1991

Improvement of maritime casualty investigation system in the Islamic Republic of Iran

Mohammad-Reza Ghaderi
WMU

WORLD MARITIME UNIVERSITY

Malmoe, Sweden

IMPROVEMENT OF MARITIME CASUALTY INVESTIGATION SYSTEM IN THE ISLAMIC REPUBLIC OF IRAN

by

MOHAMMAD-REZA GHADERI

Iranian

A dissertation submitted to the the World Maritime University in partial fulfilment of the requirements for the award of a

DEGREE OF MASTER OF SCIENCE

in

GENERAL MARITIME ADMINISTRATION

Year of Graduation

1991

I certify that all material in this dissertation which is not my own work has been identified and that not material is included for which a degree has been previously conferred upon me.

The contents of this dissertation reflect my personal views and are not necessarily endorsed by the University.

Signature: 

Date: 22 October 1991

Supervised and Assessed by:
Ted Sampson
Professor, World Maritime University

Co-assessed by:
Jan Lund
Legal Adviser
Norwegian Maritime Directorate

IN THE NAME OF GOD

TO THE MEMORY OF MY BEST
FRIENDS WHO DEDICATED THEIR LIVES
TO GOD DURING THE IMPOSED WAR

IMPROVEMENT OF MARITIME CASUALTY INVESTIGATION SYSTEM IN THE ISLAMIC REPUBLIC OF IRAN

Contents

ACKNOWLEDGEMENTS

In undertaking this study, I received assistance from several persons and organizations.In this regard, I hereby express my profound gratitude and appreciation to all, inclusive of:

- Professor T.Sampson, my course professor and assessor who, with guidance, encouragement and support, helped me during the process of my dissertation preparation, and who provided valuable guidance throughout my studies at World Maritime University.

- Mr Jun Lund, my co-assessor, for providing me with valuable information for my dissertation and for assisting me during the period of my on-the-job-training in Oslo, Norway.

- Engineer M. Madad and Engineer M. Hussieni, Director General and Deputy Director of the Ports and Shipping Organization of the Islamic Republic of Iran, for their support, guidance and encouragement during my studies at World Maritime University.

- Professor E. Gold for his valuable advice in respect of the legal aspects of maritime casualty investigation and for his remarks on the draft.

- My wife, who fully supported and helped me throughout the two years of study at the University.

- The staff of the Library at WMU for their assistance in the course of my research.

- The staff of the Canadian Transportation Accident Investigation And Safety Board for the data provided during the period of my on-the-job-training in Ottawa, Canada.

- The staff of the Norwegian Maritime Directorate for the data provided during the period of my on-the-job-training in Oslo, Norway.

ABSTRACT

The investigation into shipping casualties is the process of ascertaining, the causes of casualties with a view to making recommendations which will be implemented to avoid the occurrence of similar casualties.

It is multi-dimensional in nature containing the international and national law, administrative and technical aspects. In this regard, the focus of this project is primarily on the legal and administrative aspects of casualty investigation. Shipping casualties may vary in nature, they include: abandonments, capsizings, collisions, fires and explosions foundering, grounding, hull and machinery damage and pollution. When the casualty happens the impact could also be varied. There may be loss of life, damage to the vessel, damage to the cargo, damage to the marine environment and damage to other personal property. All of these involve direct and an indirect costs.

In the event of a major casualty the following parties maybe affected: Crew and passengers, owner of the vessel, the charterers, cargo owners, financing institutions, insurance companies (including hull and machinery insurers and protection and indemnity clubs), naval architects, shipbuilders, classification societies, port authority, maritime administrations and states.

It must also be recognized that when marine casualties result in pollution, economic impacts on the fishing industry and the tourism and trade industry may also result. For instance when the EXXON VALDEZ * ran aground

in Alaska's Prince William sound the following resulted:

- Oil spilled	10,836,000	gallons
- Shoreline contaminated by oil	1,090	miles
- Number of dead birds	33,126	
- Number of dead others	980	
- Cost of clean up to Exxon	US 3	billion
- Number of people involved in the clean up	12,000	
- Number of vessels and planes used in the clean up	1,385	

The objective of my study is to improve the present Iranian maritime casualty investigation system and revise the relevant regulations and if the government accepts, to establish an independent casualty investigation board. The study take into account the following:

- Existing Iranian maritime casualty investigation regulations and some problems related to the enforcement of the present regulations.

- General overview related to different types of casualty, purpose of investigation, legal aspects of maritime investigation.

- International obligation for the country related to the maritime casualty investigation and preparation of adequate national legislation.

---

* Resource: The International News Magazine, Newsweek, September 18, 1989, page 24

- Studies of "foreign legislation and investigatory practices and procedure". These countries which I studied, are mainly the principals maritime nations; USA, Canada,Norway.

- Propose the independent maritime casualty investigation board with some revision to the present regulations including maritime casualty definition, jurisdiction of investigating authority into the casualty, organization and administrative aspects of investigation, procedure and preliminary inquiry and formal investigation.

CHAPTER ONE

GENERAL OVERVIEW OF IRAN

1.1 Introduction

The possibility of casualties and potential danger, which may occur on the Iranian coast line, is very high. The Persian Gulf which is located along the south of Iran, is the main producing oil area in the Middle East and there are a lot of offshore platforms and oil tankers which are used every day in this area. The main Iranian ports, for imports and exports, are also located in this area.

On the other hand this area has many fishery and marine resources which are very essential for the surrounding countries. Therefore, any maritime casualties could effect these valuable resources. In this chapter geography, main maritime activities and the present situation related to the maritime casualty investigation in Iran will be described.

1.2 Geographical Background

Iran, covering an area of 1,648,195 square kilometers, is the sixteenth largest country in the world, situated in the northern hemisphere in the Continent of Asia, constituting a part of the Middle Eastern Countries. The Iranian neighbor states and the extent of their common frontiers are:

The Soviet Union with 2,013 kilometers to the North, Afghanistan with 945, and Pakistan with 978 kilometers to

the East, Turkey with 486 and Iraq with 1609 kilometers to the West.

The length of the Iranian coastal line along the Caspian Sea from the River Astara to the Bay of Hossien-Gholi is 657 kilometers and for the Sea of Oman from the Bay of Gavater to Bandar Abbas it is 784 kilometres. In the Persian Gulf from Bandar Abbas to the mouth of Shat-ol-Arab, the coastline occupies 1,259 kilometres, making a total of over 8,731 kilometres.

The Caspian Sea with an area of 424,200 square kilometers is the world's largest lake, situated in the North of Iran and links the country with Europe via the waterways of the Soviet Union.

The Persian Gulf has an area of 240,000 square kilometers, providing Iran with a maritime linkage, through the Strait of Hormoz and the Sea of Oman.The main ports of Iran are: Shahid Radjaie and Bahonar in the Strait of Hormoz, Port of Bushehr and port of Imam Khomeini and Kharg Island in the Persian Gulf, Abadan and Khorramshahr along the Arvandrud, and the port of Shahid Beheshti on the Sea of Oman (figure No 1).

Iran

Figure 1

1.3 Port and Shipping Organization (PSO)

According to the Iranian Maritime Code, The Port and Shipping Organization (PSO) has authority over all the national and international maritime activities. The PSO is the only organization responsible for maritime authority with regulatory and implementing functions.Some activities of the PSO are:

- Preparation of proposals for maritime regulations.
- Enforcement of the approved national maritime codes.
- Evaluation of international maritime conventions in co-operation with other related organization and evaluation of proposals for ratification or accession.
- Construction, operation and maintenance of the ports.
- Loading and discharging of vessel's cargo.
- Registration, inspection and certification of the vessels.
- Safety of navigation and marking of the waterways.
- Protection of the marine environment.
- Examination training and certification of the seafarers.
- Implementation of search and rescue activities.
- Investigation of marine and port casualties.

Some of the above activities such as registration, certification, etc..., are carried out by PSO staff in Tehran where the Headquarters is located. The operational parts are conducted in the ports.

1.4 Major Iranian ports

There are seven main ports which are located on the Persian Gulf and the Sea of Oman and one on the Caspian Sea. Each major port has its own region and territory. The region involves each main port area together with its own harbor, approaches and related waters (figure No 2).

The officials in each of the major ports are responsible for exercising all appropriate safety measures, prevention of pollution, search and rescue and combatting of any kind of incident harmful to the environment and living creatures in the related territorial waters.

The Iranian coastal water in the Persian Gulf and the Oman Sea is divided into four territories as follows:

Imam Khomeini	200	Miles
Bushehr	220	=
Shahid Bahonar/Radjaie	356	=
Shahid Beheshti	155	=

Bandar Shahid Radjaie and Bahonar

These are the two biggest Iranian ports and they are located on the Strait of Hormoz. According to the latest statistics, these two ports have a loading and discharging record of more than eight million tons per year with a traffic volume of 460 ocean going vessels.

There are six berths totalling 1,050 meters for general cargo and one ore berth, capable of loading rates up to 250 tons per hour. Its depth alongside extends to 10.5 meters. There is a container berth, which is 1000 meters in length and 14 meters in depth which can accommodate vessels with maximum draft of 13.5 meters.

There is one tanker berth at Shahid Bahonar and two at Shahid Radjaie with 10.5 meters depth. There are Ro-Ro berths at Bandar Shahid Radjaie.

Bandar Imam Khomeini

Bandar Imam Komeini is one of the modern ports of Iran on the Persian Gulf having facilities for handling all types of general cargo, bulk, grain, liquid and containerized cargo. There are three berths for bulk imports with a total length of 750 meters and depths to 13.5 meters. There are also four general cargo berths totalling 770 meters with depths to 13.5 meters. In addition there are 20 other general cargo berths with depths to 12.5 meters.

It also provides container berths, totalling 1,051 meters in length with depths to 13.5 meters and a tanker terminal of 200 meters in length.

Bandar Bushehr

This port is located in the central Persian Gulf region. It has seven berths totalling 860 meters with depths ranging from 2 meters for small craft and a barge berth with a depth of 9.5 meters.

Kharg Island

Kharg island is an oil terminal lying some 30 km off the mainland. Kharg Terminal is operated by the Oil Services Company of Iran, with 10 berths on a 1,800 meter jetty. It has a 21 meter depth for vessels. In the Sea Island Terminal, there are 4 berths which can accommodate vessels to 500,000 dwt with depths up to 32 meters.

Bandar Anzali

This port provides a natural harbor and is more developed than other ports in the Caspian Sea. This port has 5 berths for general cargo and bulk carriers and can take vessels up to 5 meters draft.

Shahid Beheshti

Bandar Shahid Behesti is located in the South of Iran on the Sea of Oman. There are four general cargo berths and the length of each berth is 150 meters. It can accommodate vessels up to 10.5 meters in draft..

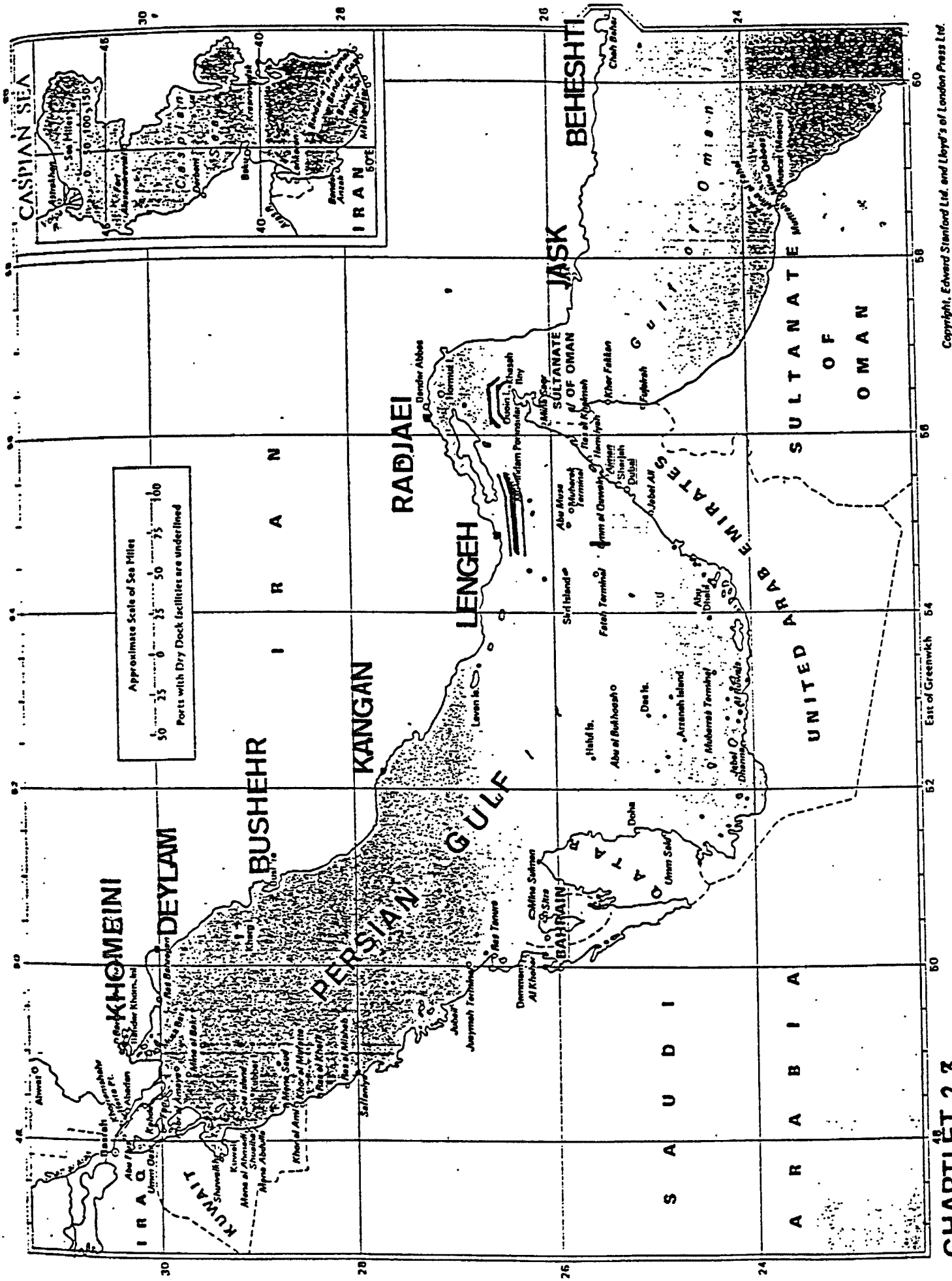
CASPIAN SEA
IRAN
IRAQ
KUWAIT
SAUDI ARABIA
UNITED ARAB EMIRATES
SULTANATE OF OMAN
PERSIAN GULF
KHOMEINI
DEYLAM
BUSHEHR
KANGAN
LENGEH
RADJAEI
JASK
BEHESHTI
Approximate Scale of Sea Miles
Ports with Dry Dock facilities are underlined
East of Greenwich
CHARTLET 2.3
Copyright, Edward Stanford Ltd. and Lloyd's of London Press Ltd.

Figure 2

1.5 Iranian merchant fleet

Iran has two main shipping companies. The first is the Islamic Republic of Iran Shipping Lines (IRISL) which was formed in 1967 as a liner shipping company with total displacement of 40,338 Death Weight. According to the latest statistics the fleet of the IRISL consists of 96 different types of ocean going vessels with 3.4 million Death Weight.

The second Iranian shipping company is the National Iranian Tanker Company (NITC) which was established in 1975 as a state owned company with 4 crude and 3 product carriers. At present, the tanker fleet consists of 43 oil tankers and 9 chemical carriers.

Iranian Merchant Fleet

Type	Number	DWT(1000)
OIL TANKER	43	6221.9
CHEMICAL CARRIER	9	69.2
BULK & ORE CARRIER	50	1776.3
GENERAL CARGO	66	550.1
FERRIES	6	17.3
TOTAL	174	8634.7

Resource: Shipping statistics
Bremen 1990

1.6 Maritime casualty investigation in Iran

According to Iranian Maritime code, the Port and Shipping Organization (PSO) is responsible for maritime safety administration. Its function is to prepare adequate regulations dealing with investigation of casualties. At present, there are different commissions in the major ports which address different types of casualties and pollution incidents. The casualty investigation guidelines , which were revised recently, defines a casualty as follows:

- All casualties to the PSO owned vessels such as grounding, collision, fire, explosion, etc.

- All accidents which result in damage to the ports and harbor installations.

- All casualties as a result of an occurrence between non-owned PSO vessels and port installations.

- All casualties which happen in a port area in connection with loading and discharging or handling of cargo.

- All incidents resulting in marine pollution within Iranian territorial waters.

There are some basic problems in the Iranian Casualty Investigation Guidelines which must be improved to achieve adequate and sufficient marine casualty investigation to increase safety of life at sea and prevention of marine pollution .

1- There is no precise definition of a marine casualty.

2- There is no precise definition of jurisdiction to allow the Investigation Department to exercise its duties.

3- The investigation of vessel casualties are limited only to vessels which cause damage to port installations.

4- The casualty investigation is limited only to PSO owned vessels.

5- There is no jurisdiction for an investigator to exercise inquiries involving other national or foreign vessels.

Lloyd's Casualty Return lists the number of Iranian vessels which have been lost since 1982, these are shown below:

	No	Gross Tonnage
1982	3	21,420
1983	1	19,888
1984	-	-
1985	-	-
1986	1	121,970
1987	2	3,892
1988	4	4,109

It is important to note that many major casualties happened as a result of imposed war.

CHAPTER TWO

INTERNATIONAL AND NATIONAL OBLIGATIONS IN CASUALTY INVESTIGATION

2.1 Introduction

Shipping activities are international and vessels usually visit different countries under their own national law but also according to international legislation each vessel has a nationality, which means that the vessel has some rights and duties based on their nationality. Since maritime casualty could happen anywhere in different territories and jurisdiction, both countries, i.e the flag state and the country where the casualty occurs have the right to investigate the casualty.

For the achievement of an adequate casualty investigation system, it is necessary to have sufficient regulations. Because the nature of maritime transportation is based on international activities, the need for international conventions or agreements is vital. The main organization in this regard is the International Maritime Organization (IMO) with a series of conventions on different aspects of maritime activities; mostly safety and protection of the marine environment.

On the other hand, the country which conducts a casualty investigation needs national legislation and based on that some relevant regulations and guidelines to carry out these important functions.

2.2 International obligations

The maritime administrations of all member countries of the International Maritime Organization (IMO), which are parties to its conventions are obliged to investigate casualties. Those which are a party to the International Convention for Safety of Life at Sea (SOLAS 1974) are obliged to investigate casualties as stated in Regulation 21 of Chapter I:

> " Each administration undertakes to conduct an investigation of any casualty occurring to any of its ships subject to the provisions of the present convention when it judges that such an investigation may assist in determining what changes in the present regulations might be desirable".

The administration of a member state party to the International Convention for the Prevention of Pollution from ships (MARPOL 73/78), undertakes under article 12, to conduct an investigation of any casualty occurring to any of its ships subject to the provisions of the Regulations if such casualty has produced a major deleterious effect upon the marine environment. Each party to the convention also undertakes to supply IMO with information concerning the finding of such investigation, when it judges that such information may assist in determining what changes in the current convention might be desirable.

The maritime administration of each member state party to the International Convention on Load Lines, 1966 (LL), undertakes to conduct an investigation of any casualty

occurring to ships for which it is responsible and which are subject to the provisions of the said Convention when it judges that such an investigation may assist in determining what changes in the convention might be desirable.

This convention adds that each contracting Government also undertakes to supply IMO with pertinent information concerning the finding of such investigation. No reports or recommendations of the organization based upon such information shall disclose the identity or nationality of the ships concerned or in any manner fix or imply responsibility upon any ship or person.

Under the United Nations Law of the sea, 1982, Article 94 (7), each flag state, in exercising effective jurisdiction and control in administrative, technical and social matters "Shall cause an inquiry to be held by or before a suitably qualified person or persons into every marine casualty or accident of navigation on the high seas involving a ship flying its flag and causing loss of life or serious injury to nationals of another state or serious damage to ships or installations of another state or to the marine environment. The flag state and the other state shall co-operate in the conduct of any inquiry into any such marine casualty or accident of navigation".

According to convention concerning Minimum Standards in merchant ships, 147 (1976) provided by the International Labour Organization (ILO);

> "The member state to said convention shall hold an official inquiry into any serious marine casualty involving ships registered in its territory, particularly those involving

injury or loss of life, the final report of such inquiry normally to be made public".

Article 2(g)

2.3 IMO Guidelines

A number of IMO Assembly Resolutions and Maritime Safety Committee (MSC) circulars urge and request administrations of member states to promote safety by enforcement of these recommendations.

1 - IMO resolution A.442 urges Governments to ensure they have available efficient means and suitably qualified personnel and material resources to enable them adequately to enforce International Regulations particularly in cases of casualties to promote maritime safety and marine environment protection.

2 - IMO resolution A.173 is intended to ensure that states seriously affected by or having a substantial interest in a maritime casualty have the opportunity of being represented at inquiries into or proceedings related to such casualty. This resolution seeks unification of practice in relating to such inquiries and proceedings.

It also recommends that a flag state holding an inquiry into a casualty which affects, or may affect, another state to consult with that state or, if the inquiry is held to inform that state of its date and place. It recommends that unless otherwise required by national rules, such inquiry be open to the public and permit a

representative of the other state concerned to attend and participate.

3 -**IMO resolution A.322** draws the attention of contracting Governments to the SOLAS and LL Conventions to their obligations to investigate casualties in accordance with those Conventions. It urges those Governments to provide IMO with information on the findings of such investigations. It also requests the IMO Maritime Safety Committee to examine regularly such reports and recommend action as necessary and to list serious casualties and request Administrations to provide information regarding inquiries held into them.

4 - **IMO resolution A.147** applies to all Governments including those not parties to the MARPOL convention. It recommends action for the reporting and processing of reports of oil pollution incidents and the provision of such information to IMO.

5 - **IMO resolution A.440** urges Governments to co-operate on a mutual basis in investigations into marine casualties and to exchange information freely for the purpose of a full appraisal of such casualties.

6 - **IMO Maritime Safety Committee circular** provides a standard marine casualty report form which includes a means of classifying the causes of casualties. It urges Administrations to complete and forward this form to IMO in respect of the total or constructive total loss of ships of 1600 gross tonnes or more and of ships of 500 gross tonnes involving loss of life.

It recommends that the information so supplied be based on the report of:

- a court or board of formal investigation;
- a preliminary inquiry or investigation carried out by the administration; or
- an informal fact-finding investigation carried out by the administration.

It also recommends a copy of the above report or extracts therefrom be forwarded to IMO with the Marine Casualty Report.
It urges completion and forwarding to IMO of the fire casualty Record (MSC/Circ.388), Intact Stability Casualty Record (MSC/Circ.224) and the Questionnaire on the Maritime Distress System (COM/Circ.70)

2.4 Co-operation in Maritime Casualty Investigation

It is recognized that maritime casualty investigation is important in promoting maritime safety and preventing pollution. It requires full co-operation between states in the conduct of investigations and the exchange of information, therefore IMO resolution A.637 urges that States implement as fully as possible the following procedures for the conduct of maritime casualty investigations held for reasons of maritime safety and/or protection of the environment.

2.4.1 Consultation

This Resolution regarding co-operation in maritime casualty, urges that states consult in the procedure of an investigation to find the facts as precisely as

possible. Thus, states should carry out the following items.

a) Flag states and other states having a substantial interest in a maritime casualty should consult at the earliest opportunity to determine which state or states will conduct an investigation into the casualty and to determine details of co-operation in conducting the investigations.

b) To provide the most efficient use of resources, and to minimize conflicts over access to witnesses and evidence, agreement upon a co-ordinated investigation procedure , with attendance and/or participation by other states is desirable.

c) If more than one state desires to conduct an investigation of its own, those States should co-ordinate the timing of such investigations to avoid conflicting demands upon witnesses and access to evidence.

2.4.2 Substantially Interested States

When a casualty occurs, it is important to know which states involved in the casualty have a right to investigate the casualty. The Maritime co-operation Resolution defines the term as follows:

" A state has a substantial interest in a maritime casualty if:

- it is the flag State of a vessel that is the subject of the investigation; or

- the casualty occurred within the internal waters of that State or its territorial sea; or

- the casualty caused or threatened serious harm to the environment of the State or within those areas over which the State may exercise jurisdiction as recognized under international law; or

- the consequences of the casualty caused, or threatened, serious harm to that State or to artificial islands, installations, or structures over which it exercises jurisdiction.

- the casualty resulted in loss of life or serious injury to the nationals of that State".

2.4.3 Exchange of information

Because of the nature of marine casualties, it is essential to collect all the information related to the causes of the casualty as soon as possible. Therefore the States should exchange all the information based on the following items:

a) States should readily exchange, with the State conducting an investigation, any information relevant to the casualty.

b) If an investigation is being conducted by a state having substantial interest, the flag state of a vessel involved in a maritime casualty should, to the extent permitted by its national rules, encourage the co-operation of the crew of the vessel with the State conducting the investigation

2.4.4 Conduct of the investigation

An investigation into a maritime casualty, whether held by the administration of the flag state or by that of another state, should be so conducted that:

a) a state having a substantial interest is allowed to attend and, where practicable, the public is allowed to attend.

b) arrangements are made which allow representative of states having a substantial interest to participate to the extent of:

- questioning witnesses or causing questions to be put through the authority conducting the investigation;

- viewing, examining, and obtaining photographs of material objects and copies of relevant documents;
- making submissions with respect to the various elements of the investigation, including suggesting witnesses to be called by the authority conducting the investigation.

In implementing these procedure, States are encouraged to provide for maximum participation in the investigation by all states with a substantial interest in the casualty.

2.5 National legislation in respect of Maritime Safety Administration

The establishment of the legal regime,as a national law, is of great importance to states because an adequate and up-to-date legal infrastructure is needed by a state to:

1 - Set out and legalize the maritime policy which should guide and control all who are involved in maritime activities.

2 - Establish the jurisdiction of the state over its ships and over areas of the sea in which the state is required or empowered by international law to exercise jurisdiction.

3 - Define the conditions so that ships will be given the right to fly the flag of the state or be permitted to operate in waters within the authority of the state.

4 - Fix conditions so that persons in the state may be employed on ships with rights and obligations of sea-going personnel vis a vis the owners or captains of the ships and where they work.

5 - Define the requirements for the training and certification of various categories of seafarers, including the procedures for recognizing training and certificates provided by other states.

6 - Set out the rights and powers of the state's maritime authorities (surveyors, investigators, inspectors, port authorities, etc) to exercise measures of control over ships, including powers to levy charges and to detain ships or cargoes for

reasons which have been established by law.

7 - Declare the jurisdiction of the various committees or judicial bodies to deal with issues or claims which may be brought before them by or in respect of ships and the persons or cargoes carried in ships.

2.6 National legislation in respect to casualty investigations

Legal powers are needed by the Maritime Authority authorizing the conduct of investigations. The authorization of the Maritime Administration as having power
to conduct investigations must be in the national legislation. Therefore, from the point of view of the marine casualty investigation, it is necessary for a government to prepare legislation to define inter alia:

- What is the authority and jurisdiction of the government regarding marine casualty investigation responsibilities?

- What is a shipping casualty (definition) ?

- Who will investigate casualties (qualifications of investigators) ?

- What are the powers of the investigator?

- Which administration will conduct an investigation in different circumstances?

- Since maritime legislation is based on International law

more so than other national laws, it is essential to understand how the international instruments are legally binding on a government.

- A state which ratifies or accedes to a convention is obliged to put it into effect by making its requirements part of its own national legislation as primary or subsidiary regulations.

- These regulations must be implemented by a Maritime Administration using appropriate documentation and adequate maritime infrastructures.

2.7 The purpose of casualty investigation

The purpose of the investigation to the casualty could vary, by looking at it from different angles. It may be safety or disciplinary investigations, which are usually carried out by governments to improve safety of life and property at sea and protection of the marine environment. The other is civil liability investigations, which must be requested by interested parties for remedy of damages. Casualty investigation are carried out for safety, disciplinary and civil liability purposes.

2.7.1 Safety purposes

It is widely recognized in international organizations and in most countries's jurisdictions, that the primary purpose of a casualty investigation is to promote safety of life and property and to protect the marine environment. These investigations are seen as a form of preventive medicine as processes designed to find out the causes of the occurrences, obtain knowledge there from and

recommend or dictate ways to prevent reoccurrences.

The most important purpose of marine casualty investigations is to acquire information for the prevention of similar casualties. It is necessary that the causes of casualties be determined as precisely as possible. It is not sufficient to know only how a casualty occurred, it must also be clear why it happened.

Safety investigations which are carried out by a maritime safety administration have resulted in major improvements in areas, such as ship construction, lifesaving and fire fighting equipment, navigational aids, levels of competence of seamen, search and rescue, and traffic separation control.

It is essential for safety to find out the facts and causes of casualties and make appropriate recommendations designed to eliminate or reduce safety deficiencies.

2.7.2 Disciplinary purposes

The disciplinary aspect of investigations is considered as an other reason why marine casualty investigations must be carried out. Since a significant proportion of casualties result from human failures, investigations should also be used to remove incompetent seamen who may constitute major safety risks. In many cases human factors relating to inadequate qualifications of personnel are the underlying causes of casualties.
In these cases the purpose of an investigation is to determine whether there is evidence of violation of laws or regulations. Violation of law investigations are

generally conducted by a maritime safety administration.

2.7.3 Civil liability purposes

Casualties may result in damages to property either directly or as a consequence of the casualty especially in the case of commercial vessels. Where such damages have been caused partly or totally by a third party everyone involved has a direct interest in the investigation of the casualty.

The Investigation Authority is the only one having the immediate power to enter and inspect and to compel testimony or the protection of documents. Interested parties have a right to participate as much as possible in the investigation process in order to have access to the evidence gathered by the investigating authority.

When a public hearing is held these parties have an interest in seeing that their civil liability involvement is presented in the best possible light. In any event interested parties are generally allowed to use the hearings as a discovery process.

However, Civil Liability investigations are separate proceedings, conducted by a lawyer where the aim of the investigation is settlement of liability claims.

CHAPTER THREE

TYPES OF MARINE CASUALTIES

3.1 Marine casualty definition:

A marine casualty or accident is generally deemed to have occurred whenever any of the following is involved:

- loss , stranding , abandonment or other damage to a ship.

- loss of life or serious personal injury caused by any accident to a ship.

- damage caused by a ship to the environment, property, port installations , etc .

3.2 Types of marine casualties

The different types of casualties are defined as follows:

- **Foundering:**

  The term of foundering includes ships which sink as a result of heavy weather, springing of leaks, breaking in two, etc.

- **Grounding/stranding:**

  These terms include ships which touched the sea bottom, sand banks or seashore , etc.

- **Collision:**

  This term includes ship casualties that result from striking or being struck by another ship, regardless of weather situation, anchored or moored.

- **Fire/Explosion:**

  These terms include ship casualties resulting from any fire and/or explosion on board.

- **Contact:**

  This term includes ship casualties that result from striking an external substance but not another ship or the sea bottom. This category includes offshore structures or platforms.

- **Missing:**

  A ship is considered to be "missing" by an administration if after a reasonable period of time no news has been received about the ship and the cause is undetermined. In peacetime, missing ships are considered as losses by marine perils.

- **Oil or chemical spills:**

  These terms include marine pollution or damage to the environment as a result of a ship accident or operation.

- **Miscellaneous :**

  Includes ships which have been lost or damaged and due to lack of sufficient information can not be categorized.

3.3 Classification of marine casualties

When a casualty happens, it should be classified to facilitate adequate reporting procedure to the authorities responsible for marine casualties. Marine casualties can be classified as follows :

3.3.1 Major marine casualty

This term includes marine casualties which result in one of the following:

1) The loss of significant number of human lives.

2) The loss of a mechanically-propelled vessel of 100 or more gross tonnage (GT).

3) Property damage initially estimated at high cost.

4) Serious threat to life, property, or the marine environment by hazardous materials or oil.

3.3.2 Serious marine casualty

The International Maritime Organization (IMO) has defined a "serious casualty" as an occurrence involving

vessels of 1,600 GT or more which result in the total loss of one or more vessels . It is also includes constructive total loss where the repair costs exceed the vessel's worth.

A serious casualty has also been defined as one which includes a loss of life on vessels of 500 GT or more. According to IMO regulations, a copy of all investigations of serious marine casualties should be submitted to IMO by the member state.

3.4 Authority and jurisdiction

In most countries, a national shipping act gives jurisdiction to a single ministry or organization to investigate all shipping casualties. this is generally the maritime administration. This investigating authority should have exclusive jurisdiction to investigate all marine casualties for the purpose of finding factors and causes and to prepare recommendations based thereon.

The Maritime Administration (MARAD) should also determine, if there are any violations of the national legislation. The MARAD can normally assess civil penalties. But, if there is evidence of criminal violation on the part of any person, the case should be referred to a court of proper jurisdiction for such matters

3.4.1 Authority

Under international law any state has sovereignty over its own territories. This leads to the legal principle

that the laws of a nation apply to all things and acts within its territories including its waters and to ships of its flag on the high seas and to foreign ships within its territorial waters. This means that any casualty occurring to a flag
state registered vessel anywhere is a matter for exercise of investigation. There is also authority for MARAD to investigate a casualty involving a foreign vessel, if the casualty has occurred within the jurisdiction of the state.

3.4.2 Jurisdiction over national vessels

The investigating authorities should have complete jurisdiction to investigate casualties which involve any national registered vessels whether in territorial waters or outside of territorial waters.

3.4.3 Jurisdiction over foreign vessels

The National Shipping Act should give jurisdiction to an investigating authority to investigate casualties which occur in national territorial waters involving foreign vessels .

3.5 Statistics of total lost

Since the main purpose of a casualty investigation is to increase safety at sea, a marine investigation can become a very complex task. It must examine circumstances which involve lives, ships, cargo and the marine environment.

Nearly all major improvements to vessel safety are initiated by learning lessons from casualties, applying service experience and incorporating technological progress.

Casualties clearly indicate short-comings in the design and construction of ships and in their servicing . It is easier to learn through bitter experience, but it is very expensive and sometimes most painful.

Some examples of these casualties are:

The TITANIC	1912
The TORREY CANYON	1967
The AMOCO CADIZ	1978
The EXXON VALDEZ	1989
The SCANDINAVIAN STAR	1990

3.5.1 World figures on vessel total losses for the years 1983-1989

According to Lloyd's Register Casualty Return the term " Total Loss " refers to a merchant ship which as a result of being a marine casualty, has ceased to exist, either by virtue of the fact that the ship is unrecoverable or has subsequently been broken up .

Ships which have been declared constructive total losses but which are undergoing or have undergone repairs are not included. Ships of less than 100 gross tonnage are not included in this category.

Ships Total Lost from 1983 to 1989

Year	Number	Gross Tonnage
1983	320	1 , 357 , 701
1984	303	1 , 049 , 643
1985	277	907 , 510
1986	230	1 , 089 , 406
1987	206	947 , 464
1988	220	571 , 240
1989	211	667 , 244
TOTAL	1757	6 , 690 , 208

Sources: Lloyd's Register, Shipping Casualty Return 1988 , 1989

3.5.2 Lives lost by category in the years 1983 -1989

The number of persons reported killed or missing as a result of total losses is indicated below for the years 1983 - 1989. No real trends can be established when studying these figures, since one major catastrophe can exaggerate certain categories and totals.

Lives Lost by category in the years 1983 -1989

Category	1983 No	1984 No	1985 No	1986 No	1987 No	1988 No	1989 No
Foundered	570	317	440	431	523	561	443
Missing	0	68	32	82	78	29	26
Fire/Explosion	53	51	94	29	29	83	57
Collision	25	54	14	448	3156	63	76
Contact	0	1	3	7	0	0	42
Wrecked/Stranded	15	6	9	27	34	23	34
Lost,etc.	8	28	27	43	21	4	10
Total lives lost	671	525	619	1067	3841	763	688

Source :IMO News number 4, 1990 page 8-9

CHAPTER FOUR

TYPES OF MARITIME SAFETY INVESTIGATION

4.1 Introduction

An investigation has been defined as the inquiry into a casualty to acquire a current picture of a prior event. It is a planned search for facts and evidence through interviews , interrogations , observations , examination of records , and interpretations of physical evidence.

It should be mentioned that a successful investigation is one in which evidence is competently handled , witnesses are intelligently questioned , all leads are fully developed , and the case is reported comprehensively, concisely and clearly.

4.2 Types of safety investigation

The main purposes of an investigation into a shipping casualty are to ascertain the facts , obtain all relevant information and determine as precisely as possible the cause/causes of the casualty. This is to enable the Maritime Administration to take the necessary steps if appropriate, to prevent the occurrence of similar casualties in the future.

In this connection, there are two stages of inquiry or investigation into the shipping casualties:

Preliminary Inquiry and formal Investigation.

4.3 Preliminary Inquiry

The first stage of an investigation is a preliminary inquiry which is conducted to find the facts of the casualty by a maritime safety investigator or a board of investigation. The preliminary inquiry is conducted as the first level of investigation and its results are not normally disclosed to the public.

This inquiry, which can be said to be quasi-judicial in nature, is usually conducted by a responsible official of the Maritime Administration with the necessary expertise. Its purpose is to obtain evidence of the causes of a casualty and to gather all relevent information.

In practice the assembling of evidence for presentation to the court of inquiry is, in most cases, accomplished during the preliminary inquiry. A board of investigation may decide whether further formal inquiry is essential.

4.3.1 Nature of preliminary inquiry

Preliminary Inquiries are closed to the public, and proceedings are "in camera" it means that no person can attend the inquiry other than the following:

a) the investigating officer/s.

b) a person/s requested by the investigating officer to advise him with special skills or experience.

c) a person who gives evidence at the inquiry.

4.3.2 Sources of information

There are numerous sources of information available to an investigator, these sources include:

- vessel's master
- shipping companies
- underwriters
- passengers
- environmental groups
- crew members
- pilot associations
- maritime organizations
- police
- the news media

4.3.3 Qualifications of Investigators

A maritime casualty is an accident related to the use or operation of a vessel and resulting damage to the ship, its equipment or machinery or resulting damage to cargo and other properties like port installations and the marine environment. The causes of marine casualties are different and sometimes one or more factor may cause damage to the ship or the cargo on board.The investigation includes any search for facts or making analysis to determine the causes of the casualty.

If conducted properly these investigations can result in major improvements in areas such as ship construction, life saving appliances, fire fighting equipment and navigational aids and equipment. They can also improve the international regulations for the prevention of collisions at sea, search and rescue and level of competence of seamen. Achieving this primary purpose relies on the capability and responsibility of the marine investigator.

capability and responsibility of the marine investigator. The investigators must determine the causes of the casualties and make the appropriate recommendations.

During the investigation, persons who give testimony at a shipping casualty expect the investigator not only to be authorized to carry out the investigation but also to be fully qualified to carry it out. The investigator should at least have qualifications equivalant to those of the witnesses. He should have a professional background on board a vessel as a master, deck officer or marine engineer. The investigator should possess one of the following qualifications:

1- Master mariner certificate.

2- Chief marine engineer.

3- Equivalent certificate establishing that the holder has enough sailing or marine experience.

4.3.4 Qualities of Investigator

The investigation and analysis of a marine casualty is a highly specialized task which requires highly experienced professional personnel in the maritime field. An investigation can only be carried out effectively by fully trained and experienced personnel. The investigator should possess the following qualities:

1- Dedication to this kind of work.
2- Diligence, self control and patience.

3- Technical skills with practical background.

4- Perseverance, logic, and a willingness to keep an open mind.

5- Writting and speaking experince.

6- Working knowledge of shipping and factors which affect shipping operations.

4.3.5 Duties of the Investigator

Since the main purpose of a marine casualty investigation is to obtain information which is used for the prevention of similar casualties, it is necessary that the causes of a casualty be determined as precisely as possible in order that detailed factual information will be available for review and statistical studies.

It is not sufficient to know only how a casualty occurred and who was responsible but it must also be clear why it happened.

Based on information obtained by an investigation officer appropriate corrective measures , regulations and standards of safety may be developed, or legislation for marine safety may be recommended if needed. Therefore, the investigator must perform a comprehensive list of duties. The main items to be covered by the investigator are:

- Find out facts
- Obtain all the relevant information
- Determine as precisely as possible the causes of the

casualty

- Prepare safety recommendations

The duties of the officer conducting a preliminary inquiry can be classified as follows:

1- to inform the government (Ministry concerned) that the shipping casualty has occurred within its jurisdiction;

2- to hold a preliminary inquiry , when it is considered necessary, into the shipping casualty and for this purpose it is essential:

a) to go on board the ship involved in the casualty and inspect any of the decks, machinery, boats, equipment or articles on board,

b) to enter and inspect any premises the entry or inspection of which appeared to be requisite for the purpose of the report which he is directed to make,

c) to summon under his hand, require the attendance of all persons, as he thinks fit, to call before and examine for such purpose,

d) to require and enforce the production of all books, papers of documents which he considers important for the purpose of the investigation,

e) to administer oaths, or in lieu thereof, require any person to be examined by him to make and subscribe a declaration of the truth of the statement made by him in his examination,

3- to submit the proceedings and report of the preliminary inquiry to the Government,

4- to make an application to a court empowered under the Maritime Code, for a formal investigation into the shipping casualty, if he considers it necessary or in any case, if the Government directs him to do it.

4.3.6 Preliminary Inquiry report

In any case of casualty, it is necessary to assemble every item of evidence, in a standard format for a preliminary inquiry report.

For this purpose investigators should be sure , in co-operation with the other authorities, that the important items are covered in the preparation of the final report.

A proper preliminary inquiry report should be in four parts:

- Summary
- Factual Report
- Analyses (recommendation)
- Appendices

1) Summary

The summary is the necessary information regarding the casualty which should form the first page of every preliminary inquiry report. It should contain a short description of the sequence of events, the Inspector's conclusions as to the reasons for the casualty, and his recommendations as to any action to be taken as a result.

2) Factual Report

This section should describe the events leading up to the casualty by reference to the declarations of witnesses and other direct evidence. It should be confined to matters of fact, and should offer no interpretation of the evidence. It should also include the sources of all facts which the investigator has determined and the causes and possible causes of the casualty. Where an investigator has inspected a vessel, its equipment or cargo following a casualty, he should make this clear and describe what he found.

The factual report should contain information on the following:

a) background; for example a description of and factual information about the ship, the crew, the ship's equipment, cargo and voyage, weather, relevant operational arrangements and procedures;

b) events leading to the casualty;

c) sequence of events following the casualty, including search and rescue;

d) other relevant circumstances and events after the casualty.

3) Analyses (investigator's comments, conclusions and recommendations)

This section should contain the inspector's comments on the reliability of witnesses, or other evidence,

conclusions as to the reasons for the casualty, recommendations of any action necessary to prevent a recurrence, and a recommendation on whether or not to seek a formal investigation.

The conclusions of the Marine casualty are given by the investigator based upon facts, the testimonies and evidence. The conclusions should reflects the investigator's opinion as to the causes of the casualty. The causes to the casualty are categorized as follows:

a) Proximate cause

The proximate cause of the casualty based on the facts and available evidence which are determined during investigation.

b) Contributing cause

The contributing causes which indirectly caused the casualty or contributed to the severity of the casualty. These may be multiple and be stated as follows:

- adverse weather or sailing conditions
- inadequate training or supervision
- lack of qualification or experience
- etc.

c) Description of cause

The investigator must explain in detail the causes of the accident and describe how the causes affect the casualty directly. The investigator should not identify only causes such as "ship unseaworthiness" but he must

describe how and why the ship is unseaworthy.

4) Appendices

All the reports pertaining to a casualty should contain appendices in the end. Appendices should include as appropriate:

Declaration - plans of ship - plans,diagrams or records of equipment - relevant statutory certificates - charts - crew and passenger list - log extracts - cargo details Search and Rescue operation - weather reports - transcripts of distress traffic - press cuttings and photographs - other appendices at the investigators discretion .

4.4 Formal Investigation

A Formal Investigation is a public and judicial inquiry, to be held in addition to or instead of a preliminary inquiry. It is held by a court or commissions as maybe empowered under the National Maritime code.

Formal investigations are conducted in open courts, specially set up for the purpose of discovering the causes of the casualty. The court also has the power to suspend or revoke certificates or to criticize the conduct of any party. Inquiry is held strictly for disciplinary purposes and can examine whether a master, or other officers are incompetent. It is also the function of the judge to assess costs against the parties

The primary considerations which lead to a decision to hold a formal investigation are:

a) If the causes can not be determined by a preliminary inquiry.

b) If the casualty is one involving a considerable loss of life or one which has attracted massive public attention for other reason ,a formal inquiry would restore public confidence.

c) If special safety lessons should be brought to the attention of the industry to prevent a recurrence of similar causalities.

d) When it is possible that the casualty was caused or contributed to by wrongful act, negligence, default of the ship's master or officers, disciplinary action may be desirable.

A formal investigation is essentially a judicial process where generally a judge is assisted by two or more assessors with appropriate expertise and marine knowledge. They are selected by the court from the list of qualified experts which is distributed by the Maritime Administration.

CHAPTER FIVE

CASUALTY INVESTIGATION PROCESS

5.1 Introduction

In this part of the project, I would like to discuss the methods and techniques for collection, examination and presentation of evidence. These methods must be done by the investigator to fulfill his functions to locate and identify evidence relevant to a casualty, examine the evidence to determine its impact on the casualty sequence and to reconstruct the sequence of events based on the evidence.

Every investigation involves several procedural steps: analysis and outlining of initial steps, fact-finding, evaluation and development of conclusions and recommendations. The fundamental precept in conducting any investigation is the answering of the questions who, what, where, when, how and why.

The nature and type of evidence may vary with each marine casualty but the investigator can find evidence in each of following categories:

- People (Master - crew - Passengers - etc)
- Positions of vessel
- Parts of vessel which has been damaged
- Papers (documents , log book , etc)

5.2 Casualty investigation process

The adequate and sufficient casualty investigation process maybe sub-divided into three processes:

1- The gathering of facts

2- The analysis of the information then gathered

3- Reporting

The gathering of facts contains finding out who was involved in the event, what was involved, where the event occurred and when it happened. After all possible facts which have been gathered and persons interviewed , it should then be move into the analysis process which means discovering how and why the casualty occurred. It is probably the most important part of the investigation process, due to desirable development and safety improvement in maritime safety standards.

The third stage of the casualty investigation process involves the writing of the report. It must state the facts gathered, detail the analysis undertaken, give the conclusions reached as to cause, and determine what the investigators consider to be appropriate recommendations.

5.3 Witness Interviews and Statements

The human evidence is vital to finding the basic causes of a casualty. This kind of evidence is obtained through

interviews , statements and examinations . For definition, the term witness is applied equally to all who possess information relating to the casualty. This includes the people who were injured or were operating during the casualty.

It also includes the "eye" and "ear" witnesses who saw or heard the casualty or observed the environment at the time of occurrence. The term also includes the people having knowledge of aspects of the casualty in the pre-contact , contact and post-contact phases.

5.3.1 Promptness essential for valid information

The validity of many aspects of an investigation is highest when the investigative actions start immediately after the casualty occurs. Prompt arrival at the scene of a casualty is a great benefit to most investigators . This can enable the investigator to positively identify primary witnesses who have fresh information .

The early examination of witnesses , while the events are still fresh is essential . The investigator must try to be the first to question the witnesses after the casualty , when their testimony is more freely given and uninfluenced by the questions of other interested parties.

The investigator must rank in priority the identification of witnesses , the interviewing of witnesses , and the collection of statements and preservation of witnesses evidence.

The investigator must find the witnesses before he can

get evidence from them. the principal people involved may be able to name some of those who were there. Each witness may be able to identify others and should be questioned.

5.3.2 Testimony

For the purpose of controlling distortion of testimony, it is desirable, from the standpoint of credibility , for witnesses to have no contact with each other until after interviews and examinations are completed.

In most casualties, the people involved (master, crew, passengers) simply do not know all that happened. Differing observations are made, depending on technical back ground, personal values and physical point of observation. Different accounts are given by operators, managers and spectators . No one has total observation therefore initial testimony will be disjointed and have gaps. The investigator will recognize these gaps by interviewing the different witnesses involved.

5.4 Photography in investigation

The camera is one of the investigators useful tools. Like other tools, however, when used improperly it can destroy or distort the evidence that one seeks to preserve.

Photographs can record what the eye misses at the scene. They can also record large amounts of detail and save the investigator time.

The camera also has an infallible memory and can remember for the investigator, minute details he may need later in his analysis.

If using photography, it may be useful if the photographer is guided continually by the investigator so that the photographhor's actions do not destroy other evidence in the process. The professional investigator needs to be trained in the skills of photography.

The general uses of photographs in casualty investigations should be as follows:

a) Determination of place and position of casualty

b) Record of the detail of injury and damage to property

c) Record of relative positions of other damaged items

d) Detail of marks, spills, search and rescue operations

e) Location of parts, or other evidence that may have been overlooked during the early stages of the investigation

f) Description of failure of machines

5.5 Diagrams, maps and sketches

An important source of evidence or information for the investigator is found in the positions of vessels, people on board, equipment, port or channel entrance.

This "position evidence" is recorded for later analysis in sketches and tables of measurements.

In some casualties, to facilitate and support the analysis and conclusions given in the casualty report, the sketches and tables can be developed into maps. Some of these items , which may be very useful elements of evidence, and which should be recorded by position are:

- The vessel position
- Machines and other types of equipment involved in or effected by the casualty
- objects which were broken, damaged during or as a result of the casualty
- oil spilled area

In casualties such as groundings and strandings, or collisions in narrow channels, witnesses able to do so should be asked to mark the approximate positions on a chart supplied by the investigator.

CHAPTER SIX

INVESTIGATION SYSTEM OF SOME PRINCIPAL MARITIME NATIONS

The study and research of other maritime nations is one of the important factors to improve and develop the present system of maritime casualty investigation. Human beings usually learn from experience, which in casualty investigation mostly comes from human loss and damages to property therefore by learning from these experiences, the casualty investigation system can be developed and improved to using the sea more confidently and safely.

UNITED STATES OF AMERICA

6.1.1 Introduction

In the USA , the regulations governing marine casualties are contained in 46 Code of Federal Regulations part 4 (46 CFR 4). There are two main organizations which are engaged in marine casualty investigations. These are:

1- The United States Coast Guard (USCG)
2- The National Transportation Safety Board (NTSB)

Almost all the investigations into marine casualties are carried out by the USCG and the NTSB acts as a participant in some of the major casualties.

There are other organizations involved in investigations. Casualties on fixed outer continental shelf facilities are

investigated by the Minerals Management Service of the Department of the Interior.

For cases where there is a potential for overlap, clear guidelines are laid down in a memorandum of understanding between the Coast Guard and the Department of Interior.

The Secretary of Labour is also obliged to investigate marine casualties and deaths involving employees on board of vessels. A memorandum of understanding exists between the USCG and the Department of Labour/Occupational Safety and Health Administration for the purpose of co-operation between the two organizations.

6.1.2 United States Coast Guard (USCG)

The United States Coast Guard which was established in 1915 carries out a broad range of maritime responsibilities under the Department of Transportation.

In particular, it is responsible for vessel inspection and certification, licensing and certification of personnel, pilotage, vessel traffic management, search and rescue operations, preparation of regulations and enforcement.

The Commandant is in full charge of the Coast Guard but he is not directly involved in investigations. Under him there are various offices, one of which is the Merchant Marine Safety Office, which is headed by an Admiral. This office has six divisions , Marine Technical and Hazardous Materials, Inspection and Documentation, Merchant Vessel Personnel, Port Safety and Security, Marine Environment

Response, Marine Investigation

At the field level, there is a District Commander who is an Admiral. Under him there is the Marine Safety Division, and under that there are officers in charge of Marine inspection (OCMI) for each major port area. Under each OCMI there is a casualty investigation section, headed by a Senior Investigating Officer.
There are ten USCG districts with experienced Senior Investigating Officer in each major port of each District. The investigators are acting on a full-time basis and they handle other duties as well. All Senior Investigating Officers report to the OCMI who have complete control over their work.

6.1.2.1 Reporting to Coast Guard

Since the Coast Guard has full jurisdiction to investigate all casualties, when a casualty occurs, the master, or shipowner, or person in charge of a U.S flag commercial vessel or (a foreign flag vessel in U.S territorial waters) is obliged to report to the nearest USCG Marine Safety Office.

The requirements for reporting casualties appear in part 4 of the Regulation and generally cover all grounding, losses of propulsion, impairment of a vessel's seaworthiness, loss of life, injury causing incapacitation for a period of more than 72 hours and any other occurrence where the property damage is in excess of USD 25,000.

According to the USCG regulation, if a master, owner, agent, charterer, managing operator, or any individual in

charge of a vessel or facility fails to report a casualty, he is liable to penalty.

6.1.2.2 Coast Guard Jurisdiction

Prior to starting any investigation, it should be determined whether the Coast Guard has jurisdiction in the case or not. The Coast Guard has jurisdiction to investigate the following:

a) A marine casualty or other accident involving any vessel upon the navigable waters of the United States or involving U.S vessels wherever they may be.

b) An incident involving the destruction of, or damage to, any bridge or other structure on or in the navigable waters of the United States, or any land structure or shore area immediately adjacent to those waters.

c) An incident involving a major fire, an oil spill, or any injury occurring as a result of operations conducted pursuant to the Outer Continental Shelf Lands Act, including allegations of unsafe working conditions or violations of safety regulations.

d) Water pollution by oil or other hazardous substance or the threat thereof to the "waters of the United States".

e) Acts of misconduct, incompetence, unskillfulness, negligence or willful violation of law committed by any licensed, certificated of documented individual.

f) Casualties or accidents which occur to any component of a deepwater port.

g) Boating accidents.

6.1.2.3 Marine Casualty Definition

A marine casualty or accident is defined in 46 CFR 4.03-1, the term "marine casualty or accident" includes any accidental grounding, or any occurrence involving a vessel which results in damage by or to the vessel, its gear or cargo , or injury or loss of life of any person. It includes collisions, stranding, grounding, foundering, heavy weather damage, fires, explosions, failure of gear and equipment and any other damage which might affect or impair the seaworthiness of the vessel.

For the purpose of facilitating initial reporting to the USCG Commandant and the appropriate agency outside the Coast Guard, certain marine casualties have been classed as follows:

1- Major marine casualty ;

2- Significant marine casualty ;

3- Public/Nonpublic vessel casualty,

4- Serious casualty,

A major marine casualty includes casualties or recreational boating accidents involving vessels other than a public vessels and resulting in one of the following:

a) The loss of six or more lives ;

b) The loss of a mechanically-propelled vessel of 100 or more gross tons;

c) Serious threat (as determined by the Commandant with concurrence by the NTSB Chairman) to life, property, or marine environment, by hazardous materials;

d) Property damage initially estimated at USD 500 000 * or more;

Significant marine casualties are those casualties that involve important safety issues or cause substantial media interest. A significant marine casualty is that one requires initial reporting to the Commandant but cannot be described as a major casualty.
It generally involves the following:

a) Multiple deaths or a single death caused by unusual circumstances.

b) Hazard to life, property, or the marine environment.

c) Loss of any inspected vessel.

A public / Nonpublic vessel casualty is that which involves a public and a nonpublic vessel and at least one fatality or USD 75,000 in property damage, which can not

---

* by consideration of inflation , this value maybe changed occasionally.

classified as a major marine casualty. The Coast Guard Commandant must notify the NTSB for joint investigations.

The definition for Serious Casualty as defined by IMO was mentioned earlier and according to regulation, copy of all investigative reports on U.S vessels involved in casualties meeting this definition should be submitted to the IMO.

6.1.2.4 Administrative procedure for marine casualty investigations

When information concerning a major marine casualty is received, the officer in charge (OCMI) of the USCG, is obliged to inform:

1- The District Commander by the most rapid means available (usually telephone);

2- The Commandant who should inform the NTSB.

Notification must be based on reliable information and should not be delayed. This notification must contain essential information such as:

- The names of vessels involved in casualty
- The official number
- Nationality
- Location of casualty
- Known and possible deaths and serious injuries
- The nature of casualty

As soon as information concerning the casualty is received, a sufficient number of Investigating officers

are dispatched to the scene. This helps investigators to collect evidence shortly after the casualty to prevent loss of key persons.

The levels of investigations, which must be carried out by the USCG, depend on the type of casualty. When a report of casualty is received, one of the following levels of investigation must start:

a) Desk Audit:

When a casualty is not so important, an investigating officer reviews the report-form in order to determine whether it is complete. In minor cases he determines the cause of the casualty on the form itself and signs it. This then becomes the report or the investigation, which is reviewed and approved by a superior officer. Most of the casualties which are reported, can be handled on this level.

b) Informal Verification:

This process is conducted for some casualties and it consists of a low level routine investigation. where the investigator only adds notes to the casualty report form. In these cases, there are generally interviews of witnesses taken without oath. In these investigations , the investigator can use notes, signed statements, tape recordings, etc. Recommendations can be added to the report, which goes through the normal approval process by the investigator's superior. The report becomes public when the approval process has been completed. The evidence taken by the investigator can be made available to any one

c) Formal Investigation process:

This is a type of investigation carried out in more serious cases by the investigator, who gathers testimony from witnesses under oath. The decision to carry out this type of investigation is generally taken by the District Commander.

All formal investigations are open to the public except when the investigtions must deal with classified material or issues affecting national security. If after completing this level of investigation it is decided that the NTSB should conduct a public hearing, the USCG co-operates according to the MOU.

6.1.2.5 Marine Board of Investigation (MBI)

This is the highest form of formal investigation which is undertaken by the USCG. It is based on the recommendation of a district commander if the circumstances warrant it. Some of these conditions are:

1- The value of the preliminary evidence.

2- The significance and magnitude of the casualty.

3- Evidence that safety of life and property will be improved by more precise investigation.

4- Satisfaction of public interest.

The Marine Board (MBI) is composed of two or three members, the senior member is chairman, the junior member the recorder, and other specialists or technical experts

are designated to assist the board. Designation of marine board members is based on the nature of the casualty and also the availability of qualified personnel.

It is important for this member to have professional qualifications, for example if the chairman's experience is primarily in deck operations, the other member should be a marine engineer and the recorder should be a qualified investigating officer.

6.1.2.6 Responsibilities of the Recorder

The recorder is responsible for a large number of duties before, during and after convening of the board. Some of these are:

1- Collection of all available evidence from the investigating officers and keeping the following:

- Several current copies of appropriate charts
- Most recent inspection records
- plans of vessels
- Record of previous casualties, possibly related
- Message traffic on the casualty
- Copies of statements of persons interviewed
- List of physical evidence
- List of witnesses and their status
- Course recorder tapes, charts, logs and other vessel records
- Photos of casualty and equipment

2- Arrangement and preparation of the place for the hearing

such as:

- Waiting room
- Provide the place for display of evidence, charts, pictures
- Security for the participants and spectators
- Press information arrangements
- Notifying witnesses and other participants

3- Preparation of information for the chairman's opening statements.

4- Keeping the Commandant informed daily with a summary of the days proceedings.

The Board is assisted by the provision of all necessary tools prior to the convening of the investigation. Legal and technical assistance should be provided to the marine board during the investigation. If the Board intends to call Coast Guard personnel as witnesses, the chairman should obtain permission from the District Commander.

6.1.3.1 The National Transportation Safety Board (NTSB)

The National Transportation Safety Board (NTSB) is an independent federal agency. The NTSB was formed in 1966 and has jurisdiction over casualties in all modes of transport, aircraft, highway, railroad, pipeline and marine casualty. The creation of the Board resulted from a concern for conflicts of interest. Because an organization charged with developing and applying transportation safety rules can not be expected to judge its own program in an unbiased manner, it is wise to have an independent assessment when performance of the safety agency may be questioned.

The NTSB has comprehensive jurisdiction to investigate major marine casualties "involving loss of six or more lives, loss of self-propelled vessels over 100 gross tons, damage exceeding USD 500,000 or serious threat to life, property or the environment by hazardous materials.

A Memorandum Of Understanding (MOU), which was signed between The Coast Guard and NTSB in September 1981, establishes that NTSB should investigate exclusively all collisions between a Coast Guard vessel and a non public vessel involving at least one fatality or USD 75000 in property damage.

The NTSB handles investigations of some major marine casualties and those casualties that involve significant safety issues relating to Coast Guard safety functions such as:

- Search and rescue
- Aids to navigation
- Vessel traffic systems

The NTSB deals only with safety investigations. Therefore, it is a fact finding body and not a regulatory or disciplinary organization. The NTSB may conduct an investigation under its own rules. It may participate with the USCG in collecting the facts under CG rules and after that perform an independent analysis and publish an independent report.

There are no requirements for direct casualty reporting to NTSB. All reports are made to the Coast Guard and then, in the case of major marine casualties NTSB is additionally notified.

According to the NTSB rules there are three stages for an investigation:

1- The fact finding stage
2- The analysis stage for evaluation of causes
3- The report stage for recommendation

When NTSB is in charge of an investigation, the inquiry in the field is carried out by various technical groups, depending on the complexity of the investigation. The NTSB investigation officers head each group, which includes participants or observers designated by interested parties.

When NTSB requests the Coast Guard to investigate a casualty, USCG conducts the preliminary investigation according to its own procedures, but NTSB dispatches a person or persons to participate in every phase of the investigation, including on-scene investigations and public hearings.

The NTSB representative may:

1- make recommendations about the scope of the investigation,

2- call and examine witnesses,

3- Submit or request additional evidence.

6.1.3.2 Public Hearing and Procedures

The NTSB decides, whether a public hearing will be held or not. This will be the case where the casualty is significant. The hearings are fact-finding nature with no formal issues and no adverse parties. And, the participation of all pertinent parties is expected.

Such principles are found in the Rules of Practice and are stated as follows:

> "The hearings are convened to assist the Board in determining cause or probable cause of an accident, in reporting the facts, conditions, and circumstances of the accident, and in ascertaining measures which will tend to prevent accidents and promote transportation safety. Such hearings are fact-finding proceedings with no formal issues and no adverse parties and are not subject to the provisions of the Administrative Procedure Act".

The chairman of the board of inquiry shall designate as parties to the hearing those persons, agencies, companies and associations whose participation in the hearing is deemed necessary in the public interest and whose special knowledge will contribute to the development of pertinent evidence.

6.1.3.3 Report of investigation

All the evidence gathered from witnesses in field of investigations and during public hearings is part of the public record. The NTSB Act states:

"Copies of any communication, document, investigation or other report, or information received or sent by the Board, or any member or employee of the Board, shall be made available to the public, upon identifiable request, and at reasonable cost"

Therefore no guarantee or promise of confidentiality can be or is given by the NTSB Act.

The reports generally consist of different parts. An introduction, a summery of the case, the investigation, the analysis of the facts, the conclusions,(which list a number of findings and the "probable cause"), recommendations and appendices. The reports identify the ship's names and the date and place of the casualty.

The investigation reports are drafted by the investigator in charge or other technical staff members who go through an internal staff review and discussion process. When it is completed by the staff, copies of the draft report are sent to the Board Members several weeks in advance of the public meeting because they will give their comments.

This process is only for major casualties. In case of lower levels of accident investigation reports are concluded through an individual written vote. The Board Members review the summary reports and express their opinions .

When the report is ready for public discussion it is reviewed by the Board at a public meeting. The parties involved are notified and can attend, but they cannot participate in the debate. The Board members challenge the staff draft report and suggested recommendations.

When the meeting is concluded, the report is finalized by the staff on the basis of the public discussion. All reports are published even the minor ones may be published as with short summaries, and the interested parties and the media are provided copies.

6.1.6.4 Role of Safety Recommendations

Safety recommendations are the end product of NTSB action. Such recommendations can be addressed to owners, agencies or organizations. All safety recommendations are published in the Federal Register.

The NTSB investigation and hearing processes exclude all disciplinary involvement. The NTSB does not include any blame as a fault of persons or companies in its reports.

If a recommendation is addressed to a component of the Department of Transportation , it stipulates a time in which a response must be made.

6.1.6.5 Disciplinary and Penal Aspects

The safety related investigation is separate from the disciplinary process. Marine Investigation Regulation in part 4 of the Regulation states that:

> "The investigations of marine casualties and accidents and the determinations made are for the purpose of taking appropriate measures for promoting safety of life and property at sea, and are not intended to fix civil or criminal responsibility".

However, the safety investigation may be used for determining whether disciplinary proceedings should be instituted. But, it cannot go beyond that preliminary step. Part 5 of the Marine Investigation Regulation states that:

"The investigations will determine as closely as possible, (the cause, failures of material , etc), whether there is evidence that any act of misconduct, inattention to duty, negligence or willful violation of the law on the part of licensed or certificated personnel may have contributed to the casualty, so that appropriate proceedings against the license or certificate of such person may be recommended".

Disciplinary action is taken as a result of casualties and for various acts such as violation of the Navigation Rules or the use of alcohol or drugs.

6.1.6.6 Civil liability Aspects

The U.S Coast Guard casualty investigation system is totally open where all the evidence gathered is accessible to the public and therefore to parties having an interest from the point of view of eventually filing civil liability claims.

The term "party in interest" which is very broadly defined, in 46 CFR (Codes of Federal Regulations), includes:

a) Owner, charterer, agent of such owner or charterer, licensed officer, or holder of any certificate personnel.
b) Representative of a person who lost his or her life

in the casualty.

c) Manufacturer, owner, shipper, time or space charterer or other cargo interest when there is an indication that cargo caused or contributed to the cause or the casualty.

d) Underwriter or insurer of a party in interest when the underwriter or insurer has, at the time of investigation, succeeded to the rights of the party in interest by means of subrogation.

e) Any organization or union which can help to ensure the completeness of the investigation; for example, a maritime labour union, pilot association, standards making organization, or an individual or corporation which may incur damages as a result of the casualty.

CANADA

6.2.1 Introduction

Prior to 1976 , preliminary inquiries into marine casualties in Canada were conducted by officers of the Ship Safety Branch of the Canadian Coast Guard as part of their normal duties. In April, 1976, the Commissioner of the Canadian Coast Guard established a specialist Marine Casualty Investigation Division. The Division operated within the Coast Guard but was answerable directly to the Commissioner.

Since the Coast Guard continued to perform the regulatory and operational functions of the Marine Safety Administration, this arrangement was criticized not to be conductive to the independence of the investigative branch.

In 1977 the Canadian Bar Association took up a discussion of the decision focusing on the need for independence of the Commission. Because of potential for conflict of interest between regulatory and operational fuhctions of the Maritime Safety Administration, both of which were conducted by the Canadian Coast Guard.

The Canadian Bar Association made three basic recommendations:

1- A truly independent Accident Investigation Board should be created.

2- The Board should be responsible for the

investigation of all accidents in the air and in marine modes.

3- The existing Transport Canada staff responsible for the investigation of accidents be should transferred to the Board.

Therefore, the fundamental policies changed and a new legislation brought the following main developments:

1- Establishment of an Independent Transportation Accident Investigation Safety Board to function separately from the regulatory and operational body.

2- The Marine casualty Investigation Division, which was with the ministry of Transportation was joined with the Independent Safety Board.

3- Investigation Reports were to deal with safety aspects only.

4- When the need for disciplinary action (in case of incompetency or gross negligence) or prosecution occurred, the Coast Guard was required to conduct a separate investigation.

5- Except for the provisions of the Privacy Act , all investigation reports become public documents.

6.2.2 Definition of casualty

Under the Canadian Shipping Act, part X, section 541, a shipping casualty shall be deemed to occur:

a- When any ship is lost, abandoned, stranded or damaged in Canadian waters, or on a voyage to or from a port in Canada ;

b- when any ship causes loss or damage to any other ship in Canadian waters ;

c- when by reason of any casualty happening to or on board any ship in Canadian waters a loss of life ensues ;

d- when any such loss, abandonment, stranding, damage or casualty happens elsewhere and any competent witness arrives or is found at any place in Canada;

e- when any loss of life occurs by reason of any casualty happening to or on board any boat belonging to a fishing vessel or other vessel registered or licensed in Canada, and

f- when any ship is lost or supposed to have been lost and any evidence is obtainable in Canada as to the circumstances under which the ship proceeded to sea or was last heard of.

6.2.3 Jurisdiction of investigation

The Canada Shipping Act applies entire jurisdiction to investigate all shipping casualties which occur:

1- In Canadian waters (internal, territorial or over the continental shelf) to any ship
2- Anywhere

- involving vessels registered or licensed in Canada, or

- if Canada is requested by an appropriate authority to investigate, or

- if a competent witness to, or person having information on, a matter that may have contributed to the marine occurrence arrives or is found in Canada.

6.2.4 Canadian Coast Guard

The Canadian Coast Guard Investigation Division (CCGI) conducts inquiries into a casualty when disciplinary action is needed, such as for incompetency, gross negligence and drunkeness of the master or crew. When prosecution is indicated, the CCGI also conducts a separate investigation.

Most casualties aboard vessels are first reported to the Vessel Traffic System, Coast Guard Radio Stations and Search and Rescue Units. Therefore, the CCGI is the first authority to the scene of the casualty and take initiate action. They obtain a formal written casualty report from the master, owner or person who is in charge.

In many cases the regional investigating officer is the first person to be informed about a casualty and he discusses the situation with the Chief in Headquarters for pricise action. Then, it is decided whether a **"desk audit"**, a **"fact-finding inquiry"** or a **"preliminary inquiry"** will be carried out.

a- Desk Audit

The majority of casualties are investigated in this manner. The casualty report form is verified by telephone calls and interview only for completeness. It should be emphasized that this process is important for obtaining accurate data which will be used for other analyses.

b- Fact-finding Inquiry

In a fact-finding process the witnesses are interviewed informally and a report is prepared, according to the instructions by the Chief of the CCGI. These instructions direct that no conclusions should be stated in the report. Investigators should be limited to a narrative of the facts and comments on the evidence obtained. Investigating officers are prohibited from stating what,in their opinion, were the causes of a casualty.

The reports of fact-finding inquiries are printed only in four copies: one for the file, one for the Regional Director General of the Coast Guard in whose region the casualty occurred, one for the Search and Rescue Office and one for the Director General Ship Safety.

Very few recommendations come out of fact-finding inquiries and when the investigators make recommendationns they are usually issued only as suggestions.

6.2.4.1 Preliminary Inquiries

Preliminary inquiries authorized by the Canada Shipping Act are a much more formal process. The investigators are provided with powers under Section 546 of the Canada

Shipping Act which include the right to go on board ships or enter any premises, to inspect any part, to compel testimony under oath and to enforce the production of documents.

In these inquiries, the witnesses are generally interviewed privately and can be assisted by a lawyer to advise them, no one else is allowed to be present.

The instructions to investigating officers are that witnesses should be questioned formally under oath and the testimony must be recorded. Then, a preliminary inquiry report is prepared by the investigator. The general format used in these reports is described as follows:

1- Statement of the case

A brief outline of the circumstances when the casualty occurred, including the date, place and outcome.

2- Particulars of ship or ships involved

Type and size of ship, port of registry, type of propulsion, place built and year, navigational aids, and nature of cargo, etc.

3- List of witnesses

Name, age, nationality, occupation and qualifications.

4- Narrative of events

An account of the circumstances leading to the casualty.

5- Remarks on the evidence

Comment on the evidence together with relevant extracts.

6- Conclusions

Conclusions as to the causes or most probable cause of the casualty.

7- Recommendations

Recommendations are attached to the report but they are not a part of the report.

The preparation of the draft for these reports is done exclusively by the investigator in charge who is tasked with this responsibility.

The preliminary inquiry reports and the recommendations are not published and they are not made available to the public or to the involved parties. The preliminary inquiry reports are circulated to any division of the Coast Guard which may have an interest in the findings.

Recommendations are then attached to the report which is sent to the Commissioner, who follows up on the recommendations.

6.2.4.2 Formal Investigation

Formal investigations are ordered by the Ministry of Justice in major casualties. The basic criteria for holding a formal investigation are:

1- For casualties which cause considerable loss of life;

2- For casualties where the causes cannot be determined

by a preliminary inquiry;

3- When special safety lessons or practices should be brought to the attention of the industry.

A formal investigation is essentially a judicial process and a judge is assisted by two or more assessors who are marine experts. The judge has the power to suspend or revoke certificates of any party. He can also assess costs against a party.

When the hearings are concluded, the judge prepares a full report. It includes his findings on the causes and contributory factors of the casualty and his decision as to disciplinary measures. These can include the suspension or revocation of an officer's or engineer's certificate or a pilot's licence.

The judge also includes, in part of his report, a list of recommendations to be taken in order to promote safety of life and property at sea.

6.2.5 Memorandum Of Understanding

Since Canadian Coast Guard and Transportation Safety Board are two organizations involved whenever a casualty occurs and in order to solve the problem arising over the potential for conflicts of interest, a Memorandum Of Understanding (MOU) was concluded between the two divisions.

A second M.O.U signed,in 1982, between the Coast Guard and the Canada Oil and Gas Lands Administration (COGLA) concerns oil rig accidents. It provides that where an

incident relates to drilling activities, the COGLA shall investigate exclusively and where the incident relates to navigability, seaworthiness and marine safety the Coast Guard shall conduct the investigation.

6.2.6 Canadian Transportation Accident Investigation and Safety Board (CTAISB)

The Board was established in 1984, separate from the Coast Guard, and safety promotion is the main function and responsibility of the Board.

The Board consists of five appointed individuals, with adequate knowledge about air, marine, rail and commodity pipeline systems and activities. The Council designates one member as a Chairman, who then has executive functions such as : directing staff, management of financial and property matters, engagement of experts with special and technical knowledge to assist the Board, etc.

The Board recruits investigators, for three directorates

1- Directorate of Marine Investigation

2- Directorate of Air Investigation

3- Directorate of Rail and Commodity Pipeline Investigation

The Board is not responsible for determination of civil or criminal liability and its investigation is conducted on a confidential basis. When an investigation is successfully

completed, the investigation report is sent to Ministry of Transportation or to any other ministry, agency or organization which has a direct interest in the findings.

6.2.6.1 Marine Casualty Investigations Division

The chief of marine casualty investigations is assisted by a technical, administrative and a publications staff. When a marine casualty occurs, the Chief of the Division decides what type of investigation is to be carried out, whether a Factual Audit or a Preliminary Inquiry should be conducted, or whether Formal Investigation should be recommended.

6.2.6.2 Major functions of the Board

The major duties of the Board are to promote transportation safety by :

1- Conducting independent investigations and, if necessary, public inquiries into transportation casualties involving air, marine, rail, and commodity pipelines in order to determine causes and contributing factors.

2- Reporting publicly on the findings of its investigations and public inquiries.

3- Identifying safety deficiencies.

4- Making recommendations designed to eliminate or reduce such deficiencies.

5- Recommending the development of proposals for

new or revised legislation or regulations in light of the findings of investigations.

6- Directing the preparation and analysis of statistical data on shipping casualties and the analysis of incidents to assess human, navigational and or equipment problems.

Norway

6.3.1 Introduction

The Norwegian Maritime Directorate which was established in 1962 under supervision of the Ministry of Foreign Affairs, is authorized to exercise the maritime administration and to improve safety standards.

The vessel Casualty Investigation Division is organized in six districts where six investigators handle all the shipping casualties.

The investigators perform a type of police and public prosecution functions. They are experienced masters and their main function is not to find someone to prosecute but to identify the causes of the casualty . The findings of the maritime investigations have resulted in new rules and regulations.

6.3.2 Compulsory Maritime Inquiry

The Maritime Act has provisions prescribing compulsory maritime inquiry as court proceedings. Such proceedings are compulsory when Norwegian ships have been involved in

serious marine casualties. The Maritime Act has defined the casualties as follows:

1- Whenever any person has lost his life or suffered some considerable injury as a result of an occurrence in connection with the operation of the ship and the occurrence took place either in Norway or abroad.

2- Whenever otherwise in connection with the operation of the ship, any person who is carried in the ship has or is thought to have lost his life.

3- Whenever a ship has been in collision with another ship or when a ship has grounded.

4- Whenever a ship is lost or is abandoned at sea.

5- Whenever an accident has result in damage to property not on board the ship.

6- Whenever a fire or explosion of some importance in the cargo or some considerable shifting of cargo has occurred.

Since investigators have police and public prosecution duties, there are others responsible for investigating the occurrence when there are:

a- Shortage of crew (according to safety regulations);

b- Over-loading of the vessel;

c- Invalidity of vessel's certificates;

d- Oil pollution;

e- Instructions from the ship control were not carried out.

6.3.3 Notification to the Maritime Authorities.

In the event of any casualties which need a maritime inquiry, the owner or the master of the ship should contact the maritime investigator concerned as soon as possible after the accident.

The process is called "Maritime Declaration" and its purpose is stated as follows in Norwegian law:

> "At the Maritime declaration, endeavors shall be made to obtain the fullest possible information concerning the occurrence concerned and the causes thereof, particularly concerning the circumstances which are important for judging the seaworthiness of the ship, or for appraising the rules regarding seaworthiness and safety at sea, and concerning facts which may conceivably give rise to penal liability or other liability for the shipowner, shipmaster, crew member or others".

There are mandatory declarations (see appendix I), in the case of all the casualties which have been mentioned previously such as: when there has been loss of life , serious injury, a collision, a grounding, an abandonment at sea, appreciable damage or significant fire or explosion in the cargo. Other significante accidents may be subject to a declaration at the request of the Maritime Directorate, the maritime investigator, or the owner or the master of the ship .

The real purpose of Maritime Declaration is to obtain evidence. The evidence and a form concerning the facts gathered are sent to the Maritime Directorate.

Investigators can go on board and can seize or copy logbooks. They generally take notes and they may use a tape recorder. Transcripts and records of proceedings are public and accessible to anyone.

6.3.4 Maritime inquiry

The purpose of a maritime inquiry is to ascertain as completely as possible the circumstances and causes of the casualty with particular reference to circumstances which could affect the seaworthiness of the ship or could be relevant when evaluating the rules and regulations which are related to seaworthiness and safety at sea.

When a maritime inquiry is compulsory, the master shall make the request as soon as possible for maritime inquiry. If the master fails to do so, the owner shall be obliged to make the request. A request made by the owner or the master shall be accompanied by:

1- A true copy of the contents of the ships books relating to the occurrence, or if no logs were kept or if they have been lost, a written statement of what happened.

2- A complete list of the ship's crew.

3- A list of such members of the crew and others who are considered able to give evidence regarding the occurrence.

4- A list of persons interested in the matter and their

local representatives.

If the Maritime inquiry is requested by the Maritime Directorate or the maritime investigator, these authorities send a copy of the request to the master of the ship and the shipowner for their information.

The court fixes a date for the hearing of a maritime inquiry which shall be convened for a time as soon as possible after the request is received. The Court shall give notice of the place and time fixed for the hearing to the master, the owner, cargo-owner, insurer and any other interested party as well as to the maritime investigator and chief of police concerned.

6.3.5 Public Hearings and Procedures

The public hearings are usually held very shortly after the casualty and there are two assessors in the Court. Witnesses are summoned by the Court, members of the crew being summoned through the master.

The hearings are public and parties interested in casualty may ask questions. The maritime investigator also asks questions which has been prepared for each type of occurrence (see appendix II).

In the court procedure the maritime investigator is entitled to ask any other question which he deems necessary in order to ascertain whether or not the rules regarding seaworthiness and safety at sea have been observed.

There is also provision for more extensive hearings

through the appointment of a special maritime commission which is held in very major cases. The Court's maritime hearing declarations have no jurisdiction to deal with discipline, which goes through a separate process.

Many marine offenses are subject to criminal laws and are dealt with by penal courts. Courts and Maritime Commissions may make recommendations for improving safety and these recommendations are public.

For the civil liability aspects, the maritime declaration system is totally open and parties or insurers can use it for their own purposes.

6.3.6 Commission of inquiry

The Maritime Act also contains provisions that make it possible to establish a commission of inquiry. This is done when an occurrence has led to extensive loss of life or property, or if it may be assumed that the investigation will be extremely extensive or of difficult nature.

In such cases the Ministry of Justice may appoint a special commission of inquiry. The members of the Commission shall represent adequate legal, nautical and technical expertise.

There are permanent commissions of inquiry for the casualties related to the fishing fleet and diving operations.

CHAPTER SEVEN

A PROPOSAL FOR A MARITIME INVESTIGATION SYSTEM FOR IRAN

7.1 Introduction

At present the Ports and Shipping Organization (PSO) is the only responsible body which deals with marine casualty investigation. Today, it is widely recognized in most countries that the primary purpose of an investigation is to improve the safety of life and all of the property involved in maritime transport.

The other purpose of investigations conducted by a maritime authority is the disciplinary aspect. Statistics show that a high proportion of casualties result from human failures, so the investigating authority must have available a mechanism to remove incompetent seamen and thus avoid major risks.

The third purpose of investigations is the civil liability aspect, especially in cases of commercial vessel casualties, which often result in direct or consequential damage. In this situation also, the investigating authority is likely the first competent authority to go on board a vessel and inquire into the casualty.

According to the Iranian Maritime Code, the PSO is the only competent authority to investigate maritime casualties. It is important to ask whether the PSO is the appropriate authority to investigate all aspects of casualty investigation (safety -disciplinary- civil

liability) or not. As I have realized during my research, when the PSO conducts casualty investigations, some potential conflicts of interest are created and the PSO can not investigate itself.

7.2 Conflict of interest

At present, the PSO as a maritime administration is a regulatory body and all the regulations must be enforced and implemented by PSO. It also carries out some principal maritime safety functions such as, vessel inspection and control, search and rescue, vessel traffic control. Therefore, if the PSO investigate maritime casualties this means that the PSO is investigating its main functions. Then some potential conflicts of interest are created and the investigator is confronted with these conflicts:

a- Conflict of interest between the PSO as investigator and as a potential litigant.

b- Conflict of interest between the PSO as investigator and as enforcer of regulations.

c- Conflict of interest between the PSO as investigator and as a supplier of services.

d- Conflict between the PSO as investigator and as a regulator

e- Conflict between the PSO as regulator and others over access to factual information.

Therefore, to prevent such conflicts of interest from arising, an Independent Casualty Investigation Board is

recommended.

7.3 The Independent Casualty Investigation Board

This Board should be totally independent from the Ministry of Transportation. The Board should be responsible for the investigation of all casualties related to air, marine and rail transportation, and to commodity pipelines.

The Board should consist of three directorates;

1- Maritime Casualty Investigation Directorate
2- Air Casualty Investigation Directorate
3- Rail and Commodity Pipeline Casualty Investigation Directorate

The Board will be managed by chairman who will direct the day-to-day functions and engage legal and technical experts for different directorates.

7.4 Maritime Casualty Investigation Division (MCID)

For adequate and sufficient investigation it is recommended that the main office with the principal investigators should be located in Tehran . Their main functions should
be as indicated in the following list:

- managing field investigation,
- developing systems for adequate investigation,
- identifying real deficiencies,
- supervising investigations into major casualties,
- proposing safety recommendations,

- collecting casualty data and statistics.

The field investigating function should be divided to four areas:

- Imam Khomeini port
- Shahid Radjie/Bahonar ports
- Shahid Beheshti port
- Anzali port

When a casualty occurs, the Chief of the MCID will decide what type of investigation should be carried out, whether a Factual Audit or a Preliminary Inquiry, or whether to recommend a Formal Investigation.

The Field Investigator appointed to conduct the investigation will be notified by telephone or report and the investigator will stay at the site of the casualty to conduct the investigation. The investigator will then write a report on the casualty and submit it to the Chief of the MICD at the headquarters in Tehran.

7.5 Jurisdiction of MCID

The present regulation regarding maritime investigation jurisdiction has a lack of precision. This has resulted in the lack of authority of the PSO to investigate casualties involving foreign vessels and some other Iranian registered vessels. Therefore, new regulations are recommended for the MCID.

The MCID should be granted jurisdiction to investigate casualties for safety purpose and the MCID should not be responsible for the determination of civil liability

responsible for the determination of civil liability aspects which can usually be carried out by parties to the casualty through the a civil court.

The MCID should not carry out disciplinary aspects of casualties; these should be investigated by the PSO in order to punish incompetent masters or crews from maritime activities. However any finding during the investigation by the MCID, should be accepted by the PSO.

The Iranian Maritime Code should give jurisdiction to the MCID to investigate all maritime casualties except in cases involving vessels which belong to the Iranian Navy.

The MCID will have jurisdiction to investigate casualties which cause damage to port installations, navigational aides and oil offshore platforms.

The MCID as a maritime authority will have jurisdiction to investigate all marine pollution and oil spills related to the operations of vessels.

The MCID will have jurisdiction to investigate casualties which do not occur in Iranian waters but have consequences which cause serious harm to Iran or to the marine environment.

7.5.1 Jurisdiction over Iranian vessels

The MCID should have jurisdiction to investigate all casualties involving Iranian registered vessels wherever they occur. It also should have the authority to investigate all casualties related to small coastal fishing and cargo vessels.

7.5.2 Jurisdiction over foreign vessels

The MCID should have jurisdiction to investigate casualties involving foreign vessels occurring in Iranian internal or territorial waters or when any competent witness arrives or is found in Iran.

7.6 Maritime Casualty Definition

If we examine the Iranian Investigation Guidelines, it is clear that the present definition covers only casualties involving vessels belong to PSO or casualties involving other vessels which cause damage to port installations.

The recommendation is that the investigation authority should cover all casualties involving vessels in Iranian waters and Iranian vessel wherever they are.

A maritime casualty or accident should be deemed to occur:

a) If any Iranian vessel is lost, abandoned, stranded or damaged anywhere.

b) If any vessel causes loss or damage to any other vessel in Iranian waters.

c) If any pollution occurs in Iranian waters as a result of casualties or the operation of a vessel.

d) If any casualty causes damage to port installations, oil rig platforms, navigational aids, and other equipment.

A casualty can happen as a result of collision, fire

explosion, pollution, grounding, foundering, etc.

7.7 Reporting of Maritime Casualty

It is a fact that maritime casualties occur and only some of them are usually reported. In this regard, a proper system for investigating casualties must promote the reporting of casualties.

The Maritime Casualty Investigation Guideline should provide regulations for the mandatory reporting of maritime casualties involving loss of life or serious injury to any person, or vessel which has been in collision, capsizing, grounding, sinking, fire/explosion and heavy damage to a vessel or a shore facility.

The master, shipowner or person in charge must make a verbal report as soon as possible, and a written report must be sent to the Investigating Field Office within 48 hours, stating:

1- The name of the vessel
2- Its port of registry
3- Its location

The regulation applies to Iranian vessels and to any foreign vessels in Iranian waters. The masters, shipowners or any other persons in charge of those vessels will be obliged to report the casualty; otherwise they will be liable to a fine.

The written report is a primary source of information for the investigators, and according to this information they will decide which type of investigation is desirable. It

must be considered that there is no possibility to investigate all of the reported casualties because of extremely high costs of investigation. For example, In Canada, during 24 years, only 15 percent of the reported casualties were investigated and 85 percent were subject to a desk audit investigation. These 85 percent were only reported and used for computer statistics or other analyses.

The port authority and police should report to the MCID any casualty which has been seen or reported to them.

All casualties should be reported to the MCID, and through consideration of the circumstances of each casualty, it must be decided whether a Preliminary Inquiry or a Formal Investigation will be conducted.

7.8 Preliminary Inquiry

A Preliminary Inquiry is a comprehensive and extensive inquiry into the case of a casualty with attention to detail and evaluation of all the factors. It is a planned search for evidence through interviews and a survey of physical evidence.

The legal basis for conducting a preliminary inquiry should be outlined in a Maritime Casualty Investigation Guideline. The MCID will require the right system, equipment and personnel for the proper and exclusive implementation of the regulations.

The investigator should make a careful assessment of any report received, whether verbal or written. The

investigator appointed for that purpose will sometimes be assisted by other persons with special skills or experience. If the investigator is not sure about the cause of the casualty and it is necessary to determine the cause, a preliminary inquiry should be undertaken as soon as possible after the casualty.

During the Preliminary Inquiry, the evidence obtained should determine:

1- what happened;
2- when the casualty happened;
3- where it happened;
4- why it happened; and
5- what the result is.

A Preliminary Inquiry will attempt to establish all the facts and from them determine the cause of a casualty. Therefore, the investigator's ability to assess evidence will be very important.

Evidence may be classified as follows:

1- oral, i.e. testimony of witnesses;
2- physical such as damage, navigational records;
3- documentary such as log books, certificates and other official documents related to the movement of vessel.

When the vessel and other physical evidence are lost, the principal source of information is the testimony of survivors and other witnesses. During this period, much depends on the investigator's ability to interview witnesses for the collection of information.

7.8.1 Powers of the Investigator

The Iranian Maritime Investigation Guideline should give power to the investigator to go on board any vessel and carry out inspection related for the purpose of his inquiry.

The investigator will usually need all the vessel documents and must be able to compel the testimony of witnesses, whether under oath or not and whether orally or in writing. The investigator should be granted powers inter alia:

- to seize and detain vessels which have been declared unseaworthy;
- to remove, preserve and test anything which appears to him to be significant in the inquiry;
- to protect the site of a marine casualty and to preclude or limit access to property at the site for a reasonable period of time;
- to require medical information about or medical examinations of crew members;
- to enforce the production of all documents needed in respect of the inquiry;
- to issue summons and require the attendance of all persons relevant to the inquiry and conducting interviews of witnesses.

7.8.2 Identification cards for Investigators

At the scene of a casualty and during an inquiry, the investigator must be recognized as a person who is empowered to conduct the necessary preliminary inquiry.

Therefore, every investigator should be issued an individual identity card with their photograph, name and appointment on one side and a summary of their powers on the reverse side. The investigators should carry their identity cards whenever they are on duty.

7.8.3 Essential documents and equipment for Investigators

It will be important that the investigator be ready to reach the scene of a casualty on short notice. Therefore he should always have at hand essential documents and some equipment , inter alia:

- his identity card,
- a copy of the Investigation Guidelines,
- a tape recorder to record testimony,
- a maritime casualty form,
- a list of telephone number needed for work,
- a religious book for swearing in witnesses
- a blank subpoena forms
- a flashlight, camera and measuring tape

7.8.4 Procedure on the Scene

When a casualty happens, it will be reported either to Headquarters or to the field investigators. If the

investigators in the field are the first to be notified of a casualty in their area, they shall:

- notify Headquarters and ask for instructions;

- proceed to the scene of the casualty as soon as possible;

- advise the master and crew about arrangements for interviewing witnesses;

- take appropriate charts of the area, blank forms and other equipment;

- brief Headquarters after arrival at the scene, and during the investigation procedure;

- submit the final report of investigation to Headquarters as soon as possible.

7.8.5 Examination of witnesses

The examination of witnesses must take the form of interviews rather than interrogations them. All the parties to be interviewed must be notified about the nature and purpose of the inquiry by the investigator. They may be the master, engineers, pilot, passengers or any other person who is deemed to have knowledge relating to the events.

The interviewing of witnesses must be individual and other persons can not be present. Since the first purpose of investigation is safety, the investigator should explain to witnesses that investigation is for promoting the safety of life at sea. The nature of the questions

will vary not only with the type of casualty but also with the qualifications, experience, and occupation of each witness. To carry out an appropriate examination of witnesses, the investigator may use a marine casualty inquiry form to guide him in questioning the witnesses (an example of these questions is shown in Appendix one).

This form should be updated by the MCID from time to time and must be available to all the investigators. In this regard, the question form should be designed in a simple way which will generate information.

The investigator must be able to separate facts from opinions and eye witness statements during testimony. He must encourage witnesses to use diagrams and charts to illustrate important points. In casualties such as groundings or collisions in narrow channels, witnesses may be to mark approximate positions on a chart. Photographs taken either by the investigator or others, and properly marked for identification, should also provide excellent evidence of the casualty.

It will be better if testimony is recorded on tape. The tape can assist the investigator only as an aide-memoire during the process of writing of his report.

The investigator may be assisted by other persons who have appropriate expertise related to the determination of the causes of the casualty. The investigator may ask other technical advisors in the Inspection and Survey Department to go on board vessels and inspect any equipments as necessary.

The interviews should not be restricted to the crews of the vessels involved but should also include other

persons who may have information related to the casualty, for example: coastal radio station operators, Rescue Co-ordination Center staff, persons on board any vessels that were near the casualty.

The investigator must ensure that his plan is well prepared, that all aspects of the casualty are covered, and that he has adequate data on the witness forms.

The physical evidence and documentary evidence must be kept by the investigator. The investigator should determine which items are to be preserved and carefully take the necessary samples. He also must record the nature of the evidence, the location from where it is taken, the time and date of samples taken, by whom they are taken, and the witness to their being taken.

A storage area must be considered at the office of the investigator for the secure storage of the physical evidence. In some cases, such as casualties involving petroleum products or hazardous materials, samples of the products should be obtained and sent as soon as possible for laboratory analysis. The investigator must survey any item and place as much as possible. The examination of physical evidence includes analysing all relevant documents. These documents may include:

- the bridge movement book
- deck log
- radio log
- certificates
- cargo storage plan
- crew list
- engine room log
- passenger list
- echo sounder tracer
- stability data
- hazardous materials found in case of pollution

7.8.6 Appointment of investigation team

In the event of a major casualty, it will be important that investigators arrive and conduct their investigation on the scene at the earliest opportunity. On receiving notification of such a disaster, the following procedures will be used:

1- A senior investigator in Headquarters will be appointed by MCID to be the co-ordinator in the field.

2- A field investigator will be appointed as the Preliminary Inquiry Investigator and will head of the investigation team.

3- Depending on the type of casualty the team will be assisted by a nautical investigator and/or engineer investigator and/or legal advisor.

The responsibilities of the co-ordinator will concentrate on overall co-ordination between different organizations and persons for adequate investigation purposes. Some of those coordination tasks are listed as follows:

- Co-operation between the local police and fire fighting departments, the Search and Rescue Department and the investigation team.

- Arrangement of accommodation and travel for investigation team and for interpreters (if required).

- Arrangement of regular daily meetings with local officials to ensure that factual information is prepared for the news media and details given to the MCID.

- Securing of the casualty site for preserving evidence through co-operation with local police.

The investigation team will have the power to interview the key witnesses and factual evidence should be gathered by members of the team.

7.8.7 The Preliminary Inquiry Report

After conducting the interviews and making the necessary examinations of the physical evidence, the investigator will have review the data, make a comprehensive analysis of it and then prepare a report. The preparation of the report will be the most important part of the investigator's work.

The report should be given a title which clearly indicates the casualty with its location and the date on which it took place. The report should be submitted in a standardized form. It should be divided into the following sections:

Section 1: Summary

The summary is a necessary aid to the investigator. It should form the first page of every Preliminary Inquiry report, giving a brief outline of the nature of the casualty, a short description of the sequence of events and the investigator's conclusions and recommendations.

Section 2: The Factual Report

This section should contain statements of fact in respect of the casualty and not offer any interpretation of the evidence. It should mention particulars of the vessel involved and provide a narrative of events . It should avoid as far as possible any suggestion that a particular action was wrong. It should also include the sources of facts and data derived from any examination of the physical evidence.

Section 3: Analysis

Based on a comprehensive analysis, the investigator can make his own comments on the evidence in this section. The comments must be on the reliability of witnesses or other evidence obtained.

Conclusion

The investigator should indicate the precise cause(s) or the most probable cause(s) of the casualty.

Recommendations

The investigator should make suggestions for necessary action to prevent a recurrence and indicate whether a formal investigation is deemed necessary. The following items must be considered while analysing the case and making the recommendations.

- reliability of witnesses and other evidence
- breaches of maritime regulations
- more discussion on the sequence ofevents and other related matters

- search and rescue operations
- cause of the casualty
- measures which might have prevented the casualty
- recommendation as to a Formal Investigation or other further actions.

Section 4: Appendices

The appendices must contain all supporting documents inclusive of the following items:

1- plans of the ship(s)
2- relevent plans, diagrams of equipment
3- relevant statutory certificates
4- crew and passenger lists
5- log extracts
6- cargo details
7- charts
8- photographs
9- weather reports
10- press cuttings
11- search and rescue report

The report should be submitted to the MCID. Moreover, it is very important that lessons learned from maritime casualties be shared with all in the maritime sector in order to avoid the occurrence of a similar casualty. The MCID must send a duplication of the report to the different national and international sectors involved, inclusive of the designer of the vessel, shipbuilders, equipment manufacturers, shipowners, training institutions and the International Maritime Organization (IMO).

7.9 Formal Investigation

A formal investigation will be a public (judicial) inquiry to be held in addition to or instead of a preliminary inquiry, when that is decided by the MCID. It should be held under the authority of judicial power and the Maritime Code must determine the provisions of a formal investigation. It may be held as a result of a preliminary inquiry. If the MCID decide to hold a formal investigation, they should inform the judicial authority to appoint the judge who will be assisted by the MCID, assessors, expert witnesses and interpreters.

The formal investigation should be held by a court and generally the judge will be assisted by an assessor or assessors who are appointed by the court. The maritime experience and qualifications required of the assessors are determined by the PSO. The present Iranian Maritime Code has given such authority to the PSO in article 189:

> "Marine Experts (assessors) shall be selected from amongst persons who have special academic qualifications and adequate experience and whose technical competency is confirmed by the Port and Shipping Organization. The said Organization shall recommend such experts to the Technical Department of the Ministry of Justice and the latter shall issue a marine expert permit for them."

The assessors shall be chosen from a list to be prepared from time to time by the Ministry of Justice. They shall attend the formal investigation and deliver their opinions to the judge, but the exercise of all powers is conferred

on the court and only the judge can make the final determination.

A formal investigation will be held under circumstances such as when:

a- it is necessary to provide more information with regard to the causes of a casualty, if the causes can not be determined by a preliminary inquiry.

b- the casualty has attracted considerable public interest and there is a need to restore public confidence in shipping.

c- the casualty has involved a considerable loss of life or serious damage to property.

d- there is an indication that there may be an issue of default or negligence on the part of a master or officer.

The court should have the power of subpoena against any person and ask him to give evidence on oath, either orally or in writing. The court also has the same power to enforce the attendance of witnesses and to compel them to give evidence.

The court should have the power to cancel or suspend the certificate of a master, engineer, pilot or any seafarers involved. If the court determines to cancel or suspend any certificate, it shall send a report on the case with the evidence to the PSO as a maritime administration authority.

The result of the formal investigation should appear in the official report. The report should highlight the following:

1- The circumstances of the casualty

2- The findings of the court regarding the causes of the casualty

3- The decision of the court

4- The safety recommendation

After receiving the report from the formal investigation, the MCID should study the recommendations and, as far as practicable, undertake the implementation of those recommendations by revising the regulations or giving technical advice. The report should also be distributed to all relevant maritime organizations, national like the maritime administration (PSO), or international like the IMO and classification societies.

7.9.1 Rules of the MCID in respect of formal investigation

The powers of the court conducting a formal investigation, the rules and procedures and the provision for re-hearing, appeals, etc, will be regulated by national legislation. The MCID will have no control over the court proceedings or the production of the report. The court will usually try to produce its findings as quickly as possible. Therefore the court also must be assisted by the MCID in every possible way. Such assistance will have to cover the following:

- Appointment of an investigator as a prosecuting authority to represent the public and government interest regarding the casualty.

- Presentation of documents and/or facts (evidence) which may be collected in a preliminary inquiry. The court will have the responsibility of assessing and verifying such advice or documentation.

- Presentation of the list of witnesses and arrangement for the attendance of witnesses.

- Arrangements for interpreters as required.

- Arrangements for the attendance of any expert witness and arrangements for the court and assessors to make any visit to any vessel or place which is relevant.

- Arrangements for a court reporting service.

- Any other form of assistance needed by the court to find facts or evidence relating to the casualty.

One of the first duties of the investigator assigned to the court will be to brief the court about all aspects of the casualty as determined from the preliminary inquiry. The MCID should co-operate in every way with the court in respect to the provision of all available data, charts, relevant documents, and other required materials. The investigator assigned to the court should keep the MCID informed of progress being made in the investigation.

7.9. Computerization

The MCID should be in a position to undertake its responsibilities in a systematic manner. A computer system can assist them in this respect. There is a need for an adequate data base with respect to shipping casualty investigations. This can be developed with the assistance of a computer system.

In term of casualties, information can be collected by categories, for example, nationality of vessel, type of vessel, size of vessel, age of vessel, nature of the casualty, location of the casualty and time of the casualty.

A computer system can also be used in producing reports, for example, statistical reports regarding amount of lives lost, ships lost, tonnage lost.

Computer linkages among the MCID and the PSO, the Vessel Registration,and Inspection Department and other related agencies with responsibility for different areas in the maritime sector would lead to the development of an information network. Given the speed and reliability of computers, data would be readily provided on request.

CHAPTER EIGHT

CONCLUSIONS AND RECOMMENDATIONS

- In conclusion, it must be mentioned that there is a need to ensure that adequate investigations are undertaken into maritime casualties. This need emerges from the fact that maritime administrations must be concerned with the protection of people from injury and death and the preservation of the marine environment.

- Maritime administration must carry out its national and international obligations in respect of promoting safer shipping. One effective way of doing this is to conduct proper investigations into casualties and pursue the necessary actions to prevent similar casualties from occurring in future. Perhaps the most important and constructive aspect of any form of inquiry or investigation concerns the recommendations made for the prevention of losses or casualties in the future.

- As I mentioned earlier, some potential conflicts of interest arise when the maritime administration investigates casualties. Therefore, a Board of Maritime Casualty Investigation should be created. This Board must be independent of the maritime administration. The main conflicts of interests are created, when the maritime administration, as a regulator and enforcer of regulations undertakes to investigate the casualty.

- As I mentioned earlier, the main purposes of an investigation will be ascertain the facts, obtain all relevant information and determine the cause/causes of the

casualty. The government (Maritime Investigation Department) should take the necessary steps to prevent, as far as practicable, the occurrence of similar casualties in the future in the interests of safety of life at sea and the environment. The object of the inquiry will also be to punish of remove anyone who may have been at fault.

- Inquiries into shipping casualties can lead to improvements in the safety of shipping in several ways, including the following:

a) An investigation into a casualty may indicate certain improvements that could be made to help to prevent a recurrence of casualties.

b) Analysis of the casual factors in similar casualties can reveal where the priority should be placed in introducing measures to reduce of such casualties.

c) The dissemination of detailed casualty reports to public will encourage greater care in watchkeeping procedures.

- In some cases, a formal investigation is held and the recommendations are sometimes made for specific measures to be taken to reduce the possibility of recurrence of similar casualties. Such recommendations are carefully considered by the appropriate authorities and may result in follow-up action and also in national legislation relating to safety.

- According to national and international regulations mentioned earlier, the master or owner will be required to

report a casualty to the maritime administration. Depending on the degree of negligence, damage, etc, the following types of inquiry will ensue.

a) For a minor accident, the completion of a form may be adequate. A supplementary report may be requested in cases of minor fires, explosions or machinery failure.

b) Where the Maritime Investigation Department thinks it would be helpful to have statements from those who can describe the casualty, is will be authorized to take declarations.

c) For more serious casualties, one of the investigators will be appointed to conduct a preliminary inquiry. This will involve the taking of declarations and a investigation into all aspects of the casualty.

d) The Preliminary Inquiry Report may suggest that it would be appropriate for a public inquiry to be held, in which case a Formal Investigation should be ordered.

- For serious casualties an investigator will be appointed by the Board of Maritime Investigation to conduct a preliminary inquiry which will involve the taking of declarations and investigation into all aspects of the casualty. The investigator will have wide range of powers. These powers are to include:

- Taking to declarations,
- Entering premises and boarding ships,
- Making any examination and investigation deemed

necessary,

- Taking samples,
- Requiring the protection of log books and documents and copying of them.

When all inquiries are completed a preliminary inquiry report will be prepared to allow the Investigation Division to decide what further action is required and in particular to determine whether a formal investigation should be held.

- In the formal investigation stage, the court should be appointed by the Ministry of Justice sitting with technical assessors. The normal criteria for considering the need for a formal investigation will be:

a) If it is necessary to provide information which can not be determined by a preliminary Inquiry.

b) If there is wide public concern.

c) If the casualty involves a considerable loss of life or serious damage to property.

d) If it is considered that there is a default or negligence on the part of the master, or on the part of any mate or engineer.

- The Investigation Division will have no control over the court proceedings or the production of the report. The court will usually try to produce its findings as quickly as possible.

Based on the contents of this project, the following

recommendations are highlighted:

- It is essential that a Maritime casualty investigation Division be established. This Division must be totally independent from the Maritime Administration. It must be adequately staffed and properly equipped with suitable systems in order to carry out all responsibilities related to investigations into maritime casualties. The division should conduct preliminary inquiries and provide the vital administrative support during formal investigations. This must be done with the objective of finding the cause of a shipping casualty and taking all practicable action to prevent the occurrence of a similar casualty.

- The Investigation Division must be provided with all necessary means to assist in carrying out its functions with respect to shipping casualty investigations. These means include a separate area for the storage of evidence andappropriate working equipment such as cameras, tape recorders, computers, etc.

- A list of assessors will also have to be established and updated as necessary. It must state the name of each person, his address, telephone number and profession.

- An operations manual should be developed. This will assist in ensuring that investigations are conducted under high standards. In addition, a similar report form should be developed.

- A mailing list should be established in order to guarantee that all relevant personnel and institutions receive reports of investigations. This will allow the lessons learnt from investigations to be shared. The list

should at least include ship designers, shipbuilders, equipment manufacturers, shipowners, training institutions and The International Maritime Organizations.

- It is essential that a proper data base be established. This will serve inter alia as reference material during investigations and during the production of reports. In this regard, the Maritime Casualty Investigation Division must put in place a computerized information system. This can help in analysis and statistics of the casualties and in the production of forms and reports.

- An education and training programme must be developed by the Division in order to ensure that its investigators can undertake their duties in an adequate manner.Consideration should also be given to developing a regional education and training programme with respect to the undertaking of casualty investigation.

In conclusion, I emphasis again that the conducting of investigations into maritime casualties is very vital to the promotion of safety of life at sea, and to the protection of property and the environment. I hope that this study will make a contribution towards the strengthening of the legal framework and the establishing of adequate administrative procedures which will result in an effective and efficient system for the conducting of investigations.

BIBLIOGRAPHY

- Islamic Republic of Iran Shipping Line publication, 1987

- Iranian Maritime Code

- Iranian Casualty Investigation Guidelines, 1990

- Study on Marine Casualty Investigations in Canada, Bernard M. Deschenes

- Act to Establish the Transportation Accident Investigation Board, Canada, 1989

- Canada Shipping Act, Shipping Inquiries and Investigations Rules, Ottawa, 1978

- The Norweigian Ship Control Legislation, Oslo, 1978

- Marine Casualty Investigation Division, Operations Manual, Ottawa, Canada, 1988

- The Merchant Shipping Act, Accident Investigation, UK London, 1989

- Marine Safety Manual, United States Coast Guard, Washington, 1989

- National Transportation Safety Board, USA, Chapter VIII 1989

- Professional Accident Investigation, Reymond L.Kuhlman

- Modern Accident Investigation and Analysis, Ferry Teds 1988

- P.S Vanchiswar, Establishment/ Administration on Maritime Affairs, Volume I and II, WMU, Malmoe, 1990

- Legal Aspects of Marine Casualty Investigation, F.L Wiswall, WMU, Malmoe, 1991

- Shipping Statistics Yearbook, Institute of Shipping Economics and Logistics, Bremen, 1990

- Pinto, C.W Visiting professor, WMU, Law of the Sea Lectures at WMU,1990

- Srivastava, C,P, Safer Ships and Cleaner Oceans, 30 Years of IMO. Transport Reviews, 1989, vol.9, no.1.

- IMO. International Convention for the Safety of Life at Sea, 1974, and protocol, 1978.

- IMO. International Convention for the Prevention of Pollution from ships, 1973 /78.

- IMO. International convention of Load Lines, 1966.

- Statistical tables, Lloyd's Register of Shipping, 1989

- Newsweek, the International Newsmagazine, 1989

LIST OF THE PRINCIPAL QUESTIONS WHICH SHOULD BE ASKED WHEN EXAMINING WITNESSES AT MARITIME DECLARATIONS, FOR THE USE OF CONSULAR COURTS

I. The following information should be obtained at all Maritime Declarations:

1. The name and type of ship, the year in which it was built, its port of registry and distinctive number or letters, or, in the case of fishing vessels and small crafts, the registration number.
2. Gross and net tonnage.
3. Class and classification society.
4. The date of expiry of passenger, trade and loadline certificates, equipment certificate for fishing vessels, and safety certificates.
5. Name and address of Owner.
6. Name, date of birth and home address of Master.
7. Master's qualifications (certificate). Where and when he took up his duties as Master of the ship.
8. The voyage during which the casualty occurred. State time and date of departure from last port of call before the disaster and of arrival at first port of call after it.
9. The cargo carried (particularly with regard to deck cargo).
10. Draft on departure (forward and aft).
11. Freeboard on both sides.
12. Salinity of sea at loading berth.
13. a. Was life-saving equipment in accordance with regulations?
    b. When was it last inspected:
        1) by the crew?
        2) by official surveyors?
14. a. When and where were the 3 last boat and fire drills held?
    b. Are they recorded in the log?
15. a. Number of crew on voyage. Were they signed on?
    b. Full complement according to scale of manning?
    c. Did officers and engineers hold certificates according to their positions (any dispensations)?
    d. In the event, the reason why there was not a full complement according to the scale of manning?
16. Number of passengers.

Appendix I

17. Name, age, occupation and home town (address) of any deceased persons.
(A copy of the crew list is to be handed in, to be forwarded to the Inspector of Shipping).

II. Further additional questions are to be put, relevant to the circumstances in each particular case. Lists of the questions which should be asked are given in the following, arranged in groups according to the nature of the disaster or damage. These lists must naturally not be considered exhaustive, but must be adapted to cover the case at issue. Some questions may be left out, or others added, according to the circumstances. Similarly, it may be necessary to put questions from different groups, in cases which may belong under more than one of the headings given.

A. Casualties involving personal injury, poisoning, death.

1. Full name, date of birth, registration number, and home adress of the injured or deeeased person.
2. Which of the ship's officers gave orders for the work being performed by the injured/deceased person? Who was in charge of the work?
3. a. Where and when was the injured/deceased person last examined by a doctor (for signing on, if the person concerned was engaged on the ship)?
   b. By whom was he/she examined?
4. Was there anything unusual with regard to the injured/deceased person's mental health, state of mind or behaviour before the accident (signs of nervousness, depression or other abnormality)?
5. When and how was it first discovered that the person concerned was sick/injured?
6. a. What symptoms did the injured/deceased person have (pains in the region of the heart, breast or stomach, vomiting, tem-

perature, diarrhea, unconsciousness, paralysis, confusion, restlessness, etc.)? Describe symptoms and course of events in as much detail as possible.

b. What illness/injury was he thought to be suffering from?

c. What treatment did he receive on board for his illness/injury?

7. a. Did the injured/sick person receive regular attention? How often? By whom?

b. Was anyone appointed to keep watch over the person concerned?

8. a. Was medical advice obtained by radio?

b. Where and when was medical advice received?

c. What medical advice was given?

9. a. Who was the last to see and speak to the person concerned before he was injured/died?

b. How did he behave at that time?

10. a. Is it known whether the person concerned imbibed alcohol or other intoxicants in the time immediately preceding the accident/death?

b. Did the person concerned give the impression of being addicted to alcohol or other intoxicants?

c. Was he assumed to have been indisposed before the accident (lack of sleep, hangover, etc.)?

11. *In cases of poisoning:*

a. What substance caused the poisoning?

b. What was the person concerned using the substance for?

c. How was the substance stored and used on board?

d. Who was responsible for its storage and use?

e. Had the person concerned been informed of the dangers connected with the substance and the precautions to be taken when using it?

f. How was the container marked?

12. *In cases of accidents:*

a. When and how did the accident occur? Give a detailed, continuous description, including any attempted rescues and why they failed.

b. Was the accident due to any fault, negligence or lack of due care on the part of officers, crew or other persons?

c. Was the accident due to any fault or deficiency in the ship, its equipment, accessories, fittings, or complement?

d. What precautions were being observed while work was in progress?

e. If deck cargo was being carried, were regulation passageways arranged?
f. If work was being done in holds or tanks where gas might accumulate or where there might be a lack of oxygen, had the holds or tanks been properly aired? Were the tanks/holds examined with a gas detector/safety lamp before work started and in that case, what gas detector was used? Were ropes being used? Was anyone on watch at the hatch coaming on deck?
g. What type of cargo was being or had been carried in the hold or tank when the accident occurred?
h. If the ship was in ballast, what was the last type of cargo carried in the tanks or hold before the accident? When was that cargo discharged? Were the holds and tanks cleaned and gas-free when the accident occurred?
i. If the ship was moored alongshore or at anchor, where was the watchman when the accident occurred?
j. Was the gangway or accommodation ladder in accordance with regulations? Was there a lifebelt and line near the gangway?
k. Was there good lighting at the place of the accident?
l. If work was being done from a stage or bosun's chair, inboard or outboard, did the person concerned have a rope or lifeline round his waist?
m. Was the accident due to the nature of the cargo, or any fault, deficiency or carelessness with regard to the manner of stowing or securing the cargo?
n. Describe the type of gas-masks and smoke masks provided on the ship, when last inspected before the accident and when oxygen flasks were last filled and checked. When was drill and instruction in the use of the equipment last given, and who was responsible for maintenance and instruction?
o. Who was the officer on watch and who was responsible for and in charge of the work?
p. What was the weather like when the accident happened (direction and force of wind, state of sea, overclouded, rainfall etc.)?
q. If the accident was due to the failure of cargo-handling appliances, the records book and prescribed certificates are to be produced. When was the equipment last tested and when and by whom was the last entry made in the record book? Is the greatest permissible working load given on the cargo-handling appliances? What was the working load when the accident occurred?

13. Was the medicine chest in regulation condition? When was it last certified?
14. a. What has been done with the body of the deceased and his effects?
    b. Has the prescribed notice of injury been sent to the National Health Insurance Office? When and from where?
15. Can Witness give any other information of interest with regard to the death?
16. What, in the opinion of the Witness, was the cause of the accident/ illness/injury?
17. If medical records have been kept, enclose a copy.

B. Collisions between Ships.

(Produce the chart used when navigating).

1. a. Which ships collided?
   b. Where, when and how did the collision occur? Give a continuous account of how the collision occurred, its consequences — describing the damage to own ship and cargo and any damage to the other ship — and what was done with the ships involved after the collision.
2. a. What was the state of the weather and sea prior to and at the time of the accident?
   b. Describe visibility stating whether there was fog or thick weather. If the collision occurred at night, state whether it was particularly dark.
3. a. Who was the officer on watch on the bridge?
   b. Where was the Master at the time and when did he come up on to the bridge?
   c. Who was at the helm?
   d. Was anyone else on the bridge directly before and at the time of the collision?
4. Who was lookout and where was he stationed?
5. What steering gear did the ship have? Was there a man at the helm or was the ship being steered automatically?
6. What was the number of crew on deck and in the engine room?
7. Was there a licensed pilot on board and was the ship under his direction?
8. What course was being steered prior to the collision? What course was the ship heading at the time of the collision?
9. What speed was the ship making prior to and at the time of the collision? If visibility was shortened, was the ship then being

navigated according to Rule 16 of the Rules of the Road of Sea? What is the ship's speed in calm weather: at full speed, at half speed and slow?

10. Were there any defects or deficiencies in the ship, her instruments or equipment?
11. What lights was the ship carrying? How often were they checked? Were they alight prior to and at the time of the collision?
12. a. Did the ship hold valid certificates for the lights?
    b. When were they issued?
13.* a. Was there a radar on the ship? If so, what make and type?
    b. Was it in use prior to and at the time of collision?
    c. Was it in order?
    d. If the device was not functioning, give the reason for this.
    e. Who was operating the radar, and who was responsible for the maintenance of it?
    f. Do the radar have a dead field at the centre?
    g. Are there blind sectors on the radar? If so, where?
    h. How are masts, posts and cranes placed in relation to the radar aerial
    i. Were derricks and cranes laid down?
    j. Was plotting being carried out? If so, give the result.
    k. Was there an alteration of course due to blind sectors?
    l. Was there a course recorder on the ship. If so, was it functioning and was it used?
14. Show on the chart or by latitude and longitude the position where the collision took place.
15. a. At what distance, in which direction and how long before the collision was the meeting ship first observed?
    b. What course did the meeting ship then appear to be heading and what speed was she making?
16. a. Which lights could be seen on board the meeting ship?
    b. In which direction and at what times (how long before the collision)?
    c. What lights was that ship carrying?
17. a. What sound signals were heard from the meeting ship?
    b. At what times?
18. a. Had the fog signal or steam whistle been sounded on board your own ship before the meeting ship was observed?
    b. If so, how often?
    c. Was the fog signal and steam whistle in good condition?

* Altered and extended in relation to the The Maritime Directorate's list of Principal Questions issued 1967.

19. What sound signals were given on your own ship after the meeting ship was observed, seen or heard, and at what times?
20. a. What manoeuvres did your own ship make to avoid or lessen the force of the collision and at what times?
    b. Did the engines and rudder operate satisfactorily during these manoeuvres?
21. What manoeuvres were made by the meeting ship and at what times?
22. What speed was the meeting ship assumed to be making at the time of collision?
23. Where were the ships hit?
24. Has Witness had his eyes tested with regard to sight and colour blindness? State date of last test.
25. Had any member of the crew or the pilot imbibed alcohol during the last 8 hours before the collision?
26. If applicable, how was the crew saved? Did life-saving equipment operate satisfactorily?
27. Can Witness give any other information of interest with regard to the collision?
28. a. What in Witness' opinion was the cause of the collision?
    b. Did anyone on board your own ship or the other ship commit any error or act of neglect?
29. Specify the damage to your own ships and if possible also the damage to the other ship.

C. Grounding.

(Produce the chart used for navigating).

1. Where, when and how did the grounding occur? Mark the place on the chart or give the latitude and longitude. Give a continuous account of how the accident happened and what consequences it had, whether the ship was refloated, if any assistance was given, by whom, and upon what salvage conditions.
2. Were there any defects or deficiencies in the ship, her instruments or equipment? Was the radio station in order?
3. What type of steering gear did the ship have? Was there a man at the helm or was the ship being steered automatically?
4. What was the state of the weather, wind and sea prior to and at the time of grounding? Visibility?
5. a. Were there defects in the charts, lights, beacons etc.? What chart was being used (publisher, title and No.)? What was the date of the last corrections made to it?

b. What was the date and number of the last «Etterretninger for sjøfarende» or Notices to Mariners received on board?

6. Was the ship equipped with radar? If so, what make? Was it in use prior to and at the time of grounding? Who was operating it? Who was responsible for the maintenance of it? If the device was not functioning, give the reason for this. Was plotting being done?
7. Was there Decca or Loran on the ship? Was it (they) in use prior to and at the time of grounding? Who was operating it (them)? Who was responsible for the maintenance of it (them)? If it (they) was not functioning, state reason for this.
8. Who was the officer on watch on the bridge? Who was on the bridge directly before and at the time of grounding? When did the Master come on to the bridge?
9. Was there a licensed pilot or local pilot on board and was the ship under his direction?
10. Was there a lookout on duty and where was he stationed? Who was he?
11. How many men were on watch apart from the officer and engineer of the watch?
12. When and where were the compass certificates issued?
13. When and where were the compasses last adjusted and deviation tables drawn up by a professional compass adjuster?
14. How often was deviation verified during the voyage?
    What type of instruments were used for taking observations?
    When was the last observation taken before grounding?
    Are deviation observations recorded in compass and chronometer logs? If verification was not carried out, state the reason for this.
    Was the ship listing before the grounding?
15. Were the courses which had been steered since the position was last determined, accurately determined and plotted on the chart? (If the extract from the log does not give the courses steered, the true courses and the distances made good, these must be established by examination and recorded). Who last altered the course?
16. Where according to the reckoning taken from the last fix should the ship have been when it ran aground? Were currents allowed for in the reckoning?
17. When were the last observation(s) and bearing(s) including any taken by radio, radar, Decca, Loran, Console, taken to determine the position of the ship before grounding, and what result did it (they) give? If observation(s), bearing(s) were not taken on the same or the previous day, state the reason for this. When was

the last chronometer rating made? Was it recorded in the compass and chronometer log?

18. Were the cargo booms up so that the compass, radio compass and other navigating instruments could have recorded wrong bearings?
19. Were soundings taken in the time immediately before running aground and if so, how often? Are the depths recorded in the ship's log?
    Were they taken by lead-line, patent log or echo sounder? Which patent log or echo sounder?
    When was the patent log or echo sounder last inspected and how?
20. What type of log was used? Had the full distance from the last fix been made good according to the log at the time of grounding?
21. What speed was the ship making before and at the time of grounding? If visibility was shortened, was the ship navigating in accordance with Rule 16 of Rules of the Road of Sea? What is the ship's speed in calm weather: at full speed, at half speed and slow?
22. Had any member of the crew or the pilot imbibed alcohol during the last 8 hours before grounding?
23. Can Witness give information concerning anything else of interest relating to the grounding?
24. a. What in Witness' opinion was the cause of the accident?
    b. Was any error or act of negligence committed by the master, crew, pilot or local pilot?

D. Loss of Ship.

(Produce the chart used for navigating).

1. When, where and how did the disaster occur? Give a continuous account of the course of events; give information concerning the weather from the time of leaving the last port of call until the ship had to be abandoned.
2. Was there any fault or deficiency with regard to the state of the ship on departure from the last port of call?
3. Was the ship adequately provided with navigating instruments and other equipment and were they in order?
4. How many men were on watch apart from the officer and engineer of the watch?
5. How were the boats placed and equipped and what other life-saving appliances did the ship carry?
6. What was the carrying capacity of the ship (D.W.)? (At summer and winter loadlines.)

7. How much was the ship carrying on the last voyage (cargo, ballast, fresh water, other weights)?
8. Was the ship overloaded and if so, why?
9. How was the cargo or deck cargo and ballast, if any, distributed and secured? Enclose extract of stowage plan or sketch showing distribution of cargo between the different holds.
10. State quantity and height of deck cargo.
11. If the cargo was grain, ore or other cargo carried in bulk, were shifting boards erected according to any regulations given in respect of such cargo? If so, had the boards been approved by the local authorities or by any other institution and in that case by whom?
12. a. Was the ship listing and if so, to what degree and to which side? State as accurately as possible the time when the list arose.
    b. Or was the ship crank (top-heavy)?
    c. Was an inclining test made before departure? How and with what result?
13. How much bunkers was carried on departure and how was it distrubuted?
14. Was water ballast taken in after departure and if so, how much and where was it placed?
15. How many hatch openings were there, how large were they and how were they battened down?
16. a. How many shifting beams were there in each hatch opening?
    b. Were shifting beams fastened to hatch coamings by bolts?
17. a. Were the hatches of wood or steel, and how many tarpaulins were on them?
    b. Were they secured by battens or lashing?
18. a. Did the ship have any tonnage openings?
    b. Where were they and how were they closed?
    c. Did the ship have any side openings? Where were they and how were they closed and secured?
19. How often were soundings taken of tanks and holds and were they recorded in ship's log-books? Were any leaks discovered by the soundings taken?
20. a. How did the leak arise?
    b. How big was it before the ship was abandoned?
21. a. Had anyone previously noticed that the deck (deck plating) or hull gave when carrying ore or similar heavy goods?
    b. Had the plating ever bulged or cracked?
    c. Had any leakage been found in the ballast tanks since the last survey was held?

22. When was the ship last docked?
23. Were sea-cocks and rudder with braces and pintles inspected at that time? Was the propeller shaft drawn?
24. Has the ship run aground since then?
25. When was the steering gear last surveyed (repaired)?
26. How and by whom were the crew saved? Describe the rescue operations. Did the ship's life-saving equipment operate satisfactorily?
27. Can Witness give any other information of interest relating to the loss of the ship?
28. What in Witness' opinion was the cause of the disaster?

E. Fire (including explosions) in the ship or cargo.

1. What was the position of the ship when the fire (explosion) broke out?
2. When, how and where did the fire (explosion) break out? Give an account of events as detailed as possible. Produce if possible a sketch (photograph) showing where the fire on board broke out and what damage it caused.
3. Specify as much as possible the damage to the hull, accomodation, machinery or cargo, etc.
4. What steps were taken to extinguish and/or restrict the fire?
5. How and by whom was the fire discovered?
6. Who was on watch and where were they?
7. What was the direction and force of the wind and what was the ship's course?
8. In the event of fire in cargo:
   a. Was a watch kept in the holds during loading/discharging? If so, who was on watch in the hold in which fire broke out?
   b. What type of cargo was there at the place where fire broke out?
   c. Describe the condition of the cargo when it was loaded. Was it raining when cargo was being loaded/discharged?
   d. Produce a stowage plan or a sketch showing the position and nature of the cargo.
   e. Was the temperature in the hold checked at regular intervals and were readings entered in the log? Had the temperature risen?
   f. When had anyone last been in the hold where fire broke out? Who was there last and was anything unusual found?

g. Were notices put up prohibiting smoking in and near the holds and/or on deck, written in Norwegian and in a language understood locally?

h. Were steps taken to ensure compliance with the prohibition?

i. Did Witness see anyone smoking in the hold or near the open hatchway to the hold in which fire broke out? Was this stopped?

j. Were ventilators covered by mesh? Were there fire flaps? Were air pipes leading to burning spaces closed?

k. What fire extinguishing media were available to extinguish fire in the holds? What extinguishers were used?

l. Was any particular odour noticed before the fire was discovered?

m. Was any smoke seen? What colour was it?

n. Was there a smoke detector on the ship? Was it in use? Was it working and was the fire discovered by means of it?

o. What kind of packing was used? Burlap sacks? Gunny sacks? Paper bags? Were they impregnated? Wooden casks? Tins drums or containers? Were they whole? Were they rusty?

9. In the case of fire in the boiler or engine room:

a. Was the oil firing system for boilers/the fuel system for main and auxiliary engines with the appurtenant pipes and tanks, oil-tight? When was there last a leak in oil pipes and where was it?

b. Were all air pipes in regulation order and provided with mesh and/or fire flaps?

c. Were there drip trays with drainage to the waste oil tank under fuel oil installations? How often were the trays cleaned?

d. When was the floor (tanktop) under boilers and machinery last cleaned?

e. From what points could the oil supply for burners and engines be shut off?

f. Where were service tanks located?

g. Were cofferdams satisfactory?

h. Were there quick-closing valves on service tanks and how could they be closed? Were they closed?

i. Were there discharge valves on the service tanks and if so, where did they discharge to?

j. Were degassing pipes insulated in the regulation manner? Did the fire break out near them?

k. What type of permanent, main extinguishing system was there in the engine and/or boiler room? Was it used? What effect did the system have?

l. What fire extinguishing appliances were there in the engine and/or boiler room and where were they placed?

m. Were they in regulation order and easily accessible? What appliances were used and what effect did they have?

n. Were the empty (oil) tanks free from gas?

o. Was any work being performed in the vicinity which could produce sparks? What types of tools were being used?

p. What type of lighting were they using?

p. Was oil pumped prior to the fire? If oil was pumped to service tanks: Who was watching the pump? How was pumping supervised and by whom? Was oil spilled (by overflowing)?

r. How much oil was there in the service tanks when the fire broke out? How much oil was there in the drip trays under the service tanks?

s. In the case of fire in scanenging air belt for the main engine: When was it last cleaned?

t. In the case of crank case explosions: Were bearings overheated or was there any failure in the oil supply before the explosion? When was the lub.oil last analysed? What was the result of the analysis?

10. In the case of fire in cabins or other accommodation spaces:

a. Was there a party or other social gathering in any of the cabins or accommodation spaces at the time?

b. Were highly flammable fluids (petrol, thinners etc.) kept in any of the accommodation spaces? Was the owner of the cabin in which fire broke out, in the habit of laying aside cigarettes without putting them out?

c. How were cabins, messrooms etc. heated?

d. In the case of heating by solid fuels or oil, were the stoves/heaters of an approved type? Was the insulation connected with stoves/heaters/smoke uptakes in regulation order?

e. Were electric heaters used? Were they of an approved type?

f. Was there an artificial draught in the cabin where fire broke out? Where could it be shut off? When was it shut off? Were air pipes leading to the spaces closed?

g. Did any automatic warning or extinguishing system function?

11. a. When were the electrical installations last inspected by a classification society or the Inspector of Electrical Installations? Were they then found to be in regulation order?

b. Were there any electrical wiring, lighting or other appliances where the fire broke out? Was the current on?

12. When was the fire extinguishing equipment last surveyed by the Ship Control authorities?
13. Had the Ship Control authorities or the classification society made any recommendations regarding the ship or its machinery, which had not been carried out?
14. What in Witness' opinion was the cause of the fire? Make a statement concerning the possibility of spontaneous combustion caused by smoking or carelessness with regard to fire.

F. Other damage to the ship, or a damage to property other than the ship.

1. Where, when and how did the accident happen? What was the extent of the damage? Give a continuous account of the events leading up to the damage to the ship or to property other than the ship. Describe weather conditions from the time of departure from the last port until the accident happened.
2. Where there any faults or deficiencies in the ship or equipment before the incident occurred?
3. a. Was the cargo-handling equipment and appliances in order when they were last used before the accident occurred? Did anyone notice that anything was wrong while using them just before the accident? When and by whom was the said equipment inspected, and was this entered in the records book? Were the prescribed certificates in order? Is the greatest permissible working load given on the cargo-handling equipment? What was the working load at the time of the accident?
   b. When, where and by whom were the last load tests carried out for the cargo-handling equipment? Enclose an extract from or photographic copy of the records book showing all entries for the past 12 months.
4. In the event of collision, with what did the ship collide? (For collisions with ships, see list B above.)
5. What speed was the ship making when the accident occurred? How long had the ship been proceeding at that speed before the accident?
6. a. If floating objects were damaged, what were they?
   b. Was anyone injured? State what injuries were received, if any.
7. Was there any damage to harbour installations, sluices, lights, beacons or other real property?
8. What in Witness' opinion was the cause of the accident?
9. Had the ship by radio or other means received any warning of wrecks etc. and their positions? What was the date and number

of the last «Etterretninger for sjøfarende» or Notices to Mariners received on board?

Boiler Casualties:

10. How many boilers were there, what type, where and when were they built?
11. When and where were the boilers and fittings last surveyed by the classification society and when do certificates expire?
12. When were boilers last cleaned and how many hours had they been in use since they were last cleaned?
13. Was there anything wrong with the boilers, furnaces or fittings when they were last cleaned?
14. Which of the ship's engineers was responsible for maintenance and who was in charge of the cleaning?
15. Who were the engineers and members of crew on watch when the damage/accident occurred?
16. How long is it since the water gauge glass was last blown out at top and bottom, before the accident? With what result?
17. How often were specimens of the water taken and when was this last done before the damage/accident.
18. When were chemicals last added to the boiler, what type and how much?
19. How much water does each boiler hold?
20. When was the boiler last replenished and where was the feed taken from?
21. Did the boiler have automatic replenishing? If so, state how and where the feedwater comes from.
22. When was the cascade tank last cleaned and when was the last time it was inspected before the damage/accident? Had any grease formed on the tank at that time?
23. Were instructions for firing, airing and attending the boilers posted up in the stokehold?
24. Before the damage/accident, had any irregularities been observed with regard to the water gauge or firing, or was there any fault or failure in automatic controls?

Engine Damage:

25. When was each piston last overhauled?
26. When were top and bottom end bearings and the main bearings last inspected before the damage, and with what result?
27. When were indications last taken and with what result?

28. When was the lub.oil temperature and pressure last taken before the damage occurred?
29. When was the exhaust temperature last taken before the damage?
30. When was the lub.oil last examined and with what result?
31. When was all the lub.oil in the system last changed?

G. Shifting Cargo.

(Produce the chart used for navigating.)

1. Where was the cargo shipped and for what destination?
2. Who was the officer(s) in charge of loading?
3. Were all holds fully loaded?
4. Produce a stowage plan, or a sketch, showing the distribution of the cargo and any vacant space in the holds.
5. Produce a capacity plan showing the capacity (grain and bale) of the ship and of each hold.
6. If the cargo consisted of grain, ore or other bulk cargo, were shifting boards erected in accordance with any regulations given for such cargo? If so, were boards approved by local authorities or by any other institution and in that event by whom?
7. If bulk cargo was being carried and holds were not right full, what arrangements were made to prevent the cargo shifting?
8. In the event of timber carried on deck, how many struts were used on each side and how far apart were they? What were the dimensions of the struts and how were they fastened to the deck and bulwarks? How high above deck was cargo stacked?
9. How was deck cargo lashed (how many lashings and what lashings consisted of)?
10. How much bunkers, fresh water, ballast and other weights was the ship carrying on departure and where were they placed?
11. Did the ship have a list and if so, to which side and how many degrees? State as accurately as possible the time when the list arose.
12. What steps were taken to right the ship before departure or after the list had appeared?
13. Was an inclining test taken before departure? If so, describe how and with what result.
14. How was the cargo in the holds shored up?
15. What caused the cargo to shift?
16. What was done to secure the cargo after it had started shifting?
17. Did the local authorities or any other institution supervise the loading of the ship, and if so, which of them? Was a certificate issued? (If so, produce the certificate.)

18. What type of cargo was the ship carrying on the previous voyage?
19. Had the holds been thoroughly cleaned before the cargo was shipped? Had the holds been inspected and approved, if so by whom?
20. Specify the damage caused to the ship, equipment and cargo as result of the shifting.
21. Was anyone on board injured?
22. Who was on watch on deck and in the engine when the cargo shifted?
23. Did the ship have to seek a port of refuge or request assistance?
24. What in Witness' opinion was the cause of the cargo shifting?
25. Include as part of the court records the extract from the ship's log concerning the state of the weather, wind and sea from the time of departure from the last port and until the accident occurred.

Grøndahl & Søn. Oslo. 3. 69.

PART II TO BE FILLED IN ON BOARD (See guidelines, page 16)

A. GENERAL DECLARATION (To be filled in for all types of casualties)

SHIP'S PARTICULARS

1	Name of ship:		Signal letters	Home port		Nationality		
2	Type of ship		Year built	Material		Last year when rebuilt		
3	Registered tonnage:	Gross	Net	Dwt.	Summer Draught	Dwt.	Winter Draught	
4	Dimentions:	Length overall	Extreme breadth	Propulsion machinery:	Builder	Type	Power (BHP)	
5	Classification Society:	Main class		Reg.no. in Det Norske Veritas		Hull insurance	Insurer	P&I
6	Last periodical survey by classification Society Place/Date			Uncompleted recommendations ☐ Yes ☐ No	State reasons for uncompleted recommendations or defects:			
7	Last survey by the Norwegian Ship Control (or delegated institution)			Uncompleted recommendations ☐ Yes ☐ No				
8	Last control of fire-extinguishing/rescue equipment					By authority	By crew	
9	Last dry docking Place/Date			Condition of ship's bottom at last dry docking				
10	Date of last cleaning:			Ship's bottom	Cargo holds	Cargo tanks	Ballast tanks	

SHIP'S CERTIFICATES

11	Certificate of:	Date of expiry	Safety certificate for: Date of expiry	Passenger ship Construction / Equipment Radio telegraphy / Radio telephony
	Trade area			
	Passenger ship			
	Carriage of liquefid gases		Inspection certificate for inflatable liferafts: Expiry date	
	Carriage of chemicals			
	International Oil Pollution Prevention (MARPOL)		Other certificates relating to the ship (Not to persons)	
	Load line			
12	Trade area acc. to Trading/Passenger/Equipment Certificate			

REGISTRATION OF DATA ON BOARD

13	Entries made into: Deck log book ☐	Notebook ☐	Captain's night order book ☐	Bell book bridge ☐	Radio log ☐	Oil record book ☐	☐
	Engine room log ☐	Notebook ☐	Bell book engine ☐	Maintenance record ☐	Overtime log ☐	Control book Ships medicines ☐	No registration ☐
14	Automatic registration by means of: Course diagram ☐	Manouvre diagram ☐	Echo sounder diagram ☐				No registration ☐

CREW/OTHERS ON BOARD

15	Specification of crew dated:	Navigators incl. master	Engineers	Radio operators	Electricians	Other members of crew	Total / Non-Norwegians
16	Compulsory manning						
17	Crew on board at time of casualty						
18	Were all crew members signed on? ☐ Yes ☐ No		No. of passengers		No. of others on board		
19	Explain any discrepansy between the specification of the crew and the actual manning						

1000 1-91. Hansen Grafiske a.s : Oslo

QUALIFICATIONS

	on board		certificate	as officer	in present position on board	joined ship
Master	☐ On watch ☐ On bridge					
Navigator						
Engineer						
Other crew members on watch			Work	Practice at sea		

Were any dispensation granted in respect of certificates? ☐ Yes ☐ No

WORKING HOURS/ WATCH SYSTEM

NUMBER OF WORKING HOURS BEFORE THE CASUALTY (FULL HOURS)				Time on watch before the casualty	WATCH SYSTEM
	Last 24 hours	Last 48 hours	Last week		
Master					☐ 6 ON/6 OFF
Navigator					☐ 4 ON/8 OFF
Engineer					☐ Other (shift etc.)
Other crew members on watch					☐ No system of watches

CARGO/LOADING CONDITION

Type(s) of cargo on board (see instructions p. 17):

Type(s) of cargo on previous voyage

State distribution of cargo (type and number of tons in the different cargo holds/tanks/on deck)
If more convenient, enclose a copy of the cargo plan.

	Hold/Tank no.	Hold/Tank no.	Hold/Tank no.	Hold/Tank no.	Hold/Tank no.	Hold/Tank no.	Hold/Tank no.
Type Weight in tons							
Deck cargo:	At hatch no.	At hatch no.	At hatch no.	Other distribution of cargo	no.	no.	no.
Type Weight in tons							
Height							
	Tank Tons	Tank Tons	Tank Tons	Tank Tons	Tank Tons	Daily consumption at sea	From tank no.
Bunkers							
Fresh water							
Ballast							
Dangerous packaged goods UN-class							

Cargo Sum:	Bunkers	Fresh water	Ballast	Total	Loading condition in % (Total % in relation to full loading capacity)

On departure	Draught forward	Draught aft	Draught midships	STB	Freeboard	PORT	Specific gravity of water

List	No. degrees	Reason for list
☐ STB ☐ PORT		

Sag.moment	Hog.moment	Calculated GM	Max. righting arm (GZ):	Extension of stability

At start of voyage cargo secured by:	☐ Crew ☐ Stevedor	Securing of cargo controlled by:

39

FIRE/LIFEBOAT DRILL

Place and date of the last two fire/lifeboat drills, description of drill with reference to actual page in deck log

Place	Date	Page	Extent/Type of drill

40 41 42 43 44

EXTERNAL PARTICULARS

Type of water (See page 17) | Phase of voyage (See page 17)

Main activity on board (See page 17)

Direction	Wind	Force	Direction	Sea	Height	Direction	Swell	Height	Direction	Current	Force

Precipitation	Type	Fog	Visibility (in N-miles)	Ice	Air temperature	Sea water temperature	Surface water
☐ Yes ☐ No		☐ Yes ☐ No		☐ Yes ☐ No			

LIGHT

☐ Daylight ☐ Darkness ☐ Twilight

45 46 47 48 49 50 51 52

CASUALTY DATA/DAMAGES

Type(s) of casualty (See p. 17)	Name of place/Sea etc.	Date	Time	Zone

Exact position (to the nearest 1/10 of a minute, if necessary direction and distance)

Last port prior to casualty	Date of departure	Time	Port of destination

First port of arrival after casualty	Date of arrival	Time	

Did the ship reach the first port without assistance? ☐ Yes ☐ No

If no, with the assistance of:

Description of the damage: (Type of damages, assumed consequences as injury to crew, ship, cargo, environment etc.) If possible, state the consequences, lost time, time in dock, etc.

	Crew	Passengers	Others on board	Others	Total
Number of persons: Injured					
Dead					

State name, address and nearest relatives of the dead.

NAVIGATING INSTRUMENTS

	Manufacture/type	Condition	In use at the time of the casualty?	Remarks
53 Radar (s)				
54 Automatic radar plotting (ARPA)				
55 Gyro compass				
56 Magnetic compass				
57 Auto pilot				
58 Course diagram				
59 Course – deviation alarm				
60 Echo sounder				
61 Decca navigator				
62 Satelite navigator				
63 Omega				
64 Loran				
65 Other navigational aids				
66 Type and position of fog signal				

CHARTS/NAVIGATIONAL PUBLICATIONS ETC. ON BOARD RELATING TO THE ACTUAL AREA

	Nationality	No.	Published (year)	Corrected (stamped date)	Last corrected on board	In use when the casualty occurred
67 Chart / Scale						
68 List of lights						
69 Description of waters						
70 Tide tables						
71 Others:						

72 State errors of defects in the above-mentioned publications not due to conditions on board:

73 Are Notices to Mariners received regularly on board?	No. and date of the last edition received:

MANNING ON BRIDGE/DISTRIBUTION OF WORK BEFORE COLLISION/GROUNDING

74 Who was on the bridge?

75 Did any member of the bridge watch have any other duty at the time of or immidiately prior to the casualty? If so, state this duties

76 Who was responsible on the bridge?	Where was the master?
77 Who was navigating?	Was this person familiar with the waters?
78 Was the ship under the direction of an authorized pilot?	Was the pilot familiar with the type of ship?
79 If radar was used, who operated it/them?	What range was the radar(s) set at?
80 How was the radar(s) operated? ☐ Gyro stabilized ☐ North up ☐ Head up	☐ True motion ☐ Relative
81 Where was the look-out?	Did the look-out have other duties? ☐ Yes ☐ No If so, state these duties
82 If manual steering, who was at the wheel?	If auto-pilot steering, who monitored the auto-pilot?
83 If manned engine room, who was on watch?	If the propulsion machinery was manoeuvred from the bridge, who did this?
84 Was the view from the bridge of any significance for the course of the casualty? Explain in more detail below ☐ Yes ☐ No	Did the arrangement on the bridge prevent the navigator from giving full attention to safe navigation (position of charts, VHF, radar, lighting, etc.)? Explain in more details below ☐ Yes ☐ No

NAVIGATION BEFORE THE COLLISION/GROUNDING

85 Was a sailing plan available, with courses plotted on charts, safety bearings etc.? ☐ Yes ☐ No | Was the plan followed? ☐ Yes ☐ No | Was navigation obstructed by other traffic? ☐ Yes ☐ No

86 Conditions which contributed to the casualty:

87 Last certain position before the casualty:	Date	Time	Log showed	Position

88 How was the position decided?

Instrument reading from last certain position

89

From time	Steered course gyro/magn.	Steered course true	Sailed course true	Log Speed showed	Distance	Current if any Direction	Current if any Speed

90 Bearings and other observations during the same period

91 The ship's ordinary service speed	Speed before the casualty	Speed at the actual time of the casualty

92 Other information

INFORMATION ON SIGNALS/MANOEUVRES AT TIME OF COLLISION

Nos. 93 to 107 to be filled in if the casualty was/caused a collision

93 When was the object of the collision (vessel or object) first discovered?		Time	
94 How was the object of the collision discovered? ☐ Visually ☐ By radar ☐ By sound signal	From own ship : Relative bearing	Distance	How was the bearing and distance determined? ☐ Visually ☐ By radar ☐ By judgement
95 Own ship's:	Course	Speed	Radar plotting carried out by means of: ☐ Diagram ☐ Refl.plotter ☐ ARPA ☐ Not carried out
96 When and how was the risk of collision first registered?			Did own ship undertake manuvring? ☐ Change of speed ☐ Change of course
97 Were any sound signals sent out from own ship? ☐ Yes ☐ No	What signals were given if any (Also VHF, lights etc.)		At what time?
98 Were any signals observed from the other ship? ☐ Yes ☐ No	What signals were observed?		At what time?
99 What lights/signal figures was own ship showing?			
00 What lights/signal figures were observed shown on the other ship?			
01 What was the course and speed of the other ship when it was observed visually?		What changes of course or speed were observed later?	
02 Were the radar antenna(s) operating on the other ship? ☐ Yes ☐ No ☐ Not observed		Were the observed lights shining clearly?	
03 Were any avoiding manoeuvres obstructed or influenced by the other ship? ☐ Yes ☐ No		By other traffic ☐ Yes ☐ No	By the nature of the waters ☐ Yes ☐ No
04 Was there any radio communication between the ships before the collision? ☐ Yes ☐ No		Was any attempt made to make such contact ☐ Yes ☐ No	Radio communication after the collision ☐ Yes ☐ No
05 Was the other ship loaded? ☐ Yes ☐ No ☐ Not observed		Did the other ship have a list? ☐ Yes ☐ No ☐ Not observed	

06 Name of the other ship	Signal letters	Type	GRT.	Home port

107 What was done pursuant to section 223 of the Maritime Act (obligation to give assistance to the other ship in the event of a collision)?

COLLISION/GROUNDING

108 Describe the course of the casualty (own ship's manoeuvring, any observed manoeuvres by the other ship, obstacles to manoeuvring, damage, when the ship refloated after grounding etc.)
In the event of collision: draw a sketch illustrating the situation from the time to the object was discovered until the collision occurred. Show the angle of collision. (If necessary, use page 15).

C. To be filled in if the casualty was/caused fire/explosion

SITE OF FIRE/SOURCE OF IGNITION

109 In what area did the fire/explosion start?
☐ Engine room ☐ Cargo hold area ☐ Accomodation ☐ Elsewere

110 Describe the place where the fire/explosion started in more detail.

111 If known, state in which component the ignition took place:

112 In what kind of material did the ignition take place? ☐ Petroleum product ☐ Wood ☐ Insulation material ☐ Other, state type

113 Source(s) of ignition
☐ Flame ☐ Spark ☐ Hot surface ☐ Self-ignition Other:

FIRE-DETECTION/ EXTINGUISHING-EQUIPMENT

14 Fire detector at the place where the fire started? ☐ Yes ☐ No
If yes, what type? ☐ Thermo ☐ Pipe ☐ Others:

115 Did the warning system work satisfactorily? ☐ Yes ☐ No
If not, describe defects/errors

116 How was the casualty discovered? ☐ Fire-detector ☐ Personel ☐ Other ways:

117 Who discovered/observed the casualty?

118 Permanently placed fire extinguishing equipment:
At the site of the casualty ☐ Yes ☐ No — If yes, state type
In adjacent areas? ☐ Yes ☐ No — If yes, state type

FIRE/EXPLOSION

119 If the casualty ocurred in port, who was on watch on board?

120 Where was the watch when the casualty was discovered/registered?

121 What was the direction of the wind relative to the ship?
When was anyone last at the site of the accident, and who?

122 Was anything abnormal observed?

123 What was done to extinguish the fire/reduce the damage?

124 What type of extinguishing equipment was used (fixed or portable)?

125 Did the extinguishing apparatus work as intended? ☐ Yes ☐ No
Describe the effect, defects etc.:

126 Did the fire damper/rapid extinguishing arrangements work satisfactorily? ☐ Yes ☐ No
Were closing/extinguishing arrangements suitably positioned? ☐ Yes ☐ No

LIST/CAPSIZING

127 The casualty was connected with: ☐ Shifting of the cargo ☐ Leakage ☐ Violent heeling caused by rough sea ☐ Combination of above factors ☐ Reason unknown ☐ Other reasons (specify):

128 Where was the cargo taken on board? | Did the loading take place under the supervision of a local authority or other institutions? ☐ Yes ☐ No

129 Were all holds/tanks in use fully loaded? ☐ Yes ☐ No

130 How was the cargo in the holds/on deck secured against shifting?

131 Had the ship carried the same type of cargo before? ☐ Yes ☐ No

132 Have any modifications or changes been made to the ship since the last periodical survey, which would affect stability? ☐ Yes ☐ No
If so, specify.

133 Was the ship equipped with approved stability calculations? ☐ Yes ☐ No | Had a cargo plan been prepared? ☐ Yes ☐ No | Were there instuments on board for calculating stability? ☐ Yes ☐ No

134 Were stability calculations carried out for the loading condition of the ship upon departure from the last port? ☐ Yes ☐ No | Before arrival at the port of discharge? ☐ Yes ☐ No

135 Was the stability satisfactory? ☐ Yes ☐ No | State roughly the rolling period (time in seconds):

136 What was done to find the reason for the list (inspections, soundings etc.)?

137 State, if possible, the reason for increasing list.

138 What measures were taken to reduce heeling or to right the ship?

139 How did the heeling occur? ☐ Suddenly ☐ Gradually increasing list

140 If the capsizing occured due to gradually increasing listing, when was it ascertained that the situation was critical?

141 State, if possible, the reason for the capsizing.

E. To be filled in if the casualty was/caused leakage

LEAKAGE

142 Type of leakage:
☐ Internal (in bulkhead, tanktop etc.) ☐ External (in ship's side, bottom, deck, hatch etc.)

143 The leakage:
Where did it occur? | How was it discovered?
Who discovered it? | When was it discovered?

144 What measures were taken to stop/reduce the leakage?

145 If possible, state the extent of the leakage in the form of quantity leaked in/leaked out, or in another manner:

146 What were the consequences of the leakage?

147 If possible, state the cause of the leakage.:

F. To be filled in if the casualty was/caused engine breakdown

ENGINE BREAKDOWN

148 What was the damage (description of the damage)?

149 In which component or system did the damage occur?

150 Technical data for the component or system where the damage occured (fabrication, type, brand, age etc.):

151 When was the component/system last surveyed, inspected or in another way controlled? (State by whom)

152 How was the damage discovered? | By whom? | When?

153 Was the engine room manned when the damage occured? ☐ Yes ☐ No | Who was, or who had last been in the engine room before the damage occured?

154 Give, as far as possible, a chronological description of the course of events:

155 What measures were taken to limit the consequences of the damage?

156 If possible, state the cause of the breakdown/damage

157 Can the breakdown/damage be put down to: ☐ Lack of maintenance routines ☐ Defects/error monitoring instruments or warning instruments ☐ That fixed maintenance routines were not followed ☐ Other monitoring failure

158

Type of pollution (technical spesification and characteristics of the substance(s) of the pollution

159

Did the pollution occure in connection with:	☐ Collision	☐ Loading/discharging	☐ Bunkering	☐ Shifting of cargo or bunker	☐ Cleaning of tanks	☐ Emptying in open sea
	☐ Grounding	☐ Capsizing	☐ Leakage	☐ Defect equipment	☐ Other reasons	

160

Did the discharge have any connection with wrong operation of equipment on board ☐ Yes ☐ No	If the discharge consisted of oil or dangerous goods, did the ship have valid certificate for carriage of such cargo (Space II)? ☐ Yes ☐ No

161

Estimated quantity of discharge in tons:	Estimated size of oil slick or other harmful liquid substances:

162

Describe how the discharge occurred:

163

What measures were taken to prevent/reduce the discharge or limit the spread/what reports were sent?

164

Report on incident sent:	Date	Time	To	By

POLLUTION

H. To be filled in if the casualty was/caused serious injury to persons/poisoning/death

Struck category of personnel:	NUMBER					
	INJURED	POISONED	MISSING	DIED		
165 Member of crew						
166 Passenger						
167 Others who followed with the ship						

168

Was the casualty/damage a direct consequence of another event? ☐ Yes ☐ No	Or activities connected with counteracting shipwreck? (fire-extinguishing, tow operations etc.) ☐ Yes ☐ No

169

Did the casualty occure in connection with evacuation of the ship? ☐ Yes ☐ No	If an accident in connection with work, where was the work being done?

170

What work operation was/were the person(s) to who the accident occured/injured person(s) engaged in when the casualty/damage occured?

171

Who gave the order to do the work?	Who was in charge of the work?

172

Did safety/protection regulations exist for the work in question? ☐ Yes ☐ No	Were these regulations followed? ☐ Yes ☐ No

173

Were the safety/protection regulations satisfacory? ☐ Yes ☐ No	Had the working conditions been discussed in the safety/environment commitee? ☐ Yes ☐ No

174

Describe any deficiencies in the safety/protection regulations and the reason why the regulations were not followed:

INJURY TO PERSONS/POISONING/DEATH

CONTINUED ON PAGE 13

CONT.

INJURY TO PERSONS/POISONING/DEATH

If the casualty occurred in or in the vicinity of a tank/closed room, state the cargo/content in these at the time of the casualty
cargo/content:

Earlier cargo/content:

Describe clearing/airing and method of freeing of gas and state time spent on this work:

Were gas measurements conducted to control the presence/quantity of: ☐ Poisonous gases ☐ Inflamable gases ☐ Oxygen

Gas measurements were conducted: ☐ Before the casualty ☐ After the casualty. ☐ By whome?

Reading: Reading:

Manufacture and type of measuring instrument:

Date last adjusted:

Was personal protective equipment used?

☐ Yes ☐ No

Describe the protective equipment used, and dificiencies, if any:

Can the casualty/damage be put down to dificiencies in the ship's construction, arrangement or equipment?

☐ Yes ☐ No

If yes, describe in more detail:

Did the physical or mental condition of the injured person contribute to a more serious casualty or more serious consequenses of the casualty (alcohol, depression, etc)? ☐ Yes ☐ No

In the case of death due to illness or poisoning, state when the person in question was last examined by a doctor:

Was there anything noticeable about the injured/dead person's state of health prior to the injury/death?

When and how was it first discovered that the person in question was ill/injured/poisoned/dead?

If poisoning, what substance caused the poisoning?

☐ Substance carried as cargo ☐ Used for maintenance ☐ Obtained for special purpose ☐ Original/purpose unknown

How did the person in question come in contact with the substance?

How was the substance stored on board?

Who was responsible for storing the substance on board?

Was the injured/dead person aware of the risk involved when using the substance? ☐ Yes ☐ No ☐ Unknown

Was the packaging labelled? ☐ Yes ☐ No

How was it labelled?

Give an ordered description of the course of events connected with injury/posoning/death, including treatment, medical advice, rescue operations etc.:

LIFE-SAVING APPLIANCES/LIFE-SAVING OPPERATION DURING EVACUATION

What kind of life-saving appliances did the vessel have? (Type, number, capacity)

Which were used during the life-saving operation/evacuation?

Why was/were this/these life-saving/evacuation appliances chosen?

Were the crew sufficiently acquainted with the life-saving/evacuation appliances and the use of these? ☐ Yes ☐ No	Was anyone injured during the evacuation? ☐ Yes ☐ No
Did the life-saving/evacuation appliances function as intended? ☐ Yes ☐ No	If no, what was it that failed?

What were the consequences of the failure?

Were any distress signals given? ☐ Yes ☐ No	If yes, which?	BY RADIO ☐ SOS	☐ MAY DAY	☐ Pyro-technical	☐ Sound	Others:
Was the emergency transmitter activated? ☐ Yes ☐ No	State type:	Was emergency communication equipment used? ☐ Yes ☐ No		Was contact established? ☐ Yes ☐ No		
How long was the stay in the life-saving appliance?		How was the life-saving appliance discovered?				
Who discovered the life-saving appliance?		Position:				
In what position was the ship abandoned/sunk?						
Can the ship be salvaged? ☐ Yes ☐ No ☐ Unknown		Is the wreck a danger to maritime traffic? ☐ Yes ☐ No ☐ Unknown				
Are these substances on board which may cause pollution? ☐ Yes ☐ No						
If so, state the type and quantity:						

J. To be filled in for casualties/damage of a type not specified above

OTHER CASUALTIES/INCIDENTS

What constituted the casualty/damage?

What do you think was the cause of the casualty/damage?

Give a chronological description of the course of events:

K. This page is to be used for sketches to illustrate collisions, or for other additional information for which no space is provided under the casualty in question. Refer in the event to this page.

211

ADDITIONAL INFORMATION

212 In addition to section A, the following sections have been filled in (mark with a cross):

B	C	D	E	F	G	H	I	J	K	

213 Has an inquiry been held before a non-norwegian authority? (Section 315 of the Maritime Act) ☐ Yes ☐ No

214 State before what authority the inquiry was held:

215 A copy of the inquiry report has been sent to:

216

Place	Date	Master/Owner

GUIDELINES ON THE USE OF THIS FORM

The form shall be used:

1. In the event of a maritime inquiry before a Norwegian court/consular court, as the first page of the court records.

2. In the event of a request for a maritime inquiry pursuant to section 301 of the Maritime Act.
   Such a request shall be submitted (see sections 305 and 306 of the Maritime Act):
   a. In Norway to the District Court or the City Court
   b. In Denmark, Finland or Sweden to the competent court pursuant to the legislation of the country conserned.
   c. In other countries to the relevant Norwegian consular court. (If there is no competent Norwegian foreign service official in the port where the maritime inquiry is to be made to a competent Danish, Finnish or Swedish representative in the same port).

3. When a report is made to the Norwegian Maritime Directorate or the relevant maritime investigator if the owner or the master does not himself request that a maritime inquiry is held pursuant to section 302 of the Maritime Act.
   This may be the case when an accident has occurred, or is assumed to have occured, of importance for the operation of the ship and there is no obligation to hold a maritime inquiry (or there is some doubt about this obligation) pursuant to section 301 of the Maritime Act.

4. When informing the Norwegian Maritime Directorate or the relevant maritime investigator that the maritime inquiry is postponed pursuant to section 304, second paragraph, of the Maritime Act.
   (In special cases the maritime inquiry may be postponed until the ship reaches another port, provided that this results in a substantial reduction in loss of time for the ship, or in costs, or gives other substantial advantages. This depends on the nature of the incident and the circumstances in other respects).

5. In the event of collision with a non-Norwegian ship when maritime inquiry is not held.
   (A report shall be submitted to the Norwegian Maritme Directorate. section 308 of the Maritime Act, third paragraph, fourth sentence).

6. In the event of an application for postpoment of or exemption from a maritime inquiry pursuant to section 312 of the Maritime Act.

7. When informing the maritime investigator that a maritime inquiry has been held before a non-Norwegian authority. (section 315 of the Maritime Act).
   (If possible, a copy of the inquiry report shall be obtained and forwarded to the maritime investigator concerned).

FILLING IN THE FORM

1. a. The use of this form, and filling it in, are mandatory.
   b. Part II of the form is to be filled in by the master of the ship.
   c. The form is to be filled in using a typewriter or capital letters.
   d. Part I of the form is to be filled in by the court in the event of a maritime inquiry.
   e. Depending on the circumstances, the information stated on the form may be used in the event of later criminal or court proceedings.

2. a. Part II of the form is divided into a general section (A), and special sections referring to the actual casualty (B to J).
   b. Section A shall always be filled in when this form is used.
   The special sections B to J are filled in to the degree the actual incident dictates.

EXAMPLES

a. In the event of a collision, fill in sections A and B.
b. If the collision is due to engine damage on own ship, fill in sections A, B and F

Since the form also forms the basis for the «Data bank to safeguard maritime operations» and for statistics, all the spaces in the sections concerned shall be filled in, if possible. This shall be done even if the information is not considered relevant in connection with the incident in question.

The different spaces in the form, the designations to be used:

Lines 29, 30 and 31, CARGO:

Empty
Ballast.
Dry cargo - general cargo - containers,
Bulk (Iron, ore, coal, grain etc.)
Oil - oil distillates
Gass (LNG, LPG):
Chemicals (liquid)
Passengers (also cars, if any)
Fish and fish products
Other?
Unknown

Line 40

TYPE OF WATERS:

Quayside, in dock or suchlike
In the port area (Defined or judged to be port area)
Canal, river (also buoy line)
Narrow coastal waters
Separation zone, alert area
Open coastal waters
Outer coastal waters
Open sea
Oil field
Other?

PHASE OF VOYAGE:

Laid up
In the shipyard
At the quayside
At anchor
At a loading buoy
Under drilling
At an installation
On arrival in port
On departure from port
Underway
During fishing
Other?

Line 41, MAIN ACTIVITY ON BARD:

No activity (laid up, etc.)
Maintenance - repairs in engine room
Other maintenance work
Cleaning - making ready - or other such work in tanks or holds
Loading - discharging - bunkering
Mooring - making ready for sea
Handling of anchor/anchoring
Emergency drills (fire/rescue)
Testing
Drilling
Handling fishing equipment
Towing
Ordinary sailing
Other?

Line 45, TYPE OF CASUALTY

A «Casualty at sea» may comprise several incidents which each, in themselves are subject to maritime inquiry or have to be reported in some other way.
In such cases the actual incidents are described as far as possible in chronological order in the space provided here.

Example:
Damage to the engine leads to collision, and the ship capsizes. This is stated as «Engine damage —collision, with capsizing of the ship».

Page 19, LIST OF ADDRESSES

This is for the sole use of the maritime investigators and for giving notification pursuant to section 307 of the Maritime Act.

MARITIME INQUIRY

A request for a maritime inquiry is submitted to the court at the place where the maritime inquiry is to be held. The request is submitted to the City Court in a town/city and to the District Court in rural districts. The nature of the casualty is decisive for which provision(s) of section 301 of the Maritime Act are applicable when requesting a maritime inquiry. Expenses in connection with the maritime inquiry shal be defrayed on the spot.

The following information shall be sent together with the request for a maritime inquiry or in the case of reports submitted in accordance with items 3, 5, 6 and 7 on page 16, to the extent that this information is available and relevant to the case.

1. The form «Marine Casualty Report».
2. A word for word copy or distinct photostat copy of any information contained in the ship's logbooks about the casualty.
   If the ship's logbooks have been lost or have not been kept, a written report of the casualty shall be submitted.
3. A complete list of the ship's crew and others on board in the ship's service.
4. A list of the members of the ship's crew and any other who may be presumed to be able to give information about the casualty.
5. If possible, a list of the parties interested in the case and their local representatives.
6. Information about other investigations which have been (or will be) carried out in connection with the incident. See also «Regulations concerning implementation of the provisions of chapter 14, part II of the Maritime Act, concerning maritime inquiries», laid down by the Norwegian Maritime Directorate on 1 september 1987.

Note:

In the event of a maritime inquiry the ship's logbooks shall be presented for the court for purposes of comparison with previously submitted transcripts (section 309 of the Maritime Act). No-one may listen to another's explanation, and no-one but the master of the ship or the person who has kept the ship's log in question should listen to the reading of the transcript.
Normaly, the master and other witnesses will be put on oath after everyone has given his explanation.
See also chapter 9, section 23 in the Instructions to the Foreign Service, with comments, section 300 of the Maritime Act (concerning ship's logbooks) and sections 301 to 313 concerning maritime inquiries.
Where this is of importance to the case, the chart used during navigation (the original chart) shall be submitted to the court at the maritime inquiry. The chart (if necessary, a photostat copy or suchlike) should be enclosed with the transcript sent to the Norwegian Maritime Directorate or the maritime investigator concerned.

Other reports:

1. *When hull, rigging, boiler or other engine parts have been damaged, or work has been undertaken as may have caused a change in their strength, detailed information must be submitted in this connection (See section 37, third paragraph of the Seaworthiness Act).*
2. *For passenger ships:*
   When hull, boiler or engine parts have been damaged, or work has been undertaken as may have caused a change in their strength, a complete or partial survey shall be undertaken of the damage or the work (See section 96, second paragraph, of the Seaworthiness Act.
   Any such damage, repair or change shall be reported to the Norwegian Maritime Directorate/Ship Control.
3. *If a ship has to be moved following a casualty which may have affected its seaworthiness, the master of the ship must ensure that a certificate for seaworthiness/floatability issued by, or on behalf of, the Ship Control is obtained before the ship is moved from one port to another (See sections 24 and 26 of the Seaworthiness Act). In the case of classified ships, a declaration must also be obtained from the class.*