevens Anchorage International Airport is equidistant from Tokyo and New York, meaning it is situated less than 9.5 hours from 90 per cent of the industrial world. Tons of cargo handled: 2,745,348 Compared to 2018: 2.2 per cent decrease
7. **Dubai International Airport (DXB)**
   Dubai International Airport is the primary international airport serving Dubai and is used as a service hub for the majority of local airlines. Tons of cargo handled: 2,514,918 Compared to 2018: 4.8 per cent decrease
8. **Doha Hamad International Airport (DOH)**
   The sole international airport in the state of Qatar, Doha Hamad International Airport is operated by Qatar Airways and rapidly becoming an increasingly important aviation hub. Tons of cargo handled: 2,215,804 Compared to 2018: 0.8 per cent increase
9. **Taiwan Taoyuan International Airport (TPE)**
   One of four international airports in the region, Taiwan Taoyuan International Airport is the largest and busiest, serving Taipei and northern Taiwan. Tons of cargo handled: 2,182,342 Compared to 2018: 6.1 per cent decrease
10. **Tokyo Narita International Airport (NRT)**
    Formerly known as New Tokyo International Airport, Narita International Airport serves the Greater Tokyo Area of Japan. Tons of cargo handled: 2,104,063 Compared to 2018: 6.9 per cent decrease.

2.9 Feeder Services

Transportation operations in which cargoes are shipped by water in smaller vessels to/from a load-centre port for loading to or unloading from larger ocean-going vessels. Also, local transit services that pick up and deliver passengers to a rail transit station or express bus stop, transfer point, or terminal.

From the beginning of containerization, it was commonly believed that shuttle operations would decrease the cost of container liners. The required shuttle transportation can be executed by road, rail and sea feeder services depending on specific conditions. Rail service can be an effective inland transportation mode as long as distance, volume and geographic conditions are feasible. Road transportation can be selected in low volume short distance cases where rail service is not provided, and sea feeder service is preferred on relatively long distances where geographically appreciable demand exists. However, until the development of modern liner shipping networks, sea-based feeder services were not preferred unless road/rail transport was impossible (i.e. to island markets) due to extra transhipment costs and longer transit time. In the early years of containerization, a deep-sea containership was calling at a relatively large number of ports.

2.10 The Hub and Spoke Port-pair Systems

A HUB is a central point where cargos are routed through, and **SPOKES** are the routes that cargo take out of the hub. Most major carriers have multiple hubs. They claim that hubs allow them to offer more economically viable routes.
The purpose of the hub-and-spoke system is to save carriers money and give cargo better routing to destinations. Space is the most valuable commodity that carriers have to offer, and every space on the vessel/Aircraft/Truck/Train etc. has certain set costs. Each compartment on the vessel represents a portion of the total cost. For each compartment

that is filled with cargo, the carrier lowers the break-even price, which is the space price at which carrier stops losing money and begins to show a profit on the route taken.

Freight volumes via maritime transport have grown considerably given the rapid development in international trade and globalization. The liner shipping industry became complicated due to the involvement of multiple players with strategic alliances and the cascade effect supported by vessel size increases.

In hub and spoke networks, shipping lines can accept cargo destined to different feeder markets not directly served by mainline vessels. Furthermore, these networks create economies of scale advantages for mainline services by deploying larger capacity vessels for the network's trunk route. Due to the enlargement of container vessel sizes and the infrastructure limitations in minor ports, hub and spoke networks are extensively used in the liner business

2.11 Learning Activities

1. Download a map of the World and identify the following from the maps
   i. The major world oceans and seas
   ii. The different world trade routes
   iii. Identify main world airport trade routes.

2. Download a map of Africa and identify the following from the maps
   i. The main seas ports and inland terminals
   ii. The main trade routes
   iii. The main airport trade routes

2.12 Assessment Questions and Activities

1. Discuss the effects and implications of world climate, weather, seasons and on cargo movement
2. Discuss the role of feeder services in transportation and cargo movement
3. Describe the role of Hub and Spoke port-pair systems in transportation and cargo movement

2.13 References

- Rodrigue, J., Comtois, C. & Slack, B. (2013). The Geography of Transport Systems, 3rd Edition. Routledge Francis Taylor.
- Wang, X. (2015). Operational Transportation Planning of Modern Freight Forwarding Companies. Springer
- Bektas, T. (2019). Freight Transport and Distribution Concepts and Optimization Models. Routledge
- Monios, J. & Bergqvist, R. (2020). Intermodal Freight Terminals: A Life Cycle Governance Framework. Routledge
- UNCTAD. (2021, 09 13). United Nations Convention on the Carriage *of Goods by Sea (Hamburg Rules) 1978.* Retrieved from www.unctad.org: https://unctad.org/system/files/official-document/aconf89d13_en.pdf

3.0 MODES OF TRANSPORT FOR GOODS

3.1 Specific Learning Outcomes

At the end of this topic the trainee should be able to;

i. Identify different transport infrastructure types
ii. Discuss the commercial and logistical considerations for their selection of transport mode and operation factors
iii. Evaluate the different modes of transport
iv. Determine the appropriate mode of transport for goods

3.2 Introduction

Transportation modes are essential components of transport systems since they are the means of supporting mobility. Modes can be grouped into three broad categories based on the medium they exploit:

i. Land
ii. Water
iii. Air.

Each mode has its own requirements and features and is adapted to serve the specific demands of cargo traffic. This gives rise to marked differences in how the modes are deployed and utilized in different parts of the world. More recently, there is a trend towards integrating the modes through intermodality and linking the modes even more closely into production and distribution activities. At the same time, however, passenger and freight activity are becoming increasingly separated across most modes

3.3 Different Transport Infrastructure Types

These are foundational structures and systems for transporting both cargo and people and they include some of the following

1. Road networks these may include highways, Streets and Avenues
2. Railways including Standard Gauge, high speed rail, subways and elevated railways such as a cable car.
3. Airports and airport Terminals
4. Stations for railways, Bus Terminals
5. Bridges & Tunnels.
6. Air Routes.
7. Waterways
8. Canals

3.4 Factors to Consider When Selecting Mode of Transport

Whether the movement of freight is by rail, sea, air or road, adequate facilities for their free movement from point A to B must be ensured. The factors may impact free flow movement have been discussed below:

1. Transport Costs

When choosing how to best transport products for import or export, your budget should be the most important factor when making decisions. Costs can vary based on the type and amount of goods that need to be transported. Bear in mind that the cost of transport will influence the cost of goods. If you are transporting heavy or bulky products over a long distance inland, rail transport will be the most economical.

Land transport, typically by trucks, is best suited for small amounts of goods being transported over short distances. It also saves packing and handling costs. Water transport is without a doubt the cheapest mode of transport, and very suitable for heavy or bulky goods that need to be transported over long distances where time is not an important factor. For the transportation of perishable, light or valuable goods, air transport will be the most efficient mode of transport to use, although it is expensive.

2. Reliability and Regularity of Service

Transport modes differ in reliability and regularity. Your decision on which mode of transport to use will be influenced by the urgency and speed by which you would like your goods to be delivered. Land, ocean and air transport are usually affected by bad weather such as heavy rains, snow, fog and storms which may cause delays.

3. Safety and Security

Safety and security of goods in transit also influence which mode of transport to use. Land transport by truck may be preferred to railway transport because your losses are generally less. Water transport exposes the goods to the perils of the sea; hence from a safety point of view, sea transport is the riskiest. Also, to protect the goods in transit, certain types of packaging are recommended, which might influence costs. Goods may also require special facilities such as refrigeration or special security measures that need to be taken into consideration.

4. Characteristics of goods

The size and weight of goods also play a role in deciding which mode of transport to use. Land and air transport cater mainly for light and small shipments while rail- and sea transport cater for heavy shipments. Choosing a mode of transport to use will also be dependent on how dangerous, fragile or of high value the products are. Air and land transport are usually the best option to use for breakable products of high value.

5. Transit Time

The relative locations of the customers and suppliers determine largely the transit time for raw materials, spare parts and finished products. There is a general impression that, if need be, transit time can be drastically cut at any time by air-lifting a consignment. Apart from the fact that the neglect of transportation planning leads to an overall higher cost of transportation, in practice, reduction in transit time achieved may not justify the heavy cost of air transport. Rough estimates of transit time from unreliable sources are generally utilized for planning movements of goods. Although more detailed information sources may be readily available. It is essential therefore, that executives clearly understand the difference between:

i. Normal transit time under normal conditions;
ii. Normal transit time under abnormal conditions;
iii. Optimal transit time;
iv. Most optimistic transit time
v. Most pessimistic transit time; and
vi. Desirable transit time.

6. Packaging

The nature of packaging of a product is often determined by the mode of its transport. E.g. Because of the dry conditions of carriage, short transit times and minimum handling, air cargo generally requires much less packaging than other forms of long distance transport. Goods dispatched by air may require only a dust cover or even no cover at all. In some cases, savings on the packaging of sophisticated products may more than pay for the actual transport charges. Less packaging may lead to other advantages too. These include lower unpacking costs and lower chargeable weight for freight.

6. Terminal Facilities

Terminal facilities are usually grudgingly provided. One reason for this is that any delay or any inconvenience caused to truck operators, rail operators, airlines and shipping lines is treated as a loss to the carrier. Often extreme stinginess is expressed in planning for these facilities, which include storage space, loading and unloading arrangements in a suitable area. If the storage space is not adequate or if the traffic is exceptionally heavy, Transport suffers inevitably.

7. Insurance

Insurance risks are based on transit time as well as the possibility of damages enroute. With faster transit times, skill full handling, substantial reduction in damage and greater security in transit, insurance premiums tend to fall substantially.

Other factors to keep in mind

- The terms of the export sales contract, e.g. the buyer may stipulate that a particular mode of transport should be used.
- The location of the foreign market – naturally a destination on another continent will eliminate the road and rail option for the main transport leg.
- The location of the overseas buyer in relation to airports, seaports and railway stations.
- The facilities at the port of destination, e.g. whether there is bulk handling or container handling equipment.

3.5 Evaluating Different Modes of Transport

1. Dependability

It means whether the service can be used throughout the year in all climatic conditions or not. Railway Provide more dependable service as compared to water or air transportation and Road transport can be operated in extreme conditions like fog etc. but at lower speed.

2. Flexibility

i. **Route Flexibility:** Can we take any route any time (Not possible in case of railways)
ii. **Time flexibility:** Can the vehicle move or stop any time (for Railways, time scheduling is done to maintain certain distance between two trains moving on the same track in same direction)
iii. **Vehicle Flexibility:** Whether various types of vehicles can be used on the facility or not. In case of railways, different types of vehicles cannot use the track.

3. Adaptability
Whether the system can be used in extreme conditions like gradients or not? The steeper gradients should be avoided in case of Railways and air transport can be provided

4. Safety
Includes safety of vehicles and goods. It has two aspects

i. Accidents:
- Number of accidents
- Intensity of accidents

Railway accidents are lesser in number but of high intensity as compared to road accidents. Air and pine line accidents are always fatal and water accidents results in huge losses.

ii. Operational Control:

With the help of operational control, we can enhance the safety of the system.

5. Hauling Distance
It is the distance up to which we can transport the goods. For short/medium distances, road transport is the most suitable, for medium/long distances, railways are suitable and for very long distances, air transport or water transport is suitable.

6. Speed/Time of delivery
Air transport is the most suitable for urgent and time sensitive cargos. However, these goods must meet the requirements of air transport. In case of railway, journey/Travel time can be reduced by high speed as there is no delay due to traffic jam as in case of road transport, for bulky and heavy cargos where time is not of great importance then water transport would be the ideal and road transport for short haulage would be ideal.

In conclusion therefore it is better to concern a variety of modes used in combination so that the respective advantages of each mode are better exploited. Containerization has been a powerful vector of intermodal integration, enabling maritime and land transportation modes to interconnect more effectively.

3.6 Determining the Appropriate Mode of Transport for Goods

Modal Selection
The principal first level of choice depends on the nature of the product. It must make economic sense given product characteristics to ship on a given mode. If product characteristics allow a modal choice to exist, the decision is heavily weighted towards cost and capacity with firms being increasingly motivated, both by regulations and corporate citizenship, to factor in environmental concerns in their decision.

1. Cost
Cost Given the recent economic downturn and slow recovery caused by the Covid-19 pandemic, keeping costs at a minimum is still near the top of the list for many business's initiatives. This is a very important aspect of all areas within a business that will always gain a great deal of attention, for the simple fact that the bottom line is what keeps a business afloat. Water transport is the cheapest mode of transport. It is suitable to carry only heavy and bulky goods over long distances where time is not an important factor. Air transport is the costliest means of transport but is particularly suited for carrying perishable, light and valuable goods which require quick delivery.

2. Speed of Transport:
Air transport is the quickest mode of transport, but it is costliest of all. Motor transport is quicker than railways over short distances. However, the speed of railways over long distances is more than that of other modes of transport except air transport and is most suitable for long distances. Water transport is very slow and thus unsuitable where time is an important factor.

3. Flexibility:
Railways, water and air transport are inflexible modes of transport. They operate services on fixed routes and at pre-planned time schedules. The goods have to be carried to the stations, ports and airports and then taken from there. Motor transport provides the most flexible service because it is not tied to fixed routes or time schedules. It can operate at any time and can reach the business premises for loading and unloading.

4. Regularity of Service:
Railway service is more certain, uniform, and regular as compared to any other mode of transport. It is not much affected by weather conditions. On the other hand, motor transport, ocean transport and air transport are affected by bad weather such as heavy rains, snow, fog, storms etc.

5. Safety and Security:
Transportation security is an issue that has created more buzz than usual over the past couple of

years. Of course, depending on the product being shipped, security has a varying level of importance to different shippers. Safety and security of goods in transit also influence the choice of a suitable means of transport. For example, if Company A ships hazardous chemicals, they will pay special attention to security and the carrier's ability to maintain the highest levels of compliance when transporting their products such that it is delivered in manner that's does not change its state and usefulness.

6. Nature of Commodity:

Another factor that often is left out of discussions on transportation selection is looking at the actual physical characteristics of what is being shipped. This idea of looking at the physical characteristics and needs of a product is what creates the first threshold for modal selection, making it the primary factor taken into consideration. Product characteristics also play an important part if the product has a special trait, such as temperature or special handling requirements. These product characteristics will automatically limit the pool of carriers the company has to select from. Rail transport is most suitable for carrying cheap, bulk and heavy goods. Perishable goods which require quick delivery may be carried through motor transport or air transport keeping in mind the cost and distance.

7. Service

In regard to modal selection, service does have a very large role to play. Although product characteristic seems to be the primary driving factor that "sets the stage" for the decision. However, similar to product characteristics, service levels also seem to create somewhat of a threshold for modal selection. If the mode does not meet a given level of service required by the company for a particular product, this mode simply will not be considered as an option. This, of course, is not always the case. For example, if an emergency arises with an important customer, the general trend is that service will instantly become the most important factor in modal selection because that relationship with an important customer is vital to any company's profitability.

8. Other Considerations

Several special services such as warehousing, packing, loading, and unloading are also taken into consideration while deciding about a mode of transport. From the above discussion it is clear that each mode of transport is suited for a particular type of traffic.

In Conclusion we realise that there surely are a number of factors that firms take into consideration when making the modal and carrier selection many of these factors often tend to play a part in the modal and carrier selection decision simultaneously, and not as part of a stepped process as was previously assumed.

3.7 Learning Activities

1. Transport infrastructure is critical to the transportation of goods. Identify the most prevalent transport infrastructure in your country. What are the challenges in using the different transport infrastructure in the transportation of goods in the region?
2. Using the trade routes, you discussed in the last topic, identify the various transport infrastructure you would use in transporting goods from Guangzhou in China to Bujumbura in Burundi; Mwanza in Tanzania; Bukoba in Uganda.

3.8 Assessment Questions and Activities

1. Discuss at least five (5) critical factors in the selection of transport infrastructure.
2. What criteria would you use in evaluating the different modes of transport?

3.9 References

- Rodrigue, J., Comtois, C. & Slack, B. (2013). The Geography of Transport Systems, 3rd Edition. Routledge Francis Taylor.
- Glass, D. (2012). Freight Forwarding and Multi Modal Transport Contracts, 2nd Edition. Routledge
- Wang, X. (2015). Operational Transportation Planning of Modern Freight Forwarding Companies. Springer
- Bektas, T. (2019). Freight Transport and Distribution Concepts and Optimisation Models. Routledge
- Monios, J. & Bergqvist, R. (2019). Intermodal Freight Transport and Logistics. Routledge
- Monios, J. & Bergqvist, R. (2020). Intermodal Freight Terminals: A Life Cycle Governance Framework. Routledge
- IATA. (2021, 09 02). https://www.iata.org/en/. Retrieved from www.iata.org: https://www.iata.org/en/
- ICE CARGO. (2021, 08 05). www.icecargo.com.au. Retrieved from https://www.icecargo.com.au/out-of-gauge-cargo/: https://www.icecargo.com.au/out-of-gauge-cargo/
- Polich, M. (2017, 06 05). www.glc.org. Retrieved from https://www.glc.org/wp-content/uploads/Oil-Transporation-Regulations-Polich-2017.pdf: https://www.glc.org/wp-content/uploads/Oil-Transporation-Regulations-Polich-2017.pdf
- UNCTAD. (2021, 09 13). United Nations Convention on the Carriage of Goods by Sea (Hamburg Rules) 1978. Retrieved from www.unctad.org: https://unctad.org/system/files/official-document/aconf89d13_en.pdf

3.10 CARRIAGE OF GOODS BY SEA AND INLAND WATER WAYS

3.11 Specific Learning Outcomes

At the end of this topic the trainee should be able to;

i. Explain the meaning of sea transport
ii. Identify the rights and duties in the frameworks of international conventions
iii. Analyze the forms of sea transport
iv. Identify Documentation in sea transport
v. Select criteria for sea transport
vi. Make the contracts of affreightment
vii. Evaluate the sea transport

3.12 Introduction

Sea transport or more generally waterborne transport is the transport of people/passengers or goods/cargo via sea or waterways. Freight transport by sea has been widely used throughout recorded history. The advent of aviation has diminished the importance of sea travel for passengers because of the time passengers take in transit especially over long distances. Transport by water is relatively cheaper than other modes for long hauls.

Maritime transport can be realized over any distance by boat, ship, sailboat or barge, over oceans and lakes, through canals or along rivers. Shipping via water may be for commercial, humanitarian, recreation, or for military purposes.

While extensive inland shipping is less critical today, the major waterways of the world including many canals are still very important and are integral parts of worldwide economies. Virtually any material can be moved by water as long as the delivery time is not critical.

3.13 The Rights and Duties in the Frameworks of International Conventions

The major rules and regulations in sea transport are;

i) The Hague Rules (1924),
ii) Hague-Visby Rules (1968),
iii) Hamburg Rules (1978) and
iv) Rotterdam Rules (2008)

With the exception of the **Rotterdam Rules**, all the other rules and regulations are in force. Majority of the countries have legislations giving effect to The Hague-**Visby Rules** while 34 countries have the **Hamburg Rules** in force.

3.14 Summary of the first 10 articles of The Hague - Visby Rules

Article I of The Hague Visby rules sets out some of the definitions. It gives the definitions for Carrier, Contract of carriage, Goods, Ship, and Carriage of goods.

Article II is a statement that a carrier cannot shy away from his responsibilities as set out in the articles of The Hague Visby rules.

Article III lists the responsibilities of the carrier some of which include but not limited to:

- Make the ship seaworthy
- The ship should have minimum manning as per Minimum safe manning certificate.
- The holds should be clean and fit to receive the cargo
- Carrier needs to issue bill of lading after loading of the cargo Shipper needs to give correct information related to the cargo loaded. Article III indemnifies the carrier of all the losses and delays because of such inaccuracies. As per article 3, rule 6 the carrier will be discharged from all liabilities unless the shipper sues the carrier within one year from the delivery of the cargo. As per article 3, rule 6, the goods will be considered delivered upon removal from the ship unless notice of loss or damage is given within three days.

Article IV: While article III gives the responsibilities of the carrier, article IV gives some of the exemptions to these responsibilities. In simple words, a carrier will not be responsible for the damage, loss or delays if he had not caused it intentionally, provided the carrier had exercised due diligence. Due diligence is a broad term and several cases have shown that it is not easy for the carrier to show that they exercised due diligence. In most of the cargo claims, shippers would claim damages by trying to prove that the carrier did not fulfil his duties as per article III. Carrier will claim innocence by trying to prove that the delay, loss or damages were not in his control. Carrier would claim exemption under article IV.

Claiming exemption under article IV is not easy for the carrier though. For claiming the exemption as per article IV, the carrier would claim that he did whatever possible to prevent the damage. Also that the damages occurred because of the factors which were not in his direct control. As per article IV, the burden to prove this is on the carrier and it can be very difficult to prove.

For example, let us assume a situation where damage to the cargo was caused by the fault of the ship's crew. The carrier can try to claim an exception under article IV (2a). Article IV (2a) gives immunity to the carrier in case the damages were caused by the fault of the ship crew. But in reality it is not easy for the carrier to claim an exception in this case. This is because the court would examine many factors to analyse if the carrier performed due diligence. In this example the court could analyse if the company's SMS manuals have the proper guidance and checklists which ship crew could have followed to prevent this damage.

Article V: Article V gives the liberty to the carrier to increase his responsibilities and liabilities. Article V also gives the right to the carrier to surrender his rights and immunities (for example as per article IV) provided by The Hague Visby Rules.

Article VI: Article VI gives complete freedom to the shipper and carrier to enter into any agreement irrespective of what is required by other articles of Hague Visby rules provided. This agreement does not contradict the public policy. No bill of lading is issued in this case. This article cannot apply to ordinary commercial shipments and there should be reasons to have this special agreement.

Article VII: Article VII is a simple statement of fact. It states that Hague-Visby Rules define the carrier's responsibilities from the time of loading to the time of discharge. A shipper and carrier are free to decide the extent of responsibilities and liabilities before loading and after discharge.

Article VIII: As per Article VIII, if there is any other statutory law related to the limitation of liability of the carrier, that law will take precedence over these rules.

Article IX: Article IX is again self-explanatory. This article states that if these rules contradict any international convention or national law, that convention or law will have the priority.

Article X: This article states to which contracts or bill of ladings The Hague Visby rules would apply. As per article X, the application of these rules falls in two categories.

1. **Application by force of statute (Article X, a & b).** That is if the bill of lading is issued in the country which has ratified The Hague Visby rule, The Hague Visby rule will apply to that bill of lading. Or if the load port is in a country which has ratified Hague Visby Rules, these rules will apply to the bill of lading issued for the cargo loaded.
2. **Application by agreement between two parties.** This means that even if The Hague Visby rules do not apply as per Article X (a or b), if the carrier and shipper has mentioned in the bill of lading that Hague Visby rules would apply then these rules will apply to the bill of lading.

3.14.1 Summary of the first 10

Articles of The Hamburg Rules

Article I: of the Hamburg rules sets out some of the definitions. It gives the definitions for Carrier, Actual Carrier, Shipper, consignee, Contract of carriage, and bill of lading.

Article II: gives the scope of application to all contracts of carriage by sea between two different States.

Article III: Interpretation of the Convention and application of the provisions of this Convention regard shall be had to its international character and to the need to promote uniformity.

Article IV: The responsibility of the carrier for the goods under this Convention covers the period during which the carrier is in charge of the goods at the port of loading, during the carriage and at the port of discharge.

Article V: Gives the basis of liability to the carrier. The carrier is liable for loss resulting from loss of or damage to the goods, as well as from delay in delivery, if the occurrence which caused the loss, damage or delay took place while the goods were in his charge as defined in article 4, unless the carrier proves that he, his servants or agents took all measures that could reasonably be required to avoid the occurrence and its consequences.

Article VI: Gives the limitation of liability by the carrier. The liability of the carrier for loss resulting from loss of or damage to goods according to the provisions of article 5 is limited to an amount equivalent to 835 units of account per package or other shipping unit or 2.5 units of account per kilogram of gross weight of the goods lost or damaged, whichever is the higher.

Article VII: Gives provisions to Application to non-contractual claims. The defences and limits of liability provided for in this Convention apply in any action against the carrier in respect of loss of or damage to the goods covered by the contract of carriage by sea, as well as of delay in delivery whether the action is founded in contract, in tort or otherwise.

Article VIII: Gives Loss of right to limit responsibility. The carrier is not entitled to the benefit of the limitation of liability provided for in article 6 if it is proved that the loss, damage or delay in delivery resulted from an act or omission of the carrier done with the intent to cause such loss, damage or delay, or recklessly and with knowledge that such loss, damage or delay would probably result.

Article IX: Talks about Deck cargo. The carrier is entitled to carry the goods on deck only if such carriage is in accordance with an agreement with the shipper or with the usage of the particular trade or is required by statutory rules or regulations.

Article X: Liability of the carrier and actual carrier where the performance of the carriage or part thereof has been entrusted to an actual carrier, whether or not in pursuance of a liberty under the contract of carriage by sea to do so, the carrier nevertheless remains

3.15 Forms of Sea Transport

Many different types of ship are used to transport goods around the world. The differences between them reflect the varied needs of international traders. In particular, different types of ship are used to carry different types of cargo, or to carry cargo in varied ways.

Goods shipped in containers:

The use of containers dominates commercial international shipping. The advantages of packing goods into containers include: The ease of intermodal transit, i.e. containers can be unloaded from the ship and transferred directly to a road or rail vehicle, The opportunity to offer consumers a door-to-door service, Speed and efficiency of loading and unloading, and security of goods during transit.

Goods shipped in form of break-bulk:

Break-bulk refers to any non-bulk cargo that isn't containerized (such as goods on pallets, or in crates or drums or sacks), which is loaded directly into a ship's hold. Break-bulk tends to be used for specialized trades (such as fresh fruit), or for trade to small ports that do not have the necessary infrastructure to handle containerized traffic.
Goods carried as break-bulk can be more susceptible to damage than containerized goods because they are stowed loose in a ship's hold.

Liner shipments (Conventional or Container services):

Liner vessels operate on fixed routes, to fixed schedules and usually with a standard tariff. Liner trades are dominated by container ships, roll-on/roll-off carriers and general cargo ships.

Charter shipments (e.g., time charter, trip charter)

Charter ('tramp') vessels operate entirely according to the demands of the person chartering them. Their ports of loading and discharge are set by the charter, as is their cost, which depends on immediate supply and demand conditions. Most tankers and bulk carriers operate in the charter markets.

Ro-Ro Traffic (roll on/roll off)

For vehicles and trucks and heavy packages

(unpacked) Roll-on/roll-off (ro-ro) vessels carry both road haulage and passenger vehicles.

3.16 Types of Barges Used for Inland Water Ways Transport

A barge is just that a marine vessel that's primarily used to carry cargo. Barges don't have a motor or engine and don't move independently. Instead, they move with the help of a towboat or a tugboat. Barges are crucial for keeping the inland waterways running smoothly and some of the used barges all over the world to include the following

Inland Barges

They're specifically designed to operate on smaller bodies of water and are the most cost-effective method of transportation for large volumes of cargo or items that are oversized and aren't able to be transported via truck or rail.

Deck Barges

Consisting of a deck-like platform, deck barges carry cargo like construction equipment, natural rock and stone, large metal pipes for infrastructure growth, and even livestock like horses and cattle. Deck barges can also be docked for extended periods of time and act as "dry land" for workers and machinery who need more space for equipment along the waterways.

Crane Barges

Also called spud barges, these vessels have a squared-off or boxed stern that keeps it afloat under the weight of a crane. There's additional support in the bulkhead and deck frame construction, and the deck of the barge uses specialized crane mats for traction. They are used to lift items while docked or during offshore construction.

Hopper Barges

Hopper barges are used for large volumes of cargo like sugar, steel, grain, coal, and ore, among a number of other commodities. They feature double-hull construction for maximum flotation and can either be open or covered, the latter of which helps protect cargo from weather and other elements during long trips on the waterways.

Shale Barges

These barges are constructed like deck barges with cargo bins or hoppers and used in the oil and gas industry to transport cargo from the drilling site. This cargo carries numerous environmental restrictions and must be disposed of by a processing company with approval and expertise. Shale barges are highly regulated by the US Coast Guard to ensure compliance.

Liquid Mud Barges

Liquid mud barges have pipes and pumps on-board to circulate and dispose of fluid material, typically at inland oil drilling sites. These barges are constructed with cargo storage bin tanks at the deck level with four separate compartments. There are also occasions where land-based facilities use these barges to increase storage capacity.

Ocean Barges

Ships that can't make it to port due to size or shallow water use ocean barges to help transport cargo directly to land. Ocean barges are designed and constructed to withstand the elements of nature and are heavier than other types of barges. That makes them more expensive to build and maintain, and more difficult to tow.

3.17 Documentation in Sea Transport

Bill of Lading

Bill of Lading (B/L) or (BoL)/Ocean Bill of Lading (clean or dirty' B/Ls is a legal document issued by a carrier to a shipper that details the type, quantity, and destination of the goods being carried by a ship or vessel on sea or waterways. A bill of lading also serves as a shipment receipt by the carrier to the shipper when the carrier receives or delivers the goods at a predetermined port of loading or destination.

A Bill of Lading (B/ L) is that document that establishes the terms of a contract between a shipper and a transportation company. It serves as a document of title, a contract of carriage and a receipt for goods. This is the official legal document that represents ownership of cargo; the negotiable document to receive cargo; and the contract for cargo between shipper and carrier.

Clean Bill of Lading: A clean bill of lading is **a document that declares there was no damage to or loss of goods during shipment**. The clean bill of lading is issued by the product carrier after thoroughly inspecting all packages for any damage, missing quantities, or deviations in quality. Otherwise a **dirty Bill** of lading would be in place.

Freight Forwarders (House) Bill of Lading:

Freight Forwarders Bill of lading/House or Forwarding Agent's Bills of Lading: With the development of groupage cargo by sea consequent upon containerization, these Bills of Lading are common especially with NVOCCCs. A House Bill of Lading (HBL) is a document created by an Ocean Transport Intermediary (OTI) such as a freight forwarder or non-vessel operating Common Carrier Company (NVOCCC). The document is an acknowledgment of the receipt of goods by freight forwarder that are received from the consignee as Less Container Load (LCL) to be shipped as Full Container Load (FCL).

MAWB is Master Airway Bill which is issued by main carrier/airline of goods on receipt of goods from a freight forwarder to deliver at destination as per agreed terms. **HAWB** means House Airway Bill issued by a freight forwarder on receipt of goods from shipper agreeing to deliver goods at destination.

Through Bill of Lading

A through bill of lading is a legal document that allows for the transportation of goods both within domestic borders and through international shipment. This one is always used when goods cover both legs of the journey. The first journey is the Port of Loading and the second journey is the Port of Delivery. Please note these B/Ladings are always issued by the major carrier and not NVOCCCs or Freight forwarder.

Straight Bills of Lading:

Straight bill of lading is a non-negotiable bill of lading. It is used where the goods have been paid for or do not require payment such as donations or gifts. Under this bill of lading, the shipping company/ carrier will deliver the shipment to its consignee on presentation of identification.

Shipper's Order Bills of lading:

"To order" means that the bill of lading has been consigned to order of the shipper. The shipper indicated on the bill of lading determines who should collect the goods at the port of discharge by surrendering at least one original copy to the carrier.

Combined Transport Bills of lading:

A combined Transport Bill of Lading is a document that gives information about goods being transported in large volumes of containers by sea and land by vessel, road and railway. The combined transport bill of lading covers whatever means of transport is used when the majority will be by sea but for the same cargo.

Charter Party:

The Charter Party is a document commonly used and agreed upon by both parties in tramp shipping. Due to nature of the commodities being shipped, the charter party will be further designated for a particular trade and method of chartering the ship. BIMCO provides various types of Charter party forms for the industry. In tramp shipping, the parties like the ship owner and charterer involved will use a specific document called the Charter Party (C/P). If any one of the parties needs to amend the content, then they can amend it as they wish.

Manifest:

Freight/Cargo Manifest: A summary of cargo loaded on a ship/vessel or an aircraft showing the weight, measurements, freight details, Total freight either prepaid or payable at destination, etc. For example, a cargo manifest might be used for shipments made by sea, air or land, and will generally show the shipment's consignor and consignee, as well as listing product details such as number, value, origin and destination.

Commercial Invoice:

This is a legal document between the supplier/ shipper and the buyer/consignee that clearly describes the sold goods, and the amount due on the buyer. The commercial invoice is one of the main documents used by customs in determining customs duties. This document bears the value/ price and origin of the goods shipped. It normally contains details of the invoice number, the date, the seller/buyer's details/reference, Consignee details, Country of origin and destination, Terms of delivery and payment

Certificates of Origin

A certificate of Origin is a document used in international trade to identify the "Economic Nationality" of the goods; just as we use passport to identify our origin). Certificate of Origin is a document confirming the nature, quantity, Value, etc. of goods and their origin or country of manufacture. Source document: Chamber of Commerce or Accredited Trade Association.

3.18 Select Criteria for Sea Transport

1. Cost
Water transport is the cheapest mode of transport. Any business (freight forwarder) will look at delivering goods for the customer at any lowest possible cost. It is suitable to carry heavy and bulky goods over long distances where time is not an important factor and the nature of goods are not affected by delayed transit time.

2. Physical characteristics of the Commodity
Another factor for selection of water transport is looking at the actual physical characteristics of what is being shipped. Product characteristics also play an important part if the product do not have special trait, such as temperature or special handling requirements. It would be ideal to go for water transport since it's cheap.

3. Bulkiness of the Commodity
Water Transport is most suitable for carrying cheap, bulk and heavy goods. Such as machinery which does not require quick delivery may be carried water transport or rail transport keeping in mind the cost and distance.

4. Safety and Security
Safety and security of goods in transit also influence the choice of a suitable means of transport. For example, if Company A ships hazardous chemicals, they will pay special attention to security and the carrier's ability to maintain the highest levels of compliance when transporting their products such that it is delivered in manner that's does not change its state and usefulness.

5. Service
In regard to modal selection, service does have a very large role to play. Services like Cabotage which is the transport of goods or passengers between two places in the same country by a transport operator from another country. It originally applied to shipping along coastal routes, port to port, but now applies to aviation, railways, and road transport as well.

6. Availability of Sea Feeder Services
Smaller feeder vessels may be used to transport cargo to the major load centres. Feeders collect shipping containers from different ports and transport them to central container terminals where they are loaded to bigger vessels or further transport by truck or rail into the hub port's hinterland. In that way the smaller vessels feed the big liners, which carry thousands of containers.

7. Other Considerations:
A number of special services such as warehousing, packing, loading, and unloading are also taken into consideration while deciding about to use water transport.

3.19 Contracts of Affreightment

Contract of Affreightment is **an agreement between a charterer and a ship-owner**, where the ship owner agrees to transport specific number of goods for the charterer at a specified period. Under this agreement, the charterer is obligated to pay the freight whether the goods are ready for shipment or not.

A Contract of affreightment is important when considering ship chartering. The terms of the contract express the liabilities, rights, and obligations agreed between the charterer and ship-owner.

Some obligations include:
a) When the agent of the charterer should be given notice by the master
b) When the vessel can be loaded and discharged from the port
c) When the bills of lading will be issued
d) How to pay the demurrage
e) Who will be held responsible for potential negligence by the stevedores and crew?

Other obligations in a contract:
- The Seaworthiness of the ship
- Staying on the agreed route – no deviation
- No shipping Dangerous Goods
- The obligation of reasonable dispatch
- Nominating a safer port
- Frustration

3.20 Evaluating the Sea Transport

If your business needs to transport large quantities but there is no pressure to deliver quickly, shipping by sea may be beneficial.

Advantages of shipping goods by sea freight

Some of the advantages of transporting goods by sea include:

1. Less Maintenance Cost: Maintenance cost in rail and road transport is quite high but maintenance cost of water transport is quite less.
2. Cheap: The transport channel is quite cheap as compared rail and road Transport.
3. Useful for Bulky Goods: Heavy and bulky goods can be transported easily at little cost through water transport.
4. Useful during Natural Calamities: During natural calamities like flood and rains, when rail and road transport is disrupted, relief operations can be operated through water transport.
5. Helpful in Defence: Development of shipping is essential for the defence of the country also. It is also called second line of defence.
6. Important for Foreign Trade: Water transport plays important role in foreign trade. Kenya's foreign trade is mainly dependent on water transport.
7. You can ship large volumes at low costs - a freight forwarder can consolidate consignments to reduce costs
8. Shipping containers can also be used for further transportation by road or rail

Disadvantages of shipping goods by sea freight

There are risks and disadvantages of transporting goods by sea, including:

1. Slow Speed: shipping by sea can be slower than other transport modes and bad weather can add further delays
2. Inflexible: it only moves to designated routes and timetables which are usually inflexible.
3. Tracking: tracking your goods' progress is difficult since you can hardly tell where the vessel is.
4. Port Duties: it is associated with payment of heavy port dues in case of any delays.
5. Further transportation overland will be needed to reach the final destination
6. Basic freight rates are subject to fuel and currency surcharges

3.21 Learning Activities

You are an employ of freight forwarding company in South Sudan, and you are a salesperson of a forwarding service. You happen to visit Chongquing International Construction services to sale your services and the procurement manager tells you they already have some excavator they expect from Japan, they have already got the commercial invoice and the terms are EXW assembling Plant Nagoya. The project for which they are expecting the excavator is to start in 3 months. The commercial value of the excavator is $500,000.

Required

i. Explain to the customer the meaning of the terms on the commercial invoice
ii. Explain to the customer his liability according to the terms
iii. Explain the choice of the mode of transport you will use
iv. Explain the full range of documents required to move such cargo up to the port of discharge.
v. Explain your roles and obligations to the customer

3.22 Assessment Questions and Activities

1. List and explain at least five (5) forms of sea transport?
2. Discuss the different types of documentation used in sea transport
3. What criteria can be used in selecting sea transport?
4. What is the contracts of affreightment and its implication in sea transport?
5. Explain the advantages of using seas transport over other modes.
6. Explain the duties and responsibilities of the carrier under The Hague Visby rules
7. Explain conditions under which the carrier may be exempted from Liability according The Hague Visby rules.

3.23 References

- Rodrigue, J., Comtois, C. & Slack, B. (2013). The Geography of Transport Systems, 3rd Edition. Routledge Francis Taylor.
- Glass, D. (2012). Freight Forwarding and Multi Modal Transport Contracts, 2nd Edition. Routledge
- Monios, J. & Bergqvist, R. (2020). Intermodal Freight Terminals: A Life Cycle Governance Framework. Routledge
- CITES. (2021, 08 05). www.cites.org. Retrieved from https://cites.org/eng/resources/transport/index.php#2: https://cites.org/eng/resources/transport/index.php#2
- IATA. (2021, 09 02). https://www.iata.org/en/. Retrieved from www.iata.org: https://www.iata.org/en/
- KLG EUROPE. (2021, 09 10). 1968 Hague-Visby Rules. Retrieved from www.klgeurope.com: https://www.klgeurope.com/files/1968_hague-
- UNCTAD. (2021, 09 12). Review of Maritime Transport 2020. Retrieved from https://unctad.org/system/files/official-document/rmt2020_en.pdf: https://unctad.org/system/files/official-document/rmt2020_en.pdf
- UNCTAD. (2021, 09 13). United Nations Convention on the Carriage of Goods by Sea (Hamburg Rules) 1978. Retrieved from www.unctad.org: https://unctad.org/system/files/official-document/aconf89d13_en.pdf

4.0 CARRIAGE OF GOODS BY ROAD

4.1 Specific Learning Outcomes

At the end of the unit topic, the trainee should be able to:

i. Explain the meaning of carriage of goods by road transport
ii. Explain the road transport regulatory requirements
iii. Identify the types of road transport carriers
iv. Identify the road transport documentation
v. Identify the parties and terms of engagement in road transport
vi. Evaluate of road transport

4.2 Introduction

Road transport is the back born of strong economies and dynamic societies. It is vital to National growth and social development. Road transportation is the mode that has expanded the most over the last 50 years, both for passengers and freight markets. This represents a dramatic change in the built environment with the massive addition of road infrastructures supporting urban mobility and connecting cities. The spatial cover of road transportation is extensive, but its scope remains local and regional. Growth in road freight transport has been fuelled mainly by trade liberalization. The growth of the loading capacity of the vehicle has improved, and vehicles have been adapted to freight market segments such as perishables, fuel, construction materials, and containers.

4.3 The Road Transport Regulatory Requirements

With a truly global vision, the IRU acts effectively both at international and national level through its network of national road transport associations. **The International Road Transport Union** (IRU) works in true Public Private Partnership with the United Nations Economic Commission for Europe (UNECE) in implementing the UN Customs Convention on the International Transport of Goods under Cover of TIR Carnets (TIR Convention) and implementing this and other key UN trade facilitation instruments, such as the Harmonization Convention, is the most efficient way to achieve the TFA's objectives. Having had a long cooperation with the WTO, the IRU actively supports the rapid implementation of the Trade Facilitation Agreement on road transport and trade related matters.

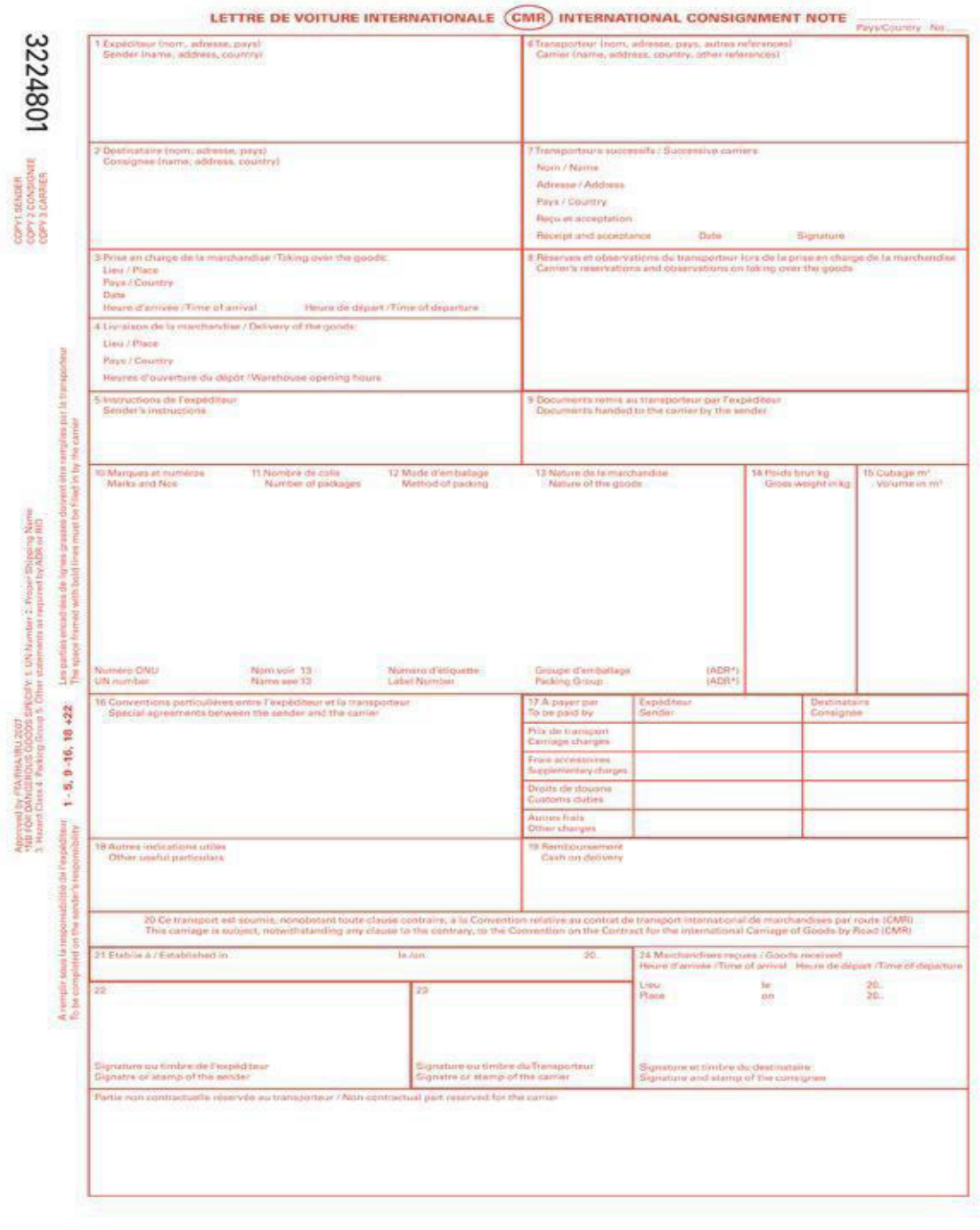
4.3.1 Convention on the Contract for the International Carriage of Goods by Road (CMR)

The CMR Convention is a United Nations convention that was signed in Geneva on 19 May 1956. It relates to various legal issues concerning transportation of cargo by road. It has been ratified by the majority of European states. As of February 2017, it has been ratified by 44 states.

Based on the CMR, the International Road Transport Union (IRU) developed a standard CMR waybill. The CMR waybill is prepared in three languages. On the back is the text again in three languages. This aids the waybill in being accepted and recognized throughout Europe. Checked by customs and police, a transport document must be present when the shipment is transported. The document itself is not prescribed; there is a minimum of information required on the CMR. If hazardous substances are being shipped, some additional information is required, as described in ADR.

As of the 27th of May 2008, according to an additional protocol to the CMR-convention, it is also possible to use an updated electronic consignment note – eCMR. As of February 2017, several solutions are available. ITD, Trade association for the Danish Road transport of goods has developed a solution; the eCMR waybill. The eCMR is also available on the market in France, Spain and the Netherlands. First cross-border usage of eCMR took place on 19 January 2017, between Spain and France supported by ASTIC (Asociación de Transporte Internacional por Carretera) and FNTR (Fédération Nationale des Transports Routiers).

Standard CMR Waybill



LETTRE DE VOITURE INTERNATIONALE (CMR) INTERNATIONAL CONSIGNMENT NOTE

Pays/Country No.

3224801

COPY 1: SENDER
COPY 2: CONSIGNEE
COPY 3: CARRIER

1 Expéditeur (nom, adresse, pays)
Sender (name, address, country)

6 Transporteur (nom, adresse, pays, autres références)
Carrier (name, address, country, other references)

2 Destinataire (nom, adresse, pays)
Consignee (name, address, country)

7 Transporteurs successifs / Successive carriers
Nom / Name
Adresse / Address
Pays / Country
Reçu et acceptation
Receipt and acceptance Date Signature

3 Prise en charge de la marchandise / Taking over the goods:
Lieu / Place
Pays / Country
Date
Heure d'arrivée / Time of arrival Heure de départ / Time of departure

8 Réserves et observations du transporteur lors de la prise en charge de la marchandise
Carrier's reservations and observations on taking over the goods

4 Livraison de la marchandise / Delivery of the goods:
Lieu / Place
Pays / Country
Heures d'ouverture du dépôt / Warehouse opening hours

5 Instructions de l'expéditeur
Sender's instructions

9 Documents remis au transporteur par l'expéditeur
Documents handed to the carrier by the sender

10 Marques et numéros
Marks and Nos

11 Nombre de colis
Number of packages

12 Mode d'emballage
Method of packing

13 Nature de la marchandise
Nature of the goods

14 Poids brut kg
Gross weight in kg

15 Cubage m³
Volume in m³

Numéro ONU
UN number

Nom voir 13
Name see 13

Numéro d'étiquette
Label Number

Groupe d'emballage
Packing Group

(ADR*)
(ADR*)

16 Conventions particulières entre l'expéditeur et le transporteur
Special agreements between the sender and the carrier

17 A payer par
To be paid by

Expéditeur
Sender

Destinataire
Consignee

Prix de transport
Carriage charges

Frais accessoires
Supplementary charges

Droits de douane
Customs duties

Autres frais
Other charges

18 Autres indications utiles
Other useful particulars

19 Remboursement
Cash on delivery

20 Ce transport est soumis, nonobstant toute clause contraire, à la Convention relative au contrat de transport international de marchandises par route (CMR)
This carriage is subject, notwithstanding any clause to the contrary, to the Convention on the Contract for the International Carriage of Goods by Road (CMR)

21 Etablie à / Established in le / on 20..

24 Marchandises reçues / Goods received
Heure d'arrivée / Time of arrival Heure de départ / Time of departure
Lieu / Place le / on 20..

22
Signature ou timbre de l'expéditeur
Signature or stamp of the sender

23
Signature ou timbre du Transporteur
Signature or stamp of the carrier

Signature et timbre du destinataire
Signature and stamp of the consignee

Partie non contractuelle réservée au transporteur / Non-contractual part reserved for the carrier

Les parties encadrées de lignes grasses doivent être remplies par le transporteur
The space framed with bold lines must be filled in by the carrier

A remplir sous la responsabilité de l'expéditeur
To be completed on the sender's responsibility

Approved by IRU/RAMU 2007
*ADR FOR DANGEROUS GOODS ONLY: 1. UN Number 2. Proper Shipping Name
3. Hazard Class 4. Packing Group 5. Other statements as required by ADR or RID

1 - 5, 9 -16, 18 +22

4.3.2 Scope of Application of the CMR

Consistent with the procedure followed by the various international conventions on transport law, the CMR substitutes its own provisions and solutions for those of whichever national law the judge hearing an action shall deem to be applicable according to his view of the conflict between the legal systems.

Article 1 of the convention defines the scope of application as follows:

This Convention shall apply to every contract for carriage of goods by road in vehicles for reward when the place of taking over the goods and the place designated for delivery as specified in the contract are situated in two different countries of which at least one is a contracting country, irrespective of the place of residence and the nationality of the parties.

The following conditions must be met for CMR to be applicable:

i) **there must be a contract of carriage for reward;**

For the CMR to apply, a contract must be concluded with reciprocal obligations and this contract must be for reward.

ii) **the contract so made must be one for the carriage of goods;**

The CMR makes no exceptions with regard to the nature of the goods and the way they are to be transported. It does not exclude from its provisions bulk consignments, nor does it draw any distinction between goods in packages or in containers. However, the Convention does exclude goods dispatched under the rules of the international postal conventions, funeral consignments, and furniture removals: Article 1, para.4.

iii) **the carriage must be effected by road;**

This provision clearly states the very aim of the Convention, i.e., the carriage of goods by road. Article 2, which is an article primarily concerned with liability, attempts to cover the position with regard to combined transport.

Article 2 is of particular importance for consignments dispatched to or from the UK.

It should be observed that the Convention continues to apply provided that the goods are not unloaded from the vehicle when it continues its journey by sea or some other means of transport. If it can be proved, however, that any loss arising during this secondary means of transport was riot caused by the negligence of the road carrier, the liability of the latter shall be determined by the legislation affecting this secondary means of transport.

It will be appreciated that goods dispatched from the UK will have to remain on the vehicle, i.e., roll-on/ roll-off, for CMR to continue to apply to the whole of the transit period.

A container unloaded first from the lorry and then hoisted on board a vessel is no longer covered by CMR: Article 2 is clear on this point. Exception is made only in the case of unforeseen accidents covered by Article 14.

iv) **the carriage is to be carried out by certain categories of vehicles;**

Article 1, sub-section 2, defines vehicles as meaning motor vehicles, articulated vehicles, trailers and semi-trailers as defined in Article 4 of the Convention on Road Traffic dated 19 September 1949 which states:

The definitions set out in this Article are, so far as material, as follows:

'Motor vehicle' means any self-propelled vehicle normally used for the transport of persons or goods upon a road, other than vehicles running on rails or connected to electric conductors. 'Articulated vehicle' means any motor vehicle with a trailer having no front axle and so attached that part of the trailer is superimposed upon the motor vehicle and a substantial part of the weight of the trailer and of its load is borne by the motor vehicle. Such a trailer shall be called a "semi-trailer".

"Trailer" means any vehicle designed to be drawn by a motor vehicle

v) **the contract must have international status**

The CMR will only apply when the place of taking over the goods and the place designated for delivery as specified in the contract are situated in two different countries, one of which is a contracting country.

Provided the above conditions are met, CMR applies. To illustrate this point, CMR would apply to a contract of carriage where a lorry is loaded in the UK for the consignment to be delivered in France, but the goods are destroyed before leaving the UK.

It has been noted from Article 2 that combined transport is subject to the CMR provided the consignment is not unloaded from the vehicle and the carrying vehicle is loaded on board the ship or train as the case may be. Absence of unloading and reloading is necessary for CMR to apply, and this is equally true where a succession of carriers is

involved. In this regard, Article 34 makes provision for a single contract to be performed by successive road carriers provided the goods remain on the vehicle throughout the entire transit period covered by the contract.

4.3.3 Conclusion and Performance of the Contract of Carriage

Article 4 provides that the contract of carriage shall be confirmed by the making out of a consignment note. In accordance with Article 5, the Consignment Note so made shall be made out in three original copies signed by the sender and by the carrier. The first copy shall be given to the sender, the second shall accompany the goods and the third copy shall be retained by the carrier.

4.4 Types of road transport carriers

There are various types of vehicles on our roads designed to carry unique categories of cargo among which we can mention the following:

Semi-trailer (tent tarpaulin)

- Suitable for majority of types of cargo, loading from sideway and above by removing the tent cover
- Loading capacity: 20 - 25 t
- Usable volume: 60 - 92 cbm
- Capacity: 22 - 33 EUR pallets

Tent "Jumbo"

- Tent semi-trailer with bigger capacity achieved by the 'G' shape of the floor and reduction in diameter of the wheels
- Loading capacity: 20 t
- Useful volume: 96 - 125 cbm
- Capacity: 33 EUR pallets

Truck-trailer

- Tent vehicle and trailer
- Fast loading and unloading and larger useable loading volume
- Not suitable for the transportation of long-length cargo
- Loading capacity: 16 - 25 t
- Usable volume: 60 - 120 cbm
- Capacity: 22 - 33 EUR pallets

Refrigerated truck/Frigo

- Refrigerated semi-trailer
- Most perishable goods with special storage conditions from +25 Co to -25 Co
- Loading capacity: 12 - 22 t
- Usable volume: 60 - 92 cbm
- Capacity: 24 - 33 EUR pallets
- European standard: 20 tons of 82 cbm for 32 pallets

Low bed trucks

- For transportation of oversized cargo/ items
- Loading capacity: 20 - 40 t

Lorry tank

- Used for the transportation of food and non-food liquid products
- Loading capacity: 12 - 20 t
- Useable volume: 6 - 40 cbm

Timber lorry

- Applied for the transportation of forest and trunk products
- Loading capacity: 10 - 20 t

Isotherm

- Available in a semi-trailer, truck-trailers, and separate trucks
- Isotherm is intended for the transportation of food or temperature-sensitive cargo.
- It may keep a certain temperature for a long time
- Loading capacity: 3 - 25 t
- Usable volume: 32 - 92 cbm
- Capacity: 6 - 33 EUR pallets

Flatbed truck

- Applied to the transportation of out of gauge goods and special transport needs
- Loading capacity: 15 - 25 t or more, depending on the truck

Delivery vehicles

	**Estate car** • Length: 1.65 m • Width: 90 cm • Height: 65 cm • Payload: 350 kg
	**Box van** • Length: 1.55 m • Width: 1.10 m • Height: 1.15 m • Payload: 400 kg
	**Delivery vehicles** • Length: 4.10 m • Width: 1.80 m • Height: 1.75 m • Payload: 1,200 kg

Lorry under 12 t

	**Lorry 7.5 t (box or tarpaulin body)** • Length: 6.10 m • Width: 2.40 m • Height: 2.35 m • Payload: 2,400 kg
	**Lorry 12 t (box or tarpaulin body)** • Length: 7.20 m • Width: 2.40 m • Height: 2.35 m • Payload: 5,540 kg

Lorry over 12 t

	**Lorry 23.5 t (box)** • Length: 13.60 m • Width: 2.48 m • Height: 2.65 m • up to 33 Euro pallets • up to 23.5 tons of shipped weight

	**Lorry 24 t (tarpaulin, trailer)** • Length: 13.60 m • Width: 2.45 m • Height: 3.00 m • up to 34 Euro pallets • up to 24 tons of shipped weight
	**Lorry 24.5 t (tarpaulin, tautliner)** • Length: 13.60 m • Width: 2.44 m – 2.48 m • Height: 2.65 – 2.70 m • up to 34 Euro pallets • up to 24.5 tons of shipped weight
	**Lorry 25 t (box or tarpaulin body)** • Length: 13.60 m • Width: 2.40 m • Height: 2.70 m • up to 25 tons of shipped weight

Truck with trailer

	**Truck with 24 t trailer** • Length: 7.60 m + 7.60 m • Width: 2.45 m • Height: 3.00 m • up to 38 Euro pallets • up to 24 tons of shipped weight
	**Truck with trailer** • Length Lorry: 7.20 m • Länge Trailer: 6.10 m • Width: 2.40 m • Height: 2.35 m • Payload Lorry: 5,540 kg • Payload Trailer: 6,200 kg

Refrigerated van

	**23 t refrigerated lorry** • Length: 13.60 m • Width: 2.48 m • Height: 2.60 m – 2.70 m • Temperature range: -20° bis +25° • up to 33 Euro pallets • up to 23 tons of shipped weight

4.5 Road Transport Documentation

Waybill for inland transportation

An inland bill of lading is a contract signed between a shipper and a transportation company (carrier) for the overland transportation of goods. An inland bill of lading serves as both the carrier's receipt to the shipper and the carriage contract. The document specifies the details of the goods being transported.

Packing List

Also known as a shipping list, packing list, bill of parcel, or unpacking note is a document that provides the buyer with product details (order date, products included in the order, and quantity of each product) to ensure that it is exactly what was ordered. In most cases, the packing slip can be found inside an attached shipping pouch or inside the package itself and must accompany any goods crossing the border that fall under NAFTA regulations.

Commercial Invoice

A commercial invoice provides a full description of the shipped goods, including their overall value. One copy of this invoice will go with the Bill of Lading, while another copy will accompany the freight crossing the borders.

Customs Entry

A customs document provides a full description of the shipped goods. You will also require two copies of this entry: one to be attached to the Bill of Lading and the other to go with the freight through customs.

Certificate of Origin

A certificate of origin is a document that shows where the goods are being shipped from. This cross-border freight shipping document is extremely important as it helps ensure the accurate collection of customs duties according to NAFTA regulations.

CMR Document

The CMR transport document is an international consignment note used by drivers, operators and forwarders alike that govern the responsibilities and liabilities of the parties to a contract for the carriage of goods by road internationally. The carrier usually completes the form, but the sender – in other words, the exporter is responsible for the accuracy of the information and must sign the form when the goods are collected. The consignee will also sign the form on delivery, which is essential for the carrier to be able to confirm the delivery of the goods and to justify the payment for its services. The CMR transport document is not a document of title and is, therefore, non-negotiable. This document is prepared by the exporter and the freight forwarder and is addressed to the importer and the carrier.

Cargo Insurance Certificate

The Cargo Insurance Certificate is a document indicating the type and amount of insurance coverage in force on a particular shipment. It includes the name of the insurance company and conditions of coverage.

Delivery Note

A Delivery Note is one of the transport documents accompanying the shipment of goods that list de description and quantity of goods delivered. A copy of the Delivery Note, signed by the buyer or consignee is returned to the seller or consignor as a proof of delivery. Delivery Notes have a dual function for the exporter: justify the removal of the products from its store and proof credit delivery to the importer and therefore, it is important that de importer sign the copy provided by the carrier. For the importer, Delivery Notes serve to verify that the goods received match those listed on the purchase order or contract. For the carrier is the document used as a proof of delivery of the goods.

4.6 Parties and Terms of Engagement in Road Transport

The regulation on the international carriage of goods by road was unified in 1956 with the Convention on the International Carriage of Goods by Road (CMR) drafted by the United Nations Economic Commission for Europe (ECE) based in Geneva and parties to CMR consisting of both ECE and non-ECE member countries. This contract is known as CMR, which is derived from the French title convention relative au contract de transport international de merchandises par route. CMR is also known as CMR consignment note.

The pact standardizes the terms of the contract of carriage, the liability of the carrier and the form of documentation to be used. CMR sets out a single set of conditions for the complete movement of goods, irrespective of the mode of transport or the current legal jurisdiction. The terms of the convention are binding on each contract for the carriage of goods by road for hire or reward when the place of taking over

of the goods and the place of delivery as specified in the contract are located in two different countries of which at least one is a contracting party.

Contents to be considered in individually agreed in Road Transport Contracts

i. Definition of the services to be covered by the contract for example the primary transportation tasks the transport company will provide.
ii. Issuing of consignment note and additional transport related documents.
iii. Type of truck(s) to be provided by the carrier (Fit for purpose trucks)
iv. Type of cargo to be transported especially if its special cargo like Dangerous Goods should be clearly stated.
v. Number of items and the required packaging for the same should be emphasized.
vi. Load units and loading devices to be provided by the carrier.
vii. Time and actual provision of the truck by the carrier.
viii. Loading deadlines should be emphasized.
ix. The Loading regulations and responsibilities
x. Hindrances and related measures
xi. Special Customs related instructions in case of cross-border transport
xii. Prohibition or allowance of transport on open loading platforms
xiii. Agreement on freight costs and payments terms
xiv. Special conditions in case of intermodal transport
xv. Liability of all parties to the contract
xvi. Place of jurisdiction

4.7 Evaluation of Road Transport

There are innumerable advantages and benefits of road transport vis-à-vis other modes of transport among which we can discuss the below.

4.7.1 Advantages of Road Transport

1. Less Capital Outlay
Road transport required much less capital Investment as compared to other modes of transport such as railways and air transport. The cost of constructing, operating and maintaining roads is cheaper than that of the railways. Roads are generally constructed by the government and local authorities and only a small revenue is charged for the use of roads.

2. Door to Door Service:
The outstanding advantage of road transport is that it provides door to door or warehouse to warehouse service. This reduces cartage, loading and unloading expenses.

3. Service in Rural Areas
Road transport is most suited for carrying goods and people to and from rural areas which are not served by rail, water or air transport. Exchange of goods, between large towns and small villages is made possible only through road transport.

8. Flexible Service:
Road transport has a great advantage over other modes of transport for its flexible service, its routes and timings can be adjusted and changed to individual requirements without much inconvenience.

9. Suitable for Short Distance
It is more economic and quicker for carrying goods and people over short distances. Delays in transit of goods on account of intermediate loading and handling are avoided. Goods can be loaded direct into a road vehicle and transported straight to their place of destination.

10. Lesser Risk of Damage in Transit:
As the intermediate loading and handling is avoided, there is lesser risk of damage, breakage etc. of the goods in transit. Thus, road transport is most suited for transporting delicate goods like chinaware and glassware, which are likely to be damaged in the process of loading and unloading.

11. Saving in Packing Cost
As compared to other modes of transport, the process of packing in motor transport is less complicated. Goods transported by motor transport require less packing or no packing in several cases.

12. Rapid Speed:
If the goods are to be sent immediately or quickly, motor transport is more suited than the railways or water transport. Water transport is very slow. Also much time is

wasted in booking the goods and taking delivery of the goods in case of railway and water transport.

13. **Less Cost**
Road transport not only requires less initial capital investment, the cost of operation and maintenance is also comparatively less. Even if the rate charged by motor transport is a little higher than that by the railways, the actual effective cost of transporting goods by motor transport is less. The actual cost is less because the motor transport saves in packing costs and the expenses of intermediate loading, unloading and handling charges.

14. **Private Owned Vehicles**
Another advantage of road transport is that big businessmen can afford to have their own motor vehicles and initiate their own road services to market their products without causing any delay.

15. **Feeder to other Modes of Transport**
The movement of goods begins and ultimately ends by making use of roads. Road and motor transport act as a feeder to the other modes of transport such as railways, ships and airways.

1.1.1 Disadvantages of Road Transport

In spite of various merits, road/motor has some serious limitations:

1. **Seasonal Nature**
Motor transport is not as reliable as rail transport. During rainy or flood season, roads become unfit and unsafe for use.

2. **Accidents and Breakdowns:**
There are more chances of accidents and breakdowns in case of motor transport. Thus, motor transport is not as safe as rail transport.

3. **Unsuitable for Long Distance and Bulky Traffic:**
This mode of transport is unsuitable and costly for transporting cheap and bulky goods over long distances.

4. **Slow Speed**
The speed of motor transport is comparatively slow and limited.

5. **Lack of Organization:**
The road transport is comparatively less organized. More often, it is irregular and undependable. The rates charged for transportation are also unstable and unequal.

4.8 Learning Activities

You are an employee of Massajja Transporters based in Kampala with extensive domestic network and you are responsible for operations dealing with domestic road transport. You receive the following order from Battery Plus Ltd, they have a consignment of 10 drums of battery acid to be transported to their branch in Mbarara.

Let us assume a scenario, during the rest stop, the driver spots that one of the drums is leaking upon delivery the consignee received only 9 drums as received ok

Required

i. Describe all your considerations in selection of the vehicle
ii. Explain the contract sign and name the rights and duties of the parties involved
iii. Explain the documents required to transport the consignment and which other documents needed by the truck/ the driver
iv. Explain the steps you would take regarding damages
v. Explain the liability as well as damage compensation

4.9 Assessment Questions and Activities

1. Explain the relevance of the following documents in road transport;
   i. Way bill for Inland Transport
   ii. Packing List
   iii. Commercial invoice
   iv. Delivery note
   v. Certificate of origin
2. Explain the criteria for road transport infrastructure.
3. Explain at Least Ten (10) key considerations for individually agreed road transport Contract

4.10 References

- Rodrigue, J., Comtois, C. & Slack, B. (2013). The Geography of Transport Systems, 3rd Edition. Routledge Francis Taylor.
- Glass, D. (2012). Freight Forwarding and Multi Modal Transport Contracts, 2nd Edition. Routledge
- Wang, X. (2015). Operational Transportation Planning of Modern Freight Forwarding Companies. Springer
- Bektas, T. (2019). Freight Transport and Distribution Concepts and Optimisation Models. Routledge
- Monios, J. & Bergqvist, R. (2019). Intermodal Freight Transport and Logistics. Routledge
- Monios, J. & Bergqvist, R. (2020). Intermodal Freight Terminals: A Life Cycle Governance Framework. Routledge
- Dong-Ping Song, D. (2021). Container Logistics and Maritime Transport. Routledge
- KLG EUROPE. (2021, 09 10). 1968 Hague-Visby Rules. Retrieved from www.klgeurope.com: https://www.klgeurope.com/files/1968_hague-visby_rules.pdf
- LM-sisu-scribe. (2021, 09 14). Lex Mercatoria: - Convention on the Contract for the International Carriage of Goods by Road (CMR) - (Geneva, 19 May 1956). Retrieved from www.jus.uio.no: https://www.jus.uio.no/lm/un.cmr.road.carriage.contract.convention.1956/landscape.pdf
- Somsak Wisetruangrot. (2020, 10 09). www.unescap.org. Retrieved from Multimodal Transportation Concept and Framework: https://www.unescap.org/sites/default/d8files/event-documents/03MultimodalTransportationConceptAndFramework.pdf
- UNCTAD. (2021, 09 13). United Nations Convention on the Carriage of Goods by Sea (Hamburg Rules) 1978. Retrieved from www.unctad.org: https://unctad.org/system/files/official-document/aconf89d13_en.pdf

5.0 CARRIAGE OF GOODS BY AIR

5.1 Specific Learning Outcomes

At the end of the unit topic, the trainee should be able to:

i. Explain the meaning of Terms used in air transport
ii. Apply the Air transport regulations and international conventions
iii. Identify the parties and terms of engagement in air transport
iv. Evaluate the types of air transport
v. Select the appropriate Air transport documentation
vi. Describe the Air cargo management
vii. Evaluate air transport

5.2 Introduction

The airfreight industry is comprised of Airlines, Ground Handling Companies, Airports and Freight Forwarders, Inter-Governmental and International Non-Governmental organisations. The regulatory authorities in Uganda context are; Uganda Civil Aviation Authority, Ministry of Internal Affairs, Ministry of Defence, Uganda Revenue Authority, MAAIF among others.

While land and ship cargo transportation remain as favourable options, goods transport by air is considered as the quickest and the unhindered mode of transportation. According to the airline association, IATA, cargo volumes grew by 4.1% to 63.7 million metric ton, in 2018. However, the industry forecast suggests that the number may decrease by 3.7%, to 65.9 million metric ton, in 2019.

5.3 Terms used in air transport (Aviation terms)

Many people depend on moving their cargo by air because it is easy and fast to ship from one region to another, some of the aviation terms frequently used in air shipping and airports include:

Airport
A place where all aircraft, such as helicopters or passengers and cargo travel to and from. An airport is often located on the outskirts of the city. This is done to reduce the noise in the city.

Domestic Airport
This means the terminal or airport is only used for domestic flights in the same country.

International Airport
This means the terminal or airport is designated for international flights between different countries.

Airport Terminal
This is the place where the traveller completes their procedures when traveling or arriving. There are several services offered there such as ticketing, luggage shipping, checkpoints, etc.

Cargo Terminal
This a transportation facility in which quantities of goods or cargo are, without undergoing any manufacturing processes, transferred to other carriers or stored outdoors in order to transfer them to other locations. Cargo terminals may include accessory warehouses, Cold rooms, and offices

Flight Registration
When you arrive at the airport, look at the big screen that shows the windows numbers where different airlines (companies) register passengers on flights. When you arrive at the appropriate window, the airline's registration officer will ask you about your passport and register you as a passenger on the flight.

Timing of take-off
This indicates when the aircraft is expected to depart or leave the ground. The crew must prepare the aircraft on or near the runway as soon as possible.

Customs
The baggage checkpoint upon arrival at the destination airport. After receiving the baggage, arriving passengers will only be able to enter the country of arrival after passing through the customs area. Customs is the agency that ensures the items brought into a country are allowed in that country.

Airport Runway
Defined as a wide area of land at the airport dedicated to take-off and landing. It has a specific length and is well illuminated at night so that night trips can land safely.

Ground Handling

In aviation, the term "ground handling" refers to the wide range of services provided to facilitate an aircraft flight or aircraft ground repositioning, preparation for and upon conclusion of a flight which will include both customer service and ramp service functions.

5.4 The Air Transport Regulations and International Conventions

5.4.1 International Organizations in Air Transport

5.4.2 The International Civil Aviation Organization (ICAO)

The International Civil Aviation Organization (ICAO) was founded in 1947 as a permanent body under the scope of the United Nations Organization (U.N.O) by the Chicago Convention on International Civil Aviation. ICAO is composed of 193 member States generally members of the U.N.O

Its aims and objectives are to develop the principles and techniques of international air navigation, and foster the planning and development of international air transport to:

i. Ensure safe and orderly growth of international civil aviation world-wide,
ii. Encourage the arts of aircraft design and operation for peaceful purposes,
iii. Encourage development of airways, airports and air navigation facilities,
iv. Meet the needs of people for safe, regular, efficient and economical air transport,
v. Prevent economic waste caused by unreasonable competition,
vi. Ensure that the rights of contracting States are fully respected, to avoid discrimination between these States and ensure that every State has a fair opportunity to operate international airlines.
vii. Promote safety of flights and development of all aspects of international civil aeronautics.

5.4.2.1 The International Air Transport Association (IATA)

The International Air Transport Association - IATA is a voluntary non-governmental association which serves as a forum for 298 member airlines to develop common programs for the smooth running of the international air transport system.

Its headquarters is situated in the city of Montreal, Canada with Executive office in Geneva, Switzerland. Montreal is controlling the American continent and the offices in Geneva, Switzerland cover Europe, the Middle East and Africa. The regional office in Singapore covers operations in Asia and the Pacific. IATA was founded in 1945 to help the problem of the expansion of air services after the Second World War.

The aims of IATA are clearly set down in its Articles of Association:

i. To promote safe, regular and economical air transport for the benefit of the peoples of the world, to foster air commerce and to study the problems connected herewith.
ii. To provide means for collaboration among air transport enterprises engaged directly or indirectly in international air transport services.
iii. To co-operate with the International Civil Aviation Organization - ICAO and other international organizations

5.4.2.2 International Federation of Freight Forwarders Associations (FIATA)

The International Federation of Freight Forwarders' Associations (FIATA) is the recognised global organisation representing the interests of the freight and logistics industry worldwide. FIATA, a non-governmental organisation, today represents an industry covering approximately 40,000 forwarding and logistics firms, employing approximately 10 million people in 150 countries

FIATA also oversees the Airfreight Institute (AFI). For over five decades, the Airfreight Institute (AFI) has actively pursued its mandate to define, craft and promote the role of the forwarder in international air cargo. To further its mission, AFI has developed ongoing relationships with numerous stakeholders in the air transport industry, beginning with FIATA's own national forwarding Association Members, but inclusive of a wide spectrum of others ranging from non-governmental organizations, special interest groups, government bodies, regulators, carriers, shippers, consignors, customs groups, legal specialists, cargo risk underwriters and technology providers.

AFI's areas of focus include:

- Leadership (by maintaining close relationship with international organizations such as IATA, CNS, ATA, ICAO, ECAC, ICC, UNESCAP, UNECE, WCO, WTO and OECD);
- Security (by informing and assisting members regarding the various national government security programmes and IACO/IATA recommendations).

5.4.3 Conventions that Govern International Air Transport

Warsaw Convention

This is a convention for the Unification of Certain Rules Relating to International Carriage of cargo by air. Signed at Warsaw, 12th October 1929; the Convention as amended at The Hague on 28th September 1955; that Convention as amended at The Hague 1955 and by Montreal Protocol No. 1, 2, or 4 (1975) as the case may be. There are five chapters in the Warsaw convention namely;

i. Chapter I – Definitions
ii. Chapter II – Documents of Carriage; Luggage and Passenger Ticket
iii. Chapter III – Liability of the Carrier
iv. Chapter IV – Provisions Relating to Combined Carriage
v. Chapter V – General and Final Provisions

In the convention there is a provision of successive carriage and a combined carriage partly by air and partly by other modes of transport as well.

In particular, the Warsaw Convention:

i. Defines "international carriage" and the convention's scope of applicability
ii. Sets rules for documents of carriage
iii. Sets rules for the air carrier's liability and limitations thereof
iv. Sets rules for legal jurisdiction
v. Mandates carriers to issue passenger tickets;
vi. Requires carriers to issue baggage checks for checked luggage;
vii. Creates a limitation period of two years within which a claim must be brought (Article 29); and
viii. Limits a carrier's liability to at most

Hague Protocol

This was a protocol to amend the Convention for the unification of certain rules relation to international carriage by air signed at Warsaw on 12 Oct 1929 (Warsaw Convention), done at The Hague on the 28th of Sept 1955. It has only been ratified by 137 of the original 152 parties to the Warsaw Convention. There were multiple reasons as to why The Hague Protocol was added as a provision to the Warsaw Convention one of the reasons was that the original Convention was written in 1929 and with the advance of technology and law the original treaty had to be updated. Secondly, and perhaps more importantly, The Hague Protocol limited the liability that commercial airliners would have to take on in the event of an accident.

Note: This convention still applies to those countries that have not (yet) ratified the new conventions

Guadalajara Protocol

This convention relates to international carriage by air performed by a person other than the contracting carrier signed in Guadalajara of the 18th of Sept 1961. This was signed after noting that the Warsaw Convention did not contain particular rules relating to international carriage by air performed by a person who is not a party to the agreement for carriage.

Montreal 1, 2, 3 Protocols

As a result of developments at the International Monetary Fund (IMF) which led to the demonetisation of gold and prevented the member States from setting official prices to gold in relation to currency, three additional protocols were drawn up in Montreal, known as the Montreal Additional Protocols Numbers 1, 2, and 3 of 1975 (hereinafter referred to as "MAP 1 1975", "MAP 2 1975" and "MAP 3 1975", respectively, and as "MAP 1 to 3 1975, collectively).

MAP 1 to 3 1975 replace the monetary unit of account when referring to the monetary cap on the air carrier's liability from the gold franc to the Special Drawing Right (SDR) established by the IMF and calculated based on a basket of international currencies. MAP 1 to 3 1975 amend the following international air conventions:

- MAP 1 1975 amends the Warsaw Convention 1929 (hereinafter referred to as "Warsaw-MAP 1 Convention 1975");
- MAP 2 1975 amends the Warsaw-Hague Convention 1955 (hereinafter referred to as "Warsaw-Hague-MAP 2 Convention 1975"); and
- MAP 3 1975 amends the Warsaw-Hague-

Guatemala Convention 1971. However, neither MAP 3 1975, nor the Warsaw-Hague-Guatemala Convention 1971, have entered into force, as they have not been adopted by the required number of States.

These were international treaties designed to protect the ozone layer by phasing out the production of numerous substances that are responsible for ozone depletion. It was agreed on 26 August 1987 and entered into force on 16 September 1989.

Once again, in all cases ratification of or accession to one of the Montreal protocols has the effect of adherence to the relevant convention. MAP 1 1975 entered into force on 15 February 1996 and has been adopted by 48 States. MAP 2 1975 entered into force on 15 February 1996 and has been adopted by 49 States.

Montreal 4 Protocol

Montreal protocol no.4 to amend convention for the unification of certain rules relating to international carriage by air, signed at Warsaw on 12 October 1929, as amended by the protocol done at The Hague on 28 September 1955, signed at Montreal on 25 September 1975. A lot of amendments were done to different articles of the Warsaw convention.

Montreal Convention

The **Montreal Convention** (formally, the Convention for the Unification of Certain Rules for International Carriage by Air) is a multilateral treaty adopted by a diplomatic meeting of ICAO member states in 1999. It amended important provisions of the Warsaw Convention's regime concerning compensation for the victims of air disasters. The Convention attempts to re-establish uniformity and predictability of rules relating to the international carriage of passengers, baggage and cargo. As September 2018, there are 133 parties to the Convention. Included in this total are 132 of the 191 ICAO Member States plus the European Union. The states that have ratified represent 131 UN member states plus the Cook Islands.

5.5 Parties and Terms of Engagement in Air Transport

5.5.1 General Conditions of Carriage

In the air cargo industry, all dealings between the airlines, freight forwarders, shippers and consignees are often guided by legal considerations. The conditions of such legal contracts are stipulated by the terms of agreement between the trading parties; mutual agreement is considered as the main ingredient of a contract. Freight forwarders and shippers must adhere strictly to the conditions of contract and also the carrier's limitation of liability.

The carriage of goods is governed by the Montreal Protocol (MP4) and most recently revert to Montreal Convention (MC1999). The carrier's limitation of liability for loss, damage or delay to freight is SDR 17 (Special Drawing Rights) or 250 French gold francs per kilogram.
It is, therefore, advisable for shippers to declare the value for carriage. Shippers and its appointed freight forwarders must read the conditions of carriage thoroughly when filling up the Shipper's Letter of Instructions for Dispatch (SLI) or the air waybill.

5.5.2 Airline's Conditions of Carriage and Contract

General conditions of carriage for cargo

I. The nature of the contract

Especially in cases on air transportation of goods dealt within national courts, the question on the nature of the contract is of significant importance. Therefore, it is necessary to analyze the legal character in order to ensure a secure and widely uniformed treatment of cases. Neither the WC in its original form, nor the amendments or complementing conventions mentioned in part B., are giving explicit definition or ruling on matters how the contract between the carrier and the consignor should be shaped out. The existence of a consent between the carrier and the consignor is the main indicator that there is a contract. This is not satisfying, as it is not compatible with the definitions of contracts in many legal systems:

a) In Spain for example, the contract has a real nature, since it will be completed with the handing over of the items to be transported.
b) In Germany, the legal definition through the consent is not problematic. But here is the discussion about the sub-characterization of the consensual contract in progress. For the ruling opinion it is a service contract with the aim to achieve a success in the form of unproblematic transportation. On the other hand, it is for the. Minority a simple bill of sale to buy a right on transportation.

We see that the contract is difficult to define through the attempt of finding a definition valid within all national legal traditions and systems. A possible solution applicable in different legal systems, might be the attempt to show up the persons involved and how they are related to each other. Also helpful can be the analysis of the air waybill´s role and contents as well as a look on internationally widely used general conditions of carriage. The result is useful to understand the contract of transportation itself.

II the contractual parties

One of the specific characteristics of the air transportation contract on cargo, is that three or even more parties can be involved or receive benefits. The transport itself can be provided by another carrier than the one contracting, or the contract is done by an agent. Important to mention in the context of the contractual parties, are the differing economic positions. On the one hand, there are the carriers with their enormous economic power, on the other hand there are multitude small individual customers. These customers may face therefore a number of different situations within the highly organized air transport business, it is important to point out and define the parties to ensure correct application of liability rules in the case of damage, loss or destruction of cargo.

1. The Carrier

The person of the carrier is quite difficult to describe, as there are many different types. E.g. common carriers and private carriers or mixed carriers and all-cargo carriers. The first ones are differing in their obligations on transportation, which are higher for the common ones. Latter ones are characterized over the fact, if they are transporting solely cargo or passengers too.

One view holds, that the carrier is the one who concludes the contract in his own name, the second considers that the carrier is the one who actually performs the transportation. So we have two kinds of carriers, the contracting and the performing or actual carrier. The question in this context arising is, whether the contracting or the actual carrier are parties of the contract of transportation.

a) The contracting Carrier

One scientific opinion lead by *Goedhuis holds* that the carrier is the person who concludes the contract. Based his opinion on the idea, that only the carrier who has a direct contractual relationship with the consignor can be the carrier meant by the WC where the performing carrier is party in the contractual relationship.

b) The performing or actual carrier

We are here in the sphere of successive transportation, which means, that the cargo is transported to its final destination by different carriers. But even if the consignor concludes a contract with each of the carriers who will transport successively the goods, they are still all together jointly liable. See therefore A.30 in connection with A.1 (3) WC. If the consignor deals with the first carrier who ensures the subsequently transportation, there is only one contract.

The limitation of all the involved carrier's liability is not endangered by the fact that the air waybill states only one carrier, if it is possible for the consignor to inform himself about the fact that there are different carriers in the specific transportation involved. E.g. by looking on the schedules of the contracting carrier, like it was upheld to be sufficient in the *Rotterdamsche Bank v. BOAC case*. It is pursuant to A.8 WC enough to state only the first carrier´s name on the air waybill. Conditions of carriage on its back might allow the carrier to substitute another carrier without warning. Multiplicity of air waybills for the contracting and the performing carrier is no indicator for separated contracts with the contracting and the actual carrier. Reason is the character of the air waybill as a piece of evidence for a contract, it is not the contract itself.

c) Combined transportation

Another problem concerning persons involved in the contract of transportation, is occurs if parts of the journey of the transported goods are not done by air but provided by a person offering another mode of transportation. This might be e.g. road or rail transportation. A.31 (1) WC states, that these clauses of the contract are not governed by the Convention. But they might be treated in the same way, as the regular air transportation, if the air waybill includes particulars relating to other modes of transportation. As this topic is of great complexity it will be not discussed further on in the context of this essay.

2. Air Cargo Intermediaries

These are agents, who are completing all the formalities on the consignor's behalf, and are doing transportation of merchandise, but are not involved in the operation of aircraft. They are normally certified by the IATA and bound contractually

to the airline companies which are in most cases IATA members. The agent's obligations are only to receive the cargo, to hand it over to the airline and to accept payment for the carrier. He is contracting on behalf of the airline with the consignee and is stating as evidence the chosen airlines name on the air waybill. As he is acting on behalf of the carrier, he is not contracting party and therefore only directly liable towards the consignee if problems are caused by their personal faults. Non-certified agents, called forwarders, are not contractually bound to specific airlines. Therefore, they are themselves contracting carriers and are issuing own air waybills and are fully responsible within foreseeable limits according to A.22 WC.

3. Consignor and Consignee

A typical characteristic of the air transportation contract is, that beside the carrier and the consignee, there is a third party, the consignor. The contract itself is made between the consignor and the carrier, but the consignor takes advantage by receiving the cargo. Keep in mind, that the relationship between the consignor and the consignee is not influenced by the contract of transportation. Sometimes, the consignor and the consignee might be even the same person. Reference as consignor should be only made to persons stated on the air waybill. But as we will see in the discussion on the air waybill, the air waybill is only evidence for the contract. Therefore, the consignor can be another person than the one stated on the bill. But in practice, only the one is seen as the consignor who is stated as such on the air waybill. It is the same for the consignee. Here is the only problem the negotiable air waybill drawn up to the bearer. But as the consignee is not part of the contract, there is no need to state a consignee.

5.6 Types of Air Transport

Types of planes

1. Conventional Aircrafts (narrow body)

Conventional Aircraft are the atmosphere-only aircraft that have been around since the Wright Flyer's first take-off. Though modern craft are much more advanced and capable than that early model, Conventional Aircraft have been superseded in modern times by the Aerospace Fighter, which can operate in both atmosphere and space. A narrow body aircraft, also known as a single-aisle aircraft, is a smaller-type aircraft that is often used to operate short-haul international flights and domestic flights. A narrow body aircraft can carry as little as 4 passengers up to as many as 300.

2. Wide-body Aircrafts (high capacity) to provide,

A **wide-body aircraft**, also known as a **twin-aisle aircraft**, is an airliner with a fuselage wide enough to accommodate two passenger aisles with seven or more seats abreast. The largest wide-body aircraft are over 6 m (20 Ft.) wide, and can accommodate up to eleven passengers abreast in high-density configurations. Wide body aircraft are almost always used to operate **long haul and medium haul flights** but can occasionally be used on shorter flights. The wide body are further divided into;

i. Passenger Services: These are used for passenger service only.

Figure: Passenger Aircraft

ii. Combi (Mixed)

These are used for both passenger and cargo. The passengers sit at the upper deck and cargo compartments are in the lower deck

Figure: Mixed comb aircraft.

iii. All-Cargo Freighter

These are designed for shipping cargoes. The features of the all-cargo aircraft are completely different from passenger aircraft and does not integrate passenger plane design model. And its transit time ranges from a short, to a long-distance flights.

Figure: Cargo Freighter only.

5.7 Air Transport Documentation

Airway Bill

An **air waybill** (**AWB**) or **air consignment note** is a receipt issued by an international airline for goods and evidence of the contract of carriage. The air waybill is the most important document issued by a carrier either directly or through its authorized agent.

It is a non-negotiable transport document that covers the transport of cargo from airport to airport. By accepting a shipment, an IATA cargo agent is acting on behalf of the carrier whose air waybill is issued. An air waybill (AWB) serves as a receipt of goods by an airline (the carrier), as well as a contract of carriage between the shipper and the carrier. It's a legal agreement that's enforceable by law. It becomes an enforceable contract when the shipper (or shipper's agent) and carrier (or carrier's agent) both sign the document.

The AWB will also contain the shipper's name and address, consignee's name and address, three letter origin airport code, three letter destination airport code, declared shipment value for customs, number of pieces, gross weight, a description of the goods and any special instructions (e.g., "perishable").

It also contains the conditions of the contract that describe the carrier's terms and conditions, such as its liability limits and claims procedures, a description of the goods, and applicable charges.

Requirements of an Airway Bill

The International Air Transport Association (IATA) designs and distributes air waybills. There are two types of AWBs, that is; airline AWBs and neutral AWBs.

- **An airline air waybill** must include the carrier's name, head office address, logo and air waybill number.
- **Neutral air waybills** have the same layout and format as airline AWB, they just aren't pre-populated.

Non-Negotiable

Waybills are non-negotiable documents unlike bills of lading which are negotiable. The words non-negotiable are printed clearly at the top of the air waybill. This means that the air waybill is a contract for transportation only and does not represent (the value of) merchandise mentioned in the box nature and quantity of goods.

Master Airway Bill (MAWB)

These are international airway bills that contain international consolidated cargo, and they are issued by the carrier to the forwarder. MAWBs have additional papers called house air waybills (HAWB). Each HAWB contains information of each individual shipment (consignee, contents, etc.) within the consolidation. Whereas a Master Airway Bill (MAWB) is described as the one issued by the

main carrier of goods on receipt of goods from a freight forwarder to deliver at a destination based on agreed terms and conditions. Thus, it is a contract of carriage between a forwarder and a carrier.

House Airway Bill (HAWB)

To understand it better, just in case if a freight forwarder or a consolidator is involved in a shipment, he or she will issue a document of receipt of goods to the final shipper of each individual consignment and the same is called a **House Airway Bill**, the HAWB.

The same Airway Bill is also known as the Forwarder's House Airway Bill, which is a contract of carriage between a shipper and the freight forwarder. This freight forwarder then enters a contract with one or more airlines. Now the contract between the airline and the freight forwarder for goods is called as the Master Airway Bill – MAWB

Example illustrating the difference between a Master airway bill and a house airway bill

A Master Airway Bill – MAWB is always issued by the main carrier of goods on receipt of goods from a freight forwarder to deliver as per agreed terms. Whereas a House Airway Bill – HAWB is issued by a freight forwarder on receipt of goods from shipper agreeing to deliver goods at a destination.

For example, Mawanda Enterprises Ltd is a freight forwarder and acting as a carrier accepts cargo from an exporter Garry Investments Ltd, and agrees to deliver it to John K, in Uganda. Mawanda Enterprises Ltd will issue an airway bill to Garry Investments Ltd, on receipt of goods. After completing all customs formalities, Mawanda Enterprises Ltd, will transfer them to Kenya Airways, Kenya Airways, being the main carrier of the goods. During this transfer Mawanda Enterprises Ltd will receive an airway bill from Kenya Airways, who is the main carrier, agreeing to deliver the cargo to Uganda. Now the first airway bill issued by Mawanda Enterprises Ltd, to Garry Investments Ltd, is called the House Airway Bill - HAWB and the second one issued by Kenya Airways to Mawanda Enterprises Ltd, is called the Master Airway Bill.

It should be noted that a House Airway Bill or HAWB is not a complete document of title, but a forwarder's Airway Bill has a legal-standing similar to that of a carrier's Airway Bill, hence also called as a Forwarder's Airway Bill. As a Master Airway Bill is signed by the actual carrier and also states the terms and conditions of the carriage, the consignee in this case may have protection in case the goods are damaged or lost in transit. Whereas in case of a House Airway Bill, which is signed by the forwarder and states the terms and conditions of carriage from the forwarders company's perspective, it does not contain the actual carrier's carriage contract, hence the shipper stated on the house airway bill is not the direct participant of the carriage contract indicated on the master airway bill.

Customs invoices / commercial invoices

A **customs invoice** is a document that travels with your shipment and contains information about the items inside the shipment. The customs invoice is required for customs clearance, and the shipment can't leave the country without one.

Certificate of Origin

A set of comprehensive rules of origin is generally comprised of origin criteria to determine the country of origin / originating status of a product and procedural requirements to support a claim that the product satisfies the applicable origin criteria.

Packing list

It is an itemized list of articles usually included in each shipping package, giving the quantity, description, and weight of the contents it is prepared by the shipper and sent to the consignee for accurate tallying of the delivered goods. A Packing List shows how the goods were packed for inspection and shipping purposes.

Inspection Certification:

It is required by some purchasers and countries in order to attest to the specifications of the goods shipped. This is usually performed by a third party and often obtained from independent testing organizations.

Shipping Bill

The shipping bill is an essential document issued by the Customs Service Centre after the exporter applies to acquire this bill. This bill facilitates the exporter to get customs clearance, load the goods for export and it is becoming a requirement at destination countries during the clearance process of imports from India.

5.8 Air Cargo Management

5.8.1 Normal cargo

Cargo handling is performed at thousands of airports all over the world by hundreds of companies, posing a high potential risk for deviations in the quality of handling. IATA actively drives the development of ground handling operations standards, best-practice processes, and procedures.

Below are some of the best practices for a normal shipment by Air

1. Address and Label Your Shipment Clearly

Make sure to address and mark your shipment clearly on two adjoining sides with the name, address and telephone number for both the shipper and the receiving party.

2. Include all necessary documents for International Shipments

Prepare a commercial invoice, packing list, certificate of origin etc. for any international shipments, and double-check that they clearly define the contents and the value assigned to them. This will ensure that your shipment clears customs as quickly and efficiently as possible.

3. Prepare and Pack your shipment properly

Surround your goods with lightweight materials like packing peanuts and bubble wrap to pack your box full. This will also help protect your items from any bumps from handling along the way. Although cardboard fibreboard boxes offer an excellent solution for air freight shipments, they can be vulnerable to crushing especially if you leave large pockets of air around your goods. After all, although air freight subjects your shipments to less handling than ocean freight, some impact may occur along the way.

4. Don't Re-Use Corrugated Fibreboard Boxes

In addition to making sure that you follow the manufacturer's guidelines for maximum weight, only use your corrugated fibreboard boxes for a single air freight shipment. That way, you can ship with confidence, knowing that your container has the full strength it needs to protect your goods during their journey. If a box arrives in excellent condition from its last shipment, it can be tempting to reuse it. **However, this presents a bit of a risk.** These boxes don't always have the strength to withstand a second use without crushing.

5. Don't Over-Pack

While you're preparing your shipment, use only as much material as you need to fill the box and protect your shipment. Weight is an important factor in the cost of your air freight shipment. The International Air Transport Association's (IATA) regulations require shipping companies to measure the volume and weight of each shipment. Your cost is based on whichever one is greater. So, it's in your best interest to keep your shipments as light as possible.

6. Consider the Size

If you have a large shipment, make sure you talk with your agent to understand the maximum size that can be accommodated. From there, you'll have all the information you need to plan and pack accordingly.

5.8.2 Special Cargo

Special cargo requires special conditions for transporting goods, such as temperature control, certain air conditions or protected casing e.g. if the goods are livestock, perishable etc.

Temperature Controlled Cargo/ Live Animals/ Infectious Substances

If you are transporting items, such as medicines, vaccine, COVID-19 viral test kits, or other items that require specific temperature during transport and movement from origin to destination, you need to meet the requirements of the source as well as the IATA Acceptance Checklist for Temperature Control Regulations (TCR) for cargo being transported.

IATA Standard Acceptance Checklist for Time and Temperature Sensitive Healthcare Shipments

To assist shippers, agents and airlines to prepare shipments for air carriage, the IATA Live Animals and Perishables Board (LAPB) developed a basic "IATA Acceptance Check List for Time and Temperature Sensitive Healthcare Shipments".

The purpose of the IATA Standard Acceptance Check List is to inform airlines and ground handling agents of the minimum checks that must be performed when temperature sensitive healthcare shipments are presented to ensure that the requirements have

been complied with. In case of any discrepancy, the appropriate internal escalation procedure would have to be followed.

The check requirements listed on the IATA standard acceptance checklist can be integrated into an existing airline and ground handling agent's checklist if these are not already included. In the case there is no checklist for temperature sensitive healthcare shipments available, then the IATA acceptance checklist for time and temperature sensitive healthcare shipments can be used as a basis to establish one.

The initial booking is the key step to successful cargo transportation and will trigger the specific and/or appropriate handling and operational processes associated with healthcare transport and/or logistics. The label only supports the booking, thus the transportation temperature range specified on the label must match the transportation temperature range stated on the Air Waybill, Service Level Agreement (SLA) and/or Standard Operating Procedure (SOP).

IATA's aim is to ensure the integrity of the time and temperature sensitive healthcare shipments and that the air cargo supply chain is prepared to handle the demands of these healthcare shipments. It is imperative that airlines, ground handling agents and other stakeholders in the supply chain – including freight forwarders, terminal operators, ULD manufacturers, packaging and tracking and tracing companies are familiar with both the regulations and the appearance of the label.

5.8.3 Dangerous Goods Cargo

Transporting dangerous and hazardous goods can present a unique set of challenges. All these challenges have been answered in the IATA Dangerous Goods Regulations (IDGR). The IATA DG regulations follows closely to the regulations set down by the International Civil Aviation Organization (ICAO) this manual provides shippers and airlines with information on the handling of dangerous goods to ensure that they are safe for uplift on commercial airlines.

It advises shippers on how to pack these hazardous goods so that they can be transported by air without causing any harm to the passengers and equipment and other packing instructions such as the exact quantity of DG that can be combined in one package. It is also compulsory for IATA members and airlines, freight forwarders and ground handlers to have at least 2 employees trained in handling dangerous goods.

Documentation of Dangerous Goods Cargo

On top of all the documentation for normal cargo, DG require a **dangerous goods declaration form**. Under all dangerous goods regulations (UN TDG, DOT, IATA, IMDG, ADR), the shipper has the responsibility to correctly describe dangerous goods declaration form. The critical DG form must be maintained for a given period of time (3 months to 2 years), depending upon the kind of shipment. The transport document containing all information about the dangerous goods including the emergency response information.

Dangerous Goods declaration form.

It certifies that the shipment has been labelled, packed and declared according to IATA's Dangerous Goods Regulations (DGR). The shipper's declaration helps the carrier understand the sort of handling that is required during transit, so it's vital to complete it correctly and attach it to the shipment.

What details should I include on the shipper's declaration?

The following information should be included on the shipper's declaration:

- Address and contact details of shipper and receiver (consignee)
- Emergency contact details (if required)
- Proper shipping name of the dangerous goods (e.g., Acetone)
- Quantity
- UN number (e.g., UN 1090)
- Class or division (subsidiary hazard)
- Net weight of dangerous goods and total shipment weight (if required)
- DG packing group I, II or III (if required)
- Whether the dangerous goods are radioactive or not
- Additional handling information (if required)

There are 9 classes of dangerous goods, and the class is determined by the nature of the danger they present:

- Class 1: Explosives
- Class 2: Gases

- Class 3: Flammable liquids
- Class 4: Flammable solids
- Class 5: Oxidizing agents & organic peroxides
- Class 6: Toxins and infectious substances
- Class 7: Radioactive material
- Class 8: Corrosives
- Class 9: Miscellaneous dangerous goods

Packing Groups (Degree of Danger)	**Classification**
Packing Group I	High danger
Packing Group II	Medium danger
Packing Group III	Low danger

Sometimes, these packing groups are represented by letters X, Y and Z

X	=	Packing Group I
Y	=	Packing Group II
Z	=	Packing Group III

Below are some of the packaging/ containers

i. Barrel (drum)
ii. Wooden barrel
iii. Jerrican
iv. Crate or box
v. Sack
vi. Combination packaging
vii. Pressure receptacles

Marking and labelling of Dangerous Goods

Dangerous goods packages must be marked and labelled before they are assigned for shipment. The differences between marking and labelling under TDG are listed as below:

- **Marking**: mainly refers to UN number, proper shipping names, UN specification marks and other markings if applicable (i.e., orientation arrows, environmental hazardous substances mark for UN 3077 and UN 3082 and excepted quantities mark).
- **Labelling the package:** Once the correct packaging has been identified and selected, the shipper must first ensure that only relevant markings are present on the outside of the package. If markings exist that are unnecessary for shipment, these should be removed or obliterated. Once this is done, the following information must be clearly present and easy to read on the outside of the package:
  - Proper shipping name in upper case letters,
  - Hazard class label(s)
  - UN identification number and packing group.
  - Orientation label for liquids.
  - The correct standardized UN certification mark, and any additional required information, depending on the material.

None of the above information is to be obscured or placed in the incorrect orientation. They also must be able to withstand open weather exposure without a substantial reduction in effectiveness and be displayed on a background of contrasting colour.

5.9 Evaluating Air Transport

Air transport has the following characteristics:

1. Unbroken Journey:
Air transport provides unbroken journey over land and sea. It is the fastest and quickest means of transport.

2. Rapidity:
Air transport had the highest speed among all the modes of transport.

3. Expensive:
Air transport is the most expensive means of transport. There is huge investment in purchasing aero planes and constructing of aerodromes.

4. Special Preparations:
Air transport requires special preparations like wheelers links, meteorological stations, flood lights, searchlights etc.

Advantages of Air Transport:

1. High Speed:
The supreme advantage of air transport is its high speed. It is the fastest mode of transport and thus it is the most suitable mean where time is an important factor.

2. Comfortable and Quick Services:
It provides a regular, comfortable, efficient, and quick service

3. Limited Investment in Construction of Track:
It does not require huge capital investment in the construction and maintenance of surface track and runways as compared to rail tracks.

4. No Physical Barriers:
It follows the shortest and direct route as seas, mountains or forests do not come in the way of air transport.

5. Easy Access:
Air transport can be used to carry goods and

people to the areas which are not accessible by other means of transport.

6. Emergency Services:

It can operate even when all other means of transport cannot be operated due to the floods or other natural calamities. Thus, at that time, it is the only mode of transport which can be employed to do the relief work and provide the essential commodities of life.

7. Quick Clearance:

In air transport, custom formalities can be very quickly complied with and thus it avoids delay in obtaining clearance.

8. Most Suitable for Carrying Light Goods of High Value:

It is most suitable for carrying goods of perishable nature which require quick delivery and light goods of high value such as diamonds, bullion etc. over long distances.

9. National Defense:

Air transport plays a very important role in the defense of a country. Modern wars have been fought mainly by aero planes. It has upper hand in destroying the enemy in a very short period of time. It also supports over wings of defense of a country.

10. Space Exploration:

Air transport has helped the world in the exploration of space.

Disadvantages of Air Transport:

In spite of many advantages, air transport has the following limitations:

1. Very Costly:

It is the costliest means of transport. The fares of air transport are so high that it is beyond the reach of the common man.

2. Small Carrying Capacity:

Its carrying capacity is very small and hence it is not suitable to carry cheap and bulky goods.

3. Uncertain and Unreliable:

Air transport is uncertain and unreliable as it is controlled to a great extent by weather conditions. Unfavorable weather such as fog, snow or heavy rain etc. may cause cancellation of scheduled flights and suspension of air service.

4. Breakdowns and Accidents:

The chances of breakdowns and accidents are high as compared to other modes of transport. Hence, it involves comparatively greater risk.

5. Large Investment:

It requires a large amount of capital investment in the construction and maintenance of aero planes. Further, very trained, and skilled persons are required for operating air service.

6. Specialized Skill:

Air transport requires a specialized skill and high degree of training for its operation.

7. Unsuitable for Cheap and Bulky Goods:

Air transport is unsuitable for carrying cheap, bulky and heavy goods because of its limited capacity and high cost.

5.10 Learning Activities

You are an employ of a forwarding company in Bujumbura/Burundi with branches all over EAC, you are responsible for dealing with Dangerous Goods in the company's export department. You receive the following enquiry from Eco Pharma Ltd. They intend to ship 1Kg of Covid-19 samples from Bujumbura to Johannesburg, the samples have no commercial value, the samples are supposed to be picked from their lab. Eco Pharma Ltd, is requesting for your detailed counselling as well as detailed information on packaging requirements and transport costs.

Required

i. Counsel your customer on packaging requirements
ii. Explain details regarding the transport process from the lab to South Africa
iii. Give reasons why you chose the mode you are using
iv. Explain the full range of documents required to move the sample
v. Explain the steps to prevent the sample from getting compromised before delivery.

5.11 Assessment Questions and Activities

1. Differentiate a contracting carrier from a performing carrier
2. Explain the liability and limitations of a carrier according to the Warsaw and Montreal conventions.
3. Explain a full range of documentation required for shipping Dangerous Goods clearly indicating the source and relevance.
4. Discuss at least five (5) reasons for selecting air over land transport.

5.12 References

- Rodrigue, J., Comtois, C. & Slack, B. (2013). The Geography of Transport Systems, 3rd Edition. Routledge Francis Taylor.
- Glass, D. (2012). Freight Forwarding and Multi Modal Transport Contracts, 2nd Edition. Routledge
- Bektas, T. (2019). Freight Transport and Distribution Concepts and Optimization Models. Routledge
- AIRSEACONTAINERS. (2021, 08 05). www.airseacontainers.com. Retrieved from https://www.airseacontainers.com/blog/your-ultimate-guide-to-shipping-perishables/: https://www.airseacontainers.com/blog/your-ultimate-guide-to-shipping-perishables/
- IATA. (2021, 09 02). https://www.iata.org/en/. Retrieved from www.iata.org: https://www.iata.org/en/
- KLG EUROPE. (2021, 09 10). 1968 Hague-Visby Rules. Retrieved from www.klgeurope.com: https://www.klgeurope.com/files/1968_hague-visby_rules.pdf
- UNCTAD. (2021, 09 13). United Nations Convention on the Carriage of Goods by Sea (Hamburg Rules) 1978. Retrieved from www.unctad.org: https://unctad.org/system/files/official-document/aconf89d13_en.pdf

6.0 CARRIAGE OF GOODS BY RAIL

6.1 Specific Learning Outcomes

At the end of the unit topic, the trainee should be able to:

i. Explain the meaning of Carriage by Rail
ii. Evaluate the rail transport regulations
iii. Identify the parties and terms of engagement in rail transport
iv. Describe the types of rail transport carriers
v. Identify Documentation in rail transport
vi. Evaluate rail transport

6.2 Introduction

Rail transportation is the mode or means of transport where passengers and goods are transferred on wheeled vehicles running rails, also known as tracks. This is also commonly referred to as train transport. Unlike road transport where vehicles run on a prepared flat surface (roads), rail vehicles are directionary guided by the tracks on which they are run. Tracks usually consists of steel rails, installed on ties (sleepers) and ballast, on which the rolling stocks, usually fitted with metal wheels moves.

The Governments of Kenya, Uganda, Rwanda and South Sudan are committed to the development of a seamless railway transport system within the framework of the Northern Corridor Integration Projects (NCIP) regional initiative. In May 2014, the four Partner States signed a regional SGR Protocol that commits them. The Protocol provides mechanisms for cooperation between Partner States and stipulates key timelines for project completion. It is in this respect that the SGR project is being fast-tracked to enable faster socio-economic transformation of the NCIP economies.

6.3 Rail Transport Regulations

The East African Perspective

Rail transport in East Africa is currently ratified by the East Africa Community (EAC) Treaty Article 91 under the heading.

Article 91 Railways and Rail transport.

1- The Partner State agree to establish and maintain coordinated railway services that would efficiently connect the partner states within the community and, where necessary, to construct additional railway connections.

2- Partner states shall, in particular;

a) Adopt common policies for the development of railway transport in the community.
b) Make railways more efficient and competitive through, inter alia, autonomous management and improvement of the infrastructure.
c) Adopt common safety rules, regulations and requirements with regard to sign, signals, rolling stock, motive power and related equipment and the transport of dangerous substances;
d) Adoption measures for the facilitation, harmonisation and rationalisation of rail transport within the community;
e) Harmonise and simplify documents required for railway transport within the community;
f) Harmonise procedures with the respect to the packaging, marking and loading of goods and wagons for railway transport within the community;
g) Agree to charge non-discriminatory tariffs in respect of goods transported by rail within the community;
h) Consult each other on proposed measures that may affect rail transportation within the community;
i) Integrate the operations of their railway administrations including the synchronisation of train schedules and the operations of unit trains;
j) Establish common standards for the construction and maintenance of rail facilities;
k) Agree on common policies for the manufacture railway transport equipment and railway facilities;
l) Agree to allocate space for storage of goods transported by rail from other within their goods sheds;
m) Take measure to facilitate thorough working of trains within the community;
n) Facilitate the deployment of railway rolling stock, motivate power and related equipment for the conveyance of goods to and from each other without discrimination;

o) Endeavour to maintain the existing physical facilities of their railways to such standards as will enable the partner states to operate their own systems within the community in an efficient manner;
p) Provide efficient railway transport services among the partner states on a non-discriminatory basis;
q) Facilitate joint utilisation of railway facilities including manufacture, maintenance and training facilities to ensure their optimal use; and
r) Promote cooperation in the fields of research and exchange of information.

6.4 International Legal Requirements and Bodies

Internationally rail transport is ratified by several organisations. These include the following;

a) International Organization for international carriage by Rail (OTIF)
b) International Rail Union (UIC)
c) International conventions for Rail transport, in Europe(CIM)

a) International Organization for international carriage by Rail (OTIF)

Background

OTIF (Intergovernmental Organization for international carriage by Rail) is one of the Intergovernmental organizations for promoting, improving and facilitating all aspects of rail transport. The organization came into being in May 1985 after the Convention concerning International Carriage by Rail (**COTIF**) entered into force in May 1980.

Establishment of uniform rules for international rail traffic

One of the principal objectives of OTIF has been establishment of uniform system of law on various aspects of rail transport and supports its development and application among its members.
These uniform rules are contained in appendices A to G to the COTIF and cover following areas of rail transport:

i. Uniform Rules concerning Contract of International Carriage of Passengers by Rail (CIV);
ii. Uniform Rules concerning Contract of International Carriage of goods by Rail (CIM);
iii. Regulations concerning the International Carriage of Dangerous goods by Rail (RID);
iv. Uniform Rules concerning Contract of Use of Vehicles in International Rail Traffic (CUV);
v. Uniform Rules concerning Contract of Use of Infrastructure in international rail Traffic (CUI);
vi. Uniform Rules concerning the Validation of Technical Standards and the Adoption of Uniform Technical Prescriptions applicable to Railway Material Intended to Be Used in International Traffic (APTU);
vii. Uniform Rules concerning the Technical Admission of Railway Material Used in International Traffic (ATMF)

b) International Union for Railways (UIC)

Background

UIC was established in Paris on 17 October 1922 with a main purpose to Harmonize and improve conditions for railway construction and operations. The idea of creating an international organization, bringing together the railway companies, was developed in the wake of the international conference of Porto Rosa, Italy on 23 November 1921, followed by the international conference of Geneva in 3 May 1922. The state representatives favoured the "creation of a permanent rail administration focusing on international traffic for the standardization and improvement of conditions of railway construction and operations". The international conference founding UIC was held in Paris on 17 October 1922. Initially, the UIC had 51 members from 29 countries including China and Japan, which were soon joined by the railways from the erstwhile USSR, the Middle East and North Africa.

Mission and objectives

UIC mission is to promote rail transport globally and meet the challenges of mobility and sustainable development. The main objectives of UIC are to:

i. Facilitate the sharing of best practices among members (benchmarking);
ii. Support members in their efforts to develop new business and new areas of activities;
iii. Propose new ways to improve technical and environmental performance;
iv. Promote interoperability, create new world standards for railways (including Common standards with other transport modes);
v. Develop centers of competence (High Speed, Safety, Security, e-Business); and

vi. Original principal task to Harmonize and improve conditions for railway constructions and operations.

c) International Rail Transport Committee (CIT) 30

International Rail Transport Committee was formed in 1902 for simplification of formalities in international railway transport. The main objective of the CIT is to promote and Interoperability of international railway transport by promoting harmonization of legal frameworks and support uniform implementation of laws governing railway transport.

CIT helps implement international rail transport law by:

- Drawing up and maintaining legal publications and boiler plate documents for international traffic by rail,
- Standardizing the contractual relationships between customers, carriers and infrastructure managers,
- Representing the interests of carriers by rail vis-à-vis legislators and authorities.
- Providing regular briefings on legal issues; and,
- Organizing training courses and giving legal advice as requested.

Every two years, it brings together some 150 specialists in international rail transport law at a workshop where experts debate on the current legal developments and future direction of railway transport law. CIT supports the freight business by supporting its members in implementation of the legislation applicable and in particular the CIM Uniform Rules. It also aims to simplify and standardize the working relationships between transport undertakings and between them and their customers. In this regard it produces various reference documents such as agreements, basic contractual documents, manuals and forms.

6.5 Parties and Terms of Engagement in Rail Transport

The rights, role and duties of the parties involved in rail freight

The parties involved in rail transport may be broadly divided into two categories: that is the carrier (rail Operator) and the customers that include, shippers, receivers, freight forwarders etc. their rights roles and duties are guided by the both national and regional laws or by the uniform laws that govern the carriage of goods by rail.

Article 1 Scope

1 Subject to the exceptions provided for in Article 2, the Uniform Rules shall apply to all consignments of goods for carriage under a through consignment note made out for a route over the territories of at least two States and exclusively over lines and services included in the list provided for in Articles 3 and 10 of the Convention, as well as, where appropriate, to carriage treated as carriage over a line in accordance with Article 2, and 2, second sub-paragraph of the Convention.

2 In the Uniform Rules the expression "station" covers: railway stations, ports used by shipping services and all other establishments of transport undertakings, open to the public for the execution of the contract of carriage.

Article 2 Exceptions from scope

1. Consignments between sending and destination stations situated in the territory of the same State, which pass through the territory of another State only in transit, shall not be subject to the Uniform Rules:
   a) If the lines or services over which the transit occurs are exclusively operated by a railway of the State of departure; or
   b) If the States or the railways concerned have agreed not to regard such consignments as international.
2. Consignments between stations in two adjacent States and between stations in two States in transit through the territory of a third State shall, if the lines over which the consignments are carried are exclusively operated by a railway of one of those three States, be subject to the internal traffic regulations applicable to that railway if the sender, by using the appropriate consignment note, so elects and where there is nothing to the contrary in the laws and regulations of any of the States concerned.

Article 10 National law

1. In the absence of provisions in the Uniform Rules, supplementary provisions or international tariffs, national law shall apply.
2. "National law" means the law of the State in which the person entitled asserts his rights, including the rules relating to conflict of laws

Article 11 Making of the contract of carriage

1. The contract of carriage shall come into existence as soon as the forwarding railway has accepted the goods for carriage together with the consignment note. Acceptance is established by the application to the consignment note and, where appropriate, to each additional sheet, of the stamp of the forwarding station, or accounting machine entry, showing the date of acceptance.
2. The procedure laid down in 1 must be carried out immediately after all the goods to which the consignment note relates have been handed over for carriage and where the provisions in force at the forwarding station so require such charges as the consignor has undertaken to pay have been paid or a security deposited in accordance with Article 15, 7.
3. When the stamp has been affixed or the accounting machine entry has been made, the consignment note shall be evidence of the making and content of the contract.
4. Nevertheless, when the loading of the goods is the duty of the consignor in accordance with tariffs or agreements existing between him and the railway, and provided that such agreements are authorised at the forwarding station, the particulars in the consignment note relating to the mass of the goods or to the number of packages shall only be evidence against the railway when that weight or number of packages has been verified by the railway and certified in the consignment note. If necessary, these particulars may be proved by other means.
5. The railway shall certify receipt of the goods and the date of acceptance for carriage by affixing the date stamp to or making the accounting machine entry on the duplicate of the consignment note before returning the duplicate to the consignor. The duplicate shall not have effect as the consignment note accompanying the goods, nor as a bill of lading.

Article 12 Consignment note

1. The consignor shall present a consignment note duly completed. A separate consignment note shall be made out for each consignment. One and the same consignment note may not relate to more than a single wagon load. The supplementary provisions may derogate from these rules.

2. The railways shall prescribe a standard form of consignment note, which must include a duplicate for the consignor.

   In the case of certain traffic, notably between adjacent countries, the railways may prescribe, in the tariffs, the use of a simplified form of consignment note.

   In the case of certain traffic with countries which have not acceded to this Convention, tariffs may provide for recourse to a special procedure.
3. The consignment note must be printed in two or where necessary in three languages, at least one of which shall be one of the working languages of the Organization.

International tariffs may determine the language in which the particulars to be filled in by the consignor in the consignment note shall be entered. In the absence of such provisions, they must be entered in one of the official languages of the State of departure and a translation in one of the working languages of the Organisation must be added unless the particulars have been entered in one of those languages.

The particulars entered by the consignor in the consignment note shall be in Roman lettering, save where the supplementary provisions or international tariffs otherwise provide

Article 50 Liability of the railway for its servant:

The railway shall be liable for its servants and for any other persons whom it employs to perform the carriage. If however such servants and other persons, at the request of an interested party, make out consignment notes, make translations or render other services which the railway itself is under no obligation to render, they shall be deemed to be acting on behalf of the person to whom the services are rendered.

Article 51 Other actions:

In all cases to which the Uniform Rules apply, any action in respect of liability on any grounds whatsoever may be brought against the railway only subject to the conditions and limitations laid down in the Rules. The same shall apply to any action

brought against those servants and other persons for whom the railway is liable under Article 50.

Article 52 Ascertainment of partial loss or damage:

When partial loss of or damage to, goods is discovered or presumed by the railway or alleged by the person entitled, the railway must without delay, and if possible in the presence of the person entitled, draw up a report stating, according to the nature of the loss or damage, the condition of the goods, their mass and, as far as possible, the extent of the loss or damage, its cause and the time of its occurrence.

Article 53 Claims

1. Claims relating to the contract of carriage shall be made in writing to the railway specified in Article 55.
2. A claim may be made by persons who have the right to bring an action against the railway under Article 54.
3. To make the claim, the consignor must produce the duplicate of the consignment note. Failing this, he must produce an authorization from the consignee or furnish proof that the consignee has refused to accept the consignment. To make the claim, the consignee must produce the consignment note if it has been handed over to him.
4. The consignment note, the duplicate and any other documents which the person entitled thinks fit to submit with the claim shall be produced either in the original or as copies, the copies to be duly authenticated if the railway so requires. On settlement of the claim, the railway may require the production, in the original form, of the consignment note, the duplicate or the cash on delivery voucher so that they may be endorsed to the effect that settlement has been made.

Article 54

Persons who may bring an action against the railway

1 An action for the recovery of a sum paid under the contract of carriage may only be brought by the person who made the payment.

2 An action in respect of the cash on-delivery payments provided for in Article 17 may only be brought by the consignor.

6.6 Types of Rail Transport Carriers

Tank car

Tank cars are designed to carry hazardous and non-hazardous, low, medium and high-pressure liquid and gaseous bulk commodities. Some tank cars require sprayed on interior coatings or linings which prevent contamination to the commodities or damage to the cars. Tank cars are highly regulated by the Department of Transportation and require periodic, extensive, time and mileage-based inspections.

Figure: Tank car

Large Covered Hopper

All steel large, covered hoppers are designed for carrying plastic resin pellets. Cars are loaded through 10 hatches at the top of the railcar and unloaded through bottom outlets. Inside Length 62'11" Height 15'5-11/16' Gross Rail Load 286,000 lbs Load Limit 220,000 lbs Commodities » Plastic resin.

Figure: Large Covered Hopper

Medium Covered Hopper

Medium, all steel Covered Hoppers are designed for carrying dry bulk loads which require protection from the weather, such as corn, soybeans and meal, wheat, other grains, and other products. Products are loaded through top hatches and unloaded through wide, gravity gates at the bottom of the railcar. Specifications Length 58′ Inside Length 52'-10 1/8" Cubic Capacity 5,188 c.f. Gross Rail Load 286,000 lbs Load Limit 224,000 lbs Commodities » Corn » Grain » Soybean

Figure: Medium Covered Hopper

Specialty wagons

These are wagons made to suit customer requirements. Commodity specific railcars or railcars designed with special accommodations. Wagon designers and engineering teams work closely with customers to match a railcar to their specific requirements, and to maximize shipping efficiencies.

Figure: Speciality wagons

Intermodal Wagons

These are modern, single platform railcars designed for 53' containers. The single platform offers maximum flexibility while the size of car accommodates the largest, industry standard containers. Specifications Length 67'9' Inside Length 53' Height 15'5-11/16' Gross Rail Load 220,000 lbs Load Limit 166,000.

Figure: Intermodal wagons

Mill Gondola

Mill gondolas are available to meet the needs of those wishing to ship scrap steel and other commodities unaffected by weather.

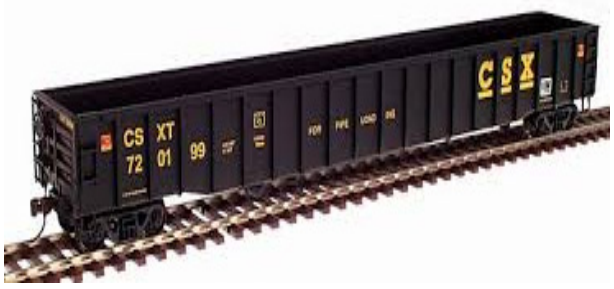


Figure: Mill Gondola

Boxcar

These cars are designed to service appliance, paper, auto parts, construction material, consumer goods and other shipments. They feature all-steel construction and a variety of door configurations, including plug or sliding.

Figure: box car

Covered Coil.

There are two choices of covered coil gondolas built for coils of finished steel; a transverse trough coil car as well as a longitudinal trough design. The coil gondolas feature steel covers which protect the coils from damage caused by weather. The railcars are equipped to handle steel coils up to 84" in diameter.

Figure: covered coil

Small Covered Hopper

Small Covered Hoppers are all steel, and are designed for carrying dry bulk loads which require protection from the weather, including cement, sand, roofing granules, and other materials. The railcars are equipped with three 30" diameter roof hatches for loading and two gravity discharge outlets.

Figure: small covered Hopper

6.7 Documentation in Rail Transport

CIM Consignment Note

This is one of the most important documents one must have when sending goods by rail. It helps to signify the contract between the carrier and the trader. It lets everybody know that the freight train operator has the permission to carry those goods for the consignee. The CIM consignment Note does not change the ownership of the goods. It simply says what is being sent and where it is going to. The CIM consignment note will include the following information;

- The description of the goods being sent. This will include the number of packages marks signs or items that maybe inside the container as well as the weight of the goods.
- The name and the address of the sender/ shipper.
- The name and the address of the recipient/ consignee and Notify party if applicable.
- The date and city of issue,
- The name and address of the carrier.
- The place and day of acceptance for transport and place of delivery of the consignment.
- A common description of the consignment and kind of packaging.
- If there are dangerous goods, a description according to applicable regulations.
- The agreed upon freight costs as well as other costs and applicable freight terms.
- Instructions for customs or any other official institution regarding the handling of the consignment.
- Agreement if or if not on open loading floor is allowed.
- The shipper and the carrier are free to agree on other useful transport details.

FIATA FCT (Forwarders Certificate of Transport)

On this post, I will explain Forwarder's Certificate of Transport, an international trade document, only issued by freight forwarders, whom are the members of the FIATA (International Federation of Freight Forwarders Associations).

FCT is only available to FIATA member freight forwarders.

FCT certificate is a signed declaration of the freight forwarder, in which he confirms to the consignor that he has taken over the goods and has assumed responsibility for delivery of the consignment as per instructions that he has received from the consignor as indicated on the FCT document.

Commercial invoice: One original copy per container stamped & signed by customer for accompanying shipments

Packing List: It provides the international freight forwarder, and ultimate consignee with information about the shipment, including how it's packed, the dimensions and weight of each package, and the marks and numbers that are noted on the outside of the boxes

Stuffing list: especially for bulky cargo that are stuffed at the loading terminals. It contains the description of the articles furnished by the Importer or his Agent, as well as the actual physical arrangement or stuffing of such items inside the container or cartons or pallets or skids, for the purpose of inspection and collection of samples.

Other documents include

- Import clearance documents in case the goods clear at port of arrival.
- Certificate of origin
- Certificate of inspections

6.8 Advantages and Disadvantages of Rail Transport

Advantages:

1. Dependable:
The greatest advantage of the railway transport is that it is the most dependable mode of transport as it is the least affected by weather conditions such as rains, fog etc. compared to other modes of transport.

2. Better Organized:
The rail transport is better organized than any other form of transport. It has fixed routes and schedules. Its service is more certain, uniform and regular as compared to other modes of transport.

3. High Speed over Long Distances:
Its speed over long distances is more than any other mode of transport, except airways. Thus, it is the best choice for long distance traffic.

4. Suitable for Bulky and Heavy Goods:
Railway transport is economical, quicker, and best suited for carrying heavy and bulky goods over long distances.

5. Cheaper Transport:
It is a cheaper mode of transport as compared to other modes of transport. Most of the working expenses of railways are in the nature of fixed costs. Every increase in the railway traffic is followed by a decrease in the average cost. Rail transport is economical in the use of labour also as one driver and one guard are sufficient to carry much more load than the motor transport.

6. Safety:
Railway is the safest form of transport. The chances of accidents and breakdowns of railways are minimum as compared to other modes of transport. Moreover, the traffic can be protected from the exposure to sun, rains, snow etc.

7. Larger Capacity:
The carrying capacity of the railways is extremely large. Moreover, its capacity is elastic which can easily be increased by adding more wagons.

8. Public Welfare:
It is the largest public undertaking in the country. Railways perform many public utility services. Their charges are based on 'charge what the traffic can bear' principle which helps the poor. In fact, it is national necessity.

9. Administrative Facilities of Government:
Railways provide administrative facilities to the Government. The defence forces and the public servants drive their mobility primarily from the railways.

Disadvantages:

Although railway transport has many advantages, it suffers from certain serious limitations:

1. Huge Capital Outlay:
The railway requires is large investment of capital. The cost of construction, maintenance and overhead expenses are very high as compared to other modes of transport. Moreover, the investments are specific and immobile. In case the traffic is not sufficient, the investments may mean wastage of huge resources.

2. Lack of Flexibility:
Another disadvantage of railway transport is its inflexibility. Its routes and timings cannot be adjusted to individual requirements.

3. Lack of Door-to-Door Service:
Rail transport cannot provide door to door service as it is tied to a particular track. Intermediate loading or unloading involves greater cost, more wear and tear and wastage of time.

The time and cost of terminal operations are a great disadvantage of rail transport.

4. Monopoly:
As railways require huge capital outlay, they may give rise to monopolies and work against public interest at large. Even if controlled and managed by the government, lack of competition may breed inefficiency

and high costs.

5. Unsuitable for Short Distance and Small Loads:

Railway transport is unsuitable and uneconomical for short distance and small traffic of goods.

6. Booking Formalities:

It involves much time and labour in booking and taking delivery of goods through railways as compared to motor transport.

7. No Rural Service:

Because of huge capital requirements and traffic, railways cannot be operated economically in rural areas. Thus, large rural areas have no railway service even today. This causes much inconvenience to the people living in rural areas.

8. Under-utilized Capacity:

The railway must have full load for its ideal and economic operation. As it has a very large carrying capacity, underutilization of its capacity, in most of the regions, is a great financial problem and loss to the economy.

9. Centralized Administration:

Being the public utility service railways have monopoly position and as such there is centralised administration. Local authorities fail to meet the personal requirements of the people as compared to roadways.

6.9 Learning Activities

You are an employ of a freight forwarding company in Nairobi and you are charged with dealing with transporting bulky cargo, you are contacted by a customer to move their 10000 tons of cereals as first as in can be possible to Nairobi. Their cargo is expected to arrive with a bulky carrier. The customer has a rail siding to his production plant.

Required

1. Explain to the customer how fast you intend to move his goods.
2. Explain the full documentation the customer needs to have in place.
3. Explain the choice of the rail carrier you will use to move the goods.
4. Explain the parties and their roles is this transaction
5. What are the justification for the mode of transport to move their cargo?

6.10 Assessment Questions and Activities

1. List and explain at least five (5) rail carriers
2. Discuss the criteria for rail transport infrastructure
3. Explain the advantages and disadvantages of rail transport over road transport.

6.11 References

- Rodrigue, J., Comtois, C. & Slack, B. (2013). The Geography of Transport Systems, 3rd Edition. Routledge Francis Taylor.
- Glass, D. (2012). Freight Forwarding and Multi Modal Transport Contracts, 2nd Edition. Routledge
- Wang, X. (2015). Operational Transportation Planning of Modern Freight Forwarding Companies. Springer
- Bektas, T. (2019). Freight Transport and Distribution Concepts and Optimization Models. Routledge
- Monios, J. & Bergqvist, R. (2019). Intermodal Freight Transport and Logistics. Routledge
- KLG EUROPE. (2021, 09 10). 1968 Hague-Visby Rules. Retrieved from www.klgeurope.com: https://www.klgeurope.com/files/1968_hague-visby_rules.pdf
- LIBRARY, Y. A. (2021, 08 04). www.yourarticlelibrary.com. Retrieved from https://www.yourarticlelibrary.com/geography/transportation/advantages-and-disadvantages-of-railway-transport/42134: https://www.yourarticlelibrary.com/geography/transportation/advantages-and-disadvantages-of-railway-transport/42134
- Somsak Wisetruangrot. (2020). www.unescap.org. Retrieved from Multimodal Transportation Concept and Framework: https://www.unescap.org/sites/default/d8files/event-documents/03MultimodalTransportationConceptAndFramework.pdf
- UNCTAD. (2021, 09 13). United Nations Convention on the Carriage of Goods by Sea (Hamburg Rules) 1978. Retrieved from www.unctad.org: https://unctad.org/system/files/official-document/aconf89d13_en.pdf

7.0 CARRIAGE OF GOODS BY PIPELINE

7.1 Specific Learning Outcomes

At the end of the unit topic, the trainee should be able to:

i. Explain the meaning of pipeline
ii. Analyze the pipeline regulations
iii. Identify the types of cargo carried by pipeline
iv. Evaluate pipeline

7.2 Introduction

Pipeline transportation is a method of transportation which involves movement of solid, liquid or gaseous products over long distances through pipelines. This mode of transportation is mostly used for transport of crude and refined petroleum products such as oil and natural gas.

Pipelines are used to convey fluids from one location to another in a safe, efficient, and reliable manner. Crude oil and natural gas are often found far from the final consumer markets and therefore need to be transported over great distances. Pipelines have traditionally been the most cost-effective means of transporting the many different types of fluids handled by the oil and gas industry and, as a result, an extraordinarily complex and sophisticated network of different types of pipelines now extends throughout the whole industry.

7.3 Common Carrier by Pipeline

"Common carrier by pipeline" means (1) a person or corporation that owns, controls, operates, or manages, within this State, directly or indirectly, equipment, facilities, or other property, or a franchise, permit, license, or right, used or to be used in connection with the conveyance of gas or any liquid other than water for the general public in common carriage by pipeline, or (2) a person or corporation that owns and operates within this State any equipment, facilities, or other property, or any franchise, permit, license, or right, used or to be used in connection with the conveyance of water drawn from Lake Michigan for the general public in common carriage by pipeline. A gas public utility that provides local distribution services is not a common carrier by pipeline, irrespective of whether the public utility transports customer-owned gas or gas owned by a third party to some of its customers. A water public utility that provides local distribution services is not a common carrier by pipeline.

7.4 Pipeline Regulations

The law governing cross-border energy transport, transit or infrastructures is a complex combination of national, regional, and international norms and principles. There are numerous international agreements between States, as well as between host countries and private companies, concluded to facilitate individual cross-border pipeline projects. The terms and conditions of these arrangements vary greatly. As a rule, each pipeline project has its own unique legal regime, based on certain principles and rules of general international law, applicable regional instruments, norms of bilateral pipeline agreements, and provisions of commercial contracts between various private parties. This paper intends to provide a synopsis of some common principles which form the foundation of the patchwork of legal regimes and to present some typical legal approaches to regulating rights and obligations of different actors, primarily States, involved in cross-border pipeline projects.

7.5 International Legal Frameworks for Cross-Border Pipelines

A. Special International Agreements on Pipelines

There are various multilateral and bilateral instruments specifically concluded for or dealing with different aspects of cross-border petroleum transport and transit via pipelines. Most of these agreements are relatively recent, coinciding with the largescale offshore gas production in the North Sea, as well as significant increase in transmission of oil and gas across international boundaries generally. However, some of the pipeline agreements date back to the 1930s and 1940s.

There are different types of modern intergovernmental pipeline-related agreements. Most of them are pipeline-specific, i.e., adopted in order to implement a particular cross-border project, such as a crude oil pipeline from Kirkuk (Iraq) to Ceyhan (Turkey) or a gas transportation system from Alaska and Northern Canada to the United States. The situation in the North Sea could serve as a good example of interstate legal arrangements with respect to construction and operation of submarine pipelines.

The number of international agreements related to cross-border gas pipelines in the North Sea is quite considerable. These agreements have much in common. They are predominantly bilateral, involving State producers of gas and State consumers. They contain in many respects similar provisions dealing with the issues of jurisdiction, pipeline ownership, operation, tariffs, and taxation, and so forth.

B. Regional Framework Arrangements

There have been several attempts to develop regional framework arrangements for cross-border pipelines and transit. One such agreement was concluded in 1996 by the former republics of the Soviet Union in order to attain a common approach to the transit regime of natural gas. However, this agreement is all but forgotten as it failed to achieve its declared main objective to ensure freedom of transit and to prevent unauthorised off-taking of gas. About the same time the European Commission (EC) under its Interstate Oil and Gas Transport to Europe (INOGATE) programme attempted to establish a similar regional legal framework for transport of hydrocarbons in the former Soviet countries but without Russia and bypassing it.

As a result, an Umbrella Agreement was concluded to support the construction, rehabilitation and effective operation of interstate oil and gas transportation systems in the region. Although in force since 2001, it remains mostly on paper. These unsuccessful efforts prompted another attempt to create a set of rules governing pipeline-related transit within the Commonwealth of Independent States (CIS).

C. Multilateral Agreements

Finally, there are some truly multilateral legal instruments which address various aspects of cross-border energy transmission infrastructure, including pipelines. Among the most important such instruments is the 1982 UN Convention on the Law of the Sea (UNCLOS), which establishes the legal regime of submarine pipelines and rules on transit of land-locked States. The 1994 Energy Charter Treaty (ECT) governs international energy cooperation and, in particular, transit of energy materials and products. The ECT was launched as a pan-European cooperative framework but is gradually expanding to other regions. It is noteworthy that the countries of West Africa adopted their own agreement in this area, the 2003 Economic Community of West African States (ECOWAS) Energy Protocol, which is practically identical to the ECT.

There exist other multilateral instruments which are relevant to cross-border petroleum infrastructures and must be complied with or taken into account in any related activities, such as multilateral environmental agreements (MEAs) and various 'soft law' documents of international organisations, such as recommendations and guidelines. Some of the key legal principles and norms governing the construction and operation of cross-border pipelines will be discussed next, followed by an illustration of the recent State practice.

7.6 General Legal Principles Applicable to Cross-Border Pipelines

Among various issues relevant to the construction and operation of cross-border pipelines that require regulatory response, there are two areas where general international law has sufficiently evolved to provide a coherent set of legal principles and norms. These areas include the **legal regime of submarine pipelines** and **the freedom of transit** which has become particularly important in the context of pipelines that cross more than one international border and involve more than two States. These issues will be discussed in the following sub-sections.

A. The Freedom to Lay Submarine Pipelines

There are different types of submarine pipelines, whose legal regimes vary depending on their function and their location. However, the focus of international law has always been on long-distance large-diameter pipelines which either carry petroleum, mostly gas, from offshore fields to onshore terminals in another country, or are used to connect transmission infrastructures in different States separated by the sea.

1. The Geneva Conventions on the Law of the Sea
2. The UN Convention on the Law of the Sea

B. The Freedom of Transit

There are certain general legal rules that evolved over time, mostly as part of the international *lex mercatoria*, but also applicable to cross-border energy infrastructures. The 1919 Covenant of the League of Nations for the first time introduced two main principles with relevance to our subject matter the principles of 'freedom of transit' and 'equal treatment' Article 23 was aimed at securing and maintaining the "freedom of communications and

of transit and equitable treatment for the commerce of all Members of the League." The import of the right of free transit was further reiterated in the Barcelona Convention and Statute on Freedom of Transit (Barcelona Convention), which endorsed the rule of 'non-discrimination' and 'reasonable transit tariffs and the parties' obligation to facilitate transit. Although the Barcelona Convention did not apply to cross-border pipelines, which simply did not exist in the early 20th century, it may be asserted that its principal provisions have acquired the status of customary international law applicable to any transit-related activities.

Conclusion

International law governing cross-border pipeline construction and operation is still evolving and becoming more complex and somewhat diverse. Although there is a great variety of instruments, mechanisms, and regimes, it can be asserted that some general legal principles, such as the freedom to lay submarine pipelines and the freedom of transit, have crystallised into customary international law. This does not of course eliminate certain ambiguity in terms of their interpretation and application. For example, the requirement of the coastal States' consent in determining the pipeline route is susceptible to manipulation. Similarly, there is no common understanding of the freedom of transit as applied to cross-border energy infrastructure.

7.7 Legal Framework within EAC Level

The Inter-Governmental Agreement between Uganda and Tanzania was signed during May 2017 and Foundation Stones for the EACOP were laid both in Tanga and Hoima during August 2017 and November 2017 respectively.

Negotiations of the Uganda **Host Government Agreement** (HGA) for EACOP between the Pipeline Project Team (PPT) and the government of Uganda commenced in February 2018 and were concluded in September 2020. Subsequently, negotiations for the Shareholders Agreement (SHA) and the Transportation and Tariff Agreement (TTA) were also finalized. This culminated into the signing of the Uganda HGA, SHA and TTA on 11th April 2021, hence the launch of Uganda's oil and gas projects.

Key Terms in the Host Government Agreement

The key aspects covered in the agreement include, but are not limited to;

i) Commitment of each party to ensure the implementation of the Project within the agreed timelines;
ii) The tariff for the crude oil transported through the pipeline of USD 12.77 per barrel to be paid by the shippers (owners of the crude oil including Uganda);
iii) Protection of investments including provisions concerning expropriation and nationalization;
iv) Granting of land rights and necessary consents, permits and authorizations;
v) Freedom of transit and free movement of project personnel and goods associated with project activities;
vi) Government's role in providing for the safety and security of the project;
vii) Third party access to the pipeline;
viii) National content to ensure employment of Ugandans and supply of goods and services by Ugandans;
ix) Applicable Environmental, Health and Safety (EHS) standards; and,
x) Co-operation to ensure facilitation of financing of the project.

The Tariff and Transportation Agreement (TTA)

The EACOP Company and the owners of the crude oil (shippers) including the Uganda National Oil Company which is a nominee of the Government of Uganda entered into a Tariff and Transportation Agreement. The TTA defines the framework under which oil will be transported including the rights and responsibilities of the shippers (owners of crude oil) and the transporter who is the EACOP Company.

The key aspects covered by this agreement include, but are not limited to: -

i) Responsibility for facilities details the obligations of the transporter to construct, install, test, commission and operate the EACOP system and also the obligations of the crude oil owners to ensure construction and operation of upstream facilities;

ii) Tariff payment: details the obligation by the crude oil owners (shippers) to pay the agreed Tariff and also the mechanism for invoicing and payment;
iii) Crude oil measurements, tests and analyses;
iv) Delivery and offtake rights and obligations;
v) Quality and off specification crude oil: Specifies the specifications expected at the entry of the pipeline and how to treat off-spec crude oil;
vi) Sanctions: stipulates treatment of parties or any party that faces international sanctions that could hinder the operations of the project; and
vii) Compensation for crude oil lost during transportation; lt was agreed that in the event of loss of crude oil in the EACOP system beyond the allowable system operational losses, the transporter, EACOP Co, shall compensate the Government of Uganda.

The Shareholders Agreement (SHA)

This agreement was signed between the EACOP Co. and the shareholders who are the National Pipeline Company (U) Limited (wholly owned subsidiary of UNOC); Tanzania Petroleum Development Corporation (TPDC); Total Holdings lnternational B.V (Total Shareholder); and China National Offshore Oil Company Shareholder (CNOOC Shareholder).

The SHA describes how the EACOP Co. shall be operated and defines shareholders' rights and obligations. The SHA covers aspects such as the mechanisms for approval and settlement of the historical costs, transfer to EACOP Co. of activities arising out of the historical activities, conditions for SHA completion, governance structure, board matters, senior management and other staff, budgeting, financing arrangements, equity contribution mechanism, events of default and remedies, governing law and dispute resolution, among others.

The key aspects covered by this agreement include, but are not limited to: -

i) The manner in which the equity contributions will be made by the Shareholders to ensure successful completion of construction of the EACOP System;
ii) The level of participation of each shareholder with UNOC taking a 15o/o stake through its wholly owned subsidiary, the National Pipeline Company (U) Limited;
iii) A mechanism through which the project development costs (historic costs) borne by the Shareholders prior to the incorporation of the EACOP Co. shall be reimbursed to such Shareholders by the company;
iv) How the EACOP project will be financed. The agreed projection is a 60:40 debt to equity ratio. EACOP Co has kicked off the process of sourcing for project financing. Colleagues, it is important to note that prior to draw down on any project financing, the shareholders will be investing the equity proportional to their respective shareholding;
v) A mechanism through which shares may be transferred amongst Shareholders and from Shareholders to third parties;
vi) The governance mechanism for management of the EACOP Company's affairs including board and shareholder decisions;
vii) Composition, appointment, and removal of the board of directors and senior management of the project company; and
viii) Tax treatment of payments due to Shareholders from the project company.

7.8 Types of Cargo Carried by Pipeline

The different types of pipelines that exist in the oil and gas industry reflect the variety of fluids transported, the location of the pipelines and the specific use to which the pipelines are employed. Pipelines broadly fall into one of three categories, namely crude oil, natural gas and product. Each category has its own features and characteristics reflecting the differing natural of the material being transported.

Crude oil pipelines

There are many different types of crude oil pipeline. Some carry crude over short distances from wellheads to processing facilities. Others carry very large volumes (up to 1 million barrels per day) over thousands of kilometres. Pipelines carrying heavy and viscous crude oil have different characteristics compared to those carrying lighter crudes. The technical, environmental and economic risks associated with these different types of pipelines are distinct and project finance structures will usually include specific features to account for the variability of risks according to the specific circumstances.

Natural gas pipelines

In a similar way there are a variety of natural gas pipelines. Gas transmission pipelines transport high volumes of gas at high pressure over long distances. These pipelines typically connect producing regions to final consumer markets. Distribution pipelines operate at lower pressures and link transmitted gas to the final consumers.

Product pipelines

Product pipelines transport finished petroleum products such as diesel, petrol, jet fuel and chemicals from refineries and fuel storage terminals to final consumers. Product pipelines can be dedicated to a single type of material. Airports, for instance, are often serviced by large, dedicated pipelines for the supply of jet fuel. Other pipelines are designed to carry more than one type of fluid. Product pipeline capacity is typically sold to multiple users.

7.9 Documentation in Pipeline Transport

Permits

These are approved licenses required to operate a company dealing in oil and gas. For example, in Uganda the permits are issued by the ministry of energy and mineral development.

Commercial Invoice

Like any other goods a fuel commercial invoice must indicate the product e.g., Aviation Kerosene Jet Fuel Jet A-1/Ts1 Gost10227, the terms of trade like FOB, Unit price per Barrel etc.

Quality Inspection Certificate

This must indicate that the goods were inspected, and they met the required standards as stipulated by ISO 29001.

Other documents include;

i. SGS Inspection Report or equivalent (SGS)
ii. Dip Test Analysis Report (DTAR)
iii. Certificate of Origin (COO)
iv. Tank Storage Receipt (TSR)
v. Copy of License / permit to export/Import, issued by the department of the ministry of energy (If applicable)
vi. Copy of statement of availability of the product
vii. Copy of the refinery commitment to produce the product
viii. Copy of the pipeline corporation contract to transport the product to the loading port

7.10 Evaluating Pipeline Transport

Oil and gas products have significantly improved the way we live by powering numerous energy-saving devices and innovations. Although the benefits of oil & natural gas pipelines are numerous, **the key advantages** of transporting utility gases/liquids using this means are listed below.

Large Capacity Transportation

Pipelines can transport enormous amounts of oil and natural gas. They are more efficient at transferring these vast quantities of oil and natural gas than conventional shipments by rail, truck, or ships.

Safer and Continuous Transportation

Due to the volatile and highly flammable nature of oil and natural gas, transportation has to be carried out as safely as possible. In this regard, pipelines will greatly minimize the risk of explosion during transit. Most pipeline networks are subterranean which limits their exposure to natural elements. Also, above-surface pipelines are specifically designed to withstand adverse environmental temperature and weather changes without developing dangerous leaks.

Tiny Surface Footprint, Avoidance of Densely Populated Areas

Another beneficial feature of pipeline transport is the negligible above ground surface area they occupy. Typically, most pipeline systems are buried underneath the earth's surface. The exceptions to this are places where natural rock formations prevent their passage, or it is uneconomical to lay sub-surface systems. Further, oil transport pipelines follow routes that avoid human-populated areas when possible. The significance of this mostly underground pipeline network is the decrease in the potentially disastrous hazards associated with man-made activities near transport sites.

Shorter Construction Time Frame

The installation of an oil and gas carrier pipeline system can be done in a fraction of the time required to construct a dedicated rail transportation system of similar length. The need to factor in difficult geographical terrain and adverse climatic considerations mean more planning, manpower and a longer duration for a railway construction project which usually spans years. Pipeline construction is quicker as large capacity pipes can simply be constructed to run over natural geographical barriers.

Lower Energy Use, Reduced Transportation Costs

Among the benefits of pipeline transportation of oil and natural gas is the efficiency of the process. Pipeline systems utilize comparably lower amounts of energy to transport significantly larger volumes of oil than can be conveyed by truck, rail, or ship. Pipelines also simplify the oil and gas metering process with the help of modular process skid manufacturers for pipeline applications.

Environmentally Friendly

Conveying oil using pipelines is an eco-friendly option than transportation by conventional rails and oil ships. Oil transport lines have a less damaging environmental effect that other forms of conveyance as they are sealed and mostly subterranean. This reduces its carbon footprint significantly.

- No weather effects
- Minimum Transit Losses
- Long term infrastructure option

Key Disadvantages

1. The specialty is strong, the transportation goods are too specialized, and the transportation items are limited to gases, liquids, and fluids.
2. The distance between the pipeline transportation volume and the maximum transportation volume is small. Therefore, in the initial stage of oilfield development, when pipeline transportation is difficult, road, road, and land and water transportation should be used as a transition.
3. Forever one-way transportation, poor manoeuvrability.
4. Fixed investment is large.
5. Contamination in cases of leakages to the pipe

7.11 Learning Activities

The law governing pipeline transport, transit or infrastructures is a complex combination of national, regional, and international norms and principles. There are numerous international agreements between States, as well as between host countries and private companies, concluded to facilitate individual cross-border pipeline projects. The terms and conditions of these arrangements vary greatly. As a rule, each pipeline project has its own unique legal regime, based on certain principles and rules of general international law, applicable regional instruments, and norms of bilateral pipeline agreements.

Required

i) Based on the above statement, discuss the parties involved in the East African crude pipeline project between Uganda and Tanzania.

ii) List and explain the key terms in the below
   a) Host Government Agreement.
   b) Tariff and Transport Agreement.
   c) The Shareholders Agreement.

iii) Explain the types of cargo moved by pipeline transport.

iv) List and explain the economic benefits of the pipeline to the people of East Africa.

7.12 Assessment Questions and Activities

1. Explain the key expects covered by cross boarder oil agreements
2. List and explain at least five (5) critical documents in pipeline transport
3. Explain the types of cargo moved by pipeline transport

7.13 References

- Rodrigue, J., Comtois, C. & Slack, B. (2013). The Geography of Transport Systems, 3rd Edition. Routledge Francis Taylor.
- Glass, D. (2012). Freight Forwarding and Multi Modal Transport Contracts, 2nd Edition. Routledge
- Wang, X. (2015). Operational Transportation Planning of Modern Freight Forwarding Companies. Springer
- Monios, J. & Bergqvist, R. (2019). Intermodal Freight Transport and Logistics. Routledge
- KLG EUROPE. (2021, 09 10). 1968 Hague-Visby Rules. Retrieved from www.klgeurope.com: https://www.klgeurope.com/files/1968_hague-visby_rules.pdf
- Polich, M. (2017, 06 05). www.glc.org. Retrieved from https://www.glc.org/wp-content/uploads/Oil-Transporation-Regulations-Polich-2017.pdf: https://www.glc.org/wp-content/uploads/Oil-Transporation-Regulations-Polich-2017.pdf
- Somsak Wisetruangrot. (2020, 10 09). www.unescap.org. Retrieved from Multimodal Transportation Concept and Framework: https://www.unescap.org/sites/default/d8files/event-documents/03MultimodalTransportationConceptAndFramework.pdf
- UNCTAD. (2021, 09 13). United Nations Convention on the Carriage of Goods by Sea (Hamburg Rules) 1978. Retrieved from www.unctad.org: https://unctad.org/system/files/official-document/aconf89d13_en.pdf

8.0 MULTIMODAL TRANSPORT

8.1 Specific Learning Outcomes

At the end of the unit topic, the trainee should be able to:

i. Explain the common terms in multimodal transport
ii. Distinguish multi- unimodal and multimodal transport
iii. Evaluate the regulations governing multimodal transport
iv. Identify the roles of the key parties in multimodal transport
v. Describe the Multimodal transport infrastructure
vi. Explain the Multimodal transport operations
vii. Describe the documentation in multimodal transport

8.2 Introduction

The world of transport has changed considerably over the last few decades. International transportation of goods is increasingly carried out on a door-to-door basis, involving more than one mode of transportation. While there is little information on the overall proportion of cargo transported by multiple modes, data on the development of containerized traffic provide some highly significant indications, as containers are designed for transportation by different modes. Since the advent of the container in the mid-1960s, there has been an exponential increase in containerized transport, which is forecast to continue well into the future.

Shippers and consignees are often interested in dealing with one party (Multimodal Transport Operator, MTO), who arranges for the transportation of goods from door to door and assumes contractual responsibility throughout, irrespective of whether this is also the party who carries out the different stages of the transport. For many transport users, delay in delivery has come to be of increasing importance in connection with efficient supply chain management.

8.3 Common Terms in Multimodal Transport

Mode of Transport is the method of transport used for the conveyance of goods or persons such as, rail, road or sea.

Means of Transport refers to the vehicle used for the transport of goods or passengers for example, truck, aircraft, container ship or barge. The type of transport describes the actual operations in played in the MT. Here are useful definitions by UNCTAD (1996:22)

Unimodal Transport is where goods are transported by one or more carriers using one mode of transport only. Where there is one carrier, he issues his own transport document, a bill of lading or air waybill or a consignment note. When more than one carrier is involved, one of the carriers may issue a through bill of lading covering the entire transport. Depending on the back clauses of this document, the issuing carrier may be responsible for the entire port-to-port transport, or for only that part which takes place on his own vessel.

Intermodal Transport, where one carrier organizes the whole transport of goods by several modes of transport from one point or port of origin via one or more interface points to a final port or point. Different types of transport documents are issued, depending on how the responsibility for the entire transport is shared. Segmented transport occurs if the carrier that organizes the transport only takes responsibility for the portion, he is performing himself: he may issue an intermodal bill of lading.

Multimodal Transport occurs when the carrier organizing the transport takes responsibility for the entire process and issues a multimodal transport document.

Combined Transport refers to the transport of goods in the same loading unit or vehicle using a combination of rail, roar or inland waterway modes.

Multimodal transport operation is a combination of various modes of transport (truck, rail, car, airplane, ship) in succession. Hereunder we examine the commonly used combinations.

Multimodal Transport Contract
A contract in which a Multimodal Transporter undertakes to perform or to procure performance of international multimodal transport.

Consolidation
This is a process of dispatching as one overall consignment under an agent / freight forwarder's sponsorship by Air, Rail, Container or Road

Haulage unit, a number of individual compatible consignments from various consignors to various consignees.

Concept of Multimodal Transport

"A transport system operated by one carrier with more than one mode of transport under the control or ownership of one operator."

"International multimodal transport' means the carriage of goods by at least two different modes of transport on the basis of a multimodal transport contract from a place in one country at which the goods are taken in charge by the multimodal transport operator to a place designated for delivery situated in a different country"

"International multimodal transport" means the carriage of goods by at least two different modes of transport on the basis of a multimodal transport contract from a place in one country at which the goods are taken in charge by the multimodal transport operator to a place designated for delivery situated in a different country. The operations of pick-up and delivery of goods carried out in the performance of a unimodal transport contract, as defined in such contract, shall not be considered as international multimodal transport."

8.4 Differences in Unimodal and Multimodal Transport

The table below shows the difference between unimodal and multimodal operations

Unimodal	Multi Modal
One or more carriers using same mode	One carrier using two or more modes
Contract with independent carriers	Single contract with MTO
Door to Door using same mode	Door to door Using 2 or more modes
Liability is with each carrier	Liability with single MTO

Types of MTO

There are generally two types of MTOs

I. NVOCC-MTO: a non-vessel operating common carrier multimodal transport operator.

A Non-Vessel Operating Common Carrier (NVOCC) is an ocean carrier that transports goods under its own House Bill of Lading, or equivalent documentation, without operating ocean transportation vessels. Rather, an NVOCC leases space from another ocean carrier, or Vessel Operating Common Carrier (VOCC), that they sell to their own customers. An NVOCC can be described as a shipper to carriers and a carrier to shippers. While NVOCCs do not usually own their own warehouses, many own their own fleet of containers. In certain circumstances, a NVOCC may also operate as a freight forwarder.

The services of NVOCCs are typically used by smaller or mid-sized organizations, simply because they are able to consolidate smaller volumes of shipments. NVOCCs are also able to negotiate favorable shipping rates with vessel operating carriers based on the volumes they consign. For Example Three Ways shipping in Uganda.

II. VOCC-MTO: a vessel operating common carrier multimodal transport operator.

Traditionally, ship owners only carried cargo from port to port. However, with more operators offering complete, end -to- end services and mainly, because of containerization many ship owners have now extended their services to also include carriage over land and even carriage by air. The ship owners or Vessel-operating (VO) companies thus became MTOs and are known as VO-MTO. The MTO typically does not own or operate road, rail or air transport modes but arranges for these types of transport by sub-contracting. He would usually sub-contract inland stevedoring and warehouse services as well for example CMA-CGM

8.5 Advantages and Disadvantages of Multimodal Transport

Advantages of Multimodal Transport

1. Reduce Complication of Liability of Intermodal Transport
2. Dealing with one operator for contract of carriage
3. Fix the limitation of liability of operator
4. One single contract of carriage for entire routes
5. Door-to-Door Deliverable
6. National Wealth as Hub of Transit
7. Reduction in the costs and time for coordination and operation of logistics.

8. Increased monitoring of shipments from stage to stage.
9. There is only one company in charge of meeting the shipment deadline; therefore, there is better control on management and less risk of merchandise theft or loss while responsibility lies on just one entity.
10. Scheduling routes, costs, staff, and logistics becomes easier.
11. The FBL document has preference to enter and go through customs.

Disadvantage of Multimodal Transport

Despite the many facilities and advantages represented by the use of multimodal transport, it has some disadvantages, as:

1. High requirements to ensure security due to constant inspections by the authorities at stations or other roads.
2. Certain restrictions of a legal and operational nature due to differences in international standards.
3. A certain ignorance of new technologies may occur in the transportation region.
4. It requires huge capital investment to invest in the different modes of transport under one corporation.
5. Multi modal transportation system presents a lack of uninformed systems of determining liability as the system comprises of different modes guided by different international laws.

8.6 Regulations Governing Multimodal Transport

Despite various attempts to establish a uniform legal framework governing multimodal transport no such international regime is in force. The MT Convention has failed to attract sufficient ratifications to enter into force. The UNCTAD/ICC Rules for Multimodal Transport Documents, which came into force in January 1992, do not have the force of law. They are standard contract terms for incorporation into multimodal transport documents. The rules, being contractual in nature, will have no effect in the event of conflict with mandatory law

The lack of a widely acceptable international legal framework on the subject has resulted in individual governments and regional/sub regional intergovernmental bodies taking the initiative of enacting legislation to overcome the uncertainties and problems which presently exist. Concerns have been expressed regarding the proliferation of individual and possibly divergent legal approaches which would add to already existing confusion and uncertainties pertaining to the legal regime of multimodal transport.

A multimodal operation is made up of a number of unimodal stages of transport, such as sea, road, rail or air. Each of these is subject to a mandatory international convention or national law.

International conventions applicable to Multi-modal transportation

Principal liability may be based on Transport by sea

i. International Convention for the Unification of Certain Rules of Law Relating to Bills of Lading, 1924 (Hague Rules);
ii. Protocol to Amend the International Convention for the Unification of Certain Rules Relating to Bills of Lading 1924, (Hague/Visby Rules) 1968;
iii. Protocol Amending the International Convention for the Unification of Certain Rules of Law Relating to Bills of Lading, 1924, as Amended by the Protocol of 1968, 1979;
iv. United Nations Convention on the Carriage of Goods by Sea, 1978 (Hamburg Rules).

Transport by road

i. Convention on the Contract for the International Carriage of Goods by Road (CMR) 1956.

Transport by rail

i. Uniform Rules Concerning the Contract for International Carriage of Goods by Rail (CIM), Appendix B to the Convention Concerning International Carriage by Rail (COTIF), May 1980.
ii. Protocol to amend CIM-COTIF, 1999.

Transport by air

i. Convention for the Unification of Certain Rules Relating to International Carriage by Air (Warsaw Convention), 1929;
ii. The Hague Protocol, 1955;
iii. Montreal Protocol No. 4, 1975;
iv. The Montreal Convention, 1999

Others

Any local applicable laws and regulations or oversea applicable law and regulations including Tort.
Multimodal Transport: UNTAC/ICC Rules, AFAMT, national laws where applicable.

Implementation of Multimodal Transport Rules

The problem which arises is the extent to which these mandatory conventions applicable to unimodal transportation would also influence contracts where more than one mode of transport is involved, bearing in mind that some of these unimodal conventions also extend their scope into multimodal transport. For example, the CMR (article 2), CIM (article 2) and Montreal Conventions specifically include provisions dealing with transport of goods by more than one mode. In any event, in the absence of a uniform liability system for multimodal transport, the liability for each stage of transport is determined by the relevant unimodal convention or national laws which adopt varying approaches to issues such as the liability questions. Therefore, the liability of the multimodal transport operator for loss or damage to goods can differ depending on which stage of transport the loss has occurred. The question becomes even more complicated if the loss or damage cannot be localized, or the loss occurs gradually during the entire transport.

Thus, the greatest shortcomings of transport law are considered to be: "the vast differences between the rules governing the different transport modes. Different grounds of liability, different limitations of liability, different documents with a different legal value, different time bars. Where it may perhaps be said that this particularism did not constitute such a formidable problem when unimodal transport was still predominant, its drawbacks become glaringly obvious when attempts are made to combine different transport modes, and, inevitably, their different legal regimes into a single transport operation governed by a single contract."

8.7 The Roles of the Key Parties in Multimodal Transport

The MTO is required to build and establish sound working relationship with various parties if he is to deliver a quality service to his clients. These parties are also known as intervening parties or stakeholders, and are grouped in three categories listed below:

Carriers

Carriers are important to an MTO for two reasons: space and favourable rates. Securing space with a carrier at favourable rates ensures continuity and success of the MTO's business. However, this relationship also benefits the carrier, by relying on the MTO for cargo to fill the space on the vessel, vehicle, train or aircraft. Some of the major carrier include;

i) Ship owners
ii) Road Transport operators
iii) Railways
iv) Airlines
v) Inland waterway transport operators

MTOs sometimes enter into service contracts with carriers to provide a certain amount or volume of cargo space per year, at preferential rates. For example, 500 containers per year will earn the MTO better rates. These rates are only enjoyed if the MTO fulfils the 500 containers.

These contracts carry penalty clauses or dead freight to cover shortfalls as well as excess volumes because such will impede the carrier's overall capacity. When this happens, the parties renegotiate for excess volume or the MTO pays for non-preferential rates.

Non-Carriers

i) Contain terminals
ii) Warehouses
iii) Container freight stations, Inland Clearance Depots, Groupage /consolidation depots
iv) Organizations attending to packaging, Customs clearance, Import/export formalities, foreign exchange transactions and other related documentation

Other parties

i) Banks
ii) Cargo and Liability insurers
iii) Exchange control authorities
iv) Port operators
v) Customs authorities: Uganda Revenue Authority, Kenya Revenue Authority, Rwanda Revenue Authority, Tanzania Revenue Authority
vi) Government agencies such as trade development boards, health and safety authorities: National Drug Authority, UNBS, MAAIF

A **MTO** deals directly with these intervening parties because he is the principal in the transport contract. The MTO's sound working relationship with these parties is critical because they are a vital link in the supply chain and do facilitate the efficient movement of goods. The good relationship helps him to remain competitive, for example, by getting favourable, competitive and attractive rates with carriers, which is also beneficial to his customers.

8.8 Multimodal Transport Infrastructure

Those are infrastructures that facilitate the operation of a multi modal transport operation among which we can mention the following.

Roads

The road infrastructure network must be able to support all types of carrier vehicles in all weathers and conditions. The roads must be strong enough for the expected number of different vehicles in a certain number of years and the axle load capacity must meet world standards in order to ensure that MTOs can move all sorts of cargos to different destinations around the globe.

Rail

The infrastructure requirements in rail includes a network of standard Gauges rail lines, different types of wagons and locomotives for shunting and main line operations, marshalling yards and humps, rail sidings to MTO warehouses and production centres, exchange yards, loading and unloading platforms, enough Transit shades and terminals. All these must be maintained and supplied in adequate capacities.

Sea

Majority of international trade goods are moved by water transport and therefore MTO need to have world class ports in place equipped well to load and unload vessels, trains, and trucks, able to stuff containers, load and unload both dry bulky and wet bulky cargoes. All these must be in place to facilitate quick turnaround time.

Air

Multimodal transport also requires well developed air transport system. Airports must be able to provide the required facilities with respect to air cargo transport. The very nature of air transport is fast delivery hence the need to avoid unnecessary delays. Handling, trucking, loading, and unloading are all very important. Superstructures like conveyor belts must be in place, pallet dollies, baggage trolleys, container trailers etc. all must be in place. Equally important and the warehouses, cold rooms, storage shades and well managed security system.

Inland container deports

Linkages between road, rail, inland water ways and seaports is supported by the development of ICDs that act as change point's form one mode to another. They are also used for consolidation and deconsolidation of containers, they also play a crucial role in facilitating transhipment, and they are also customs points. They must also have infrastructures to facilitate speedy handling of cargo passing thru their facility.

8.9 Multimodal Transport Operations

The system of Multimodal Transport Operations (MTO) is aimed at facilitating international movement of traffic on a door-to-door basis. Such a system involves the integration of the marine, port, and inland transport sectors of trading partners. Currently, different types of multimodal transport operations involving different combinations are taking place, such as:

Land-Sea-Land

An example of this form of the transport is as follows: An empty container is picked up from the line's container yard in Singapore and trucked to shipper's factory in Johore (Malaysia) for stuffing; thereafter the FCL is trucked to Singapore and transported by ocean vessel to New York. Truck from vessel to rail-head New York, Rail from New York to rail-head Chicago, Truck from Chicago railhead to consignee's warehouse. There can be several additional links, for instance, if the container was carried by rail from, say, Kuala Lumpur to Singapore. Where LCL (Less Than Container Load / Loose Container Load) cargo is concerned, the individual shipments would be delivered to the freight forwarders' CFS (Container Freight Station) or the shipping line's CFS and consolidated into a FCL (Full Container Load) which, in Chicago, is trucked to the CFS, where from it is picked-up by the consignee's truck.

Road/Air/Road

A combination of air carriage with truck transport is a frequent method of multimodal service. Undoubtedly, pickup and delivery services by road transport are usually incidental to air transport. But apart from this, road transport is now being increasingly used, particularly in Europe and U.S.A., for trucking air freight over long distances,

sometimes across national boundaries, to connect with the main bases of airlines operating long haul services such as trans-Pacific, trans-Atlantic and inter-continental. Several airlines are building up a number of trucking hubs in Europe to act as focal points for road-based feeder operations.

Many airlines provide road service to cities which they either find uneconomical to service by air, or to which they do not enjoy landing rights. This road transportation is often effected with own vehicles, and to and from their own facilities, but on occasion they do also use highway common carriers.

Sea/Air/Sea

This combines the economy of sea transport and the speed of air transport and is becoming increasingly popular in several international trade routes like the Far East Europe route. The economics of this combination mode favour high value items like electronics, electrical goods, computers and photographic equipment as well as goods with high seasonal demand such as fashion wear and toys. This multimodal operation is particularly applicable where the route to be covered combines large distances via land and water, and where transit time is important.

Rail/road/inland waterways/sea

This combination mode is in common use when goods have to be moved by sea from one country to another and one or more inland modes of transport such as rail, road or inland waterways, have to be used for moving the goods from an inland centre to the seaport in the country of origin or from the seaport to an inland centre in the country of destination.

Mini bridge

This involves the movement of containers, under a through bill of lading issued by an ocean carrier, by a vessel from a port in one country to a port in another country and then by rail to a second port city in the second country, terminating at the rail carrier's terminal in the second port city. The mini bridge offers the consignor a through container rate inclusive of rail freight up to the final port city in the country of destination. The railways are paid a flat rate per container by the ocean carrier for the rail transit. This system is in operation on certain routes covering the trade between the United States and the Far East, United States / Europe, United States / Australia, etc.

Land bridge

This system concerns itself with shipment of containers overland as a part of a sea-land or a sea-land-sea route. In this case also, the railways are paid a flat rate by the ocean carrier who issues the through bill of lading. This system is in operation for the movement of containers on certain important international routes such as:

- Between Europe or the Middle East and the Far East via the Trans-Siberian land bridge; and
- Between Europe and the Far East via the Atlantic and Pacific coasts of the U.S.A., continental U.S.A. being used as a land bridge.

Ro-Ro (Roll-on/Roll-off)

This mode combines different means of transportation (sea and road), and is used most often with new automobiles, which are shipped by sea and then simply driven off the vessel to the importer's warehouse. Heavy and over-dimensional cargo is also suitable for Ro-Ro transport.

L.A.S.H. (Lighter Aboard Ship)

LASH transport is the combination of deep sea and inland waterway transportation. An example is the route from Germany to the Mississippi Ports where the barges sail down the Rhine, Elbe or Weser in Germany, are loaded onto LASH container vessels in Rotterdam, Hamburg or Bremen; are then carried across the Atlantic, only to be unloaded at a Mississippi delta port to sail upstream in the U.S. It must be noted that LASH vessels are expensive, and furthermore it is necessary to check on the availability of the special handling facilities necessary in the ports of destination.

Sea train

This is another innovation in the multimodal transport system involving the use of rail and ocean transport. It was originally adopted in the U.S.A. It is similar to the roll-on, roll-off (Ro-Ro) system except that in the place of the Ro-Ro vehicle a rail car is used so that geographically separated rail systems can be connected using an ocean carrier. Typically, these vessels are long and thin and consist of one main deck running the length of the ship. They are quicker at loading trains than general cargo vessels since the train's carriages do not need to be detached from one another.

8.10 Documentation in Multimodal Transport

Multimodal Transport Document

A document issued or signed by a carrier indicating carriage by more than one means of transportation. For example, a multimodal transport document for a door-to-port shipment with main carriage by vessel might indicate pickup at the place where the shipment originates (often the seller´s premises) with pre-carriage by truck and main carriage from the named port of loading to the named port of discharge by a named vessel. Depending on how the contract of carriage was drafted, the document could be issued either on a "received for shipment basis" at any time after the goods entered the control of the main carrier, or on an "on-board basis" after the goods were loaded in the named vessel and actually shipped to port of discharge. As some ship lines accept liability only while the cargo is on their vessel, it is important to carefully read the contract of carriage.

Form of Multimodal Transport Documents

1. House Multimodal Transport Bill of Lading
2. FIATA Multimodal Transport Document
3. Sea Waybill
4. Air Waybill
5. e- Bill of Lading
6. Memo Bill of Lading for cross trade shipment.

Documents Received from Customer

1. FIATA Forwarding Instructions-FIATA FFI or SI

These are freight forwarding instructions that concentrate all instructions given by the customer to the freight forwarder to one document. Freight Forwarders mostly design and print their own forwarding instructions forms which have to be filled in by their clients.

FIATA Shipper's Declaration for the Transport of Dangerous Goods – FIATA SDT

Apart from the documents examined that have been created by FIATA to promote uniform rules in freight forwarders documents, FIATA also decided to place at the disposal of the freight forwarder a special form for the shipper's declaration relating to the transport of dangerous goods. The FIATA SDT. If a Freight Forwarder deals with the transport of dangerous goods he needs detailed information regarding the classification of the goods according to ADR for the transport by road, RID for the transport by rail and IMDG/IMO for the transport by sea.

Forwarder's Certificate of Receipt-FIATA FCR

Forwarder's Certificate of Receipt is an international trade document, only issued by freight forwarders, whom are the members of FIATA (International Federation of Freight Forwarders Associations). FCR is a standard form of a trade document, which was prepared by FIATA (International Federation of Freight Forwarders Associations) for general use in international shipments. FCR is available to FIATA members only. A major use of the FCR is to support trade finance and the use of letters of credit.

FIATA Multimodal Bill of Lading-FIATAMTB/L

A Multimodal Bill of Lading FBL is a type of international transport documents covering two or more modes of transport, such as shipping by road and by sea. It is also used as a carriage contract and receipt that the goods have been received. When it is issued "**to the orde**r", the Multimodal Bill of Lading is the title of ownership of the goods and can, therefore, be negotiated. As a rule, Multimodal Bills of Lading are not negotiable documents. Only authorized forwarders integrated into FIATA can issue this document.

FIATA Warehouse Receipt-FWR

FIATA Warehouse Receipt is an international trade document, only issued by freight forwarders, who are members of the FIATA (The FWR is an acronym which stands for "FIATA Warehouse Receipt". FWR is a standardized document format created by FIATA for general use in international and domestic trade. FWR is restricted to be used only by FIATA members.

2. Ocean Bill of Lading or Original Bill of Lading

An original bill of lading (OBL) is a contract of carriage that serves as a title of the cargo and confirms the carrier's receipt of the cargo. When an original bill of lading is issued, one or two other identical original bills of lading are also printed, and all two or three original bills of lading are issued together as one contract of carriage.

Types of Oceans Bill of Lading
a) Straight (non-negotiable) Bill of Lading

It is a non-negotiable instrument. In the straight bill of lading, only the person whose name appears on the bill can claim the goods or provides for delivery to the person whose name appears on it. Only the person named can claim the goods upon arrival. This type of bill is usually used for goods shipped on an open-account payment basis when the exporter is not concerned about the importer receiving the goods without payment. It must be marked "non-negotiable."

b) Shipper's Order (negotiable) Bill of Lading

It is a negotiable instrument. The shipper's order bill of lading consists of conditions while delivering the goods. The conditions may include fulfilling the terms of the letter of credit before receiving the goods. This is used when you want to impose conditions on delivery of the goods, such as acceptance of a draft. This type of bill of lading works well when payment has been secured by a letter of credit because you can make sure that the terms of the L/C are met before the goods are released.

c) Clean Bill of Lading

A clean bill of lading is issued when the receiver receives the goods without any damage or shortage. In case, the product delivered consists of flaws, a clean bill of lading will not be issued otherwise a dirty or stale bill of lading will be issued if there were errors, losses or damages that occasioned onto the goods during loading of the container on board the vessel.

d) On Board Bill of Lading

This is issued when the cargo has been placed aboard the named vessel. It is signed and certified by the master of the vessel. For a letter of credit transaction, this bill of lading is required by the exporter to get paid by the importer in international transactions.

MASTER AIRWAY BILL
Definition

An air waybill (AWB) is a document that accompanies goods shipped by an international air courier to provide detailed information about the shipment and allow it to be tracked. The bill has multiple copies so that each party involved in the shipment can document it. An air waybill (AWB) can also be called an air consignment note.

When you use air freight, an airway bill is issued in lieu of a bill of lading. It serves as a through bill of lading which covers domestic and international flights moving cargo to a specific destination. Your air transportation carrier will advise you of the house airway bill number and the master airway bill number assigned to your shipment. You must be sure to communicate these to your customer along with other transportation details.

Airway bills serve functions similar to those of ocean bills of lading, but they are only issued in non-negotiable form. It means that you and your bank have less protection because you lose the title to the goods once shipment booked on an Air Waybill. An AWB is a non-negotiable transport document covering transport of cargo from airport to airport.

HOUSE BILL OF LADING/HOUSE AIRWAY BILL

A **House Bill of Lading** is a transportation contract which takes place between a customer and a forwarder. This legal document is issued by a freight or cargo forwarder to each exporter, for goods to be shipped or transported in a group or consolidation. Hence, a HBL is also referred to as a groupage document or certificate. Or

A House Bill of Lading (HBL) is a document created by an Ocean Transport Intermediary (OTI) such as a freight forwarder or Non-Vessel Operating Carrier Company (NVOCC). The document is an acknowledgment of the receipt of goods that are to be shipped by sea from origin port to discharge or destination.

A House Bill of Lading (HBL) is a bill of lading issued by an NVOCC operator or a Freight Forwarder to their customers. An NVOCC is similar to an Ocean Carrier except that they don't operate or own the vessels used for the transportation of goods by sea.

House Airway bill (HAWB)

An airway bill is a document which is a proof of receipt of goods from shipper issued by air carrier. If a freight forwarder or consolidator is involved in a shipment, such forwarder issues a document of receipt of goods to the final shipper which is called House airway bill.

The airline's AWB shows the forwarder as the consignor and the name of the forwarder's agent at the destination as the consignee. It is not a complete document of title. A forwarder's AWB has a legal standing similar to that of a carrier's AWB. It is sometimes referred to as forwarder's airway bill.

Cargo Manifest/Shipping Manifest

A shipping document used by customs personnel reviewing a particular transport vehicle's intended trip that summarises all bills of lading that have been issued by the carrier or its representative for that particular shipment. A cargo manifest can be used for shipments made by sea, air or land and will indicate shipment's consignor and consignee, product details such as number, value, origin, and destination.

Pre-advice/Pre-alert

Pre-Advice information is the container information that is captured online by the Shipper, or the Shippers nominated Agent and sent to TPT indicating the expected arrival of a container at the auto-gate. **Pre-alert** is obligatory, as it allows final checking of all **shipping** documents, to correct mistakes and add some missing information. **Pre-alert** for road-freight must include: Show document list. CMR (international road-freight waybill) filled-in strictly in accordance with SK-EXPO instructions.

The Pre-Advice / Pre-Alert shall include the following attachments:

- Bill of Lading or Waybill
- Commercial Invoice
- Packing List
- Material Safety Data Sheet (MSDS) for chemical shipments only
- Declarations of Dangerous Goods for chemical shipments only

8.11 Learning Activities

You are a qualified freight forwarder after attaining the EACFFPC, you have been given the mandate to handle all exports in the company you work. You have been contacted by a customer who has unloaded teak logs in Masaka Uganda, and he wants you to organise his cargo for shipment to China, clients want you to deliver door-to-door you are required to pick a container and truck it to the client's premises for stuffing, truck the FCL to the port of loading Dar es salaam where it will take an ocean vessel to Shanghai, the client tells you the importer advised him he has a rail siding to his factory where final delivery will be made.

Required

i. Explain the customer the step by step process of how you execute the contract
ii. Explain the key consideration of the modes of transport you will use truck, vessel and rail
iii. Explain in details all the multi modal documents and other related documents you will need to successfully deliver the cargo on time.
iv. Explain the role of each party involved in this transport contract.
v. Explain the multimodal transport infrastructure needed for this kind of combined transportation

8.12 Assessment Questions and Activities

1. Explain the role of an NVOCC as a provider of logistics and multi-modal transport services, and describe - with examples - the services they provide.
2. What are the advantages and disadvantages to the exporter and importer of using an NVOCC, rather than contracting directly with ocean carriers?
3. Explain the full range of documents used in multi modal transport
4. Identify and explain the roles of the key parties in multimodal transport operations
5. Explain the different types of multimodal operations involving at least seven (7) different combinations.

8.13 References

- Rodrigue, J., Comtois, C. & Slack, B. (2013). The Geography of Transport Systems, 3rd Edition. Routledge Francis Taylor.
- Glass, D. (2012). Freight Forwarding and Multi Modal Transport Contracts, 2nd Edition. Routledge
- Wang, X. (2015). Operational Transportation Planning of Modern Freight Forwarding Companies. Springer
- Bektas, T. (2019). Freight Transport and Distribution Concepts and Optimisation Models. Routledge
- Monios, J. & Bergqvist, R. (2019). Intermodal Freight Transport and Logistics. Routledge
- Monios, J. & Bergqvist, R. (2020). Intermodal Freight Terminals: A Life Cycle Governance Framework. Routledge
- Dong-Ping Song, D. (2021). Container Logistics and Maritime Transport. Routledge
- KLG EUROPE. (2021, 09 10). 1968 Hague-Visby Rules. Retrieved from www.klgeurope.com: https://www.klgeurope.com/files/1968_hague-visby_rules.pdf
- LM-sisu-scribe. (2021, 09 14). Lex Mercatoria: - Convention on the Contract for the International Carriage of Goods by Road (CMR) - (Geneva, 19 May 1956). Retrieved from www.jus.uio.no: https://www.jus.uio.no/lm/un.cmr.road.carriage.contract.convention.1956/landscape.pdf
- Somsak Wisetruangrot. (2020). www.unescap.org. Retrieved from Multimodal Transportation Concept and Framework: https://www.unescap.org/sites/default/d8files/event-documents/03MultimodalTransportationConceptAndFramework.pdf
- UNCTAD. (2021, 09 13). United Nations Convention on the Carriage of Goods by Sea (Hamburg Rules) 1978. Retrieved from www.unctad.org: https://unctad.org/system/files/official-document/aconf89d13_en.pdf

9.0 CARGO FREIGHT RATES

9.1 Specific Learning Outcomes

At the end of the unit topic, the trainee should be able to:

i. Explain the meaning of freight rates
ii. Discuss the factors influencing freight rates
iii. Identify the components of freight rates
iv. Formulate freight rates
v. Compute of freight rates

9.2 Introduction

A freight rate is a price requested for the transport of cargo from one place to another. The freight rate depends on the final destination, the accountable weight of the shipment and the mode of transport selected. For instance, air carriers use the greatest weight between actual and dimensional to determine the price for the cargo. Freight is the cargo itself. Freight rates are typically associated with a number of surcharges.

Surcharges are additional fees involved with transporting the freight, such as loading the cargo, processing the cargo documentation, or providing security for the cargo.

Many surcharges are common to all service providers: fuel fees, documentation fees, and piracy fees. Other surcharges vary based on the carrier, port, global events, and seasons. A common charge applied to cargo based on the location of the port is the terminal handling charge, which is the fee paid for loading and unloading cargo at the port of origin and destination.

9.3 Factors that Influence Rates

Fuel costs

The cost of maritime and land transport is, of course, related to the price of fuel. As fuel prices fall, container ships and cargo trucks become cheaper to operate and the price of transport goes down. Savings (or losses) are passed on to consumers – either indirectly or through a fuel cost component built into a carrier's pricing model. And of course, if fuel prices increase, carriers will pass the additional expense on to merchants.

The labour market for commercial drivers

Increasing wages and competition among carriers for truck drivers can have an upward impact on transportation costs. As older drivers retire, carriers may struggle to find operators for their vehicles. Recruiting new drivers is difficult; the job can be tough and typically requires a different class of driver license (courses to certify new commercial drivers can take weeks or even months to complete). Moreover, many logistics companies struggle to compete with 'in-house' truck driving positions that tend to pay better and may offer less stress.

Demand for freight

Pricing depends on the volume of product being shipped by operators just as much as it depends on the actual, **underlying costs**. If capacity is limited, operators may be inclined to sell limited space at a premium. On the other hand, if business is slow, a carrier may be talked into offering a more competitive rate, at least in the short term.

Customer loyalty

Merchants who can offer a carrier regular, **consistent business** are well placed to receive a preferential rate, especially if demand across the industry is low.

Vehicle capacity

Some trucking companies operate an older, smaller fleet. While these trucks are entirely adequate, newer trucks are designed to maximize storage space, allowing a truck to split space even further.

Government regulation

Regulation may directly impact the freight industry and its bottom line; for example, governments often set maximum driving hours for commercial operators. Other government regulation may also impact freight costs; for example, New Zealand's Emissions Trading Scheme has been estimated to increase freight costs by several dollars for every thousand kilometres travelled.

Geopolitical events

International maritime shipping has become fraught with the dangers of pirates and rogue governments. The World Bank estimates that the losses from global piracy amounted to approximately USD$18 billion in 2014, pushing up the price of everyday freight as carriers were forced to change shipping routes and pay higher insurance premiums.

Mode of transport to be used

Freight rates varies significantly according to the type of transportation mode involved and the

efficiency of specific transport routes. For example, in scenarios where the destination is different from the port of discharge extra costs for transshipment are incorporated in the rate as compared to the shipment that terminate on the first port of entry.

Routing from Origin to destination

Landlocked countries tend to have higher transport costs, often twice as much, as they do not have direct access to maritime transportation. The impact of geography on the cost structure can be expanded to include several rate zones, such as one for local, another for the nation, and another for exports.

Nature of packaging

Many products require packaging, special handling, which are bulky or perishable. Coal is a commodity that is easier to transport than fruits or fresh flowers as it requires rudimentary storage facilities and can be transshipped using rudimentary equipment. As such, different economic sectors incur different transport costs as they each have their own transport intensity. With containerization, the type of product plays little in the transport cost since rates are set per container, but products still need to be loaded or unloaded from the container.

9.4 Components of Freight Rates

The cost of sending parcels, packages and cargoes does not follow a straight line. This inconsistency is brought about by a lot of factors that affect their prices. The development of Multi modalism has changed the dynamic of freight rates. If you are a regular shipper of goods, you need to be familiar with the components of freight rates because knowing them can help you to maximize shipping costs.

The rates today are based on the tailor-made contracts of carriage. It can be on a port to port or airport to airport basis, port to door or airport to door basis, door to door basis and all these feature an overall composite rate.

Basically, the tariff raised for the consignment would embrace a number of elements among which to include the following;

- **Tariff cargo rate**: in case of sea port the rate would between port of loading and port of discharge whether for container cargo, break bulk cargo, and roll-on roll-off, for air it will be between airport of loading and airport of destination, rail from the station of loading to the delivery rail terminal etc.
- **Consolidation rate**: for consolidators, the rate would be from shipper's factory or named place of pic up to the importers, warehouse, named ICD or named premises.
- **Customs Clearance rate**: if it involves customs clearance the rate will be based on local ports and customs authority to be added to the shipping cost.
- **Handling cost:**
- This means that the rate will include costs of the cargo handling at the terminal of arrival referred to as THC.
- **Transshipment rate:** If the shipment has to go through an intermediate port before reaching the destination then the rate given will have to incorporate the costs for transshipment.
- **Pick-up and delivery rates:** In case of air transport the rate would be from shippers named place of pick up and consignee named place of delivery.
- **Disbursements and Fees:** The purpose of disbursement fees is to provide coverage of charges that link to services carried out by the shipper, freight forwarder or airline prior to uplift of the air consignment. Such charges include clearance, insurance premiums and ground transportation.

9.5 Formulation Freight Rates

Basis of Charging Freight

The carrying capacity of every aircraft, truck, and ship is ultimately limited by space or weight. If you load an aircraft with heavy cargo, you may hit its weight limit before filling all available space. If you load it with light cargo, you may fill all available space before hitting the weight limit.

When calculating the cost of moving your shipment, the carrier will consider both the weight and volume of your cargo, by converting the volume into a "weight equivalent," also known as volumetric weight (or sometimes dimensional weight). The carrier will then charge per kilogram for whichever is greater: the actual weight (also known as gross weight) or the volumetric weight.

In other words, shipping 1 kilogram of feathers costs more than shipping 1 kilogram of steel, assuming that the cartons of feathers take up more space than the cartons of steel.

This explains why in some cases, especially when shipping by air, you'll see both actual weight and chargeable weight in your shipment record.

Actual weight is the number you provide us with when you submit your initial quote request. We calculate your quote based on this number. Actual weight = gross weight.

Chargeable weight is the number on your invoice; it's the amount the carrier charged to move your shipment. The chargeable weight is whichever of the following is greater:

- The gross weight (including the product, packaging, pallet, etc.), or
- The volumetric weight

9.6 Computation of Freight Rates

Rates and charges

Rates and charges are formalized by IATA and published in the TACT Manuals, available worldwide, Airline and freight forwarders can subscribe to the tariff through their national associations. The main purpose of IATA standardizing published rates and charges is to prevent competition among member airlines. However, they can still compete in terms of service quality and flight frequency among other things

Minimum Charges

This is the lowest amount that applies to a shipment regardless of the weight or volume. That is if the actual or volumetric weight of a shipment is lower than the published minimum weight, the minimum charge will apply for general cargo.

Rate Classification

(A) General Cargo Rates:

Tariff given for the General Commodity shipments that do not come under specific commodity or commodity classification rates. Basically, these are rates for general cargo.

This is further divided into;

1. Normal cargo rates: these are published rates that apply to any consignment weighing **45kg and below**, however there are variations. In some countries the normal cargo rate can start from 100 kilograms. The NCR is calculated by multiplying the chargeable weight by the published rate per kilogram

This is further divided based on the transit period of Normal, Express and Time Definite.

- **Normal**: Under this Rate class, the airline can take transit time beyond 5 days.
- **Express**: Goods transported to destination within 48 hours under Express Mode and a higher price is charged than Normal rate.
- **Time Definite**: The Delivery of goods will be within a certain time frame. Tariff will be higher than Express rate.

Express and Time Definite goods are accepted only on the On-line destinations where an airline use own aircraft.

2. Quantity Rates: these are published rates that apply to consignments weighing more than accepted general cargo say 45 Kgs or 100 Kgs
This rate is further reduced at higher weight break for example 300 Kgs and 500Kgs that is the heavier the shipment the lower the chargeable rate per Kilogram.

Example of Tariff

Rate type	Rates Classification
Minimum Charge	M
General cargo Rate (< 45Kgs)	N
General cargo Rate (> 45Kgs)	Q
100	Q100
200	Q200
300	Q300

Table showing an example of an Airline Tariff

A shipment of crafts of 3 pieces weighing a total weight of 60 Kgs to be sent from Uganda to Cairo M= $500, N= $50, Q45 =33, Q 100= $20 Q200 =12, Q300 =8
General rate will be based on the Normal rate (chargeable weight is less than 45Kgs)
60X33 =1,980$

(B) Specific/ Special Commodity Rate

Airline offers special rates for specific commodities which are lower than general cargo rates. These rates apply to certain goods with specific descriptions and are published from particular point of origin to a particular destination. However, nowadays most of the airlines have stopped this special commodity rates except Perishable and Dangerous goods for which separate rates are filed. Dangerous goods and Perishable goods rates are offered for On-Line destinations only.

(C) Commodity Classification rates

These are a percentage increase (surcharge) or percentage reduction (Rebate) on general cargo rates applicable to a few commodities within or between IATA designated areas. Such commodities include, live animals, Valuable cargo like gold, legal bank notes, baggage shipped as freight, Human remains etc.

(D) Unit Load Device (ULD) Rate

ULDs are used for the storage of cargo on the aircraft and are divided into two types; Pallets and Containers.

Cargo on the Pallets are secured to its rim by a net and made according to the load ability into the allocated aircraft type. Various types of Containers are providing by the Airline based of the aircraft used to serve a location. Cargo is secured either by the container doors closed or a door net being secured to the rims of the container walls and floor. The rates are charged as per ULD Maximum Weight e.g. LD3: Chargeable Weight 700 Kgs

Determining Chargeable weight

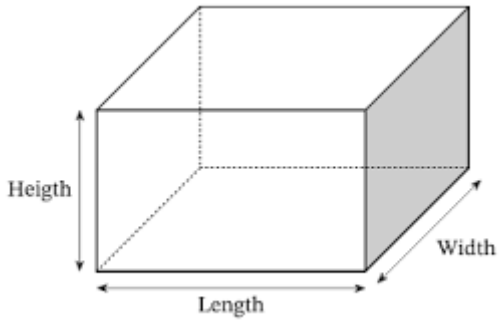
Chargeable Weight: As per the rule of IATA, the higher weight will be taken as Chargeable Weight. Some time it can be Gross Weight itself, Volume weight or next weight Level can be chargeable weight if break even weight is higher than Gross Weight. Volumetric weight takes up more space in the aircraft which is why the aircrafts charge more for utilizing a bigger space of the aircraft.

Therefore, CHARGEABLE WEIGHT can be;

i. The ACTUAL GROSS WEIGHT of the shipment
ii. The VOLUME WEIGHT of the shipment or
iii. The WEIGHT LEVEL published with a rate

Note

When determining the volume weight in kilograms using centimetres as the measuring unit the devisor is 6000 of the greatest length, width and height, (L x W x H/6000), when determining weights in kilograms using Inches as the measuring unit the devisor is 366 of the greatest length, width and height, (L x W x H/366) and when determining weights in pounds (Lbs) we only use Inches as the measuring unit and the devisor is 166 of the greatest length, width and height, (L x W x H/166)



Round off dimensions given in centimetres

Half or larger fraction of a centimetre (0.5 to 0.9cm) must be round up to next higher whole centimetre for example one-piece measuring, 150.2 cm x125.5 cm x100.6 cm = 150 cm x 126 cm x 101 cm.

Round off dimensions given in inches

Half or larger fractions of an inch (1/2, 5/8, ¾, 7/8 in.) must be rounded up to the next higher whole inch, smaller fractions (1/8, 1/4, 3/8 in.) shall be rounded down to the next lower inch for example one piece measuring 75 1/8in. X 65 1/2in. X 55 ¾ in = 75 in. x 66 in. x 56 in.

Multiply rounded – off measurements in order to obtain the volume of the piece.

Examples;
150 cm x 126 cm x 101 cm = 1908900cm3
75 in. x 66 in. x 56 in = 277200cu.in.

Examples applying our divisors:

1. 1908900 cm3: 6000 = Volume weight: 318.15 kgs
2. 277200 cu.in.: 366 = Volume weight: 757.37 kgs
3. 277200 cu.in.: 166 = Volume weight: 1669.87lbs

Round off volume weight.

Examples;
318.15 kgs = 318.5 kgs
757.37 kgs = 757.5 kgs
1669.87 lbs = 1670 lbs

NOTE:
"To calculate the volume of a drum the diameter should be treated as length and width".

The break-even weight rule
This is the weight at which it is cheaper to apply the rate for a higher weight break (Slab) than to apply the rate for the actual weight of the shipment.

For example,
A shipment of crafts consisting of 2 boxes weighing 73 kgs is sent from Entebbe to London based on the below published IATA rates.

Rates charges in USD

Minimum Rate	$ 250
Normal Rate (less than 45 Kgs)	$ 25
Quantity Rate (greater than 45 Kgs)	$18
100 Kgs	$12
200Kgs	$ 8

Table showing Tariff with rates for normal cargo

To find the break-even weight apply formula:
Higher Weight X Lower rate
Higher rate

In this example the higher weight is the next slab weight which is 100Kgs and its corresponding lower rate is $12 and the higher rate is $ 18

Therefore $\frac{100 \times 12}{18}$
66.66 =67 Kgs

The break-even weight is 66.66 so for any weight above 66.66 we can chose to go with whichever is lower on rate either to charge 73kgs on a higher rate or 100kgs on a lower rate
73 Kgs x $18 =$1314
100 Kgs x $12 = $1200

Example of IATA Published Rates for General Cargo

Rate type	Rates Classification	Rate (USD)
Minimum Charge	M	500
General cargo Rate (< 45Kgs)	N	50
General cargo Rate (> 45Kgs)	Q	33
100	Q100	20
200	Q200	15
300	Q300	12
500	Q500	8

Example
A shipment of coffee samples of 1 piece weighing a total weight of 5 Kgs to be sent from Uganda to Italy Chargeable weight is 5kgs and when you multiply the normal rate it is below the minimum rate therefore, we shall charge the minimum rate
5 X 50 =250 (which is below the minimum Charge)

Therefore, we shall charge the Minimum
5Kgs
= 500$

Example 1
A shipment of spares of 10 pieces weighing a total weight of 160 Kgs to be sent from Uganda to Zambia Chargeable weight is 177 because our break-even is 150 and the weight of the consignments is 160 Kgs meaning it qualify for Q200
200 X 15
= 3000$

Example
A shipment of Crafts of 3 pieces weighing a total weight of 330 Kgs to be sent from Uganda to Dubai Chargeable weight is 330 because our break-even is 333 and the weight of the consignments is 330Kgs meaning it does not qualify for Q500
330 X 12
$3960

Computing charges for specific commodity

Rate type	Rates Classification
Minimum Charge	M
General cargo Rate (< 45Kgs)	N
General cargo Rate (> 45Kgs)	Q
Specific commodity rate	SCR (e.g. C3567)
SCR100	$60
SCR 200	$40
SCR 300	$35
SCR 400	$25
SCR 500	$15

Tariff for special commodity rates

Example 1

A shipment of Specific commodity rate (C3567) 3 pieces weighing a total weight of 500 Kgs of live tropical fish to be sent from Uganda to Dubai SCR200 =$40, SCR300= $35, SCR400 =$25, **SCR500= $15**

Specific commodity rate
15 X 500
7500$

Computing charges for commodity classification

Rate type	Rates Classification
Minimum Charge	M
General cargo Rate (< 45Kgs)	N
General cargo Rate (> 45Kgs)	Q
commodity classification surcharge	S-N- 200%
commodity classification surcharge	R-N-50%

Tariff for commodity classification rates

Example

A shipment of commodity classification rate (Surcharge) for a consignment of shells weighing a total weight of 30 Kgs to be sent from Uganda to Malaysia M= $500, **N= $50**, Q45 =33, Q100= $20 Q300 =12, Q500 =8
Commodity classification rate (Surcharge)
(200% X 50) X 30
100 X 30
= 3000$

Example 2

A shipment of commodity classification rate (Rebate) for a consignment of personal effects weighing a total weight of 62 Kgs to be sent from Uganda to London M= $500, N= $50, **Q45 =33,** Q100= $20 Q300 =12, Q500 =8
Commodity classification rate (Rebate)
(50% X 33) X 62
16.5 X 62
= **1023$**

Unitized shipments (ULD Rates)
Unit load device (ULD) is a container used to load luggage, freight, and mail on wide-body aircraft and specific narrow-body aircraft. It allows a large quantity of cargo to be bundled into a single unit.

Pivot weight: In the international air cargo business, freight is usually consolidated into containers, called Unit Load Devices (ULDs). The transportation charge of a ULD depends on whether the total weight exceeds a certain threshold, called the pivot weight. In other words each ULD has a minimum threshold of weight above which a discounted rate can be applied. And the discounted rate apply is called the over pivot rate (OPW)

Published ULD rates in USD

Minimum rate	**50**
Normal rate (< 45 Kgs)	**10**
Quantity rates (> 45 Kgs)	**8**
200 Kgs	**5.2**
400 Kgs	**3.5**
600 Kgs	**2.2**
Allowable Pivot rate	**1.5**
Over-Pivot rate	**1**

Tariff for ULD rates

Example

A shipment of spares consisting of 100 pieces weighing 1300 Kgs with a total volume of 4m3 is to be sent from Nairobi (NBO) to Frankfurt FRA Germany. The shipment is to be loaded in one QKE Kenya Airways airline imposes a pivot weight (Pwgt) of 900 Kgs for a QKE container, calculate the ULD charges

Maximum weight of QKE: 1588 Kgs
Internal Volume: 4.3m^3
Tare weight: 90 Kgs
Actual weight of a shipment: 1300 Kgs

So Needed ULD is 1
Pivot weight: 900 Kgs
Over pivot = Actual weight – Pwgt
1300 – 900 = **400 Kgs**
Rate will be
900 X 1.5 = 1350
400 X 1 = 400
ULD rate will be 1750

9.7 Learning Activities

You are an employ of a forwarding company in Nairobi/Kenya with branches all over EAC, you are responsible for all order processing and operations dealing with consolidation in the company's export department. You are preparing your weekly CONSOL, you receive the following different customers.

- Customer A has 1 carton of corrugated boards weighing 80 kgs with dimensions 125cm x 100cm x 80cm from NBO- DXB.
- Customer B has 5 cartons of fabrics of total weight 120kg with dimensions 40inc x 45 Inc x 45inc NBO- DXB
- Customer C has 6 bales with dimensions 80cm x 80cm x 80cm total weight 320 Kgs NBO- DXB

Required

Your customer from A-C require full detailed transport counselling as well as detailed information on transport costs.

i. Explain in detail your consideration regarding the complete transport process
ii. Explain the calculation of freight for each single consignment
iii. Explain the calculation of freight for the full consolidated consignment
iv. Show how much profit you would make after consolidation
v. Base your calculation on the below tariff

IATA Published rates

Rate type	Rates Classification	Rate (USD)
Minimum Charge	M	500
General cargo Rate (< 45Kgs)	N	50
General cargo Rate (> 45Kgs)	Q	33
100	Q100	20
200	Q200	15
300	Q300	12
500	Q500	8

Tariff for General goods

9.8 Assessment Questions and Activities

1. Explain the criteria for freight rates
2. Discuss the elements of an airfreight tariff
3. Write short notes about the following rates clearly giving examples in each.
   a) Time definite rates
   b) Minimum rates
   c) Quantity rates
   d) Special commodity rates
   e) ULD rates

9.9 References

- Glass, D. (2012). Freight Forwarding and Multi Modal Transport Contracts, 2nd Edition. Routledge
- Monios, J. & Bergqvist, R. (2019). Intermodal Freight Transport and Logistics. Routledge
- IATA. (2021, 09 02). https://www.iata.org/en/. Retrieved from www.iata.org: https://www.iata.org/en/
- ICE CARGO. (2021, 08 05). www.icecargo.com.au. Retrieved from https://www.icecargo.com.au/out-of-gauge-cargo/: https://www.icecargo.com.au/out-of-gauge-cargo/
- LM-sisu-scribe. (2021, 09 14). Lex Mercatoria: - Convention on the Contract for the International Carriage of Goods by Road (CMR) - (Geneva, 19 May 1956). Retrieved from www.jus.uio.no: https://www.jus.uio.no/lm/un.cmr.road.carriage.contract.convention.1956/landsc
- UNCTAD. (2021, 09 13). United Nations Convention on the Carriage of Goods by Sea (Hamburg Rules) 1978. Retrieved from www.unctad.org: https://unctad.org/system/files/official-document/aconf89d13_en.pdf

10.0 HANDLING SPECIAL CARGO IN TRANSPORTATION

10.1 Specific Learning Outcomes

At the end of the unit topic, the trainee should be able to:

i. Explain the meaning of special goods
ii. Identify types of special cargo
iii. Handle special cargo

10.2 Special Goods

Special goods are goods that need to take special measures in transportation, loading, unloading and storage. As the transportation process of special goods involves different means of transport, transportation routes, transportation requirements and methods, storage facilities, loading and unloading equipment, etc., there are also differences in details regarding special goods and their operations.

Special goods generally include: large and bulky, dangerous goods, valuable goods and fresh goods. Among them, the most representative are dangerous goods and large and bulky goods, and some fresh goods related to food safety. The transportation process constitutes food supply chain, which is directly related to people's life and health. Some valuable goods transport organization process not only directly relates to the organization technology, but also relates to the escort personnel's professional quality.

10.3 Types of Special Cargo

The main types of special cargo include:

Live Animals

This is cargo that involves the transportation of animals and birds. Pet animals can be carried as an accompanied baggage or shipped as Cargo. They include all types of animals and birds.

Hazardous Goods

These are articles and substances that can pose a significant risk to health, safety or property. They can be shipped by air when sipping risks are reduced to acceptable levels by limiting the quantity per package and by careful packing to afford suitable protection during normal transit. Dangerous goods are classified into hazard classes, according to the level of risk.

Fragile Cargo

Any item is defined as 'fragile cargo' if it can be easily damaged by jolting, dropping, bumping or rough handling during transit. This includes many commodities made of clay, pottery, china, stone and glass as well as commodities containing liquids.
Fragile cargo is classified as four types:

- Solid items (i.e. glassware, chinaware, TV tubes)
- Solid items containing normal liquids (i.e. bottles of shampoo)
- Solid items containing dangerous or expensive liquids (i.e. bottles of alcohol, paints, perfumes)
- Bulky and easily damaged aircraft components (i.e. flaps, ailerons, elevators).

Out of Gauge Cargo

We call cargo oversized, or out of gauge, when it's too tall or wide to fit in a closed shipping container. Big construction machines often fall into this category, as do many other loads. Extremely large panes of glass, bridge beams, and propellers for wind turbines are just a few examples.

Several kinds of equipment are used to ship oversized cargo on the ocean. The most common are the open top container (like a standard container, but open at the top), the flat rack (with walls at the front and back but open on the sides) and the platform (a flat bed with no walls). Carriers use cranes to move open containers, flat racks and platforms on and off container ships, exactly as they do with regular containers.

Perishable Cargo

Perishable cargo may be defined as goods that can deteriorate if not stored or transported under ideal circumstances or if exposed to adverse temperature, humidity and other environmental conditions. Examples of perishable cargo are Fruits, Vegetables, Meat, dairy products etc.

Perishable cargoes are shipped in Reefer Containers (refrigerated containers) which are specialized containers that have been made for the purpose of carriage of perishable cargo. Reefer containers have an operating range between -30°C to +30°C (-22°F-86°F) and are designed to maintain these temperatures, irrespective of the outside temperatures. In this day and age, the superior technology in the reefer containers allow for the perishable cargo to stay fresh for longer and be delivered at the best quality to the destination.

High-Value Cargo

We have considerable expertise in handling high-value items with a declared value exceeding $5000. Our handling methods include a series of special precautions and safeguards to ensure that such goods reach their destination safely. Items included on our 'high value' list include works of art, banknotes, gems and jewelry, precious metals, negotiable securities, stock certificates and antiques.

10.4 Handling of Special Cargo

10.4.1 Live Animals

At the first meeting of the Conference of the Parties to the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) (Bern, 1976), it was resolved that guidelines on the care and shipment of live specimens of species listed under the Convention should be prepared.

General conditions for the transport of live animals

The transport of an animal constitutes an unnatural situation for the animal and is most likely to cause it some degree of stress. High levels of stress may increase metabolic rates, hazardous behavior, chances of injuries and susceptibility to diseases. For reasons of animal welfare, animal transport should be quick, efficient and strive to avoid as much stress as possible to the animal. The transport of live animals must be well planned, well prepared and effectively executed. For long distances, air transport should be the first consideration.

Animals must:

- Never be transported in a way likely to cause them unnecessary fear, injury, damage to health or undue suffering;
- Be checked for fitness for transport before loading.

An animal that is injured or that has physiological weaknesses or pathological problems should not be considered fit for transport especially if:

- it is unable to move independently without pain;
- it has a severe open wound, or prolapse;
- it is a pregnant female for whom 90 % or more of the expected gestation period has already passed;
- it is a female that has given birth in the previous week;
- it is a new-born mammal in which the navel has not completely healed;
- it is a cervid in velvet;

However, sick and/or injured animals may be transported if:

- the illness or injury is part of a research programme,
- The animals are transported under veterinary supervision for or following veterinary treatment or diagnosis, (i.e. the animal is being transported to receive medical treatment for its condition, etc.)

Sedatives should not be used on animals to be transported unless strictly necessary to ensure the welfare of the animals and should only be used under veterinary supervision.
In cases where anesthesia has been given, the animal must be completely awake, alert and able to balance itself before the transport commences. Detailed information must be clearly noted on the container and accompanying paperwork.

Planning obligations for the transport of live animals

Transporters and organizers of transports have an obligation to plan the transport to ensure that the welfare of the animals is not compromised. Sound knowledge of the species in transport is of greatest importance. Comprehensive information, when available, about the animal should contain:

- age;
- sex;
- social structure;
- nutrition and feeding requirements;
- animal's health and medical history;
- environmental requirements including lighting, humidity and temperature;
- imprinting;
- pedigree;
- Behavior profile including individual characteristics and peculiarities.

Weather conditions, status of transport routes, potential causes for delays, border wait times, legal obligations that may include commercial licenses, driver 's rest, traffic bans, truck scales, chase vehicles, passport requirements, visas, locations of fuel and repair services, etc. should be investigated and must be taken into account prior to the onset of transport.

National and international laws and regulations as applicable in the countries of origin, transit, and destination must be investigated and complied with. Before preparing a live animal for transport,

shippers must always obtain full information well in advance concerning import/export, in-transit permit, veterinary health certificate, veterinary import/export permit, CITES import/export/re-export permit, veterinary examination, pre-arrival declaration, and clearance times, quarantine, ports of entry, border inspection posts and prohibition restrictions, which may include traffic bans, veterinary restrictions as well as restrictions for food and bedding provided for the animal.

Customs and veterinary clearances, as well as other relevant services may not be available on weekends and holidays.

It is the shipper's responsibility to ascertain what national legislation regarding the protection of animals during transport is in force for all countries through which the animals are being transported, and to obtain all necessary documents, permits, certificates and licenses prior to departure.

All necessary advance arrangements in compliance with applicable laws and regulations must be made to minimize the duration of the transport and to meet the animals' needs during and after transport. Arrangements must be made for animals to be delivered to the consignee upon arrival at its destination. The shipper is obliged to inform the consignee of the anticipated time of arrival and the receiver should make every effort to be present at the time the animal arrives at its destination.

The shipper is responsible for all necessary marking and labelling regarding the transport and/or containers.

Contingency plans in the event of an emergency are strongly recommended.

Means of transport

The means of transport, containers and their fittings should be designed, constructed, maintained, and operated so as to:

- avoid unnecessary fear, injury, damage to health, suffering, cruel treatment, and to ensure the safety of the animal;
- protect animals from inclement weather and adverse changes in climatic conditions;
- provide ambient temperatures appropriate for the transported species at all times during the transport;
- be easily and properly cleaned and disinfected;
- prevent the animal from escaping or falling out and be able to withstand the stresses of movements;
- ensure that air quality and quantity appropriate to the species transported can be maintained;
- animals must not be exposed to exhaust gases;
- present a non-slip flooring surface;
- present a flooring surface that absorbs urines, contains faeces and minimizes the leakage of either outside of the container;
- Provide a means of lighting sufficient for inspection and care of the animal during transport.

Marking and Labelling

- Vehicles in which animals are transported should be clearly marked indicating the presence of live animals except when the animals are transported in containers that are clearly marked indicating the presence of live animals and with a sign indicating the top of the container.
- All markings and labels must be legible, durable, and printed or otherwise marked on or affixed to the external surface of the container or vehicle.
- Containers carrying animals which can inflict poisonous or venomous bites and stings must be boldly marked "POISONOUS" or "VENOMOUS".
- Poisonous or venomous animals should be double packed to prevent escape. Vehicles or containers carrying animals that can possibly inflict injury must have an additional warning label "This Animal Bites" or "Dangerous Animal".

Loading and unloading

- The loading and unloading facilities should be adequately designed, constructed, maintained, and operated so as to avoid unnecessary fear, injury, damage to health, suffering, cruel treatment, and to ensure the safety of the animals.
- Appropriate surfaces and appropriate protections shall be provided so as to prevent animals from escaping.
- If ramps are used in the process of loading and unloading, they should be installed at a height and angle appropriate for the species and be so designed as to ensure that

the animals can traverse it without risks or difficulties.

- All necessary facilities and equipment for crating, hoisting of containers, loading and unloading should be in place and readily available to minimize the time for loading and unloading, to ensure the animal's welfare, and to minimize the risk of unnecessary fear, injury, damage to health, suffering and cruel treatment.
- Goods such as feed which are being transported in the same conveyance as animals must be positioned and secured so that they do not interfere with the transport of the animals and cause unnecessary fear, injury, and damage to health or suffering to the animals.
- Advance arrangements should be made so that all appropriate equipment and personnel are in place at the place of destination at the estimated time of arrival to ensure quick and safe unloading of all animals.
- Appropriate lighting should be provided during loading and unloading.
- It is essential that specific measures are implemented to safeguard the health and welfare of animals and all personnel during and after loading and unloading.
- When containers loaded with animals are stacked on top of each other on the conveyance, the necessary precautions shall be taken:
    - To avoid urine and faeces falling on the animals placed underneath;
    - To ensure stability of the containers;
    - To ensure that ventilation is not impeded.

Animals must be handled and transported separately in the following cases:

- Animals of different species;
- Animals of significantly different sizes or ages;
- Sexually mature males;
- Animals with horns
- Animals aggressive to each other.

10.4.2 Perishable Goods

Whether you're shipping your goods by ground, sea or air freight, you will need to know about the relevant regulations and codes for perishables shipping. Trade associations and government regulators set these codes to ensure that perishables are transported safely.

- Shipping perishables via air freight requires compliance with the International Air Transport Association's (IATA) perishable cargo rules. The IATA Perishable Cargo Regulations Manual covers all of the major rules you'll need to know, including comprehensive listings and rules for hundreds of item types, plus valuable advice on how to build a safe and robust cold chain operation.
- Meanwhile, businesses shipping perishables via highway or rail freight should be familiar with the Food and Drug Administration's (FDA). The FDA offers detailed guides for shippers on how to reduce the risk of damage and contamination for many different types of perishables, including chain of custody and record-keeping procedures.
- Maritime perishables shipping has less specific guidance than some other types, but all maritime shippers should make sure that their cargo follows relevant regulations from the International Maritime Association.
- Employees will also need familiarity with any additional restrictions that freight carriers might impose. DHL, FedEx, UPS and every other major freight carrier all have their own rules about perishables shipping, so be sure to investigate the specific rules that apply in your case.
- Finally, don't forget that international shipping can involve customs holds of 24 to 48 hours. For perishable goods, that can be a long time indeed, so make sure your logistics strategies address this possibility and provide resources to keep your goods cold while in customs.

Packaging Perishables

Most businesses that ship perishables use these common packaging methods to achieve temperature control:

- **Insulated Packaging**: After refrigerated shipping, insulated packaging will likely be your primary line of defence for protecting temperature-sensitive goods. Insulation materials can vary widely, from styro foam to cardboard to aluminium foil blankets, and each has its own advantages. You'll want to choose materials that are both cost-effective and address the specific needs of your cargo.

- **Leak-Proof Packaging**: Some perishables can thaw, perspire, or leak if they're not handled correctly, so it's important to have packaging features such as plastic liners that can contain leaks and prevent them from affecting other cargo.
- **Airtight Packaging**: Perishables such as baked goods and certain kinds of pharmaceuticals should also be protected by packaging that's as close to airtight as possible. Several options for airtight packaging are available, from hand-wrapping delicate goods to using rigid plastic containers for items such as cupcakes and donuts.
- **Phase Change Materials**: Sometimes insulated packaging needs extra temperature control to keep the package cool on the inside, and phase change materials such as refrigerant gel packs are a popular option. PCMs can be shipped at room temperature and then frozen and packed with perishable cargo to keep it cool. Best of all, many can then be refrozen and used again for a more sustainable solution.
- **Dry Ice**: Dry ice, or solidified carbon dioxide, is a common and inexpensive material for shipping materials that need to be kept frozen. It's effective for keeping perishables below zero, but its surface temperature of -109.3 degrees Fahrenheit means that it can be dangerous to human skin, so safe handling requires special training. Many shippers have detailed regulations about when and where dry ice can be used, and shippers should remember to never let dry ice directly touch any food item.

10.4.3 Handling Dangerous Goods

The first step in handling any dangerous good is to identify it. By identifying the good and the following risks associated with it, precautions can be made to avoid those risks, handlers will be aware of what they are handling, and if a spill does occur the correct procedure can be implemented.

Although, identifying isn't just as simple as saying "that's dangerous", a big part of identifying a Dangerous Good is providing information about the good to all parties that may be involved in the storage, handling or transportation of that good. This includes any workplace you may be supplying too, the public, and the workers that will be handling the good as well as, the necessary training to be able to handle it safely. This is necessary to ensure that everyone is aware of what the substance is and that no-one will accidentally make an unsafe decision due to a lack of information. So you don't have to personally tell every person what flammable, explosive, or toxic gas is in that container, there are some signs that you can use to immediately classify any substance.

Packing and packaging of Dangerous Goods

The appropriate packaging is dependent on the Packing Group of the material. The Packing Group is a grouping of substances (other than those in Hazard Class 2, Class 6 Division 2, and Class 7), in accordance with the degree of danger they present:

- Packing group I: substances presenting high danger;
- Packing group II: substances presenting medium danger; and
- Packing group III: substances presenting low danger.

UN specification packaging, or Performance Oriented Packaging (POP), is required for most air shipments of dangerous goods. POP is packaging that must pass several tests to ensure that packages are strong enough to withstand the shocks, loadings, and atmospheric pressure changes normally encountered during transportation.

Packages that have successfully passed these tests will bear UN markings to certify that they have passed the required tests. The markings indicate the level of testing that a package has passed.

Packaging Tips

- Check the segregation tables – Be sure not to pack dangerous goods with incompatible dangerous goods that may react dangerously with other dangerous goods.
- You must carefully follow the information in the package closure instructions. Package manufacturers test UN specification packages with the materials listed in the closure instructions. A variation from the manufacturer's closure instructions could compromise the integrity of the package and result in non-compliance.
- Ensure that your completed package does not exceed the tested weight of the package (in kilograms).

Handling Requirements for Loading and Labelling of Dangerous Goods (ADR Regulations)

Dangerous Goods (also known as hazardous material or hazmat) are substances or materials that are capable of posing an unreasonable risk to health, safety, and property when transported in commerce. Identifying dangerous goods is the first step to reduce the risks posed by the product with proper packaging, communication, handling, and stowage. Dangerous Goods are classified based on the product's specific chemical and physical properties. A good starting point for determining if your product might be dangerous is by obtaining a Safety Data Sheet (SDS) from the manufacturer and checking the "Transportation Information." This can provide valuable information on the transport risks related to your materials.

Dangerous goods are subject to transport, workplace, storage, consumer and environment protection regulations, to prevent accidents to persons, property or the environment, to other goods or to the means of transport employed.

To ensure consistency between all these regulatory systems, the United Nations has developed mechanisms for the harmonization of hazard classification criteria and communication tools, and for transport conditions for all modes for transport. UNECE also administers regional agreements for effective implementation of these mechanisms for road, rail and inland waterways transport of dangerous goods.

We work to promote sustainable transport, which is safe, clean and competitive, through the development of freight and personal mobility by inland transport modes, by improving traffic safety, environmental performance, energy efficiency, inland transport security and efficient service provision in the transport sector.

Requirements regarding handling, loading, and labelling of Dangerous Goods (ADR regulations)

On a national level, most countries provide laws and regulations for the handling of Dangerous Goods. The hazardous nature, however, requires international coordination, which is done by the UN. Most dangerous goods regulations refer to the UN nomenclature and classifications, so does the Accord européen relatif au transport international des merchandises Dangereuses par Route (ADR). The ADR contains all necessary information that has to be regarded when transporting dangerous goods by road.

Dangerous Goods Forms

Dangerous goods forms have to be filled in and signed by the shipper, in any case and in any mode of transport. The form must not be signed by the forwarder, since he is neither the manufacturer, nor retailer of the dangerous product, nor is he a chemist. Dangerous cargo should not be accepted without a Dangerous Goods Declaration of the shipper.
They have to state:

- The nature and descriptions of the contents, not just the brand name
- Packaging
- Risks involved
- Recommended measures in emergency cases
- Contact persons

A Dangerous Goods Declaration according to the ADR should contain:

- The proper shipping name (primarily technical name, no brand name)
- UN number beginning with UN XXXX, for example, UN 1230
- The packing group according to the UN number. The number and type of packages (IBCs, if applicable)
- The total quantity of dangerous goods (volume or mass, in some cases, net mass, as listed in ADR)
- The name or address and contact person by name with the telephone number of the consignor or shipper
- The **n**ame or address and contact person by name with the telephone number of the consignee

If a CMR waybill was issued, the above-mentioned details may be inserted in the CMR waybill. This does not, however, replace the issuance of specific dangerous goods documents required by law. This may differ from country to country.

DG class and the sub-category, if applicable

In container transport the DGD and/or waybill is to be supplemented by a Container Packing Certificate. Dangerous goods are packaged according to three groups:

- Group I **Greater danger**, most protective packaging required e.gs.

- Note: For some combinations of different classes of dangerous goods with at least one being group I loading on the same transportation (truck or container) is prohibited.
- Group II **Medium danger**
- Group III **Low danger** among regulated goods, least protective packaging within the transportation requirements.

10.4.4 Out of Gauge Cargo

What you need to know before transporting Out of Gauge Cargo

Out of gauge cargo is not the typical forwarding agents' field of business. It may, nevertheless, occur occasionally. For transports like these, careful planning is necessary which includes:

- Selecting the appropriate truck/s
- Selecting the appropriate auxiliary equipment
- Selecting skilled and experienced staff
- Checking the route for obstacles - in advance
- If necessary, removing the obstacles, otherwise suggesting alternative routes for circumnavigation
- Planning the transport time (night transport)
- If needed, to be escorted by the police

1. Assess if your product is a candidate for more efficient ocean shipping. If your loads reach the weight limit before containers are full, determine if it's possible to load the container to max capacity and the financial impact of doing this. Note: hazardous cargo is not eligible for overweight shipments over the road.

2. Work with carriers that have blanket permits from the DOT for hauling overweight loads. You don't want a situation where your container is sitting at the port and waiting for a carrier to apply for and get approval. You want partners that have the permit in hand and can immediately move your product from the port to the consignee with no trans-load requirement.

3. Figure out which state-specific limits impact your overweight shipments. Through statute, administrative code, and enforcement policy, states have given exemptions to various types of vehicles and commodities to operate above standard federal truck size and weight limits. These exemptions often only apply to non-Interstate highways; however, that is not always the case. Also, some exemptions or higher weights are allowed through specific permits.

4. Determine proper weight distribution. When you truly maximize container payload, then the margin for error shrinks as it relates to weight limits per axle. Therefore, you need to be especially diligent about keeping the weight evenly distributed across the entire container. The right logistics partner can help you achieve this goal. Some will even create a load plan for you using load planning software.

5. Don't ignore packaging. The way heavy goods are packaged can limit the container payload. For instance, if you ship product in non-stackable crates, the height of the crate will dictate how much product you can load. Sometimes a small change in the packaging method or size can dramatically reduce your per-ton costs for ocean freight.

Requirements for Carriage of out of gauge movements (weight or dimensions)

Out of Gauge (OOG) loads are loads with dimensions exceeding those of the container. Any time a load is taller or wider than a standard shipping container, it's often considered to be out of gauge cargo.

Out of gauge transportation involves movement of heavy cargoes that are not possible to carry via standard transportation methods. They are carried using special vehicles and equipment under the supervision of an expert team. In this transport planning is made according to the tonnages, weights and transportation methods for the cargoes. Special equipment is required if shipping cargoes is not possible via containers and normal articulated Lorries. The success of out of gauge transportation service depends on the selection of equipment and the expertise of the persons conducting shipment. It is often performed by professional shipment companies that perform heavy cargo carriage.

Out of gauge transportation requires the following:

- Planning of equipment,
- Determining the itineraries for the project,
- Performing customs clearance and insurance operations,
- Making the crane organization,
- Loading and discharging operations,
- Obtaining passage permits,
- Arranging escort
- Preparing daily and weekly schedules and sharing them with the customers.

10.5 Learning Activities

You are an employ of forwarding based in Kampala with extensive domestic network and you are responsible for operations dealing with project cargo. You receive the following inquiry from Total Uganda Ltd; they have a consignment of a huge pipe to be cleared at the port of Mombasa and transported to their head office in Kampala. They want a detailed counselling on how you can execute the project.

Required

i. Describe all your considerations in selection of the vehicle
ii. Explain the documents required to transport the consignment and which other documents needed by the truck/the driver
iii. Explain the planning process regarding clearance and transportation of the cargo

10.6 Assessment Questions and Activities

1. List and explain at least five (5) types of special cargoes giving two examples in each type.
2. Describe in full detail the contents of a Dangerous Goods form according to ADR.
3. Discuss the critical logistical considerations before handling out of gauge cargo.
4. Discuss the critical logistical considerations before transporting a live animal.

10.7 References

- Monios, J. & Bergqvist, R. (2019). Intermodal Freight Transport and Logistics. Routledge
- IATA (2021). Dangerous Goods Regulations, 62ND Edition. IATA
- United Nations Economic Commission for Europe (UNECE) (2020). Agreement concerning the International Carriage of Dangerous Goods by Road (ADR 2021). UNECE
- United Nations Economic Commission for Europe (UNECE) (2019). Recommendations on the Transport of Dangerous Goods – Model Regulations (Rev.21). UNECE
- The International Maritime Organization (2020). The International Maritime Dangerous Goods (IMDG) Code, 2020 Edition (inc. Amendment 40-20). IMO
- CITES. (2021, 08 05). www.cites.org. Retrieved from https://cites.org/eng/resources/transport/index.php#2: https://cites.org/eng/resources/transport/index.php#2
- ICE CARGO. (2021, 08 05). www.icecargo.com.au. Retrieved from https://www.icecargo.com.au/out-of-gauge-cargo/: https://www.icecargo.com.au/out-of-gauge-cargo/
- LM-sisu-scribe. (2021, 09 14). Lex Mercatoria: - Convention on the Contract for the International Carriage of Goods by Road (CMR) - (Geneva, 19 May 1956). Retrieved from www.jus.uio.no: https://www.jus.uio.no/lm/un.cmr.road.carriage.contract.convention.1956/landscape.pdf
- UNCTAD. (2021, 09 13). United Nations Convention on the Carriage of Goods by Sea (Hamburg Rules) 1978. Retrieved from www.unctad.org: https://unctad.org/system/files/official-document/aconf89d13_en.pdf

11.0 CARGO SAFETY AND SECURITY

11.1 Specific Learning Outcomes

At the end of the unit topic, the trainee should be able to:

i. Explain the meaning of safety and security of cargo
ii. Identify adequate measures for the safety of cargo
iii. Determine measures to enhance security of cargo
iv. Select appropriate cargo Insurance package
v. Ensure the Safety and Security of Cargo
vi. Explain cargo tracking methods

11.2 Introduction

The movement of materials all the way from supplier to end customer is the responsibility of Supply chain. Any disruption in the planned flow of materials at any stage will appear as supply chain risk. There is always risk of any unexpected events which effect and cause the disruption of flow of materials in their journey.

Supply chain disruptions pose an increasingly significant risk to supply chains. Supply chain disruptions, whether intentional or unintentional, have significant negative impact on both short and long-term operations and financial performance additionally, disruptions that impact product quality can result in product recalls which create the need for costly reverse supply chain activities.

Supply chain disruptions may result from a variety of unintentional causes such as accidents or natural disasters. There can also be intentional supply chain disruptions. Intentional disruptions may include theft, contamination/sabotage, or a terrorist attack.

Examples of unintentional supply chain disruptions include:

- Hurricanes
- Tornadoes
- Floods
- Earthquakes

11.3 Meaning of Key Terms

Safety

This is the state of being "safe"; the condition of being protected from harm or other non-desirable outcomes. Safety can also refer to the control of recognized hazards in order to achieve an acceptable level of risk.

Safety is the condition of a "**steady state**" of an organization or place doing what it is supposed to do. "**What it is supposed to do**" is defined in terms of public codes and standards, associated architectural and engineering designs, corporate vision and mission statements, and operational plans and personnel policies. For any organization, place, or function, large or small, safety is a normative concept. It complies with situation-specific definitions of what is expected and acceptable.

Categories of Safety

There is a distinction between products that meet standards, that are safe, and that merely feel safe. The highway safety community uses these terms:

- **Normative**
  Normative safety is achieved when a product or design meets applicable standards and practices for design and construction or manufacture, regardless of the product's actual safety history.
- **Substantive**
  Substantive or objective safety occurs when the real-world safety history is favorable, whether or not standards are met.
- **Perceived**
  Perceived or subjective safety refers to the users' level of comfort and perception of risk, without consideration of standards or safety history.

For example, traffic signals are perceived as safe, yet under some circumstances, they can increase traffic crashes at an intersection. Traffic roundabouts have a generally favorable safety record yet often make drivers nervous.

Security

The term Security is broadly used to refer to the protection of individuals, organizations, and assets against external threats and criminal activities that can be directed to such entities hence rendering them inactive. It is important to note that security is highly focused on the deliberate actions that are geared towards inflicting harm to an individual, organization, or even assets.

Difference between Safety and Security

By definition	Protect against external threats	Protect against internal threats
Emotional Aspect	It is physical aspect	It is an emotional aspect
External V Internal	external	internal
Deliberate and unintended	Deliberate Threats	Unintended threats
coverage	Broad coverage	Narrow Coverage

Table showing the difference between safety and security

11.4 Safety of Cargo

Safety of cargo involves safe packaging of cargo in containers, prevention of tampering of the cargo container and safely transporting of the container to its final destination. The shipper is responsible for the packaging and labelling of the cargo to protect the contents from damage during transportation.

Cargo is transported through land, air, or water which requires special care and attention to safety in order to ensure prevention of human, material, or financial loss, damage, and contamination of cargo. Depending on the type of cargo, different cargo handling and securing equipment are used to hold shipments in place while cargo handling or transporting. If the safety of the cargo is not taken seriously, the consequences are very serious and irreversible.

Measures for the safety of cargo

Logistics management safety has a direct impact on a company's competitiveness and has, thus, become a central issue for corporate strategies.
Product theft, and product damage resulting from accidents or mishandling during storage or transport, represent not only financial loss for the companies involved in the supply chain, but also delays for their manufacturing or commercial operations.

Because of this, **safety is a key issue** to ensure the efficiency and fulfillment of logistics management, when seen as the measures we take to detect and mitigate risks and threats and to improve the protection and handling of goods.

As a freight Forwarder, you must create and implement a logistics security plan based on the following eight essential criteria applicable both for domestic or International shipping:

1. Choose a storage and/or transportation supplier with the most robust and advanced logistics safety systems so you can locate cargo at every moment and get confirmation of its transportation and delivery in a timely manner.
2. Put into practice measures to guarantee cargo integrity through seals and locks and by inspecting containers and freight trucks.
3. Check the backgrounds of warehouse and transport staff, implement an employee identification system to restrict access to loading and unloading areas to authorized personnel.
4. Use technology to standardize logistics management so you can record and control product handling, storage, and transportation properly.
5. Check all cargo has clear and accurate documentation.
6. Implement top security measures in loading and storage areas; for example, cc camera to monitor activities all the time, clear and visible signage, fire extinguishers, etc.
7. Develop digital safety policies and procedures to protect the cargo's registration and control systems.
8. Train staff in safety and protection issues so they can punctually identify threats and propose and execute solutions.

11.5 Security of Cargo

Cargo security aims to protect merchandise from theft, but they also secure containers against incoming materials, such as bombs or drugs. Monetary losses from theft along with the dangers posed by criminals sneaking illicit materials such as bombs or drugs into containers in transit make strengthening supply chain vulnerabilities critical. To secure cargo, supply chain professionals employ a multi-layered approach that incorporates the latest technology and fine-tuned basic practices, such as extensive staff training.

Security in transport is a major area of concern, because of the risk of consignments being tampered with, used for terrorism or other illicit purposes, or suffering criminal attack directed at the supply chain. Transport means and transport equipment, such as a full or empty container, can be misused to be a security-threat to the consignment. These can be put on the transport means during loading and unloading or when in storage. Documentation can be falsified to mislead private transport operators and responsible authorities.
Because of the vast amount of cargo transported, security control requires unambiguous procedures that are strictly adhered to, monitoring of goods during transport and storage, detailed and precise information and documentation on goods and the parties involved in shipping and transport, and risk management systems to zoom in on high-risk transport, operators and routes. To increase the efficiency and effectiveness of security procedures, control measures and actions, countries around the world have taken initiatives to enhance security in the supply chain, especially during the physical movement of goods.

Measures to enhance security of cargo

Some of these initiatives are statutory obligations, others are voluntary certification programmes.

1. Harmonization of advance electronic cargo information requirements on inbound, outbound and transit shipments,
2. Commitment by all countries to employ a consistent risk management approach to address security threats,
3. Performance of an outbound inspection of high-risk containers and cargo by the sending nation's Customs administration, including the use of non-intrusive detection equipment (such as large-scale X-ray machines and radiation detectors) on receipt of a reasonable request by the receiving nation, based upon comparable risk targeting methodology, and
4. Definition of benefits that Customs will provide to businesses that meet minimal supply chain security standards and best practices like achieving AEO Status.
5. Conducting a Threat Assessment focusing on: Terrorism, Contraband Smuggling, Human Smuggling, Organized Crime, and conditions in a country/region which may foster such threats and rate threat – High, Medium, Low: Identify and rate the risk of threat for the country and region for each international supply chain, using the following (at a minimum) Terrorism (political, bio, agro, cyber), Contraband Smuggling, Human Smuggling, Organized Crime.
6. Preparing an Action Plan: Establish a corrective action plan to address gaps or vulnerabilities found in business partner's security programs.
7. Documenting How Risk Assessments are conducted: A description of the company's approach, policies, and procedures for conducting an international supply chain security risk assessment.

11.6 Cargo Insurance

This is a method used to protect a shipment or products throughout the entire journey to a customer. For example, if a crane breaks and drops on a shipment of glasses, or the shipment was improperly secured by the company responsible for transporting it, your cargo insurance should cover your loss.

Marine insurance will not cover damage to your cargo due to improper loading by a transit company, or for incidents that occur outside of a marine-based environment. This is where cargo insurance comes in.

One of the main benefits of purchasing a separate cargo insurance policy is that it does not require proof of fault. That is, you do not need to prove that a transportation carrier or another party was at fault for the damage

Why is it necessary to insure?

Accidents still occur during transportation; goods can be damaged due to careless handling, due to bad weather goods may be simply stolen while in transit. Carriers and forwarders accept only limited liability which may be less than the value of the goods.

Insurance options for different Parties in the transport chain

General Average and Salvage

This insurance covers the vessel's proportion of salvage, salvage charges and/or general average, without reduction in respect of any under-insurance, but in case of general average sacrifice of the vessel, the Assured may recover in respect of the whole loss without first enforcing their right of contribution from other parties.

General average shall be adjusted according to the law and practice obtaining at the place where the adventure ends, as if the contract of affreightment (contract between the ship owner and charterer) contained no special terms upon the subject; but where the contract of affreightment so provides the adjustment shall be according to the York-Antwerp Rules.

Cargo Owners liability insurance

In accordance with the agreed conditions of marine cargo insurance, damages and loss of the shipped cargo is covered. However, risks and possible claims resulting from the very existence of the goods are often left completely unaccounted for like the general average cost and salvage costs. Possible 3rd party liability claims, for instance caused by damages resulting from the cargo being lost overboard or pollution caused by the cargo is not covered. Recent events have shown that the cargo owner can be unexpectedly faced by 3rd party claims for example, due to water pollution, caused by his cargo, claims which he thought were covered by the ship owner's P&I insurance. The cargo owner's legal liability insurance precisely covers this type of 3rd party claim against the cargo owner.

Marine insurance

This policy covers the loss or damage of ships, cargo, terminals, and any transport by which the property is transferred, acquired, or held between the points of origin and the final destination.

Fire & Burglary Insurance

This policy covers the financial loss that takes place because of the destruction of or harm to cargo caused by fire and indemnify the insured against the loss of or damage to the cargo insured arising from burglary or warehouse breaking as defined in the policy.

Goods in transit insurance

The Goods in Transit policy offers protection against loss, destruction, or damage to goods whilst they are in transit - from the time of leaving the insured's premises to final delivery. The policy also protects the insured from liability during loading and unloading of the goods, and temporary housing during transit. The cover is available for individuals or companies transporting goods.

Third party liabilities

Third-party insurance is essentially a form of liability insurance purchased by an insured (first party) from an insurer (second party) for protection against the claims of another (third party). The first party is responsible for their damages or losses, regardless of the cause of those damages like; General averages and pollution among others.

Political Risk Insurance

Political risk insurance is very useful for any company selling their product or services overseas in emerging markets and developing countries. As the name implies, it protects your company from risk due to political violence, upheaval, the seizure of private property by the state, and due to any number of other events often, political risk insurance is purchased as part of a trade credit insurance policy, particularly if an exporter is working with a new customer in a developing country.

11.7 Ensuring the Safety and Security of Cargo

The security of the logistics chain is a vital issue for globalized economies, where the reliability of shipments is a competitive tool and therefore increasingly important for transport businesses. Forwarders must therefore implement measures which will enable them to provide a safe, secure and competitive service.

Forwarders need to have in place operational security, covering cargo transport operations and

related complementary operations designed to provide a secure service, as well as measures to deal with the risk of theft and other offences and acts of terrorism which can seriously damage operators' levels of service and cost structures.

Transport is increasingly a service which is physically integrated at both the point of departure and the point of arrival, either with the client or the client's client, or in modal transfer infrastructures. In all these cases, there are related operations which involve risks and whose safety the Freight Forwarders must be able to observe and manage. The operator must be able to conduct preventive actions which will help to precisely eliminate those risks and thereby provide safety guarantees to workers involved in loading and unloading operations and stowage and unstowage.

Typically, forwarding operations include the following related activities which demand high safety and security standards:

(a) Access to loading areas

Whether the cargo loading or unloading operation takes place in a warehouse, storehouse, port, or industrial or commercial site or establishment, the forwarder must comply with the instructions given to him for appropriate movement within the facility to ensure the integrity of the goods he is transporting.

(b) Cargo packaging, packing and labelling

Where it is necessary owing to the characteristics of the goods, these are to be delivered to the Forwarder with appropriate packaging and labelling. Should the handling of the goods represent a risk for persons, for the integrity of the goods themselves or for the vessel, the specific risks are to be signalled by means of marks and written signs. Likewise, all necessary measures are to be taken to ensure that the goods have not been contaminated or mixed with illicit items.

(c) Cargo Screening

Comprehensive screening of cargo is needed to make cargo security comparable to the screening of airline passengers and baggage. The Implementing Recommendations of the 9/11 Commission Act of 2007, enacted in August 2007, required 100% physical screening and inspection of all cargo placed on passenger aircraft by August 2010. The act specified screening methods acceptable in meeting this requirement, including X-ray systems, explosives detection systems, explosives trace detection, TSA-certified explosives detection canine teams, and physical searches conducted in conjunction with manifest verifications.

(d) Screened Cargo Identifiers

A system of identifiers to designate that a piece of cargo has been properly screened and is eligible for shipment on passenger aircraft. A variety of stickers have been approved, stamps, and tags to be used as screened cargo identifiers. The security and integrity of these identifiers also has weakness, as stolen or counterfeit identifiers could be used to pass off unscreened cargo as screened and given the highly diverse and geographically distributed nature of the supply chain, it may be difficult to detect falsified or counterfeit stamps beyond the point of screening.

(e) Tracking Technologies

The air cargo industry, particularly the express package sector, relies on tracking technologies such as the global positioning system (GPS) and radio-frequency identification to process, sort, and track shipments. The technology also has potential security applications. Tracking technologies could identify suspicious origins or unexplained delays in transit.

Bar code scanning and similar practices are commonly used to log shipments when they enter and depart various nodes in the supply chain. This tracking is commonly integrated into logistics management tools to track and route shipments but does have limitations because it does not allow for continuous or passive tracking capabilities. Therefore, other tracking technologies, such as radio frequency identification (RFID) tags and GPS trackers, may also be used.

(f) Cargo Loading and unloading

To load the vehicle is not simply to place inside it the goods to be transported; loading must be done in a way that is rational and safe. It is essential that the cargo is secured correctly (using items such as straps, chains, webbing and chocks), so that it cannot move or fall during transportation. This must be done carefully, to prevent anybody from being harmed when handling the items used for securing, which could cause injuries to hands, legs, or feet. For the packing and securing of the cargo, and also for its inspection, appropriate cargo securing equipment must be used. For its packing, securing and

inspection, suitable personal protection equipment must be used, especially protective gloves and footwear.

(g) Manoeuvres before and during the unloading of goods

Appropriate precautions must be taken during this loading. During the loading or unloading, ensure you use the loading equipment suitable for the cargo being loaded or unloaded, because if the equipment is not able to carry the cargo may fall and hit someone. Once the loading has been completed, the operator must check that the equipment is properly immobilized.

11.8 Cargo Tracking Methods

Cargo Tracking refers to the technology that helps **the parties in the transport chain** to control their transportation and locate their **shipment** goods at any point in its journey providing real-time information.

Real-time Tracking and Tracing System

In practice, there are several tracking systems available through GPS, GTIN, RFID, Barcode etc. However, all these systems are not fully compatible for industry. Most of the available tracking and tracing systems utilize proprietary tracking numbers defined by the individual companies operating systems and are based on information architecture, where the tracking information is centralized to the provider of the tracking service.

The real-time track and trace system is essential to manage the integrated logistics networks and to enhance customer services. The tracking system is usually considered as the link between the information systems and the physical reality. This system is seen as a key service component for the transportation industry to fulfil the needs of the customer.
In logistics chain, the delivery notification at real-time is very important and the immediate status of delays or other delivery problems are required to notify as soon as possible. By tracking and tracing, it is possible to detect and to react in any uneven or unexpected events before they cause significant problems or at the very least, the damage can be reduced.

How it works
Codifying the Shipped Item

Before implementing the tracking and tracing system for any shipped item it is required to codify based on the specific functionalities of the logistics network. The function of codifying an item or product is to facilitate the easy information exchange between the parties involved in the logistics chain. Before coding a deliverable item, care should be taken in order to develop the error free tracking and tracing network and the provision for safeguard extensions for future applications.

Product codification has several functionalities such as; tracking and management of transportation, efficient storage and retrieval of items, sorting of products or items, tracking of work in process in case of manufacturing processes etc. Shipped items with proper coding enable automated and inexpensive information exchange between logistics partners and provide a more current and flexible view of business networks.
The available technologies for tracking and tracing include: barcode, radio frequency identification (RFID), magnetic stripe, voice and vision systems, optical character recognition and biometrics. The predominant choice of identification technology is bar coding, where the system utilizes mostly proprietary tracking numbers defined by the company operating system and are based on information architecture.

Electronic Cargo Tracking System (ECTS)

Electronic cargo tracking system enable real-time monitoring of goods in transit. This has been observed to be a much more efficient e-solution in terms of cost and time since it uses the GPS/GPRS technology.

How does ECTS work?

i. The system uses GPS/GPRS technology, an effective tracking technology
ii. Targeted units, box body trucks, tankers and containers ferrying transit goods under customs control are fitted with a tracking device which sends the seal status truck location and any violation information on real time basis.
iii. Once the seal is activated, cargo is monitored from start to destination
iv. The truck is expected to move along gazetted geo-fenced routes
v. Everything that happens to the cargo is recorded and reported simultaneously with

every incident being time stamped together with the location of occurrence.

vi. Any violation including movement outside the geo-fenced route or tampering with the seal is detected and reported immediately to the Central Monitoring Centre

vii. Alerts are sent both via e-mail and SMS to pre-defined persons

The common benefits from real time tracking technologies can be summarised as

i. Identify and address the weaknesses in firms supply networks
ii. The ability to manage supplier's performance
iii. Reduce total freight costs
iv. Optimize firm's inventory management
v. Increasing firms efficiency by planning ahead
vi. More power in pricing negotiations
vii. Reduction in lead times
viii. Reduction in back orders

11.9 Learning Activities

You are an employ of a freight forwarder firm in DRC, and you are responsible for dealing with special items in the transport department of the company. You receive an inquiry from a customer in Uganda who is procuring Gold from one supplier in DRC, they intend to buy 22 Kgs of gold and they are to be moved from Kinshasa to Kampala, the value of the gold is 1M$, the gold is to be picked from suppliers' premises to the airport and then airlifted to Entebbe Airport where the customers Customs agent will receive the goods.

Required

Try to act as if you are talking to a customer in a consultation meeting

i. Counsel your customer in regard to efficient and proper packing of the gold.
ii. Explain in detail your consideration regarding the transport process from supplier's premises until delivery in Entebbe.
iii. Give reasons why you chose which mode for each leg of the journey.
iv. Explain the special transport requirements with regard to the value of the cargo.
v. Explain the cargo insurance policy you would take and also advise your client to take.
vi. Explain the full range of documentation needed for this transport.

11.10 Assessment Questions and Activities

1. Explain the criteria for a supply chain security plan for both domestic and international shipping.
2. Explain at least five (5) insurance options available for the key players in the logistics industry
3. Explain at least five (5) voluntary initiatives by freight forwarders to enhance security in the supply chain.
4. Discuss the impact of real time tracking technologies to the freight logistic industry.

11.11 References

- Rodrigue, J., Comtois, C. & Slack, B. (2013). The Geography of Transport Systems, 3rd Edition. Routledge Francis Taylor.
- Glass, D. (2012). Freight Forwarding and Multi Modal Transport Contracts, 2nd Edition. Routledge
- Wang, X. (2015). Operational Transportation Planning of Modern Freight Forwarding Companies. Springer
- Monios, J. & Bergqvist, R. (2019). Intermodal Freight Transport and Logistics. Routledge
- Dong-Ping Song, D. (2021). Container Logistics and Maritime Transport. Routledge
- CITES. (2021). www.cites.org. Retrieved from https://cites.org/eng/resources/transport/index.php#2: https://cites.org/eng/resources/transport/index.php#2
- KLG EUROPE. (2021). 1968 Hague-Visby Rules. Retrieved from www.klgeurope.com: https://www.klgeurope.com/files/1968_hague-visby_rules.pdf
- LM-sisu-scribe. (2021). Lex Mercatoria: - Convention on the Contract for the International Carriage of Goods by Road (CMR) - (Geneva, 19 May 1956). Retrieved from www.jus.uio.no: https://www.jus.uio.no/lm/un.cmr.road.carriage.contract.convention.1956/landscape.pdf
- UNCTAD. (2021). United Nations Convention on the Carriage of Goods by Sea (Hamburg Rules) 1978. Retrieved from www.unctad.org: https://unctad.org/system/files/official-document/aconf89d13_en.pdf

NOTES

This publication was sponsored by:

TRADE MARK EAST AFRICA

Growing Prosperity Through Trade

www.trademarkea.com

Federation of East African Freight Forwarders Associations (FEAFFA)

Hillcrest Court, Waiyaki Way, Slip Road, Westlands
P.O. Box 22694 – 00400 Tom Mboya, Nairobi Kenya
Tel: +254 (0) 738 150 673, +254 (0) 738 165 318
Email: info@feaffa.com | Website: www.feaffa.com

Federation of East African Freight Forwarders Associations (FEAFFA)
@FEAFFA
/FEAFFA