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WORLD MARITIME UNIVERSITY
Malmö, Sweden

**REVIEW AND CONSOLIDATION
OF
INSTRUCTIONS FOR INVESTIGATIONS
AND INQUIRIES
IN INDIA**

By

RAKESH KUMAR AWASTHI
India

**A dissertation submitted to the World maritime University in partial fulfilment
of the requirements for the award of the degree of**

MASTER OF SCIENCE

In

**THE MARITIME SAFETY AND ENVIRONMENT PROTECTION
OPERATION**

1999

DECLARATION

I certify that all the material in this dissertation that is not my own work has been identified, and that no material is included for which a degree has been conferred on me.

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

(Signature)

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It is said that behind every successful man there is a woman, and last but not the least I wish to acknowledge the understanding and patience exhibited by my better half Sheila. It would not have been possible for me to undertake this venture of attending the Masters degree course at the World Maritime University were it not for her encouragement and perseverance. I am deeply indebted and thankful to her.

ABSTRACT

REVIEW OF THE INTRUCTIONS TO SURVEYORS INTO CASUALTY INVESTIGATIONS AND INQUIRIES

Degree

MSc

The dissertation is a review of the earlier Instructions issued to the surveyors conducting inquiries and investigations into shipping casualties in India. The study is an attempt to synthesise the principles of casualty investigation enshrined in the Code for Investigation of Marine Casualties and Incidents.

The present instructions are compared, to the systems existing in other Maritime nations and the salient differences that are detected as a result of the study are discussed. The various definitions of casualties that appear in the code have been incorporated for differentiating among types of casualties.

The need for fresh instructions is taken up in the study considering the irrelevance of the existing instructions, which have outlived their purpose. The need for an independent casualty investigation for determining the causes is stressed, considering the present system of investigating does not appear to be independent.

The role, responsibilities and functions of all those involved in casualty Investigations and Inquiries have been identified. This is considered to be vital for casualty investigations to be completed in a timely manner and thus accomplishing the desired objective for such casualty investigations.

The review is concluded by proposing a fresh set of Instructions that take into account the contents of the Code and are intended to replace the existing, to provide harmonisation and uniformity in casualty investigations universally. The study also recommends some basic changes to the present system existing in India to ensure independence in casualty investigations and dissemination of such information to the seafaring community.

KEYWORDS: Review, Functions, Uniformity, Instructions

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List of Abbreviations

AMSA	Australian Maritime Safety Authority
DC	Deputy Conservator
DGS	Director General of Shipping
FIR	First Information Report
PIO	Preliminary Inquiry Officer
LIS	Lead Investigating State
MAIB	Marine Accident and Investigation Board
MIIU	Marine Incident Investigation Unit
MMD	Mercantile Marine Department
MOC	Maritime operations Centre
MOST	Ministry of Surface Transport
MSA	Merchant shipping Act
NS	Nautical Surveyor
PI	Preliminary Inquiry
PO	Principal Officer
RCC	Rescue Co ordination Centre
Res.	Resolution
SIS	Substantially Interested State
UNCLOS	United Nations Convention on Law of Seas

Chapter I

INTRODUCTION

1.1 GENERAL

This dissertation, as is titled, deals with the review of the earlier procedures in the form of “Instructions to Officers Appointed for Conducting Preliminary Inquiries into Shipping Casualties”.

The International Maritime Organization (IMO) Assembly during its 20th session had adopted a Resolution viz. A.849(20) on 27th.Nov.1997, which recalls its article concerning the functions of the Assembly in respect of regulations and guidelines concerning maritime safety and the prevention and control of the marine pollution from ships. This concern of the IMO stems from the fact that, despite its best effort casualties and incidents continue to occur, resulting in loss of life, damage to property and pollution of the marine environment.

The above-referred Resolution recognising the need adopted a Code for the Investigations of Marine Casualties and Incidents, which is contained in the annex to the Resolution. The intent of this Code is to provide a standard approach to marine casualty & incident investigation, in so far as the national laws allow, which would aid in achieving the main objective of casualty investigations, i.e., identifying the causes. This Resolution further invites all Governments to take appropriate measures to give effect to the Code as soon as possible.

Chapter II discusses the provisions of the Indian Merchant Shipping Act of 1958 which provide the fundamental and legal basis upon which the existing Instructions have been formulated. It further, identifies the need for such a review by examining the existing instructions and their relevance today.

Chapter III describes and discusses the casualty investigation regimes in other maritime States and compares them with those existing in India. Based on the comparison, the author identifies the need for the existing instructions to be reviewed, consequently, the author proposes a fresh set of instructions based on the findings and the need to synthesise the instructions, with the guidelines set out in the IMO Code.

Chapter IV deals with the Formal investigations, their intent and relevance and procedures for conducting formal investigations in India.

Chapter V pertains to a set of procedures based on the prevailing systems and available resources, for the purposes of carrying out marine casualty investigations in India. The relevant elements of the IMO Code have been incorporated, in so far as practicable.

Chapter V provides guidance in the form of investigation techniques to the preliminary inquiry officer for conducting casualty investigations.

Chapter VI is devoted to the conclusion and recommendations. The recommendations are aimed at achieving, among other things, independence and transparency in casualty investigations, uniformity among the terms and definitions, which are used all too often while conducting the casualty investigations.

It is envisaged that these recommendations will enable the adoption of the fresh procedures proposed in the form of instructions. The instructions among other things, describe the Indian maritime administration, its functions, the functioning of its field offices, the resources and manpower available for marine casualty investigations.

Furthermore the recommendations propose changes for effecting some radical changes, within the existing systems.

1.2 AIMS

The instructions to the surveyors are being reviewed with a aim to guide personnel involved with investigations and inquiries into shipping casualties, conducted under Part XII of the Indian Merchant Shipping Act 1958(MSA).

The review of the procedures is intended to standardise the casualty investigation approach in India. It is hoped that this will facilitate timely completion of casualty investigations and correctly identifying the causes of shipping casualties.

CHAPTER II.

THE NEED

2.1 HISTORY AND BACKGROUND

In India investigations and inquiries into shipping casualties have been part and parcel of the national legislation contained in the Indian Merchant Shipping Act 1958 (MSA), as well as of 1923. Part XII of the MSA pertains to the Investigations and Inquiries, this part of the MSA contains provisions that provide for the conduct of such casualty investigations.

There is and always will be, a purpose for conducting investigations into shipping casualties. Seafaring at one time was considered to be a hazardous occupation. Loss of life at sea was common and indeed the ancient Greek writer Phalaceus wrote:

“avoid business with the sea, and put thy mind to the ox-drawn plough, if it is any joy to thee to see the end of a long life. On land there is length of days, but on the sea it is difficult to find a man with a grey hair.”(Source; Journal of Maritime Law and Commerce, Safety Afloat). There have been enormous strides forward over the years to improve the quality of safety at sea. Compared with a century ago, seagoing has become a relatively less hazardous profession.

The history of shipping and shipbuilding goes back a long way, several thousands of years at least. There is little doubt that the first marine casualty occurred very shortly after the first vessel was commissioned. (Source: Page 570, Paper 29 Profiting from losses; R. C. Reid Marine Offshore Safety Developments in Marine Technology,1)

While casualties cannot be totally eliminated, there is nevertheless a growing feeling that the present rates of casualties still remain unreasonably high.

When everything has been looked at and tried, newer designs, better technical aids, the increase in a sophisticated regulation regime and enforcement at all possible levels – one thing that remains, about which there is universal agreement, that is the underlying cause of the casualty. Casualty investigation consequently, is significant and fundamental in reducing accidents at sea.

Shipping casualties initially during the sailing ships era, were investigated to determine the losses suffered by the sailing ships, which were looted by the pirate ships hunting for bounty, also to determine if there was any involvement of the crew. The law then did not impose any liability on the ship owner who failed to manage, refit or equip his vessel properly or who sent her to sea overloaded or undermanned and the sea going profession could not be considered, anything other than a dangerous pursuit. (Source: lecture Casualty Investigations Legal Aspects by Dr. Frank Wiswall JR. at WMU). It was more of a fact-finding exercise by examining the crew and verifying their stories. It has not changed much today, except for the fact that the objectives have changed.

The Report of The Committee of Inquiry into Shipping (chaired by the Honourable Viscount Rochdale) at page 384 section 1461 states “we are concerned that a greater degree of scientific appraisal of the probabilities of danger and the cost effectiveness of the precautionary measures is desirable. In this respect we have noted that the inquiries into casualties do not appear to be sufficiently concerned with the possible underlying causes, which may have contributed to human and mechanical failure, that no adequate analyses of the frequency and causes of the casualties are made.”

As in the case of the Estonia many believed that the search for the truth would have been aided by a more thorough investigation of the wreck, than was carried out by the divers at the behest of the Commission. (Source: Maritime casualties 2nd Edn. Norman Hooke LMIS 1997)

A shipping casualty results in either loss of life, damage to property, pollution of the environment or personal injury etc. The Investigation of such a casualty will hopefully identify the causes, making this information common knowledge, will assist in reducing, if not eliminating, the re occurrences of such undesirable accidents

or casualties. Human beings by and large need laws enforced upon themselves to do what they are normally supposed to do. Consequently rules and regulations have been framed for this purpose. When judiciously implemented, such rules and regulations more than often serve as a deterrent to society in general.

The rapid technological developments have had its effect on shipping as well; technology is always pacing ahead of the regulatory mechanisms, which give effect to rules and regulations.

2.2 INTERNATIONAL OBLIGATIONS

In the consolidated text of the Annex to the International Convention for Safety of Life at Sea (SOLAS) 1974, Regulation 21 of chapter I states

a. Each Administration undertakes to conduct an investigation of any casualty occurring to any of its ship, 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.

b. Each contracting Government undertakes to supply the Organization with pertinent information concerning the findings of such investigation....

Similarly Article 12 of the International Convention for the Prevention of Pollution from Ships 1973 states that,

c. Each Administration undertakes to conduct an investigation of any casualty Occurring to any of its ship subject to the provisions of the regulations, if such a casualty has produced a major deleterious effect upon the marine environment.

d. Each party to the Convention undertakes to supply to the organization with information concerning the findings of such investigation, when it judges that such information concerning the finding may assist in determining what changes in the present convention may be desirable.

It is obvious from the above mentioned regulations that a contracting government to the convention, has after all a non- negotiable obligation to undertake a thorough investigation following any accident involving serious damage or loss of life. Sadly this is very often more honoured in the breach and it is a fact that only a minority of member nations carry out accident investigations in a thorough fashion. (Thursday

June 10, 1999 No. 57283 page 7 Lloyds List) The mark of an efficient maritime administration, or at least a significant element of its expertise, must lie in its treatment of casualties. However it may be noted that the obligation to conduct a casualty investigation is left to the judgement of each individual administration.

“What level of accidents might be considered reasonable in relation to safety assurance? What is an acceptable casualty rate? These are largely matters of opinion, differing from one age to another and from one country to another. They are the norms that are determined socially rather than statistically. Events like shipping casualties are rare, but they do not occur in splendid isolation, equally spaced out in time: they can come in bunches, followed by periods of below average frequency. It is this very tendency to bunching of rare events that are otherwise normal that tends to invoke deep public concern.” (Source: *The Human Element in Shipping Casualties* 1991) Hence it is not the realm of statistics that decides what is a reasonable level of shipping casualties, but tolerance of the people- not only the marine community but also the public at large. (Source: *The Human Element in Shipping Department of Transport*)

Similar obligations are referred to in the International Convention on Load lines and in Articles 2 and 94 of the United Nations Convention on Law of Seas (UNCLOS).

The not so recently adopted Code for Investigations of Marine Casualties and Incidents vide Assembly Res.A.840 aims at promoting -

- A common approach in investigations of marine casualties;
- Co-operation among states in identifying the causes.

Thereby identifying the remedial action.

Section 1.3 of the Code stresses the need for defining -

- the purpose of a casualty investigation;
- a frame work for consultation and co operation between substantially interested states;
- granting a degree of immunity both from self incrimination and risk to the livelihood of those individuals, who attempt to assist in the investigation, and
- establishing a common format for reporting.

Casualty investigations more than often involve two states and sometimes individuals from a host of countries. This single element of the process creates obstacles in timely completion of such investigations. Uniformity as proposed in and adopted by the introduction of the Investigation Code, hopefully, will hasten the process. A list of outstanding casualty investigations as reported by IMO at Appendix 1. (Source: bricemartin.castex@imo.org 7/FSI) is indicative of the above fact and the need for uniformity in procedures regarding casualty investigations.

The Sub committee on Flag State Implementation (FSI) in March 1999 reviewed a draft resolution containing Guidelines on investigation of human factors in maritime casualties and incidents for approval by the Maritime Safety Committee (MSC) and Marine Environment Protection Committee (MEPC) before submission to the 21st Assembly. The Sub Committee's working group on casualty statistics and investigations reviewed a report from the correspondence group on casualty analysis. In doing so the Sub Committee agreed that the recording of "adverse weather" as being the underlying cause of a casualty should only be done after investigation of all other possible external and internal causes.

(Source: <http://www.imo.org/imo/meetings/fsi/7/fsi7/.htm>)

Technological advancements have made it possible to find and investigate cases where 'disappearance or adverse weather is being used as an easy explanation for vessel losses' (source: BIMCO bulletin vol.4.No.2.99 Page 13 April 99)

2.3 ENABLING PROVISIONS

The MSA does not expressly specify the purpose of the inquiry or investigation conducted under section 359. However a perusal of remaining provisions under the said Part and the Preamble, infer, that the purpose is to identify incompetence, negligence or misconduct. Consequently leading to suspension or cancellation of the certificates of competency. The point is whether such an inquiry can be equated to an inquiry as desired under the objective of the Code. The objective of the Code makes a reference to the purpose of such an inquiry, not being to determine liability or apportioning blame. In the same stroke it goes further to say that the investigating

authority should not refrain from fully reporting the causes because fault or liability may be inferred from the findings.

It is pertinent to point out section 358 of the MSA that is titled, shipping casualties and reports thereof. This section actually defines a shipping casualty, when it is deemed to have occurred and the duties of the Master, Pilot, Harbour Master or the person in charge of the ship at the time of the incident.

However, it is observed that pollution of the marine environment is not covered within the meaning of the definition. Similarly a serious injury to a person is also not covered by the definition and therefore needs to be addressed.

Section 359 of the MSA refers to “Report of Shipping Casualties to Central Government”. It is pertinent to note that these reports are based on the information available from the concerned ship or from the findings, emerging from the Preliminary Inquiry report submitted by the Preliminary Inquiry officer.

Section 366 titled “Assessors” pertains to the appointment of Assessors, who shall together with the Magistrate constitute the court of Formal Investigation. It is notable that the list of Assessors is prepared by the Central Government, who is also the complainant in a formal investigation. There is thus potential for conflict of interest which is a serious matter and needs to be addressed.

Section 386 of the MSA provides for making rules to carry out the purposes of this Part. It is this provision of the MSA which, although, does not provide for making rules for casualty investigations, by subsequent amendment may be used to adopt the reviewed instructions. Other provisions contained within this Part of the MSA, will not form part of the description or discussion.

The existing instructions and the information contained therein seem to be scattered. The instructions do not clearly identify the roles, responsibilities and functions of the Organizations and individuals responsible for casualty investigations within such Organizations. The absence of such information within the instructions invariably leaves room for doubts, when confronted with situations demanding immediate action.

As discussed above, the objective of these casualty investigations is not clearly defined, albeit the same is implied. This can have serious consequences on the findings of the investigation or inquiry as the case maybe.

The Indian coast, which is over 5600 kms. Long, (Source; History of Indian Shipping; Prof. Radha Mukherjee) is dotted with numerous minor ports and a handful of major ports. The control of major ports is exercised by the Central Government through the Ministry of Surface Transport, whereas the minor ports are administered by the state.

The minor ports are steadily growing and shipping activities are on the increase. A good example is the state of Gujarat on the West Coast of India. Also, eight coastal states have declared 26 minor ports for private sector participation. (Source: <http://www.indianshipping.com>)

A Port Officer, who is normally a Master Mariner, is responsible for all nautical and navigation related matters in a minor port. The subject of casualty investigations and inquiries into shipping casualties is under his purview. It is not uncommon, that more than often shipping casualties in such minor ports go unreported, If investigated, the investigations are of a cursory nature.

The reasons for such acts or omissions may be several, probably resulting from lack of information, absence of clear procedures, division of responsibilities etc. It is therefore vital that a mechanism needs to be established, which clearly identifies, *inter alia*, responsibilities, procedures, functions and obligations of organisations and personnel entrusted for investigating and inquiring into such shipping casualties.

The existing instructions although extensive have outlived their purpose. The adoption and subsequent implementation of various international codes and regulations are not reflected in these instructions. The ISM Code for instance is revolutionary and deals with the procedures related to shipboard operations and the work culture itself. The company's role in establishing such procedures ashore and on board, the role of the Designated Person, the masters overriding authority etc. are some of the aspects that an inquiry officer would need to investigate.

2.4 THE METHODOLOGY

The author proposes to review the existing instructions by putting forward a fresh set of Instructions. In accomplishing the task a comparison of the IMO Code and the existing Instructions has been carried out to identify the areas where commonality could be established, keeping in view the applicable national laws. Where basic differences exist and cannot be modified, such differences will appear in the form of recommendations; however, these will be included in the Reviewed Instructions.

The Reviewed Instructions will describe the structure of the Indian Maritime Administration and its functions with respect to Shipping Casualty Investigations.

The roles and functions of the various organizations and the individuals responsible within such organizations for shipping casualty investigations and inquiries will be identified.

Whenever a casualty occurs, depending upon its seriousness, certain actions need to be taken by personnel responsible for the same. Situations may arise when such personnel, if not clearly defined, may continue to remain in a state of uncertainty as to the action expected from them. The principle of “write what you do and do what you have written down” will be adopted for formulating the procedures.

The author has been involved in carrying out investigations and inquiries into shipping casualties for a period of 4 years, and subsequently in critically analysing such casualty reports for final submission to the Central Government and its approval, for action intended. The instructions are based on the author’s experiences and the inadequacies or short falls, which have been observed during the recent past and require reviewing. One of the fundamental elements of the review, is avoidance of duplication. The main text of the dissertation embodies revised “Instructions and Procedures for Investigations and Inquiries into Shipping Casualties” in India.

Chapter III.

COMPARISONS WITH OTHER JURISDICTIONS

3.1 GENERAL

Investigations of any nature ought to be independent in order to achieve the objective of the investigation. Parties who have an interest in the casualty investigate a marine casualty or an incident. Depending upon the type of the accident, incident as the case may be, several interested parties will like to know the outcome of the investigation. For instance let us take the example of a collision case and list all those who would have an interest in the findings of the investigation.

- a. The ship owner
- b. The P&I club
- c. The hull and machinery underwriters
- d. The cargo owners
- e. The ships master/concerned officers
- f. The flag state
- g. The coastal state

Each of the aforementioned parties would have an interest in the outcome of the Investigation for varying reasons it is therefore vital that the conduct of the investigation is not only independent, but should also look independent.

Leading maritime nations have established independent systems for the conduct of such investigations, which are for the purposes of determining the causes, or the probable causes that may have led to the casualty. Let us examine a few of these

established systems and identify the degree of independence they enjoy and how they function to achieve their objectives. This aspect into the conduct of the investigation is detrimental to the outcome and therefore needs to be addressed and carefully examined.

3.2 MARINE ACCIDENT INVESTIGATION IN UNITED KINGDOM

The MARINE AND ACCIDENT INVESTIGATION BOARD (MAIB) of the United Kingdom was established in July 1989 under their Merchant shipping Act of 1988, it operates under the merchant shipping regulations of 1944 as an independent arm of the Department of the Environment, Transport and the Regions (DETR).

Prior to the establishment of the MAIB the surveyors in the Department of Transport's marine Directorate carried out investigation into marine accidents.

The chief Inspector of MAIB reports directly to the Secretary of the State for the Environment, Transport & the regions and has the power to investigate accidents involving or occurring on board any United Kingdom registered ship world wide or any other ship within the UK territorial waters.

With the creation of the MAIB marine accidents are investigated independently of the Maritime Coastguard Agency (MCA), which is the regulatory authority for ship safety. The Inspectors investigating into marine accidents are all qualified in nautical, engineering and /or Naval Architecture, with considerable experience in their fields and knowledge of the MCA's working.

3.2.1 Reports and Level of Investigation

Reports on accidents are published which include recommendations and lessons learned from the findings. Reports are released when there is widespread public concern and important lessons to be learned.

The Inspector's inquiry report is submitted to the Secretary of State, who normally agrees to it being published, however the Chief Inspector is required by the

regulations to consult any person whose reputation is likely to be affected by the conclusions of the report. In this connection if the concerned person makes any representation, the alternative text submitted to the inspector must be published as an addendum to the report.

A report of the investigation is usually issued to individuals and organisations involved in particular accidents.

There are three levels of investigation

- a. Inspector's inquiry called by the Chief Inspector in the case of major accidents. This is carried out by a team of inspectors and is supposed to be comprehensive.
- b. Inspector's investigation for more serious cases where witnesses are interviewed and the ship is visited when feasible.
- c. Administrative inquiry for less serious cases where inquiries are made by correspondence or telephone, without the need for visits.

3.2.2 Regulations and Reporting

The Merchant Shipping Act and the Merchant Shipping Regulations 1994 of the United Kingdom put the framework into effect, giving powers to the inspectors of the MAIB for carrying out the investigations. These regulations define the accidents that need to be investigated and describe the reporting requirements; the details of which need not be dwelled upon for the purposes of this dissertation.

The MAIB whenever it deems that substantial interests are involved in a particular Inquiry or Investigation, being conducted by another organization, considers the possibility of its participation in the said inquiry.

The MAIB has a staff of 20 persons out of which 11 including the chief inspector are Accident investigators and the remainder form the administrative back up, who are responsible for among other things compilation of reports, financial management, database compilation and other normal duties.

The budgeted figures for 1997-98 was £948,000 the actual expenditure is understood to have exceeded that by £158,707 for the same year.

3.3 MARINE INCIDENT INVESTIGATION UNIT(MIIU)

The MIIU of Australia operates independently of the Federal Australian Administrative Marine safety body, the Australian Maritime Safety Authority (AMSA). The objective of an MIIU investigation is to identify the circumstances of an incident/accident and determine its causes. All reports of investigation are published to make the causes of an accident known within the maritime industry, so as to help prevent similar occurrences. The findings of the MIIU reflect only the causes or the probable causes of incidents and accidents. In no way do these findings reflect the blame or liability arising out of such incidents and accidents.

The MIIU when investigating a marine incident generally applies a test of safe management principles by seeking reply to the following queries.

- a. Were the risks factors identified or identifiable.
- b. Was the equipment in use fit for the intended purpose?
- c. Were the systems and procedures effective to maintain safe operation?
- d. Were the individuals involved fit, competent and effective?
- e. Were the emergency procedures and defences effective?
- f. Was there a management system to monitor the performance?

The investigating officer's comments and conclusions of the report are based on the assessment and evaluation of the answers to the above questions.

The reporting of marine incidents and accidents is a part of the Australian navigation (Marine Casualty) regulations, which require that the masters of Australian registered vessels or of foreign flag vessels in Australian waters to report any accidents as soon as practicable. A report to the AMSA or to the Australian Search and Rescue organisation based at Canberra is considered as a report to the MIIU, although the MIIU is an independent organisation.

The MIIU investigates accidents and incidents in accordance with the Navigation Regulations. It can therefore be said that the Regulations prescribe and form the procedures. Administrative guidelines and IMO procedures supplement such Navigation Regulations from time to time. The nature of the Investigation will depend upon the type of the accident and its severity. It may be -

- a board of marine inquiry- convened for incidents where a full public hearing is deemed necessary.(on instructions by the Minister)

- an investigation carried out by an MIIU or specially appointed investigator , or
- that more information is sought from the owners, employer or other body, or
- that no further action is taken

Besides carrying out investigations and publishing reports of such incidents the MIIU analyses the trends and patterns of marine incidents.

3.4 ACCIDENT INVESTIGATION IN FINLAND

In Finland investigations of accidents are carried out in accordance with the Investigations of Accidents Act of 1985. The physical investigations are conducted by the Accident Investigation Board, which is constituted through a decree. The decree provides for the rules and regulations and the required explanations and interpretations for the purposes of investigations into accidents in water traffic.

The Accident Investigation Board is responsible for;

- a. Major Accidents.
- b. Serious Accidents
- c. Aviation accidents and incidents.
- d. Rail accidents and incidents.
- e. Maritime accidents and incidents

The Accident Investigation Board reports to the Ministry of Justice who in turn reports to the Council of State. The Investigation of Accidents Act defines the purpose of the Investigation which states that “Serious accidents shall be investigated for the purposes of the improvement of general safety and prevention of the accident”

3.5 SHIPPING CASUALTY INVESTIGATION IN INDIA:

The Ministry of Surface Transport in India is responsible for all matters pertaining to safety on board Indian merchant ships. For this purpose the (MSA) enacted in 1958 provides the necessary legislation. The Director General of Shipping (DGS) is responsible for administering this Act, the Directorate being located at Mumbai.

The Indian coastline is divided into three Mercantile Marine districts viz. Mumbai, Chennai and Calcutta, where Mercantile Marine Departments (MMD) are established for effecting the provisions of this Act. Principal officers who report to the Director General of shipping head Mercantile Marine Departments. The Principal Officer is assisted by surveyors of nautical, engineering and naval architectural backgrounds to implement the provisions of the MSA for which the responsibility is delegated to him. The surveyors of the Mercantile Marine Departments conduct investigations and Preliminary inquiries into shipping casualties, this being one of their primary functions.

Whenever an incident or an accident occurs and is covered by the definition of shipping casualty, a preliminary inquiry is, except in trivial cases, conducted by the appointed surveyor. On completion of the inquiry, his report is forwarded to the Director General of Shipping through the Principal Officer of the concerned District. The Nautical Adviser to the Government of India in the Directorate General of Shipping is responsible for all casualty investigations or inquiries and related matters. A Deputy Nautical Adviser and a Nautical Surveyor assist him in the nautical branch of the Directorate.

The inquiry report upon being received in the DGS, is examined for its completeness, correctness and thereafter critically examined by the officers of the Directorate General of Shipping, depending upon the type of the casualty. The findings are finalised by the Director General of Shipping in consultation with his technical advisers, the Nautical Adviser and Chief Surveyor to the Government of India. Approval is then sought from the Central Government for the proposed actions, if any. The findings are summarised and published in the form of M. S. Notices, which are subsequently circulated to the seafaring community. The Departmental findings,

of inquiries that remain *sub judice*, are not made public. There is no independent agency entrusted with the investigation of marine accidents, however it is felt that there is a need for the same.

The reason is that the surveyors of the Mercantile Marine Department who are entrusted with this responsibility also carry out various other statutory functions and duties. Some of these include -

- surveying of ships for issuance of statutory certificates
- approval of life saving and fire fighting appliances
- examining persons for grant of certificates of competencies

The above mentioned duties could be the subject of investigation in a marine casualty or an incident. As such, the outcome of the findings may be influenced and the investigation cannot thus be said to be independent.

“The importance of independent investigations/inquiries is simply to avoid any possibility of actual or perceived conflict of interest arising and criticism being levelled to that effect when investigating a disaster”. (Source: Marine Accident Investigation Compendium. Para. 5 page 57 investigative authority.)

The recent initiative of the IMO as part of its work on flag state implementation published a fairly explicit resolution that will be put up before the Assembly later this year. It attempts to set out the responsibilities of flag states in the matter of casualty investigations. (June 10.1999.No. 57283 page 7 Lloyds List)

The IMO initiative may be lost, if its laudable aims of determining causation are sublimated to the desire to attribute blame. Statistics pertaining to casualties reflect losses in terms of lives, damage to property reduction in the national and international tonnage, and consequently retard world trade and economic growth.

Graphical representations of the total losses in terms of lives, tonnage and different types of ships have been reflected for the years 1987-97 in the graphs provided at Appendices. (Source: The Institute of London Underwriters). The intent is to bring about the awareness of how important casualty investigations are, how they could

reduce the consequential effects in terms of life loss, property damage and damage to the marine environment.

Appendix. 2 provides the number of lives lost in accidents involving ships over 500 gross tons. Appendix. 3 provides the total losses of ships by number, for vessels of 500 gross tons and above as well as of vessels of 100-499 gross tons and their combined total. Appendix 4 provides the number of ships lost of the various ship types for 500 gross tons and above. Appendix 5 provides the total losses by tonnage of different ship types. Appendix 6 shows the total losses as a percentage of shipping afloat for 1987-97 for ships of over 500 gross tons. Appendix 7 indicates the world fleet afloat for 1987-97.

CHAPTER IV.

FORMAL INVESTIGATIONS

Formal investigations (FI) into shipping casualties are conducted when there is a public outcry and there has been a severe loss of life or damage to the environment or property. The objective of any FI is to investigate into the circumstances of the casualty and to establish its causes. The objective is not defined in the MSA or in the Instructions under review. The concealed objective or purpose as viewed by the author is to see what lessons can be learnt which would contribute towards enhancing safety of life at sea.

The FI allows the general public to air their grievances and creates the opportunity for public involvement in policy. (Source; The Human Element in Shipping Casualties 1991. Department of Transport)

The declaration of a FI into a shipping casualty is vital, in terms of time. If an investigation is held, there are good reasons why it should commence at the earliest.

They are -

- eyewitnesses should give their evidence before their memories fail,
- the sooner the lessons are learnt, for the safety of life, the better for the community.

The inevitable rumours and speculations as to who was responsible should be put to rest; those on whom the blame is burdened should be heard without delay.

Section 360 of the MSA pertains to application to court for Formal Investigation. Formal Investigations mean that the investigation is carried out in a court, which should be an independent body. The court of formal investigation is convened when the Administration has reason to believe that an officer over whom it has jurisdiction

and control is incompetent or unfit to discharge his duties owing to misconduct. *However, the courts main objective should be to establish the cause of the casualty* emphasis added,(source.Page 242 Guidelines for Maritime Legislation,2nd.Edition ESCAP).

Section 362 of the MSA provides the necessary legal power to a court, to inquire into charges against masters, mates and engineers while making a formal investigation into a shipping casualty.The process of initiating and conducting a formal investigation in India requires that a notice of investigation be issued to all those concerned prior to the commencement of the investigation. The public is informed through a notice published in the leading dailies in English and vernacular also inviting objections, if any.

The complainant in this case the Principal Officer of the concerned Mercantile Marine District, requisitions, as per norms, the services of a Government counsel for pleading the case. The government counsel has to be drawn from a panel maintained by the Ministry of Law. It is the opinion of the author that the choice is limited, the quality of the counsel in the panel is poor and lastly, the poor maritime background of counsels adds to the woes.

The formal investigation proceeds along set guidelines. The court is given a number of questions for which answers are sought. The adversarial nature of the investigation leads to each party having their own theories and beliefs and evidence is produced and aimed at achieving the same. If no party leads evidence on a particular point, it is not considered. While the judge may ask some questions himself, these will normally be confined to clarification of points raised and not to suggest unexplored possibilities.

This in itself does not mean that there is any great probability of the truth remaining undiscovered. If all interested persons are made parties to the investigation, there is a high probability that there will be enough incentive for every possibility to be put forward. Whether or not the true cause of the loss is the one which is ultimately decided, would depend on the acumen of the counsel involved.

The judge, who may be appointed to head the investigation, is preoccupied with more serious matters, other than the formal investigations into shipping casualties. As such, he has to allocate his time on the basis of priority. It is the opinion of the author that, more than often, priority accorded to such formal investigations is far from reasonable. It can be several years from the date of the casualty to the completion of the formal investigation. An example of justice delayed is justice denied is the case of M.V.Vishwa Mohini.

Needless to say, the manner in which these formal investigations are conducted are time consuming and do not serve the purpose for which they are intended. An alternative mechanism needs to be established wherein the procedure will be streamlined, accelerated and systematised to achieve the objectives.

How do we accelerate the process while ensuring the sanctity of an unbiased investigation? In the opinion of the author several actions need to be taken in this regard. They are as follows -

The provisions of the MSA relating to Formal investigations need to be suitably amended for the creation of a board of formal investigation with suitable rules of conduct.

The objective of creating such a board is to de link the formal investigation from being conducted by the court, similar powers can be vested in the board. It is hoped that this board will take the form of a technical body, directing itself solely to questions of fact, technical assessment and restricting itself to determining the cause only. The Board need not to be a permanent body but may be constituted as and when required for the purpose of investigating shipping casualties.

The Board could be headed by a retired Nautical Adviser and assisted by retired personnel from different disciplines of marine engineering and naval architecture. Access to public, may be considered especially to those, directly or indirectly involved with the investigation. Once the board makes its findings public, the decision to suspend or cancel the certificates or whatever punitive measures which needs to be enforced, can as a matter of routine, be carried out. The purpose would be expediency of the investigation and implementation of its findings.

CHAPTER V

INVESTIGATION TECHNIQUES

5.1 General

The Preliminary Inquiry officer (PIO) conducting an investigation or an inquiry into a shipping casualty has a significant and important role to play. The final outcome of the inquiry will depend on his input and their correct technical evaluation and interpretation, so that a logical conclusion is reached, upon the completion of the investigation.

The PIO should bear in mind that no two accident investigations will be the same, but certain principles will be common, for example the need to establish facts as soon as possible after the event and then create a hypothesis which stands up to close scrutiny. The task of carrying out the investigation is not merely to collect information and based on it arrive at the likely causes which may have led to the casualty.

The PIO has to use this information in a judicious manner to reconstruct the circumstances bit by bit into block by block, which may have prevailed prior to the happening of the casualty. Similarly the circumstances must be considered which prevailed subsequent to the casualty and which may have influenced the decisions taken at that point in time, resulting in the casualty taking its final shape.

The PIO shall as far as practicable, ensure that the information pertaining to the casualty, is obtained without undue delay, be it physical or in oral form. This is particularly important as human memory is short lived and material evidence could be distorted, manipulated, removed and so forth.

The analysis of an accident demands skill, patience and an understanding of how accidents are caused. The manner in which the investigation is carried out is left to the discretion of the PIO; however some guidelines are given below. The PIO's report should be aimed at the intelligent non-seafarer, it must be comprehensive and clearly understood. It must be factually correct, fair in its conclusion and robust in its judgement. The guiding light must be excellence.(source, Inspectors handbook MAIB)

Shipping casualty investigations may be of two types; namely a field investigation or an administrative investigation. The decisions to further investigate or leave it as an administrative inquiry can be taken depending on the gravity of the casualty.

In the case of an administrative inquiry correspondence can be made by phone or fax etc, to obtain information without the need to make field visits.

Initially the focus of an investigation is on the event itself and the failure, which triggered the accident. However an accident is an event with immediate and remote causes. The investigation should aim to discover the latent failures and other contributory factors that may have caused the accident

5.2 PRELIMINARIES

A prompt response to the First Information Report should be made so that vital and essential information is not lost or destroyed by other activities or deteriorate with time and failing memories. During the initial facts findings and gathering of information the PIO may be under pressure for time and resources. The gathered information may appear to have little connection with each other. PIO's would do well and find it helpful to glean as much factual detail about the casualty as soon as possible after it has been reported. When carrying out a field investigation such information should be obtained prior to reaching the scene, if possible. The under mentioned items may serve as a good check.

- Source of the report;
- Time report received;
- Ships name, position, destination, and nature of the accident;

- Contact names and telephone numbers of anyone with information about the shipping casualty;
- Details and history of the ship's Flag, type, tonnage, build and type of cargo.
- Number of people on board;
- Whether anyone has been killed or injured and if so, the names and telephone numbers of the hospitals to which they have been taken;
- If it is an overseas accident, address and telephone number of the nearest embassy or consulate.
- If a foreign ship in Indian waters, telephone number of the owners representative or agents.

5.3. FRAMEWORK

Assembling of facts in a structured manner helps to identify the remote as well as the initiating causes. Facts aid in establishing what actually caused the event and what happened as a result of the event. The facts should be assembled eventually in a logical cause sequence to demonstrate what failures in the management terms occurred and why. As the structure is developed the relevance of the facts gathered will emerge. Facts which do not contribute to the understanding of the casualty should be discarded at a later stage. PIO's are advised to establish a framework on which to build their inquiries. A guide to that effect is to align the framework to the construction of the final report. It is certain that the framework will change as the investigation progresses. This will ensure no loss of vital information and evidence.

5.3 .1. Framework Headings

Suggested headings for the framework of the investigation and for the final report

- a. Vessel particulars.
- b. Background to the voyage event.
- c. History of the voyage event.
- d. Details of the ship.

- e. Environmental.
- f. Navigation.
- g. Technical.
- h. Stability.
- i. Documentation.
- j. Management.
- k. Safety appliance
- l. Communications
- m. Damage
- n. Injuries

5.4. COLLECTING EVIDENCE

Evidence can be collected in several ways. These could be:

- a. Interviewing witnesses or obtaining declarations.
- b. Measurement.
- c. Photography(still and video) and photographs from third party.
- d. Examination of documentation including charts and standing orders.
- e. Computer records, replay and memory access from GPS, ARPA and machinery records.
- f. Examination of material evidence.
- g. Voyage data recorders.
- h. Cargo records.
- i. Communication records and tapes.
- j. Certificates e.g. certificate of registry certificate of competency etc.
- k. Invoices.
- l. VTS tapes.
- m. Satellite photography.
- n. Weather forecasts and actual weather reports.
- o. Manufacturers manuals and handbooks.
- p. Course recorders and other automatic data recording devices.

- q. Media reports.
- r. Standing orders, statutory instruments etc.

5.4.1 Recording Statements and Declarations

The PIO shall at the outset try to establish who needs to give evidence. The list is likely to change as the inquiry proceeds, but it is important that those who are required to give evidence are aware of the need to present themselves when asked to do so. When doubt exists, the names and addresses of the potential witnesses should be obtained. As a good practice it is better to have an extensive list of possible witnesses, rather than miss out the person who really matters.

The term declaration has been introduced with a view that the recording of a statement may not be possible if the statement is not given under oath or as a solemn declaration. The exercise of recording statements or obtaining declarations may be scheduled to suit the convenience of the PIO, however witnesses should not be unduly delayed. Names, addresses and telephone numbers etc. should be obtained from potential witnesses. A schedule for recording their statements or declarations may be made out, and accordingly the witnesses should be informed. If the statement is being recorded in the field, i.e., on board vessel or immediately after the casualty, the witness may be informed that he or she will be given an opportunity to make a declaration at a later date also.

The information and facts at the early stage are expected to be accurate and this will form the basis for the appropriate line of further interrogation and fact finding. As the interviews progress, the gaps will start filling in. Professional judgement should be made use of when deciding to prepone, postpone or continue interviews.

An effective technique is for the witness to retrace his or her steps in the moments before, and at the time of, the casualty. It is important for the witness to state the events, which took place in a chronological manner. The IO should record this conversation.

The PIO is advised to consider interviewing other people who were present at the time of the casualty but may not be directly connected with the casualty. Members of the crew who may have been off watch, stewards, passengers, etc. It may happen that vital information may come from the least expected person on board the ship.

Each PIO will have his own method of interviewing. It is best that the sooner the interview is conducted the better it is. There may be instances where a witness has gone through a shock or is suffering from a trauma, the IO may speak to the witness or delay the interview till such time as the witness has recovered. If a third party has already spoken to the witness the declaration may be distorted; this fact the PIO should bear in mind when recording the interview.

Witnesses can be categorised into one of many. There are those who give sound and accurate accounts of the events which took place, having no problems with recollection. Others may distort, or genuinely forget the details. This will also be evident with the age of a witness, his experience and his involvement in the casualty. Another class of witness will try to cover and distort everything, about which they are asked. Finally there are those who would tend to fabricate facts and come out with a version of their own.

PIO's are advised to construct a time event chart, which will help them in reconstructing the chain of events that led to the casualty. Voyage data recorders are a good source to build the time event chart. Other sources such as GPS's, VHF recordings, course recordings, machinery data recorders, clocks which may have stopped at the time of the casualty can be considered for constructing the time events chart. Questioning is best when it is conducted by two or more persons. It may not always be possible to have two officers on every occasion, nonetheless efforts should be made to interview the witness with two or three officers. The presence of two officers gives the time to the other officer to think and frame the next question and seek greater clarification from the witness.

In framing questions PIO's should establish in advance what information they are seeking and focus on that till such time a satisfactory reply is forthcoming. The witness should not be misled. Short questions and short answers are most effective.

Open questions should be avoided for instance, if the PIO is seeking to obtain information an open question like what happened after you heard the alarm? could be broken down into a series of questions such as:

- Where were you when you heard the alarm?
- What time did you go to sleep?
- Did some one wake you up or did the alarm wake you?
- What time was it when you woke up?
- Did you hear anything when you woke up?
- Where did you go after leaving your cabin?
- What did you see upon arriving there?
- What was happening when you arrived there?
- Who all did you see there?

The above example demonstrates that in itemising questions, vital clues which may not be so forthcoming could pop up by careful analysis.

The PIO should in addition to establishing the names, qualifications, age etc. of the witnesses, identify the involvement of the witness in relation to the casualty. The involvement should be clarified as to whether it is speculation or hearsay. This information should be in the statement but need not appear in the report unless it is crucial to understanding of the report.

Past investigations reveal the importance of interviewing as many witnesses or survivors after a casualty. Survivors must be handled with sympathy and tact, however a PIO should use his professional judgement in deciding what information he needs or is essential to be retrieved from the survivor.

5.5 PHOTOGRAPHY

Photography can be sub divided into four types:

- a. Still photography
- b. Video
- c. Third party photography
- d. Historical

5.5.1 Still photography

The camera is a valuable tool when investigating shipping casualties. Photographs capture the evidence, which may be lost otherwise. They help to recall the state of things at the time or subsequent to the event, to bring about clarity and enable understanding of the incident. The PIO should take steps to ensure that the final picture in the form of the photograph serves a specific purpose. Photographs are useful to present facts to informed audiences and also for publicity purposes.

As a general rule the film should be the slowest ASA/ISO compatible with light conditions. Under normal conditions the speed should be 100. Photographs of the general layout of the vessel should be taken, preferably from such an angle that the whole is in one picture. Appropriate lenses may be used accordingly. Photographs of damages are essential. This makes it all the more important that the PIO reaches the scene of the casualty at the earliest. Damages should be photographed from as many angles as possible. Pictures should have some means of determining the scale for analysis at a later stage. A reference point within the picture can be established by holding a foot ruler or 30 cm. scale while photographing. When photographing specific items of evidence it would be a good idea to ensure that there is a contrasting background. Depending upon the type of casualty photographs should be taken of scenarios that may have prevailed at the time of the casualty, by positioning personnel and equipment as appropriate. These would serve as demonstrative photographs.

5.5.2 Video

Video recording is an art that can be achieved with little practice. Casualty investigations can benefit from video footage. This will assist the PIO in visualising the location and scene of the casualty including the objects that existed around the scene at the time of the casualty. The most common error that is committed while video recording is, aimlessly panning and misuse of wide and zoom facility provided. Video photography must be planned and static shots are sometimes better than the random sweeps. All points of interest must be covered keeping the casualty in mind. When voice is inserted the text should be carefully planned and where the PIO feels he may add his notes to assist him later with the analysis of the casualty.

5.5.3 Third Party Photographs.

Photographs or video recording carried out by a third party can be useful sometimes for the purpose of the casualty investigation. The PIO if aware of the existence of such material, should make all endeavours to locate and obtain it for the investigation. When using such photographs for the purpose of publishing them in the reports, proper reference of the source and acknowledgements should be made, after obtaining permission for reproducing the photographs.

5.6 BACKGROUND OF THE VOYAGE AND EVENT

This part of the report should provide the background information on the last voyage and the commencement of the present voyage. This will give an insight into the near past activities. This is helpful in building up the report and brings about a degree of to facilitate reading of the report.

Information on some of the items listed below could be useful.

- a. History of the ship
- b. Change of ownership if any
- c. Last voyage
- d. Last port

- e. Weather conditions

5.7 VOYAGE HISTORY AND EVENT

The PIO needs to reconstruct the events as precisely as possible. In doing so he should collect all the information and create a time chart. Activities performed at the same time should be superimposed. Information could be fed into the computer to achieve the time event tree. However when the casualty is not a complicated one there may be no need for it. As stated earlier, no two investigations can be identical. The line of questioning should therefore be altered accordingly. To provide guidance to the PIO some examples are given below.

5.7.1 Collision

- a. Identify the persons who saw what happened on the bridge at the time of the collision.
- b. Who was on the watch at the time of the collision and who was at the helm on both the vessels?
- c. When did the watch keepers take over watch?
- d. Any special conditions prevailing at the time of taking over the watch?
- e. Own ships course, speed, and position when the collided vessel was observed.
- f. Actions taken by own ship, the basis for the action and at what time?
- g. How were the movements of the other vessel detected and established?
- h. What were the visibility and the sea state?
- i. Was there any backscatter of own ship lights that affected the visibility?
- j. Was the watch keeper keeping a lookout or engaged in any other activity?
- k. Were any signals made, whether by sound or light, and if so, what and when?
- l. What engine and helm orders were given prior to the collision?
- m. If any communication between the two vessels was established and what was said?
- n. When was the master informed and what was he informed?

The PIO should ensure that the line of questioning has a logical sequence and that the time of each event is recorded. The above questions are only examples. It may be noted that there are some important questions left out, but these are covered under other parts of the interrogation.

5.7.2 Grounding

It may be noted that some of the questions are common for various casualties, and as such, do not reappear under different headings.

- a. How was the position of the vessel being obtained preceding the grounding?
- b. What was the state of the tide and was allowance being made for it.
- c. Was the echo sounder in use?
- d. What was the course and speed of the vessel before grounding?
- e. Was the watch keeping officer at any time in doubt?

5.8 SHIP'S PARTICULARS

It is essential that the ship's particulars are always included in the report. This makes it easy for reading the report and for cross referencing. The general layout, significant features, other specialised details regarding surveys maintenance etc, having a bearing on the casualty must be included. (Use Inquiry.4 India form)

Some examples that may be relevant are:

- a. Ownership details;
- b. Classification Society changes if any;
- c. Structural changes if any;
- d. Repairs in the recent past;
- e. Docking dates and survey details.

5.9 CREW PARTICULARS

The PIO should include details of each member of the crew some of them are listed below. The Inquiry. 3 India Form at appendix 10 may be used as a guide line.

- a. Name, qualifications, age, experience;
- b. Professional qualifications;

- c. Length of time on board;
- d. Duty hours;
- e. Language understood by witnesses;
- f. Personal problems, alcoholic habits and drug addiction if any;
- g. Eyesight, colour blindness date of last medication;
- h. Job training needs;
- i. Past record of professional conduct and ability;
- j. Familiarisation with job;
- k. Whether sleep hours maintained

Fatigue has been recognised around the world as a contributor to many accidents involving means of transport as has been pointed out in the report of the correspondence group which was established by the Maritime Safety Committee to review the role of fatigue in maritime safety. A correspondence group to be co-ordinated by the United States will review the definition of the term “fatigue” used within IMO; develop advice and recommendations to tie in with the ‘rest’ requirements of the STCW Convention.

5.10 NAVIGATION

Whenever casualties involving collisions, grounding or stranding take place, the PIO is advised to examine at least the following aspects.

- a. How was the vessel being navigated?
- b. Who was responsible for passage planning?
- c. Was the passage plan for the voyage verified by the master?
- d. Were standing orders being complied with and how?
- e. What position fixings methods were being employed?
- f. What set and drift was applied?
- g. Were procedures for the safe navigation as indicated in the SMS manual being followed?
- h. Was radar in use and if so on what ranges?

- i. What errors does the radar have and when were they last checked?
- j. What was the gyro error and when was it last checked?
- k. Were charts and other publications used for navigation corrected and when?
- l. Were all dangers clearly marked?
- m. Was the GPS in use?
- n. How was the pilot handed over the ship? Was it in accordance with the procedures?

5.11 TECHNICAL

Casualties may occur due to technical reasons, the precise information, which needs to be obtained during the investigation, is something the IO may have to decide, based on his experience and professional judgement.

Some pointers could be:

- a. Date of equipment installation;
- b. Maintenance and repair record;
- c. Operating history.

Details of the equipment may be required which has failed or which may have some link to the casualty.

- d. What was damaged and what was the nature of the damage?
- e. Were the operating procedures followed?
- f. Was the operator trained in the equipment?
- g. What was the last action which triggered the failure of the equipment?
- h. Was it a mechanical, electrical or fatigue failure?

5.12 STABILITY

The details with regard to the stability for foundering would be required. The IO needs to use his discretion for establishing the stability details that may be required in each individual case. Some useful pointers are -

- a. Draught,

- b. Vessels stability GM etc.,
- c. Stability calculations could be worked for the condition of the vessel at the time of the foundering.

5.13 DOCUMENTATION

The PIO needs to identify the state of documentation that is relevant to the casualty.

Documentation can cover a lot of items, some are included below to guide the PIO

- a. Statutory certificates,
- b. Certificates of competencies,
- c. ISM records,
- d. Training records,
- e. Company standing orders,
- f. Masters orders and night orders,
- g. Navigation publications,

The PIO needs to obtain copies of plans, charts and any other relevant document which in his opinion may assist in analysing the casualty.

5.14 MANAGEMENT

The safety management system (SMS) of the vessel needs to be examined from the point of view, of the casualty.

- a. Was the SMS on board working and was it effective?
- b. Were the procedures for key shipboard operations being followed?
- c. Was the review of the SMS being carried out
- d. Were safety meetings held?
- e. Did the company provide the necessary resources for implementation of the SMS?
- f. Did the ship's staff inform the company of the inadequacies pertaining to safety?
- g. Was there a good working atmosphere on board the ship?
- h. Were there any commercial pressures on the master of the ship?

5.15 SAFETY APPLIANCES

The PIO needs to investigate the status of the safety appliances especially if the safety appliances have a bearing on the casualty. The following may assist the PIO.

- a. Was the vessel carrying safety appliances in accordance with the requirements?
- b. Were the life saving and fire fighting appliances properly maintained?
- c. How often were the emergency drills practised? Records may be checked.
- d. Crew members may be queried to find out when the last drill was carried out.

5.16 DAMAGE

- a. What was the damage and where?
- b. The damages should be carefully described to the extent possible by providing photographs and sketches of the damaged equipment.
- c. The angle of impact should be determined in cases of collision or contact damage.
- d. Damage caused as a result of a fire needs to be carefully assessed. It may be possible that certain equipment may seem to be unaffected by fire, but only after careful trial of such equipment the actual damage may be assessed.
- e. Damage caused as a result of pollution should also be taken into account.

5.17 INJURIES

In cases where there have been injuries it is essential that the names and other details of those persons injured are recorded correctly. Following points should be considered.

- a. The apparent cause of the injuries should be investigated.
- b. Determine whether any first aid was rendered to the victim, if so, what, when, how and where?
- c. Determine what clothing and safety gear was the injured person wearing at the time of the accident.

- d. If death has occurred then the correct times and probable causes should be established; if the actual cause of death is yet to be determined.
- e. A copy of the post mortem report should be obtained.

5.18 COMMUNICATIONS

- a. What equipment was on board for the purposes of communication external and internal?
- b. Who is responsible for the communication or who was responsible for it at the time of the incident?
- c. Was the person responsible for the communication, qualified and trained in accordance with relevant statutory requirements?
- d. Was the vessel equipped in accordance with the relevant requirements and was the equipment functioning?
- e. Is there a record of the communications that took place between the ship and the parties ashore? If so, obtain a copy.
- f. How was the communication established between the master and the officer in charge at the seat of the activity?
- g. Is there a record of the internal communications that took place while the problem was being addressed on board by the ship staff?

5.19 ANALYSIS

The analysis part of the investigation has its own significance. It is critical to the final outcome of the investigation that determines the cause of a casualty. The PIO needs to have a fairly good knowledge of the principles and understanding of how a casualty occurs.

It may be said that the casualties are a result of the failure to carry out certain structured activities over a period of time. The length of time may differ from case to case. The failure in question may be as a result of concealment of an activity such as a decision made at the planning or design stage, manufacturing stage or operating

stage. The decision may quite conceivably have been the cause of the incident when considered in retrospect.

A precondition is an extended factor such as the presence of bad weather and poor visibility, untrained operator or the physical state of the individual while performing the activity which may have caused, instigated or enhanced the failure of an activity.

Furthermore there are routine failures that could be linked to an such as, where normal procedures which need to be complied with, have been foregone. There could be several reasons for such failures; the most common being attributed to human error. This can take different forms and more than often it is not possible to correctly identify what caused the individual to do what he did. Routine failures can also occur as a result of routine neglect of machinery or equipment that gives way when subjected to stress, corrosion etc. An analysis would require that the information gathered during the investigation be used to reconstruct the event and determine and identify what went wrong and how. The missing links in the chain of events may provide the clues to the gaps. What structured activities were compromised and to what extent? As stated earlier the process of analysing a casualty requires adequate knowledge and understanding of the subject. A clear description of what caused the event, the actual event and consequence can contribute to the quality and depth of the investigation.

5.20 THE REPORT

Clarity, accuracy and objectivity are the main ingredients of a good casualty report. It should be aimed at an intelligent non-mariner and the report should reflect that a thorough investigation has been carried out. A long report may not necessarily be a good report. Repetition should be avoided. All the aspects should be covered so that nothing is left to the imagination of the reader.

Inquiry officers should avoid using technical phraseology as far as possible. A glossary of commonly used words and expressions should be provided for easy reference. Paragraphs should be short. Loose expressions should be avoided such as “ after consideration of the facts the most likely explanation is... ”, “It is a pity that...

the question has to be asked... it is beyond doubt that ... it is surprising that... it is believed that ...having taken everything into account... It should be recognised that “ should rarely be, if ever, used in the casualty report. Above all avoid the expression “ it is clear that ... unless it is absolutely essential.

In the report care should be taken not to mix up nautical terms with lay terms where clarity is important. Where necessary cross-references should be used. Times should appear in four figure notations without the suffix “hrs” or “hours”. When referring to people by name in the final report use job titles or conventional modes of address such as Capt. Singh, Miss Vignette etc. The paragraphs in the report should always be numbered this makes it convenient for cross referencing. Photographs, charts, sketches should be used where clarity is needed. A map indicating the general location of the casualty will assist in understanding the report.

The report should avoid any reference to opinions formed during the course of investigation while recording statements or declarations. If in the opinion of the PIO it is felt that the witness has not been forthcoming in the disclosure of facts or has been avoiding intentionally (i.e. lying). This should not be reflected in the report, instead, it should be included in the covering minute.

A finding or a cause in the report should have its origins based on the content of the report. The number of the paragraph in the main text to which the finding refers should be noted in brackets.

Speculation should be avoided. It will always attract an alternative response by another “expert”. The report should be based on evidence, not conjecture.

5.21 LAYOUT OF THE REPORT

The layout of a casualty report should be in a standard format, having the following sections.

- a. Synopsis,
- b. Section 1 dealing with Factual Information,
- c. Section 2 dealing with Analysis,

- d. Section 3 dealing with the Conclusions which could be further subdivided into findings and causes,
- e. Section 4 should deal with Recommendations.

5.21.1 Synopsis

This should be very brief with the following information. The date and time of the casualty, when it was reported (FIR) and when the Inquiry commenced. The name of the Preliminary Inquiry Officer along with any other officer appointed to assist in the inquiry should be mentioned.

A very brief summary of the type of the vessel and the nature of the casualty. A brief description of the damage or injuries. The prime cause and the number of recommendations made.

5.21.2 Section 1 (Factual Information)

This section should contain the factual details of the items listed under the heading of Framework. (see 6.3)

This should be a brief resume of the events preceding the voyage in question. It should include a word about the vessel management or ownership, its trade, history, recent refit or repairs and whether it has been involved in a previous casualty.

This section is the back bone of the entire report and as far as possible, it should be a totally accurate narrative of the event. Only those details that are relevant to the casualty should be included. Anchor the narrative at regular intervals with times. Indian standard time should be used, if times differ they should be clearly stated.

5.21.3 Analysis

The Preliminary Inquiry officer should use his professional judgement to choose the issues that need to be analysed. It is recommended that the PIO's use short paragraphs and analyse the issues individually. Generic headings might include human factors, technical issues and the environment. PIO's should not only seek answers to what happened, but also as to why and how. There would be a need to explain why some causes have been eliminated from the investigation. Technical investigation results must be revealed and analysis of working hours, working

pressures, experience, distractions, training and suitability should feature. The owners, companies, master and flag state policies and instructions should be analysed. Effectiveness, efficiency, reliability of equipment and personnel should be discussed and analysed for determining the causes of the casualty.

5.21.4 Conclusions

This section of the report should normally be short and divided into two components, i.e., (a) findings and (b) causes.

Findings should be statements of facts, such as “The officer of the watch had no sleep for 24 hours”;

“The skipper was unqualified”;

“The ships draught at the time of the grounding was 8.5 m”;

“The radar was not working when the collision occurred; etc.

Causes should state what the PIO in his professional judgement determines to be the cause, or the contributory causes of the casualty. Whatever causes are stated they must be based on the contents of the report. Any judgement must be honest and robust; able to stand scrutiny. Preliminary Inquiry Officers should resist the temptation to water down their conclusions out of concern that the conclusions might upset vested interests.

5.21.5 Recommendations

This section should contain two types of recommendations; those which during the course of the investigation are obvious and conveyances of which are deemed immediate and relate to safety and others which appear as a result of the reports conclusion. Recommendations should not wait for the release of the report and should be addressed to those best able to implement them.

CHAPTER VI

CONCLUSIONS AND RECOMMENDATIONS

Shipping casualty investigations have basically three main purposes namely -

1. To understand and explain the event, with the aim of preventing its recurrence.
2. To establish blame and liability as a basis for civil damages and determine penal liability.
3. To comply with the legal requirements of the relevant maritime authority.

The above mentioned purposes are important in their own countenance and difficult to separate in practice. The code of investigation for marine casualties and incidents stresses the need for unbiased investigations for determining causes that lead to casualties. The investigations and their analysis are subject to systematic bias. The very process of data collection, the declarations of individuals could be bordering on truth, but may just not be there. Consideration of the presence of human error is crucial.

The introduction of the near miss reporting in the ISM Code is a positive step in the direction of achieving near zero accident scenarios, although it is well nigh impossible. "The most obvious factor in not reporting near misses is that of self-interest driven by a perceived need for self-protection. The crew may like to externalize the blame. This process although is not dishonest; it occurs quite naturally at an unconscious level". (Tavistock, Institute of Human Relations, *The Human Element in Shipping Casualties*, 1987).

There is a need to know why a ship was overwhelmed, or why the crew or responsible individual failed in some respect. How otherwise, would it be possible to prevent the recurrence? Once reassured of the repercussions, those responsible for reporting will feel free to speak up. This, however, is a process that will require a change in attitudes and the very upbringing of seafarers. The integration of reporting

schemes for accidents to people men with those for casualties to vessels should contribute to a better understanding of the nature of human problems on board ships.

A quotation from “the case of ARGOSY” ‘Experience is a wonderful thing for it teaches us to recognize our mistakes when we make them’ was being discussed at a conference. The concerned member remarked that, “all of us gathered at this conference on marine safety would, we are sure, much prefer the experience of others to be used to prevent us from repeating their mistakes.” (Source: Page 569, Paper 29 Profiting from losses; R. C. Reid & A. W. Gilfillian; Marine offshore safety, Developments in Marine Technology 1.) A number of countries publish their reports for public dissemination and for placing such reports on board ships flying their flags. Publication in a timely manner would appear to be a pre requisite, but all too often the wider professional “public” just never gets to hear what circumstances were behind the loss of the ship, even when it is clearly an accident that is of wide international importance. In this respect, the reports of inquiries seldom reach those who are responsible for the operation and construction of the ships. Although, there is little evidence that merely providing information about casualties and accidents is necessarily effective in persuading people to avoid them. The method of transferring the information to those who actually matter has been totally ineffective and leaves a lot to be desired.

The Director General of Shipping and the Nautical Adviser have jointly initiated a positive step in this direction, by agreeing in principle to publish this information in the form of a booklet. However, to ensure that such reports and findings of casualty investigations reach their proper destination, this activity needs to be accelerated and regularized, to achieve the objective. It is the opinion of the author that not only at the national level but also at the international level an organization should be responsible for collating and disseminating the findings of such casualty investigations.

The formal investigation process although sound in principle, has in practice been found to be ineffective, considering the overloaded courts and the low priority

accorded to shipping casualties. It needs to be de linked from the normal courts and conducted in a time bound manner for commencing and completing the investigation.

Similarly preliminary inquiries into shipping casualties that are presently being conducted by surveyors of the Mercantile Marine Department need to be re delegated to an autonomous body or an organization. Alternatively, an independent cell within the Directorate can be created for the purpose of casualty investigations. In light of the above, the following recommendations are made -

- 6.1 It is proposed that a National Safety Board comprising experts from the fields of aviation, rail, shipping and road transport be established. The board should be responsible for conducting inquiries and investigations into very serious accidents, where loss of life, severe damage to property or pollution of the marine environment has occurred.
- 6.2 The National Safety Board should be an independent body. If such a Board exists for rail and road accidents, to explore possibilities for integrating shipping casualties as well in their terms of reference. The structure of the National Safety Board could be considered subject to the proposal being approved in principle.
- 6.3 Alternatively; a casualty investigation cell within the Directorate General of Shipping should be established having, one Chief Casualty Investigator, three casualty investigators one from each discipline and a secretarial staff of three. The Chief Casualty Investigator should ideally report to the Secretary Ministry of Surface Transport. The casualty investigation cell should be exclusively for the purposes of casualty investigations only.
- 6.4 A separate budget head can be created for this cell, in order to provide necessary resources and equipment for the purposes of conducting casualty investigations effectively and in a time bound manner.
- 6.5 Courts should not conduct formal Investigations. Instead a procedure for the constitution of a Board of Formal Investigation should be put in place whenever a formal investigation is recommended by the Central Government.

The Board should have as a presiding officer, a retired Nautical Adviser assisted by assessors of marine engineering and naval architecture, backgrounds.

- 6.6 The panel of assessors should consist of experts from the industry.
- 6.7 Rules for the functioning of Board of Formal Investigation should be prescribed.
- 6.8 The Merchant Shipping Act should be suitably amended to include definitions of shipping casualties.
- 6.9 The proposed instructions at Appendix 13 should be accepted and adopted for the purposes of conducting shipping casualty investigations and inquiries in India and should be kept under review.



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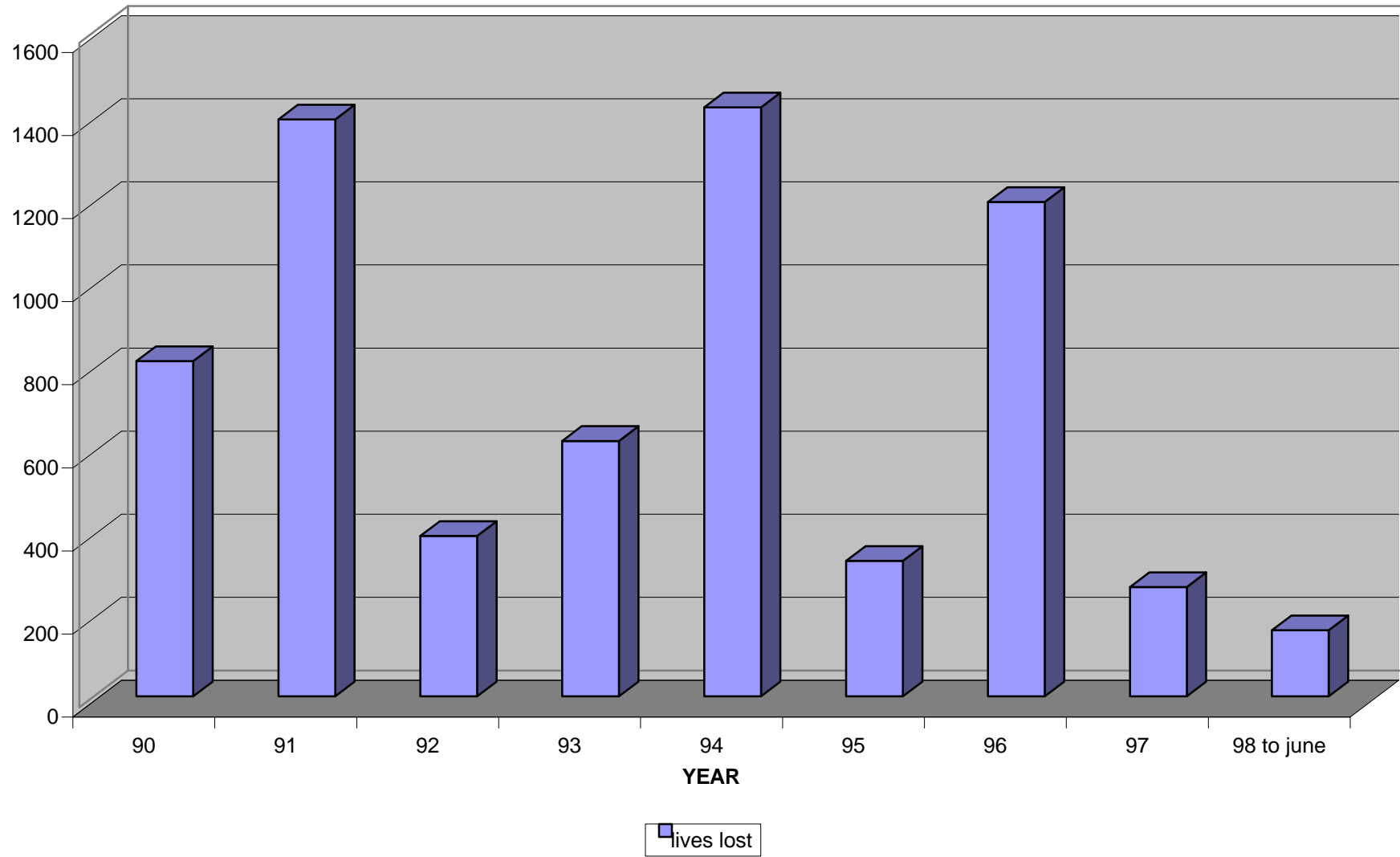
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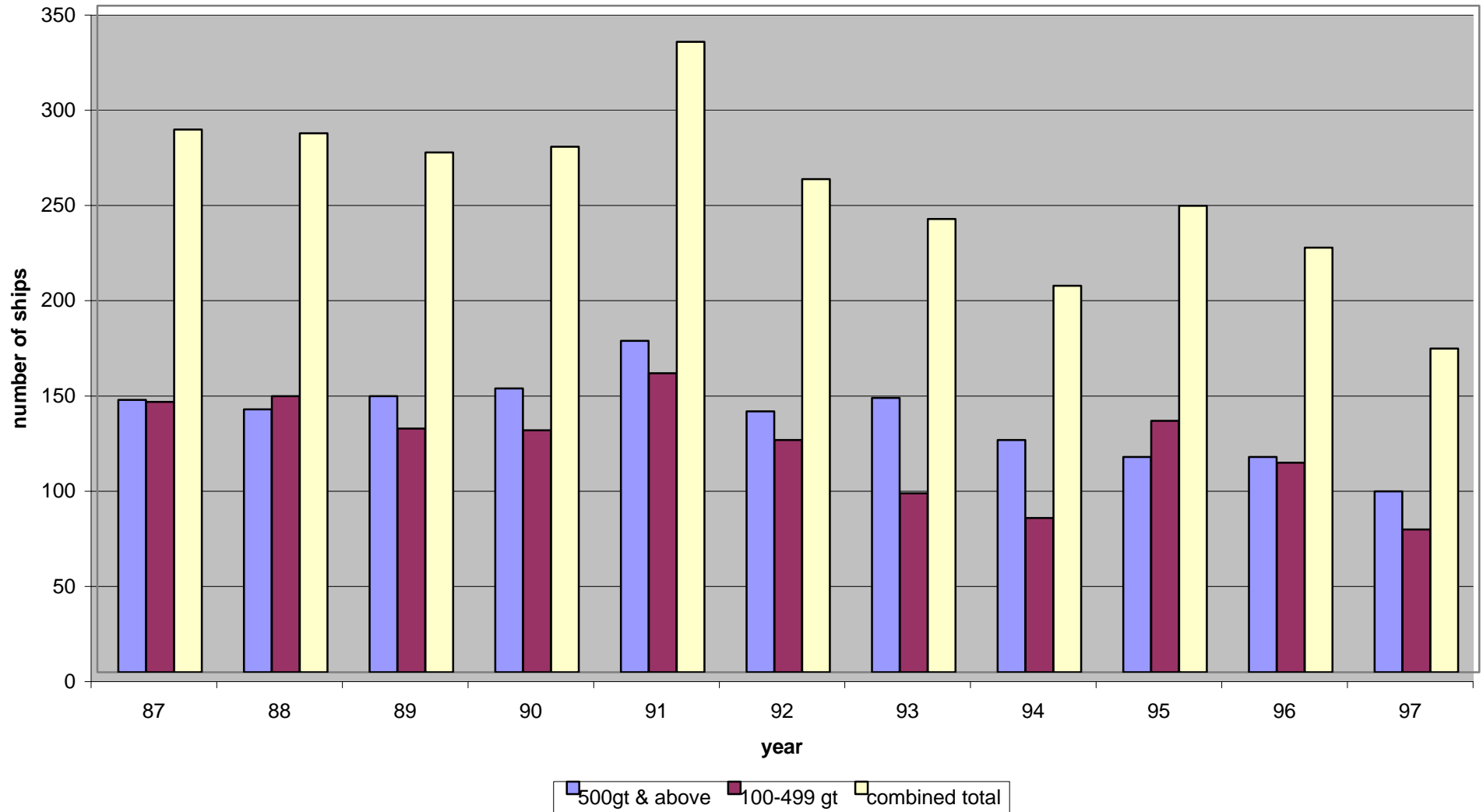
OUTSTANDING REPORTS OF INVESTIGATION INTO VERY SERIOUS AND SERIOUS CASUALTIES

	Outstanding 1991 - 1992 (FSI 2)	Outstanding 1993 (FSI 3)	Outstanding 1994 (FSI 4)	Outstanding 1995 (FSI 5)	Outstanding 1996 (FSI 6)		Outstanding 1991 - 1992 (FSI 2)	Outstanding 1993 (FSI 3)	Outstanding 1994 (FSI 4)	Outstanding 1995 (FSI 5)
ALGERIA					1	LIBYAN ARAB JAMAHIRIYA				1
ANTIGUA & BARBUDA				13	5	LITHUANIA				1
ARGENTINA				2		MADAGASCAR	2			
AZERBAIDJAN					1	MALAYSIA		3	1	5
BANGLADESH	2			1		MALDIVES		1		
BARBADOS					1	MALTA	4	7	5	12
BELIZE	1		1	3	8	MEXICO	1			2
BRAZIL					2	NETHERLANDS				3
BRUNEI						NIGERIA			1	
BULGARIA	2					NORWAY	1			10
CANADA				5		PANAMA	27	14	8	33
CHILE					1	PARAGUAY				1
CHINA	3	4	2	3	11	PERU		1		2
COLOMBIA	1			1		PHILIPPINES	6	5	4	7
CYPRUS	2	1	2	10	17	POLAND		2		1
DEM. PEOP. REP. OF KOREA					1	PORTO RICO				1
DENMARK				1	1	PORTUGAL				2
DOMINICAN REPUBLIC				1		REPUBLIC OF KOREA				7
ECUADOR		1	1			ROMANIA	3		2	1
EGYPT				1	1	RUSSIAN FEDERATION		6	6	13
ESTONIA				1		ST.VINCENT & GRENADINES		3	3	9
FIJI				1		SAUDI ARABIA	1			
FINLAND				1	2	SINGAPORE				5
FRANCE				2		SOUTH AFRICA	1	1		
GEORGIA				1		SPAIN				
GHANA	1				1	SRI LANKA	1			
GREECE		3	1	8	15	SYRIA				2
HONDURAS	5	14	6	9	7	TANZANIA				
HUNGARY				1		THAILAND	1	1		3
INDIA	1	2	2	5	1	TURKEY	8	1		8
INDONESIA	3	2		7	2	TUVALU				1
IRAN	1	1			1	UKRAINE		2		2
IRELAND	2			1		UNITED ARAB EMIRATES	1	1		
ITALY	2		2	3	1	UNITED KINGDOM				2
JAPAN	2		1	3	9	VENEZUELA	3		1	
LATVIA					1	VIETNAM	2			

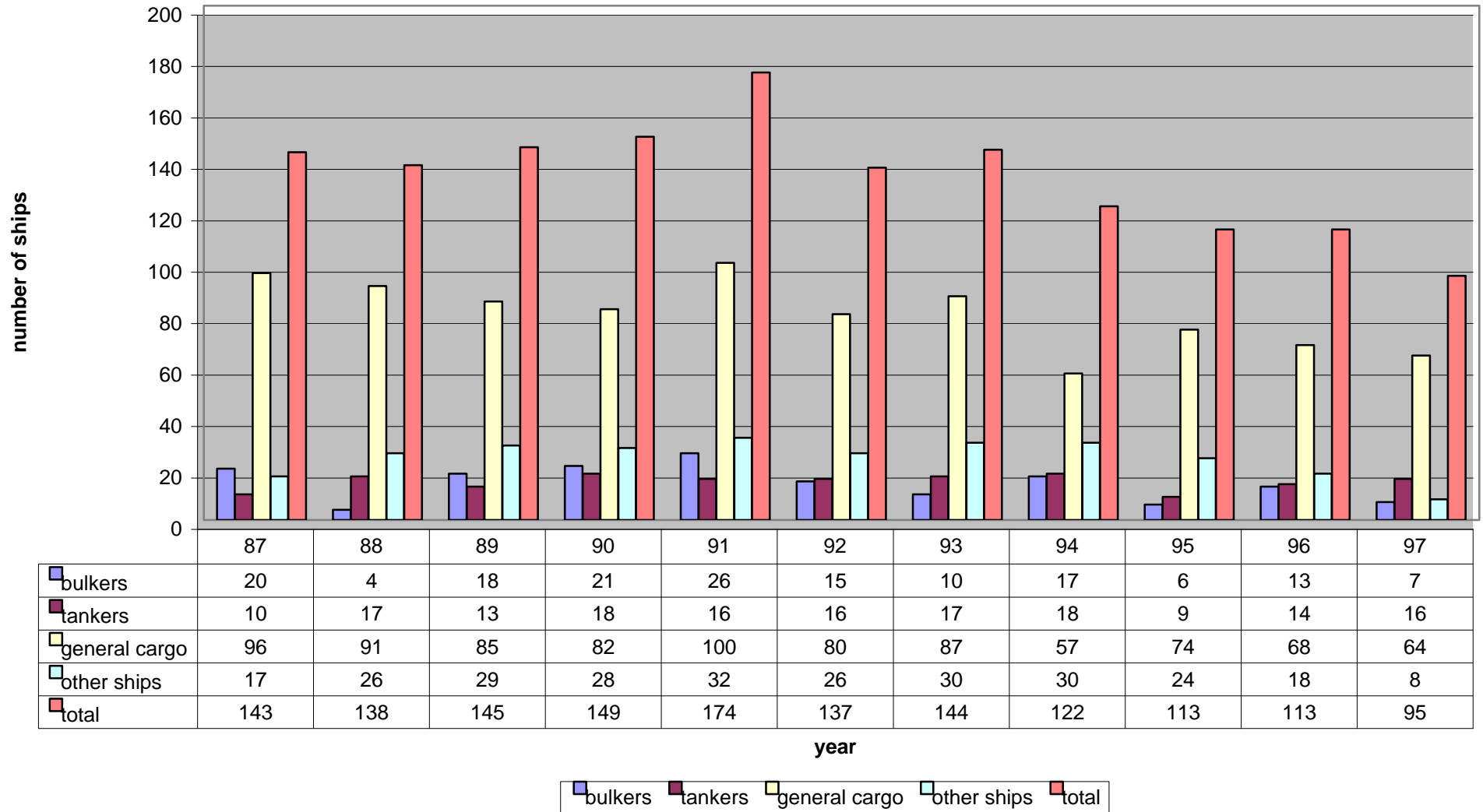
Lives lost at sea 1990-97 in accidents involving ships over 500 gt (source:IUMI)



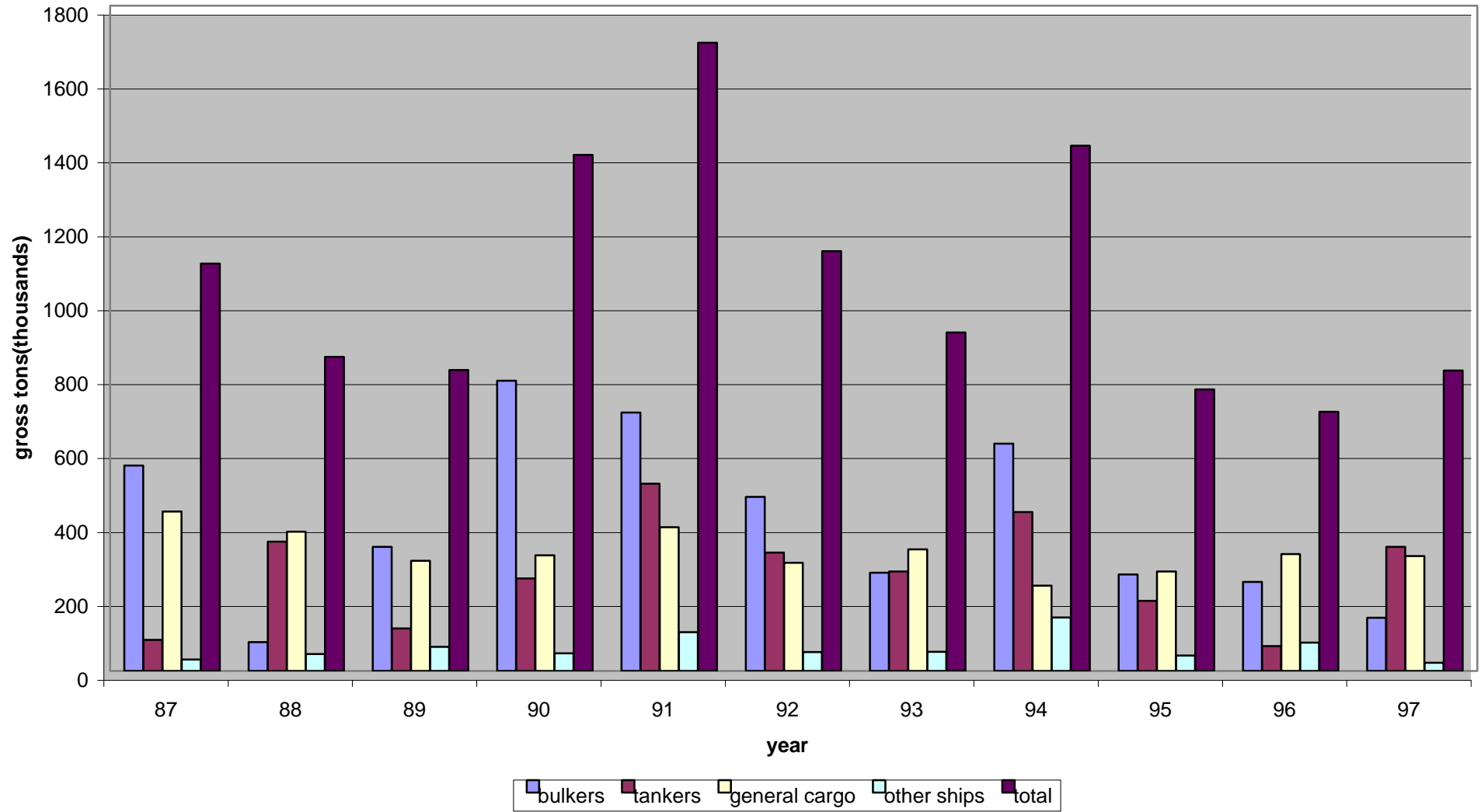
Total losses by number 1987-97 all ships:over 500gt and 100-499gt(source: IUMI)



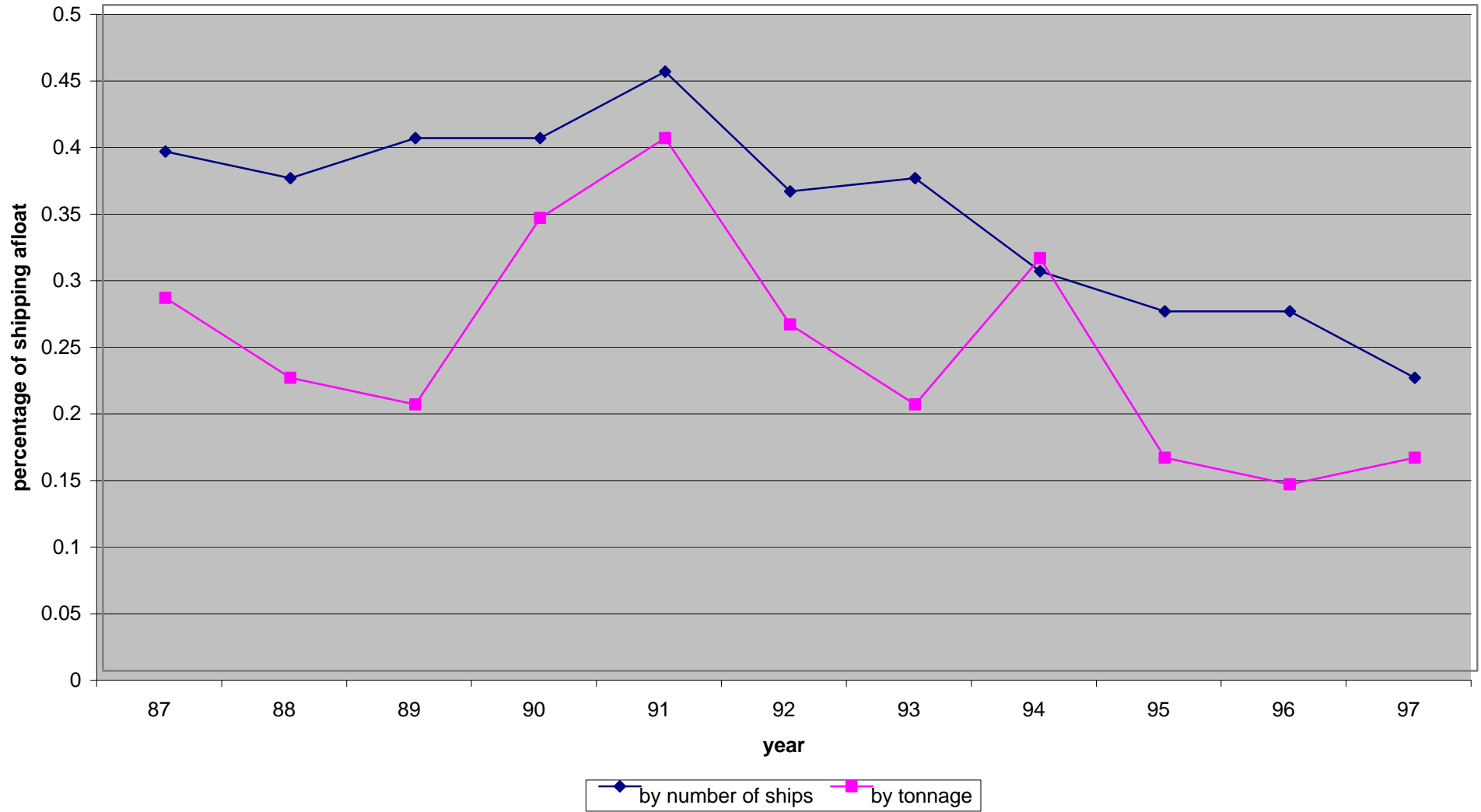
Total losses by number 1987-97 by type of ship: 500 gt and above(source:IUMI)



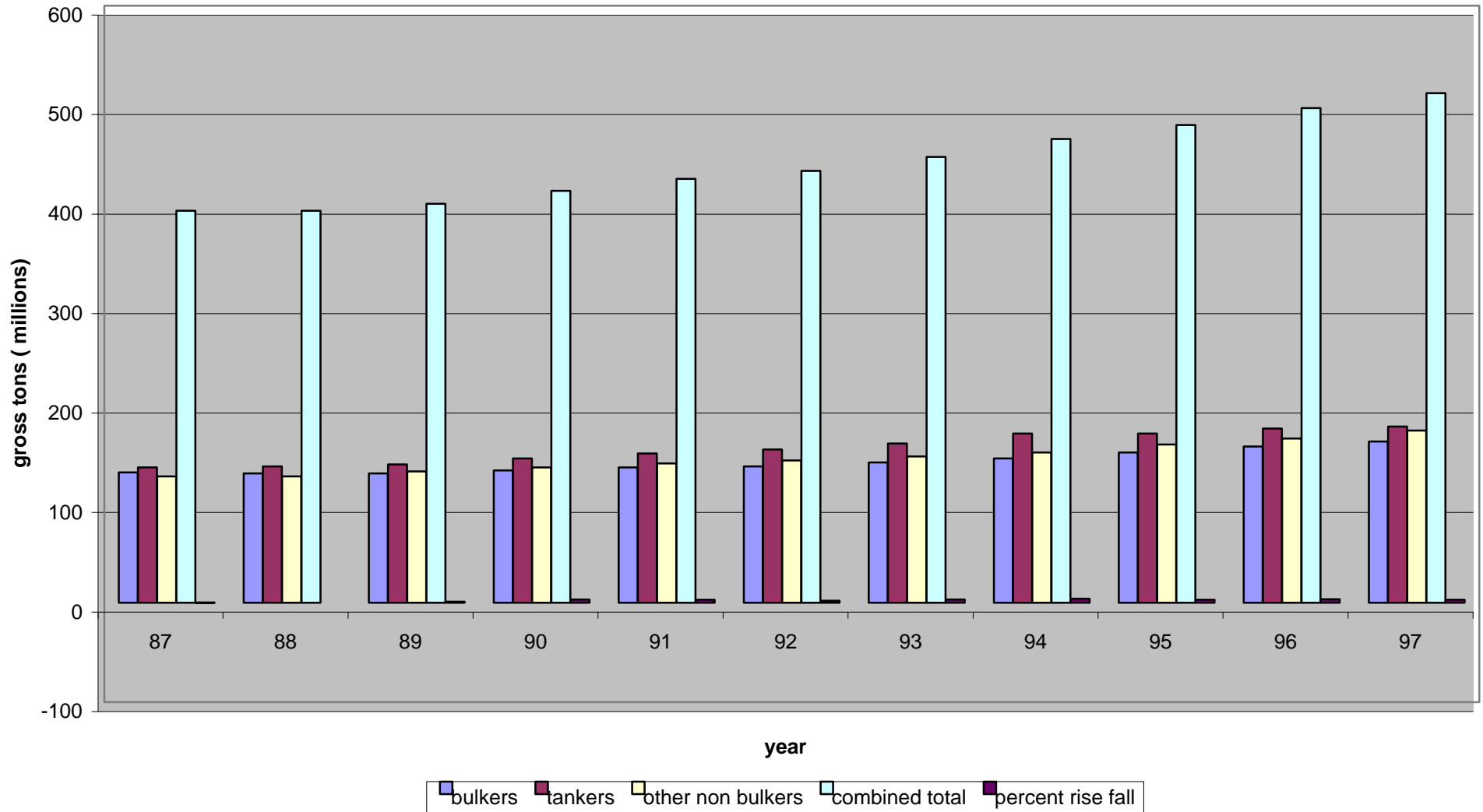
Total losses by tonnage 1987-97 by type of ship: 500gt and above(source IUMI)



Total losses as a percentage of shipping afloat 1987-97 ships over 500gt(source IUMI 1998)



The world fleet tonnage afloat 1987-97 (source IUMI)



FIRST INFORMATION REPORT OF A
SHIPPING CASUALTY M.M.D
MUMBAI/ CHENNAI/CALCUTTA

INQIRY.1 INDIA

1.NAME OF THE SHIP/SHIPS

2.TYPE OF CASUALTY

3. IMO NO.

4. GROSS TONS

5.L.O.A.

6.N.R.T

7.D.W.T.

8. LAST PORT OF CALL

9. NEXT PORT OF CALL

10. NATIONALITY

11. LOSS OF LIFE

12. MISSING

13. INJURED

14. TOTAL CREW

15.LATITUDE:
LONGITUDE:

16. POLLUTION

17.FUEL OIL CARRIED
H.F.O. D.O.

18. SOURCE OF INFORMATION

19. NAME OF INQUIRY OFFICER

DEPOSITION /DECLARATION
OF A WITNESS

NAME OF THE WITNESS

NATIONALITY

CERTIFICATE OF COMPETENCY /NO.

DATE OF ISSUE

PLACE OF ISSUE

LAST REVALIDATED

PASSPORT NO.

CDC NO.

INDOS NO.

EXAMINED ON OATH/SOLEMN AFFIDAVIT
I STATE THAT

TAKEN BEFORE ME THIS _____ DAY OF _____ 1999 AT _____

SIGNATURE OF THE DEPONENT

OFFICER APPOINTED UNDER
358(2)M ACT

SHIPS PARTICULARS

1.SHIPS NAME		2.IMO NO.	
3.CALL SIGN		4. TYPE OF SHIP	
4. NATIONALITY		5.PORT OF REG.	
6.NAME AND OF OWNERS/AGENTS/OPERATORS			
7.GROSS ONNAGE		8.NET REG TONNAGE	8A. DWT.TONNAGE
9.L.O.A.	10. BRADTH MAX		11.SUMMER DRAFT
12.CLASSIFICATION.			
13. YEAR OF BUILD		14. PLACE OF BUILD	
15.TOTAL FUEL CARRIED H.F.O.		D.O.	L.O.
16.MAIN ENGINE	16A. TYPE OF ENGINE	16B.MAX POWER/SPEED	
17.GMDSS EQUIMENTS			
18. RADARS NO. AND TYPE			
19.GYRO COMPASS			
20.ECHO SOUNDER			
21. ELECTRONIC NAV AIDS			

22. LIFE SAVING APPLIANCES(INCLUDE DETAILS)

23. FIRE FIGHTING APPLIANCES (INCLUDE DETAILS)

24. CARGO

25. STEERING GEAR

26. PROPELLER

27. RUDDER

28. TOTAL NUMBER OF CREW/PASSENGERS

29. PLACE AND POSITION OF CASUALTY.

30. DATE AND TIME OF CASUALTY

31. DAMAGES

32. NUMBER OF LIVES LOST/ INJURIES/PERSONS MISSING

33. ANY OTHER INFORMATION WHICH MAY ASSIST THE CASUALTY INVESTIGATION

NAME OF MASTER

NAME OF INQUIRY OFFICER

DOCUMENTS TO BE OBTAINED AND VERIFIED

The inquiry officer may obtain certificates, manuals and any other documents, from the Master /owner/Agents as the case may be which may have relevance to the investigation as deemed fit A list of documents etc. are given as a guideline to assist the inquiry officer, the items mentioned below are not exhaustive the inquiry officer may use his discretion and professional judgement to ascertain the documents needed for the purposes of the inquiry.

1.SHIPS REGISTER .	2. STATUTORY CERTIFICATES	3. OFFICIAL LOG BOOK	4. CREW LIST
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5. DECK LOG BOOK	6. ENGINE LOG BOOK.	7.BRIDGE MOVEMENT LOG	8. ENGINE MOVEMENT LOG
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9. OIL RECORD BOOK	10. CARGO RECORD BOOK.	11. COURSE RECORDER PRINTS.
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12. ECHO SOUNDER PRINT OUTS	13. MASTERS STANDING ORDERS	14. COMPANY STANDING ORDERS
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15. COMPANY SAFETY MANUAL	16. CHIEF ENGINEERS STANDING ORDERS.	17. SOUNDING BOOK
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18. PLANNED MAINTAINENCE SCHEDULES.	19. REPAIRS AND STORES INDENTS.	20 RADIO LOG
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21. APPROPRIATE CHECK LISTS	22. VOYAGE PLAN.	23. RADAR LOG	24. ARTICLES OF AGREEMENT
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25. CHAIN REGISTER.	26. VHF LOG	27. CREW MEDICAL CERTIFICATES.	28. OPERATION MANUAL
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29. ANY OTHER CERTIFICATE/DOCUMENT/ RECORD ETC RELEVANT TO THE INQUIRY.

NAME OF THE MASTER	NAME OF THE INQUIRY OFFICER
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PROPOSED INSTRUCTIONS

1.ROLES AND FUNCTIONS

The Directorate General of Shipping is responsible for all maritime affairs and is mandated to administer the Indian Merchant Shipping Act. The Directorate General of shipping is headed by a Director General. The Indian coastline is subdivided to form the three districts viz.; the Mercantile Marine Department (MMD) Mumbai district, the Mercantile Marine Department Chennai district and the Mercantile Marine Department Calcutta district. Principal Officers who are responsible to the Director General of Shipping head the Mercantile Marine Departments. A Surveyor in Charge who functions under the concerned Principal Officer of his district heads the ports of Jamnagar, Murmugoa, Cochin, Tuticorin and Vishakhapatnam. The Surveyor in Port Blair functions under the Principal Officer of Calcutta district.

The Nautical Adviser to Government of India who is responsible for all nautical matters assists the Director General of shipping in the Directorate whereas the Chief surveyor to the government of India is responsible for all Engineering and Naval Architectural matters. Investigations into shipping casualties required under the Indian Merchant Shipping Act and the various IMO conventions to which India is a party, is one of the responsibilities of the Nautical Adviser to the Government of India. Two Deputy Nautical Advisers assist the Nautical Adviser to the Government of India in his branch (Nautical Branch).

One of the Nautical Surveyors who functions under the Deputy Nautical Adviser is responsible for ensuring that the preliminary inquiry reports are received, analyzed, and dealt with in accordance with the instructions and procedures laid down. If a casualty report needs to be perused and commented upon for engineering and ship design or Naval Architecture aspects, it is forwarded to the engineering branch of the Directorate. The

inquiry report after having been dealt with in all respects, finally takes the shape of a recommendation, which if necessary, is forwarded to the Central government for its approval.

The roles and functions of only those individuals concerned with casualty investigations have been explained since this Dissertation is dealing with the review of Instructions for conducting Casualty investigations.

2. APPLICATION

These procedures apply, whenever a shipping casualty or a marine incident as defined in the MSA occurs, to -

- a. the officers of the Directorate General of shipping responsible for Investigations and Inquiries under part XII of the Merchant Shipping Act 1958.the Principal officers of Mercantile Marine Departments at Mumbai, Chennai, Calcutta.
- b. the Surveyor In Charge of ports in their respective districts.
- c. the Deputy Conservators of the major ports, as declared under the Major Port Trust Act.
- d. the Port officers of Minor Ports in the Coastal states of Gujarat, Maharashtra, Goa, Karnataka, Kerala, Tamil Nadu, Andhra Pradesh, Orissa and West Bengal.
- e. the preliminary Inquiry officer appointed under section 358(2) of the Indian Merchant Shipping Act.

3. DEFINITIONS

The under mentioned definitions are for the purpose of carrying out preliminary inquiries and formal investigations under Part XII of the Indian Merchant Shipping Act 1958.

- a. "coasts" means the coasts of India including the coasts of creeks and tidal rivers.
- b. "shipping casualty" for the purposes of these Instructions means when on or near the coasts of India, any ship is lost, abandoned, stranded or materially damaged;
- c. on or near the coasts of India any ship causes loss or material damage to any other ship;
- d. any loss of life ensues by reason of any casualty happening to or onboard any ship on or near the coasts of India;
- e. in any place, any such loss, abandonment, stranding, material damage or casualty as above mentioned occurs to or on board any Indian ship, and any competent witness thereof is found in India;
- f. any Indian ship is lost or is supposed to have been lost, and any evidence is obtainable in India as to the circumstances under which she proceeded to sea or was last heard of.
- g. the death of, or serious injury to, a person that is caused by, or in connection with, the operations of a ship; or

- h. the loss of a person from a ship that is caused by, or in connection with, the operations of a ship; or
- i. the loss presumed loss or abandonment of a ship; or
- j. the involvement of a ship in a collision; or
- k. Damage to the environment brought about by the damage of a ship or ships being caused by or in connection with, the operations of a ship or ships.
- l. “Very serious shipping casualty” means a casualty to a ship that involves the total loss of life or severe pollution.
- m. “Serious shipping casualty” means a casualty which does not qualify as a very serious casualty and which involves:
 - .1 a fire, explosion, grounding, contact, heavy weather damage, ice damage, hull cracking or suspected hull defect, etc, resulting in;
 - .2 structural damage rendering the ship un seaworthy, such as penetration of the hull underwater, immobilisation of the main engines, extensive accommodation damage etc; or
 - .3 pollution (regardless of quantity); and/or
 - .4 a breakdown necessitating towage or shore assistance.
- n. “marine incident” means an occurrence or event being caused by, or in connection with, the operations of a ship by which the ship or any person is imperilled, or as a result of which serious damage to the ship or structure or the environment might be caused.
- o. “causes” means actions, omissions, events, existing or pre-existing conditions or a combination thereof, which led to the casualty or incident

- p. “preliminary inquiry” means a process conducted for the purpose of casualty prevention which includes the gathering and analysis of information, the drawing of conclusions, including the identification of the circumstances and the determination of causes and contributing factors and, when appropriate, the making of safety recommendations.
- q. “preliminary inquiry officer” means a person or persons qualified and appointed under section 358(2) of the Merchant Shipping Act to investigate a casualty, or incident, under the Procedures formed in accordance with section 386 of the said act.
- r. “serious injury” means an injury that is sustained by a person in a casualty resulting in incapacitation for more than 72 hours commencing within seven days from the date of injury.
- s. “Ship” does not include a sailing vessel.
- t. “Lead Investigating State” means the state that takes responsibility for the conduct of the investigation as mutually agreed between the substantially interested states.
- u. “Substantially Interested State” means a State:
 - .1 which is the flag state of a ship that is the subject of an investigation; or
 - .2 in whose internal waters or territorial sea a marine casualty has occurred; or
 - .3 where a marine casualty caused, or threatened, serious harm to the environment of that state, or within those areas over which the state is entitled to exercise jurisdiction as recognised under international law; or
 - .4 where the consequences of a marine casualty caused, or threatened, serious harm to that state or to artificial islands, installations, or structures over which it is entitled to exercise jurisdiction; or
 - .5 where, as a result of a casualty, nationals of that state lost their lives or received serious injuries; or
 - .6 that has at its disposal important information that may be of use to the investigation; or
 - .7 that for some other reason establishes an interest that is considered significant by the lead investigating State.

**4.INSTRUCTIONS TO
NAUTICAL SURVEYOR
DIRECTORATE GENERAL OF SHIPPING**

The Nautical Surveyor responsible for casualty investigations and inquiries in the Directorate General of Shipping upon receiving a first information report into a shipping casualty or receiving a report into a casualty from another state, must –

- a. Inform the Central Government, available details of the casualty and the action initiated (if the details have been updated from those contained in the FIR the same to be communicated) thereof. The Central Government to be kept updated with latest developments.
- b. Inform the concerned Flag State if the casualty involves a foreign flagship and has occurred on the Indian coast and mutually agree to the role of the lead investigating state. The Directorate shall also notify the Flag State the circumstances relating to the casualty and the proposed action intended, if any.
- c. If the casualty involves an Indian ship and another foreign flagship on the high seas, the Flag State of the other vessel shall be informed, and mutual agreement in respect of who should be the lead investigating state, established. If the other state is a substantially interested state she may be requested to attend the Investigation.
- d. Inform the Chief Hydrographer to the Government of India details of casualty, for issuing notices to mariners.
- e. Inform the Director General of Lighthouses and Lightships for the purpose of wreck-marking if deemed fit.
- f. If acting as a lead investigating, state then upon completion of the inquiry forward a copy of the report to the substantially interested states inviting their significant and

substantiated comments on the report as soon as possible. If the comments are not forthcoming from the state in question within the mutually agreed time period then arrange to forward the final report to the IMO.

- g. Upon final acceptance of the report by the Central Government publish the findings for making them available to the seafaring community.
- h. If upon determining that urgent safety action is needed may initiate interim recommendations to the appropriate authority.
- i. Acknowledge receipt of FIR and confirm compliance of actions in accordance with these laid down instructions.

5. INSTRUCTIONS TO PRINCIPAL OFFICERS

The Principal Officer of a Mercantile Marine Department is responsible for any Shipping casualty occurring within his district. It is his duty that whenever a shipping casualty occurs in his district he shall, forthwith initiate steps to ensure that the under mentioned functions are performed without undue delay.

On receiving credible information that a shipping casualty has occurred the Principal officer or an officer appointed by him, shall-

- a. Inform the Director General of Shipping by way of a First information Report (FIR), the details required in the FIR will be correctly entered. A copy of the FIR will be sent to the Secretary, Ministry of Surface Transport marked as an advance copy, attention Joint Secretary (Shipping)
- b. Appoint a Preliminary Inquiry Officer. In appointing an Inquiry officer due diligence should be exercised by the Principal officer, giving due consideration to the type and seriousness of the casualty, the experience and background of the officer being appointed.
- c. Inform the Maritime Operations Centre or the nearest Rescue Co ordination Centre if there is need for a rescue operation to be launched.
- d. Inform the appropriate Coast Radio Station for transmitting any navigational warning together with relevant details, if deemed necessary.
- e. Obtain all available information, which may be relevant to the casualty from the Owners or Agents or Managers of the ship and its personnel involved with the casualty.
- f. Inform the Inquiry Officer the details of the ship or personnel involved in the casualty if the ship is to call a different port than where the Inquiry officer is based.

- g. Inform the concerned Port officer or the Deputy Conservator, as the case may be, to conduct the Preliminary Inquiry in accordance with these procedures, if an officer of the Mercantile Marine Department is unavailable for whatever reasons.
- h. Ensure commencement of the inquiry as soon as practicable.
- i. Ensure that any ship involved with the casualty is not unduly delayed for the purposes of the investigations.
- j. Inform the Director General of Shipping if participation of any substantially interested state is deemed necessary.
- k. Ensure the completeness and correctness of the inquiry report.
- l. Despatch the inquiry report with minimum delay to the Director General of Shipping.
- m. Cause to maintain a record of all casualties which have occurred within his district including those which have occurred within port limits of major ports in his district.

**6. INSTRUCTION TO STATE GOVTS
AND
MARITIME BOARDS**

The Role of the State Governments and Maritime Boards as established in the states of Gujarat and Maharashtra shall be similar to the Role of the Principal Officer, for the purposes of investigations and inquiries. The officer appointed by the State Government or the Maritime Board, upon receiving information pertaining to a shipping casualty as defined under definitions, shall-

- a. Inform the Director General of shipping at Mumbai through a First Information Report (FIR).
- b. Prior to appointing a Preliminary Inquiry officer seek the concurrence of the concerned Principal Officer of his district.
- c. Appoint a Preliminary Inquiry Officer.
- d. Ensure that the preliminary inquiry is conducted in accordance with the procedures laid down.
- e. Ensure that the preliminary inquiry is completed and forwarded to the Director General of Shipping in accordance with the procedures laid down.
- f. Render all assistance to the preliminary inquiry officer if appointed by the Central Government for the purposes of investigations and inquiries.
- g. Ensure that the crew and officers of the ship or ships involved in the casualty are not released prior to the recording of their statements or declarations in connection with the casualty. Likewise the officers and crew of foreign origin shall not be unduly delayed for the purposes of investigations and inquiries. Any doubts, clarifications shall be addressed to the Principal Officer of the concerned district.
- h. Cause to maintain a record of all casualties occurring within their port limits.

7. INSTRUCTIONS TO PORT OFFICERS

The Port Officer of a Port, being not a major port shall as far as the Investigations and inquiries under Section 358(2) of the Indian merchant Shipping Act are concerned, be responsible for any shipping casualty occurring within his Port limits. Whenever a shipping casualty as defined under the definitions occurs the port officer shall, forthwith initiate steps to ensure that the under mentioned functions, but not restricted to are performed without undue delay. The functions need not be in the under mentioned order of priority. Professional judgement should be used.

On receiving credible information that a shipping casualty has occurred the Port Officer of the concerned port or an officer appointed by him, shall-

- a. Inform the Central Government by way of a First Information Report (FIR), the FIR should be forwarded to the Secretary, Ministry of Surface Transport drawing the attention of the Joint Secretary (Shipping). A copy of the FIR to be forwarded to the Director General of Shipping at Mumbai.
- b. Inform the concerned Principal Officer of the Mercantile Marine Department of that district.
- c. Inform the concerned Rescue Co ordination Centre, Coast Guard for rescue purpose, if required.
- d. Issue an appropriate navigational warning, for the incoming and outgoing traffic, if required.
- e. Inform the appropriate Coast radio station for transmitting a navigational warning with relevant details, if deemed necessary.
- f. If no instructions have been received within 24 hrs of informing the concerned Principal Officer of the MMD the Port officer shall;

- g. Obtain all relevant information pertaining to the casualty from the Owner, Operator, Agents and or Master of the ship as the case may be.
- h. Appoint himself as the Preliminary Inquiry Officer, inform the concerned Principal Officer of the MMD, and accordingly carry out the functions of a preliminary inquiry officer.
- i. Ensure that any ship involved in the casualty is not unduly delayed for the purposes of investigations.
- j. Ensure commencement of the inquiry as soon as possible.
- k. Ensure the completeness and correctness of the casualty report.
- l. Despatch the Inquiry report with minimum delay to the Concerned Principal officer of the MMD.
- m. Cause to maintain a record of shipping casualties that have occurred within his Port limits.

**8. INSTRUCTIONS TO
DEPUTY CONSERVATORS
OF MAJOR PORTS**

The Deputy Conservator of a port shall, as far as investigations and inquiries under section 358(2) of the Merchant Shipping Act are concerned, be responsible for any shipping casualties occurring within his port limit. Whenever a shipping casualty as defined under the definitions occurs, within his port limits, he shall forthwith initiate steps to ensure that the under mentioned functions, but not restricted to, are performed without undue delay. The functions need not be in the under mentioned order of priority. Professional judgement should be used.

On receiving credible information that a shipping casualty has occurred the Deputy Conservator of the concerned port or an officer appointed by him, shall-

- a. Inform the Central Government by way of a First Information Report (FIR) the FIR should be forwarded to the Secretary, Ministry of Surface Transport drawing the attention of Joint Secretaries (ports and shipping). A copy of the FIR to be forwarded to the Director General Of Shipping AT Mumbai.
- b. Appoint a Preliminary Inquiry Officer. In appointing the inquiry officer due consideration should be given to the type of the casualty, the seriousness of the casualty, the background and experience of the officer being appointed. If the casualty involves a Pilot, Berthing Master etc it may be prudent to refer the matter to the Director General of Shipping for appointing of the Inquiry Officer.
- c. Inform the local RCC, Coast Guard for rescue purposes, if required.

- d. Issue an appropriate navigational warning, for incoming and out going traffic, if required.
- e. Inform the appropriate Coast Radio Station for transmitting a navigational warning with relevant details, if deemed necessary.
- f. Inform the concerned Principal officer of the Mercantile Marine Department of that district.
- g. Obtain all relevant information pertaining to the casualty from the Owners, Operator, Agents and or Master as the case may be.
- h. Inform the Director General of Shipping if participation of any substantially interested state is considered necessary.
- i. Ensure that any ship involved in a casualty is not unduly delayed for the purposes of investigations.
- j. Ensure commencement of the investigations as soon as practicable.
- k. Ensure the completeness and correctness of the casualty report.
- l. Despatch the inquiry report with minimum delay to the Central Government and a copy to be forwarded to the Director General of Shipping in Mumbai.
- m. Cause to maintain a record of all shipping casualties that have occurred within his jurisdictions.

9. INSTRUCTIONS TO PRELIMINARY INQUIRY OFFICERS

The Preliminary Inquiry Officer (PIO) shall be responsible for the speedy conduct of the Inquiry and in doing so he shall be guided by his concerned Principal Officer.

The PIO shall familiarise himself with the relevant provisions contained in Part XII of the Indian Merchant Shipping Act(MSA), the instructions and the investigating techniques contained herein.

- a. The recording of a statement, declaration or deposition is an extremely important element of the investigation or inquiry. It should therefore be carried out with clinical precision. The statement need not be of a typical form. However, it is recommended that a combination of narrative and inquisitorial form may be adopted subject to its adequacy. In so far as is practicable, the recording of statements should be carried out while the information is fresh, in the minds and memories of the individuals. The PIO shall, keeping in view the circumstances of the case, ensure that the deponent prior to deposing is put to ease, the purpose of recording the statement explained and any apprehensions clarified. It is recommended that the deponent may be instructed to write in his own handwriting the facts prior to and subsequent to the occurrence of the casualty, which he may recall to the best of his knowledge.

- b. Whenever the recording of the statements is being carried out on board a ship, the PIO may do well, by organising the sequence of examining the ships staff (witnesses). This would be crucial if sufficient time has elapsed, between the casualty and the IO boarding the ship. The PIO should also take into account if any

legal representatives of the ship owner or P&I club have already been on board, as a result of which the contents of the depositions may be affected.

- c. The final statement of an individual should read well, so as to ensure that no aspect of the casualty is missed out either factually or technically. This may not be possible in the first instance. It is therefore recommended that facts and figures should be continuously, corroborated with individual statements and information gathered during the progress of the inquiry. The PIO may have to reschedule the recording of the statement of an individual where information or facts have surfaced subsequent to the deposition of another witness.
- d. The PIO may employ appropriately suitable techniques, as deemed fit, to ensure that information being recorded is not lost, during the cross examination of the deponent. A tape recorder or a dictaphone may be used for this purpose.
The I.O for the purposes of conducting an Inquiry may if necessary;
- e. board any ship and inspect its equipment, machinery, certificates, manuals, logbooks or any other item if deemed relevant for the purposes of conducting the inquiry. Utmost care must be exercised to avoid undue delay to a ship being inspected for the aforementioned purposes.
- f. Inspect any cargo space, tanks, pump room, engine room, chartroom, wheelhouse or any other space on board a ship that in the opinion of the PIO may have relevance to the casualty under investigation.
- g. Summon under his hand, persons requiring attendance to depose, record statements and furnish information pertaining to the casualty being inquired into. The PIO shall draw the attention of his powers; if any person should refuse to attend, depose, and impede the inquiry or to produce the requisite evidence when called upon to do so. Action may be taken against a person under Chapter X of the Indian Penal Code if the person continues to evade the inquiry proceedings as required under these instructions.

- h. Require submission of, all material and documentary evidence that in his opinion may have relevance to the Inquiry.
- i. Record statements of individuals on board a ship or ashore, having direct or indirect responsibility of safety management on board ships or ashore in accordance with the International Safety Management Code or otherwise, having any bearing on the casualty.
- j. Seek all available assistance from his colleagues, who may be from other disciplines, on matters outside his technical scope. If technical expertise other than what is available in the Department is needed, the Principal Officer should be informed accordingly, to assist in obtaining the same.
- k. The presence of legal advisers or any other third party during the deposition shall not be permitted unless prior concurrence of the Director General of Shipping is obtained. If such permission is granted then the persons who maybe present should be instructed to remain silent and not interfere with the recording of the statements. They may be allowed to take notes.
- l. Copies of deposition form (inquiry.3) shall not be released to any person without the prior permission of the Director General of Shipping.
- m. Evidence obtained from ships shall be clearly identified with ships name, date and the name of the person who has collected the evidence, it to be sealed in proper plastic bags (frozen food type).
- n. Use of photographs, to identify the status of Equipment, Machinery, Publications, Documents etc on board ships, should be made of extensively.
- o. The IO shall use the information available at Chapter VI for the purposes of conducting the inquiry and submitting the report, in addition to these instructions.

10. DATABASE

A database shall be created within the Directorate General of Shipping and within the offices of all organisations to which these instructions apply.

The database shall be maintained and created on Microsoft Access programme.

The database shall have the following fields in the table.

- a. name of the ship
- b. flag or nationality
- c. IMO number
- d. gross tonnage
- e. official number if Indian
- f. call sign
- g. date of casualty
- h. last port of call
- i. place of casualty/lat. Long
- j. type of vessel
- k. type of casualty
- l. type of cargo
- m. total crew on board
- n. name of master
- o. total survivors
- p. total lives lost
- q. name of PIO
- r. status of inquiry or investigation(when submitted to DGS)
- s. date when submitted to IMO(for DGS only)
- t. number. of the file in the organisation

The above information is to be maintained in each organization responsible for shipping casualty investigations and not to be forwarded to the Directorate unless specifically asked for