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WORLD MARITIME UNIVERSITY
Malmö, Sweden

MARINE ACCIDENT INVESTIGATION

**A Comparative Study of Practices in China
and Certain Countries**

By

SONG ZHEN
The People's Republic of China

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

MARITIME SAFETY AND ENVIRONMENTAL PROTECTION
(Policy)

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 previously been conferred on me.

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

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ABSTRACT

Title of Dissertation: **Marine Accident Investigation - A Comparative Study of Practices in China and Certain Countries**

Degree: **Msc**

The dissertation is a study of marine accident administrative investigations. A comparison is taken on marine accident investigations of China, Japan, Germany, the United Kingdom and the United States.

A brief look is carried at the aspect of public administrations regarding to marine accident investigations. The method of comparative study is used in the dissertation.

Aims and regulatory aspects of marine accident investigation are reviewed, which concerns public international law and national laws in different countries. Studies and analysis are conducted on the Law of the Sea Convention, IMO, ILO Conventions and other instruments as well as national laws in China and selected countries.

Organizational structures of marine accident investigation in China and selected countries are introduced. Since qualification requirements are one of the vital factors of marine accident investigations, they have been discussed in the thesis. There are two approaches in the setting of investigation organs. One is to make it independent. Another is to combine the investigation tasks in a maritime safety organization. Both approaches have their positive and negative aspects.

Procedures of the investigation are very important. Jurisdictions of the investigation are reviewed in the dissertation. Reporting requirements, processes of

the investigation and sanction aspects in different countries are compared with analysis.

The dissertation closes with conclusions drawn from the study. Recommendations have been made on how to improve marine accident investigation in China in respects of legislation, qualifications of investigators and possible improvement in procedures of the investigation.

KEYWORDS: Accident, Investigation, Comparison, China, Countries

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LIST OF ABBREVIATIONS

CFR	Code of Federal Regulations, the United States
EEZ	Exclusive Economic Zone
FBI	Federal Bureau of Investigation, the United States
ICAO	International Civil Aviation Organization
ILO	International Labour Organization
IRF	Incident Reporting Form (MAIB, UK)
IMO	International Maritime Organization
JMSA	Japanese Maritime Safety Agency
LL	International Convention on Load Line, 1966
MAIB	Marine Accident Investigation Branch, UK
MARPOL	International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978
MSA	Maritime Safety Administration of the People's Republic of China
MV	Motor Vessel
NTSB	National Transportation Safety Board, United States
S&R	Suspension and Revocation of certificates
SOLAS	International Convention for Safety of Life at Sea, 1974, and its Protocol of 1978
STCW	International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978, as amended in 1995
UNCLOS	United Nations Convention on the Law of the Sea, 1982
UK	United Kingdom
USA	the United States of America
USCG	United States Coast Guard
USD	US dollar
VHF	Very High Frequency (radio telephone communication)

1. INTRODUCTION

This chapter will introduce the background to marine accident administrative investigation, the objective of the dissertation, as well as the methodology to be used. In addition, those difficulties which have been encountered will be mentioned.

1.1 Background

When a major marine accident occurs, different investigations are issued, such as judicial (civil and/or criminal) inquiries, internal investigation of the shipping company, and the administrative inquiry. This thesis will deal with the administrative investigation.

According to one theory of Public Administration, a government has two general meanings: (1) the legal entity that maintains order and provides the goods and services society requires; (2) the process of maintaining social order and supplying goods and services. A government may have many public purposes; the most essential one is to protect lives, property, and the rights of its citizens (Johnson, 1996, 2). A merchant ship disaster, like the TITANIC, connected with loss of lives and property, is a public concern, and needs remedial actions. The base of the remedial action is to find out the real cause of the accident, which needs an investigation. Because, it is related to the public interest, this has to be done by a government. In the maritime field, government authorities normally delegate part of their job to those “recognized organizations” -- classification societies. So far, it has not been known that a government delegates its accident investigation authority to a

non-governmental organization. This, from the other side, proves the importance of the administrative investigation.

Maritime accidents are a main threat for maritime safety and marine environmental protection. In simple words, maritime safety is about making accidents not happen. Most maritime safety conventions, like SOLAS, LOADLINE, COLREG, STCW, etc., are designed for accident prevention, although a part of conventions mainly deals with operational matters, like MARPOL. Lessons from accidents are the most valuable information to improve the conventions as well as to improve safety itself. In this regard, the accident investigation is the core of maritime safety. Most maritime safety conventions have been initiated by major marine accidents. For example, the first SOLAS Convention was produced after the TITANIC disaster.

Each country has its sovereign right to lay down rules, to set up organizations, and to make procedures for its marine accident investigation. On the other hand, since ships are moving all around the world, international co-operation is important in this field. As a specialized agency of the United Nations, and an inter-governmental organization, IMO is a major international forum for maritime safety and environment protection, as well as marine accident administrative investigations. Certain IMO conventions have rules and recommendations on the accident investigation issue, to harmonize and facilitate marine accident investigations in different countries. Another United Nations specialized agency, the International Labour Organization (ILO), has its concerns in accident investigations as well. The ILO, however, mainly deals with labour protection issues. In non-governmental organization aspects, the Marine Accident Investigators' International Forum (MAIIF) is the only international organization for investigators from governments. China, the author's country, was one of the six founding countries. The purpose of MAIIF is "to promote and improve marine accident investigation and to foster co-

operation and communication between marine accident investigations” (The Charter of MAIIF, 1992).

Different countries have different legal systems, different administrative systems and different approaches to marine accident investigation. Comparing them “can provide a much richer range of model solutions than only a system in a single nation, because the different systems of the world can offer a greater variety of solutions than could be thought up in a lifetime by even the most imaginative jurist who was corralled in his own system (Zweigert, 1992, 15).” In this sense, comparison is not the objective; the objective is the knowledge gained from the comparison, which leads to eventual improvements.

This topic was chosen first because of the importance in maritime safety in drawing lessons from accidents by investigation. Second, the author has experience in this field. After a period of study at WMU, it is reasonable to make a study on this issue by combining the new knowledge and experience to make recommendations, and to seek further improvements for marine accident investigation in China.

The reason to choose Japan, Germany, United Kingdom and the United States in the comparison is that all these countries are traditional maritime countries. They have a relatively long history, which means abundant experience and well-structured legislation regarding marine accident investigation. In these four countries, Japan is an eastern country and is the neighbouring country of China. The United Kingdom dominated the maritime world for a long time and the UK system, including the maritime safety system, has a big influence even today. The United States is a large maritime country with a well-developed maritime administrative system. Since three of four countries are common law countries, it is important to include a civil law country in the comparison. The inclusion of a civil law jurisdiction in the study because even more important when one is reminded of the fact that the Chinese legislation system is a kind of civil law system. There are

reasons to choose Germany, a civil law country, as one object, although, the differences in the private law systems are not so important in this paper.

The author has been working in the Maritime Safety Administration of China for some eight years, after six years service as a deck officer on merchant ships. Among eight years in the administration, three years were related to accident investigation. Accordingly, part of the practices in the marine accident investigation of China, which is described in this paper, is derived from the author's working experience.

1.2 Objectives

This thesis intends to achieve two objectives. First, since the cooperation between the administrations in marine accident investigations is increasing, it will be very helpful make the comparison and even try to seek a common approach in the investigation. Second, through this study, the author hopes to find practicable recommendations for China to improve its marine accident investigation.

1.3 Methodology

The comparative method will be used in this paper. The comparison will be limited to legislation, similarities and differences in different systems rather than studying cases, though certain cases will be referred in the chapter four. The topic-related legislation, including international law and instruments as well as national law and regulations, will be reviewed first. Second, the organizations of marine accident investigation in different countries will be introduced respectively. Third, the procedures and practices of each organization will be compared to the phases of the investigation. The conclusion and recommendations will be made at the end of this paper. By the limitation of length of this paper and other limitations, it is

impossible to compare all aspects of accident investigation in the five countries. Only important aspects will be considered.

The materials consulted and used for this dissertation were obtained through the WMU library, the Internet and other public accessed sources, as well as a questionnaire, interviews, presentations, author's personal experiences, and other private sources. The questionnaire was designed by six parts, concerning aims and jurisdiction, investigation process, investigators, investigating report, sanctions and so forth. Six copies of the questionnaire was sent to the Marine Accidents Inquiry Agency of Japan, Federal Appeal Board for Maritime Investigation of Germany and Dr. W H Lampe, the Marine Accident Investigation Branch (MAIB) of the United Kingdom, the Coast Guard and the National Transportation Safety Board of the United States. Dr. W H Lampe, former Chairman of Federal Appeal Board for Maritime Investigation of Germany and Visiting Professor of the World Maritime University, Captain K. Kai, Manager of International Affairs Team, the Marine Accidents Inquiry Agency of Japan, Mr. Roger Brydges, Administration Manager, the Marine Accident Investigation Branch, the United Kingdom, have replied to the questionnaires. Mr. Doug Rabe of the US Coast Guard has replied the request, but by certain reason, the reply of the questionnaire has not been sent back. Those replies were very helpful for the dissertation, especially Dr. Lamp's and Captain Kai's replies, since there are not much information about Japan and Germany can be obtained.

The main difficulty encountered in the research is lack of information. Firstly, books concerning this subject are very rare and the information is very limited. In the Internet, the situation is better, since there are web sites maintained by the investigation authorities such as the UK Marine Accident Investigation Branch (MAIB) home page and the USCG home page. Secondly, the limitation of languages is encountered. Germany and Japan have well-developed investigation

systems, but considering the language limitation, very limited information can be used in the thesis, which may affect the quality of this paper.

2. AIMS AND REGULATORY ASPECTS OF MARINE ACCIDENT INVESTIGATIONS

This chapter will review the aims and regulatory aspects of marine accident investigation, which concerns public international law and national laws in China, Japan, the United Kingdom and the United States. Studies and analysis are conducted on the Law of the Sea Convention, IMO, ILO Conventions and other instruments as well as national laws in China and selected countries.

2.1 Public International Law

2.1.1 United Nations Convention on the Law of the Sea

Most provisions in the United Nations Convention on the Law of the Sea (1982) (UNCLOS) can not be implemented without specific operative provisions in other international instruments because UNCLOS is an “umbrella convention”, which provides fundamental legal provisions related to the seas (IMO, 1997a, 3). UNCLOS is a substantial part of modern international law. It sets out principles and norms for the conduct of relations among States on marine-related issues (Nandan, 1998). The preface to UNCLOS indicates that two of its aims, among others, are to establish “a legal order of the seas and oceans” and to protect the marine environment. In an extended sense, these can be deemed to be the aims of marine accident investigation too.

With the aim of fostering effective control in administrative, technical and social matters Article 94 (1), and Article 94(7) of UNCLOS stipulate that every flag State has a duty to an conduct inquiry into every marine casualty or incident of navigation on the high seas involving a ship flying its flag (United Nations, 1982). The casualties and incidents, which flag States have a duty to investigate, are defined

as incidents that have caused loss of life or serious personal injury to nationals of another State, or serious damage to ships, installations to another State, or the marine environment. When a State other than the flag State has jurisdiction, e.g., an accident occurs in its internal water, and it intends to conduct an investigation, it must cooperate with the flag State. Since UNCLOS is an international treaty to harmonise international relationships and order, it does not regulate what a flag State should do if an accident only involves its own nationals and ships flying its flag. However, in practice, there should be no differences.

Article 97 of UNCLOS states that the flag State may institute penal or disciplinary proceedings to persons in service on ships flying its flag, which have been involved in an accident on the high seas. Such proceedings should not be instituted against persons who do not serve on a ship flying its flag or who are not its nationals. Furthermore, by virtue of Article 58(2) of the Convention, this flag State privilege applies also in EEZs of other State.

UNCLOS is not concerned with accident investigations in territorial seas of a coastal State. Nevertheless, the coastal State may conduct a casualty inquiry on ships in its territorial sea, since it has sovereignty over its territorial sea (Article 2, UNCLOS). But if a foreign ship passes through its territorial sea, which does not disturb the order of the territorial sea as well as the order of the coastal State, and it does not come from its internal water, a coastal State accident investigation should not be conducted (Article 18, 19, 27, 28, UNCLOS). In other words, if an accident concerns a ship flying other than coastal State flag in its territorial sea, and it poses a threat to the interests of the coastal State, the coastal State has jurisdiction over it, which includes to conduct of an investigation; otherwise it has no such jurisdiction.

2.1.2 IMO Conventions

IMO has two kinds of instruments: binding instruments such as conventions, and non-binding instrument such as certain codes and recommendations. In this section, the binding requirement will be discussed; non-binding instruments will be discussed in the subsequent sections.

In Regulation I/21 of the International Convention for Safety of Life at Sea, 1974 (SOLAS), each administration has the obligation to conduct an investigation if it believes that such investigation may assist to improve the convention (IMO 1997f, 31). In addition, the findings from the investigation should be submitted to IMO. SOLAS is a safety convention, which concerns ships construction, navigation safety, safety and communicates equipment and even management requirements and so forth. Any improvement of the convention will benefit maritime safety more or less.

Regulation 23 of the International Convention on Load Lines, 1966 (LL) indicates, in the same way as I/21 of the SOLAS, that administrations should investigate accidents if such investigations are helpful in improving the convention. Findings of such investigation should be reported to IMO (IMO, 1981, 17).

The International Convention for the Prevention of Pollution from Ships, 1973 (MARPOL) has a similar requirement (IMO, 1997b, 10). Article 12 of MARPOL stipulates that if there is a casualty which has produced a major deleterious effect upon the marine environment, the flag State administration should conduct an investigation, and provide information to IMO to improve the Convention.

Those three conventions are the most fundamental conventions in the IMO working scope. Marine accidents, such as collision, grounding, fire, and explosion, can always be related with above three conventions when an investigation has been

conducted. Hence, according to those conventions, an administration has the obligation to investigate accidents on ships flying its flag.

2.1.3 Code for the Investigation of Marine Casualties and Incidents

From the early years, IMO, (former by IMCO) made efforts to improve the procedures for marine accident investigation as well as cooperation in this respect. The first IMO Assembly resolution related to marine accident investigation, A.173 (ES.IV) was adopted by the Fourth Assembly, held in 1968 (IMO, 1968), on Participation in Official Inquires into Marine Casualties. After that, IMO reached a number of resolutions on the investigation issue, including Resolution A.322 (IX): The Conduct of Investigation into Casualties (IMO, 1975); Resolution A.440 (XI): Exchange of Information for Investigations into Marine Casualties (IMO, 1979a); Resolution A.442 (XI): Personnel and Material Resource Needs of Administrations for the Investigation of Casualties and Contravention of Conventions (IMO, 1979b); and Resolution A.637 (16): Co-operation in Maritime Casualty Investigations (IMO, 1989) .

In 1997, IMO concluded an integrated Code on investigation -- the Code for the Investigation of Marine Casualties and Incidents (IMO, 1997d). The Code revoked Resolutions A.173 (ES.IV), A.440 (XI) and A.637 (16). This Code was issued under article 15(j) of the Convention on the International Maritime Organization in which IMO “recommends to Members for adoption regulations and guidelines” (IMO 1984). In this respect, like other non-binding casualty investigation related resolutions, the Code is still a recommended regulation rather than a mandatory one since it is not a part of any binding convention.

The Code aims to promote a common approach to investigation and cooperation between States. The Code only concerns identifying the contributing factors leading to marine casualties. The findings of the investigations are used “to

aid remedial action and to enhance the safety of seafarers and passengers and the protection of the marine environment” (IMO, 1997d, 1.2).

One main concern of the Code is cooperation. Instead of general requirement made by UNCLOS (refer to section 2.1.1.), the Code has particular guidelines on the procedure for cooperation. It groups the States who should cooperate in an investigation as “substantially interested” States. Those include States, which may have whole or partial jurisdiction on a marine casualty, and which have an interest because they have lost their nationals, have jurisdictions over their citizens involved, or over their certificates. Even a State that only has “important information that may be of use to the investigation” may be an interested State (IMO, 1997d, 4.11). In this perspective, the Code broadens the possibilities of involvement by those of States that only have partial jurisdiction or even no jurisdiction on the investigation. Nowadays, the shipping industry is very international. It is quite often that a ship owned by a corporation from a State, is registered in another State, manned by a third or fourth State. If this ship is involved in an accident in the internal waters of a sixth State with a ship registered in a seventh State, it is necessary to have cooperation among all interested States in the investigation.

Among those substantially interested States, the Code defines a lead investigating State to be in charge of the investigation organizing and coordinating. The lead investigating State can be chosen only by bilateral or multilateral agreement. In case an accident occurs in the territorial sea of a State, the lead State can be either the coastal State or the Flag State. If an accident involving two or more flag States occurs in high sea, either one could be a lead investigating State. In addition, the Code indicates that if a flag State fully participated in an investigation, conducted by another substantially interested State, the flag State is deemed as fulfilling its investigating obligations (IMO, 1997d, 6). It seems to give more flexibility to the flag State, but indeed, it gives more weight to coastal States.

There are eight responsibilities of the lead investigating State under the Code (IMO, 1997d, 7). Those responsibilities include developing a common strategy in liaison with substantially interested States, providing investigators and coordinating, preparing the report and reflecting the views of the substantially interested States, and so forth.

In short, three perspectives can be seen in the Code. First, the Code provides a so-called “common approach” (IMO, 1997d, 1.2) and a practical procedure for cooperation in the investigation. Second, the Code provides the possibility to broaden the scope of investigating States from other international binding conventions like UNCLOS; i.e., any substantially interested State, even if it is neither a coastal State, nor a flag State, may participate in an accident investigation. Third, the Code emphasizes the coastal States’ role in the investigations, which are not normally indicated clearly in most related international conventions.

2.1.4 Other IMO Instruments

2.1.4.1 Resolution A.322 (IX): The Conduct of Investigation into Casualties (IMO, 1975)

The resolution requires the contracting governments of SOLAS and LL to report their information from accident investigation to IMO and requires its Maritime Safety Committee to deal with the information properly.

2.1.4.2 Resolution A.442 (XI): Personnel and Material Resource Needs of Administrations for the Investigation of Casualties and Contraventions of Conventions (IMO, 1979b)

This non-binding resolution urges governments to take steps to ensure that qualified personnel and material resources are enough to fulfil their investigating obligations under the binding conventions.

2.1.4.3 the Human Element and Fatigue related to IMO instruments

IMO, rather than its member States, realized that the human element has a “prominent role” (IMOe, 1997) in marine accidents. It incorporated the principle in its Resolution A.850 (20) as (IMOe, 1997):

Effective remedial action following maritime casualties requires a sound understanding of human element involvement in accident causation. This is gained by a thorough investigation and systematic analysis of casualties for contributory factors and the causal chain of events.

This principle requests administrations to take account of human element as specified aspect of their accident investigation, although most investigations concerned it in the cause finding works, and the causes are often related with the error made by people.

Fatigue is one respect of human element. IMO has been working on it for more than 10 years. In 1988, the Maritime Safety Committee requested administrations of IMO member States to “initiate formal studies” on relationship “between fatigue and ship casualties” (IMO Maritime Safety Committee, 1988). After the discussion in the Joint IMO/ILO Committee in 1990 (IMO Maritime Safety Committee, 1991), a joint IMO/ILO group was established, and a uniform framework of procedures on fatigue in maritime accidents investigation was finalized by the group in 1992 (IMO Secretariat, 1992). In 1993, investigating guidelines for fatigue in accident investigations has been produced by the Maritime Safety

Committee of IMO (IMO 1993a). The guidelines give specific advice to investigators to help them to carry out the investigation on the fatigue aspect. The positive aspect of these guidelines is that it not only helps the investigator to handle the problem, but it is also helpful in using the investigating material for systematic study, which is more useful to enhance maritime safety. There is an IMO Assembly resolution on Fatigue Factors in Manning and Safety (IMO, 1993b), but it is not specifically connected with the accidents investigation, however, it set out the principles on the matter, which should be used in the accidents investigation. In IMO, there are under going work on it still. A correspondence group was established in 1998, and the work on reviewing work and advisory work are going on under the Maritime Safety Committee of IMO (IMO, 1999). This development will affect future maritime accident investigation.

2.1.4.4 Report to IMO

Report requirements are set in the conventions, like SOLAS, MARPOL, and LL. In conventions, the necessity of the report relies upon the administrations of parties. IMO has made criteria for the report with the consensus of the members; these requirements exceed the conventions but they are not binding instruments. Before 1997, there were distinct report requirements for accident reports by IMO under the different conventions, such as MSC/Circ. 338 on Fire Casualty Records, MSC/Circ.433 on Reports on Investigations into Serious Casualties, MSC/Circ.621 on Fatigue. In 1997, an amalgamation and harmonization of the procedures for reporting casualties to the IMO contained in previous MSC and MEPC circulars was produced by the IMO (IMO, 1997c). The aim of this work is to facilitate the reporting works of the Administrations of member States of the IMO. However, the contents of the report requirements are not changed, and an Administration should report its accident investigation information under the format of the harmonized reporting procedures.

2.1.5 ILO Conventions

2.1.5.1 C134 Prevention of Accidents (Seafarers) Convention, 1970

The International Labour Organization (ILO) has established standards in the maritime sector. One of the main categories of those standards affects the safety of life at sea, and reflects the collective concern for the safety of all persons on board ship as well as for other ships at sea (ILO, 1998).

The accidents that ILO is concerned with are different from IMO's. Occupational accidents, which arise out of or in the course of a seafarers' employment, are covered in C134 Prevention of Accidents (Seafarers) Convention, 1970. The convention has been ratified by 27 countries, which include Japan, and Germany, but not China, the UK, and the USA. Regardless of the difference, the convention requests the competent authority in each maritime country to ensure that occupational accidents are reported and investigated. These authorities also have an obligation to investigate the causes and circumstances of accidents resulting in loss of life or serious personal injury (Article 2). Furthermore, the Convention requests systematic analysis and research, "in order to provide a sound basis for the prevention" (Article 2, 3).

2.1.5.2 C147 Merchant Shipping (Minimum Standards), 1976

The Convention (entry into force from 28 Nov. 1981) requests its parties to undertake:

to hold an official inquiry into any serious marine casualty involving ships registered in its territory, particularly those involving injury and/or loss of life, the final report of such inquiry normally to be made public (ILO, 1976).

This clause has been deemed as one of the main requirements on flag state investigation (Wiswall, 1999), but, like other ILO conventions, it is not a widely accepted convention; only 37 countries have ratified the convention till now (Source: ILO web site, 1999), which include Japan, Germany, UK, and US, but not China.

2.1.5.3 C152 Occupational Safety and Health (Dock Workers) Convention, 1979

This convention covers “work of loading or unloading any ship” (ILO, 1979, Article 1). Regarding to accident investigation, it regulated:

to assist in the prevention of occupational accidents and diseases, measures shall be taken to ensure that they are reported to the competent authority and, where necessary, investigated.

A part of the accidents of this convention can be defined as a marine accident if it occurs onboard a ship. However, only 19 countries have ratified the convention, including Germany but not China, Japan, the UK and the USA.

2.2 National Laws

2.2.1 China

2.2.1.1 Legislation System

There are different levels of law and regulations in China. At the highest level are laws that have been adopted by the National People’s Congress, such as the Maritime Traffic Safety Law (1983). The second level is the local laws and regulations adopted by the Provincial People’s Congress, which concern local issues, but maritime issues have been recognized as the central government’s affair (Liu,

1998). The third level is regulations promulgated by the State Council, like Regulations on the Prevention of Vessel-induced Sea Pollution. The fourth level is regulations approved by the State Council but issued by a Ministry Decree. The fifth level is that Ministry Decree approved by a Minister administrative meeting and issued by the Minister, e.g., Regulations on Administrative Penalty of Maritime Safety Administration (1998). This level of decrees is only used in a specified ministry or in its working scope. In the subject of marine accident investigation, different levels of laws and regulations are concerned, from the general requirement to proceeding procedures.

2.2.1.2 Maritime Traffic Safety Law

The Maritime Traffic Safety Law of the People's Republic of China (1983) is the ruling law in the maritime safety field. The aim of the law is “to ensure the safety of vessels, installations, property and human life” (Article 1). There is one part on the “Investigation and Settlement of Maritime Traffic Accidents”, comprising of two articles. One stipulates that “any ship or installation involved in a maritime traffic accident must report, be subject to investigations and settlement, and give a true account of the facts (Article 43)”. The other (Article 43) says:

With respect to the maritime traffic accident that has happened to a vessel or an installation, the competent authorities shall find out the causes thereof and establish the responsibilities of the parties.

This law also concerns civil dispute settlements. The authorities may settle the disputes from accidents through mediation if the parties apply such mediation (Article 46).

The law gives a general regulation on penalties (Article 44); the penalties include warning, suspension, or withdrawal of certificate, and fines.

2.2.1.3 Marine Environment Protection Law (1982)

China has two major environmental laws, one being the Marine Environment Protection Law of the People's Republic of China (1982), and the other the Environmental Protection Law of the People's Republic of China (1989). It is significant that the Marine Environment Protection Law was issued earlier than the principal Environmental Protection Law. The aim of the law is "to protect the marine environment and resources, prevent pollution damage, maintain ecological balance, safeguard human health and promote the development of marine programmes." (Article 1)

In Article 34 of the law, it is regulated that when "an abnormal discharge of oils, oil mixtures or other harmful substances" occurs, which includes accidental pollution, "the vessel concerned shall ... report the matter to the nearest harbour superintendency administration for investigation and settlement".

2.2.1.4 Regulations on the Investigation and Handling of Maritime Traffic Accidents (1990)

The Regulations of the People's Republic of China on the Investigation and Handling of Maritime Traffic Accidents (1990) is the main body of rules on the marine accident investigation issue. The regulation is the implementing rule of article 43 of the Maritime Traffic Safety Law. The scope of the regulation is limited in any accident, which happens "in the coastal waters" of China. However, there is a Chapter (Chapter VII Special Provisions) dealing with Flag State investigation and investigation upon Chinese national and Chinese certificate of competence holder who works on a ship other than Chinese-flag but is involved in an accident. The accidents are defined as follows:

- (1) collisions, strikes or damage by waves;
- (2) hitting submerged reef or running aground;
- (3) fire or explosion;
- (4) sinking;
- (5) damage or loss of machinery parts or important tools during a voyage which affects the vessel's seaworthiness;
- (6) other maritime traffic accidents which cause loss of property and human lives.

The Regulations contain ship report requirements, investigation procedures including duties and obligations of investigators and ships, consequent works after the investigation ("handling"), mediation, penalties, so on and so forth. There are only general rules regarding penalties; the procedural rules are laid down in a Ministry Decree -- Administrative Penalty Provisions on Maritime Safety Administration of the People's Republic of China (newly updated in 1998).

2.2.1.5 Regulations on the Prevention of Vessel-induced Sea Pollution (1983)

In 1983, one year after issuing of the Marine Environment Protection Law, the State Council issued pertinent Regulations. The Regulations are operative rules under the law pertaining to documents and equipment requirements, discharge standards of oil and other waste water, dangerous goods, garbage, dumping by vessels, pollution prevention requirements on ship repairs, building, salvage and scrapping, pollution compensation and so forth. In the case of accidental pollution, there is an article (Article 7) dealing with it, but there are no further requirements from Article 34 of the Environment Protection Law. The wording is almost the same, i.e. the ship must "control and eliminate the pollution", submit a "written report" (this is the only distinction) and cooperate with the official investigation.

2.2.1.6 Provisional Provisions on Very Serious Accidents Investigation

In 1989, the State Council issued the Provisional Provisions on Very Serious Accidents Investigation by a State Council Decree (No.34, 29 March, 1989). The term of “very serious accidents” in the decree was explained by a formal document of the Ministry of Labour as, among others, “a railway, maritime, mine, or electric power accident, which caused the death of more than 50 or caused more than 10 million Yuan in direct damage” (Ministry of Labour, 1990). The investigating group may consist of the related ministry or related local government, public security organ, supervisory organ, planning and summing organ, labour organ, and, the members of the people’s prosecution organ and the labours’ union (article 18 of the State Council Decree; Ministry of Labour, 1990). The aims of the investigation can be seen in the “responsibilities of the investigating group” to be to:

- (1) find out causes of the accident, the circumstances of personal death and injuries, damage to property;
- (2) find out the nature of the accident and responsibilities;
- (3) submit the handling recommendation to accident and recommendations on measures to prevent similar accidents;
- (4) submit suggestions on potential penalties against those responsible for the accident;
- (5) inspect, if it is suitable and if it has been implemented, the contingency measures on the accident control;
- (6) finalize the accident investigation report.

There is a different approach to accident investigation in China. It does not contradict with the maritime accident investigation carried by the maritime safety administrations. However, it is very useful because the power of the investigation is greater than the normal investigation.

2.2.2 Germany

Based on the Law for Investigations of Maritime Accidents, the subject of the marine accident investigation is described as “gain causes with aim of prevention in the future” (Lampe, 1999). The Law authorizes the competence of investigation to the Federal Appeal Board for Maritime Investigation and Board for Maritime Investigation in different ports.

2.2.3 Japan

The principle law in maritime accident investigation is the Marine Accidents Inquiry Law (Law No. 135 of 1947). The Law has been enforced since 29 February 1948 (Kai, 1999b). The aim of the investigation is “accident prevention” (Kai, 1999a). Under the control of the Ministry of Transport, the Marine Accidents Inquiry Agency is in charge of the administrative marine accident investigation. It is composed of seven Local Marine Accidents Inquiry Agencies and the High Marine Accidents Inquiry Agency.

2.2.4 The United States

2.2.4.1 United States Code

The United State Code is the official, subject matter order, compilation of the Federal laws of a general and permanent nature that are currently in force. Its title 46 Chapter 63: *Investigating Marine Casualties* is a major substantive law in the USA dealing with maritime accident investigation. As its Sec. 6301 defines, an investigation is required to determine the cause of the casualty as well as matters relating to personal fault. Another is Code 49 Chapter 11, which defines the investigating role of the National Transportation Safety Board.

2.2.4.2 The Code of Federal Regulations

The procedural laws are defined at a lower level -- the Code of Federal Regulations (CFR). There are two rules on the marine accident investigation issue. One is Section 4, Chapter 1 of CFR 46: Marine Casualties and Investigations, which mainly related to investigations by the USCG. It includes the authority and scope of implementation, reporting, evidence providing, testing, investigation, testimony, criminal liability concerning, and relationship between the Coast Guard and the NTSB. Another is Chapter VIII of CFR 49: National Transportation Safety Board. In Part 800 of the Chapter VIII, the primary function of the Board is described as “to promote safety in transportation.” “The board is responsible for the investigation, determination of facts, conditions, and circumstances and the cause or probable cause or causes of: ... major marine casualties and marine accidents involving Coast Guard functions” (§800.3). “These results are then used to ascertain measures that would best tend to prevent similar accidents or incidents in the future” (§831.4, Part 831 -- Accident/Incident Investigation Procedures). In Part 845, the rules define procedures on accident/incident hearings and reports. The procedures are not only applied for marine accident investigation, but also for aviation, railroad, highway and pipeline casualty inquiries.

2.2.5 United Kingdom

The principle law in the United Kingdom regarding marine accident investigation is the Section 267 of the Merchant Shipping Act 1995 (Phillips, 1996, 192). It is re-enacted the Section 33 of the 1988 Act (Merchant Shipping Act 1988) as the legal base of the implementing rule, which is the Merchant Shipping (Accident Reporting and Investigation) Regulations 1994. In the Act of 1995, there are two kinds of investigation; one is the marine accident Chief Inspector’s investigation, another is the formal investigation. It is caused by the Secretary of State for the

Environment, Transport and the Regions, and conducted by a wreck commissioner in England, Wales or Northern Ireland, or a sheriff in Scotland (Phillips, 1996, 193). According to the 1995 Act, these two investigations do not relate to each other, so they are not in conflict.

The procedural law in marine accident investigation is the Regulations of 1994. These were issued by the Secretary of State for Transport under the 1988 Act. The motive of an accident investigation in the Regulation is (section 4 of the Regulation):

to determine its circumstances and the causes with the aim of improving the safety of life at sea and the avoidance of accidents in the future. It is not the purpose to apportion liability, nor, except so far as is necessary to achieve the fundamental purpose, to apportion blame.

The regulation defines obligations and methods of reporting by the ship masters and owners. It sets out investigation procedures as well as the following work like how to make recommendations. One important point is that this investigation is not linked with the penalties for the fault that causes accidents. Although there are penalties on failure to report or cooperate in the investigation.

2.3 Summary and Evaluation

(1) Although many international conventions concern marine casualty investigation, there is no clear obligation on coastal State investigation even flag State investigation. Investigations under UNCLOS are only related to accidents on the high sea. ILO C147 convention has the clearest requirement on flag State duties (refer to 2.1.5.2). Unfortunately, only 37 countries have ratified the convention. China is not a party of the ILO 147 currently. Consequently it is not a widely accepted binding convention. IMO should have the major role in this issue, but there

are only very flexible clauses in its main conventions. These conventions leave the flag State to judge whether to conduct an investigation or not. The IMO Code for investigation is a valuable document on this issue, clearly defining the aim and procedure of investigation and cooperation between administrations. However, it is a recommendation only. Coastal State investigation is very important in the safety respect as to its quick response and its effective controlling by the local authority. However, there are no binding international rules related with such investigation. It relies on the coastal State to decide whether to conduct an investigation. Although most coastal States are doing this, it is better to have binding international rules. It will benefit global maritime safety to make a common approach and have objectives on coastal State investigation rather than leave countries to do it by different ways. In the author's opinion, it may be acceptable to amend clauses in major IMO Conventions on defining what kind of accident should be investigated and the role of the coastal State. Another possible choice is to make a convention on it, as the International Civil Aviation Organization has done (Aircraft Accident Investigation, Annex 13 to the Convention on International Civil Aviation, 1981).

(2) China has a completed legislation framework on the marine accident investigation issue; the aim of the investigation is clear on ensuring safety and human life (Maritime Traffic Safety Law). The direct objective of the investigation is to find out causes of an accident and to establish the responsibilities of the parties (Maritime Traffic Safety Law). Those aims do not relate to prevention in the future (Provisional Regulations on Very Serious Accidents Investigation mentions it), but to the causes of an accident. If these are known by people in the sector, then this will certainly contribute to future prevention. On the procedural side, it is not perfect when compared with the United Kingdom's and the United States' regulations; there are areas to be improved in explicit requirements. However, this will be discussed in following chapters.

(3) Because there are not enough materials, Japanese and German legislation are not very clear . According to the available information, Japan and Germany have very clear goals in marine accident investigation; that is to find the causes to prevent similar accidents in the future.

(4) The United Kingdom has an almost perfect legislation on this issue. The goal is to determine circumstances and causes of the accident and to improve the safety but not to blame. This conforms to the prevailing safety culture requirements. The author believes that because it was produced in 1994, the most recent legislation, it absorbed advantages from previous legislation as well as experiences. It is simple and clear.

(5) Since there are two permanent administrative systems regarding accident investigation, the United States has a rather complex legislation. In the USCG investigation, the goal is to find out the causes. NTSB investigations on the other hand, are conducted to promote safety and to prevent similar accidents in the future. The regulations are very concrete and easy to implement.

3. ORGANIZATION OF MARINE ACCIDENTS INVESTIGATION

This chapter will introduce the organizations of marine accident investigation in different countries, and give an overview of their work. Furthermore, it will compare qualification requirements of the investigators in those countries. The organization chart will be used. In the last part of the chapter, the positive and negative aspects on different types of organizations will be made.

3.1 China

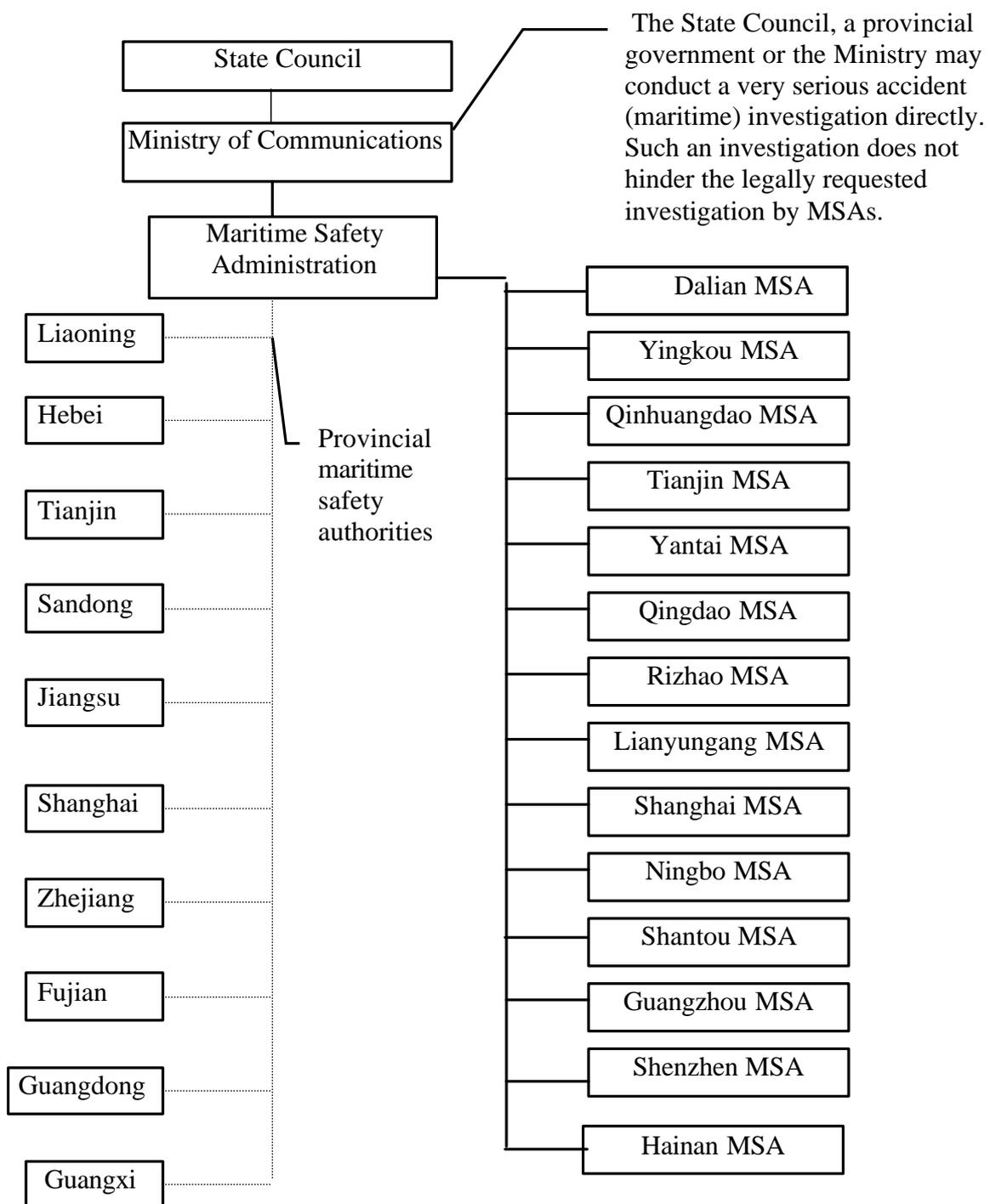
In China, marine accident investigations are conducted by the Maritime Safety Administrations (MSAs) in different ports. The Maritime Safety Administration of the People's Republic of China (MSA of China), under the Ministry of Communications, is in charge of organizing and coordinating investigations. There are fourteen MSA branches in major ports along the coast. The branches in different ports cover their area respectively, and deal with the safety matters of the ships registered in each port. MSA branches in different ports may investigate accidents individually or jointly. When it believes necessary, the MSA of China may investigate an accident directly. China has 10 provincial maritime safety authorities in charge of small ports and their water safety. These organizations are not the branches of the Ministry, belonging to the provincial governments. They investigate the accidents occurring in their responsible waters. Although they belong to the Ministry, the rules are the same and the investigating work should be supervised by the MSA of China (see Figure 3-1).

Each maritime accident investigation has only one instance in China. The report of the investigation is final. Nothing prevents the reopening of the investigation, but the legislation does not include such alternatives. The disciplinary actions, such as the withdrawing of the certificate or imposing of a fine, are linked to the accident investigation, but there is a different procedure for penalties. In practice, a penalty may be made before the investigation has been completed. For penalties, there are channels to appeal. A penalty can be revoked by an appeal.

There is no specific requirement for qualifications of the accident investigators of the MSAs. Normally, they are experienced maritime safety officers with various technical backgrounds. Some of them have sea service experience, even a master or a chief engineer. If necessary, a MSA may invite specialists (experienced seagoing master, engineer, naval architects, etc.) to participate in an investigation as advisers.

There is another kind of investigation in China. It is called “very serious accident investigation.” If more than 50 people who died or there is vast damage, the State Council, which is the highest organ of the government, or a provincial government (including the municipalities directly under the Central Government, such as Shanghai, and autonomous regions), or a ministry may organize a special and widely concerned investigation. The investigating parties may include all related government departments, even a military department if it is concerned. When a marine accident has reached the level of the “very serious accident”, the MSA of China and its branches always are involved in the investigation. Normally they are in charge of the witness inquiry and technical analysis with a joint expert group, which consists of the top experts in the maritime fields of the country.

Figure 3-1 The Organizational Structure of Marine Accident Investigation in China

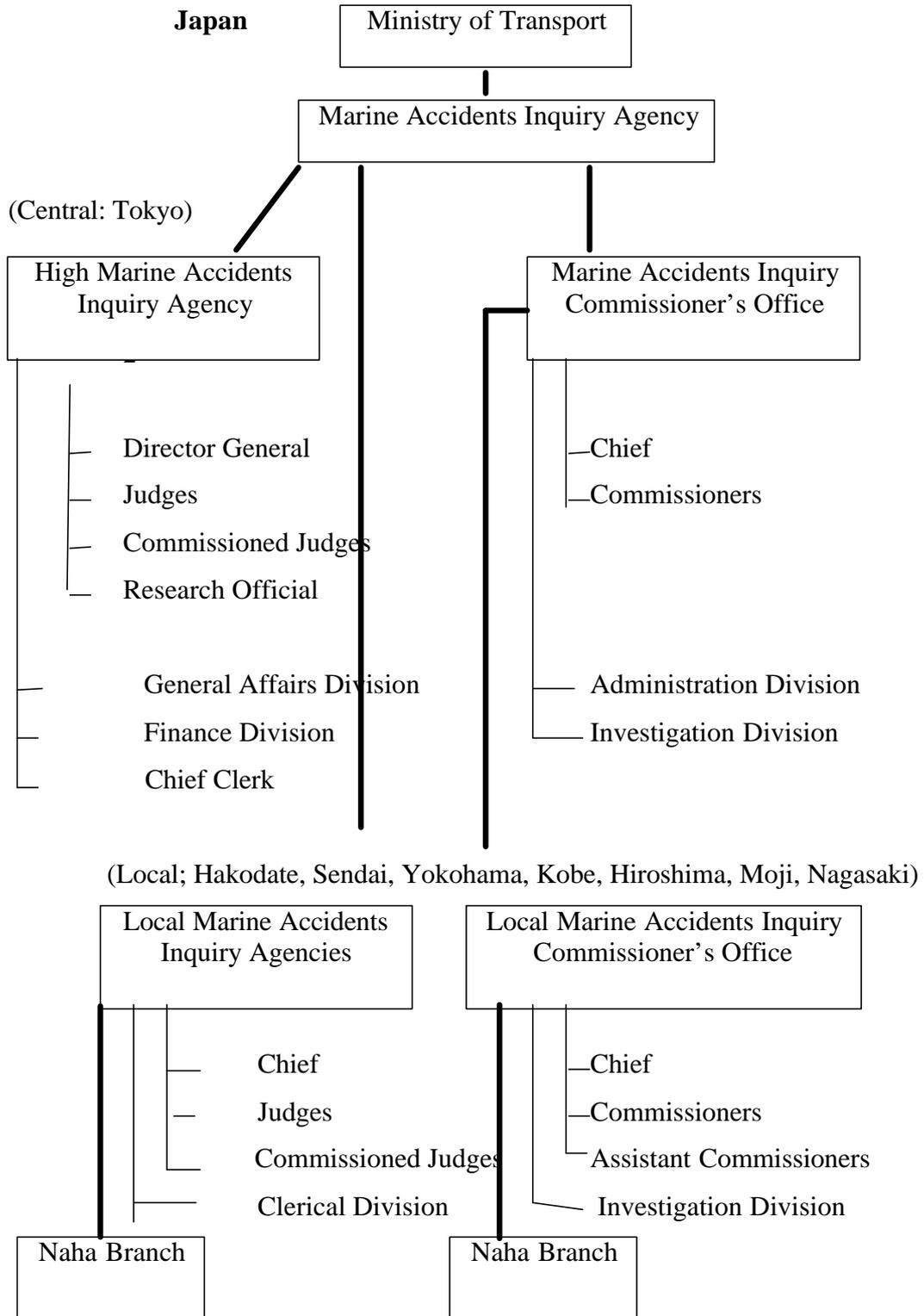


3.2 Japan

Japan has a long history of maritime accident investigation. In 1896, through enactment of Mariners Disciplinary Punishment Law, an independent inquiry system was introduced in Japan (Kai, 1999b).

Under the Ministry of Transportation, the Marine Accidents Inquiry Agency (central) is the only organ to deal with maritime accidents administrative investigation. The Japanese Maritime Safety Agency (JMSA), which is a paramilitary and law enforcement organization, has a duty to investigate only the search and rescue aspect of an accidents. The Inquiry Agency (central) consists of the High Marine Accidents Inquiry Agency and the Marine Accidents Inquiry Commissioner's Offices. Local Marine Accidents Inquiry Agencies belong to the Inquiry Agency (central). The Local Marine Accidents Inquiry Commissioner's Offices, on the other hand, belong to the Inquiry Agency (central) directly and are branches of the Commissioner's Office (see Figure 3-2). Local Marine Accidents Inquiry Agencies, being composed of seven branches and two sub-branches in different locations, conduct the inquiries. In the same places that the Local Inquiry Agencies are located, one will find Local Commissioner's offices. The so-called commissioners are investigators. They investigate accidents, and may submit their investigation to the investigating court of a related Inquiry Agency. If they do so, a conclusion (judgement) will be made by the Judges from the Inquiry Agency. Besides, any punishment decision can only be made by the judges after an open hearing process (Kai, 1999b).

Figure 3-2 The Organizational Structure of Marine Accident Investigation in Japan



(Source: Captain K. Kai)

There are two stages in a typical investigation. When an accident occurs, commissioners from a local agency take the on-the-spot investigation first, and then decide whether to conduct an open inquiry. The Presiding Judge from the Local Inquiry Agency chairs an open inquiry. A hearing procedure must be used. The final judgement will eventually be made. Sanctions, if necessary, will be decided by the judges. When there is an appeal, the High Marine Accidents Inquiry Agency will conduct inquiries in the second instance (Kai, 1999b).

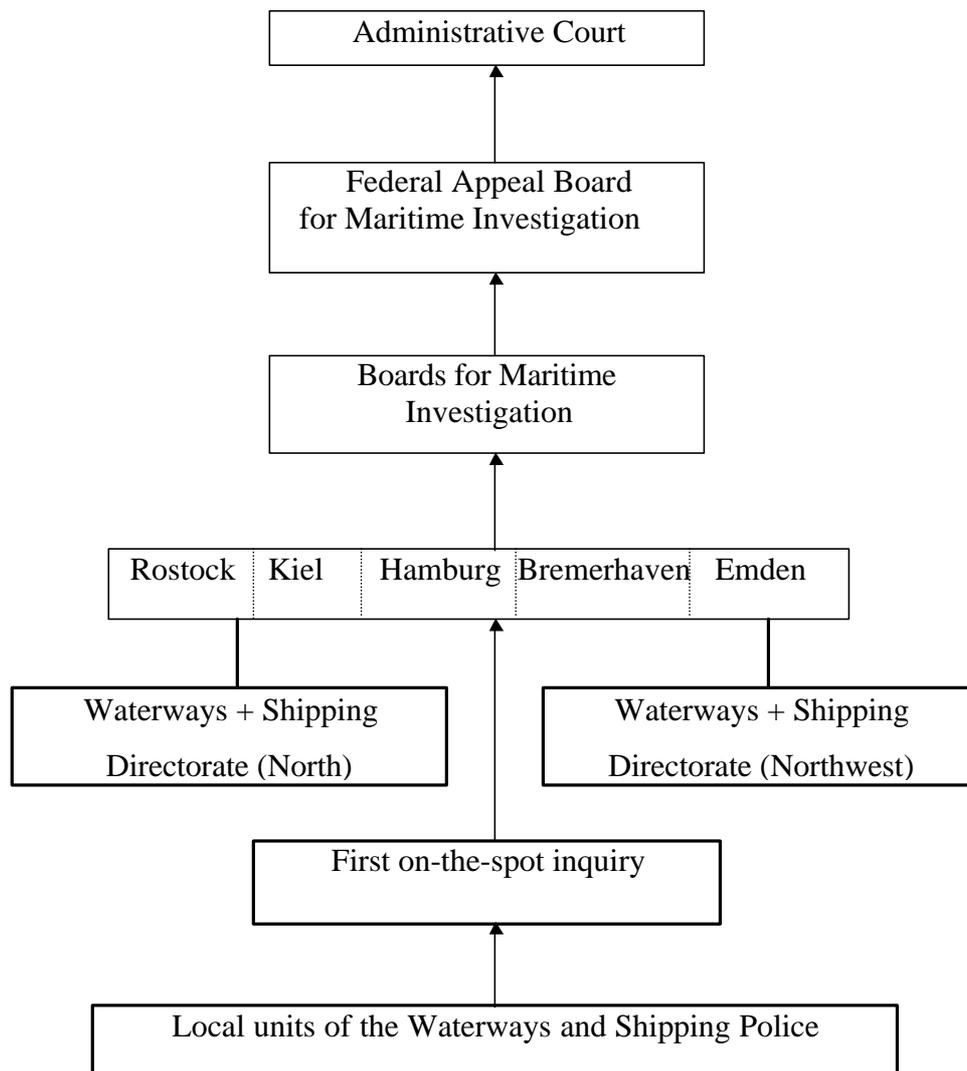
As a commissioner in a commissioner's office, if the person is not a master and has three years experiences, he/she should be an experienced JMSA officer, or a chief engineer, or a naval architect (Kai, 1999a).

3.3 Germany

In Germany, although the Republic is a Federal State, maritime affairs are predominantly under the jurisdiction of the Federation (Lampe, 1998). The main administrative marine accident investigating organs in Germany are five regional Boards for Maritime Investigation (see Figure 3-3). The accident investigations are combined with the decisions of disciplinary actions to the crew. The five Boards are administratively attached to the two regional federal authorities (Directorates). Nevertheless, the decisions the boards make are completely independent (Lampe, 1998). The decisions of the Boards can be appealed. The appeal will be heard by the Federal Appeal Board, which is an independent authority under the supervision of the Federal Ministry of Transport. The decision can be further appealed to a court. Preliminary investigations, or on-the-spot investigations, are conducted by waterway and shipping police who belong to the coastal states. After a public inquiry hearing, the full report is published in an official monthly magazine, and reported to IMO accordingly (Lampe, 1999).

In a Board, there is a permanent assessor who should be a sea going master. Other assessors may be a master, engineer, or a ship builder (Lampe, 1999). The Chairman of a Board should be a lawyer.

Figure 3-3 The Organizational Structure of Marine Accident Investigation in Germany



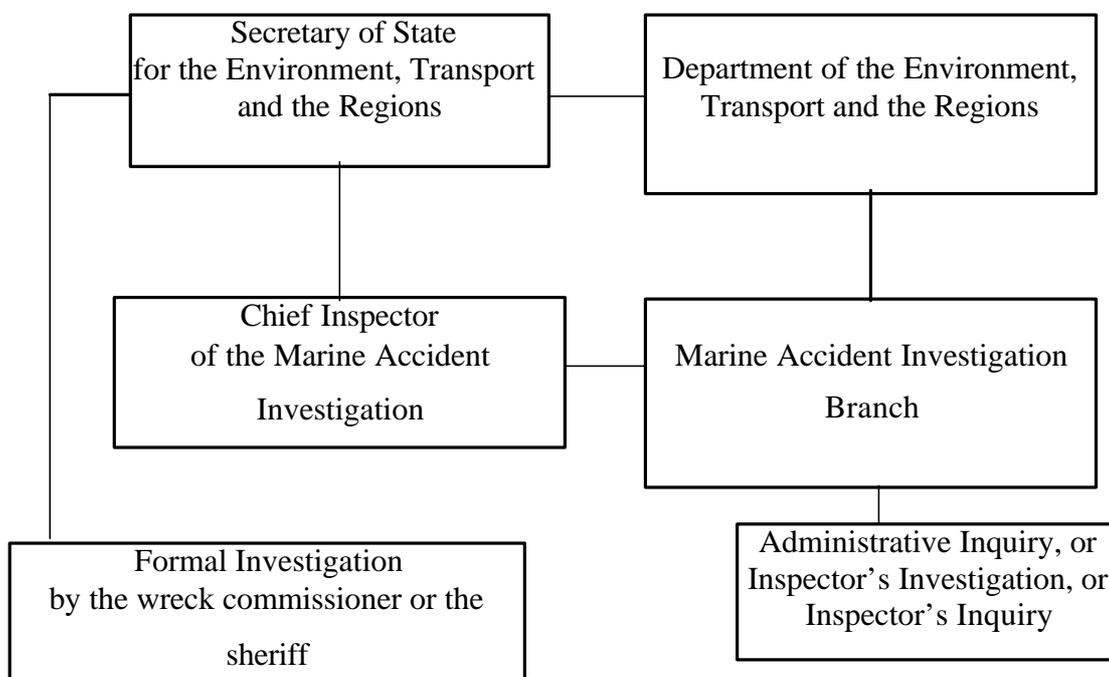
(Source: Dr. Lampe)

3.4 United Kingdom

In the United Kingdom, the Marine Accident Investigation Branch (MAIB) is the competent authority in marine accident investigation (see Figure 3-4). The MAIB is a distinct and separate branch within the Department of the Environment, Transport and the Regions. The Chief Inspector of the MAIB reports directly to the Secretary of State for the Environment, Transport and the Regions on marine accident investigations. The MAIB has a staff of 19 people, consisting of 11 inspectors. It is located in Southampton, and does not have any branches. The MAIB's responsibility covers the investigation of accidents on all UK registered ships and other ships in UK territorial waters. It is not a prosecution body and it does not have the disciplinary right against ship personnel. There are three levels of investigations: Administrative Inquiry, Inspector's Investigation and Inspector's Inquiry. At the first level, the investigation is conducted mainly by correspondence. At the second level, inspectors would conduct a "field" investigation and provide a report. At the third level, the Chief inspector must submit a report to the Secretary of State (MAIB, 1998, 1-3).

A formal investigation may be called by the Secretary of State for any marine accident. In this case, the investigation is held by a wreck commissioner if it is in England, Wales or Northern Ireland, and by the sheriff in Scotland. The MAIB will provide support to any such investigation as required (MAIB, 1998, 4). A formal investigation has an open hearing process. It may suspend or cancel UK-issued certificates. It is completed by a report of investigation.

Figure 3-4 The Organizational Structure of Marine Accident Investigation in the United Kingdom

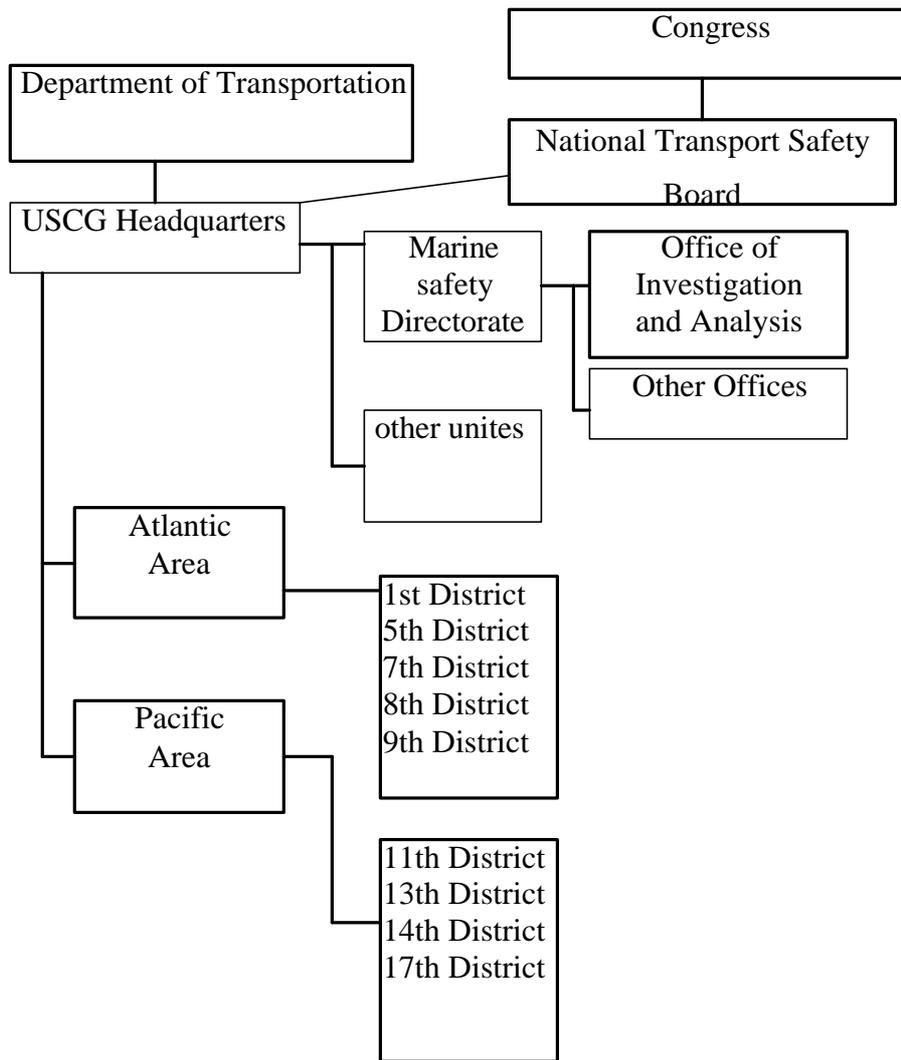


3.5 The United States

The United States Coast Guard (USCG) is an organization for marine accident investigations in the United States. Under the Department of Transportation, the USCG “is at all times an armed force -- a full time military organization with a true peacetime mission (USCG, 1999a).” Primary Organizational elements include USCG Headquarters, two Area commands, and nine District commands (see Figure 3-5). The USCG’s four main mission areas are maritime law enforcement, maritime safety, marine environmental protection, and national security. Moreover, the USCG’s accident investigation includes cause-finding and violation determination, i.e., to know why and how an accident happened

for safety improvement, and to determine the violation of law and regulations, which may lead to the institution of a civil penalty, certificate suspension and revocation, or criminal law proceedings (send information to US attorneys).

Figure 3-5 The Organizational Structure of Marine Accident Investigation in the United States



Investigators of the USCG should be qualified officers. They should have a maritime safety background, may be a senior inspector of material or have experience in deck operations (USCG, 1999b, Vol. 5, Chapter 3, C).

The National Transportation Safety Board (NTSB) is another organization that has authority of marine accident investigations. The NTSB is an independent Federal agency charged by Congress with investigating accidents in transportation, which include major marine accidents. The Board is responsible for investigating, determining the probable cause, making safety recommendations, and reporting the facts and circumstances of the accidents it investigates (The Government Manual, 1999, 628). The Board has no regulatory or enforcement powers. For an NTSB investigation, the USCG conducts the preliminary investigation, and participates it as a party.

3.6 Summary and Evaluation

(1) China, Japan, Germany, the United States and the United Kingdom, all have at least one competent authority to deal with marine accident investigations. They have an administrative structure to conduct the investigations. This is the fundamental base of the investigation. There is police power involved in the investigation in some countries. In Germany, the waterway and shipping police conduct preliminary on-the-spot investigations. In the United States, the US Coast Guard has law enforcement power, that is, police power. Upon close examination, however, it does not seem so important whether the investigator has police power or not.

In Japan, Germany, and the United Kingdom, the investigating authority is a specialized agency. They perform the investigation tasks distinctively. In the United States, there is an investigating authority (NTSB) for major marine accident investigation, though most of the accident investigations are carried out by the US Coast Guard. There is no special authority to deal with marine investigation in China. The Maritime Safety Administrations investigate all maritime accidents. If

there is a “very serious accident”, the investigating body may be different, but it is a provisional body only. Someone may say it may achieve more in safety if there is an independent investigating body. Dr. Lampe in Germany, Mr. Brydges in the UK and Captain Kai from Japan have the same view in this point, they believed it is important and very valuable to have an independent investigating body (Lampe, 1999; Brydges, 1999, Kai, 1999a). In these three countries, they do have independent authority dedicate marine accident investigation only. In China and the US, the maritime safety authorities have the responsibility.

Mainly, there are two reasons to have a special entity to deal with the investigation. One is that investigation needs special skill and knowledge (Kai, 1999a). Another is that if it is an independent authority, it can blame or criticize the safety administrations (Lampe, 1999). Indeed, there are two positive aspects of using a special authority to deal with accident investigations. In a special authority, the qualifications of investigators normally have more stringent requirements than those who work in an integrated organization. This can be seen in the qualification requirements of investigators in China and the USCG compared with their counterparts in Japan, Germany and the UK. Another positive aspect is that as an independent (relatively) organization, it is easy to find out the insufficiencies of the maritime safety authorities in its works that may have an affect on an accident. If the investigators come from a maritime safety organization, it is rather difficult to criticize their own work. On the other hand, one may argue that it is not the safety authorities’ job to make an accident not happen. In each particular case, an authority may not have many effects on its causes. Nevertheless, it may have effects is an accident or a series similar accidents, since its job is to maintain maritime safety.

The negative aspect of maintaining an independent organization is the scale of that organization. Accidents do happen but no one can predict when and where they will occur. It can not be maintained as a large organization and wait for accidents to happen. Furthermore, if there is a small organization, it can not cope

with its investigation needs all of the time. It is difficult to send investigators to the scene quickly. It is vital for evidence collecting and for getting testimonies from witnesses very quickly. Less time interval means more accuracy. The situation in the United Kingdom illustrates this point very well. In the UK, MAIB only have 11 investigators (inspectors), located in one place (Southampton). It may not get its investigators on the scene very quickly if an accident occurs in the northern part of the UK, Glasgow, for example. In addition, the MAIB has to make correspondent investigations for less important accidents. Similar to the UK, Japan has seven local inquiry agencies and a branch to deal with all accidents in its waters and ships flying its flag. In contrast, the USCG and MSAs in China have their agencies in all major ports of their countries. It may make a prompt response for an investigation. Furthermore, as a comprehensive organization, like the USCG and the MSA, it has various resources which can be used in an investigation when necessary, to cope with the suddenness of the accidents. Especially when a major accident happens, a lot of resources may be needed for an extensive investigation.

(2) The qualifications of investigators are one of the key elements in investigations. In the UK, Japan and Germany, the qualifications of investigators are clearly defined. They consist of masters, chief engineers, naval architects, or lawyers. Contrarily, China does not have specified requirements on the qualifications of the investigators. While the investigators in China do have various professional backgrounds and different working experience in the maritime safety field, there is a lack of sea service experiences on the part of investigators. This is a weakness; although, finding specific weaknesses may not be so important. What is important is to make a specific qualification requirement for the investigators.

(3) The United Kingdom, the United States, and China, have the dual-investigating system. The United Kingdom has the MAIB' investigation and the formal investigation. The United States has the USCG's investigation and the NTSB's investigation. China has the MSA's investigation and the "very serious

accident investigations”. This seems redundant, but it is not. Every organization has its own restriction from its aims, legal position, personnel, authority, experiences and so forth. When two organizations are involved in an issue, they are interrelate and interact with each other, that is, they will normally make an investigation deeper, broader and better.

4. PROCEDURES OF THE INVESTIGATION

This chapter will deal with the procedural aspects of marine accident investigations, including jurisdiction, reporting, process of the investigations, sanctions to a certain extent, and so forth. Process flow charts and certain cases will be used. A summary will be made at the end of the chapter.

4.1 Jurisdiction

4.1.1 UNCLOS and Customary International Law of Coastal States

Since the flag State jurisdiction has been discussed in Chapter Two, this section will only deal with the coastal State jurisdiction aspect.

It is probably the oldest customary international law on the seas that coastal States have sovereign right in their territorial waters including the conduct of an investigation into an accident (Wiswall, 1999).

Coastal States may execute their jurisdiction beyond territorial sea in certain circumstance. Regarding pollution, under the Article 220 of UNCLOS, if the coastal States have “clear grounds” and “clear objective evidence”, they can broaden their jurisdiction to its EEZ (United Nations, 1982). It can conduct “physical inspection”, to “require information”, and to “institute proceedings, including detention of the vessel”. Beyond the EEZ, if there are actual or a threat of damage following upon a maritime casualty in the high sea to the interest of coastal State, it has right to “take and enforce measures”, which may include a kind of casualty investigation (Article 221). However, the coastal states should avoid undue dally upon foreign vessels in any investigation (Article 226, UNCLOS).

4.1.2 Investigating Jurisdiction of the Countries

The Maritime Traffic Safety Law (1983) of China applies to all vessels and mobile installations “in the coastal waters” of China (Article 2). Consequently, the marine accident investigation, being defined in that law, is applicable to all accidents that occur in Chinese coastal waters. The term coastal waters in the law consists of “territorial seas” and “all other water areas under its (Chinese) jurisdiction” (Article 50). These rules concern coastal state jurisdiction. With respect to flag state investigation, under Article 33 of the Regulations on the Investigation and Handling of Maritime Traffic Accidents (1990), the Maritime Administrations of China have the authority to investigate a Chinese-flag ship which is involved in any accident. Furthermore, the MSAs are entitled to investigate the master and officers who hold Chinese certificates of competence, but are working on a non-Chinese flag ship when an accident occurs (under the same Article of the Regulation on the Investigation of China). Since many Chinese nationals work on non-Chinese flag ships, this rule is designed to cope with the responsibility of the certificate issuing administrations.

The Marine Accidents Inquiry Agency of Japan has jurisdiction over any marine accident caused by any Japanese vessel regardless of its location. It is possible to investigate a marine accident involving personnel who use Japanese certificates as crew onboard other than on Japanese flagged ships, although there are not many cases relating to this. On the coastal state jurisdiction side, for a non-Japanese flag ship, if it causes an accident in Japanese territorial waters, the Japanese Inquiry Agency has jurisdiction as well. Currently, there is no investigating requirement for an accident taking place outside of the territorial sea, even if it is within the EEZ (Kai, 1999a).

The jurisdiction in accident investigation of the Boards for Maritime Investigation covers all German flag ships and all accidents occurring in German territorial seas, its EEZ or other defined water area (Lampe, 1999). In addition, if

there are German certificate holders involved in an accident, even if they are working on non-German flagged ships, they are subject to the investigations of the Boards.

In the United Kingdom, the Marine Accident Investigation Branch has the responsibility to cover “the investigation of accidents to or on all UK registered vessels anywhere in the world, and also to other vessels if they are within twelve miles of the UK coast (UK territorial waters)” (MAIB, 1998). There is an alternative investigation, which is subject to an accident determined by the Secretariat of State [Merchant Shipping Act 1995, Section 267(2)(b)]. If a UK license holder working on a non-UK flag ship causes an accident, the MAIB may offer its “services to the flag or coastal state conducting the investigation”(Brydges, 1999).

The USCG investigates those accidents occurring “upon the navigable waters of the United States, its territories or possessions or any casualty or accident wherever such casualty or accident may occur involving any United States’ vessel”(CFR 46, Chapter 1, §4.03-1). The navigable waters of the United States includes territorial seas, internal waters and “other waters over which the Federal Government may exercise Constitutional authority.” (CFR 33, Chapter 2, §2.05-25)

The IMO Code for the Investigation of Marine Casualties and Incidents has its influence in the jurisdiction, although it is a recommendation. It states seven kinds of “substantially interested State”, which may have jurisdiction (IMO, 1997d, 4.11). These consists of flag states, coastal states, countries with personnel involved, and other related countries. The Code encourages all substantially interested states to participate in an investigation on a cooperation basis. There is not a joint investigation under the Code, however, so the investigating report made by the Lead State (one of the flag states, or the coastal state) should reflect the views of the substantially interested states (IMO, 1997d, 7.5). In this sense, a state has partial jurisdiction on an accident, and may finally cover the whole aspect of the investigation, i.e., extend its jurisdiction in this regard. If countries follow the Code

and if at their option, they intend to cooperate in an investigation, they should follow it as far as their national law allows. This may extend every country's jurisdiction to get the whole picture of the accident and it will benefit the safety aspects.

4.2 Conducting Investigations

The Investigating Flow Charts of different countries are shown in Figure 4-1 to 4-5.

4.2.1 Scope of Marine Accidents

Every country has its own scope of marine accidents, for instance, some legislation includes occupational accidents on board ship in its scope, and some does not. The scope of marine accidents in the United Kingdom and the United States includes loss of life and major injury [Section 2 (e), The Merchant Shipping (Accident Reporting and Investigation) Regulations 1994; CFR 44 §4.05-1, (5), (6)]. This consists of occupational accidents. Contrarily, in the Chinese definition, the accident is limited to the scope of maritime traffic accidents which cause loss of lives and damage [Article 3 (6), Regulations on the Investigation Handling of Maritime Traffic Accidents, 1990]. Since China has other systems covering labour law, it is unnecessary to include occupational safety in the marine accident investigation.

There is a unique investigation in United Kingdom covering dangerous occurrence and hazardous incidents, which are not covered by the marine accident investigations of other countries. The dangerous occurrence is specified incidents, which might cause a serious injury or damage, such as the fall of any person overboard, the collapse or bursting of any pressure vessel, pipeline, or valve, the parting of a tow-rope, etc. The other events, not being an accident or a dangerous occurrence, by which the safety of a ship or any person is imperilled, are defined as hazardous incidents [The Merchant Shipping (Accident Reporting and Investigation)

Regulations 1994, Schedule, Dangerous Occurrences]. Since useful lessons could be learned from these occurrences and near misses, this peculiar accident investigation could be seen in a good way to improve safety culture.

4.2.2 Reporting of Accidents

There are no big differences between countries as far as reporting requirements are concerned. In its coastal waters, China requires an immediate summarized report from ships involved in an accident. This report should be made by VHF radio telephone, telegraph or other effective ways (Regulations on the Investigation and Handling of Maritime Traffic Accidents, 1990). When a ship involved in an accident ship arrives at a port, a written report should be submitted by the ship to the MSA in that port within 48 hours of its arrival. Such a written report should contain specific information, which includes the detailed description of the accident, damage and so forth. When a Chinese flag ship involved in an accident out of Chinese coastal waters, its owner or operator should report it to the MSA at the ship's register port. No time requirement is necessary, but there is a time limit of sixty days for submission of the written report. No official forms need to be submitted, although there are eight requirements for the written report (Article 7, Regulations on the Investigation and Handling of Maritime Traffic Accidents, 1990).

In Japan, the master of a ship has the legal obligation to report any accident involving his ship. In addition, the police, Japanese Maritime Safety Agency and Japanese consul abroad should report to the Marine Accidents Inquiry Agency (Kai, 1999). The masters and the shipowner must report their accident in Germany as well. Furthermore, the shipping police also maintains observation on the accidents issue (Lampe, 1999).

The Merchant Shipping (Accident Reporting and Investigation) Regulation 1994 of the United Kingdom elaborates reporting requirements after an accident.

The master shall send a report “as soon as is practicable by the quickest means available, and in any case not later than 24 hours after the ship next arrives at a port” (section 5 of the above Regulation). Serious injuries and dangerous occurrences must be reported within 14 days or within 14 days after arrival at the next port. MAIB has an Incident Reporting Form (IRF) to facilitate the reporting (MAIB, 1998).

Immediately after the addressing of resultant safety concerns, the owner, agent, master, operator, or person in charge, shall notify the USCG when a ship is involved in a marine accident in the US (CFR 46, §4.05-1). In addition, within 5 days, a written report, which must be provided on Form CG-2692 (Report of Marine Accident, Injury or Death), shall be delivered to the USCG as well (CFR 46, §4.05-10).

4.2.3 On-the-spot and Follow-up Investigation

China does not have regulation upon on-the-spot inquiring. The investigation “shall be promptly carried out”, according to the Regulation on the Investigation and Handling of Maritime Traffic Accident (Article 11). An accident may be investigated by the Maritime Safety Administration in the nearest port or the Maritime Safety Administration on the port where the vessel first arrives after an accident. The on-the-spot investigation should always be carried out promptly. In practice, the investigators may wait for the ship in the port or its anchorage, or even rush to the scene. When investigations are carried out as a flag State, the investigation normally takes place when the ship or the crew returns to a Chinese port.

In Japan, on-the-spot investigations are carried out by commissioners or investigators from the Commissioner’s offices of the Marine Accidents Inquiry Agencies in nine different locations (see Figure 3.2). Usually, this takes one or two

days. After, the on-the-spot investigation, the commissioner decides whether to call a hearing inquiry or not.

The local units of the waterways and shipping police are in charge of the on-the-spot investigation after an accident in Germany (Lampe, 1998). When an accident happens, the police rush by boats to the scene of the accident (Lampe, 1999). Consequently, the primary investigation would normally start very soon after an accident, and there are no delays.

The Marine Accident Investigation Branch (MAIB) of the United Kingdom is located in Southampton of England. It is MAIB's authority to carry out an investigation, when an accident happens. MAIB will send its inspectors to the scene "as soon as possible", when an accident has happened (Brydges, 1999). However, in a minor case, an investigation is conducted mainly by correspondence (MAIB, 1998, 3). For ordinary accidents, the Inspector's Investigation is conducted. Investigators make a full and detailed examination of the accident, including evidence gathering and witness interviews (Brydges, 1999). For a major accident, the Inspector's Inquiry will be conducted.

The USCG has the authority to conduct all preliminary investigations of marine accidents, even in an NTSB investigation. Since the USCG's units are located along different places in the coast and islands, and it has many levels of investigators, it is believed that the on-the-spot investigation will take place very soon after an accident. After a preliminary investigation, the commandant of a district might decides to carry out a routine investigation or a formal investigation with a hearing process. When a routine investigation has been decided, investigators of the USCG will contact witnesses separately. Facts may be elicited by correspondence, telephone or personal interviews, signed or unsigned statements, interrogations that may or may not be taken under oath, or by other means.

4.2.4 Hearing Process

There is no hearing requirement in the investigation process in China. In the United Kingdom, the hearing process is not necessary in an investigation being conducted by the Marine Accident Investigation Branch, but it is necessary in a formal investigation, which is conducted by a wreck commissioner or the sheriff. It may concern the cancellation and suspension of certificates.

In Japan, within a year of the conclusion of an investigation, if the relating commissioner, who has carried out the preliminary investigation, considers the case to be subjected to an inquiry in order to prevent repetition of marine accidents, a hearing process is necessary for an accident inquiry. An inquiry is openly conducted in a court room in the presence of a collegiate court of three judges. Examinees, designated persons concerned in the accident and marine counsellors appear in court. In addition, the witness party or defensive party can include its lawyer or adviser (Kai, 1999a). Of those participants, judges come from the Local Marine Accidents Inquiry Agencies and Commissioners are from the Local Marine Accidents Inquiry Commissioner's Office. In a hearing, the commissioner's role is like the prosecutor's in a criminal law court. Examinees are those who may have responsibility in the accidents (master, officers, pilots, etc.). The so-called designated persons are other persons who are recognized to have a relationship with the causes of an accident. Marine counsellors are qualified persons, who are mainly selected among those registered as marine counsellors at the High Marine Accidents Inquiry Agency. Examinees, designated persons and marine counsellors may be summoned as witnesses, experts, as interpreter or translator. The inquiry is conducted with oral pleadings and a judgement is pronounced. When necessary, two technical professionals may join as judges (five judges in total). If the case is simple, the commissioner may request to call only one judge to conduct the inquiry (Kai, 1999b).

Three to nine months after an on-the-spot inquiry, a formal hearing may be held for the investigation in Germany. The formal hearing, which is open to the public, is conducted by a Board for Maritime Investigation. The investigators consist of a chairperson, normally a lawyer, a permanent assessor (master), assessors (masters, engineers, ship builders, depending on the case selected out of a list by the chairperson). All persons or organizations, whose activities or omissions may have contributed to the accident directly or indirectly, have to be examined at the hearing. They may have their lawyers or advisors in the inquiry because it is open to the public, although unlike Japan, the lawyers or advisers are not permitted to ask questions in the hearing process. The conclusion and decision will be made by a majority of the investigator's party. A conclusion normally consists of all factors that cause the accident, infringements of law or nautical practice, proof and reasons for sanctions, and recommendation. The report of the investigation will be published in an official monthly magazine (Lampe, 1999).

In the United States, the hearing process is necessary in a formal investigation conducted by the USCG both at the district level (by a Marine Board, which is designated by the Commandant of the district), and unit level (USCG, 1999b, C, D, Chapter 3, Volume 5). The rationale of a hearing is that a detailed formal investigation will promote safety of life and property at sea and serve the public interest (46 CFR, §4.09-1). In the Maritime Safety Manual of USCG, it states that:

If, as result of preliminary evidence, recommendation of a district commander, or information from any other source, it appears that a marine casualty is of such magnitude or significance that a detailed formal investigation will promote safety of life and property at sea and serve the public interest, the Commandant may designate a marine board of investigation to look into the casualty. (USCG, 1999b, Volume 5, Chapter 3, C)

A formal investigation has a hearing process, which is to be held within 6 months of the accident. A Marine Board of the USCG is usually composed of two or three members. Specialists or technical experts may be needed to assist the Board. According to the Manual, the hearing should be based on an intensive preliminary investigation. Interested parties (individuals or organizations) are allowed to be present at the hearing. They may have their counsels to represent them, cross-examine witnesses, and call witnesses on their own behalf (CFR 46, §4.09-15). The hearing sessions are normally open to the public (except when national security is affected). In the process, a direct examination by members of the Board is held first. When they are satisfied, counsels for witnesses are permitted to ask questions, followed by the counsel of other interested parties. In the process, subsequent questions may be raised by the Board at any time. There is no conclusion in a hearing process. After a hearing session or sessions, the Board will draft a final report and submit it to the Commandant for approval. Unlike Germany and Japan, the report does not relate to disciplinary penalties. It contains a conclusion and recommendations only.

A formal investigation can be conducted by the USCG's unit level as well. However, a formal investigation with a hearing process is not necessary but it may be held by a decision of the Commandant of the district concerned. Otherwise, it would be a routine investigation even for a "serious casualty (one or more deaths, etc., CFR 46, §4.03-2)"(CFR 46, §4.07-1).

Also in an NTSB investigation, a hearing process is not necessary. It may hold a public hearing as part of an investigation for two purposes. One is to gather sworn testimonies from subpoenaed witnesses on issues identified by the NTSB during the course of the investigation. Another is to allow the public to observe the progress of the investigation. The hearing is usually held within 6 months of after an accident has occurred, the same as the USCG's investigation.

4.2.5 Human Element Concerns

The marine accident investigation in Japan tries to spotlight the human element with reference to the IMO guideline (Kai, 1999a). In China and Germany, there are no specific guidelines on this issue, but they do cover the human element aspect in their investigations. The United Kingdom uses a checklist regarding the human factor (Brydges, 1999). This means the investigators in the United Kingdom may ask specific questions related to human factors, which IMO requires. In the United States, the checklist of a category of human factors should be used in an investigation (USCG, 1999b, Chapter 3, G). Furthermore, it should be reflected in the investigating report (USCG, 199b, Chapter 3, E).

The Circular MSC/Circ.621 (IMO, 1993a) of the Maritime Safety Committee of IMO is the only practical guideline in the accident investigation field. Although the name of the circular concerns fatigue, in fact it covers the human elements of accident investigations. In particular, it concerns safety policy, training, psychological conditions, workloads, relationship onboard, shore side management, etc. In many aspects, the USCG's checklist of human elements is very similar to the guidelines. As said, the UK and Japan follow the guidelines closely.

4.3 Investigating Reports (Judgement)

The investigating report is the most important outcome of an investigation. Lessons from an accident, corrective actions (include propose to amend conventions), and preventive measures are based on the report. Furthermore, to make it accessible to the public is a governmental function of its public service, since the public have the right to know the outcome of an investigation, and what can be done to avoid similar accidents afterwards. Maritime safety, defined as preventing accidents, is also in the public interest.

In China, a report of the investigation should include the ship's name, registered port and other particulars, as well as the name and address of its owners or operators, time and place of the accident, causes and evidence thereof, responsibilities of parties and evidence thereof, and other relevant information (Article 16, Regulations on the Investigation and Handling of Maritime Traffic Accidents, 1990). Normally, there is no specific paragraph related to human element of an accident in the investigating report in China, although it deals with some human elements, for example, negligence is frequently found in investigations. In releasing to the public regard, there is no requirement of publication in the regulations, however, in practice, the conclusion and recommendation part of the report may be sent out to the respective shipowner as well as the ships.

There is no final report in Japan. Since the investigation is an open process, judgement is released to the public in the court when it has been pronounced by the judge. In addition, written judgements are published each quarter (Kai, 1999a). Like Japan, the hearing inquiries of Germany are also open to the public. Final reports will be available in an official monthly magazine (Lampe, 1999).

In the process of forming the MAIB's report in the UK, the factual account of the draft report will be forwarded to those involved for comment and agreement (MAIB, 1998). When agreement cannot be reached, involved parties can propose alternative text, which must be published if it is not accepted by the MAIB. A typical report will include "factual account, analysis, conclusions and recommendation" (Brydges, 1999). In respect of releasing to the public, the MAIB publishes the reports of the most important investigations. Less important reports are sent the next-of-kin and other interested parties. Furthermore, the reports can be made available on request. Nevertheless, the precise reports of accidents, and lessons to be learned from them, are published within *Safety Digests*, which is MAIB's periodic publication, issued free of charge. Vessel names, the date and

place of the accident will not be stated in these précis; owners of ships involved in accidents will be allowed to see the draft text, for information purposes only, before publication.

The body of a USCG investigation report normally consists of the vessel and cargo data, record of dead and injured, weather/tide, human factors, findings of facts, analysis, conclusions, recommendations. Regarding the release to the public, in accordance with 46 US Code 6305, members of the public may obtain copies of casualty reports upon their completion, except for national security concerns.

4.4 Recommendation

Recommendations are normally included in a report. Because the recommendations relate to potential remedial actions, which are very important for safety improvement, they need to be discussed separately. However, they are not necessarily embodied in the report. In the UK's MAIB's investigation, recommendations may be made at any time during the course of an investigation when necessary. In MAIB, if recommendations are not a part of the report, they would be addressed to those persons or bodies who are most fitted to implement them and may be made public when it is in the interests of safety [The Merchant Shipping (Accident Reporting and Investigation) Regulation 1994, Section 9, 11].

In an accident investigation report of China, recommendations are usually a part of it. It may apply to a particular ship or persons, or the maritime sector as a whole. In M.V XIANG YUN and the fishing vessel LUWEIYU 1007 collision case (MSA, 1993), the report has three recommendations regarding immediate rescue after an accident, cautions should be taken of navigating in the particular high dense traffic area, and the promoting of specific laws and regulations. In addition, after a significant accident, the MSA or even the Ministry may address a circular form of recommendations and requirements for Chinese shipping companies and/or

authorities, immediately or afterwards, or gather a few similar cases, of varying nature by necessity. For example, after a fire and sinking by the fire fighting of a passenger vessel (no lives lost of the passengers and crew, but two fire fighters died), the MSA China sent out a circular to all shipping companies, ports and maritime safety authorities, to address proper maintenance of ships, quality of ships' repairs, crew management, and emphasizing the characteristics of fire fighting onboard ships (MSA, 1994).

In Japan, recommendations are only related to “designated persons,” who are related to the cause of the accident in some way, but can not be punished by the investigating court, since they are not a pilot, master, etc. (Kai, 1999b). However, recommendations could be addressed to other parties, like the shipowner, whole maritime sector, if necessary (Kai, 1999a). The recommendations are part of the judgement, made by the judges. A person who has received the recommendation must pay due regards to them and take proper measures (Kai, 1999b). In Germany, the recommendations are not normally part of a report, although they may be included in a report for initiating the amending of rules, regulations or guidelines (Lampe, 1999).

CFR 46 §4.07 of the United States stipulates that a report of the USCG's investigation should include recommendations and “any action taken with respect to the recommendations”. The Maritime Safety Manual requires that recommendations should be based upon “the findings of fact” and “knowledge of a similar casualty or other matter not specifically a part of the instant casualty may be made provided the supporting details are made part of finding fact and conclusions”. “Recommendations should be clear, simple, and easily understood, and should generally be limited to such remedial action as is indicated in the particular case” (USCG, 1999b, Chapter 3, E, 4). In the NTSB's investigations, safety recommendations are the most important part of its mandate. They must address safety deficiencies immediately, and therefore often be issued before the completion

of an investigation. This is very similar to the USCG, although the recommendations are based on findings of the investigation, but it may address deficiencies that do not pertain directly to what is ultimately determined to be the cause of the accident (NTSB, 1999).

4.5 Sanctions

Various administrative sanctions are used in maritime safety control. This section will discuss the sanctions of those related to marine accident investigations only. Basically, an administrative sanction has two functions in a casualty case. One is to blame the person who has been at fault or negligent, who has contributed to the cause of the accident. This may make the person be more due diligent in his duty in the future. When incompetence is found, revoking a certificate may be imposed. A certificate can be revoked for gross negligence or a worse fault. Secondly, such a punishment may encourage others to take more care in doing their jobs properly. This could be described as (1) punishment to make an individual learn lessons, and, (2) punishing an individual to improve the awareness of others. Although there are arguments about the blame culture in maritime safety, nevertheless, those who have contributed to the cause of an accident should be blamed.

4.5.1 Sanctions Relating to Reporting and Investigation

In an accident and the following investigation, two kinds of penalty are concerned: (1) penalty relating to the accident and the causes of it happening; (2) penalty relating to the investigation, such as responsibility of reporting, cooperation of witnesses, etc. In most countries, the second type of penalty is included in the investigating rules. For example, under the authority of 46 U.S. Code 6103 in the United States, an owner, charterer, managing operator, agent, master, or individual in charge of a vessel who fails to report a casualty, as required under 46 U.S. Code 6101 or a regulation prescribed thereunder, is liable for a civil penalty of not more

than 25,000 USD. This concerns both the notice and a written report [CFR 46, Chapter 4, and USCG, 1999b, B (10), Chapter 3, Volume 5]. In addition, if a witness makes false statements or commits perjury under oath in an investigation, the witness may face criminal law prosecution of fine or/and imprisonment subject to the federal laws such as 18 US Code 1001.

In China, there is a rule of penalty in the investigation regulation (Article 29, Regulations on the Investigation and Handling of Maritime Traffic Accidents, 1990). It concerns failing to report, failing to sail to the designated spot to accept the investigation, refusing to be investigated or obstructing and interfering the investigation, made false statements, etc. The elaborated rules are contained in the sanction regulations. For instance, failure to report or providing false testimony may result in a fine of 200 to 5,000 yuan (30-600 USD). Such actions may result in a warning or a fine of 200 yuan. In the United Kingdom, if a master, owner or officer fails to report an accident, or fails to provide information of an accident, he shall be guilty of an offence and liable on summary conviction to a fine [The Merchant Shipping (Accident Reporting and Investigation) Regulation 1994, Section 16], or even, on conviction on indictment, to imprisonment for a term not exceeding two years (Section 260 of Merchant Shipping Act 1995, Phillips, 1996, 187).

4.5.2 Sanctions Relating to Accidents

In China, there is a general rule of sanction related to accidents in the investigation regulation (Article 18, Regulations on the Investigation and Handling of Maritime Traffic Accidents, 1990), but the elaborated rules are set up in the sanction regulation (Regulations on Administrative Penalty of Maritime Safety Administration, 1998). Therefore, the procedure and level of sanction are separated from the investigation to comply with the sanction regulation.

In Germany and Japan, penalties are decided by the hearing proceedings of the investigation. In other words, sanctions are decided by the investigation. In contrast, the MAIB's investigation does not relate to penalties. However, certificates may be cancelled or suspended by a formal investigation in the UK. When a formal investigation is conducted, the MAIB's investigation will not reach the report. It can be seen that an investigation in the UK may deal with sanctions directly. In the USCG, the S&R (Suspension and Revocation) and civil penalty proceedings may be initiated by the report of the investigation, but they are not made by the investigating body. However, the S&R and civil penalty proceedings are entirely separate from those pertaining to accident investigations (USCG, 1999b, Volume 5, Chapter 3, C).

4.5.3 Revocation and Suspension of Certificates

In China, the suspension or revocation of certificates can be made by a MSA. The level of the sanction is decided by the seriousness of the accident and proportion of a ship in contributing to the cause of an accident. For example, if one causes a serious accident and has major responsibility, he may face cancellation of his certificate of competency or pilotage. If he has secondary responsibility in causing the accident, he may face suspension of his certificate from 12 to 24 months (Regulations on Administrative Penalty of Maritime Safety Administration, 1998). In China, when a decision of certificate cancellation is being proceeded, the person whose certificate is supposed to be revoked, has the right to require a hearing session. The hearing is open to the public. Such a procedure is applied to large fines as well. The hearing is organized by the investigating MSA.

In the US, the Coast Guard has the authority to take disciplinary action under the US Code 46, Chapter 77 against licenses or certificates issued by the Coast Guard. A USCG issued certificate can be suspended or revoked by a specific hearing proceeding.

A formal investigation in the UK may suspend or cancel a UK issued certificate.

In Germany, Boards for Maritime Investigation, as well as the Federal Appeal Board, are authorized to withdraw a master's or officer's German certificate either temporarily or permanently after a hearing procedure. For a non-German certificate holder, the Boards may ban him from sailing in German territorial waters, temporarily or permanently (Lampe, 1999).

Similar to Germany, the judges of the Local or High Marine Accident Inquiry Agency of Japan may permanently withdraw certificates of competency from those examinees, or suspend them from one month to three years (Kai, 1999b).

4.5.4 Fines and Formal Blame

Reprimand is one of disciplinary punishments in Japan. Such a reprimand is subject to a person who has wilfully neglected or professionally neglected on his duty and there is no fine upon persons relating to accidents (Kai, 1999a). In China, imposing a fine might be a substitute for the revocation or suspension of a certificate (Regulations on Administrative Penalty of Maritime Safety Administration, 1998). The reason for such a fine is that there is no legal base to withdraw the certificates issued by foreign administrations and a fine is the only way of punishment. There is no formal blame in the penalty regulations of China, but a warning is a penalty for minor infringements. In the USCG, there are Letters of Warning as a kind of civil penalty as well (USCG, 1999b, Vol. 1, Chapter 4, D).

4.5.5 Other Administrative Actions

China has defined administrative measures to deal with consequential work of an accident investigation. These are part of the "handling of Accidents"

(Regulations on the Investigation and Handling of Maritime Traffic Accidents, Chapter IV). Such measures include suspending navigation of the ship or ships, changing routes of a ship or ships, suspending the operation of a ship or ships, and other necessary compulsory actions. These measures might only be ordered by the MSAs when an owner and/or his manager refuses to strengthen safety management or failure to meet the safety requirements within specified (by the authority) time limit (Regulations on the Investigation and Handling of Maritime Traffic Accidents, Article 19, Chapter IV). In short, if the authority believes that a shipping company, which has just had a major accident, will probably cause another accident because it does not take remedial action for its ship or ships, the authority may suspend the operations of its ship or its whole fleet. This is a preventive and administrative action for safety, but not a penalty, although it is more serious than any penalty. As far as the author knows, such action has never been used. However, it is a very useful threat to those shipowner who do not care about safety.

4.6 Investigation Re-opening and Appeal

There are two types of appeal concerning this matter. One is the appeal for the investigation outcome, the conclusion, for instance. Another is the appeal for a penalty. Actually, an investigation itself cannot be appealed, because it is a fact and cause finding proceeding. There are no consequent actions. However, in certain circumstances, an investigation may be concluded by insufficient evidence, etc., then it is necessary to reopen it. In the respect of the re-opening of investigations, the IMO Code for the investigation has a requirement for re-opening. It states:

In the case of new evidence, which may materially alter the determinations of the circumstances under which the marine casualty occurred, any might materially alter the findings in relation to its cause or any consequential recommendations, States should reconsider their findings.

(IMO, 1997d, section 13)

In the UK, the outcome (the report and recommendations) of MAIB's investigation can not be appealed. It can be reopened by new evidence, or the suspicion of miscarriage [The Merchant Shipping (Accident Reporting and Investigation) Regulation 1994, Section 14]. However, the formal investigation could be appealed. Where a formal investigation with a hearing has been held, the Secretary of State may order the whole or part of the case to be reheard, either when new important evidence comes out, or when the Secretary has the suspicion of a miscarriage of justice having occurred. Besides, it could be appealed to the High Court in England, Wales or Northern Ireland, to the Court of Session in Scotland (Phillips, 1996, 196). In 1994, funded by the International Workers' Federation, the MAIB of UK re-investigated the MV DERBYSHIRE sinking. The bulk carrier DERBYSHIRE sunk in the Pacific Ocean in 1980, lying on the sea bed at a depth 4,200 metres. The investigation was very valuable, for instance, the recommendations from it, on changing ship design regulations are being discussed at in IMO (IMO, 1998).

In the United States, a mariner against whom charges have been proved may appeal to the Commandant of the USCG, to the NTSB (in case of suspension or revocation of a certificate), or, to the Federal Court (USCG, 1999b, Volume 5, Chapter 2, H)

In Japan, the hearing inquiry has two instances, the first is the Local Marine Accidents Inquiry Agency, and the second is the High Marine Accidents Inquiry Agency. Commissioners, examinees and marine counsellors have a right of appeal against the judgements by the first instance. If there is a further appeal, it can be settled by the Tokyo High Court. In the High Court, the disciplinary punishment could be cancelled, but the other part of judgement, made by the High Inquiry Agency will not be overruled.

Like Japan, the decision of a Board of Investigation can be appealed to the Federal Appeal Board. Further, it can be appealed to the Administrative Court.

The investigation regulation does not provide right of appeal upon an accident investigation. However, it is possible to re-investigate an accident by decision of the MSA, China, or by the MSA which has conducted the original investigation. The sanctions can be appealed. In addition, a party who has been imposed a sanction has the right to take a lawsuit in an administrative court after the first instance or after the appeal.

4.7 Report to IMO

The obligation of reporting has been discussed in chapter two (sections 2.1.1.4). In reality, as far as the author knows, like many other countries, China does not have to report its findings of accident investigations properly. In the pollution aspect, including accidental pollution, China reports to IMO annually. Only small amounts of other accidents have been reported to IMO. In Japan, Germany, and the UK, the authorities have reported in due time (Kai, 1999a; Lampe, 1999; Brydges, 1999). The USCG has a requirement to report to the IMO any serious casualties (USCG 1999, Volume 5, Chapter 3, E).

4.8 Influence on Criminal Law Process and the Liability Proceedings

In China, the materials of the accident investigations can be used in a criminal or civil liability lawsuit.

In the United Kingdom, the MAIB's investigation is not connected with civil liability. In criminal concerns, if the prosecution of any person in connection with the accident is under consideration, the Secretary of State may at his discretion

withhold publication until the termination of the criminal procedure (of prosecution, any appeal, or it has been decided not to prosecute. MAIB, 1994).

In the United States, the USCG and NTSB are different in civil liability and criminal liability concerns. The USCG reports are admissible in US court, but the NTSB reports are not, because NTSB rules request. In the USCG's investigation, if evidence of criminal liability is found, it should be referred to the US Attorney General. The NTSB does not investigate criminal activity. If a criminal act establishes an accident, the FBI becomes the federal investigative body, with the NTSB providing requested support (NTSB, 1999).

4.9 Mediation

From the 1950s to 1970s, historically, most marine accidents related to civil liability disputes, especially collision cases, were settled by the maritime safety administrations (harbour superintendency administrations) in China. As the civil law and court systems developed, the concept of such settlements was phased out. However, many shipowners like to apply the administrations to settle their disputes in not very serious cases, because they can spend less time and resources in mediation compared with taking out a lawsuit. Consequently, mediation was left for this reason (The regulations on the Investigation, 1990, Chapter 5). Mediations are based on the accident investigations normally. Mediation is voluntary for related parties. Even an agreement of mediation can be breached by any party, and has no legal consequences. Because the mediations are based on the investigation, some times, they affect the investigation at certain levels. In Japan, Germany, the UK and the USA, there are no such mediations.

Figure 4-1 Investigation Process Flowchart for China

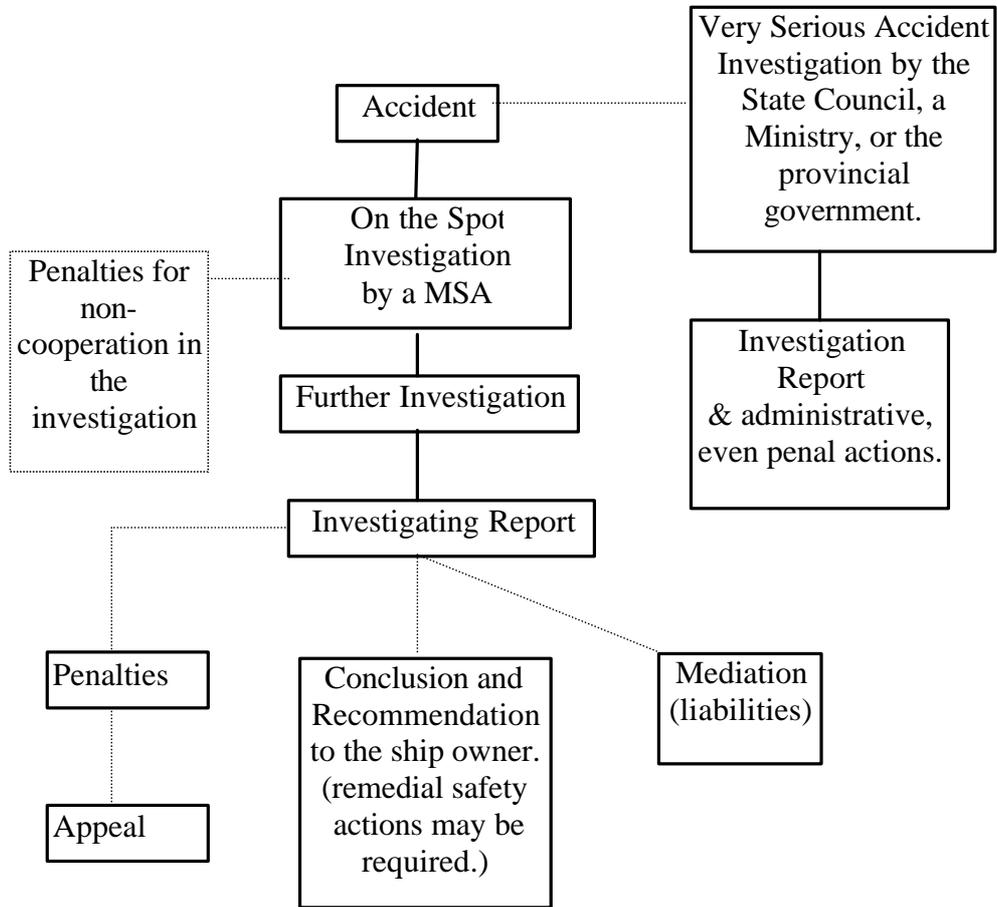


Figure 4-2 Investigation Process Flowchart for Japan

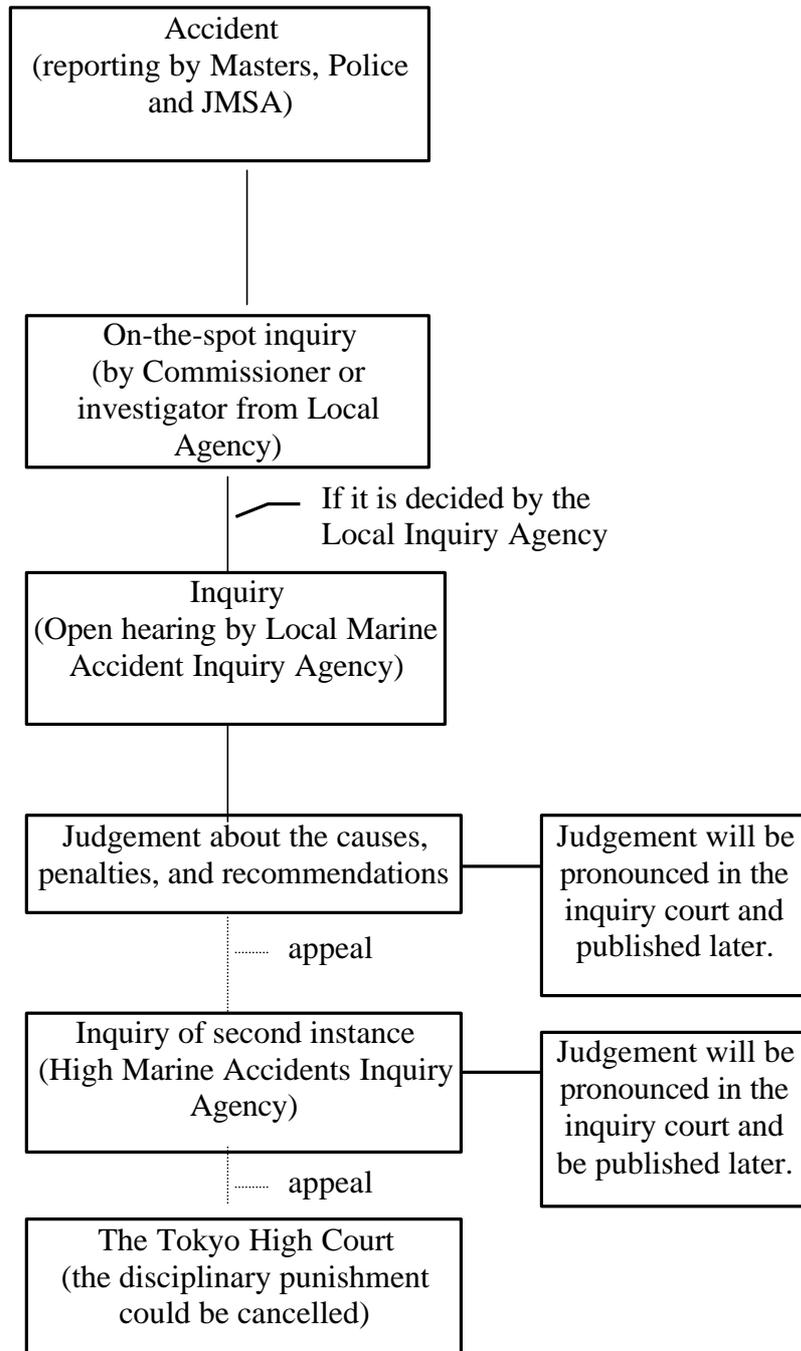


Figure 4-3 Investigation Process for Germany

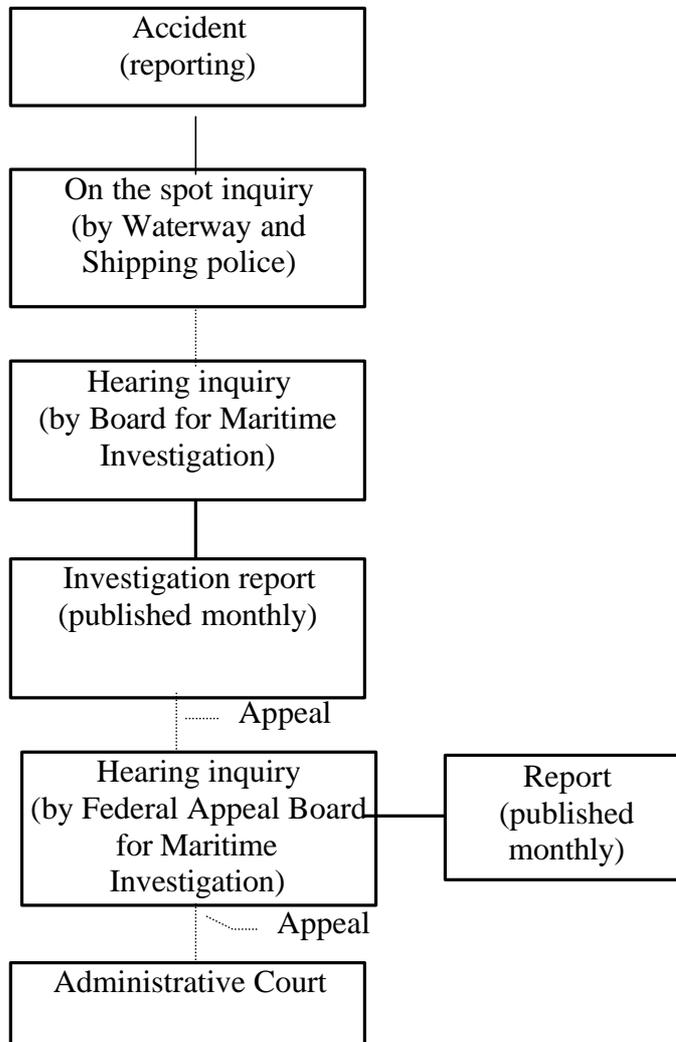


Figure 4-4 Investigation Process Flowchart for the United Kingdom

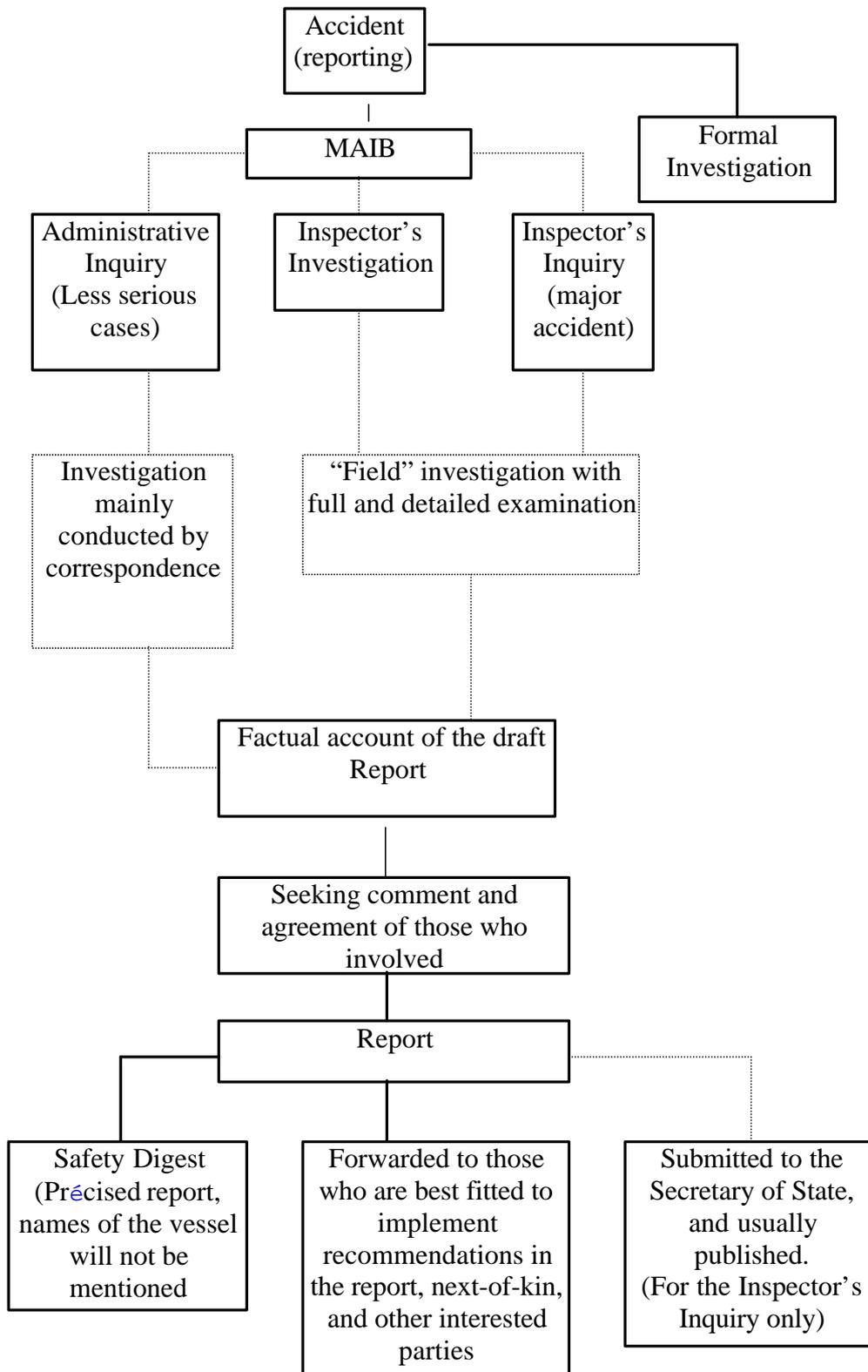
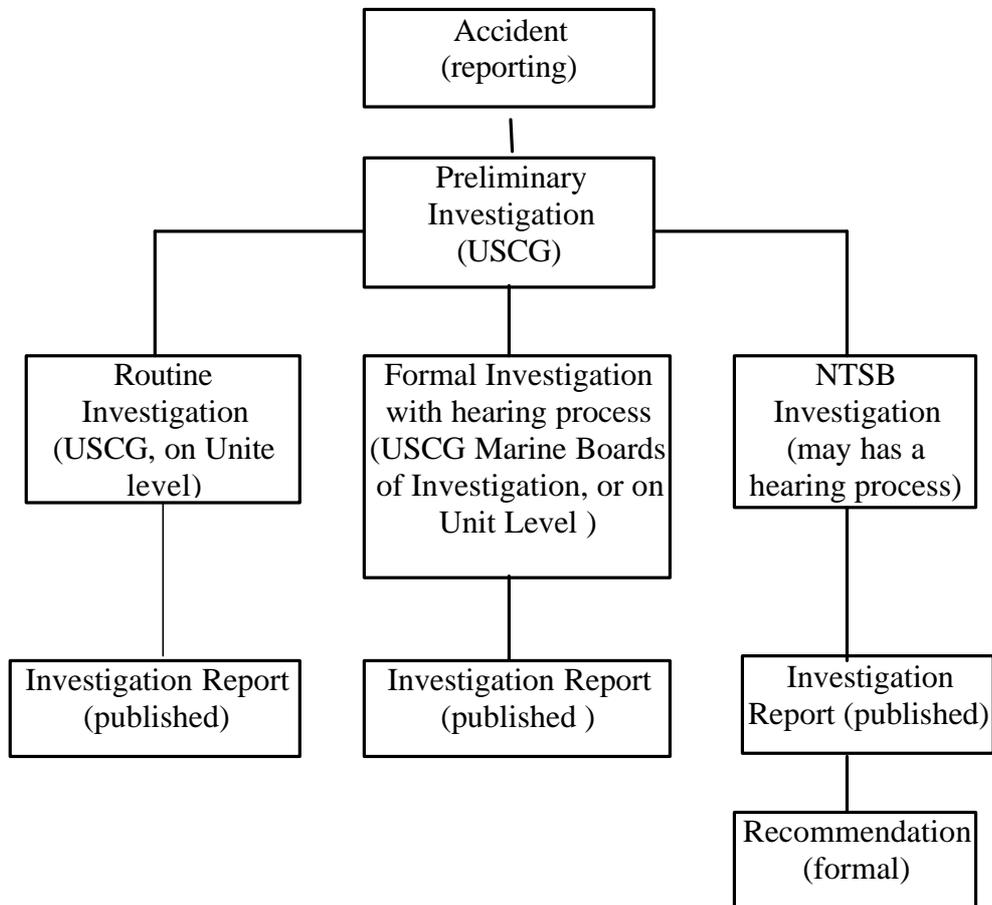


Figure 4-5 Investigation Process Flowchart for the United States



4.10 Summary and Evaluation

(1) There are no significant differences in the jurisdiction aspects of the investigation. All five countries have clearly defined flag State responsibility and coastal States' responsibility in their territorial seas. However, there are differences. In coastal State jurisdiction China has flexibility. By using the term "coastal water" territorial seas and other water areas under Chinese jurisdiction, it may include the EEZ and the continental shelf and other specific waters of its law defined. The United States has a similar situation since the "Navigable Waters of the United States" includes the waters that "the Federal Government may exercise

Constitutional authority”. In flag state responsibility, China has a special investigation regarding its nationals working on non-Chinese flag ships, since many thousands of Chinese crew work on non-Chinese flag ships. It is quite reasonable to have this provision in the certificate quality control as well as maritime safety.

(2) Since mishap and near miss investigation are subject of the accident investigation in United Kingdom, lessons can be drawn and learned by others. This approach can be used by other countries

(3) Reporting requirements of accidents are very close in different countries. An immediate report from the ship side (master, owner, agent, operator, etc.) is required. A written report is needed (China, the UK, the USA, it is not clear in Germany and Japan). The UK and USA have official forms for the report. The difference between the UK and the USA is that in the USA, an official form(s) must be used, but it is not necessary in the UK. China has elaborated a requirement for the report but it may need an official form to facilitate the report. Another aspect is that in China, the accidental ship may send its written report within 60 days of the accident. In the UK, it should be less than 14 days in any circumstance, and 5 days in the USA. For most state-owned companies in China, a company’s investigation is well regulated by itself but done under guidance of the Ministry. A company’s investigations, although less objective to a certain extent, normally are very comprehensive, but need time to be completed. The rationale of such a long time is given by the regulation. Maybe this needs to be changed.

(4) The quick response to accident investigation is a significant factor in the sense of evidence collection and to get the most recent impression of witnesses, which is usually the most accurate and less interfered with by others (like owners and lawyers). Regarding this point, since all investigators come from local places, the investigators of China, Germany and the USA could have a more prompt response

than the UK and Japan; less confusion in the investigation might be brought by a fast response.

(5) The hearing process in the investigation normally includes disciplinary matters. In disciplinary matters, it is fair to give the defendant the right to the person who may get a disciplinary sanction, which may concern his/her livelihood. Here Germany and Japan have well developed hearing processes. The United States has a different characteristic in its investigation hearing process both in the USCG's hearing and in the NTSB's hearing. It does not lead to a conclusion in the process and it does not concern disciplinary sanctions. It is only for cross examination and the understanding of the public. However, since the hearing process can not be held a very short time after an accident (within one year in Japan, six months in USA, three to nine months in Germany), it is doubtful that a foreign witness who works on a foreign ship can physically appear at the hearing process. The defect is apparent although it has many advantages.

(6) One may say that all the maritime accidents are related, more or less, to the human factor, and the investigation in every country has referred to them. For sure, factors concerning responsibilities, faults, negligence and competency will be investigated anyway. However, the whole aspect and systematic reviewing is important in an investigation. It is not only useful for a specific case, but it is also more useful for the systematic analysis of all accidents. Therefore, a uniformed checklist on the human element like the guidelines of IMO is very helpful. Following the guidelines, like the investigation authorities of Japan, the UK, and the USA is necessary. China and Germany should use the guidelines in their investigations.

(7) Japan, Germany and the United States publish their investigating reports. In the UK, the MAIB's investigating reports at least are available on request. In China, the reports are not published. Even related parties can not get the full text of

the investigating report, although they may get the conclusion and recommendations. Because the official accident investigation is linked with the public's interest, it should be known by the public. In other words, the public should be able to obtain the full text of the reports to know how an accident has happened, and why the conclusion and recommendations are given. This benefits accident prevention, the main goal of the investigations.

(8) It seems that to have a legal chance to reopen an investigation is necessary, as in the UK, as well as recommended in the IMO Code (IMO, 1997d, sec.13 of the Annex). The possibility of obtaining new evidence exists after a marine accident, such as the DEBYSHIRE case in the UK.

(9) Recommendations should be the most important outcome of an investigation, like the NTSB of the USA recognized, because they are in the public interest -- to enhance maritime safety. The UK, and the USA, as well as China, have a very positive view regarding recommendations. In those countries, the recommendations not only are a part of the report of investigation; they can also be issued at any stages of the investigation. It seems that Japan and Germany are not very keen on the recommendations. Maybe, they need some improvement on this issue.

(10) There are various approaches to penalties relating to the persons who have contributed to causing an accident. One is to separate sanctions from the accident investigation. Like the United States, and the MAIB in UK, China uses this approach. The rationale is that sanctions may hinder finding causes of an accident, because if a person is facing a penalty, he may reluctantly tell the whole truth lawfully or even unlawfully. Besides, the aim of an accident investigation is not to blame or punish a person or persons. The aim is to find the causes for safety improvement. However, the cause-finding investigation cannot really be separated from the penalty investigation. In the UK, the MAIB supplies full support when a

formal investigation is called. In the USCG, the recommendations of an investigation may cause further investigation on the penalty issue. In China, the situation is similar. The only exception is the NTSB's investigation, but the base of the NTSB's investigation is a preliminary investigation by the USCG, which may initiate penalty proceedings. If the cause-finding investigation is combined with penalty investigation, as in the case of Japan and Germany, it is reasonable and acceptable since in the first place, they cannot be totally separated. Secondly, the combined investigation simplifies the investigating procedures and saves resources.

(11) The types and levels of sanctions are very different from country to country. In the UK and the USA, failure to report and the providing of false testimony may result in a large fine or imprisonment, but it only results in a fine of 200-5,000 yuan (30-600 USD) in China. For these intentional infringements, the sanctions should be serious. Since a country cannot revoke a certificate issued by another country, banning a foreign certificate holder to enter as a master or an officer of a ship seems a very useful penalty, as is the practice in Germany.

(12) China is not exactly fulfilling its obligation of reporting to IMO. It has been said that IMO has not used those accident findings effectively and many countries are not even reporting at all. On the other side, countries like Japan, Germany, the United Kingdom, and the United States are reporting regularly. As a major maritime country, China should be more positive in this issue.

(13) Only China may have mediation after an accident investigation. Because of the demands, the mediation has a reason to exist continuously. Nevertheless, it should not have an effect on the investigation.

5. Conclusion and Recommendations

This chapter will review the summaries and evaluations in chapters 2, 3, and 4, and make recommendations accordingly. Most of the points will be made relating to the potential improvement of marine accident investigation in China, the main reason for this thesis. The recommendations may seem fragmented, but the specific recommendations may be more useful than a general one.

5.1 Conclusion

(1) Having an organization to be responsible as a flag State and coastal State to investigate marine accidents is the foundation of the maritime safety control issue of any maritime country. The trend in setting up organ of investigation is to have an independent agency to deal with accident investigations. This can be seen at the MAIB in the UK, the Inquiry Agency in Japan, the Boards for Investigation in Germany, the NTSB in the USA, and in addition, the Safety Board in Canada and the MIIU (Marine Incident Investigation Unit) in Australia. An independent agency has its weakness while an integrated organization has its advantages. These have been discussed in chapter three. Regardless of the organizational structure, the main goal is to make investigations done. For China, the important thing may not be to change the organizational structure, since it is a large country, has a very long coast line, vast coastal waters, and a big merchant fleet. It may improve the internal structure of the MSAs on accident investigation as well as set detailed qualification requirements for its investigators. Training is another aspect of improving qualification. Workshops, seminars, and conferences are very useful in training. In addition, international meetings are always excellent opportunities to exchange experience and information.

(2) The United States has a very comprehensive handbook for investigators (the USCG Safety Manual, Volume 5). In contrast, China does not have such a handbook for its investigators. In a big administration like the MSA in China,

because it has a relatively large number of investigators, it should have a comprehensive handbook.

(3) The procedure of maritime accident investigation in China has many very valuable points, for example, the separation of cause-finding investigation and penalty investigation, the mediation, non-sanction administrative measure described in Section 4.5.4, and the use of top experts from the country in a “very serious accident” investigation, and so forth. It may keep and develop these advantages.

(4) On the other side, China has space to improve on its marine accident investigation. First, the MSA should publish full texts of its accident investigation reports, or find another way to make them accessible to the public, even though China is not a party of the ILO C147 convention (refer to section 2.1.5.2). Second, reporting to IMO is an obligation of various conventions. China should report its findings of accident investigations properly, although the clauses in the conventions need to be elaborated on amendment. Third, from the aspect of flag State investigation, China allows too much time for the reporting of ship accidents. Though there are reasons for this, the time limit should be shorter.

(5) The mishap and near-miss investigation, as done by the MAIB of the UK, may have a significant impact on the maritime safety aspect. It can be seen as a part of the so-called proactive approach. Not only can the maritime safety authorities find lessons from the mishaps and near misses, but the existence of such an investigation itself will also affect the shipowners, whose masters and crews pay more attention to those tiny events that may have been ignored before. It is very valuable in improving a safety culture, and valuable for strengthening the safety control at the administrative level as well as ship and company level.

(6) Hearing processes are widely used in marine accident investigation. In Japan, Germany, the UK and the USA there are hearing requirements for various

objectives which are applied to different circumstances. In China, there is no hearing requirement in the investigation. It may consider applying a hearing process in its investigation.

(7) In respect of sanctions, punishment for an intentional infringement like failing to report or providing false testimony seems to be too light in China. In addition, the ban of entry for a foreign certificate holder is a valuable sanction which China should consider applying, for instance, in a case where an officer commits gross negligence and causes an accident.

5.2 Recommendations for China

(1) The changing of regulations regarding public accessibility to the investigating reports is the first priority recommendation as far as Chinese legislation is concerned. The re-opening of an investigation should also be included.

(2) The mishap and near-miss investigation should be included in the scope of accident investigation in China. Information from such an investigation should be used properly, with emphasis on careful analysis and public dissemination.

(3) Ship reporting forms should be developed by the MSA. The time limit of accident reporting for those Chinese flag ships out of coastal waters should be shortened from 60 to 20 days.

(4) China should consider introducing the hearing process in its investigation. Should it decide to, it may take the hearing processes in Japan, Germany, and the United States as models.

(5) China should change its sanctions regulations. China may increase the weight of sanctions for the intentional infringement in an investigation of an accident. Likewise, the banning of entry may be added as a new type of sanction.

(6) The MSA of China should improve the internal structure and working style on accident investigations, including the encouragement of critical comments to maritime safety authorities by investigators.

(7) Regarding the qualifications of investigators, a qualification standard should be produced. The MSA of China should intensify all kinds of training for its investigators. Furthermore, China should be more involved in the activities of the International Marine Accident Investigators Forum.

(8) The MSA of China should develop a comprehensive handbook for investigators, for example, the human factor related contents should be included.

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Appendix

Questionnaire on Marine Accidents Investigation and Replies

Replied by Captain K. Kai, Japan, Dr. W H Lampe Germany,
Mr. Roger Brydges, the United Kingdom

1 Aims and Jurisdiction

1.1 What are the main rules in your country regarding on marine accident investigation?

Japan: We have the Marine Accidents Inquiry law (Law No. 135 of 1947)

UK: The Merchant Shipping (Accident Reporting and Investigation) Regulations 1994.

1.2 Which organization (or organizations) is in charge of marine accident investigation in your country?

Japan: Marine Accidents Inquiry Agency, but Japanese Maritime Safety Agency also investigates accidents partly that was needed rescue activities.

**Germany: “See Žmten” (Board of Inquiry) =1. instance;
“Bundesoberseeamt” (Federal Board of Appeal for investigation)
= 2. instance**

UK: The Marine Accident Investigation Branch

1.3 What are the aims of the marine accident investigation in your country?

Japan: Accident Prevention.

Germany: Gain the causes with the aim of prevention in the future.

UK: The fundamental purpose of investigating an accident under these Regulations is to determine its circumstances and the causes with the aim of improving the safety of life at sea and the avoidance of accidents in the future. It is not the purpose to apportion liability, nor, except so far as is necessary to achieve the fundamental purpose, to apportion blame.

1.4 How do your administration decide whether to conduct an investigation where:

(a) The ship is registered in your flag, but the accident has happened out of the water of your country?

Japan: Yes.

Germany: Yes.

UK: We would investigate - UK flag vessels anywhere in the world are covered by the above Regulations.

(b) The ship is not registered in your flag, but the crew (either your nationalities or not) are the certificates holders of your country?

Japan: Possible but we have not had such case before.

Germany: Yes.

UK: We would have no power to investigate under the Regulations but may, subject to circumstances, offer our services to the flag or coastal state conducting the investigation.

(c) The ship is not registered in your flag, but the place, which an accident happened, was in your country's territorial sea, exclusive economic zone or other defined water area.

Japan: In Territorial sea – Yes.

Germany: Yes.

UK: The Regulations cover accidents within the UK's 12 mile limit to vessels of any flag.

(d) The ship is not registered in your flag and the accident happened out of the water of your country (assumed in high sea), but the first arrived port is your port?

Japan: Possible but we have not had such case before.

Germany: No.

UK: We would not normally investigate.

(e) The accident happened in your territorial water, one ship is in your flag but other is not and it intends to leave.

Japan: Yes.

Germany: Yes.

UK: We would be able to investigate.

1.5 Do your country's legislation permit joint investigation with administrations of other countries in marine accident investigation? What level of cooperation can be reached, such as, sharing investigation materiel, or joint investigation report?

Japan: We don't do any joint investigation for a joint investigation report, but we can offer sharing investigation materiel and exchanging ideas.

Germany: All means of co-operation, but no mutual proceeding, no joint report, no right to interrogate witness.

UK: Yes. The arrangements for co-operation would depend upon which other country is involved.

1.6 Do your investigation has a link with civil liability or/and criminal responsibility, if it has, how does it link?

Japan: Our investigation is independent from civil liability and criminal responsibility. But we often use some evidence that police or JMSA used and our report often use at a court of civil trial.

Germany: Only informal. Civil and criminal courts regularly use the findings as basic material. Files of the investigation will be handed to the courts upon.

UK: No. However, or reports, which are in the possession of those involved in accidents, can be used in the courts as evidence.

2 Investigation Process

2.1 How do you know an accident happened, are the ship master/owner, the rescue center or others reported it?

Japan: The ship masters have an obligation to report the authority by Law. Also Police, JMSA and Japanese consul abroad should report to our Agency.

Germany: Maintain observations and masters and owners are obliged to report.

UK: Accidents may be reported by the Coastguard, port authority or the vessel involved. It is a statutory responsibility to report accidents as defined in our Regulations.

2.2 Who conduct the on the spot inquiry?

Japan: Commissioner or investigator of Marine Accidents Inquiry Commissioner's Office in our Agency. (See our organization chart in profile.doc)

Germany: The waterway police (inland) or coast states (foreign).

UK: MAIB Inspectors.

2.3 How quickly on the spot inquiry is taking place normally?

Japan: As soon as possible.

Germany: Immediately

UK: Inspectors are usually sent to the scene as soon as possible.

2.4 How long time on the spot inquiry takes in general?

Japan: Within one day or two days because we usually investigate only situation of accidents, taking photos, collecting data and so on the spots and we would interview with crews who are in charge of the accidents later.

Germany: Depending on the case - in general one day.

UK: Depending upon circumstances - 1-5 days.

2.5 Do you detain the accidental ship for investigation if necessary and how long in an extreme case?

Japan: No. It is voluntary so that we negotiate the days for interview with ship's company. Possibly within one week on our investigation and other criminal investigation.

Germany: Normally no detention.

UK: No. MAIB has no powers of detention. This is the responsibility of the UK Maritime and Coastguard Agency.

2.6 Do you detain the ship's crews for investigation?

Japan: No. Also it is voluntary.

Germany: No.

UK: No.

2.7 The inquiry is an interview or interrogatory style, or it is rely on the investigator to choose?

Japan: The difference between an interview and interrogatory is on the matter of voluntary or not, is not it? On that meaning it is an interview because our whole inquiry is voluntary.

Germany: Interrogatory, Style, Yes, no choice by the investigator.

UK: This is left to the Inspector's discretion. However, it is most likely that evidence will be gathered in a relaxed atmosphere, putting witnesses at their ease.

2.8 The inquiry is open for public or not, or do you permit third parties direct involved in the inquiry, i.e., do you permit the witness attend the inquiry with his lawyer or adviser?

Japan: Yes, our inquiry system is open for public perfectly. We open the inquiry court. (See profile.doc) The defender can hire his lawyer of adviser.

Germany: Open to the public, no right of witnesses' lawyer to ask questions.

UK: The investigations are not held in public. The evidence is confidential to the investigation but lessons to be learned are made publicly available.

2.9 Who will be included in the investigator's party: official surveyors, classification society, other authorities; and who will be included in the witness parties, classification societies, shipowners?

Japan: The investigator's or prosecutor's party includes only our Commissioner.

The witness party or defensive party can includes ships owner's lawyer or adviser.

The judge party includes the judges who work for our Agency and the specialist who our director general appointed.

Germany: All persons or organizations, official or private, whose activities or omissions may have -directly or indirectly -, contribute to the accident.

UK: MAIB Inspectors - occasionally accompanied by a specialist if circumstances are unusual.

2.10 Do you use a formal hearing for a necessary step for an investigation even for a foreign ship's crew? How is it organized? How long time does it use between on spot inquires and formal hearing?

Japan: We open the inquiry court. It can be called " the formal hearing".

Yes, we use a formal hearing on that meaning. It is used within a year.

Germany: Formal hearing in any case. The time needed depends on the case, normally 3 to 9 months.

UK: No.

2.11 What tribunal decides an investigation cases (e.g., judges who are lawyers, judges who are not lawyers, a jury etc.) if the investigation is carried by a hearing procedure?

Japan: The judges, who are in our organization not lawyers, decide the case.

Germany:

- 1. Chairman (Lawyer)**
- 2. Permanent Assessor (Master foreign going)**
- 3. Assessors (Masters, Engineers, Ship builders, depending on the case selected out of list by the chairman.**
- 4. Decision by majority.**

UK: Not applicable.

2.12 Dose your investigation concern about human element aspects and do you have specified guideline on it?

Japan: Yes, our investigation is trying to spotlight human element. We will refer to the guideline that is made in IMO.

Germany: Yes, but no specified guidelines.

UK: Human factors are considered in all investigations using a checklist.

2.13 Do you investigation the shipowner/operator's role in an accident investigation since shipowners have their negative effect probably in most accidents.

Japan: Yes. It is very important for accident prevention.

Germany: The role of the shipowner is regularly investigated, in particular as far as the number and qualification of officers and crew is concerned, also the equipment.

UK: If relevant. I cannot comment on the second part of this question.

3 Investigators

3.1 What is the qualification requirement for a marine accident investigator in your organization?

Japan: Master's experience three years or more is required.

Or JMSA official's experience, or Specialist experience for chief engineer, naval architect is required.

Germany: Master foreign going.

UK: Professional seafarer (Master Mariner), or a degree in Naval Architecture or Marine Engineering.

3.2 Where the investigators are located, are they working in different places or they are working in one organization and go to the scene when an accident happened?

Japan: There are seven local offices for the Commissioners. They are working in same office, named Local Marine Accidents Inquiry Commissioner's Office. If need, they are dispatched to the scene.

Germany: On-the-spot-investigation by the waterway police. They normally rush by boat to the scene of the accident.

UK: MAIB has one office in Southampton, Southern England. All Inspectors are based here.

4 Investigation Report

4.1 Do you have requirement to finalize a report in a restrict time limit?

Japan: No, for the final report. But we have a time limit for commencement of inquiry from Commissioner. It is within five years.

Germany: No.

UK: We work to internal targets.

4.2 What content does consist in a typical report?

Japan: The fact of a marine accident, the cause and the reasons.

Germany: All facts of incident that finally caused the accident. Infringements of law or nautical practice. Proof and reason for a sanction. Recommendations.

UK: Factual account. Analysis. Conclusions. Recommendations.

4.3 Do you think the cause finding is the main aim of a report?

Japan: Yes.

Germany: Yes, the very important aim.

UK: See 1.3.

4.4 Does human aspects and fatigue factor is one part of the investigation report?

Japan: Yes.

Germany: Yes, of course.

UK: If appropriate.

4.5 Do you have the appeal procedure for the investigation report if a party does not agree the report's description or conclusion?

Japan: Yes.

Germany: Yes, but only in the case of blame to a person or revocation of the certificate.

UK: Reports of the more important accidents are sent out in draft form for consultation. If agreement cannot be reached, involved parties can propose alternative text, which must be published.

4.6 When and how does the report release to public?

Japan: Just after the announce judgement that the judge pronounce in the court.

The judgement are informed to the media and published each quarter of the year.

Germany: The hearing is open to the public. The full report is published in a official monthly magazine.

UK: Reports of the most important investigations are published. Less important reports are sent to interested parties and can be made available on request. Safety Digests are circulated free of charge to anyone who requests them.

5 Sanctions

5.1 What kinds of sanction for an accident does you have?

Germany: Any person, official or private organization: formal blame; masters and officers: temporary or permanent revocation of the certificate.

UK: None.

(a) Formal blame

Japan: - Yes

Germany: Yes

(b) Action on certification (prominent or temporary withdraw)

Japan: - Yes

Germany: Yes

(c) Fine

Japan: - No

Germany: No

(d) Action to the shipowner

Japan: - Yes

Germany: Formal blame

(e) Other sanction

Japan: - No

Germany: None

5.2 Who decides the sanction and does it based on the investigation?

Japan: The judge who in charge of the court.

Germany: The sanction can exclusively decided only by the full board, see para 2.11.

UK: Not applicable.

5.3 Do you have an appeal procedure for a sanction and how it works?

Japan: Yes. Sometime the sanction is reduced at the appeal court.

Germany: Yes. See para 4.5.

UK: Not applicable

5.4 Do you have criminal penalty on a marine accident?

Japan: No. But other organizations, JMSA or Police have it.

Germany: Only by a criminal court, if the accident includes a criminal action, like negligent manslaughter.

UK: This is the responsibility of the Maritime and Coastguard Agency.

6 Others

6.1 Do you have recommendations and actions for the crew, the ship, and the shipowner and extend to the maritime industry if necessary after an accident investigation?

Japan: Yes, if necessary.

Germany: Yes, Rules, regulations or guidelines will be amended.

UK: Yes. These will form part of the report.

6.2 Do you report the investigation material to IMO due time as it required?

Japan: Yes.

Germany: Yes, of course.

UK: Yes.

6.3 Do you think it is a good idea that an independent entity (like MAIB in UK) to carry the investigation and why?

Japan: Yes, definitely. Because the special skill and acknowledgement are requested to the investigators on the marine accident investigations or inquiries.

Germany: Yes, our boards are completely independent. They can blame or criticized even the ministry or other authorities.

UK: Yes!

6.4 Other important points in your investigation system?

Japan: Our system has a long history, for one hundred years or more.