1985

Scheme for the efficiency of the maritime safety in Zaire

Lutumba Komba

Follow this and additional works at: https://commons.wmu.se/all_dissertations

Recommended Citation

This Dissertation is brought to you courtesy of Maritime Commons. Open Access items may be downloaded for non-commercial, fair use academic purposes. No items may be hosted on another server or web site without express written permission from the World Maritime University. For more information, please contact library@wmu.se.
THE WORLD MARITIME UNIVERSITY

MALMÖ, SWEDEN

A SCHEME FOR THE EFFICIENCY OF THE MARITIME SAFETY IN ZAIRE

by

LUTUMBA KOMBA
B.Sc. in Economics (Zaire)

A Paper submitted to the World Maritime University in partial fulfilment of the requirements for the award of a Master of Sciences Degree (M.Sc.) in General Maritime Administration.

Paper supervised by:
Professor G. Stubberud
The World Maritime University

May, 1985
The contents of this Document reflect the Author’s own personal views and are not necessarily endorsed by the World Maritime University or the International Maritime Organization.
TO MY BELOVED WIFE.
PREFACE

The present Paper has been worked out as a part of the World Maritime University Course on General Maritime Administration. It deals with a very complex topic which, nowadays, is of great concern from the national and international point of view: The improvement of maritime safety for the protection of human lives and the marine environment.

Since many years the international community, through one of the Specialized Agencies of the United Nations System, has been providing to nations tools for the achievement of this objective. This effort, however, needs to be completed by Governments.

We thus recall that some indicated Officials have been in the recent past dealing with the different ways to promote the shipping activity in ZAIRE, with reference to international safety regulations. This has been expressed again in the last reports developed and submitted to the Government of Zaire by M. JACQUIER and T. MALLEJAC, respectively I.M.O. Special Consultant and I.M.O. Inter-regional Adviser on Maritime Safety Administration.

We really hope that the present Document comes up to expectations and be helpful in any maritime safety promoting action in developing countries, mostly in Zaire, even though we should recognize that such textbook could not possibly cover all the aspects and requirements of the maritime safety. We are fully aware that other procedures or schemes than described in this Paper perhaps can be advocated and maybe give better results.
However, in our opinion, this Study reflects some basic requirements.

We kindly would like to express our gratitude to Professor Gunnar STUBBERUD who supervised this work and furthermore had put his all experience on maritime affairs at our disposal. Through him the same feelings are expressed towards the Professors and staff of the World Maritime University, and the International Maritime Organization, for their precious contribution in our formation as well as in the handling of this Document.

In the writing of this Paper we would like to extend our thanks towards local Administrations and Enterprises for their significant assistance by providing relevant information, specially towards MULONGO MUKALAY and MBELA NDOMBASI B., respectively Secretary General and Director within the Ministry of Transport and Communications in Zaire, the staffs and personnels of C.M.Z., OGEFREM, ONATRA, and R.V.M.

Although we are indebted to so many people in writing the present Document that we cannot hope to mention all of them, we would like, however, specially to thank A. N’SAHLAI Nsambu from Cameroon, as a few adjustments resulting from some language problems were made thanks to his advice.

We are most grateful for help received from parents, friends and colleagues.

Malmö, May 1985

LUTUMBA KOMBA
<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMB</td>
<td>Compagnie Maritime Belge</td>
</tr>
<tr>
<td>CMZ</td>
<td>Compagnie Maritime Zairoise</td>
</tr>
<tr>
<td>DWT</td>
<td>Deadweight</td>
</tr>
<tr>
<td>GRT</td>
<td>Gross Register Tons</td>
</tr>
<tr>
<td>IACS</td>
<td>International Association of Classification Societies</td>
</tr>
<tr>
<td>ILO</td>
<td>International Labour Organization</td>
</tr>
<tr>
<td>IMO</td>
<td>International Maritime Organization</td>
</tr>
<tr>
<td>OGEFREM</td>
<td>Office Zairois de Gestion du Fret Maritime</td>
</tr>
<tr>
<td>ONATRA</td>
<td>Office National des Transports</td>
</tr>
<tr>
<td>RVM</td>
<td>Régie des Voies Maritimes</td>
</tr>
<tr>
<td>SOZIR</td>
<td>Société Zairo-Italienne de Raffinage</td>
</tr>
<tr>
<td>TEU</td>
<td>Twenty Equivalent Unit</td>
</tr>
<tr>
<td>UNCTAD</td>
<td>United Nations Conference on Trade and Development</td>
</tr>
<tr>
<td>UNDP</td>
<td>United Nations Development Programme</td>
</tr>
</tbody>
</table>
TABLES

1. Port of Matadi: Cargo Traffic Export/Import during the period 1979 - 1983


3. Port of Boma: Cargo Traffic Export/Import during the period 1979 - 1983


8. World Total Losses by Nationality of Ships of 500 GRT and over (1984)
APPENDIX

3. The Zairean Fleets
4. The Structure of the International Maritime Organization in connection with Maritime Safety
5. List of I.M.O. Conventions and other Instruments in connection with Maritime Safety and Pollution Prevention
6. The Technical Assistance Programme of the I.M.O.
7. The Objectives of the I.M.O. in the 1990s, Resolution A.500 (XII)
8. Model of Adhesion Instrument (in french only)
9. Model of Ratification Instrument (in french only)
10. Examples of Work carried out in the Classification Society
11. Subjects for consideration in the I.M.O. Long Term Work Plan in connection with Maritime Safety
12. Port of Matadi
13. Banana: Port Planning
TABLE OF CONTENTS

CHAPTER

Dedication
Preface
Abbreviations
List of tables
List of appendixes

I- INTRODUCTION

1.1. The Subject
1.2. The Objective
1.3. The Method of Work
1.4. The Conclusions

II- THE MARITIME ACTIVITY IN ZAIRE

2.1. The Republic of Zaire: General Aspects
2.2. The Maritime Administration
2.3. The Port Authority
2.4. The Fairways
2.5. The Maritime Fleets
2.6. The Freight Management
2.7. The Other Aspects of the Maritime Activity
### III- MARITIME SAFETY

<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.1.</td>
<td>Navigation</td>
<td>35</td>
</tr>
<tr>
<td>3.2.</td>
<td>The Trends in Shipping</td>
<td>36</td>
</tr>
<tr>
<td>3.3.</td>
<td>Analysis of Casualties</td>
<td>38</td>
</tr>
<tr>
<td>3.4.</td>
<td>Safety and Efficiency in Shipping</td>
<td>42</td>
</tr>
</tbody>
</table>

### IV- MARITIME SAFETY ORGANIZATION IN FRANCE

<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.1.</td>
<td>Central Services</td>
<td>46</td>
</tr>
<tr>
<td>4.2.</td>
<td>Regional Services</td>
<td>49</td>
</tr>
<tr>
<td>4.3.</td>
<td>Personnel and Equipment</td>
<td>50</td>
</tr>
</tbody>
</table>

### V- MARITIME SAFETY ORGANIZATION IN THE NORDIC COUNTRIES: THE SWEDISH CASE

<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.1.</td>
<td>General</td>
<td>51</td>
</tr>
<tr>
<td>5.2.</td>
<td>The Ship Division</td>
<td>52</td>
</tr>
<tr>
<td>5.3.</td>
<td>The Working Environment Division</td>
<td>53</td>
</tr>
<tr>
<td>5.4.</td>
<td>The Dangerous Goods and Marine Environment Division</td>
<td>53</td>
</tr>
<tr>
<td>5.5.</td>
<td>The Dangerous Goods Rail and Road Division</td>
<td>54</td>
</tr>
<tr>
<td>5.6.</td>
<td>The Manning Division</td>
<td>55</td>
</tr>
<tr>
<td>5.7.</td>
<td>The Accident Investigation Division</td>
<td>56</td>
</tr>
<tr>
<td>5.8.</td>
<td>The Tonnage Measurement Division</td>
<td>56</td>
</tr>
<tr>
<td>5.9.</td>
<td>Personnel and Equipment</td>
<td>56</td>
</tr>
</tbody>
</table>

### VI- MARITIME SAFETY ORGANIZATION IN ZAIRE

<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.1.</td>
<td>Central Services</td>
<td>58</td>
</tr>
<tr>
<td>6.2.</td>
<td>Regional Services</td>
<td>60</td>
</tr>
<tr>
<td>6.3.</td>
<td>Classification Societies</td>
<td>60</td>
</tr>
<tr>
<td>6.4.</td>
<td>Personnel and Equipment</td>
<td>61</td>
</tr>
</tbody>
</table>
VII- SCHEME FOR INCREASING MARITIME SAFETY IN ZAIRE

7.1. The Global Scheme: I.M.O. 64
7.1.1. The Organization 64
7.1.2. The Work of the Organization 67
7.2. The National Scheme 81
7.2.1. Development of the National Maritime Administration 81
7.2.2. Ratification and Implementation of Conventions 92
7.2.3. Representation at International Fora 96
7.2.4. Enforcement of the Shipping Legislation 97
7.2.5. Development of Ports and Port Areas 98
7.2.6. Development of Maritime Training 104
7.2.7. Development of National Fleets 106

VIII- CONCLUSIONS AND RECOMMENDATIONS 109

APPENDIX 112

FOOTNOTES 132

BIBLIOGRAPHY 135
CHAPTER I

INTRODUCTION

"Safety of international shipping and the grave danger of pollution from ship-borne substances, particularly oil, are undoubtedly matters of serious worldwide concern today, and very justifiably so (...) As the shipping scene has become more complex, so have the endeavours been increased at the international and national levels to deal with the resulting problems of safety and marine pollution."

C.P. SRIVASTAVA.

1.1. The subject

Economic expansion for all countries, developing and developed, is assumed to be greatly function of the development level of the maritime sector. Many centuries ago sea transport has been for nations a backbone to trade, given that greater volume of commodities are exported and or imported by sea. This supremacy of sea transport over the other means of carriage explains why countries around the world are particularly involved in the expansion of national shipping industries. One way of this involvement is the establishment of national fleets for the purpose of:

- earning and saving foreign currency,
- avoiding dependence on other countries,
- traditional maritime occupation the country does well,
- prestige and military motivations.
In spite of the unfavourable geographical position in the continent as the result of the narrowness of its maritime front on one hand, and the navigating difficulties caused by the geophysical conditions on the other hand, the Republic of ZAIRE is still a maritime country in which more than 90% of the foreign trade are carried by sea. Maritime ports within the reach of vessels of any flag added to other closely related services are a part of the maritime infrastructure which is completed by an established national shipping line.

Universally, international sea and air transports are so important today as from a cargo of wheat depends the life of human lives and as one accident could endanger a great amount of people and/or goods (1). For this reason regulations are needed for the use of the infrastructures.

For shipping to be efficient it requires a high level of safety mostly attainable through a dynamic and coherent policy that can be adapted to the world trends as well as to the national objectives. Considering the fact that the objective of such a policy falls within the competence of the State, it clearly appears that reliable administrative structures are required for the improvement of the quality of services in connection with appropriate international standards.

Some case studies have been pointed out in this Paper so as to stress how developed maritime nations are organizing and controlling their shipping activities. The choice of the french experience follows the main reason of good acquaintance of the system as the result of our last field-training to the french maritime administration. The swedish case is a representation of the scandinavian system as one of the most organised maritime areas in the world.
The comparison with the zairean present organization is intended to make the reader well acquainted in some basic problems or difficulties that could be regarded as obstacles to the improvement of safety at sea.

Finally we propose a possible action to be taken on the national level by the public authorities in order to overcome these barriers. This action covers vital aspects of the maritime activity such as the national administration, the ports and harbours, and the shipping fleets. Emphasis should be put upon the inside and outside cooperation, bilateral and regional agreements are also a part of this cooperation.

1.2. The objective

By the introduction of modern technologies sea transport is getting rapid development worldwide in tonnage that can be carried as well as in the types of the vessels. Competition between countries is getting more important and the productivity in shipping relies on the level of efficiency of the safety performed in the country.

The Paper aims to possibly give a good insight into the organization of shipping in ZAIRE and eventually advocate, after analysis, different possible ways for improvement.

We are aware of the real difficulty to exactly define all the elements of the policy which are asked to be taken into consideration. Nevertheless, establishing reliable maritime infrastructure capable of providing safer shipping operations could be profitable to the development of the national trade.

Furthermore, we try to bring out the role of the International Maritime Organization, Governments and enterprises as far as maritime safety is concerned.
1.3. Method of work

The descriptive and comparative method has been hereafter adopted with the aim to present some different prevailing situations as regard maritime safety organization. Consequently, analysis of these situations are undertaken in order to possibly seek attainable action for safety enhancing.

How should a country develop her maritime sector by increasing the level of safety? The question seems to be as difficult as shipping itself is a very complex industry. For this reason we chose to call for various sources of information, namely the theoretical knowledge that had been accumulated during the training period and completed by own professional experience, handbooks and lecture notes at our disposal, official prospectus from maritime administrations and enterprises, and interviews. The list of the main references is attached to the present Document.

1.4. The conclusions

Given that the objective of the maritime safety falls under the responsibility of the Government, it has been stated that the establishment of adequate structures in the maritime field should substantially improve shipping in terms of quality, in connection with appropriate safety standards internationally adopted.

The relevant Authorities will kindly find a few Recommendations, among others, as a possible scheme for the efficiency of the maritime safety policy in Zaire.
CHAPTER II

MARITIME ACTIVITY IN ZAIRE

2.1. The Republic of Zaire: General aspects

2.1.1. Located in the heart of the African continent on both sides of the equator, the Republic of Zaire covers an area of 2,345,000 square kilometres inhabited by 30,000,000 people.

The country is essentially agro-industrial, concentrating its economy in the production and exportation of raw materials which provide the country with financial resources needed for the purchase of equipment and consumer goods.

2.1.2. The zairean economy, as mentioned above, relies on the exploitation of raw materials.

The bulk of the exports is formed by timber and wood products, cocoa, coffee, rubber, palm oil and many others. The mining activity is still for the country the principal source of foreign currency. The overseas trade is greatly influenced by the production and exportation of minerals. In this context copper has been for many years the most tradeable commodity, contributing for more than 60% in the total earnings from the export of raw materials. Other minerals including cobalt, manganese, zinc, tin, cadmium, gold, and diamond are also exported.

The imports include equipment such as farm trucks and transport equipment, consumption goods such as foods and items of clothing, supplying commodities and primary goods such as combustibles. Greater part of the imports is formed by foodstuffs.
2.1.3. Despite the immense stretch of its territory, the Republic of Zaire has got a very small coast line measuring about 42 kilometres alongside the Atlantic Ocean, stretching from the mouth of the River Zaire up to the boundary with the angolan province of Cabinda.

For all that vast area, the link between the sea and the inland has naturally been facilitated by the extremely powerful River Zaire capable of receiving ocean going vessels on a distance not exceeding 138 kilometres from the mouth. Sections of the river or its tributaries enable neighbouring land locked countries to use the territory as their maritime opening (2).

In view of the fact that the national route crossing the country from the mining region of SHABA to the evacuating port of MATADI, is unable to absorb the total sea tradeble tonnage, other maritime openings outside the national bounderies are used in order to connect the country with the external markets.

2.2. The maritime administration

2.2.1. Maritime and inland water affairs in Zaire are all placed under the Ministry in charge of Transport (3) the prime role of which is to provide the country with a global transport policy corresponding to its real needs, making use of all the geographical factors available and in the most economical way.

The Ministry supervises all the national organizations operating in maritime specific fields such as national and regional administration, port operation and port management, pilotage, sea marking and fairways maintenance, navigation, freight management, etc...

2.2.2. The Minister is assisted by a State Secretary while the technical and administrative works are coordinated by a Secretary General.
Among the central departments of the Ministry which are technical services, Marine and Waterways Department is one responsible for shipping and inland water questions. It is in charge of police and surveillance of navigation with laying emphasis on the safety of floating materials and human lives, the setting up of executive provisions, rules and prescriptions for the maritime and inland water districts as well as for the navigation inspection.

The navigation inspection applies to safety, navigation police, issue of certificates, study and submission of cases to the national commission of inquiry, surveillance of harbour works, economic and hydrographic studies.

The structure of the Ministry did not envisage any specific Department to exclusively deal with the maritime affairs. Nevertheless, the Marine and Waterways Department is divided into two central Divisions respectively responsible for Harbour and Hydrographic Studies, and Navigation Inspection. The latter Division comprises three Offices:

- Navigation Inspection;
- Police, Registration and Tonnage Measurement;
- Shipment.

2.2.3. The Ministry is represented in the hinterland by Regional Divisions of Transport composed of specialized Offices. The zairean maritime section is thus divided into three maritime districts (viz. BANANA, BOMA, MATADI). The competence of the maritime districts extends to the following tasks: registration of ships and seamen, tonnage measurement, police, and shipping statistics.

2.3. The port authority

2.3.1. Port management and port operation in Zaire are the responsibility of the National Office for Transport (4),
a para-public company. ONATRA is both a commercial and industrial enterprise with legal personality. The Office is placed under the supervision of the Ministry of transport and its main bodies are:

- the Board of Governors,
- the Management Committee,
- the Board of Financial Commissioners,
- five technical Departments: Waterways, Ports, Shipyards, Railways, and Administration.

The activity of the zairean port authority mainly consists in exploiting rivers, railways and roads, according to commercial and industrial methods, and handling cargoes and related tasks as defined by the public authority. Through the Ports Department the ONATRA carries out all kinds of port operations in Banana, Boma, and Matadi. It performs also transport services in the maritime section.

In summary, the part played by the Office in the venture consists of management and maintenance of port infrastructures, port equipment, police and port safety, and cargo handling and storage.

2.3.2. The Port of MATADI is established at 140 kilometres from the mouth of the River Zaire on its left bank. The port is located at the extreme limit of navigability of the river from the estuary. It is the most important port in the country, with a traffic annually exceeding 1,000,000 Tons of cargo, hydrocarbon oils not included.

Matadi is a modern port reputed for rapid transit, this is essential because long stocking of cargo is not allowed. The port is, therefore, connected to the inland by the means of a single railway network. It is fitted with ten quays and a complete game of cranes. The port installations comprise the following items:
- 1,610 metres of deep sea quays divided into three sections with a simultaneous berth capacity of ten ocean going ships;

- 500 metres of accostable bank composed of one quay for barges (120 metres in length) completed by various footbridges which are used for the berth and the handling of barges;

- a berth pontoon for the inland transport service;

- 150 metres of metallic wharf in ANGO-ANCO, outside the main port, for the handling of dangerous cargoes, mostly explosives and flammables. The wharf is used both as oil and fishing port.

The depth in the port varies between 25' and 35' and the handling capacity reaches 1,500 Tons per day. Concerning the storage, the port of Matadi is equipped with ten open warehouses with an useful sheltered area of 75,000 square metres.

2.3.3. The Port of BOMA is located on the right bank of the River Zaire, at 90 kilometres from its mouth. It is the second important port in the country, with a relatively low traffic of 100,000 Tons of cargo per year.

The port is provided with three quays for seagoing vessels plus one post for inland water uses.

The interest of Boma is purely local due to the main activity of the port consisting in timber handling. The port installations are composed of a single 893 metres quay, with 500,000 Tons of transit capacity.

2.3.4. The Port of BANANA has been constructed in the vicinity of the estuary. It comprises a single quay measuring 75 metres in length and intended to inland service,
to which it had been joined an oil pontoon for the
discharge of oil from tankers serving the refinery.
We should note that the importance today of the public port
of Banana is due to the amount of oil traffic in the area
as the result of the establishment of a refining company
in MOANDA. In the North-East of the port area, an oil wharf
has been constructed for the loading of products from the
refinery on board barges sailing up the river to the oil
terminal close to Matadi.

In addition, an ambitious plan had been set up
by the Government for the construction of a deep sea port
in the estuary. This plan was justified by the establishment,
in the nearest future, of new industries in the vicinity,
mostly the aluminium industry, on one hand and the possible
over capacity of the port of Matadi, on the other hand.
The realization of this plan is expected to take the
following steps:

- construction of an oil terminal to serve the
  refinery;
- construction of an ore terminal for the
  reception of bauxite to be imported for the
  aluminium company;
- construction of a container terminal; and
- construction of a general cargo terminal.

The main features of the equipment in the zairean
maritime ports of Matadi and Boma are enclosed with the
present Document (cf. APPENDIX 1/2)

2.4. The fairways

2.4.1. The zairean maritime section consists of a
narrow strip of land rising between the Atlantic Ocean and
the mountaineous region on a distance of 140 kilometres.
It is divided into three important parts, namely:
(a) A narrow shipping lane from Matadi to the point called "ILES DES PRINCES", 50 metres in length. It is characterized by a river presenting steep banks and rapid currents. The strongest currents or "CHAUDRONS D'ENFER" are located 3 kilometres downhill from Matadi.

(b) An extensive zone stretching some 66 kilometres from the point called Iles des Princes to the "POINTE ECOSSAISE".

In this section of the river, the sudden drop in speed of the current is as a result of the difference in level between the upper and the lower parts of the river causing an important deposit of sand which continously obstructs the navigational passage.

(c) A deep valley and creek zone between the "Pointe Ecossaise" and the mouth of the river (32 kilometres).

The maritime section of the River Zaire has a limited draught of 32' (high tide) and tends to the decrease with the slight accumulation of sand. This unfortunate situation has, for years, necessitated high maintenance cost for the navigation route into the navigable part of the river. Dredging has regularly been carried on in order to maintain the draught at 30' as required for good navigation.

2.4.2. The Fairways Company (5) was established in 1971 and has the legal responsibility for opening up and maintaining the navigational route of the river in its maritime section, in order to provide safe piloting service to all vessels engaged in the fairways.

The Company is placed under the supervision of the Ministry in charge of transport, but financially autonomous.
Within the limit of her competence, this organ assumes the tasks defined below:

(a) Hydrographic studies: Consist in collecting all the data needed for the establishment of best knowledge about erosion and alluvial soil deposits of the river, mainly in its wider section stretching some 66 kilometres;

(b) Dredging of the navigational passages: It has to do with soil remove from underwater and consists in three fundamental operations, namely suction, carriage, and deposit of sand at the discharge area. Dredging is done by means of appropriate machines the Company has been equipped with. These include four drawing dredgers two of them built in 1971, and the other two in 1976 and 1979;

(c) Sea marking: This helps to indicate the navigational route to be followed by ships. Safe and fast navigation along the river is ensured by use of the buoyage system. The signals are lighthouses placed in the estuary and fixed or floating beacons. Fixed beacons are made of identifying marks, general surveillance lights, while the floating beacons consist of buoys. All the lighthouses and buoys are kept going by accumulators or acetylene.

(d) Pilotage: That is an efficient way of ensuring safety not only for ships, cargoes and human lives on board, but also for passages the permanent utilization of which can only be attained by means of general organization of ship movements and a piloting
staff with the perfect knowledge of the site
and the nature of the passages.
Pilotage is compulsory for seagoing vessels
engaged in the navigational route of the River
Zaire, under conditions fixed by the Authority.

(e) Maritime radiocommunications: The Republic of
Zaire has been equipped with a coastal station
for maritime radiocommunications which is
located in BANANA and has a transmission range
of 10,000 kilometres in the best conditions of
wave propagation.
The decision to establish such a station in
Zaire had been taken with the aim to effectively
improve the conditions of exploitation of the
national maritime ports, having in mind the
planned deep sea port of Banana previously
described.
The station comprises two centres about 20
kilometres apart and connected by hertzian beam:
the radio reception and exploitation centre,
and the radio transmission centre.
The main functions of the zairean coastal
station consist of the following:

- manual radiocommunication and telegraphy in
  medium waves band;

- continuous surveillance of distress and call
  frequencies of 500KHZ and 2,182 KHZ by
  auto-alarm systems;

- high frequencies communication (HF) with ships
  in manual radio-telegraphy and tele-printer
  with automatic error device (ARQ);

- HF or UHF (ultra high frequencies) communi-
  cation with the ports of Boma and Matadi in
  radio-phone or by tele-printer;
- all frequencies radio-telephone communication with ships;
- very high frequencies (VHF) communication with ships at sea and within the estuary;
- possibility to be directly connected with the Post, Telegraphs and Telephones network for the transmission of telephonic and telex messages between the shore and ships, by means of punched tape.

The station was inaugurated on 23 / 11 / 1983 and its operation had been entrusted to the Fairways Company.

2.5. The maritime fleets

2.5.1. The national merchant fleet: The Zairean Shipping Line was established in 1946 as a subsidiary to the C.M.B., the Belgian Line. The Company afterwards enjoyed a progressive State interest and became a Zairean enterprise in 1973. One year later it was erected as a State owned venture with a full financial autonomy.

The Company started with four seagoing vessels measuring 52,313 DWT. The number of ships reached ten units in 1975 before it declined to seven in 1983, with a total capacity of 105,350 DWT. The vessels are modern and are fully equipped to carry 254 containers of 20'TEU when need arises (for M/V KANANGA) and 153 boxes of the same size for the rest of the fleet. In addition, some of these ships are able to carry ten refrigeratory containers of 40'TEU each. It should be mentioned, however, that the reduction in number of ships was caused by the concern to renew the fleet by replacing the old units with modern liner vessels.
The Zairean Shipping Line provides regular services starting from ZAIRE to the principal commercial partners. The main ranges served are traditionally the followed:

- ZAIRE/ANGOLA ___ NORTH EUROPE (range Hamburg – Antwerp)
- ZAIRE/WEST AFRICA ___ MEDITERRANEAN (Marseille and italian ports)
- ZAIRE/WEST AFRICA ___ FAR EAST (Japan)
- ZAIRE/WEST AFRICA ___ U.S.A.
- ZAIRE ___ UNITED KINGDOM

In order to render the services more profitable, the Company at the present time limits its operations on the followed routes:

- ZAIRE/ANGOLA ___ NORTH EUROPE
- ZAIRE/WEST AFRICA ___ MEDITERRANEAN
- ZAIRE/WEST AFRICA ___ U.S.A.

The national shipping line became affiliated to some liner conferences. These are groups of lines operating on routes with basic agreements to charge uniform rates (6). In this way, the Company is member of the followed conferences serving specific ranges:

- CEWAL: Central West-Africa Line
- COWAC: Continent West-Africa Conference (french Atlantic coast)
- MEWAC: Mediterranean West-Africa Conference
- AMWEST: American West-Africa (U.S. ports)
- JAPWAF: Japan West-Africa
- UKWAL: United Kingdom West-Africa Line

Concerning the traffic, in addition to the national shipping company, foreign flag fleets regularly
serve the zairean maritime ports. As a result, ships from more than twenty different nationalities berth alongside national ports'quays. Among them are belgian, american, french, netherland italian flags, counting for more than 60% of the annual tonnage carried by foreign fleets.

2.5.2. The coastal navigation fleet belongs to the Refining Company (SOZIR) established in the vicinity of the estuary. The Company is equipped with tugs and 2,000 Tons barges used for the carriage of crude oil from tankers to the Refinery and products from the Refinery to the discharge ports. That is, indeed, a matter of river boats rather than oceangoing ships. Nevertheless, the type of navigation these units carry out is considered as maritime navigation with regard to the serious dangers arising from the products they carry, on one hand and the particular conditions of navigation these boats are subjected to (e.g. strong currents, moving banks, etc...) on the other hand.

2.5.3. The support fleet is operated by the Fairways Company (R.V.M.), exploiting a fleet composed of buoyage, dredging, towing, and piloting vessels completed by several boats serving for commercial transport of passengers between Boma and Matadi.

2.5.4. The ocean fishing fleet in Zaire is less developed. As a result, a very limited amount of small fishing vessels owned by local firms usually operate in the fishing areas close to the coast line. However, zairean waters are so poor in fish as fishing by national flag trawlers are often carried on within the wide and rich fishing zones belonging to the neighbouring countries, mostly angolan waters.

Finally, the status of the zairean maritime fleet in general is given in Appendix. The fishing fleet in this table comprises all the registred boats, including the non-operating units.
2.6. The freight management

2.6.1. The Zairean Maritime Freight Management Office (OGLEFREM) was established in 1980 (7), with the prime objective to make profitable the national merchant fleet, to protect the shippers' interests and to define, on behalf of the Government, a rational policy as regards the exploitation of ports and the national maritime sector. The Office uses, for this purpose, a legal personality and is placed under the respective supervision of the Ministries in charge of Portofolio and Transport.

2.6.2. The administrative structure of the OGEFREM is composed of a Board of Governors, a Management Committee, and a Board of Financial Commissioners. In addition, the Agency is provided with three National Committees on:

- the freight rates negociation,
- the maritime freight, and
- the administrative and legal facilities relating to shipping.

2.6.3. As regards ports, the Ordinance establishing the OGEFREM requires it to promote by the means of studies and advices, development of port infrastructures as well as the improvement of their operation. The Office should also provide technical machinery to the authorities encharged of the preparation and enforcement of the national maritime policy (8).

2.7. The other aspects of the maritime activity

Shipping is most certainly a very complex industry, in view of the number and the variety of ventures attached to it. This is generally the case with shipbuilders, shipping insurers and brokers, bankers, shipping agents, etc. Among all the enumerated actors, maritime agents play a big role mainly with regard to the commercial operation of ships.
It is common practice in merchant marine that the shipowner takes charge of the carriage of cargo and passengers as well as the management of the fleet. However, the shipowner is not very often in a position to fulfil shipping transactions such as fixing of rates, voyage estimates, port dues and taxes, cargo recruitment and dispatching, and related activities. This becomes then the task of maritime agents and other intermediaries working in the name or on behalf of the shipping companies they represent.

Given the role of agents being in permanent contact with the customers, the shipping companies serving the national maritime ports work closely with the most important of them established in the country and officially recognized, namely the followed:

- AMIZA
- AGETRAF
- ZAIRE CONTAINERS
- SOCOMEXAS
- PLANTATIONS LEVER AU ZAIRE
- SOCPAO.
Table 1: PORT OF MATADI, CARGO TRAFFIC EXPORT/IMPORT DURING THE PERIOD 1979 - 1983 ( x 1,000 TONS ).

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>EXPORT</td>
<td>375.5</td>
<td>418.5</td>
<td>481.5</td>
<td>486.7</td>
<td>453.0</td>
</tr>
<tr>
<td>(containerized)</td>
<td>98.3</td>
<td>145.5</td>
<td>130.5</td>
<td>152.6</td>
<td>174.6</td>
</tr>
<tr>
<td>IMPORT</td>
<td>610.6</td>
<td>663.6</td>
<td>656.2</td>
<td>666.5</td>
<td>778.0</td>
</tr>
<tr>
<td>(containerized)</td>
<td>66.0</td>
<td>103.0</td>
<td>123.2</td>
<td>141.0</td>
<td>171.7</td>
</tr>
<tr>
<td>TOTAL</td>
<td>986.1</td>
<td>1082.2</td>
<td>1137.7</td>
<td>1153.2</td>
<td>1241.0</td>
</tr>
<tr>
<td>(containerized)</td>
<td>164.3</td>
<td>248.5</td>
<td>253.7</td>
<td>293.6</td>
<td>346.3</td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>EXPORT</td>
<td>6,961</td>
<td>9,327</td>
<td>9,685</td>
<td>11,735</td>
<td>12,731</td>
</tr>
<tr>
<td>IMPORT</td>
<td>7,442</td>
<td>10,895</td>
<td>11,714</td>
<td>13,093</td>
<td>13,813</td>
</tr>
<tr>
<td>TOTAL</td>
<td>14,403</td>
<td>20,222</td>
<td>21,399</td>
<td>24,828</td>
<td>26,544</td>
</tr>
</tbody>
</table>

Source Tables 1 and 2: ONATRA, Ports Department.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>TRAFFIC</td>
<td>43286</td>
<td>16368</td>
<td>16572</td>
<td>14629</td>
<td>10462</td>
</tr>
<tr>
<td>UNLOADED</td>
<td>61728</td>
<td>62882</td>
<td>64010</td>
<td>58921</td>
<td>31994</td>
</tr>
<tr>
<td>TOTAL</td>
<td>105014</td>
<td>79250</td>
<td>80582</td>
<td>73550</td>
<td>48456</td>
</tr>
</tbody>
</table>

*Source: ONATRA, PORTS DEPARTMENT.*
Table 4: MARITIME TRAFFIC IN ZAIRE, EVOLUTION OF C.M.Z. TONNAGE

<table>
<thead>
<tr>
<th>TRAFFIC</th>
<th>OUTWARD</th>
<th>INWARD</th>
</tr>
</thead>
<tbody>
<tr>
<td>NORTH CONTINENT</td>
<td>156567</td>
<td>134413</td>
</tr>
<tr>
<td>M E D A F</td>
<td>17031</td>
<td>2541</td>
</tr>
<tr>
<td>U S A</td>
<td>17</td>
<td>21</td>
</tr>
<tr>
<td>U K W A L</td>
<td>-</td>
<td>9524</td>
</tr>
<tr>
<td>F A R - E A S T</td>
<td>12000</td>
<td>5230</td>
</tr>
</tbody>
</table>

| TOTAL         | 185615 | 151713 | 108411 | 63371  | 147882 | 150016 | 143069 | 122421 |

Source: According to data provided by the Zairean Shipping Line,
Statistics Service.
<table>
<thead>
<tr>
<th>STAGE</th>
<th>1980</th>
<th>1981</th>
<th>1982</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATADI - TENERIFE</td>
<td>10</td>
<td>5</td>
<td>-</td>
<td>15</td>
</tr>
<tr>
<td>MATADI - ANTWERP</td>
<td>226</td>
<td>202</td>
<td>159</td>
<td>587</td>
</tr>
<tr>
<td>BOMA - ANTWERP</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>TENERIFE - ANTWERP</td>
<td>24</td>
<td>29</td>
<td>15</td>
<td>60</td>
</tr>
<tr>
<td>ANTWERP - LISBON</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>ANTWERP - LOME</td>
<td>-</td>
<td>-</td>
<td>11</td>
<td>11</td>
</tr>
<tr>
<td>ANTWERP - TENERIFE</td>
<td>17</td>
<td>24</td>
<td>1</td>
<td>42</td>
</tr>
<tr>
<td>ANTWERP - MATADI</td>
<td>360</td>
<td>294</td>
<td>324</td>
<td>978</td>
</tr>
<tr>
<td>ABIDJAN - MATADI</td>
<td>-</td>
<td>1</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>LOME - MATADI</td>
<td>-</td>
<td>-</td>
<td>37</td>
<td>37</td>
</tr>
<tr>
<td>TENERIFE - MATADI</td>
<td>12</td>
<td>-</td>
<td>-</td>
<td>12</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>652</td>
<td>559</td>
<td>555</td>
<td>1766</td>
</tr>
</tbody>
</table>

Source: According to data provided by the Zairean Shipping Line, Statistics Service.
### Table 6: Zairean Shipping Line, Seagoing Personnel Per Category at 31/12/1983.

<table>
<thead>
<tr>
<th>CATEGORY</th>
<th>NUMBER</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>A/ OFFICERS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Masters</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Chief-Officer</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td>2nd Officer</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>3rd Officer</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>4th Officer</td>
<td>14</td>
<td></td>
</tr>
<tr>
<td>Cadet-Officer</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>Radio-Officer</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Chief-Engineer</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>2nd Engineer</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>3rd Engineer</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>4th Engineer</td>
<td>18</td>
<td></td>
</tr>
<tr>
<td>5th Engineer</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>Cadet-Engineer</td>
<td>19</td>
<td></td>
</tr>
<tr>
<td>1st Electrician</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>2nd Electrician</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Assistant Electrician</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td><strong>B/ ASSIMILATED</strong></td>
<td><strong>28</strong></td>
<td></td>
</tr>
<tr>
<td>(Stewards, Busons)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>C/ AUXILIARIES</strong></td>
<td><strong>6</strong></td>
<td></td>
</tr>
<tr>
<td>(Commissioners, Doctors, and Nurses)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>201</td>
<td>201</td>
</tr>
</tbody>
</table>

**Source**: According to data provided by C.M.Z., Personnel Department.
CHAPTER III

MARITIME SAFETY

3.1. Navigation

NAVIGATION is defined as a "process of directing the movements of a craft, expeditiously i.e. economically and safely, from one point to another" (9).

The practical responsibility for safe navigation rests on Masters and navigating officers. Nevertheless, the International Chamber of Shipping recognises that there are important management functions with particular reference to:

- the effective supervision and appropriate guidance,
- the provision of appropriate navigational aids
- the timely supply of all relevant information and publications,
- the training,
- an up-to-date appreciation of all the navigational problems arising at sea.

However, the following Recommendations have been formulated by the I.M.O.:

(a) No restraints to be placed on the Masters professional judgement by owner or charterer likely to endanger the ship,

(b) Master to be protected from dismissal by the shipowner for exercising professional judgement with regards to safety.
Fundamentally the choice of route lies between the shortest way. Other factors are taken into account when choosing the routes, these namely are insurance policies and charter party restrictions, liner conference recommendations, possibility of fog and ice, ship's draught and manoeuvring ability, ship's board navigational devices, minefields still in existence and military exercise areas to be avoided, etc.

Today shipping is a matter of great concern for nations so as every country, developing or developed, enjoys to be endowed with own merchant fleet for the carriage of the national seaborne trade.

3.2. The trends in shipping

The growth of modern shipping has been noticed since the last century, with the introduction of steamships on the North Atlantic routes and the competition between sail and steam vessels. Ships built were small, with clean and sharp lines. They carried enormous areas of sail on full-rigged masts and employed large crews on board. They were sailed exceptionally hard with the modest payload capacity. However, the further improvement of steam engines burning less coal and developing more horsepower added to the replacement of iron by steel as the material for ship construction, led to the purchase of vessels which were cheaper to run.

The world shipping scene expanded then since World War II as the major maritime countries started to fill the gaps in their battered merchant fleets with new tonnage of wartime and pre-war types of ships. Furthermore came a more widespread shift towards mechanised cargo handling in the liner trades, replacing pallets which were moved by forklift trucks.
Then development began to accelerate resulting further in the construction of the big container ships, which could load 1,000 to 2,000 boxes with special areas as terminals and with special cranes. In the meantime RO/RO handling, a new and equally efficient technique consisting in rolling goods abroad the vessel through cargo doors in the side or up multilane ramps at the stern, had been developed in the liner trade.

It could be added to the previous considerations that the economic expansion in certain certain developing countries has an enormous potential, and the demand for seaborne transportation capacity from and to these countries is influencing the future of shipping. Today not only are goods travelling further by sea in new forms of packaging, but also in new types of ships. The number of vessels plying the same seas has considerably increased to about 70,000 and the total tonnage now exceeds 400 million GRT (10). Quite obviously the density of shipping operations has increased in many sea lanes and what is even more significant is the change in the composition of these ships.

Another element to be stressed is the size of ships. While the largest cargo carrier in operation during the 1959’s measured only 104,520 DWT, today the mammoth tanker in service exceeds 500,000 DWT and new technologies are used for the construction of specialised ships such as container vessels, chemical or gas carriers.

In addition, some of the cargoes which so many present-day ships carry are potentially most dangerous and these ships are not operated within the confines of a security area as are factories ashore. They have to move from one port of the world to another and they have to be navigated in the same waters as are being used by other vessels.
Consequently maritime casualties often occur in different proportions, causing sometimes the loss of human lives or ships.

3.3. Analysis of casualties

Maritime casualties are classified in three basically separate spheres: the ship, the cargo, and the persons on board the ship (11). Those concerning ships of 500 GRT and over leading generally to total or partial losses take various forms such as weather damage, collisions, strandings, foundering and abandonments, missings, fires and explosions, contact damage, machinery, and other casualties.

Two extreme types of maritime accidents can be briefly illustrated, that are:

(a) the unexpected catastrophe: That is a rare situation to what extent can anyone be expected to take precautions against all such possibilities. Ships' crews very often have no experience of how to cope with such a situation and any realistic training, even if possible, is usually very expensive;

(b) the anticipated problem: For example, a ship going aground in shallow waters. For this type of accident, experience, training, and technology can probably be helpful for relatively little cost.

The next tables show recorded total losses by nature of casualty and by nationality of the vessels involved.
<table>
<thead>
<tr>
<th>NATURE OF CASUALTY</th>
<th>FREQUENCY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weather</td>
<td>7</td>
</tr>
<tr>
<td>Foundering &amp; abandonments</td>
<td>3</td>
</tr>
<tr>
<td>Strandings</td>
<td>5</td>
</tr>
<tr>
<td>Collisions</td>
<td>2</td>
</tr>
<tr>
<td>Contact</td>
<td>1</td>
</tr>
<tr>
<td>Fires &amp; explosions</td>
<td>.3</td>
</tr>
<tr>
<td>Missing</td>
<td>-</td>
</tr>
<tr>
<td>Machinery, etc...</td>
<td>-</td>
</tr>
<tr>
<td>Other casualties</td>
<td>1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TOTALS 1984+</th>
<th>22</th>
</tr>
</thead>
<tbody>
<tr>
<td>Totals 1983</td>
<td>12</td>
</tr>
<tr>
<td>Totals 1982</td>
<td>26</td>
</tr>
<tr>
<td>Totals 1981</td>
<td>20</td>
</tr>
<tr>
<td>Totals 1980</td>
<td>17</td>
</tr>
</tbody>
</table>

(+) Total losses, including constructive total losses as recorded by July 1984.

Source: Lloyd's List, 8 September 1984.
Table 8: WORLD TOTAL LOSSES BY NATIONALITY OF SHIPS
OF 500 GRT AND OVER, 1984

<table>
<thead>
<tr>
<th>FLAG STATE</th>
<th>F</th>
<th>GRT</th>
<th>FLAG STATE</th>
<th>F</th>
<th>GRT</th>
</tr>
</thead>
<tbody>
<tr>
<td>BRAZIL</td>
<td>1</td>
<td>3,233</td>
<td>PANAMA</td>
<td>4</td>
<td>23,471</td>
</tr>
<tr>
<td>DUBAI</td>
<td>1</td>
<td>0,500</td>
<td>PHILIPPINES</td>
<td>1</td>
<td>2,095</td>
</tr>
<tr>
<td>GREECE</td>
<td>2</td>
<td>6,186</td>
<td>SINGAPORE</td>
<td>1</td>
<td>4,705</td>
</tr>
<tr>
<td>JAPAN</td>
<td>1</td>
<td>0,699</td>
<td>SPAIN</td>
<td>2</td>
<td>2,611</td>
</tr>
<tr>
<td>KOREA, SOUTH</td>
<td>2</td>
<td>3,149</td>
<td>TAIWAN</td>
<td>1</td>
<td>0,909</td>
</tr>
<tr>
<td>LIBERIA</td>
<td>3</td>
<td>99,506</td>
<td>THAILAND</td>
<td>1</td>
<td>2,644</td>
</tr>
<tr>
<td>MALTA</td>
<td>1</td>
<td>9,807</td>
<td>U.S.A.</td>
<td>1</td>
<td>1,499</td>
</tr>
</tbody>
</table>

Source: According to data published by Lloyd's List, 8 September 1984.
From the tables it clearly appears that the average world rate of gross tonnage totally lost around the world by merchant fleets is still high. It should be mentioned that a given long-established maritime country operating a fleet of relatively modern ships has a consistently better record than a flag of convenience country.

Anyhow, the causes of maritime casualties are mostly the following:

(a) Failure in communication between shore and the ship, between ship and ship, or between persons on the same ship;

(b) The speed of technological advance outstripping human realisation of possible dangerous consequences; This is, for example, an unexpec- ted side-effect of tank cleaning that can cause tanker explosion;

(c) The speed of technological advance outstripping the ability of the training facilities to ensure that those involved know how to use their new equipment;

(d) Miscellaneous such as simple bad habits to smoke in bed, carelessness, drunkenness, etc...

The real cure to the casualties mentioned above will simply consist in removing their causes, reducing the risk by supplying the adequate and reliable apparatus and the necessary training and, finally, in reducing the extent of the damage.
3.4. Safety and efficiency in shipping

3.4.1. It is generally accepted that ships plying the high seas today perform twice as much transportation work as all the world's road, airway and railway vehicles put together. Goods are, indeed, travelling further by sea, in new packages, new types and sizes of vessels as mentioned previously. The new revolution of modern technology applied in shipping is changing completely the characteristics of this industry which stayed very long under unchanged conditions.

This revolution has come in two steps: the first took place in the transport of homogenous cargoes, becoming evident by the introduction of the large sizes of supertankers and bulk cargoes. The second has been in the transportation of general cargo. This type of trade, to the contrary of the homogeneous goods cannot be easily pumped out or in the ship, due to the great differences in consignment sizes and shapes. Handling costs are, indeed, the main source of weakness in the conventional transport. Then multimodal system is introduced so as to avoid this weakness by providing a direct flow of goods from the exporter to the importer with the minimum interruption.

All these developments in the shipping industry have been operated with the aim to allow commodities and/or passengers to be transported by sea, from a right port of origin to a right port of destination, at a right time.

Moreover for merchant fleets to operate efficiently it requires a high level of safety that can be achieved through international and national efforts.
From the shipper's point of view, safe and efficient operations are provided only when the cargo is carried in a good order from a port of origin to a port of destination so as no loss or damage occurred.

Shipowners consider safety and efficiency in terms of productivity, viz. the performance provided by the vessel in reducing operating costs and increasing the real income.

In the meantime, Governments deal with safety of ships and navigation for the purpose of protecting human beings and marine environment.

3.4.2. Shipping safety finally implies three basic spheres of interest:

- the governmental interest in analysing casualties and keeping a watchful eye over the bad practices, criminal negligence, etc... The Government can also cooperate with international organizations in improving safety standards on an international level;

- the technical aspect of safety in the design, construction and equipment of ships and installations;

- the responsibility for payment for damage or loss resulting from a maritime casualty.

Because of the international dimension of the shipping industry, it is characterized by a magnitude of interests and activities involving ship management, ship navigation, ship designing, shipbuilding, ship repair, port authorities, ship store business, cargo owning, ship/cargo consignment, ship financing, ship mortgaging,
ship surveying, marine insurance, brokerage, States, local governments, international maritime institutions, etc...

For safety to be really improved in shipping, it necessitates close cooperation between all or most of the activities mentioned above.

The governmental involvement in the safety improvement should be as a response to the following tasks:

- developing regulations in order to supervise ship safety, transport of dangerous goods, and working environment on board ships;

- handling questions concerning the manning and qualifications, the tonnage measurement of ships, the investigation of accidents at sea, the voluntary type testing of pleasure crafts, the rail and road transport of dangerous cargoes, etc...

Therefore, the Government should be aware of the following priorities:

- issue of regulations;

- assurance that regulations developed are effectively put into practice;

- work for international uniformity;

- assurance that ships are seaworthy;

- measures for the prevention of ill-health and accidents;

- provision of the minimum safe manning and the maximum number of passengers allowed;

- verification of the handling of dangerous goods;
- working environment on board;
- type testing of pleasure crafts;
- gross and net tonnage calculation;
- safety in fairways;
- analysis of accidents at sea and injuries to seafarers;
- questions about seafarers neglect, etc...

All these questions to be correctly handled by the relevant organization need skilled personnel, reliable structures and materials, as it will be demonstrated further.
CHAPTER IV

MARITIME SAFETY ORGANIZATION IN FRANCE

4.1. Central services

The State Secretariat in charge of the Sea is the centralizing organ for all matters relating to the sea in France. Such matters include the safety of ships and navigation among other problems. The central Administration has the double role to propose to the Ministry of Transport to which it is attached an efficient shipping policy on one hand, and to control and supervise the work done by different services involved in the maritime activity, on the other hand. The administration competent for safety of ships is mainly composed of two bodies which are placed under the responsibility of the State Secretariat. These are the Ports and Navigation Department, and the Seafarers and General Administration Department. Departments operate through specialized Divisions and Offices.

4.1.1. The Ship Safety Division: It includes three basic Offices dealing with specific problems relating to ship regulation, ship survey and inspection, and pleasure navigation.

(a) Regulation:

- technical regulations concerning safety of ships and other navigating units, pleasure boats excluded;

- technical regulations relating to the prevention of pollution from ships and other navigating units;
- Secretariat for technical and administrative Commission of Inquiry;
- trusteeship for classification societies;
- following up of standardization works.

(b) Survey:
- organization of ship inspection and safety commissions;
- Secretariat for the Central Safety Commission;
- Secretariat for the Commission for the carriage of dangerous goods;
- Secretariat for the Appeal High Commission;
- coordination of the action relating to ship equipment and ship operation;
- coordination of the activities of the Safety Centres;
- approve materials, devices and installations according to the legislation in force on ship safety and pollution prevention;
- diffuse, classify and up-date the I.M.O. documents;
- prepare I.M.O. sessions of the Assembly, the Council and the Maritime Safety Committee.

(c) Pleasure navigation:
- regulations on safety of navigation and certificates;
- Secretariat for the National Pleasure Navigation Commission;
- administrative regime for the export and import of pleasure crafts;
- trusteeship for the Pleasure Navigation High Commission.

4.1.2. The Navigation Division: This body includes two operational Offices:

(a) Navigation and Rescue:
- regulations on navigation;
- coordination of rescue at sea;
- organization of the rescue centres (12).

(b) Signals:
- technical exploitation of navigational aids systems;
- surveillance of navigation;
- rescue at sea.

4.1.3. The Seafarers Division: It has three Offices taking charge of tasks which are greatly necessary for the enhancing of maritime safety, viz: training of seafarers, management of seagoing personnel, and seafarers health.

(a) Maritime work and manning:
- manning of vessels;
- collective conventions;
- seafarers regime and employment;
- regulations on the seafarers work.

(b) Training and certification:
- maritime education and training
- national shipping academies and professional centres;
- seafarers certification;
- international cooperation.

(c) Seafarers health and safety of work:
- seafarers occupational health and physical ability to navigation;
- regulations on occupational health and medicine on board;
- prevention of maritime working accidents.

To all these administrative services shall be added the Consultative Safety Commissions, the Technical Safety Commissions, the General Maritime Inspectorate, and the Maritime Education Inspectorate, which all are placed under the authority of the Minister of Transport.

4.2. Regional services

4.2.1. The Regional Departments for Maritime Affairs:

These are necessary links between the central administration and the local services.

In addition to their tasks relating to safety of shipping they also deal with several matters in connection with social protection for seafarers, fisheries, and economic affairs.

4.2.2. The Regional Safety Commissions:

They are specialized in the application of the international conventions and other instruments as well as the national laws and regulations in connection with safety of human life at sea.
The main duties of the Safety Centre can be expressed as followed:

- ship survey and inspection;
- departure visits;
- inspection of ships under construction;
- maintenance yard inspection;
- reports to the Regional Safety Commission;
- ship trials;
- investigations after major casualties or any incident on board ships;
- training of personnel (courses and examination);
- manning and certification, etc...

4.3. Personnel and materials

The different organs in charge of maritime affairs and maritime safety in France are headed by Maritime Administrators, Ship Safety Inspectors or Maritime Work Inspectors. The organization is staffed with a highly specialized personnel covering different fields:

- Maritime Affairs Administrators;
- Ship Safety Inspectors;
- Maritime Work Inspectors;
- Maritime Surveyors;
- Seafarers Unions, etc...

In addition, necessary equipment and materials for technical use, and devices such as cars and trucks are available.
CHAPTER V

MARITIME SAFETY ORGANIZATION IN THE NORDIC COUNTRIES: THE SWEDISH CASE

5.1. General

Some countries such as the Nordic Group, have a particular system of supervision. The governmental Authority is often a "National Administration of Shipping and Navigation", where the Maritime Safety Inspectorate deals with all the safety problems. The Inspectorate is often divided into Districts. At the head of each district of the inspectorate is a chief surveyor of ships. Under his command there are senior ship surveyors and ship surveyors. In some respects the supervision is exercised by a "National Board of Occupational safety and health" and its "Industrial Safety Inspectorate", as well as by shipping officers. The consuls stationed in overseas countries have certain supervisory responsibilities.

The swedish maritime administration consists of a Board which is assisted by five technical departments:

(a) The Fairways Department: pilotage, structures sea marking, and ice-breaking;

(b) The Hydrographic Department: hydrography, charts production and control;

(c) The Maritime Safety Department: ship design, working environment on board, manning of vessels, carriage of dangerous substances, tonnage measurement for ships, maritime casualty investigation;

(d) The Economic Department: economic affairs, facilitation of documentation;
(e) The Administrative Department: personnel, budget, general and internal affairs.

The duties of the Maritime Safety Department are performed by specialized Divisions.

5.2. The Ship Division

The main responsibility of the Ship Division is to ensure that ships are being built and equipped in a way that makes them seaworthy. By "seaworthy" means that the ship can transport passengers and/or commodities without exposing neither the vessel nor the passengers/or commodities to danger. Consequently various safety certificates are to be issued by the Authority to ships that have been inspected and declared seaworthy.

The work of the Division is extending from drawings approval to the verification of calculations and relevant information about the way the ship is built and equipped, and the development of appropriate regulations.

The National Administration of Shipping and Navigation by contributing to the work carried out within the international Organizations such as I.M.O. and I.L.O., aims, inter alia, at bringing international uniformity to the safety regulations of different countries. The Ship Division takes part in this work within the scope of its responsibilities.

The operational supervision and control that ships fulfil the regulations in force is done in districts in the form of periodical surveys or casual inspections. Moreover, the supervision is not only the matter of the maritime administration. Classification societies are also delegated to carry out certain surveys of ships in accordance with SOLAS and MARPOL conventions.
When not classified ships are concerned the Administration is responsible for the whole survey.

5.3. The Working Environment Division

The work of this Division aims to increase the consciousness of safety and to make the environment on a ship safer for the staff on board and within the trade in general. This is achieved through the development of regulations, drawings approval, and typetesting of equipment. The Division is also responsible for training and information by:

- taking part in the shipping safety Committee;
- training of safety delegates and officers, and associated matters;
- informing the staff on board ships, shipowners, shipyards and manufacturers of equipment about the regulations in force, the risks in the working environment and the protective measures.

5.4. The Dangerous Goods and Marine Environment Division

The prevention of marine pollution from ships by the means of oil, chemicals and waste products, and the prevention of damages on board caused by dangerous goods are the major activities of the Division. That is in practice done by:

- taking part in the international standardization work relating to pollution and dangerous goods;
- working out appropriate regulations;
- approving drawings for tankers and other
ships carrying dangerous substances with respect to cargo spaces;
- handling with matters relating to safety on board ships in connection with the construction, equipment and operation, and fire control system in cargo spaces;
- taking part in training as regard the handling of dangerous goods and fire control;
- handling with problems affecting the carriage of dangerous cargoes by sea (e.g. interpretation of the IMDG Code, classification of chemicals, special provisions for ships on short routes, etc...)

5.5. The Dangerous Goods Rail and Road Division

This Division is entitled to coordinate the safety regulations for road, air and sea transport. The activity includes items such as:

- information about the safety provisions as regard human lives, property and environment;
- taking part in the international standardization work concerning the carriage of dangerous goods by road;
- helping the trade and the industry by the classification of dangerous goods;
- coordination of the work by supervising authorities (e.g. police, customs, or explosive and flammable inspectorate).

In addition to the Division, there is also a delegation operating as a special Board for road/rail.
5.6. The Manning Division

In brief, the functions of the Manning Division can be defined as followed:

- stipulate, after consultation of shipowners and employees organizations, how a ship shall be manned;

- indicate in the minimum manning document all the requirements relating to crew qualifications;

- issue proficiency certificates for ships' officers, engineering officers and employees, with authorization to handle dangerous cargoes;

- issue instructions to the Authority in charge of ship control as regard manning;

- answer for the control of manning;

- control exemption applications from persons who do not fulfil the competency requirements;

- stipulate sight and appropriate hearing requirements for sea people and exemption applications;

- communicate about the interpretation of the Act on Seamen's working hours and ensure no illegal overtime is taken out on board;

- reply to considerations from the government and the I.L.O. Committee on questions of variable nature concerning the working conditions of the crew on board vessels;
- taking part in the legal work relating to the manning of ships and the erection of the seamen's register which soon will be transferred to the administration and computerized.

5.7. The Accident Investigation Division

This Division is organised in such a way as to investigate on accidents on board or with Swedish ships, approve and complete the sea-protest record and other material from the investigation, and propose consequent measures for avoiding further accidents.

Another aspect of the activity of the Division consists in producing casualty statistics and other violations of the Act on Safety at Sea.

The Division furthermore handles with safety regulations for fairways, including the traffic separation rules, and ships logbooks.

5.8. The Tonnage Measurement Division

Tonnage measurement aims to determine the net and gross tonnage of ships by checking up and verifying the data which had been collected by regional measurers on one hand, and issuing tonnage certificates and attending to international regulatory works, on the other hand.

The reports on tonnage are used as a basis for fees and charges calculation. They serve also for ships identification and are a parameter for determining the ship's equipment, crew and other safety requirements.

5.9. The Personnel and equipment

A fundamental condition for the effectiveness of the maritime safety work is that it is performed by
competent persons fitted with reliable equipment and materials.

The National Administration of Shipping and Navigation is staffed with nautical, engineering and data processing people, economist and legal staff. The surveyors belonging to the Maritime Inspectorate are often naval architects, experienced ships' masters and chief engineers.
CHAPTER VI

MARITIME SAFETY ORGANIZATION IN ZAIRE

6.1. Central services

The Marine and Waterways Department is, i.a., responsible for all matters affecting ships and maritime navigation (13). It has in its charge the coordinated development of the means of transport and public equipment needed, and also the maintenance and development of infrastructure, the issue of national and international certificates.

The Navigation Inspection and Shipment Division fulfils within the Department all functions relating to safety. It is fitted with three separate Offices:

(a) Ship Registration and Tonnage Measurement:
- ship registration and related matters;
- tonnage measurement of ships (14);

(b) Navigation Inspection:
- issue of safety certificates;
- examination and certification of seagoing personnel;
- investigations and reports to the national Inquiry Commission;
- maritime legislation and regulations, international maritime conventions and other instruments;
- shipping statistics;
- national and international maritime policy;
- shipping inspection;
- administrative regime of seagoing vessels, fishing boats and pleasure crafts;
- seafarers administrative regime;
- maritime education, training and certification;
- maritime infrastructures;
- maritime police, etc...

(c) Shipment:
- stock management and accounting;
- maintenance, exploitation of equipment and technical control;
- port interests;
- technical questions affecting naval equipment and safety of navigation, and all technical maritime regulations;
- yards and maintenance stations surveillance.

We will realize that the Navigation Inspection Office is unique organ within the framework of the central administration dealing with the safety matters. Evenmore, the issue of certificates and the setting up of inquiries are the main activities of this Office.

Moreover, the present work of the Shipment Office does not extend to most of its tasks as they are described above. Tasks relating to the improvement of safety of ship and navigation are not fully assumed.
6.2. Regional services

(a) The Regional Division for Transport is the coordinating body in region for all the activities in connection with shipping. It is the legal and administrative link between the central administration and the maritime districts operating in region and located in the national maritime ports.

(b) The Maritime and Fluvial Office in MATAD1 undertakes the control and centralization of the activities of the maritime districts.

(c) The Maritime Districts have the legal, administrative and technical responsibility for the following:

- enforcement of the maritime code;
- cooperation with the port authority in the facilitation procedures, ship registration and related questions, port infrastructures, tonnage measurement for smaller ships, ship survey, shipping statistics, and administrative work.

(d) Fairways Company: Has the legal responsibility to continuously provide to ships engaged in the chenal a safe navigation by the means of dredging, sea marking and lighthousing, piloting, and radiocommunicating.(15)

6.3. Classification Societies

Under the Decree No 04 of 25/04/1967, the Government of Zaire recognizes six classification societies operating within the International Association of Classification Societies (I.A.C.S.).
These entities have been given the power to undertake some activities on behalf of the Zairean national maritime administration, specially in the following items:

- freeboard calculation and marking, issue of certificates and periodical surveys of ships, in accordance with the International Convention on Load Lines (1966);

- initial and periodical surveys of ships, issue of certificates and their renewal, in accordance with the International Convention for Safety of Life at Sea (1960);

- provision of registry of inspection and trial certificates, in accordance with the International Convention for the Protection of Workers Loading and Discharging (1932);

- inspection of ships, including large vessels belonging to ONATRA and RVM, during their construction when the drawings have been approved.

6.4. Personnel and materials

The Zairean central administration for maritime affairs is manned with about 60 persons working in different services of the Marine and Waterways Department. The Navigation Inspection and Shipment Division employs 22 people, and the regional services are together composed of a personnel estimated to be 84 people and divided up in the following way:

- Regional Division for Transport-------11
- MATADI Maritime Office -------------46
- BOMA Maritime District ----------13
- BANANA Maritime District -------14
In general, the administrative and technical personnel both in the central and regional services suffers of inadequate preparation through administrative or nautical basic training.

This shortage of skills shall be a barrier to the development of maritime safety and all the national shipping industry in general. Because specialized staff and personnel are one of the prerequisites for the achievement of this goal.

The second difficulty is certainly the insufficiency of equipment and materials required by the services for rapid interventions when needed.
STRUCTURE OF THE ZAIREAN MARITIME ADMINISTRATION

MINISTRY OF TRANSPORT

SECRETARY GENERAL

MARITIME FOR TRANSPORT

REGIONAL DIV.

NAVIGATION & PORT OFFICE

3 MARIT.

DISTRICTS

NAVIGATION & SHIPMENTS DIV.

HYDROGRAPHY & HARBOUR STUDIES DIV.

NAVIGATION & TONNAGE OFFICE

SHIP REGISTRATION OFFICE

SHIPMENT OFFICE
CHAPTER VII

SCHEME FOR INCREASING MARITIME SAFETY
IN ZAIRE

7.1. Global scheme: The International Maritime Organization

7.1.1. The Organization:

The International Maritime Organization is
a specialized Agency of the United Nations concerned solely
with maritime affairs, particularly from the point of view
of safety of life at sea and the prevention of marine
pollution from ships. This entails providing an extensive
exchange of information between nations on technical
maritime subjects and concluding international agreements.

This concern was justifiable for two main
reasons. In the first place seafaring has always been one
of the most dangerous occupations. In the second place,
because of the international nature of the shipping industry,
it had long been recognized that action for safety improvemen
could be more effective if carried out on an international
level rather than by individual countries acting unilate-
 rally. Although a number of important international
agreements had already been approved, many States agreed
that there was the need for a permanent body which could
be able to coordinate and promote further measures on a
more continous basis.

The convention establishing the I.M.O was
adopted at the United Nations Maritime Conference in
GENEVA (1948). It entered into effect on 17/03/1958.
The decision to establish the Organization reflected the
wish of maritime nations to consolidate and improve on the
differing forms of international cooperation which had
developed over the years in the field of shipping.
Its interest lies mainly in ships used in international
services.

The structure of the I.M.O. consists of
the Assembly, the Council and five specialized Committees,
and a Secretariat.

(a) The Assembly consists of representatives
from all Member States. It is the supreme governing body
of the Organization, meeting in regular sessions once
every two years. Recommendations on regulations concerning
safety and pollution prevention or other related matters
are adopted by the Assembly after being submitted by the
relevant Committee.

(b) The Council is the governing organ between
the biennial sessions of the Assembly. It consists of
twenty-four Member Governments elected by the Assembly for
a term of two years. The Council normally meets twice a year.

(c) The Maritime Safety Committee deals with
technical problems within the scope of the Organization,
in connection with maritime safety such as navigational
aids, ship construction and equipment, rules for preventing
collisions at sea, dangerous goods, life-saving appliances,
marine communications, standardization of training,
certification and watchkeeping for officers and ratings,
search and rescue, etc. The Committee works with the
assistance of a number of Sub-Committees which are
established to deal with specific problems.

(d) The Legal Committee is responsible for
all legal matters arising within the scope of the
Organization.
(e) The Marine Environment Protection Committee is entitled to coordinate the activities of the I.M.O. concerning the prevention and control of marine pollution from ships.

(f) The Committee on Technical Cooperation has in its charge the coordination of the work undertaken by the Organization in providing technical assistance in the maritime field, particularly to the developing countries. The programme of technical assistance is thus intended to enable these countries to establish their maritime infrastructures where needed or to effectively develop the existing one, in order to enable them to comply with the provisions and standards laid down into international conventions and other instruments.

(g) The Facilitation Committee is a subsidiary body established by the Council in view to deal with the activities and functions relating to the facilitation of the international maritime traffic. These activities are aimed at reducing the formalities and simplifying the documentation involved.

All the Committees mentioned above are open to participation by all Member Governments on an equal basis.

(h) The Secretariat is headed by a Secretary General and operates with the help of specialized Divisions, namely the Maritime Safety Division, the Conference Division, the Marine Environment Division, the Administrative Division, the Legal Affairs and External Relations Division, the Technical Cooperation Division.
7.1.2. The work of the Organization:

In the last twenty years the I.M.O. has promoted the adoption of twenty-seven conventions and Protocols, and adopted a large number of Recommendations and Codes on various questions relating to maritime safety and pollution prevention.

The process of developing a convention starts with an initial work normally done by a Committee or Sub-Committee, a draft instrument is then produced and submitted to a Conference to which delegates from all States within the United Nations System (including those which may not be I.M.O. Members) are invited. The Conference adopts a final text which is then submitted to governments for ratification. It should be noted that an instrument so adopted comes into effect after fulfilling certain requirements which usually include ratification by a specified number of countries: generally speaking the more important the convention is, the more stringent are the requirements for its entry into force. Observance of the requirements of a convention is mandatory on countries which are parties to it. But Codes and Recommendations which are adopted by the Assembly are not so binding on governments. Nevertheless, their contents can be just as important, and in most cases they are implemented by governments through incorporation into national legislation.

(a) Maritime safety: In 1948 an International Convention on the Safety of Life at Sea was adopted at a Conference convened by the United Kingdom. But developments during the intervening years made it necessary to bring up to date without delay. The 1960 Convention entered into force in 1965 and became then the basic international
instrument dealing with maritime safety matters. In response to new developments that had occurred in shipping it was amended several times. However, because of the rather difficult requirements for bringing amendments into force none of them actually became internationally accepted. A lot of instruments have been developed today and the most important of them are briefly expressed in the following paragraphs.

1/ INTERNATIONAL CONVENTION FOR THE SAFETY OF LIFE AT SEA, 1974, as modified by the Protocol of 1978 thereto (SOLAS, 1974/78).

The new convention incorporates all the amendments adopted to the 1960 Convention as well as it introduces other necessary improvements. It was felt, indeed, that it would be easier to bring the new convention into force than to secure the acceptances necessary for the amendments to become international law.

The Convention also has a much easier amendment procedure under which amendments will normally come into effect on certain predetermined dates, unless a stipulated number of States Parties to it indicate that they object to them. Items developed by the Convention are the followed:

- General provisions (Chap. I)
- Construction: Subdivision and stability, machinery and electrical installation (Chap. II-1)
- Construction: Fire protection, fire detection and fire extinction (Chap. II-2)
- Life saving appliances (Chap. III)
- Radiotelegraphy, radiotelephony (Chap. IV)
- Safety of navigation  (Chap. V)
- Carriage of grain  (Chap. VI)
- Carriage of dangerous goods  (Chap. VII)
- Nuclear ships  (Chap. VIII)
- Certificates  (Appendix)

The SOLAS 74/78 entered into force in 1980.
In the meantime a considerable amount of work has been done to update the Convention.
A Protocol adopted in 1978 and enforced in 1981 had been completed by the first of series of amendments in 1981.
The Protocol contains certain provisions relating to the definition of "new ship", the new requirements on inspection and certificates, and the new requirements concerning ship equipment. The first set of amendments is regarding fire protection, fire detection and fire extinction, in connection with the Chapter II-2 of SOLAS 74 Convention. It provides fire safety measures for passenger ships, cargo carriers, and tankers.

2/ INTERNATIONAL CONVENTION ON LOAD LINES, 1966, (L.L., 66)

The first international instrument on load lines was adopted in 1930 so as to put limitations on the draught to which a ship may be loaded, in the form of freeboards. New and improved measures were then brought by the L.L. 66 Convention in force since 1968.

The overall objectives of this treaty are to ensure as far as is reasonably practicable that ships to which it applies shall have adequate reserve buoyancy to remain afloat at sea under any weather conditions likely to be encountered, and to provide safe working platforms for their crews.
In order to meet these objectives the Convention requires that every ship to which it is applicable shall be marked amidships and on each side, with load lines corresponding to the season of the year and the area in which the ship may be, and also requires that the appropriate load lines shall not be submerged when the ship is at sea. Each of the load lines shall be marked at a calculated distance below the "freeboard deck". Each of these vertical distances shall be defined as "freeboard" with reference to the appropriate load line.


Tonnage is used for assessing dues and taxes and because of the way in which it is calculated, it has proved possible to manipulate the design of ships in such a way as to reduce the ship's tonnage while still allowing it to carry the same amount of cargo. But it has been recognized that this has occasionally been at the expense of the ship's stability and safety.

Several systems for tonnage measurement were developed over the years and none of them became universally accepted. The tonnage convention in force since 1982 is therefore the first international attempt to the problem.


This instrument came into force in 1977 with the aim to safeguard ships and passengers engaged in a "pilgrim" trade.
5/ CONVENTION ON INTERNATIONAL REGULATIONS FOR PREVENTING COLLISIONS AT SEA, 1972. (COLREG, 72)

It has been previously stated that collisions are one of the most common accidents at sea. For that reason measures to prevent these occurring were strengthened in the ANNEX to SOLAS 1960. Nevertheless in 1972 the I.M.O. developed the Convention that included a number of new features among which were regulations concerning traffic separation schemes which had been introduced as a recommendation in several parts of the world where maritime traffic was particularly congested. The adoption of such schemes has effectively reduced the number and frequency of collisions in many areas, and the coming into force of the COLREG Convention in 1977 has led to further improvements.

6/ INTERNATIONAL CONVENTION FOR SAFE CONTAINERS, 1972. (C.S.C., 72)

The Convention is designed not only to facilitate the international maritime trade by providing uniform international regulations, but also to maintain a high level of safety in the carriage of containers by providing generally acceptable test procedures and related strength requirements. It entered into force in 1977.

7/ CONVENTION ON THE INTERNATIONAL MARITIME SATELLITE ORGANIZATION, 1976. (INMARSAT, 76)

In the recent years conventional radio facilities became increasingly congested making it physically impossible to increase the number of canals
available. By using space satellites these difficulties could be overcome and this would be of great benefit in commercial and other aspects of ship operation.

The great advantage in the system is mostly safety, for improved communications would enable distress messages to be transmitted and received much more effectively than terrestrial methods. The Convention came into force in 1979 and resulted in the establishment of the INMARSAT in London.


The nature of the fishing industry is extremely varied and complex. This is so different from other forms of the maritime activities that many other existing conventions cannot be made applicable to fishing vessels. To illustrate this fact, we should mention that no ships other than fishing vessels do leave ports with their hatches closed and their holds empty, sail into the middle of the ocean, and then open their hatches and start loading cargo.

The TORREMOLINOS Convention, when in force, will apply to new ships of twenty-four metres in length and over. It is expected to be of great benefit to the safety of this kind of ships. The convention includes technical regulations for the construction and equipment of fishing vessels, and the provisions on surveys and safety certificates.

Although the International Conference on Safety of Fishing Vessels, 1977, recognising that the new convention will apply only to ships of large size and being conscious that the majority of fishing boats through-
out the world are of less than twenty-four metres in length, adopted a Resolution recommending the Organization to continue developing safety standards for the design, construction and equipment of such smaller ships in order to improve their safety: I.M.O Guidelines are as the result of this further work.


Among the numerous Resolutions adopted in 1960 by the International Conference on Safety of Life at Sea was one which called upon governments to take all practicable steps to ensure that the education and training of seafarers in the use of navigational aids, ships' equipment and devices was sufficiently comprehensive and kept satisfactorily up to date.

The STCW Convention is regarded as one of the most important instruments ever developed as far as maritime safety is concerned. It is the first attempt to establish global minimum standards for seafarers. For many years, indeed, standards of training, certification and watchkeeping for officers and crews were developed by individual governments without reference to practices in other countries. As a result standards and procedures varied widely even though shipping was considered as the most international of all the industries.

The Convention prescribes the lowest standards countries are requested to meet or exceed. But, in the majority of established maritime nations standards are often higher than those stipulated by the Convention. In some other countries where the standards are lower or nonexistent, the ratification or acceptance of the Conven-
tion will allow them to meet its requirements and to raise these standards in the world as a whole.

The ANNEX to the Convention contains for this purpose technical provisions. It is divided into six chapters which deal with the following points:

- General provisions (Chap. I)
- Master-deck department (Chap. II)
- Engine department (Chap. III)
- Radio department (Chap. IV)
- Special requirements for tankers (Chap. V)
- Proficiency in survival craft (Chap. VI)

In some regulations the language is fairly general, with much detail being incorporated in the twenty-four Resolutions taken by the Conference.

Anyhow, the Convention is not designed as a model on which all countries should necessarily base their crew requirements. It is aimed at eliminating inadequate or supplementing insufficient requirements wherever necessary while, at the same time, helping the less experienced nations which are in the process of building up their fleets to know the minimum standards which are internationally required.


The international need for improving the existing arrangements for carrying out search and rescue operations after accidents at sea had justified the
development of this international instrument. Considering that many countries have their own established plans for emergencies, the S.A.R. Convention is nevertheless the first tentative to develop internationally acceptable procedures in this field.

(b) Prevention of marine pollution: Ships today are so much larger than they were a long time ago. The amount of oil carried by sea has risen by 700% in twenty years, to around 1,700 million Tons. Accordingly the world tanker fleet has considerably increased by 37 million DWT in 1954 to 340 million DWT in 1984. The size of tankers has also grown amazingly, by 30,000 DWT in 1954 to 500,000DWT and over today. (17) As a result, consequences of casualties are much greater and such accidents often affect the marine environment by damaging resources (i.e. fisheries and tourism). In addition, the cleaning operations carried out by crews of tankers and other vessels are another danger to the seas and the coastal States.

1/ INTERNATIONAL CONVENTION FOR THE PREVENTION OF POLLUTION FROM SHIPS, 1973, as modified by the Protocol of 1978 thereto (MARPOL, 73/78).

The first major attempt by the maritime nations to curb the impact of oil pollution was developed in 1954 by the International Convention for the Prevention of Pollution of the Sea by Oil (OILPOL, 54), only applicable to tankers of 150 GRT and other ships of 500 GRT AND OVER. The MARPOL Convention is today the most ambitious anti-pollution treaty ever drafted. It deals not only with oil pollution but also with the other kinds of pollution, including that from garbage, sewage, chemicals and other harmful substances.
The MARPOL Convention is applicable to any ship of any size and type, including hydrofoil boats, air-cushion vehicles, submersibles, floating crafts, fixed or floating platforms operating in the marine environment. The Convention, however, does not apply to the disposal of land generated wastes into the sea by dumping within the meaning of the 1972 Dumping Convention, nor the release of harmful substances directly arising from the exploration and exploitation of sea-bed mineral resources.

Concerning prevention of oil pollution, the Convention greatly reduces the amount of oil to be discharged into the sea by ships, and bans such discharge operations completely in certain spaces so-called "special areas". It gives statutuory support for such operational procedures as "load on top" and "segregated ballast tanks".

The Convention consists of articles, two Protocols dealing respectively with reports on the incidents involving harmful substances and arbitration, and five Annexes providing regulations for the prevention of:

- pollution by oil (ANNEX 1)
- pollution by noxious liquids carried in bulk (ANNEX 2)
- pollution by harmful substances carried in packages, portable tanks, freight containers or road/rail tank wagons (ANNEX 3)
- pollution by sewage from ships (ANNEX 4)
- pollution by garbage from ships (ANNEX 5)
We should note that ANNEXES 1 and 2 are mandatory for State party to the Convention, whereas ANNEXES 3 to 5 are optional.

The Protocol of 1978 introduces new requirements which go to strengthen and expand the Convention. The new measures include operational techniques such as "crude oil washing" and "inert gas system", but also provide constructional requirements such as "segregated ballast tank" for much smaller ships than stipulated in the convention itself. The most important of the new requirements are incorporated in Protocols to the SOLAS 74 and MARPOL 73 Conventions.

2/ INTERNATIONAL CONVENTION RELATING TO INTERVENTION ON THE HIGH SEA IN CASES OF OIL POLLUTION, 1969 (INTERVENTION, 69)

This convention has been the consequence of the "TORREY CANYON" disaster in 1967 which fully alerted the world of the great danger the transport of oil posed to the marine environment. It came into force in 1975 and gives States the right to intervene in accidents on the high seas while these are likely to result in oil pollution.

3/ INTERNATIONAL CONVENTION ON CIVIL LIABILITY FOR OIL POLLUTION DAMAGE, 1969 (C.L.C, 69)

The objective of the I.M.O by adopting this treaty has been to ensure that adequate compensation is available to victims.

The Convention places liability for the damage on the shipowner and it entered into force in 1975.
4/ INTERNATIONAL CONVENTION ON THE ESTABLISHMENT OF AN INTERNATIONAL FUND FOR COMPENSATION FOR OIL POLLUTION DAMAGE, 1971 (FUND, 71)

The Fund is made up of contributions from oil importers, with the main idea that if an accident at sea results in pollution damage which exceeds the compensation available under the C.L.C, the Fund will pay an additional amount, while the burden of compensation will be spread more evenly between the shipowner and the importer.

The FUND is an additional effort to supply to the inadequacy of the compensation under the C.L.C. It came into force in 1978.

5/ REGIONAL OIL-COMBATING PROJECTS

The setting-up of Regional oil-combating Centres is a part of the work of the I.M.O., aimed at reducing the threat of oil pollution.

One of these projects is, in fact, the Regional Oil-Combating Centre in MALTA which has been established in conjunction with the United Nations Environment Programme (18).

The success of this venture is being closely followed in other parts of the world and the IMO has taken part in projects in areas such as Caribbean, West-Africa, and elsewhere.

(c) Other matters: While safety in shipping and the protection of marine environment are the chief concern of I.M.O., the Organization also is involved in many other areas.
In addition to the regimes of liability for oil pollution, various conventions have been produced so as to deal with the other aspects of liability, namely the liability for:

- damage arising from the maritime carriage of nuclear substances;
- damage suffered by passengers carried on seagoing vessels;
- loss of life or personal injury and property claims such as damage to ships, property or harbour works.

In the last few decades the lack of internationally standardized documentation procedures has imposed a heavy burden upon both shipborne and shore-based personnel, and caused considerable delays. The International Convention for Facilitation of Maritime Traffic, 1965, was enforced in 1967 and it is intended to prevent unnecessary delays in maritime traffic and to help cooperation among governments, and to secure the highest practicable degree of uniformity in formalities and procedures.

(d) Technical assistance: While the adoption of Conventions, Codes and Recommendations has in the past been I.M.O.‘s prime function, the Organization has been devoting in recent years increasing attention to securing the effective implementation of these measures throughout the world.

The technical assistance programme of the I.M.O aims at helping States, many of them developing nations, to ratify the conventions and approve the standards contained in these instruments. The Programme which includes topics hereafter enlisted is covered by Advisers and Consultants:
- maritime safety administration;
- maritime legislation;
- marine pollution;
- maritime training for deck and engineering personnel;
- technical aspects of ports;
- carriage of dangerous goods;
- assistance in the acquisition of equipment;
- fellowship for advanced maritime training not available locally;
- financial aid through Agencies and donors;
- etc... (cf. APPENDIX 6).

(e) The future: For the foreseeable future, the main goal to be achieved by the Organization will be to ensure conventions and other documents already adopted are effectively implemented and enforced, mainly those relating to safety in shipping and pollution prevention.

The Resolution A.500 (XII) recommends that organs of the I.M.O entertain proposals for new conventions or amendments to existing instruments only on the basis of clear and well-documented demonstration of compelling need, taking into account the undesirability of modifying conventions unless such latter treaties have been enforced for a reasonable period of time, and experience has been gained of their operation, and having regard for the costs to the maritime industry and the burden on the legislative and administrative resources of Member States. (cf. APPENDIX 7).

Despite this Resolution problems regarding maritime safety will still be submitted to the Organization for consideration.
Eventually, developing international instruments such as those mentioned in the previous paragraphs is the major activity of the I.M.O. Nevertheless, this activity involves many aspects. In addition to conventions requirements of which are mandatory for States who ratified them, the Organization also produced numerous codes, guidelines, recommendations and other safety measures. These do not have the same legal power as conventions, but can be used by governments as a basis for domestic legislation or as guidance. Some of the most important of them deal with cargoes, the safety of fishermen and fishing vessels, the carriage of dangerous goods, the carriage of bulk chemicals, liquefied gases, timber deck cargoes, the mobile off-shore drilling units, the noise levels on board ships, and the nuclear vessels.

Even if the international community shall recognize the contribution I.M.O has made towards maritime safety improvement and pollution matters, a great amount of work is still to be done and the role of the Organization as a forum and platform for the international shipping community will be even more important in the future. Therefore, the success to be obtained from these efforts will depend on the increasing and effective contribution of all the Member States to the work of the Organization through its main organs.

7.2. National scheme

7.2.1. Development of the national maritime administration: The primary objective of the maritime administration in a country is to maintain and promote safety of ships and navigation for the protection of human lives and marine environment, and for enhancing efficiency in this important sector of activity. On the national level, the setting up of adequate functional structure and
efficient shipping legislation are the big components of the governmental action for the achievement of this objective.

(a) The structure of the Administration: In most cases activities of national administration in charge of the maritime affairs are carried out by several services placed under the supervision of different ministries like Transport, Fisheries, Environment, Justice, Public Works, Economy and Industry, Commerce, Labour and Social Security. In the present situation each ministry is statutorily and legally responsible within the sphere of its competence.

To minimise duplication and bureaucratic procedures, coordination of all the activities in relation to ships and navigation under one umbrella structure is to be considered in the short run.

The new institution will then deal with maritime safety and, as a result, will be provided with specialized bodies as required for covering all the areas of shipping and navigation. In general the newly organized maritime administration should be enabled to perform the following functions:

- ship registration;
- registration of seagoing personnel;
- survey and inspection of ships to ensure they are manned and maintained under a seaworthy conditions;
- issuance of certificates (mainly the safety certificates);
- holding of inquiries in case of maritime casualties;
- examination and issue of the appropriate certificates of competence and proficiency to all categories of seagoing personnel.
i.e. ship masters, mates, engineers, life-boatmen;
- surveillance of navigation and maritime rescue;
- maritime signals, etc...

The following pages are a possible illustration of the structure of administration as it should be recommended, with respect to the tasks, the objectives, and the local conditions.
<table>
<thead>
<tr>
<th>SERVICES</th>
<th>ATTRIBUTIONS</th>
<th>PERSONNEL</th>
<th>HEAD OFFICE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. ECONOMIC &amp; ADMINISTRATIVE DIVISION</td>
<td>- internal service and general affairs</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>- maintenance &amp; purchase</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- ship registration</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.2. Legal Office</td>
<td>- legal issues in connection with ships, ship control rules and regulations</td>
<td></td>
<td>Lawyer</td>
</tr>
<tr>
<td></td>
<td>- legal issues as regard pollution, dangerous goods, pleasure crafts, and navigation</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>1.3. Planning &amp; Development Office</td>
<td>- shipping investment, planning and development of shipping industry</td>
<td>3</td>
<td>Economist</td>
</tr>
<tr>
<td></td>
<td>- Shipping statistics</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- facilitation problems</td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>
2. SHIP SAFETY DIVISION

2.1. Ship regulations Office - technical regulations concerning ship safety and pollution prevention

- Secretariat for the Maritime Inquiry Commission

- Secretariat for the Maritime High Commission

2.2. Survey & Inspection Office

- organization of ship survey and inspection, and safety commission

- coordination of activities relating to ship equipment and ship operation

- coordination of activities of the safety centre

- approval of equipment, materials devices and installations according to the legislation

- I.M.O documents processing
3. PORTS & NAVIGATION
DIVISION

3.1. Navigation & Rescue
Office
- survey and inspection of pleasure
  crafts (mostly those designed for
  collective transport)
- Secretariat for the Commission
  for carriage of dangerous goods

3.2. Fairways Office
- regulations on navigation
- coordination of search and
  rescue operations at sea
- supervision of activities of the
  safety centre in connection with
  navigation surveillance and
  marine pollution control

- supervision of the navigation
  surveillance
- supervision of the sea marking
  and fairways maintenance
- supervision and control of the
  technical exploitation of the
  navigational aids
<table>
<thead>
<tr>
<th>4. SEAFARERS DIVISION</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.1. Maritime Work Office</td>
<td>5</td>
</tr>
<tr>
<td>- regulations on the seafarers work</td>
<td>Nautical or engineering</td>
</tr>
<tr>
<td>- regulations on the seafarers health and physical ability to navigation</td>
<td></td>
</tr>
<tr>
<td>- manning of ships</td>
<td></td>
</tr>
<tr>
<td>- prevention of working accidents</td>
<td></td>
</tr>
<tr>
<td>4.2. Training &amp; Certification Office</td>
<td>4</td>
</tr>
<tr>
<td>- maritime education</td>
<td>Nautical, engineering or maritime background</td>
</tr>
<tr>
<td>- supervision of national training facilities</td>
<td></td>
</tr>
<tr>
<td>- seafarers certification</td>
<td></td>
</tr>
<tr>
<td>- international cooperation as regard maritime work and maritime training</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>5. REGIONAL DIVISION</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.1. Maritime Office</td>
<td></td>
</tr>
<tr>
<td>- Ship registration and relevant activities</td>
<td>Maritime background</td>
</tr>
</tbody>
</table>
- coordination and control of the maritime districts action in connection with safety at sea and enforcement of the national legislation
- tonnage measurement for smaller ships
- cooperation with the port authority as regard port operation and facilitation matters

5.2. Maritime Districts
- enforcement of the maritime code and relevant legislation
- shipping statistics
- ships departure visits and procedures
- manning and certificates control
- ships reports, including casualty reports
- administrative work
5.3. Operational Safety Centre

- ship survey and inspection
- inspection of ships under construction
- investigations after major casualties or incidents occurred on board ships
- reports to safety commissions
- ship trials
- seafarers training and examination
- navigation surveillance
- anti-pollution action
(b) The national shipping legislation: The structure of the maritime administration as illustrated previously shall be able to provide government of ZAIRE with the machinery that could enable it to satisfactorily and efficiently undertake the functions as embodied in the domestic laws and regulations. It shall permanently give advice to Government on the adoption and the implementation of the national and international standards.

Bearing in mind that domestic shipping legislation is mainly based upon the Maritime Code, other additional statements, laws and ordinances are set up in order to enforce certain provisions of the code.

Regardless of the legal structure prevailing in the country, the maritime code should contain most or all of the items mentioned below so as to be complete and reliable:

- general provisions;
- ship ownership and ship registration;
- transfer of ownership;
- mortgages;
- ship master and seamen;
- passenger ships: specific aspects;
- cargo vessels: specific aspects;
- fishing vessels: specific aspects;
- pleasure crafts: specific aspects;
- collision regulations;
- safety regulations;
- maritime accidents investigations;
- liability of shipowners, etc...
- carriage and handling of goods, including dangerous substances;
- seafarers employment;
- wrecks and salvage at sea;
- pilotage supervision;
- lighthouses and navigational aids;
- merchant marine fund;
- manning regulations and control;
- pollution prevention and control;
- enforcement procedures, and
- miscellaneous.

Although the zairean maritime code has been elaborated in 1965 in a way that makes it quite complet and reliable enough according to the needs we are facing today, the only light work to be still done shall consist in the terminology and small formal corrections for up-dating. In the contrary most of the enforcement laws and decrees need consideration for their improvement.

7.2.2. Ratification and implementation of conventions:

Among the international conventions, codes and various other instruments relating to maritime safety and the prevention of marine pollution from ships in force today, some of them are of particular interest for the Republic of ZAIRE and they need, therefore, consideration for ratification and implementation:

(a) SOLAS, 74/78: In comparison with the 1960 Safety of Life at Sea Convention, this new treaty is more elaborated and more complete. Its implementation after adoption by the zairean Government will be profitable to the National Shipping Line when ordering new vessels to be
built in overseas shipyards. In addition, the national fleets will be equipped with safer existing and new ships in compliance with international rules in force in different countries which ZAIRE maintains close shipping relations.

Under the SOLAS 74/78 Convention, indeed, a State Party to it is entitled to refuse the access to its national ports to any foreign flag vessel which does not comply with the new standards included in the domestic legislation.

On the shipowner's side, it will be more economical to apply the new safety rules while the vessel is still being built than to modify it later in order to comply with the international requirements.

Moreover on the second hand market, ships not conforming to up-dated international standards relating to safety will not be sold or purchased without difficulty.

(b) MARPOL, 73/78: It is usually assumed that the risks of pollution in zairean waters by oil or other substances from ships are extremely reduced due to the specific geophysical conditions prevailing in the country. Despite this assumption the need for the new anti-pollution regulations is expressed for the same reasons as those which have been mentioned in the previous paragraphs.

another factor to take into account is that any ship of any flag State shall be a great danger to the marine environment when proceeding outside waters under the national jurisdiction while not complying with international rules.

The ratification and implementation of the MARPOL Convention by Zairean government will finally be a substantial contribution to the international effort aiming at strengthening the mechanism and procedures for port State
Control and issue of certificates for all ships the Convention applies to.

(c) S.T.C.W., 78: One of the provisions of the Training and Certification Convention states on technical assistance to be provided to the requesting countries by States (cf. ARTICLE XI).

Although one aim of the Convention is that in future all certificates shall ultimately be issued in accordance with its requirements, transitional provisions recommend that certificates issued before the entry into force of the Convention for a Party shall remain valid. Later the administration may continue to issue certificates of competence in accordance with its previous practice for a period not exceeding five years. Furthermore, the Convention describes under ARTICLE VII how, in circumstances of exceptional necessity, dispensations may be granted to enable seafarers to serve in capacities for which they do not hold appropriate certificates, but no such dispensation is permitted in the case of radio-officer or radio-operator.

(d) TONNAGE, 69: Usually tonnage measurement for ships is the duty of building yards and recognized Classification Societies in case of the large vessels. Therefore the national administration is not often involved in this task.

Another benefit to be gained from the Convention consists in its possible application to the fishing vessels which will be a great part of our national fleets in the nearest future.

In addition, the TONNAGE Convention shall be gradually applied and a twelve years delay is scheduled for the tonnage re-measurement of existing ships.
(e) **C.S.C., 72**: The new revolution in modern technology is posing a challenge to the shipping industry in the present decade. It is changing completely the characteristics of the industry which remained very long under unchanged conditions. One of the changes is affecting the carriage of general cargo, by the introduction of multi-modal system so as to provide direct flow of commodities from the exporter to the importer with the minimum interruption. One of these new methods is containerization.

In this scope the National Shipping Line is owning an increasing number of containers today while the port infrastructure in MATADI and KINSHASA have been arranged in such a way as to receive more boxes than a few years ago. In such conditions, the ratification of the Container Safety instrument will be a significant support to the improvement of seafarers and stevedores safety.

(f) **S.F.V., 77**: That is an adaptation of the 1974 SOLAS Convention to the fishing vessels being entitled to fly the flag of a Party to the Convention.

Fishing boats under this convention shall be subject to surveys and an "International Fishing Vessel Safety Certificate" shall be issued after a satisfactory initial survey.

An interesting provision stipulates that the national administration shall exempt from all the prescriptions of the Convention all the fishing vessels operating exclusively within the coastal area. Specific exemptions concerning radio and navigational equipment are also allowed.

(g) **I.M.D.G. CODE, 65**: Under the national shipping legislation the Minister in charge of Transport is empowered to determine the rules ships should be subjected
to as regards the carriage of dangerous goods. Such rules are included in the I.M.O. International Maritime Dangerous Goods Code already in application in most of the maritime countries.

The adoption and enforcement of the Code in ZAIRE will make mandatory its detention on board all the ships carrying dangerous cargoes. Its diffusion also shall be extended further to the port authority for enforcement.

7.2.3. Representation to international fora:

In order to conform to Resolution A.500(XII) national representation to different activities part to the work of the International Maritime Organization is to be performed and such possible ways should be considered.

(a) National permanent representative: based in the I.M.O. Headquarters, this shall consist in a "on-the-field" Official, highly qualified in maritimes affairs and able to be the necessary link between his country and the I.M.O. High skill, homogeneity, regularity, following-up and low cost are the positive features this alternative provides in comparison with the other methods.

(b) Regional representation: Consists in designating one Official as a permanent representative working on the behalf of a group of countries set up on a regional basis. This system can be advocated by developing countries through regional agreements. Nevertheless, its success is made minimal nowadays due to political considerations that could be a barrier. In the same time, it is easily acceptable that the regional permanent representative will certainly face a lot of difficulties in assuming his new tasks, because he really is not kept aware of all the particularities of each country he is assumed to represent.
(c) Representative from classification societies: The country shall take advantage of the highly specialized services that can be provided by these institutions, particularly on the technical matters. The criteria for this type of cooperation shall be subjected to negotiations between the national maritime administration and recognized classification societies. One of the prerequisites in negotiating this cooperation shall be the acceptance by the classification society to train nationals to perform such duties in the nearest future.

7.2.4. Enforcement of the shipping legislation:

The procedure for the enforcement of national laws and regulations shall be made of two basic stages:

(a) The preliminary stage: Before an international instrument is considered for adoption and implementation by the country, the administration as a whole shall be involved in the assessment and evaluation of the impact on the economic and political environment. This will consist in preliminary studies to be undertaken in collaboration with all services possibly involved (e.g. other ministries, shipowners, port authorities, shipping agents, unions, etc...) 

(b) The implementation stage: The process for implementation of any international maritime convention should be composed of three main phases.

In the first phase the maritime administration, after ratification or acceptance of the convention, prepare the national primary and subsidiary legislation and documentation. Then it prepares the Executive Orders and instructions to Officials concerned, and develop appropriate and adequate maritime administration infrastructure.
The second phase consists in the implementation of the national legislation through the exercising of appropriate functions by the Officials of the maritime administration.

In the third phase the administration provides certification of ships and seafarers, and issues clearances to ships to proceed to sea. It also sees to the application of the domestic laws and regulations and where violations or deficiencies occur, the appropriate penalties to be imposed accordingly.

7.2.5. Development of ports and port areas:

From the consideration of all accidents that occurred in the different parts of the world during the period 1975 - 1976, 6% of ships were involved and more than 80% of the casualties were caused by human error. Primary accidents (19) are classified as followed:

- collisions (31%)
- contacts (28%)
- fire/explosions (16%)
- machine (6%)
- pollution (1%)
- stranding (16%)
- miscellaneous (2%)

Meanwhile, pollutions are the result of leakages, collisions, strandings or fire, when the latest is often due to lightnings, strandings or collisions.

For a port to operate safely, it must be kept free from accidents. The increase of safety standard will comprise of both technical and regulatory aspects for
the protection of human life, materials and equipment and the marine environment as a whole.

(a) The choice of the site is predominant as it must be adapted to the types and sizes of vessels it is intended to serve, so as to reduce the risks of collisions and groundings. The site shall be straight as much as possible and shall provide sufficient depths. In addition each site shall be a particular case with specific ships, currents, storms, and configuration. The site has to be adapted to the particular safety requirements. The design and construction of structures shall comply with the traffic regulations applicable to all ships as well as to the regulations on the carriage of dangerous commodities.

(b) The navigational aids shall be recommended as the necessary means of guidance for the safety of all seagoing vessels. The radio electrical and visual means are proper to the ship and usually go with radar coverage in the higher traffic ports. The non-autonomous means of guidance for ships are pilotage, towage, and mooring.

(c) Vessels themselves sometimes present an unusual danger to the port and the cargo carried. Some accidents are caused by a breakdown on board the ship (e.g. electricity, engine, steering gear, etc...). For that reason the port authority shall collect from ships, at any moment, all useful information relating to the vessel herself and the cargo carried on board. The information shall be facilitated by means of:

- radiocommunication to be compulsory and permanent so as to inform about damages;

- provision of documents such as navigational certicates;

- generalization of the entrance declaration in accordance with a model to be delivered to all the port users.
Moreover, the maritime districts and the safety centre shall verify, at any moment, the conformity of ships to the safety rules in force in the country.

Furthermore, safety of ships widely relies upon the seriousness in the work carried on by recognized classification societies on behalf of national maritime administrations and shipping companies. During the ship construction, they control the conformity to the international standards and later after the construction, they issue appropriate certificates for the ship and for the equipment as regards safety. The most important of these societies are embodied within the I.A.C.S., that are the followed:

- American Bureau of Shipping (U.S.A.);
- Bureau Veritas (FRANCE);
- Det Norske Veritas (NORWAY);
- Germanischer Lloyd (W. GERMANY);
- Lloyds Register of Shipping (U.K.);
- Nippon Kaiji Kyokai (JAPAN);
- Polski Rejestr Statlow (POLAND);
- Registro Italiano Navale (ITALIA);
- USSR Register (U.S.S.R.).

(d) The carriage and handling of dangerous goods in such a way that all the ships involved shall comply with rules concerning signals, traffic, berth, etc. These rules should be clearly defined and published by the national maritime safety administration and enforced by the port authorities. Particular provisions should oblige masters of ships carrying dangerous goods to declare any damage affecting the engine, mooring winches, steering
gears and navigational equipment. In case of serious damage the port authority should refuse the entrance or departure of the ship or, if needed, to submit it under certain restrictions. Ships shall also be fitted with valid shipowner liability certificates for damages due to pollution or other damages.

On the national level, the carriage and handling of dangerous cargoes should be regularly organized and revised on the basis of international standards. The purpose of such organization is to describe relevant measures to be taken for each class of substances (e.g. safety rules, labelling and marking, packing, mooring, etc...) Instructions relating to the port of access, a basin or a wharf should legally be provided to ships’ masters for better information.

For port regulations on dangerous goods to be more effective, it requires perfect knowledge from all the users. The organization of seminars or "safety days" could be one of the possible actions to be foreseen accordingly.

From all these considerations we realize finally that the increase of the level of prevention will never completely remove the risks. But that is one of the best strategies for the port authority from the cost/efficiency point of view. This improvement is made through the continuos development of the port services, the observance of the legislation on carriage and handling of dangerous cargoes, and the effort for training the operators.

(e) The combating means in case of fire, accidental pollution, ship in distress or rescue of crews in danger, bearing in mind that fire is the most frequent risk in the port area as it can easily spread and generate
explosions or total destruction endangering human lives. This reason justifies the need for provisions stating on the authorities in charge of fire fighting operations and their respective competences, the resources and types of equipment and materials to be uses and how, and the organization and coordination of operations. Cooperation between all the services involved shall be strengthened through contingency plans which shall determine the potential risks and advocate the appropriate action to be taken accordingly. All the persons dealing with the problem should be associated with the enforcement of these plans which have to be regularly tested and revised.

On the other side marine pollutions are another aspect of risks at sea as the result of accidents of navigation or exploitation. For most of the cases, that are floating and non solvent hydrocarbons needing a long range of combating material with the aim to confine and recover spilled oil. The types of materials to be used should depend on the importance of the spills, their nature, the site and the meteorological conditions. That are confining material such as floating boom existing in various models, oil recovering material under different specifiactions, and dispersant products.

The assistance to ships in distress shall be organized by the port authority in different ways:

- use of tugs, with possibility to cooperate with the Navy if necessary;
- provide energy to ships (e.g. electricity, compressed air);
- provide inert gas to tankers as to limit the risk of tank explosion during tanker operations in terminals;
- ballasting to be done by the means of tugs;
- tanker cargo transfer in case of stranings, in order to improve the floatability of the ship or in case of collision such as to empty one damaged tank, or when the tanker is deprived with its own handling equipment. This operation requires a specific equipment to be at any time at the disposal of well trained teams.

The rescue of crews in case of accident on board ships is the latest subject under consideration in the present chapter. The means of evacuation are various and the choice shall depend upon the prevailing particular circumstances:
- terrestrial evacuation by the use of special buoys between the ship and the wharf;
- aerial evacuation with the means of helicopter;
- evacuation by sea, using naval boats such as service boats, tugs, or ship's life crafts.

We just noted that ports nowadays are changing in the volume of cargo handled, the nature or types of cargo, the types and sizes of vessels operated, the special concentration of activities, and the amount of operators. Consequently, ports and port areas are being transformed in high potential risk zones. We also saw that these risks are inherent to the ports' activities, but they can considerably be minimized.
Nevertheless, shipping industry is greatly subjected to a high international competition. For all the reasons mentioned previously, the ratification and implementation of international maritime instruments by governments around the world will put all the shipping fleets and maritime ports under the same approved restrictions in respect of safety.

7.2.6. Development of maritime training:

The level of skills for ships' crews and administrative and technical personnel must be a matter of great concern in any maritime country for the purpose of reducing accidents and increasing productivity. The government should then consider the three possible ways and make a reasonable choice accordingly.

(a) Establishment of local training facilities: This possibility shall be advocated after a preliminary study setting up evaluations on the needs, the investment cost, the impact on the neighbouring countries, the technical, scientific and financial support, etc...

When justified the project should then lead to the creation of a national shipping academy for the training of highly skilled personnel and a professional maritime centre for ratings. The two types of training shall be provided either in a separate and autonomous centres, or within a single institution depending on the local requirements.

In relation to this particular point, we recall that the totality of officers manning the national merchant fleet in ZAIRE today had been trained in overseas shipping colleges.

Whether the project mentioned above is not justified enough in the case of ZAIRE, the establishment
of a maritime professional centre shall be a priority, because of the great benefit it will be able to provide to both the merchant and the fishing fleets which, therefore, will be enabling it to be operated by skilled crews at any level. Another advantage to be gained from the centre should be that professionals trained in this institution shall be able to serve, not only on board ships, but also in other services ashore having no direct links with shipping, like industrial plants.

(b) Overseas training facilities: For many reasons developing nations, or most of them, are not provided with own training facilities in connection with shipping. By bilateral agreements, mostly with developed countries, foreign maritime training institutions are becoming a recommended solution for them.

The zairean policy had been defined on the basis of this alternative. However, the choice of partners shall be a matter of great concern for the national maritime authorities. The following criteria shall be taken into account when negotiating:

- the maritime background of the partner as regards maritime infrastructures (i.e. fleets, ports, shipbuilding and ship repair, maritime research centres, relations with other maritime nations and international organizations, etc...)

- the value of the training which is to be provided concerning quality and cost of training, skill level in accordance with international standards, etc...
(c) Regional training facilities: The regionalization of the maritime education for nautical and shore personnel in developing nations is the solution to be advocated in order to minimize the training costs. The purpose of this strategy shall be to provide fleets with skills for national administration services, nautical and shore-based branches of shipping companies, and port technical and administrative services.

We may recall hereby the Regional Maritime Academy which has been established in ABIDJAN (Ivory-Coast) for the african french-speaking countries.(20) Therefore, it should be recommended to the public authority to take the opportuneness of enjoying all the advantages being provided by such a regional academy.

7.2.7. Development of national fleets:

The development of national trade and the competition from outside are obliging the national merchant fleet to improve its efficiency both technically and economically. Other than the seagoing personnel, the shore personnel of shipping companies is also concerned by safety problems.

(a) The technical personnel on board vessels should periodically be transferred in different services ashore for the purpose of:

- preparing and implementing technical provisions of the maritime legislation;
- considering and suggesting on international instruments and other proposals submitted by the national maritime administration;
- controlling the technical services of the company.
Finally, periodical seminars are greatly needed in order to maintain or improve the level of skill in the company.

(b) A technical service shall be established ashore and effectively operated in such a way as to possibly fulfil the maintenance of ships as well as minor repair for which the intervention of repair yards is not required. The technical service shall be fitted with competent technical personnel, reliable equipment and materials. It should be located either in the vicinity of the port of registry (MATADI, in the present case), or nearby any national port fulfilling all the requirements for profitability.

(c) It should be considered the possibility of establishing a research department within the structure of the company, depending on the dimensions of this company and its complexity. Such service should be optional and entitled to deal with navigational aspects by studying on compliance of ships with new technologies and specific conditions such as port sites, depths, tides, current speeds, trades, etc...

It shall also deal with the technical aspects when purchasing a ship. As regards fisheries, new fishing techniques should be generated within the fishing company by such service in order to improve both safety and productivity.

(d) Cooperation with the national maritime administration shall be strengthened and the company shall perform the followed:

- advise the administration, when required, on legal and technical issues;
- prepare and take part in international maritime consultations;
- support the effort undertaken by the administration for the enforcement of the safety regulations;
- temporarily put at the disposal of the national maritime administration own technical personnel (nautical and/or engineering officers) in order to fulfil certain specific tasks as regards maritime safety.

(e) Cooperation with recognized classification societies is to be improved in the short run, with the collaboration of the national administration by the surveillance of works done by these institutions on behalf of both the administration and the companies.

In addition, the maritime administration and the companies should be involved in seminars and special technical courses provided by certain classification societies. These courses and seminars usually cover various branches of shipping, in connection with safety of ships.
CHAPTER VIII

CONCLUSIONS AND RECOMMENDATIONS

8.1. Maritime safety is being more and more a matter of big concern for the international community. The International Maritime Organization has deployed over years great efforts to achieve a safer navigational system on cleaner seas. But the contribution to this activity by nations allover the world, ZAIRE included, is of extreme necessity yet. In the present Paper we tried to illustrate the increasing dimensions of the Republic of Zaire as a maritime country and the justified need for carriage of a significant share of her overseas trade, and the promotion of both her fishing industry and tourism.

8.2. It had been shown that goals to be fully achieved, it is required a continous action aiming at strengthening the efficiency of services in charge of shipping and navigation. Considering that the national maritime administration is as indicated centre for the whole maritime activity in a country, a structure should be set up in such a way as it should be coherent and well adapted to the national realities. The structure should rely on an appropriate and updated shipping legislation as a required tool for the central and external services to operate rationally. For this purpose, more developed collaboration should exist between the national maritime administration and other services and entreprises involved in shipping, mainly the port authorities, the national shipping company and fishing fleets, the fairways service, and various other ventures.
However, these efforts are to be carried on beyond the territorial limits through development of bilateral or/and regional cooperation, according to the present and future safety requirements.

8.3. The structure of national maritime administration to be re-organized and a Maritime specific body or "Sipping Department" to be established within the framework of the ministry in charge of transport. The Shipping Department should be organized, equipped and staffed in a way which allows it to satisfactorily perform all the duties it would be charged with.

That should be completed by the consideration of all the existing legislation (i.e. primary and subsidiary), according to the international regulations.

8.5. The labour productivity in the different bodies composing the maritime administration to be increased through scheduled maritime courses and seminars. Basic training should be available for Maritime Administrators, technical Surveyors (i.e. nautical and engineering), and other experts for maritime administration and maritime safety administration. The WORLD MARITIME UNIVERSITY should be one of the most advisable facilities available for this purpose.
8.6. A Maritime Professional Centre to be created and organized in ZAIRE for the training and qualification of ratings.

8.7. The zairean maritime ports to be managed and operated by newly organized body: the "ZAIREAN MARITIME PORT AUTHORITY" which should be placed under the supervision of the ministry in charge of Transport.

8.8. A technical service to be locally developed and made operational within the framework of the National Shipping Company.

8.9. Legal provisions regulating cooperation with classification societies to be revised for up-dating and strengthening, with emphasis on questions relating to ship survey and inspection, and the training of nationals.

8.10. Bilateral and regional cooperation to be encouraged through maritime agreements, emphasis should be put on safety improvement for ships and navigation, coordination of pollution prevention and control, development of shipping industry in general. Support to the activities of the Central and West-African Ministerial Conference shall also be as a part of the regional cooperation.
## PORT OF BOMA: EQUIPMENT AND CAPACITY (1983)

<table>
<thead>
<tr>
<th>Equipment</th>
<th>Capacity</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>electrical cranes Boom</td>
<td>2.5/5T</td>
<td>2</td>
</tr>
<tr>
<td>idem Titan</td>
<td>3/6T</td>
<td>5</td>
</tr>
<tr>
<td>auto-crane Lorain</td>
<td>7T</td>
<td>2</td>
</tr>
<tr>
<td>idem Takraf</td>
<td>20T</td>
<td>1</td>
</tr>
<tr>
<td>electrical forklift trucks</td>
<td>2.5T (Yale)</td>
<td>9</td>
</tr>
<tr>
<td>diesel forklift trucks</td>
<td>4T (Takraf)</td>
<td>3</td>
</tr>
<tr>
<td>diesel monorail</td>
<td>2T</td>
<td>1</td>
</tr>
<tr>
<td>traction engines Miletto</td>
<td>3T</td>
<td>2</td>
</tr>
<tr>
<td>diesel traction engines &quot;Ford 6600&quot;</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>traction engines Clark</td>
<td>5T</td>
<td>1</td>
</tr>
<tr>
<td>passenger boats</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>container chassis Cadoux</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>tug Inga 850 CV</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>tug Boma 250 CV</td>
<td></td>
<td>1</td>
</tr>
</tbody>
</table>

### CAPACITY AND UTILIZATION RATE

- total area: 12,500 m²
- warehouses: 4,269 m²
- traffic 1983: 48,000 T
- present capacity offered: 400,000 T
- utilization rate 1983: \( \frac{48,000 \times 100\%}{400,000} = 12\% \)

+ **Source:** ONATRA, Ports Department.
<table>
<thead>
<tr>
<th>Equipment</th>
<th>Capacity</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electrical cranes Boom</td>
<td>3/6 T</td>
<td>23</td>
</tr>
<tr>
<td>idem</td>
<td>10 T</td>
<td>2</td>
</tr>
<tr>
<td>Electrical cranes Titan</td>
<td>3/6 T</td>
<td>23</td>
</tr>
<tr>
<td>Electrical cranes Nivelles</td>
<td>3 T</td>
<td>6</td>
</tr>
<tr>
<td>Derrick</td>
<td>50 T</td>
<td>1</td>
</tr>
<tr>
<td>Floating cranes</td>
<td>30 T</td>
<td>1</td>
</tr>
<tr>
<td>Straddle loader</td>
<td>3/5 T</td>
<td>1</td>
</tr>
<tr>
<td>Portal container crane Boom</td>
<td>25 T</td>
<td>1</td>
</tr>
<tr>
<td>Idem</td>
<td>35/40 T</td>
<td>2</td>
</tr>
<tr>
<td>Auto-crane Lorain</td>
<td>2 T</td>
<td>2</td>
</tr>
<tr>
<td>Auto-crane Takraf</td>
<td>20 T</td>
<td>2</td>
</tr>
<tr>
<td>Auto-crane Karry-Krane</td>
<td>4 T</td>
<td>2</td>
</tr>
<tr>
<td>Auto-crane Belotti</td>
<td>40 T</td>
<td>2</td>
</tr>
<tr>
<td>Monorails</td>
<td>2 T</td>
<td>5</td>
</tr>
<tr>
<td>Rolling bridge</td>
<td>2.5 T</td>
<td>1</td>
</tr>
<tr>
<td>Electrical forklift trucks Yale</td>
<td>2.5 T</td>
<td>14</td>
</tr>
<tr>
<td>Diesel forklift truck Clark</td>
<td>2 T</td>
<td>1</td>
</tr>
<tr>
<td>Diesel forklift trucks Clark</td>
<td>2.7 T</td>
<td>5</td>
</tr>
<tr>
<td>Diesel forklift trucks Takraf</td>
<td>3.2 T</td>
<td>3</td>
</tr>
<tr>
<td>Diesel forklift trucks Linde</td>
<td>4 T</td>
<td>75</td>
</tr>
<tr>
<td>Diesel forklift Caterpillar</td>
<td>12 T</td>
<td>7</td>
</tr>
<tr>
<td>Diesel traction engines Ford 6600</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Diesel traction engines Ford Tw 10</td>
<td></td>
<td>8</td>
</tr>
<tr>
<td>Diesel traction engines Unilock</td>
<td></td>
<td>3</td>
</tr>
</tbody>
</table>
- container chassis Cadoux 9 (20')
- container chassis Mafi 30 (20' = 24) (40' = 6)
- tug Banana 600 CV 1
- tug Soyo 250 CV 1
- tug Vivi 1200 CV 1

2/ CAPACITY AND UTILIZATION RATE

- total area: 109,000 m²
- warehouses: 80,936 m²
- traffic 1983: 1,241,000 T
- present capacity offered: 2,500,000 T
- utilization rate 1983: \[
\frac{1,241,000 \times 100\%}{2,500,000} = 50\%
\]

Source: ONATRA, Ports Department.
## THE ZAIREAN FLEETS (1979)

### 1/ MERCHANT FLEET

<table>
<thead>
<tr>
<th>OWNER</th>
<th>NAME OF SHIP</th>
<th>TYPE</th>
<th>DWT</th>
<th>HP</th>
<th>AGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>C.M.Z.</td>
<td>Kasa-Vubu</td>
<td>cargo</td>
<td>12,200</td>
<td></td>
<td>1971</td>
</tr>
<tr>
<td></td>
<td>Kananga</td>
<td>cargo</td>
<td>13,401</td>
<td></td>
<td>1973</td>
</tr>
<tr>
<td></td>
<td></td>
<td>mixte</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lumumba</td>
<td>cargo</td>
<td>9,460</td>
<td></td>
<td>1974</td>
</tr>
<tr>
<td></td>
<td>Bandundu</td>
<td>&quot;&quot;</td>
<td>&quot;&quot;</td>
<td></td>
<td>&quot;&quot;</td>
</tr>
<tr>
<td></td>
<td>Kisangani</td>
<td>&quot;&quot;</td>
<td>&quot;&quot;</td>
<td></td>
<td>&quot;&quot;</td>
</tr>
<tr>
<td></td>
<td>Mbuji-Mayi</td>
<td>&quot;&quot;</td>
<td>&quot;&quot;</td>
<td></td>
<td>&quot;&quot;</td>
</tr>
<tr>
<td></td>
<td>Mbandaka</td>
<td>&quot;&quot;</td>
<td>&quot;&quot;</td>
<td></td>
<td>&quot;&quot;</td>
</tr>
<tr>
<td></td>
<td>Bukavu</td>
<td>&quot;&quot;</td>
<td>&quot;&quot;</td>
<td></td>
<td>&quot;&quot;</td>
</tr>
<tr>
<td>SOZIR</td>
<td>Roma</td>
<td>Tug</td>
<td>154.44</td>
<td>1,530</td>
<td>1967</td>
</tr>
<tr>
<td></td>
<td>Kifuku</td>
<td>tank</td>
<td>894.91</td>
<td></td>
<td>&quot;&quot;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>barge</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Kimpese</td>
<td>&quot;&quot;</td>
<td>&quot;&quot;</td>
<td></td>
<td>&quot;&quot;</td>
</tr>
<tr>
<td></td>
<td>Kinshasa</td>
<td>tug</td>
<td>154.44</td>
<td></td>
<td>&quot;&quot;</td>
</tr>
<tr>
<td></td>
<td>Kinlaos</td>
<td>tank</td>
<td>894.91</td>
<td></td>
<td>&quot;&quot;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>barge</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Kisongo</td>
<td>&quot;&quot;</td>
<td>&quot;&quot;</td>
<td></td>
<td>&quot;&quot;</td>
</tr>
<tr>
<td></td>
<td>Tshela</td>
<td>tug</td>
<td>154.44</td>
<td>1,530</td>
<td>&quot;&quot;</td>
</tr>
<tr>
<td></td>
<td>Kitombe</td>
<td>tank</td>
<td>894.91</td>
<td></td>
<td>&quot;&quot;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>barge</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Gemena</td>
<td>&quot;&quot;</td>
<td>346.21</td>
<td></td>
<td>1968</td>
</tr>
</tbody>
</table>

### 2/ DUTY FLEET

<table>
<thead>
<tr>
<th>ONATRA</th>
<th>(Boma)</th>
<th>TYPE</th>
<th>DWT</th>
<th>HP</th>
<th>AGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kisanga</td>
<td>passenger</td>
<td>boat</td>
<td>122.00</td>
<td>800</td>
<td>1969</td>
</tr>
<tr>
<td>Kitona</td>
<td>&quot;&quot;</td>
<td>&quot;&quot;</td>
<td>166.00</td>
<td>225</td>
<td>1959</td>
</tr>
<tr>
<td>Kifuku</td>
<td>&quot;&quot;</td>
<td>&quot;&quot;</td>
<td>122.00</td>
<td>800</td>
<td>1969</td>
</tr>
<tr>
<td>Kalamu</td>
<td>&quot;&quot;</td>
<td>&quot;&quot;</td>
<td>166.00</td>
<td>225</td>
<td>1959</td>
</tr>
<tr>
<td>Inga I</td>
<td>tug</td>
<td>&quot;&quot;</td>
<td>400.00</td>
<td>850</td>
<td>1959</td>
</tr>
<tr>
<td>Boma</td>
<td>&quot;&quot;</td>
<td>&quot;&quot;</td>
<td>102.00</td>
<td>200</td>
<td>&quot;&quot;</td>
</tr>
</tbody>
</table>

N.B. In addition Onatra is equipped with 34 barges without autonomous means of propulsion and with the capacity of 250 to 750 T for tanker lightening.
<table>
<thead>
<tr>
<th>R.V.M.</th>
<th>Type</th>
<th>Capacity</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kasai</td>
<td>dredger</td>
<td>2,010</td>
<td>1978</td>
</tr>
<tr>
<td>Tshuapa</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Banane</td>
<td>-</td>
<td>1,926</td>
<td>2000</td>
</tr>
<tr>
<td>Mayumbe</td>
<td>-</td>
<td>-</td>
<td>1971</td>
</tr>
<tr>
<td>Mwene-Ditu</td>
<td>-</td>
<td>1,095</td>
<td>-</td>
</tr>
<tr>
<td>Matebo</td>
<td>-</td>
<td>3,664</td>
<td>1950</td>
</tr>
<tr>
<td>Buta</td>
<td>-</td>
<td>259</td>
<td>1928</td>
</tr>
<tr>
<td>Kirungu</td>
<td>tug</td>
<td>155</td>
<td>1918</td>
</tr>
<tr>
<td>Kinkanda</td>
<td>-</td>
<td>067</td>
<td>-</td>
</tr>
<tr>
<td>Nsiamfumu</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Muanda</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Zaire</td>
<td>TH boat</td>
<td>549</td>
<td>1000</td>
</tr>
<tr>
<td>Kimpese</td>
<td>-</td>
<td>120</td>
<td>150</td>
</tr>
<tr>
<td>Tshikapa</td>
<td>-</td>
<td>54</td>
<td>120</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ETS MWE-DI</th>
<th>Mayissa</th>
<th>trawler</th>
<th>Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>PEMARZA</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kikwit</td>
<td>trawler</td>
<td>694</td>
<td>1960</td>
</tr>
<tr>
<td>Likasi</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Uvira</td>
<td>-</td>
<td>162</td>
<td>1965</td>
</tr>
<tr>
<td>Nzadi</td>
<td>-</td>
<td>341</td>
<td>1961</td>
</tr>
<tr>
<td>Boma</td>
<td>-</td>
<td>574</td>
<td>1956</td>
</tr>
<tr>
<td>Mbizi</td>
<td>-</td>
<td>341</td>
<td>1961</td>
</tr>
<tr>
<td>Kasenyi</td>
<td>-</td>
<td>113</td>
<td>1946</td>
</tr>
<tr>
<td>Lisala</td>
<td>-</td>
<td>240</td>
<td>1963</td>
</tr>
<tr>
<td>Gandajika</td>
<td>-</td>
<td>219</td>
<td>1956</td>
</tr>
<tr>
<td>Ilebo</td>
<td>-</td>
<td>603</td>
<td>1100</td>
</tr>
<tr>
<td>Bunia</td>
<td>-</td>
<td>243</td>
<td>1958</td>
</tr>
<tr>
<td>Sanzala</td>
<td>-</td>
<td>43</td>
<td>1965</td>
</tr>
<tr>
<td>Mbuji-Mayi</td>
<td>-</td>
<td>9,460</td>
<td>1975</td>
</tr>
</tbody>
</table>

Source: MALLEJAC, J., Op Cit.
A. CONVENTIONS AND OTHER TREATY INSTRUMENTS IN FORCE

(1) International Convention for the Safety of Life at Sea, 1974

(2) Protocol of 1978 relating to the International Convention for the Safety of Life at Sea, 1974

(3) Convention on the International Regulations for Preventing Collisions at Sea, 1972

(4) International Convention for the Prevention of Pollution of the Sea by Oil, 1954


(6) Convention on Facilitation of International Maritime Traffic, 1965


(8) International Convention relating to Intervention on the High Seas in Cases of Oil Pollution Casualties, 1969

(9) Protocol relating to Intervention on the High Seas in Cases of Pollution by Substances other than Oil, 1973

(10) International Convention on Civil Liability for Oil Pollution Damage, 1969

(11) Protocol to the International Convention on Civil Liability for Oil Pollution Damage, 1969


(13) Special Trade Passenger Ships Agreement, 1971

(14) Protocol on Space Requirements for Special Trade Passenger Ships, 1973

(15) Convention relating to Civil Liability in the Field of Maritime Carriage of Nuclear Material, 1971

(16) International Convention for Safe Containers, 1972

(17) Convention and Operating Agreement on the International Maritime Satellite Organization (INMARSAT), 1976


B. CONVENTIONS AND OTHER INSTRUMENTS NOT YET IN FORCE

(1) Athens Convention relating to the Carriage of Passengers and their Luggage by Sea, 1974

(2) Convention on Limitation of Liability for Maritime Claims, 1976

(3) Torremolinos International Convention for the Safety of Fishing Vessels, 1977


In 1976, two Protocols were adopted, respectively, to the Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage, 1971, and the Athens Convention relating to the Carriage of Passengers and their Luggage by Sea, 1974, in order to revise the "unit of account" provisions in the Conventions.

These Protocols have not yet received the ratifications, etc. required for entry into force.
I.M.O.'S TECHNICAL ASSISTANCE PROGRAMME.

Shipping

Development of national merchant marine

Maritime training
Maritime training at all levels, national, regional, inter-regional, including the establishment of regional and national maritime academies
Updating of existing maritime institutions

Maritime legislation
Harmonization of regional and sub-regional maritime codes
Writing up maritime rules and regulations
Drafting of technical rules and regulations in the maritime field
Organization of ships' registration

Maritime safety
Maritime policy
Safety of inter-island shipping
Assistance to national and international maritime transport organization
Maritime safety administration
Certification of ships' officers, engineers and crew

Dangerous goods
Safe transport and handling procedures in ports; stowage; preparation procedures on board
Control and information procedures for arrival of dangerous goods by land/water
Lay-out and construction of dangerous goods areas in ports
International Maritime Dangerous Goods Code

Radio communication
Maritime radio equipment, including radar, VHF, etc
Establishment of position-fixing systems and navigation safety lanes

Shipbuilding and ship repairs
Shipyard development
Design and construction of new vessels
Naval architecture
Research and design in shipbuilding
Ship repair facilities
Rehabilitation and development of shipping
Towing tank operations, hydrodynamics, etc
Shipbuilding, welding and steel fabrication

Ports and harbours

Planning and development of ports and harbours
Port re-organization
Containers
Harbour piloting
Advice on port navigation and related marine services
Port operation
Improvement of shipping and ports
Improvement of radio aids and navigational aids in ports and approaches
Dredging
Technical port and harbour administration
Hydrographic surveys

Marine pollution

Marine pollution control
Pollution abatement study and hazard evaluation
Establishment of regional oil-combating centres
Study of arrangements for co-operation in event of pollution emergencies
Open sea oil transfer operations

Experience has shown that the problems facing the developing nations are both complex and varied, but they generally tend to revolve around one crucial weakness: the shortage, and sometimes the complete lack of trained and experienced personnel. Remedying this is no easy task, even when finance is available. A successful merchant marine cannot be built up overnight. It takes years to train a master mariner, a chief engineer, and the other key crew members who are so essential in an age in which ships are becoming more and more sophisticated.

A shipping industry also needs people on shore. Some of them may hardly ever see the ships they are dealing with, let alone go on board them, yet all of them are vital to success. I.M.O. knows what and who is needed, and the list on the right shows the main areas in which the Organization can provide assistance.
RESOLUTION A.500(XII)
adopted on 20 November 1981

OBJECTIVES OF THE ORGANIZATION IN THE 1980s

THE ASSEMBLY,

RECALLING that at its eleventh session it assigned the highest priority to the promotion of the implementation of the international standards and regulations for the improvement of maritime safety and for the prevention and control of marine pollution from ships,

RECOGNIZING the ceaseless efforts by the Secretary-General in promoting the world-wide implementation of these standards and the results achieved thus far,

RECOGNIZING FURTHER that, during the 1980/81 biennium, the Organization received from its Member States over 300 ratifications and acceptances in respect of IMO international conventions,

RECOGNIZING FURTHER that many subjects have been assigned high priority on the work programme of the Organization, either because they are part of the implementation process for IMO instruments or because serious problems require early multilateral solutions, and that these subjects by themselves could be sufficient to absorb all available Committee time and efforts for the remainder of this decade,

CONSIDERING the report of the Secretary-General, supported by statements of delegations at the eleventh and twelfth sessions of the Assembly, that, taking into account the differences in available technical resources and in the processes of legislation among Member States, time is needed for maritime administrations to formulate national rules and regulations for effective implementation of IMO conventions, and for the maritime industry to comply with them,
CONSIDERING FURTHER the deliberations of the Council concerning the need for the appropriate Committees to take into account the usefulness of amending conventions only after such instruments have been operated for reasonable periods,

BEING DESIROUS of providing an institutional means to assure achievement of defined IMO objectives while maintaining reasonable flexibility to meet contingencies,

TAKING INTO ACCOUNT the relative infrequency of Assembly sessions and the functions of the Council as defined by Article 27 of the IMO Convention,

1. DIRECTS the Council to co-ordinate the work of Committees and their subsidiary bodies through assignment of priorities among general subject areas, resolution of conflicts, promulgation of work programme goals, and establishing such procedures and requirements as may be necessary to meet Organization objectives consistent with this resolution and other pertinent resolutions and decisions of the Assembly;

2. DIRECTS FURTHER that the Council, in performing this co-ordinating function, takes into account the views of the Committees on priorities and their responsibilities for substantive technical and legal matters;

3. RECOMMENDS that the Council and the Committees entertain proposals for new conventions or amendments to existing conventions only on the basis of clear and well-documented demonstration of compelling need, taking into account the undesirability of modifying conventions not yet in force or of amending existing conventions unless such latter instruments have been in force for a reasonable period of time and experience has been gained of their operation, and having regard to the costs to the maritime industry and the burden on the legislative and administrative resources of Member States;

4. RECOMMENDS that the Committees carry out their functions on the basis of the principle that provisions of new conventions or of amendments to existing conventions relating to the structure of ships should apply only to ships built after the entry into force of the instrument or instruments in question and that other provisions should not apply to ships built before the entry into force of the instrument or instruments in question unless there is a compelling need and the costs and benefits of the measures have been fully considered;

5. INVITES Member Governments to bring this resolution to the attention of their representatives who attend meetings of the Organization.
CONSIDÉRANT qu'une Convention ......................
(Titre de la Convention)
ci-après dénommée "la Convention" a été ouverte à la signature
à .......... le ...........
(lieu) (date)

CONSIDÉRANT qu'aux termes de l'article .......... de la
Convention, les gouvernements peuvent devenir parties à la Convention
par adhésion,

CONSIDÉRANT que l'adhésion s'effectue par le dépôt d'un instrument
à cet effet auprès de l'Organisation intergouvernementale consultative
de la navigation maritime,

ET CONSIDÉRANT que .............. désire être partie à ladite
Convention,

EN CONSÉQUENCE, le gouvernement .............., ayant
(nom de l'État)
examiné la Convention ......................, adhère par la
(titre de la Convention)
présente à ladite Convention et s'engage à en observer rigoureusement
et à en mettre en œuvre les dispositions.

EN FOI DE QUOI, nous ..................... [Président][Premier Ministre]
(nom)
[Ministre des affaires étrangères]* avons revêtu de notre signature le
présent instrument d'adhésion et y avons fait apposer [notre] [le] s sceau
officiel de ............... 
(nom de l'État)

FAIT à .........., ce .......... 
(lieu) (date)

(sceau) 

[Président] [Premier Ministre]
[Ministre des Affaires Etrangères]

A déposer auprès du Secrétaire Général de l'OMCI, à Londres.

*Rayer les mentions inutiles.
CONSIDERANT qu'une Convention .........................
(Titre de la Convention)
ci-après dénommée "la Convention" a été ouverte à la signature
à ............ le ............
(lieu) (date)

CONSIDERANT qu'aux termes de l'article ............. de la
Convention, les gouvernements peuvent devenir parties à la Convention
par signature sous réserve de ratification, suivie de ratification,

CONSIDERANT que la ratification s'effectue par le dépôt d'un
instrument à cet effet auprès de l'Organisation intergouvernementale
consultative de la navigation maritime,

et CONSIDERANT que ................. désirent être parties à ladite
(nom de l'État)
Convention,

EN CONSÉQUENCE, le gouvernement ................., ayant
(nom de l'État)
examiné la Convention ......................... ratifiée par la
(titre de la Convention)
présente ladite Convention et s'engage à en observer rigoureusement
et à en mettre en œuvre les dispositions.

EN FOI DE QUOI, nous ................. [Président*] [Premier Ministre]
(nom) [Ministre des affaires étrangères]* avons revêtu de notre signature le
présent instrument de ratification et y avons fait apposer [notre] [le]s
soeau officiel de .................
(nom de l'État)

FAIT à ............, ce ............
(lieu) (date)

(soeau)

[Président] [Premier Ministre]
[Ministre des affaires étrangères]

A déposer auprès du Secrétaire général de l'OMCI, Londres.

* Rayer les mentions inutiles.
Examples of work carried out in the Classification Society

1966 LOAD LINE

- Computations of load lines, verification and approval of conditions of assignment.
- Verification in inclining experiments and approval of in-fact stability.
- Approval of damage stability.
- Issue of load line certificates; surveys for maintenance and renewal of certificates.

SOLAS 1974 and its 1978 PROTOCOL

- For all ships: Approval and survey of arrangement for fire protection, prevention and extinction, lifesaving appliances, lights and sound signals (1972 Collision Regulations), and radio installations.
- Issue of the following certificates:
  Passenger ship safety certificate
  Cargo ship safety construction certificate
  Cargo ship safety equipment certificate
  Cargo ship safety radiotelegraphy/telephony certificate.
- Survey for renewal of certificates
- Mandatory Annual Surveys
- For passenger ships: Approval of subdivision and damage stability
- For cargo ships: Approval and certification of Grain Loading arrangements
MARPOL 73/78 and 1978 Protocol to SOLAS 1974

- Approval of equipment and arrangements for segregated ballast, hypothetical outflow, tank size limitations.
- Verification of damage stability and other features.
- Issue of International Oil Pollution Prevention Certificate or equivalent.
- Approval of equipment and arrangements for crude oil washing, protective location of ballast, inert gas systems, steering gear, other requirements of MARPOL 73/78 and 1978 Protocol to SOLAS 1974

IMO Bulk Chemical Code/IMO Gas Code

Issue of Certificate of Fitness based on:
- Approval and survey of arrangement and equipment as required in the applicable codes.
- Approval and survey necessary for fulfilment of amendments to the codes.
- Damage stability
- Survey for maintenance and renewal of Certificate of Fitness

Tonnage

- Measurement and computation of tonnages in accordance with regulations adopted by the government concerned
- Issue of certificates of measurements including IMO Tonnage Mark Scheme when applicable
- Assessment of tonnage in accordance with the International Convention on Tonnage Measurement of Ships, 1969.
  (Entered into force 18th July 1982).
Other regulations

- Survey and certification (Certificate of Fitness) of rigs and platforms operating at the U.K. continental shelf according to regulations stipulated by the U.K. Department of Energy.

- Various IMO Resolutions

- Crew accommodation: Statement of compliance with ILO Convention 92 and 133, and various national regulations

- Survey and certification of ships for compliance with International Convention on Space Requirements for Special Trade Passenger Ships

- Certification for compliance with IMO Recommendations for Hypothetical Oil Outflow and Tank Size Limitations.

- Survey and certification of Cargo Handling Gear.

- Approval of arrangement for fire protection, detection and extinction for cargo ships carrying motor vehicles with fuel in their tanks to certify suitability for that service.

- Issue of Load Line Form B Certificate to non-convention ships calling at USA ports.

- Issue of Non-Canadian Ships Compliance Certificates applicable to tankers of more than 500 GRT sailing in Canadian waters.

- Issue of certificates of compliance with Canadian Arctic Shipping Pollution Prevention Regulations.

- Survey and declaration of compliance with USCG Navigation Safety Regulations.

- Survey for and declaration of compliance with St. Lawrence Seaway Regulations.
SUBJECTS FOR CONSIDERATION IN THE IMO LONG TERM WORK PLAN IN CONNECTION WITH MARITIME SAFETY

MARITIME SAFETY COMMITTEE
(Subject to review in order to develop a definitive list of subjects)

1. Measures to improve maritime safety and efficiency of navigation in general, including:
   (a) implementation, technical interpretation and improvement of conventions, codes, recommendations and guidelines;
   (b) procedures for the control of ships including deficiency reports;
   (c) casualty statistics and investigations into serious casualties; and
   (d) implementation of harmonized survey and certification requirements and additional guidelines for survey and certification.

2. Training, watchkeeping and operational procedures for maritime personnel including seafarers, fishermen, maritime pilots and those responsible for maritime safety in mobile offshore units.

3. The manning of seagoing ships.

4. Measures to improve navigational safety, including ships' routing, requirements and standards for navigation aids and ship movement reporting systems and the design and layout of ships' bridges.

5. The global maritime distress and safety system and other maritime radiocommunication matters including navigational warning services, shipborne radio equipment and operational procedures.

6. Survival in case of maritime casualties and distress, including life-saving appliances and the provision of maritime search and rescue services and their possible harmonization with aeronautical search and rescue.

7. The safe carriage of solid bulk cargoes, timber, grain and other cargoes by sea, including containers and vehicles.

8. The carriage of dangerous goods in packaged form, portable tanks, unit loads, other transport units, shipborne barges and intermediate bulk containers (IBCs).

9. Emergency procedures and safety measures for ships carrying dangerous goods, medical first aid in case of accidents involving dangerous goods and the safe use of pesticides in ships.

10. The safe handling and storage of dangerous goods in port areas.

11. Intact stability, subdivision, damage stability and load lines for all types of ships.

12. Turnage measurement of ships.

13. Safety considerations for machinery and electrical installations.
14. Manoeuvrability of intact and disabled ships.

15. Control of noise and related vibration levels on board ships.

16. Matters pertaining to fire safety in all types of ships.

17. Safety aspects of the design, construction and equipment of all types of ships, such as fishing vessels, oil tankers, chemical tankers, gas carriers, dynamically supported craft, mobile offshore drilling units, special purpose ships, offshore supply vessels, nuclear merchant ships, roll-on roll-off ships, barge carriers, dry cargo ships carrying dangerous chemicals in cargo tanks, barges carrying dangerous chemicals in bulk and diving systems.

18. Co-operation with the United Nations and other international bodies on topics such as:

(a) carriage of dangerous goods by all modes;

(b) freight container safety in transport by all modes;

(c) maritime training, the manning of seagoing ships, watchkeeping and operational procedures;

(d) navigation safety and radio matters;

(e) safety of fishing vessels;

(f) noise levels on board ships;

(g) safety of nuclear merchant ships;

(h) safety of offshore units;

(i) helicopter facilities on board various types of ships; and

(j) diving systems.

19. A possible single (unified) international instrument (i.e. one comprehensive convention concerning safety of life at sea and marine environment protection) incorporating and superseding all relevant conventions and instruments currently applicable, which might include:

1974 SOLAS Convention
1978 SOLAS Protocol
1966 Load Line Convention
MARPOL 73/78
International Bulk Chemical Code
International Gas Carrier Code
Footnotes

(1) BAUCHET, P., op. cit., pages 6 - 7-

(2) The zairian land is serving as an important transit point for goods from and to Central African Republic, Burundi, and Rwanda. A significant share of export and import of these enclosed countries is handled in the zairian port of Matadi.

(3) "Département des Transports et Communications" is in Zaire the legal appellation for the ministry in charge of transport. It is headed by a minister so called "State Superintendant" assisted by a "State Secretary" for the supervision and policy making, and by a "Secretary General for the coordination of administrative and technical works.

(4) The National Transport Office (ONATRA) has been established by Decree Nr 78 - 206 of 05/05/1978 as a commercial venture operating in the inland waterway network formed by the River Zaire and its tributaries. The Port Department is one of the technical organs of the ONATRA SPECIALLY DEALING WITH PORT MANAGEMENT and PORT OPERATION.

(5) The Fairways Company (R.V.M.) was established by Ordinance Nr 71 - 003 of 23/01/1971.

(6) UNCTAD, op. cit., page 3.


(8) The tasks of the OGEFREM as defined by the regulatory provisions (cf. art. 7 of the Ordinance previously mentioned).
"Navigation" as defined by the Defence Mapping Agency Hydrographic Center, Washington.

ALDERTON, P. M., op. cit., page 88.

Ibidem, page 190.

Regional Operational Centres for Surveillance and Rescue at sea in France.

See page 17 of the present paper.

This task is generally performed by recognized classification societies on behalf of the national maritime administration.

See page 22 of the present paper.

According to Regulation 3(9) the freeboard deck is normally the uppermost complete deck exposed to weather and sea, which has permanent means of closing all openings in the weather part thereof, and below which all openings in the sides of the ship are fitted with permanent means of watertight closing. In a ship having a discontinuous freeboard deck, the lowest line of the exposed deck and the continuation of that line parallel to the upper part of the deck is taken as the freeboard deck. At the option of the Administration a lower deck may be designated as the freeboard deck provided it is a complete and permanent deck continuous in a fore and aft direction at least between the machinery space and peak bulkheads and continuous athwartship. When this lower deck is stepped the lowest line of the deck and the continuation of that line parallel to the upper part of the deck is taken as the free-
board deck. When a lower deck is designated as the freeboard deck, that part of the hull which extends above the freeboard deck is treated as a superstructure so far as concerns the application of the conditions of assignment and the calculation of the freeboard. It is from this deck that the freeboard is calculated.


(18) The Centre was established in December 1976, with the purpose to coordinate the anti-pollution activities within the area and help develop contingency plans which can be put into effect should a disaster occur in the Mediterranean which is considered as particularly sensitive to pollution.

(19) A primary accident is a maritime event capable of generating another accident. A collision between two vessels should, for example, lead to an explosion that can be followed by fire or pollution.

(20) Under the UNDP Project Nr RAF/76/003.


11. OGEFREM: "Textes et Règlements Régissant l’Ogefrem", Kinshasa.


