Introduction

- Dangerous Goods can be defined as goods which can:
  - Damage the health and safety of persons.
  - Damage to the environmental property.
  - Damage the transport and of other equipment employed.
  - Damage other goods.

- It is solids, liquids, or gases in the form of natural or raw materials, or manufactured or finished goods that can harm people, other living organisms, property, or the environment.

- The carriage of dangerous goods has increased substantially since 1945 owing to the enormously increased use of many of these goods.

- Dangerous goods can be carried safely providing certain principles during handling, transporting and storing.

- Such principles have been used in developing international and national regulations for the safe transport of dangerous goods by:
  - Air, Inland waterways, Rail, Road or Sea.
Dangerous Goods

- Crude Oil
- Chemicals
- Fertilizer
- Pesticide
- Cement
- Dyes - Paints
- Petroleum Products
- Petrochemical Products
- Hazardous Waste (Industrial – Medical)
Hazardous Waste

- **Industrial**
  - Non-recyclable Products
  - Toxic Material Products
  - Non Use By-Products
  - Chemical Solvent
  - Petroleum Solvent
  - Pesticides

- **Medical**
  - Hospital
  - Medical Centre
  - Clinical Centre
  - Research Centre

- **Radioactive**
  - Research Centre
  - Military Experiments
  - Hospital Laboratory
law of the transport and loading of Dangerous Goods

- The handling and carriage of Dangerous Goods must be carried out in full compliance with:
  - The laws of the country from while the Dangerous Goods are being shipped.
  - The laws of the country in whose vehicle or ship is moved.
  - The laws of any country through which the goods will transit.
  - The laws of the country of destination.
Various parties are involved in the transport of dangerous goods:

- **Shipper**
- **Freight Forwarder**
- **Carrier**
- **Warehousing**
- **Port Authority**

To provide the safe transport of dangerous goods, **everyone** involved shall properly:

- **Prepare**
- **Handle**
- **Transport**
- **Storage**

The goods.
Responsibilities of the parties in the transport chain
Shipper’s Responsibility

- The shipper is the key to the transport of dangerous goods.
- They have the majority of responsibilities prior to the carriage.
- Recognize and identify the dangerous goods.
- Provide clear information on the nature and class of the dangerous goods.
- Package the dangerous cargo with required packaging.
Freight Forwarder’s Responsibility

- The freight forwarder as a middle-man has the following main duties:
  - Select safe ways of transportation and handling of the goods.
  - Advise the shipper on all implications and requirements of the transport of the goods and verify that the shipper has followed the regulations.
Carrier’s Responsibility

- The carrier makes the final decision whether to accept a shipment for carriage or not.
- The carrier has many responsibilities in the transport of dangerous goods.
- Acceptance and verification that the shipment of dangerous goods has been properly prepared.
Third Party Responsibility (Warehousing)

- A warehousing company will have the following responsibilities:
  - Provide capable staff for handling of dangerous goods.
  - Provide appropriate and well maintained equipment for the storage and handling of dangerous goods.
  - Store and handle the dangerous goods in separated areas if needed.
  - Responsible for safety and security precautions.
A risk is the probability or threat that the safety or security of an asset, person, or object is damaged e.g. injured, lost, or destroyed.

Risk management should provide protective measures to reduce these risks.
**Classes and Division**

- **Class 1**: Explosives
- **Class 2**: Gases
- **Class 3**: Flammable Liquids
- **Class 4**: Flammable Solids
- **Class 5**: Oxidizing agents
- **Class 6**: Poisonous and Infectious substances
- **Class 7**: Radioactive substances
- **Class 8**: Corrosives
- **Class 9**: Miscellaneous
In spite of the preventive regulations, measures and cautions, accidents or incidents with dangerous goods during transport will happen occasionally.

Accident is defined as an occurrence associated with and related to the transport of dangerous goods which results in:

- Fatal or serious injury to a person
- Major damage to property or the environment
If, other than an accident, the occurrence has resulted in either of the following, it is defined as an **incident**:  
- Injury to a person.  
- Damage to property of the environment.  
- Fire.  
- Breakage.  
- Spillage.  
- Leakage of fluid or radiation.  
- Other evidence that the integrity of the packaging has not been maintained.
Every year more than 15,000 ships ETA Egyptian ports & this ports divided to:

15 General ports
13 Petroleum Port
14 Touristic Port

Which present along about 3000 km. of Red Sea and The Mediterranean Sea, (Egyptian coasts)
20,000 ships (approximately) pass annually through Suez Canal carrying more than 100 million tons of crude oil and its derivatives.

14,000 km. of pipelines scattered in Egypt carrying about 117 million tons of crude oil.
Safety and Security Requirements
In order to protect the safety of people, logistics objects and the environment, The United Nations has determined a list of over **3000** dangerous goods and their characteristics.

This list forms the basis for international legislation in the field of dangerous goods transport by water, road, air, and rail.
The safety requirements for transport and warehousing depend on:
- The type of Goods
- The type of Transport

These requirements generally address the following:
- Construction and equipment of means of transport.
- Marks and placard, giving proper information on the nature of the goods.
- Maximum allowed quantities of certain substances.
- Capability of staff.
- Packaging.
- Stowage, segregation of certain substances.
These are integrated systems that comprise:

- Computer systems for flexible vehicle scheduling and route planning.
- Continuous communication between planning department and truck drivers using telephone/internet applications.
- Real time vehicle positioning using satellites and GPS.
Moreover, computer supported systems are implemented to identify shipments, pallets etc. during each step in the transport process.

This enables the transport company to:
- increase the efficiency of operations.
- improve their service level to the customers.
- Continually be informed About the Exact location of dangerous goods which are under their responsibility.
“M.V: Rina” Sinking In New Zealand (October 2011)
Examples of containers transportation accidents
Example of container damaged during the transport of Dangerous Goods
Summery & Conclusions

- We should look for **Dangerous Goods** on the basis of an **Integrated System** (handling - transportation - storage)

- The identify responsibility of **Shipper, Freight Forward Carriers, Warehousing** must be well known.
Most accidents occur due to:

1 - Methods of stowage.

2 - Method of storage on the Ship.

3 - Method of storage on Warehouses.

4 - Lack and incorrect data and items of Datasheets for Dangerous goods and its ingredients, Most Of Road Traffic Unsuitable For Some Kinds Of D.G.

5 - Lack of information and experience for the familiar crew dealing with dangerous goods during the (handling - transportation – storage)

6 - No experience and qualified companies can dealing with Dangerous Cargo.

7 - Specialized Warehouses equipped with fire fitting, safety system and experience workers Must be present and establish in all ports.
We Should focus on **specialized advanced training program** for workers in the field of dangerous goods.

The Specialized maritime and air transport institutes and academies must apply Dangerous good learning course **in their study program**.
Must legally, Do not allow transfer of dangerous goods containers, except by specialized transport companies have a specially qualified license for their drivers and equipments.
GPS system must be applied to control, monitoring, and follow-up dangerous goods since arrival to the port until delivered to the client.
- Must be sure that the recipient of Dangerous Goods **aware enough** and **know how to deal with it** especially during incident.

- The written language of Dangerous Goods documents and Datasheet **must be in Country Language**

- Accurate and clear **DATA BASE systems** must be available if require.
All Dangerous Good’s labels **should be removed from the container** (or masked) as soon as the container can be considered non-hazardous.
Create a modern electronic gates at the entrances of marine ports and airports and land ports to detect radioactive materials inside the containers or bags.

High Committee With high specialist and consultant for the port authority to how to deal with Dangerous Goods.

Contingency Planning For Dangerous Goods Must Be Prepared On The National & International Levels.
All **loading** and **unloading** ports equipped to receive the tankers as well as all **dockyards**, shall be fitted out with **adequate facilities** to receive the harmful liquid substances and their wastes.
Thank You