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IMPROVEMENT OF MARITIME EDUCATION AND TRAINING IN
IRAN TOWARDS THE RATIFICATION AND
IMPLEMENTATION OF THE STCW CONVENTION

by
Behrooz Omaraie Hamedani
Iran

October 1987

A paper submitted to the Faculty of the World Maritime
University in partial satisfaction of the requirements of
the MARITIME EDUCATION AND TRAINING (NAUTICAL) COURSE.

The contents of this paper reflect my own personal views
and are not necessarily endorsed by the UNIVERSITY.

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* * * * *

IMPROVEMENT OF MARITIME EDUCATION AND TRAINING

IN IRAN TOWARDS THE RATIFICATION

AND

IMPLEMENTATION OF THE STCW CONVENTION

By: B. Omarkaie Hamedani

ACKNOWLEDGEMENTS

This citation is presented as a part of the qualifying requirements for the award of a Master of Science Degree in Maritime Training and Education (Nautical).

I wish to express my gratitude and appreciation to my course professor G. Zade who , with guidance ,encouragement and support,patiently worked hard with me during the process of my thesis preparation .

I wish to thank the U.N.D.P and I.M.O for providing me the fellowship to pursue the two years study at World Maritime University .

X I would also like to thank the officials within the Ministries of Foreign Affairs and Road and Transport, as well as the Port and Shipping Organization.Finally, this project is dedicated to those who have lost their lives during the imposed war in my country. X

A project of this extensively owes much to the cooperation of various individuals:

Capt. B. Wagner

Lecturer H.van Walen

All staff and personnel of W.M.U Administration .

A B S T R A C T

"IMPROVEMENT OF MARITIME EDUCATION AND TRAINING IN IRAN TOWARDS THE RATIFICATION AND IMPLEMENTATION OF STCW CONVENTION"

- \ International conventions which Iran is a party to, are :
- Safety of life at sea (SOLAS) 1960
 - Load line (LL) 1966
 - Tonnage Measurement 1969
 - \ - Fund 1971

But there are a number of international codes, conventions, and other instruments related directly or indirectly to maritime education and training to which Iran is not a party .

Such instruments are those adopted by I.L.O, I.T.U, and I.M.O,. It is very difficult to deal in detail with specific requirements of all conventions concerned. Furthermore , it is not intended nor within purpose of this project to go into details of those instruments, therefore it is appropriate to deal exclusively with the 1978 STCW Convention as the title of this paper indicates

Iran could not attended the International Conference on Training and Certification of sea fareres held in London in 1978. A first step towards ratification of the STCW 1978 Convention is that, in the revised Iranian Maritime

Code, the STCW Convention and the compliance with its requirements has been mentioned and accepted in principle. So the aim of this paper is to discuss all technical requirements of the convention. Also, I will try to touch on some of the associated policy, administration, and organizational implementations, involved in the preparation of the required means and instruments, one by one and I will go through the ratification and implementation process of the STCW Convention.

Once Iran ratifies the STCW Convention there will be a total fundamental change of its training system and certificate structure to be more in line with that of the Convention. Among others the trading limits will be revised to constitute two trading limits namely: near coastal and unrestricted.

In this paper, an attempt has been made to plan and recommend a suitable procedure from the beginning of the ratification of the convention to the mandatory requirements and courses to comply with the STCW Convention and drafting of the subsidiary (relevant) legislation.

PREFACE

I was selected by Port and Shipping Organization better known P.S.O(which is acting in Iran in order to cope with all services and activities in ports or water ways to proceed to port),to join the World Maritime University (WMU) at Malmo , Sweden , for a two years course in Maritime Education and training (Nautical) commencing from March 1986. .

After completion of the course in december 1987, PSO has plan to post me as one of the members of the Board of Examiner which probably has to be established in its training center in Bandar Abbas (Shahid-Rajaei training center).

One of the requirements of the Maritime Education and Training (Nautical) course , is to submit a paper to the WMU faculty prior completion of the course.

Accordingly , this paper has been written , to fulfill this requirement.

The topic of the paper , namely , "IMPROVMENT OF MARITIME EDUCATION AND TRAINING IN IRAN TOWARDS THE RATIFICATION AND IMPLEMENTATION OF STCW CONVENTION", was chosen because the main purpose for which I was sent to WMU to acquire adequate knowledge so that on my return I could be able to advise and recommend the P.S.O as responsible Maritime Administration in Iran which according to Iran new Maritime Code is to deal and be responsible for conducting examination and granting the appropriate certificate to Iranian seafarers.

The paper has been divided into nine chapters ,Chapter one introduction to the safety of navigation and shipping and its role in towards the development of countries , specifically in developing countries .

The general information regarding with maritime geography ,Administration,etc. has been described in chapter two.

The present and future man power needs of merchant marine in Iran ,and need for training of seafarers , have been described in chapter three .

Chapter four , is dealing with existing maritime training academies in Iran and description of their system of training, course entrance requirements and so on .

In chapter five ,a study has been carried out of the STCW Convention 1978, from the work done by sub-committee of the STCW Convention and preparation of the conference and an interpretation of convention, which is covered the Articles, the Regulations and the Resolutions concerning education and training adopted at IMO Assembly sessions, as applied to Iran.

Recommendation for developing the maritime infras-
tructure has been given in chapter six,and chapter seven is dealing with general requirements for improvment of the M.E.T in Iran.

Chapter eight is dealing with proposal training courses for improvement and development of Iran maritime institutes in order to comply with STCW Convention. In chapter nine I have emphesized more on drafting of subsidiary legislation for implementation of examination and certification of Iranian seafarers.

Finally chapter ten give a conclusions and recommendation and Annexes .If this paper is well accepted by the WMU faculty and further if P.S.O agrees to impelement most of recommendation,suggestion and proposed draft of subsidia-
ry legislation for certification in the paper,it would give me the great satisfaction that my time and efforts put in at the World Maritime University, have been well spent.

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INTRODUCTION

1.0 INTRODUCTION

1.1 Safety of navigation and its historical developments

Merchant shipping is a specialised and technical business . It's safety has been increased during the past few years by the extensive new conventions developed by international maritime organization (I.M.O) and the International labour organization (I.L.O), designed to improve safety and social conditions .

Safety of navigation has for centuries been of concern for those only who sailed aboard ships, had their cargoes carried by sea or were otherwise engaged and intersted in maritime affairs . Unsafety of navigation, however, has sometimes drawn the attention of a wider public.

Such unsafety had to be spectacular or frequent. Loss of lives had to result from it or maritime accidents of considerable dimensions.

Safety of navigation has sometimes been improved after new risks from changes in sea transport had been recognized and assessed.

Sometimes had to happen (unsafety) before something happened (measures to improve safety), unsafety first, safety there after.

Approximatly 75 % of all ship casualties and losses repoted are due to collisions and graunding . The cause of these accidents is given in 85% of the cases as "human error".

Human error is mainly attributed to the crew on board the vessels and only to a small extent related back to the underlying sections of socity, such as the yards , shipping companies, authorities, classification societies, etc.

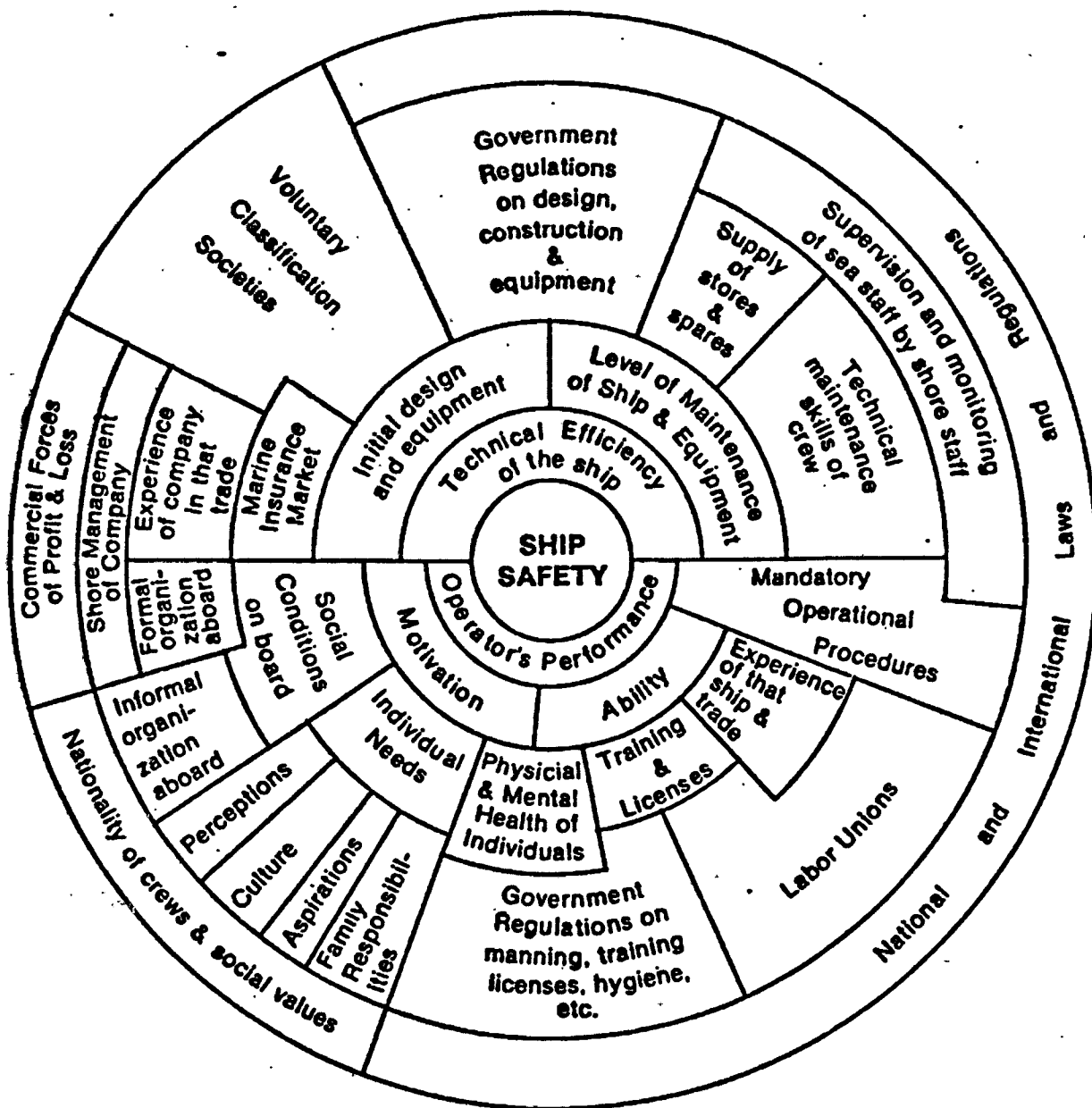


DIAGRAM : Factors affecting ship safety

Some hundred years ago it was normal that navigators had to train themselves on the job. Later on schools were established ,where future navigators could recieve education in science and training in its application to navigation .

During the first half of the 19th century requirements for the qualification of navigation officers and masters were developed . In 1974 IMO adopted a Recommendation on basic principles and operational guidance relating to navigational watchkeeping . It was however not before 1978 when an overall approach to qualification requirements for shipboard personnel on a global base was made : The International Convention on standard of training, certification and watchkeeping for seafarers (S.T.C.W) was adopted . Today health and fitness certificates for seafarers are required . Working condition are inceasingly regulated. Some countries even consider the introduction of psychological tests for those who want to take up a carreer at sea .

More than any other individual in the maritime industry, the education and training of the captain demands our special attention .Infact ,by law he is the responsible person for the success of maritime adventure, more over his experience on board of ships as specialist in navigation, ship handling and cargo oprations makes of him not only a ship's manager, but he is also the indicated person for special duties and assignments ashore such as pilot, hydrographer, port oprator and administrator, superintendent, head of organization, etc.

The International Convention on standard of training certification and Watchkeeping for seafarers 1978 (STCW Convention) was a long felt necessity by all maritime state . The recognition of the importance of safety of

life and property at sea and protection of the marine environment is essential for all nations .

To have a ship properly manned by well trained and qualified officers and crew not only ensures safety to that ship only but also to other ships in the vicinity.

Though Iran could not attend the International Conference on Training and certification of seafarers held in London in 1978, I hope that my responsible maritime organization in Iran brings up our existing procedures to international standards in accordance with this convention and ratify it as soon as possible .

1.2 Shipping and its role towards the development

An important factor determining the pace of economic and social development in developing countries is their participation in world trade .

In this connection it is appropriate to quote the following statement of the head of the " Food and Agricultural Organization " (F.A.O)

"The future is trade - you can double, ^ptriple or quadruple the aid, it will not do . Trade brings in 50 times more than aid".

The history of mankind on earth is the history of his struggle against poverty. In our present decade poverty is still crushing about two thirds of world 's population under its heavy burden.

More opperessive is that the gap between the rich and poor countries is in general widening in terms of real income per capita . These less developed or developing countries are characterized by a low standard of living due to a combination of obstacles, interwoven into each other, that tend to counteract their efforts towards eco-

conomic growth.

The main obstacles which can be listed under the following headings all work in several vicious circles acting as resistance to development, these are :

- I. Low level of productivity per capita.
- II. Scarcity and lack of complementary factors of production.
- III. Unfavourable conditions for foreign trade .
- IV. Insignificance of training and educational infrastructures to have sufficient and well trained people to run foreign trade , specially manning and running the national fleet.

Among between many different matter, and subjects of trade and business which could help to improve the national economic through the real income per capita as foreign currency exchange, the international maritime trade has a matchless intensive role to play in any contribution to economic development.

Quantitatively ,most of the developing countries have a high ratio of foreign trade to national income. This is due to several reasons;

- Have to rely on an efficient national fleet and other transport system that would facilitate their access to foreign markets (the important of sea-transport, in this respect ,is shown from the fact that 3,320 million tons of world trade was transported by sea in 1984 ,and about 13,060 billions of ton-miles), report UNCTAD secretariate.
- Costs of seatriansport service are of a considerable magnitude, the more efficient and the cheaper this service

would be the benefits gained from trade .

This is more apparent for the developing countries, in particular Iran which is in the process of industrialization, rely greatly on foreign trade who are generally faced with exporting oil and all balance of payment and foreign exchange income depend upon extremely to the international; market of produce and from time to time influence by many factors.

At this stage to proceeding at reasonable consequence of my conclusion about how important shipping is, I would like to pointed out to shipping activities itself by giving some important definition, because I believe without any clear description and sufficient figures and relevant statistics about main points and original concept of international and national shipping and consequently to achievement of any result to prove our particular training and educational needed in this respect would be ineffectual.

1.3 SHIPPING AND ITS TECHNOLOGY

A ship having properly trained and qualified personnel on board when confronted on the high seas with a ship manned by unqualified sub-standard officers and crew is exposed to danger as much as the sub-standard ship and their qualifications and training become unless the other ship also has fully qualified and trained officers and crew.

The shipping industry has undergone drastic changes in the last three decades. Specialised ships designed to carry containers and supply vessels etc., have taken the place of the traditional carrier. See table 1.3.1 and 1.3.2

Management and manning of ships has become varied and international. The prolonged depression has forced shipping companies to enforce stringent economics on ships, often at the cost of safety.

Lack of financial resources sometimes leads to inadequate maintenance and intervals between dry-docking are lengthened. Whatever be the economic scenario as of today, we must face the fact that modern ships are highly complex and require highly trained personnel to operate them economically and safely.

It has therefore become essential that the present and past methods of selection and training of maritime personnel be given careful and critical appraisal to evolve a pattern of training and education which is compatible with the requirements of the shipping industry of not only today but also of the ships of tomorrow.

One of the natural resources of any country is its man power and this, like any other of its resources, can be neglected or can be actively developed towards its full potential for the economic growth of the country. In this modern age the full, or at least the reasonably efficient, use of available manpower develops largely upon the existence of adequate number of workers possessing the requisite knowledge and skills at various levels in each sector of economy.

The rapid technological development which is characteristic of the time requires a government policy of encouragement or control towards the achievement and correct distribution of such knowledge and skills.

Sea faring has, like many other occupations, been a "learn-as-you-work" activity for thousands of years during which new recruits went to sea and, by a combination of direct experience and of tuition from more senior

colleagues, learned the business of seamanship.

Promotion to higher ranks, and eventually to ship-masters in some cases ,resulted from this some what haphazard combination of experience and knowledge gained over a very long priod of time. This training many times have been effective enough for its intended purpose but can not,in the light of modern knowledge and technology on training methods, be regarded as very efficient.

The advent of steam propulsion of ships required seafarers of a new type with operation and repair skills covering engines,boilers,decks and bridge.

The training of engineer officers also consisted of "learning-on-the-job" by experience and haphazard tuition.However,most of his professional skills were usually acquired ashore,in an engine-building works or ship repair yard before going to sea.

1.3.1 * INCREASED SPECIALISATION OF SHIPS

- OIL TANKERS
- CHEMICAL TANKERS
- LIQUEFIED GAS TANKERS
- CONTAINER SHIPS
- RO RO'S
- BULK CARRIERS
- OBO'S
- CAR CARRIERS
- LASH SHIPS
- HYDROFOIL VESSELS
- AIR CUSHION VESSELS
- COMPOSITE TUG AND BARGE UNITS
- SELF UNLOADERS
- SHEEP CARRIERS
- MOBILE OFFSHORE UNITS

* source: I.M.O 1986

1.3.2 * INCREASED NUMBER AND SIZE OF SHIPS

"SOLAS YEARS"	NO.OF SHIPS	GROSS TONNAGE
-----	-----	-----
1914	24,444	(millions) 45
1929	29,612	66
1948	29,340	80
1960	36,311	129
1974	61,194	311
1978	69,020	401
1979	71,129	413
1980	73,882	420
1981	73,864	421
1982	75,151	425
1983	76,106	423
1984	76,068	419
1985	76,395	416

* Source:I.M.O 1986

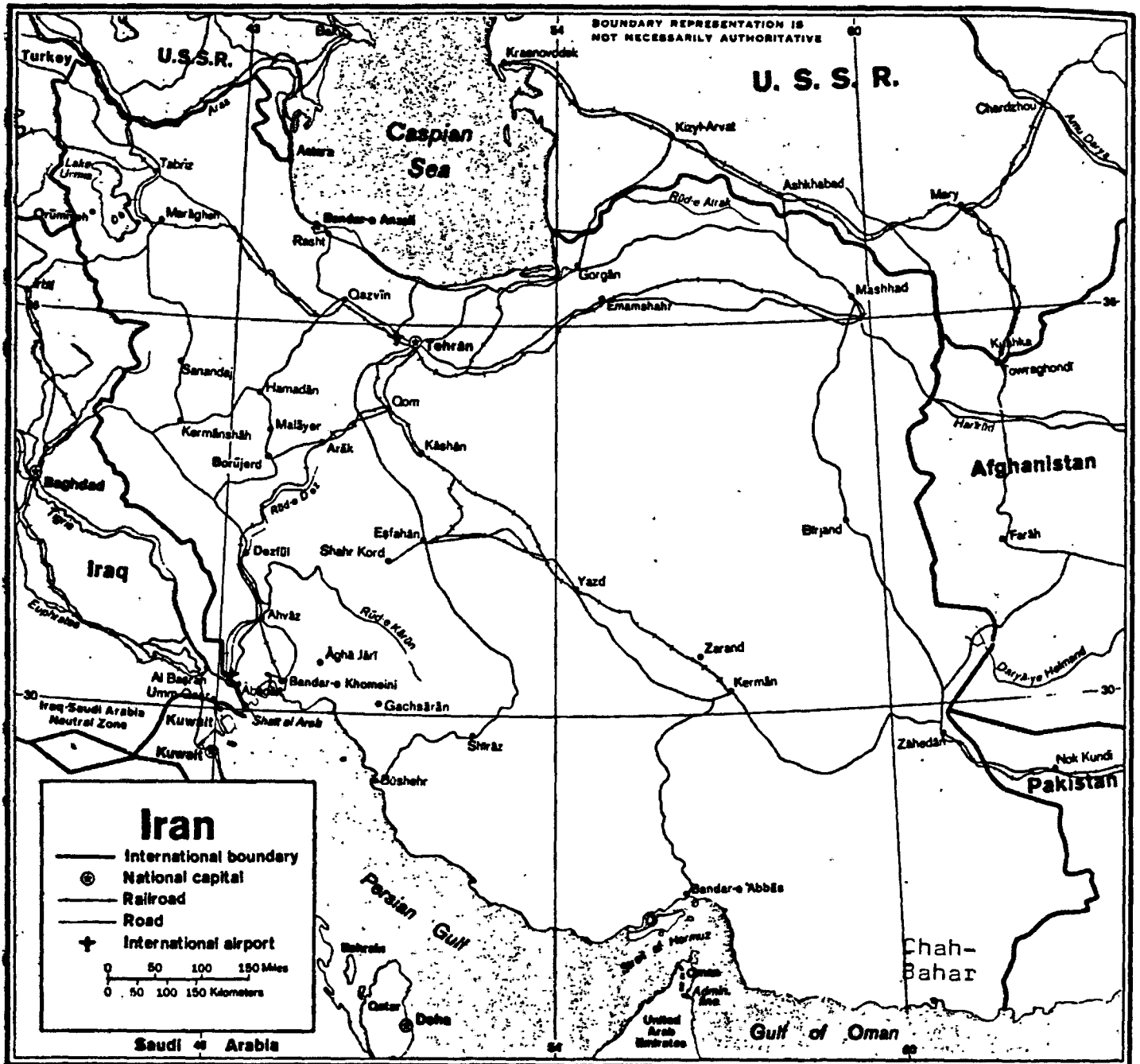
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CHAPTER TWO

IRAN

* * * * *

IRAN



2.0 IRAN

2.1 MARITIME GEOGRAPHY

Iran is located in south western Asia between the Persian Gulf and the Gulf of Oman to the south ,and the caspian sea to the north. It has an area of 1,645,000 square KM (628,000 square mile).It's coast line on the south is 1,880 KM (1,168 mile) .

Iran has longest shoreline on the Persian Gulf Oman sea as well ,and is the only state located on the entire length of the northern coast of the Gulf and the Oman sea from the Arvand Rood river (Shat-al-Arab water way) up to the port of Govater(Pakistan border).

Its boundries with Russia are marked largely by natural features .Iran's 1,050-mile boundryline in the north begins at the junction of the Aras River and Karsu follows the course of the main chanel of the Aras .

This section of boundry lies to the west of the Caspian sea,which gives Iran some 630 KM (400 miles) of a crescent shaped coast line facing the soviet union. At the south ,there is mouth of the Persian Gulf,Strait of Hormuz , is one of the eleven straits of the world of "major economic significance"to the world shipping trade.

It is listed with the Dover ,Skaggarak,Lombok,Luzon and Bosporus-Dardanells straits in the category. In fact , it should be considered as one of the most important strait economically,becuase it is marked by a vital global interest in the passage of goods,services, resouces and technology,with oil shipments the heart of

its economics importance.

All eight littoral states of Persian Gulf possess oil reserves, but their reserves differ significantly in size.

Iran's reserves were estimated in 1985 at 66 billion barrels.

According to the state division of 1986, Iran is divided into 24 provinces, 480 counties and 450 municipalities. Total population of Iran is 48 millions. (1986-Iran Ministry of Interior)

2.2 ECONOMY

According to a Macro-Economic survey of Developing countries in the ESCAP region by Economic and Social Commission for Asia and the Pacific, for most of the Asian countries, 1982 was one of the most depressed years in recent time, except for Burma and Iran, which lie at two geographical extremes of sub-region and have structural and institutional characteristics somewhat different from the rest of it.

The economic growth in the Islamic Republic of Iran⁷ mainly has been due to following more inward oriented policies regarding with transportation goods by its national merchant fleet and communications.

It's link with the rest of Asia and the world, however, have increased in recent years. In spite of the weakness in the oil market and continuation of the war, adversely affected the economic performance, Iran fared rather well in 1985-86.

Strengthened by its oil reserves ,Iran an upper middle-income country, has developed one of the better balanced economies in the Middle East .

The country embarked on industrialisation and by 1978 some 33 per cent of the labour force were employed in industry .

2.3 MARITIME ADMINISTRATION IN IRAN (P.S.O)

According to the statutory functions of Ministry of Road and Transport, the Ports and Shipping Organization as a legal maritime body is responsible and dealt with port activity and navigation .

Subjects and functions pertaining to shipping and ports which are under the charge of this organization are as follows:

- a) To provide and maintain adequate and efficient port service and facilities in ports or the approaches to ports ;
- b) To regulate and control navigation within ports and the approaches to ports ;
- c) To promote the use ,improvement and development of ports ;
- d) General-superintendence and co-operate and co-ordinate all activities of or within ports and related matters.

The secretariat of the Ministry is headed in P.S.O as general manager. The ministry deals mainly with larger issues relating to policy and legislation, while all executive matters relating to ports and shipping are dealt

with by the general manager.

In the old Iranian Maritime Code 1955, statutory recognition has been given to the Ports and Shipping Organization and it has been delegated powers to enable him to perform effectively the various functions under the act .

I should mention here that national merchant fleet and running the ships in terms of shipping and maritime trade has nothing to do with port and shipping organization and is under the ministry of commerce.

At the time of writting this project,the new revised Maritime Code has been presented into parliment some time last year 1986.

This new code will establish the framework for merchant marine activities in Iran .A framework to be filled in by regulations made by the P.S.O under supervision of Ministry of Road and Transport consist of ten chapter in respect of registration of ship,collision avoidance , search and rescue , Load line ,SOLAS,and also impelementation of STCW Convention ,conducting examination and granting certificate of competency to seafarers

has been mentioned and accepted in prenciple.

So,in case of accepted and approved new maritime Code and ratification of STCW Convention by parliment ,in near future ,we are expecting a great impact and effect not only on the Iran Maritime Academies and entire system of manning of ships ,but also on examination and certification of seafarers and other related matters.

2.4 PRINCIPAL PORTS AND HORBOURS

ABADAN and KHORAMSHAHR :Both ports have been completely destroyed during conflict between Iran and Irak .

BANDAR KHOMAINI :This port by having 40 jetties is biggest port in the region. Minimum depth of water alongside is 36 ft. Vessls up to 50,000 dwt will be accepted for discharging and loading general cargo and bulk.

The surface of the jetty has been designed for operation of mobile or gantry crane .

BUSHEHR : The port consist of two deep water berths,-drought 10.m and two dolphin where vessels can discharge into lighters with similar drafts .

CHAH-BAHAR : New port has been constracted .

Vessels up to 30,000 dwt,will be accepted for discharge .

2.4.1 SHAHID RAJAEI NEW PORT COMPLEX (BANDAR ABBAS)

2.4.2 The project general background

Bandar Abbas is situated in the south -eastern region of Iran at the mouth of Persian Gulf.

Due to the need for increased port capacity both for naval and commercial purposes ,the Iranian Government decided in the early seventies to assign the existing port for the navy and to build a new port complex for the commercial activities of the region .

The new port was planned for a design cargo throughout of some 15 million tons per annum,mainly comprising of the following commodities:

General cargo ,containers,various bulk ores ,grains in bulk ,oil products and fish,the majority of this commodities being imported.

The planned harbour basins and on-shore port area together comprises approximately 27 square kilometers.

The largest vessels to be accommodated fully loaded is 100,000 dwt. The new commercial port is planned to be one of two major Iranian seaports in the Persian Gulf(the other being Bandar Khomeini).

2.4.3 Description of port facilities

The project includes a commercial port and coastal & Fishing Harbour .The port basins of the commercial port including 3 basins for ocean vessels .

There are 30 berthes for ocean going vessels by minimum water-depth 12.m.

Provision has been made for the following 12 berthes extensions:

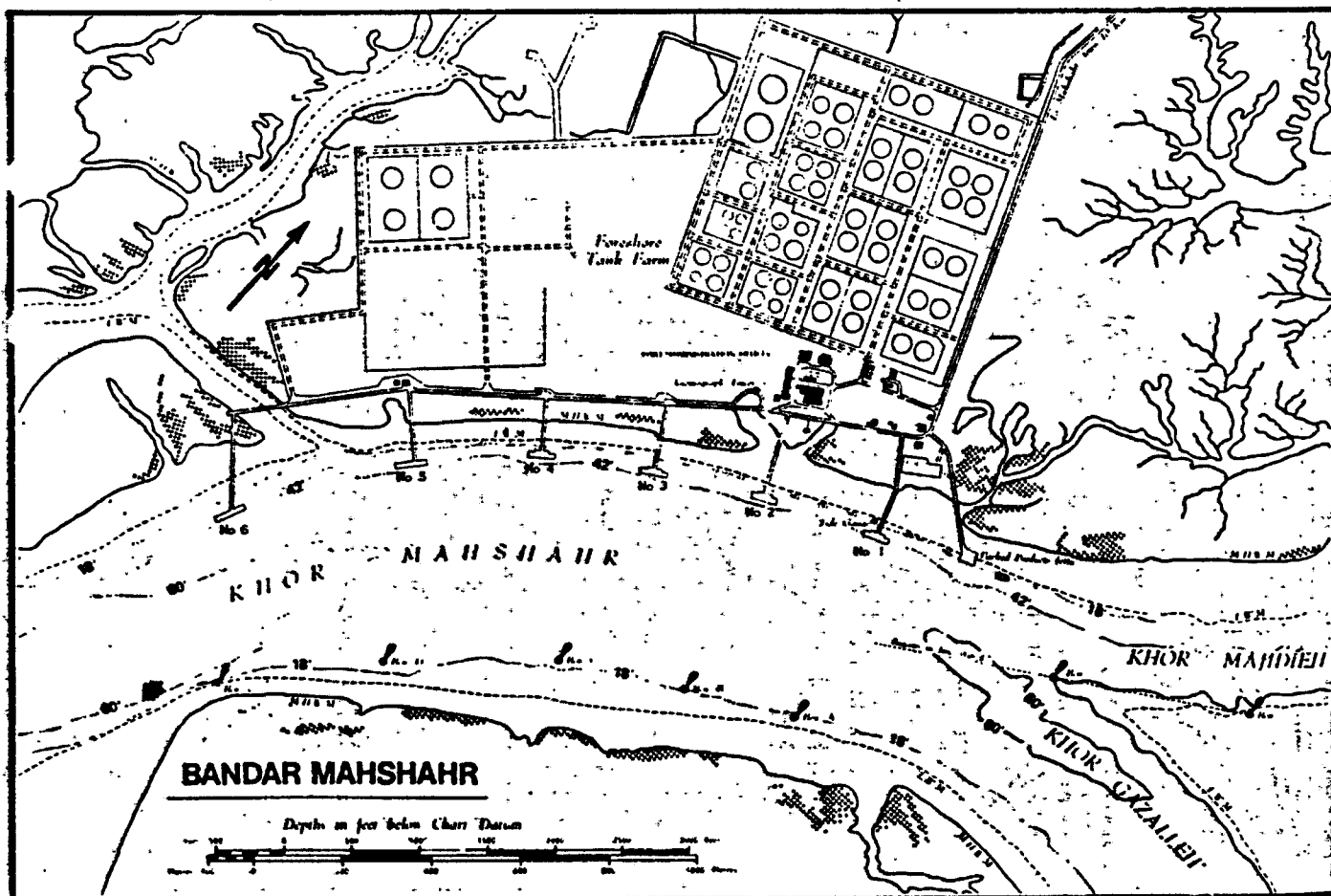
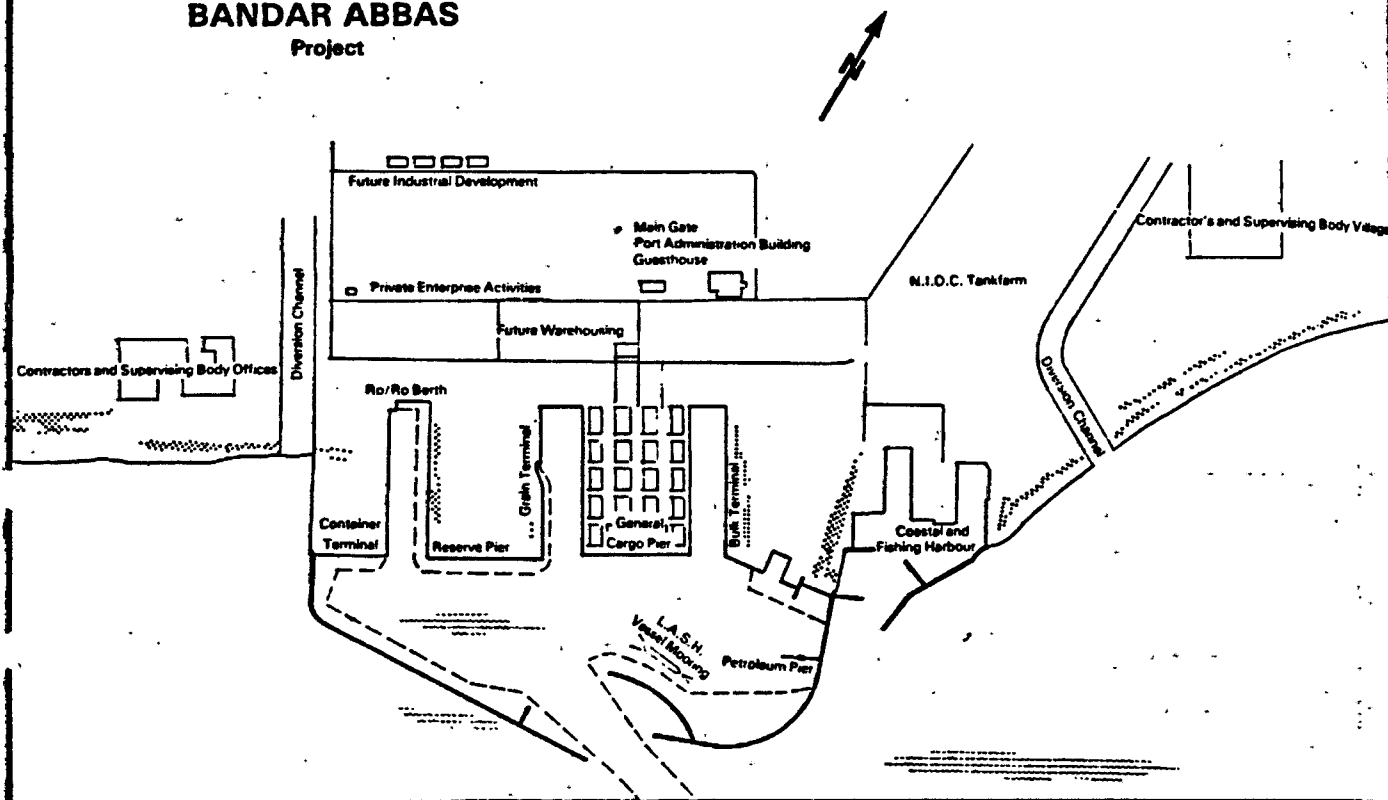
- 5 Container	2,500,000 ton
- 4 Multi Bulk	1,200,000 ton
- 3 Bulk Grain	3,000,000 ton
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12 Total	6,700,000 ton

In the commercial port service and office builing are being built with a total inside floor area of 37,000 square meters.In the coastal and fishing port the floor area ,in 6 building , is 8300 square meters .

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DATE 08-01-2001 BY 60322 UCBAW/STP

BANDAR IMAM KHOMEINI

BANDAR ABBAS Project



2.5 EDUCATION SYSTEM

2.5.1 Primery and secondary education

The compulsory primary education was established in 1930. primary education for five years is compulsory for all children and ,along with a three years guidance priod, was declared free in 1974 .According to the latest population census results at october 1986 over eleven million children were attending many thousands of primary and secondary schools all over the country .According to the government,24,500 school were build between the Revolution (1979) and 1985.

An increasing number of children are now proceeding to secondary schools after obtaining their primary education certificate.

Some figures and facts about education facilities in Iran:

Elementary school	48920
Orientation course	11145
Secondary school	2204
Technical and vocational school	710
Primary teacher training "	272
Universities and Colleges	165

2.5,2 Higher education

Iran has 22 universities including eight in Tehran. 125000 students have admited for the 1984-85 and 86 academic years.

There are several other institutions of higher education ,teachers' training colleges ,colleges of advanced technology, and colleges of agriculture.

In addition there two maritime universities, one in Caspian sea at north of Iran and the second one is in Chah-Bahar, in the south on Iran .The ministry responsible for higher education is ministry of higher education and culture . Education is virtually free in Iran at all level, from elementary school through university .

A survey conducted in 1986 indicated that of the 32 millions Iranian of more than 6 years of age were literate. Population of Iran is 48 million .

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CHAPTER THREE

DIVERSIFICATION OF MARITIME ACTIVITIES AND

FLEET STRUCTURE IN IRAN

3.0 DIVERSIFICATION OF MARITIME ACTIVITIES AND FLEET STRUCTURE IN IRAN

3.1 Present situation of merchant marine in Iran

As merchant ships have become more complex and different, the old methods of training have tended to be superseded by newer ones in many countries. These newer methods involve persons trained in a more formal kind, carried out in well organised establishments ashore. The following list will suffice to give some insight into the general marine manpower needs of the shipping industries in Iran:

1. Persian Gulf shipyard in Bandar Abbas and Maritime industries complex firms in Bandar Boshehr (both run and managed by Government) needs to employing marine relevant management, administrative, technical, supervisory and operative staffs.
2. Government and commercial merchant shipping fleets require deck and engine officers. (table 3.2.1)
3. Government and fishing fleets require deck and engine officers and other members of crew.
4. Ports and shipping organization (port Authority) require marine officers and other members of crew (Rating)
5. Iranian navy requires officers and petty officers.
6. National Iranian Oil Company (NIOC) and Iranian Oil Tanker Company, requires deck and engineering officers

and to include general purpose crews.

7. Other shipping companies and organizations such as coast guards and Iran-O-Hend shipping company require deck and engineering officers and other members of crew.
8. In planning of the economic expansion of a country the transport of goods over sea is one of the main objects to consider. In general I may say the one of the most important elements in the economic exploitation is the size of the ship. According to Institute of Shipping Economics and Logistics and shipping statistics, March 1986 among all developing countries national fleets (including China) Iran National Fleet by having 3.4 million dwts has ranked at number ten.

The total ships of 300 dwt and over of Iranian merchant marine fleets are 350 ships.

The need of maritime trained personnel is not exhausted by the list above. It is aimed at giving a definite indication of the situation in the country.

3.2 ISLAMIC REPUBLIC OF IRAN SHIPPING LINE (IRISL)

This company has been established at 1965 by having six small general cargo ships with total displacement of 40,338 dwt. In recent years because of the high rate of growth in foreign trade, today IRISL owns and manages a fleet of 96 different types of ocean going vessels of 3.4 million dwts (as at January 1st 1986).

3.2.1 * TABLE

The number of IRISL employees, both afloat and ashore is shown in table below from 1981-85

Year	1981	1982	1983	1984	1985
Ashore	527	791	869	1000	1015
Afloat	2065	1760	1968	1869	1910
Iranian officer	330	316	482	516	531
Foreign officer	350	289	399	441	455
Seaman	1223	1050	1010	912	1065
Students	162	105	77	90	129
Total	2592	2551	2837	2868	3200

* Source : Islamice Republic of Iran shipping Line
publication 1985

3.3 OTHER MARITIME INDUSTRIES

a) Iran and India shipping company:

This company has been registred as an Iranian company at 20th march 1975.

Proportion of shares of company is 51% belongs to Iran (IRISL) and 49% belong to Shipping Corporation of India. Company has owned and manages 10 different type of ocean going vessels of total 110,250 dwt .

b) National Iranian Oil Company (NIOC):

this company is under the Ministry of oil and has 65 tanker and super tanker on service to carry crude oil or other oil product.

c) Fishery:

The fishing activities is under the ministry of agricultural and natural resources .Most of fishing is carried out in traditional method and by 8000 motor lounches or other kind of local fishing boat . Several modern fishing vessels recently have been bought by Government which contributing and cooperating with private sector.

3.4 FLEET STRUCTURE

Enumerated below is the analysis of Iranian merchant fleet by principal types:

a) Fleet in operation

Type of vessels	NO.	GRT	Average age of ships in year
- Over seas Dry cargo vessels	81	456,744	9
- Ore & Bulk carries	42	777,314	9
- Container ships.	2	35,000	6
- Chemical	2	27,047	4
- Tankers : V.L.C.C, Crude oil,Product	32	918,207	9
- Passenger	2	12,500	10
- Off-shore supply vessels	28	108,535	7
- Research ships	1	804	2
- Deregger	7	21030	8
- Tuges	93	30522	5
- Fishing inc. factory	26	6,737	10
- Miscellaneous (non-trading)	26	26,843	12
Total Number	347	2,379,957	8

* Source: Institute of Shipping Economics March 1986

b) Fleet on order

There is a plan to acquire eleven bulk and Cooking oil carriers vessels ,each of which 22,000 tons GRT by 1987-1988 and further,there is also ten fishing vessels under construction in foriegn shipyard.

3.5 MAN POWER NEEDS IN THE IRAN MARITIME INDUSTRIES

Total displacment of export and import of a country will predic the nessecity of minimum requirement of human resources in shipping industrial developing activities and plans within the periode of times.

Shipping as same as the other modes of transportation like railways and roads have a vital role on build up infrastructure of a country on bases of economic growth.

Owning merchant fleets and having required and enough well trained seafarers , would help the country in speeding its pace for development.

Ships and shipping activities are capital intensive, and while acquisition of a fleet and the formation of a shipping company to operate the ships are readily executed,once the appropriate policy decisions are taken,- there are no short cuts in securing the number of highly qualified and experienced maritime personnel that would be required to man those vessels and manage and oprate the shore administrations associated with same .

This important trust in the harnessing of human resources has evolved a sub-planning activity along side with,and within the entire maritime transportation network ,for the establishment of proper maritime training facilities to enable my country to have a ready source of maritime exeprties in all its branches. According to the

plan and budget organization and its estimation on basis of five-year development plan for 1983-88 due to produce and demand of country shows ,that with allocations totalling \$166 billion ,more emphasis has been devoted to agricultural and services to industries, but the total proportional of investment in transport sector , within this priode of fiscal years would be \$12 billion ,which is nearly \$2.5 billion per year.

In a prolong observation into the next 20 years development plan from descriptive statistics analysis, of the Iran's economical, social and cultural point of view, enabling us to realize what is going to happen with total export and import of Iran .

The ultimate trend and tendency of Iran's imports and exports of diffrent type of goods (intermediat, fundemetal and consumer goods) from 1981 to 2001 may best be illusttrted by the figures 3.5.1 and 3.5.2

For preparation of this 20 year developing program, has been taken into account all factors. For example in case of reduction from income of foriegn exchange due to decrease of exporting oil or oil prices, which is shown at table 3.5.2, some times around year 1996 non-oil export production would have trend towards an increasing norm and at the same time exporting oil or oil prices will goes downward or will show reduction.

Consequently in both case either increasing in non-oil exports or imports of fundemental goods ,in order to reconstruction the country .Specially after settelment of war, there will be extreme heavy burdens on our merchant fleet. Consequently, from an logical and reasonable point of view there is legitimate ground for debate that the development and expansion of Iran's Merchant Fleet has already begun to grow ,but simultaneously it does not

increased in number of adequate and trained seafarers and marine personnel due to extension of capital investment in shipping industries since year 1976 to 2001 ,so it means that we are lag behind in our developing programs.

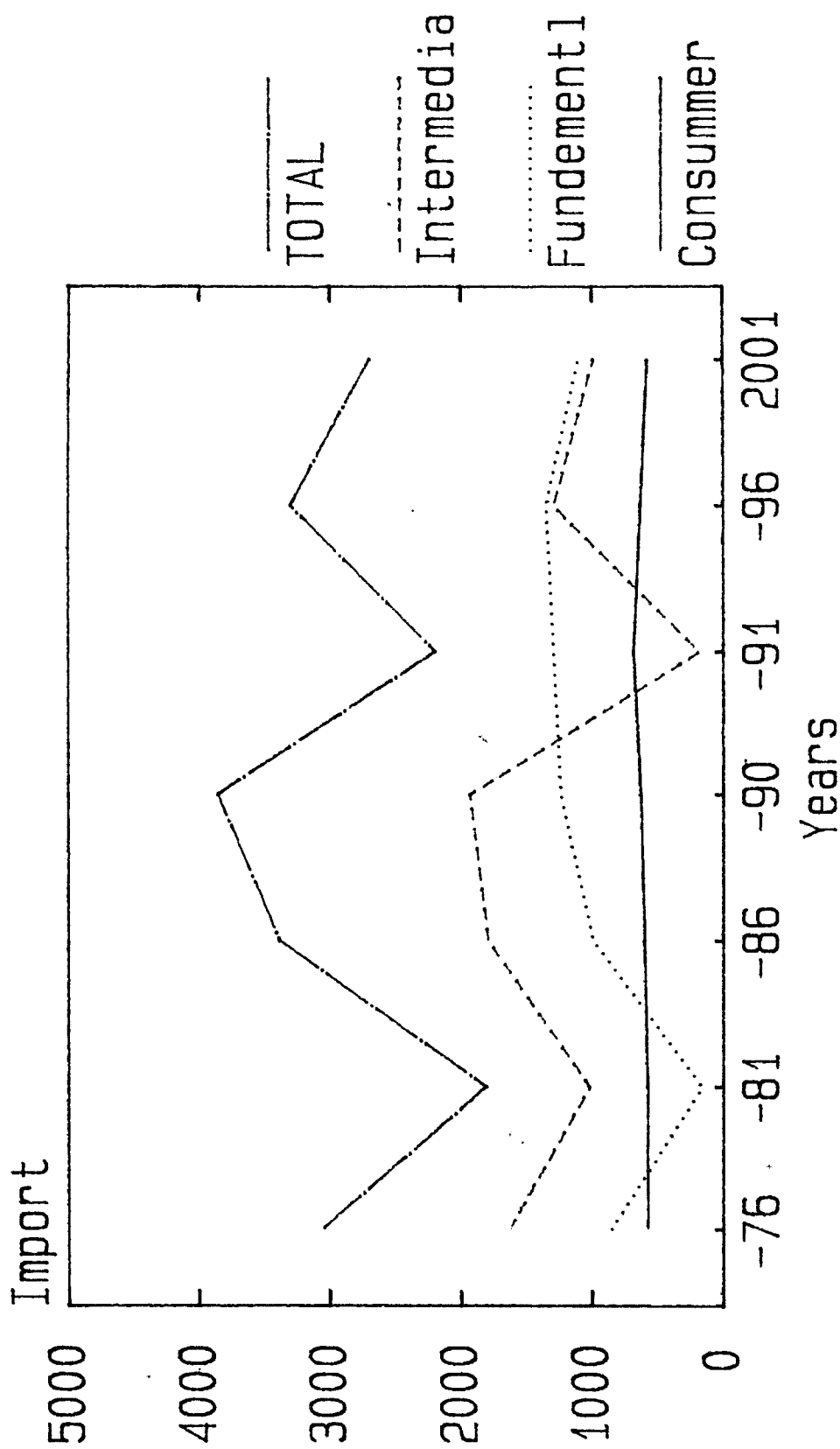
At the end of 1985 it was observed that there is a large requirement of trained officers as well as other member of crew ,to man and running the merchant fleet. Following figurs are showing the existing number of Iranian seafarers and only next two years marine personnel needed regarding with expansion of Iran National fleet.*

Years	Officers	Seaman
1985	441 Iranian	912
	516 Foreign	---
1988	1800	2300

From aformentioned I would like to appraise that the human resource of Iran national fleet and other maritime industries is considered as fundamental factor, and establishment, improvment or build up the maritime institute with full capacity and high quality should be in first priority among other programs in Iran and will be inevitable and have no alternative for that, otherwise in long term we will have more shortage of marine personnel due to expansion of merchant fleet in number and its new advanced technology.

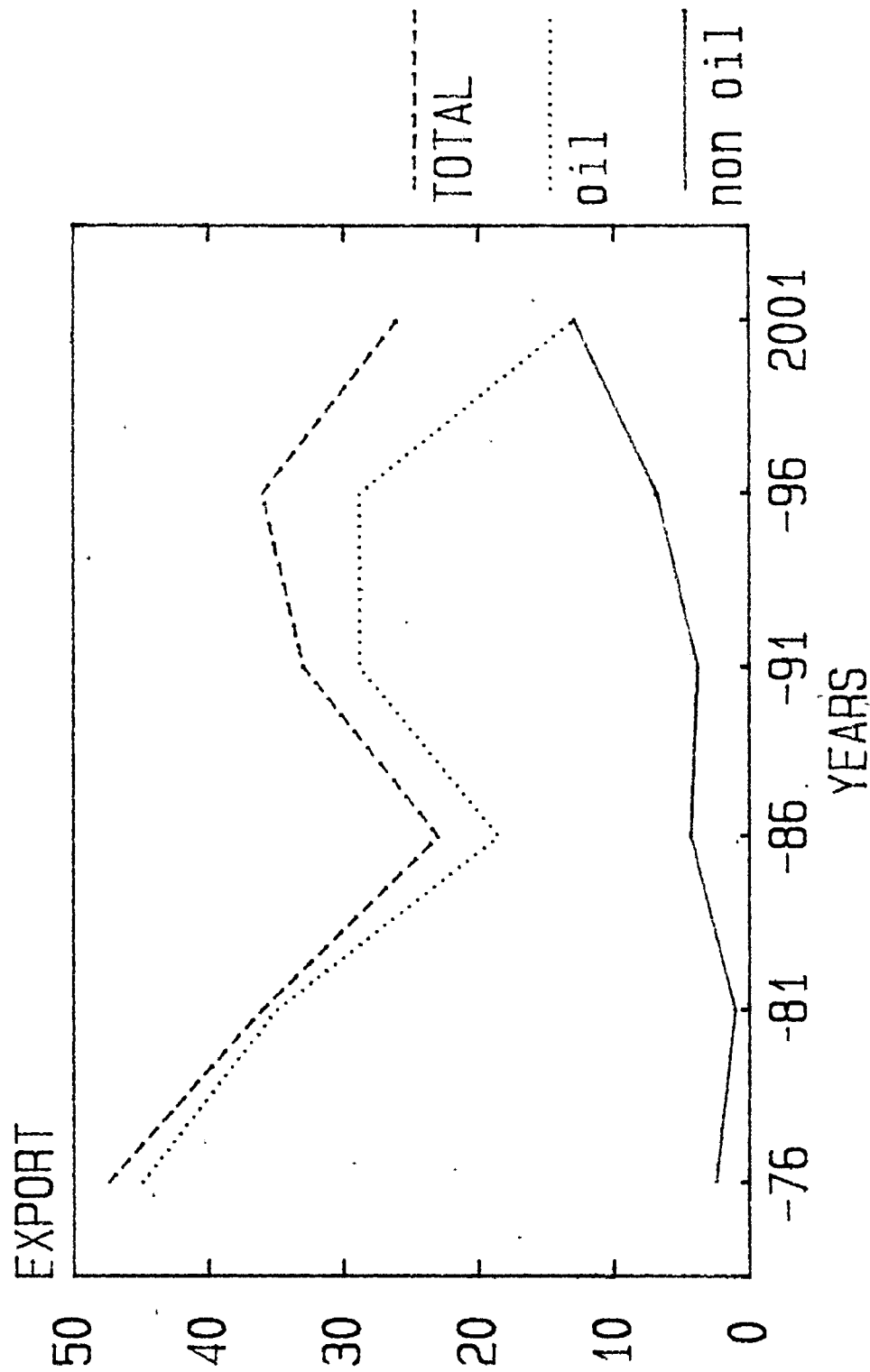
* Source: I.R.I.S.L Publication 1985

IMPORTS GOODS FROM 1979 UP TO 2001



Figures on billion RIALS

EXPORTS GOODS FROM 1976 TO 2001



FIGURES ON BILLION U.S. \$

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CHAPTER FOUR

MARITIME EDUCATION AND TRAINING IN IRAN

4.0 MARITIME EDUCATION AND TRAINING IN IRAN

4.1 INTRODUCTION

The ultimate aim of any pattern of maritime education and training is, and should be, to produce well trained and qualified seagoing personnel who have followed a well planned programme of training leading to the issue of appropriate certificates of competency in their respective fields.

The education of maritime personnel, like other types of education, is the building in the minds of people the broader understanding of the trade in which they are involved. It will afford individual self-reliance and promote national economic advantages in the trade on a national and world basis .

There is always, a demand for up-grading the present academies of maritime studies to meet the standards for training . Otherwise the officers and seaman will be neglected at lower level of standards.

It has been observed from table 3.2.3 that growth of maritime transportation in Iran specially during last decade and approximate investment in field of sea transport for next twenty years has trend to a rapid growth in the sector of trade . This led to a great deal demand of well trained seafarers to manage and running the fleets. Although it is accepted in principle that training is necessary, but still we are lag's behind what we need.

Iran should therefore, seriously consider in light of the above concept how it will go about improving the standard needs for its merchant fleets.

Training of seafarers in Iran started only recently.

In the past high school leavers who wish to pursue to a career at sea were sent overseas especially to the United Kingdom ,Belgium ,or India.

Not only in the two past decades of National fleet activities,even now the shortage of officers and other crew members have been recruited from different nationalities,so always foreigners holding the various positions and jobs on board ships of Iranian National Fleet .

For this reason ,and avoid that ,the Government of Islamic Republic of Iran at once have established two maritime academy,first in the north of country near by the one of principal ports in Caspian Sea (Nowshahr), and second is located in the south of Iran at port of Chah-Bahar,one of principal ports in the Oman Sea.

4.2 IRAN NAVAL ACADEMY

Naval Academy is one of two Maritime institution for training of officers for both vocation,for the merchant marine fleet and for the navy as well .

It was established in 1980 at Nowshahr,one of the principal port which is situated at Caspian Sea in the north of Iran .It developed together with the Chah-Bahar Academy and this development has been intensified since Iran's revolution.

The Academy is under administration jurisdiction and founded by the Iranian Navy (Ministry of Defence). Though this college depends on the navy,it will provide training courses to train officers for merchant marine's fleet or on request of any other organizations those who needs maritime trained officers .

Duration of study is 4 years and the students receive elementary military training ,so as to fulfill military .

service requirement, and to be able to serve as commissioned officers in the naval reserve. The college curriculum includes a three years undergraduate program at college and one year final training course on board of the merchant marine sea-going vessels or navy training ships .

During this last period of time, the students receive individual training . The college has regular students those who are taught and trained in deck specialization, - but beside the deck department, preparation are going to be made towards the establishment of marine engineer officers course. So in this paper one of my recommendation that I should permitted to do is to suggest a program and syllabi to meet STCW Convention requirements for conducting engineering officers courses in this academy.

4.2.1 NAVAL ACADEMY ENTRANCE REQUIREMENTS

Naval Academy making public announcement through the leading newspapers of country, inviting applicant, those eligible candidates who have higher secondary certificate in science with physics and mathematics.

The candidates are selected for admission by navy under the responsibility of ministry of defence. The entrance examination's subjects consists of mathematics, English, applied science and general knowledge. Entrance Examination is followed by an interview and medical test which is composed of series of intensive medical examinations on basis of navy requirements, including hearing and eye sight .

A candidate is required to be at least 20 years old . The first 100, from the top of the list of finally selected candidates are taken into the academy for training. The students also must meet the same requirements for

admission to the academy as their naval cadet counterparts and when enrolled are also subject to the same regulations such as those concerning discipline, wearing of uniforms and board and lodging.

All courses are conducted by instructors who are members of the academy's staff. The curricula, which are established according to promulgated by the ministry of defence, includes basic military training, general education subjects, and then professional courses necessary to prepare trainees for examinations for certificates of competency as the lowest grade deck officer.

4.3 MERCHANT MARINE ACADEMY

In 1975 the university of Chah-Bahar, Institute of Maritime science and Technology which is under the Ministry of higher education established in Sistan and Balochestan province in south west of Iran and it is located very close to port of Konarak one of the principal port in Oman Sea region, by cooperation and coordination of University of Southampton (United Kingdom).

After two years study, planning and constructing the site and building, at 1977 first group of students after final selection entered into the maritime college and have started their pre-sea training.

But after six months, because of the commencing Islamic revolution, academy closed for a period of time.

Again in 1981 maritime college after preparation of courses has reopened and have started to train students who are recruited and sponsored by IRISL. Some time last year the first group of graduate deck officer have started their sea service on board of IRISL foreign-going ships. The college has been visited by IMO advisers and consultants at the request of the Iranian Authorities to

ensure completion and following the international standards.

4.3.1 MERCHANT MARINE ACADEMY ENTRANCE REQUIREMENTS

The scholastic requirements for entrance Chah-Bahar Merchant Marine Academy are similar to those specified by any other college or university, such as :

- Candidates have to complete high school with good marks in final exams.
- University entrance examination certificate with good passes in : mathematics, physics or physical science, english, which is held on all country wide basis at same time .

This written and vive-voce interview conducted by Ministry of higher education and culture and will followed by medical test which is conducted by Ministry of health.

The first 50 ,from the top of the finally selected candidates are taken into the Academy for their pre-sea training .Candidates are required to be at least 20 years old (including 2 years millitary service).

4.3.2 BUILDING AND FACILITIES

Both maritime academies are accomodated in a purpose built complex ideally situated at the waterfront at Now-shahr Port and Konarak Bay at Chah-Bahar Port . Both are comprised of an academic block consisting of administration block ,work shops, Jetty and boat ramp. The Academic block contains the following facilities:

- The totals 200 students capacity.
- Seamanship room - Library - Class room(7 in Chah-Bahar and 5 in Noshahr)
- Lecturer's room
- Dormitory with capacity for 90 students
- A mess hall for 200 students
- Gally, pantry, fresh storage chamber, etc.
- Workshop specially fitted to receive the equipment supplied and denoted by IRISL.

The existing building and facilities including training equipment, however do not meet the requirements of the international standards so far.

4.4 FROM BEGIN OF STUDIES TO CERTIFICATE OF COMPETENCY

Vocational training for the Iranian seafarers is organized and executed by the Government. The theoretical instruction given to seafarers is directly related to the knowledge required for their respective ship board jobs.

Iran could not attend the International Conference on Training and Certification of Seafarers held in London in 1978, so the implementation of examination and Certification of deck and engineer officers can not be done properly. Because courses in the Academies at present do not include any subjects like management, transport economics, maritime law and personnel management. There is no provision for refresher and up dating courses or familiarization with up dated modern ship operational requirements, such as ship automation, and ship simulation (Radar simulation is under processes to obtain)

Training in these field is necessary due to the type of

shipping activities and business and its more expansion than present level in the future.

In Chah-Bahar Academy the cadetes are given one year pre-sea training (each academic year consist of two term and each term is six months), then the cadetes will proceed to sea for one-year practical training on board the foreign-going vessels of IRISL, which includes a period not less than 6 months undergoing supervised watch-keeping duties as required by the STCW Convention.

The practical training and required sea service for officers is provided on board a number of operating cargo ships which have been agreed by IRISL to carry and train up to 50 deck cadets apprentices on regular commercial voyages, because normally most of these cadets and officers have been recruited and sponsored by aforesaid shipping company. Instruction on board ships during sea service is composed of practical work and theoretical instruction. It is conducted by ship's captain and as well as the ship's regular officers.

They then come back to the academy for another year of practical and theoretical training at the academy - (3rd and 4th terms). On successful completion of two years training at academy and 12 months sea service, the candidates will be awarded a certificate from the papers of the examination in those subjects which are examined by the academy, on board or ashore.

The certificates issued will be considered equivalent to the Diplomas granted by the Ministry of Education for students completing similar technical training ashore. At 5th term the academy will provide 6 months course which is followed by examination for the first certificate of competency. On successful completion of their studies will obtain foreign-going certificate of competency, officer in charge of a navigating watch.

After another 12 months sea service as a watchkeeper officer, they become eligible to sit for the preparatory course for the chief mate examination.

Applicants for examinations for certificates of competency as a watch officer, must be at least 18 years of age and pass a medical examination which includes a chest x-ray, eyesight and hearing tests and a laboratory analysis. All officer candidates must also pass a course in life boat handling in fire-fighting and damage control conducted by academy. In addition, other short courses run at academy are as follows:

- First Aid at sea
- Restricted Radio Telephony Course
- Efficient Deck hand Course
- Fire Fighting Course

As a consequence of the merchant fleet's rapid growth, and change in the types of ships, training facilities and syllabi are lagging behind and do not meet the required manpower needs yet. As a first step towards ratification of the STCW 1978 Convention Iran is introducing certificate structures for both deck and engine departments to comply with the minimum requirements.

Once Iran ratifies the STCW Convention there will be a total change of the certificate structures to be more in line with that of the Convention where the trading limits will be revised to constitute two trading limits namely:

- Near coastal
- Unrestricted

Iran's present certificate structures (for foreign-going only) for deck and engine department are as follows:

- Master mariner , chief mate and officer in charge of navigating watch.
- Chief engineer , second engineer and officer in charge of an engineering watch.

The maritime Training and career structure from the beginning up to master mariner in Iran is shown in Diagram 4.4.1

MARITIME TRAINING AND CAREER STRUCTURE TO MASTER MARINERS IN IRAN

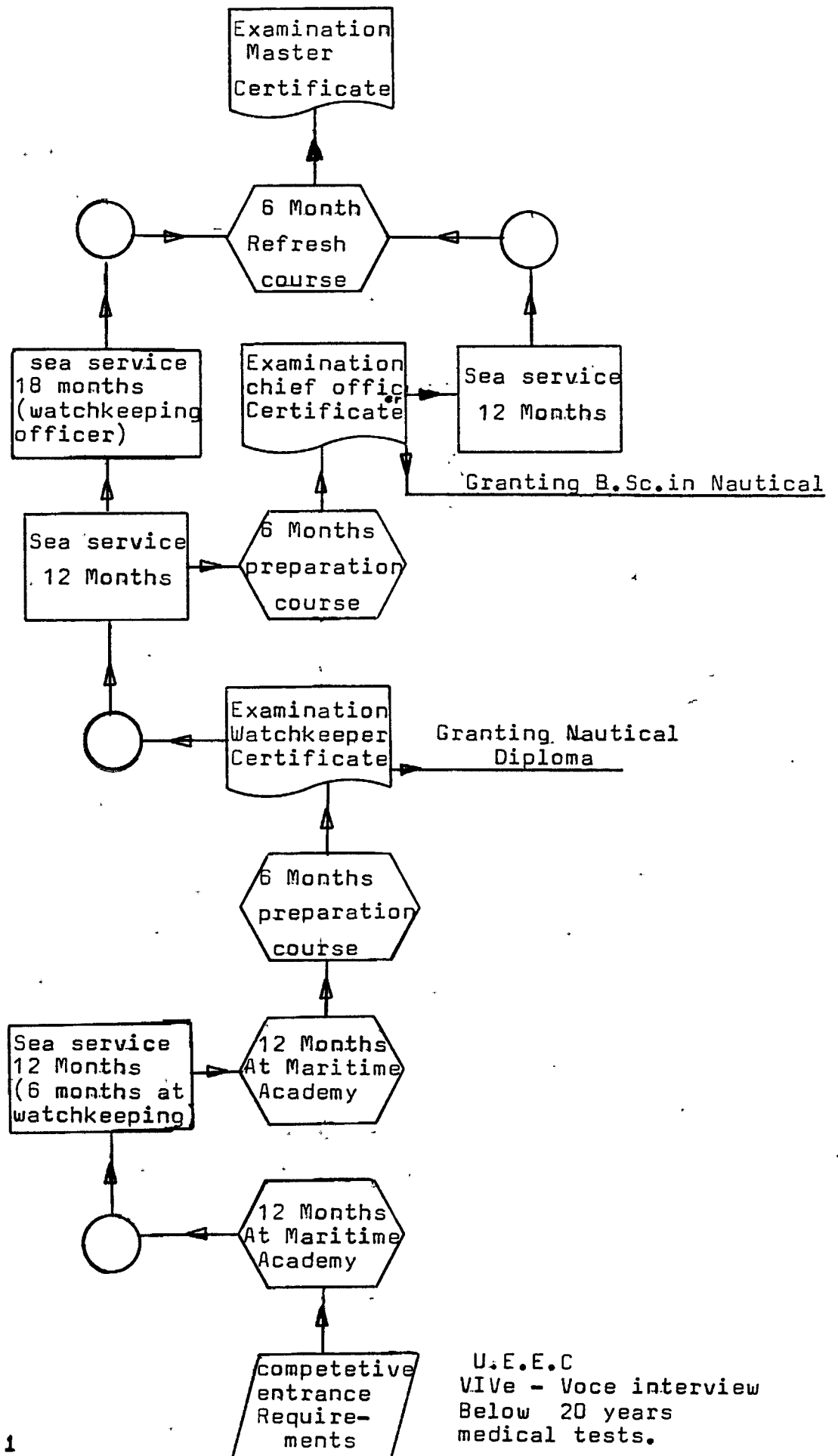


DIAGRAM 4.4.1

U.E.E.C
VIVE - Voce interview
Below 20 years
medical tests.

4.5 SHAHID RAJAIE TRAINING CENTRE

4.5.1 BACKGROUND

Consequent to the request by the Government of Islamic Republic of Iran to the International Maritime organization to provide assistance and advise in the Maritime sector, an IMO Mission comprising the Deputy Director of the Technical Co-Operation Division and the Inter-regional Adviser on Maritime legislation, visited Iran from 9-20 March 1982.

The arrival of the mission in Tehran coincided with the announcement of the in pending arrival at the end of March 1982 of a UNDP programming mission and consequently ,discussions were held by the IMO mission were intended to facilitate the work of UNDP mission.

The IMO mission had extensive and useful discussions with the concerned officials from the Port and Shipping Organization, Islamic Republic Shipping Line, Iranian National Tanker Company, and the Iranian navy.

In March 1982 the Mission submitted to the Government of Iran, through the UNDP in Tehran , a report entitled Advisery services in General Maritime Administration, and Maritime legislation, in which were included its findings and recommendations on the improvment in various sectors under the PSO. Having accepted the IMO Mission's recommendations the Government has requested IMO's assistance for the implementation of some of these recommendation through UNDP financing.

4.5.2 OBJECTIVES OF PROJECT

To enhance the capability of the port and shipping organization of Iran to effectively fulfil its regulatory

and supervisory role through out the merchant marine sector in order that the expansion and development of the latter may be undertaken on sound and systematic lines in accordance with the provisions of international maritime conventions.

The immediate objective of the project is to assist the ports and shipping Organization in re-organizing its administrative machinery in various area of its responsibility. The project will also train maritime personnel in the field of maritime safety, survey and inspection, examinations, hydrographic surveys and operations, and in the maintenance and operation of aids to navigation.

Port and Shipping Organization in sectors of maritime, cargo operation and maritime technical and maintenance due to a lack of suitably trained personnel at different ports had problem. Under a project for construction of a new port complex at Bandar Shahid Rajaei it was therefore decided to establish a permanent training center with IMO aid. Following consultation with international and government organizations concerned with port training center an agreement was signed in April 1984 between IMO and the Rotterdam Port Transport College (RPTC).

Initially an IMO team toured Tehran and Bandar Shahid Rajaei and examined the training facilities available in the ports. They held discussions with the local authorities and consequently they have interviewed and selected 14 specialized instructors most of whom have been workers as harbor masters and river pilots for many years and rest were mechanical engineers and electricians, underwent a special training programme organized by RPTC in the Netherlands during early 1984.

Shortly afterwards, the RPTC co-ordinator and a team of experts visited Shahid Rajaei Training center. They

supervised preparatory work including the instalation of training equipment. From September 1984 institute began its educational activities by handling of three diffrent courses at the same time with the aim of promotion and improvment of the Ports and Shipping Organization personnel who are involve in diffrent jobs ashore as well as on board the diffrent type of vessels .

4.5.3 TYPES OF COURSES

There are three divisions viz:

- I. Nautical Deck
- II. Marine Technical
- III. Cargo Operation

4.5.3.1 SUBJECTS OF TRAINING PROGRAMME (DECK)

4.5.3.1.1 OFFICERS' COURSE

Electronic navigation
Radar
Persian Gulf, geography
Hydrodynamics
Communication
Seamanship
Maneuvering
Pilotage
Meteorology
Coastal navigation
Rules of the road
Safety at sea
Astronomy and astronomical navigation
Navigation Regulations completely for the master.

4.5.3.1.2 Deck course for seamen are viz:

- Maintenance of vessels
- Maintenance and use of rigging and equipment:
 - . anchoring gear
 - . safety
 - . fire extinguishing devices
 - . cordage
 - . steel wire rope
 - etc.
- Operation on deck when:
 - . mooring and unmooring
 - . anchoring
 - . towing
 - . loading and unloading
- Various type of ship
- communication system / telephone / mariphone / VHF
- Local meteorological conditions
- Navigation regulations
- Aids to navigation , buoyage system
- Coastal and ocean navigation.
- Navigation regulations
- Buoyage system

4.5.3.2 MARINE TECHNICAL

4.5.3.2.1 Electrical engineering

a) Theoretical program

Generation and transmission of electric energy Conductivity ,electric units,ohm's Law,
series,parallel,composite connections,sources of energy,
Magnetism,electro-magnetism,
periodical voltages and current(alternating-current),
Direct current machinery(generators and engines)
Equipment main switch board
Three-phase alternating current
Star-connection ,delta-connection
Rotating field,Electric field
Lentz' Law,Farady's Law
Condensator,Coulomb's Law,and parallel connections of
capacities-Safety regulations.

b) Practical programme

Skill in water tight and gas tight finishing of marine
cable.
Connecting lighting switches in various connections.
The use of volt,Amper,watt and insulation testers.
Connecting engine safety switch.
Connecting engine for direct and / or alternating current
and rotary current.
Parallel connection of generator .
Detecting a short circuit performing measurements and
maintaining generators,engine and transformers.
Remedying faults in electric installations.
Maintenance of accumulators and knowing the safety regu-

lations which are applicable.

Reading wiring diagrams.

Equipment of the main switchboard, emergency switchboard and emergency power supply.

4.5.3.2.2 MECHANICAL ENGINEERING

a) Machining (work shop practice)

Fitting work: Drawing, pre-treatment, finishing and making fit of work piece, in the course of which the following operations can occur; chipping, sawing, filing, drilling, tapping and reaming.

Dimensional accuracy:

Turning; Machining workpieces, in the course of which the following operations occur:

Facing and taper turning, internally and externally cutting in and - off, drilling and tapping

b) Non-Machining

Constructal plate, and fitting work

Profiling: by means of drawing, cutting, sawing, chipping and riveting

Torch welding

Electric welding

Soldering

4.5.3.3 CARGO OPERATION

Training subjects for trainees of following courses :

- Introductory course
- Tally man "
- Warehouse keeper "

- Forklift truck "
- Container staff "
- Container supervisory course

The Cargo operation syllabus includes:

Safety

Ropes and chains

Forces

Dangrous goods

Cargo stowage Warehousing

Arethmetics

Knots & hitches

Stevedoring tools

Ships type

4.6 REMARKS ON SHAHID-RAJAIE TRAINING CENTRE

There is not a balance between the positions held both ashore and at sea in relation to the qualifications of existing individuals in post and the jobs to be done.

In most cases the individuals employed do not posses the required educational background, qualification and experience, this being the main reason why such approach was adopted .

After successful completion of the courses at this center ,a certificate of competency as qualified person (with related course) is granted.

The courses are repeated in accordance to a schedule which provides training among three existing categories during the accademic year, and any port and shipping organization's personnel and other agencies or shipping companies are entitle to participate.

However it is felt that this training center has ability to be a center for specialised short courses in

compliance with the STCW Convention. This in order to fullfil the maritime training and education of the regular manpower needs of the PSO and the merchant marine fleet. The following points and measures illustrate this:

- .1 At the end of August 1984, the project was revised to include more training at the WMU and a new pilot programme in this training center.
- .2 As part of the overseas training including in this project two lecturers from this training centre who are officers of the port and shipping organization (psa) started two years M.E.T(Nautical) post graduate training programme at World Maritime University in 1986.
- .3 In the organizational chart this training center is hierarchically linked to the training department of the head office of PSA at Tehran.

This has been done in order to make that this training center, although located at the new port of Bandar Abbas, will serve all maritime organization in all ports in Iran.

This also has the advantage that the training center will not be considered upon by the port directors of the other ports as an internal Bandar Abbas affair, but as a national institute. It is therefore a logical concept to have the training center be responsible to the training section of all ports in the country.

A Few tasks and function of department head office of PSA:

- a) Providing information on operational port training

within the country.

- b) Collecting information on applicants for courses and deciding on the suitability of applicants for certain trainings.
- c) Co-ordinating and monitoring operational and maritime training activities through Iran.
- d) Keeping an up to date information on international seminars, conferences, courses and passing this information to ports and related departments.
- e) According to the chapter two ,Article 49 to 63 conducting of examination and granting the certificate of competency to Iranian seafarers is under the responsibility of port and shipping organization.

Some of the activities of the Shahid-Rajaie training centre since establishment until last year have been listed in next few pages.

List of Books developed by the Nautical/Deck section

<u>Number</u>	<u>Subject:</u>
1	Navigation
2	Electronic navigation
3	Chart abbreviations, Buoyage system, Nautical terms
4	Hydrodynamic
5	Manoeuvring
6	Mooring
7	Stability
8	Safety on board 1
9	Safety on board 2
10	Painting Maintenance
11	Rules of the road
12	Persian Gulf Pilot (Iran coast) - In preparation

Totalling 12 books

List of Books developed by the Technical section

<u>Number</u>	<u>Subject:</u>
1	Diesel engines
2	Electrical laboratory
3	Electrical machines, Electrical circuits
4	Electrical contacts, Electrical fuses, Electrical fault finding
5	Control gear, Contractors
6	Gas/acetelene welding
7	Electrical welding
8	Turning
9	Hydraulics
10	Firefighting engineroom
11	Firefighting, Safety on board

Totalling 11 books

List of Books developed by the Cargo Operations section.

<u>Number</u>	<u>Subject:</u>
1	Forklift safety 1
2	Forklift safety 2
3	Loading materials Loading equipment
4	Loading gear
5	Loading gear equipment
6	Loading materials
7	Ropes and chains
8	Type of ships
9	Packing materials
10	Containers
11	Stowageplan containervessels
12	Tally reports
13	Ports in transportchain, Stowageplans
14	Modes of transport
15	Transport marks
16	Signs on packages
17	Markings warehouse
18	Stocking warehousing Measurements
19	Warehouse- Iranian regulations
20	Dangerous cargoes - IMO code
21	Sampling
22	Measurements
23	Forces
24	Safety
25	Geography

Totalling 25 books

Number of trainees per type of course and result

Type of course	no of course	no of trainees	result		
			succeeded	failed	at school
1. Introduction	2	15	0	15	-
2. Forklift driver	8	61	43	18	-
3. Tallyman	6	51	39	4	8
4. Warehouse keeper	2	15	15	0	-
5. Container staff	2	18	18	0	-
6. Deckhand	4	31	25	6	-
7. Helmsman	5	45	28	8	9
8. Pilot	1	18	18	0	-
9. Motorist	3	31	19	12	-
10. Workshop mechanic	3	24	22	2	-
11. Electrician	1	4	3	1	-
12. Junior Engineer	1	8	8	0	-
13. Junior Mate	1	12	0	0	12
Totals	39	333	241	63	29

TOTAL PROJECT

TRAINEES / RESULTS

BANDAR ABBAS	RECRUITS	OTHER PORTS	TOTAL
118 35.4%	61 18.3%	154 46.3%	333

OTHER PORTS : 60

B.I KHOMEINI: 128
BUSHEHR : 11
CHAH BAHAR : 5
B. ANZALI : 7
NOWSHAHR : 3

SUCCEEDED

BANDAR ABBAS	RECRUITS	OTHER PORTS	TOTAL
71 60.2%	49 80.3%	121 78.6%	241 72.4%

FAILED

BANDAR ABBAS	RECRUITS	OTHER PORTS	TOTAL
41 34.7%	12 19.7%	10 6.5%	63 18.9%

AT SCHOOL

BANDAR ABBAS	RECRUITS	OTHER PORTS	TOTAL
6 5.1%	--	23 14.9%	29 8.7%

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* CHAPTER FIVE *
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* AN INTERPRETATION OF STCW CONVENTION AS APPLIED *
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*
* TO IRAN *
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5.1 INTRODUCTION TO :IMO AND SAFETY OF NAVIGATION

The Lloyd's Register of shipping casualties Returns for 1958 - the year before the IMO Assembly met for the first time - showed that 16 per cent of the merchant shipping tonnage lost that year (56,000gt) resulted from collisions and a further 32 per cent (115,000 gt) from grounding or striking wrecks .

The vast majority of these casualties - nearly half the total for that year - were thus caused or contributed to by navigational error or deficiency . This proportion was by no means uncommon and indeed many of the worst disasters in shipping history have resulted from collisions and other accidents which can be attributed to faults in navigation .

It is hardly surprising ,therefore, that IMO has always paid great attention to the improvement of navigational safety .

Since 1959 a whole series of measures have been introduced , in the form of convention , recommendations and other instruments.

The best known and most important of these measures are conventions, three of which are particularly relevant to navigation .These are the International Convention for the safety of Life at sea , 1974 ; the Convention on the International Regulations for preventing Collisions at sea , 1972 ; International Convention on Standards of Training and Certification and Watchkeeping of Seafarers ,1978.

5.2 PROCESS FOR IMPLEMENTATION OF ANY INTERNATIONAL MARITIME CONVENTION

Conventions are particularly important because they are binding legal instruments. A state which ratifies or acceds to a convention is obliged to put it into effect by making its requirements part of its own national law. To ensure that the instrument is properly enforced it may be necessary to recruit surveyors or inspectors, shipowners may be obliged to install extra equipment on their ships or improved training may have to be provided.

Usually from ratification to implementation of any convention, every state member should follow the following procedures:

PHASE 1

- a) Ratification / Accession
- b) Prepare National Legislation (Primary & Subsidiary)
- c) Documentation
- d) Prepare the Executive Orders Instructions to Officials concerned
- e) Develop appropriate and adequate Maritime Administration Infrastructure

PHASE 2

Implementation of National Legislation through the exercising of appropriate functions by the Officials of the Maritime Administration

PHASE 3

Certification of ships / Seafarers and Issue of Clearances
to ships / Seafarers to proceed to sea

5.3 STCW CONVENTION: "A BRIDGE OVER THE TROUBLED WATERS"

Among the many resolutions adopted in 1960 at the International Conference on Safety of Life at Sea was one which called upon all Governments to take all practicable steps to ensure that the education and training of seafarers in the use of aids to navigation , ship's equipment , and devices was sufficiently comprehensive and was kept satisfactorily up - to - date . It also recommended that IMO and the International Labour Organization (ILO) should co - operate with intersted governments in achieving these ends .

In response to this recommendation , the IMO and ILO established a joint committee on training . this committee had its first meeting in 1964 and prepared a document known as the "Document for Guidance on the Training of Seafarers 1964".

This gave guidance on the education and training of masters , officers , and seamen in the use and operation of aids to navigation , life saving appliances , devices for the prevention , detection and extinction of fires , and other ship's equipment contributing to safety at sea . (That particular document is now redundant since it was amended , expanded , and supplemented by the joint Committee in 1975 and again in 1977).

Although the production of the "Document for Guidance 1964" was a step in the right direction , the IMO Council , in 1971, that still further measures were needed and so it requested the marine Safety Committee to give urgent considration to international satndards of watchkeeping training and certification.

The IMO Assembly met in 1971 and decided , in its resolution

A 248(VII) of 15 October 1971 , to convene a conference to adopt a convention on the subject . Preparatory work was carried out by the IMO Sub - Committee on standards of Training and Watchkeeping - a sub - committee specially formed for the purpose by the Marine Safety Committee . This sub - committee prepared the text of a draft convention , an annex containing requirements for Watchkeeping , training and certification , and a number of draft recommendations.

The conference , after discussing and amending the given drafts , adopted the International Convention on Standards of Training , Certification and Watchkeeping for seafarers, 1978 .

This convention is regarded as one of the most important maritime safety conventions ever developed . It represents the first attempt to establish global minimum professional standards for seafarers and prescribes minimum standards which countries are obliged to meet or exceed . In the majority of established maritime countries , standards are often higher than those stipulated in the Convention . In some countries , however , standards are not so high and by ratifying or accepting the convention , Governments undertake to implement and enforce its requirements . The effect of the Convention 's entry into force (it entered into force on 28 April 1984) therefore be to raise standards in the World as a whole .

5.4 SUB-COMMITTEE OF STCW CONVENTION AND PREPARATION OF THE CONFERENCE

The STCW Sub - Committee is a sub - committee of the IMO Marine Safety Committee and is typical of such sub - committees in that it consists of Government delegations , non - governmental delegations and an IMO - employed secretariat.

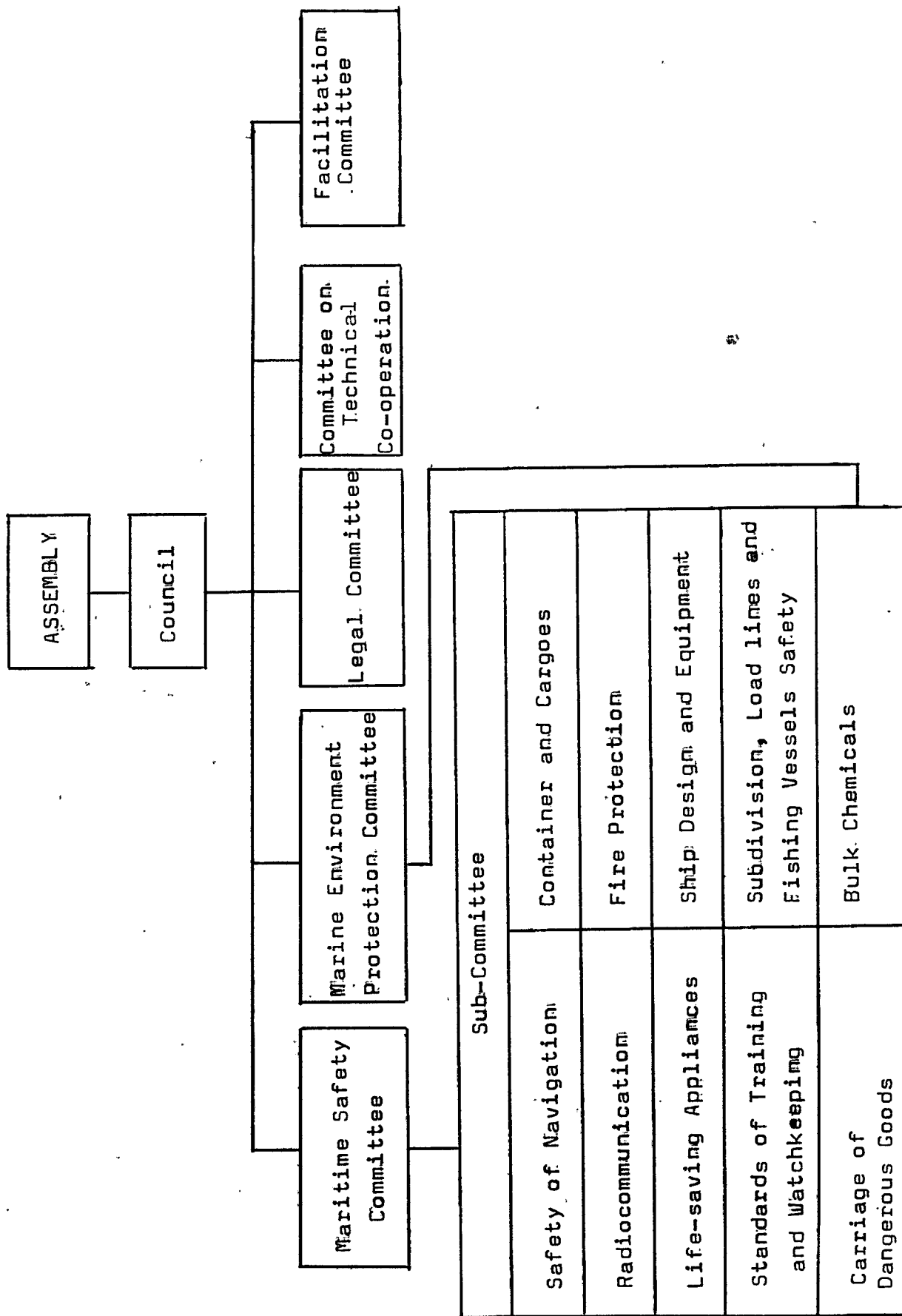
The Government delegations , each consisting of one or several persons, are participants of the discussions . The non - governmental delegations, each also consisting of one or several persons, are observers of the discussions . All of these delegations contribute to the discussions : the essential difference between the two types is that , in the comparatively rare event of voting becoming necessary on a particular issue,

each participant delegation has one vote whereas no observer delegation has any vote . Even though the non-governmentals have no vote , their presence at discussions is very effective - especially if their views are expressed by good speakers as they usually are .

On the STCW Sub-Committee , such non-governmental delegations consist of those from the International Shipping Federation , International Confederation of Free Trades Unions , International Labour Organization , etcetera .

Meetings of the STCW Sub-Committee were and are held at IMO Headquarters in London and are conducted under the authority of an elected Chairman . They are multi-lingual so translation facilities are provided .

STRUCTURE OF IMO



5.4.1 PREPARATION FOR THE CONFERENCE

The work of the STCW Sub-Committee began in 1972 . About two meeting were held each year on average and the task of completing a draft convention was completed in 1977 .

In general , the method of attack was to invite written proposals on each aspect of the draft convention from participants and from observers . These proposals were then discussed , modified and combined as necessary at a particular meeting then further written proposals invited for discussion at the following meeting , and so on , repeating the cycle as often as required to reach final agreement on each aspect of the draft convention . Each of these final agreements was passed on to the Marine Safety Committee (the parent body) in the form of a recommendation for approval or amendment before forming part of the draft convention .

Much of the Sub-Committee 's work was of a specialised nature and so specialised working groups were formed (e.g. deck , engineer and radio working groups) to give preliminary consideration to their own specialities and then offer their recommendations for discussion in plenary sessions of the Sub-Committee .

5.4.2 THE CONFERENCE

The STCW Conference , initiated by the IMO Assembly in October 1971 , was held in London over a period of about three weeks in June / July of 1978 . 73 governments were represented and 18 other organizations , some national and some international sent observers . It was the largest conference ever held by IMO and its successful conclusion was largely due to a feat of organization that reflects great credit on the IMO Secretariat. .

The work of the conference was done mainly by four committees working under the direction and control of a Steering Committee , and supported by a Credentials Committee . It produced the International Convention on Standards of Training , Certification and Watchkeeping for Seafarers ,1978 and also produced the associated Conference Resolutions .

It is worth adding that , although there were occasions when one delegation or another had very strong views on one aspect or another of the matters under consideration , the whole atmosphere of the conference was one of cordiality and cooperation. it is probably true to say that most ,if not all , of those who attended the conference found its attendance to be a very pleasant and rewarding experience .

5.4.3 IMO PUBLICATION 78.15

IMO Publication 78.15 E is the English language version of the "International Conference on Training and Certification of seafarers , 1978" .

Inspection of its Table of Contents will show that it contains a report entitled "Final Act of the Conference " and two attachments to that report . Attachment 1 covers the Convention produced by the Conference and Attachment 2 covers the Resolutions of the Conference .

The STCW Convention is , itself , divided into two parts : one containing the Articles of the Convention and one containing the Regulations of the Convention .

The Resolutions of Attachment 2 are separate entities - each one existing independently of the others .

5.5 THE ARTICLES

The essentially legal provisions of the STCW Convention , as distinct from its essentially technical ones , are contained in its Articles . These Articles follow a pattern that is fairly well established for all IMO Conventions in that Article I states the general obligations of parties to Convention , Article II gives some relevant definitions , Article III states the application of the Convention , and so on . There are , of course , some Articles which have special and sole relevance to the STCW Convention and therefore do not appear in any others . There are 17 Articles of the Convention and most of them are self-explanatory after careful reading - though some of them need very careful reading indeed in order to ascertain their exact meaning .

Attention is drawn , in particular , to Articles I,II,III,VII and XII since some explanations may be necessary .

Article I establishes two things : that the Annex to the convention (which contains the regulations) is an integral part of the Convention , and that every party to the Convention is obliged to make national laws giving full (not part) effect to the Convention . It should be noted that the Convention has no legal force in any country until the Government of that country has produced such national laws .

Article II is largely self-explanatory when the remaining Articles have been read but it might be noted that definition(g) leaves much to the discretion of Administrations since the terms "shelterd waters" and "closely adjacent to " are not defined . In some countries , the equivalent terms are "Smooth Waters" and "Partially Smooth Waters" - and all such areas are defined geographically as areas bounded by lines joining specific geographical points .

Article III excludes application of the Convention from seafarers serving on fishing vessels and on wooden ships of primitive build (as well as from two other classes of vessels) and the two questions most frequently asked about this Article are : "Why are seafarers on fishing vessels excluded?" and "What is a wooden vessel of primitive build ?"

Fishing vessels are excluded mainly because they do not usually call into foreign ports and so the certification requirements of their crews is largely a national matter rather than an international one . They are excluded from other conventions (e.g. SOLAS 74) for much the same reason .

A wooden ship of primitive build can not be precisely defined but may be regarded as one that is a chinese junk or arabian dhow or some such vessel - even though the build is of ancientr design rather than of unsophisticated constraction .

Article VII refers to "certificates of service". Two types of such certificates exist in several countries . One type is that issued to personnel of a country's naval forces in order that they may legally serve in certifica-

ted ranks on merchant ships . The other is the type (less well known) that may be issued to merchant navy personnel when a country's legislation is changed with regard to seafarers' certification .

Article VII is written mainly with the second type of certificate in mind and it is an example of what is often (but unofficially) referred to as a "Grandfather Clause" of a convention or of a country's legislation . Such a clause care of seafarers who , having given many years of good service , would otherwise find themselves legally debarred from continuing such service by the introduction of new legislation .

Article XI of the convention deals with technical co-operation and it requires parties to promote support for parties which request technical assistance in such matters as training .

Article XII is worthy of special comment not because it is not self-explanatory but because it incorporates a "tacit acceptance" procedure similar to that included in SOLAS 74 . Under this procedure , amendments to the convention can be adopted by the IMO Maritime Safety Committee and then they automatically enter into force some two and a half years later unless they are rejected by one-third of the parties or by parties whose combined fleets represent 50 % of world tonnage . Earlier procedures required formal acceptance of amendments adopted by MSC by two-third of contracting parties - and this usually took several years to obtain - if it was obtained at all .

5.6 THE REGULATIONS

The STCW Convention contains , in its annex , 25 regulations which are grouped into six chapters : each chapter heading indicating the application of the regulations it contains . For example , the regulations of Chapter IV apply to the radio departments of ships .

5.6.1 CHAPTER I OF STCW: GENERAL PROVISION

Every party to the STCW Convention must produce national legislation which covers the full requirements of the Convention and , having done so , must provide or make use of adequate training facilities to implement such legislation .The appropriate legislation can not be produced simply by reproducing the Convention as an annex to , or an insert in , some legal document because many parts of the Convention 's regulations are too vague and general for such treatment and so a much more detailed interpretation of them is required .It is therefore necessary for national administrators - general as well as technical - to have a good understanding of the Convention's requirements , to appreciate where and to what extent discretion may be exercised , and to realise where national legislation must be more specific than the Convention itself .

Whilst many of the Convention's regulations can only be fully appreciated by those with appropriate technical education and relevant sea-going experience , all of them can be sufficiently appreciated (with the benefit of expert technical advice where required) by those who may be responsible for national legislation without having this technical background .The four regulations in Chap-

ter I of the Convention , in particular , are those which can , and should be , as well understood by general maritime administrators as by technical ones .

5.6.2 REGULATION I/1 - DEFINITIONS

This regulation consists solely of definitions and most of them are self-explanatory but two of them are worthy of special comment . These are definition (n) which defines "Near Coastal Voyages" and definition (o) which defines "Propulsion Power" .

"Near Coastal Voyages" are simply defined as "Voyages in the vicinity of a party as defined by that party" , and that definition leaves a lot to the discretion of each Administration concerned . Consideration of the implications of the definition will be deferred until when regulation I/3 is elaborated in next pages . Meanwhile it should be noted that the purpose of an Administration in defining "Near Coastal Voyages" in its own legislation is to take advantage of the STCW Convention concessions from its full officer certification requirements with respect to some ships engaged solely on such voyages (regulations II/2 , II/3 , II/4 , III/3 , and III/4).

"Propulsion Power" is defined , with the aid of a footnote , as "the power in kilowatts which appears on the ship's Certificate of Registry or other official document", and the particular intention of the definition is that this stated power shall be the power for the purposes of engineer officer certification requirements - whatever the "true " power of the propulsion machinery may be or may be argued to be . The reason for this rather curious definition is highly technical and rather

complex but , in essence ,it is because there can be much argument on what is the "true" power of an engine whereas there can be no argument as to what number of kilowatts is written on a ship's Certificate of Registry (or other official document) as the propulsion power and it is the responsibility of each Administration concerned to be satisfied with that number by reference to the footnote of the definition , to its reasonable interpretation of that footnote , and to the test data relevant to the engines concerned .

5.6.3 REGULATION 1/2 - CERTIFICATES and ENDORSEMENTS

Article X , paragraph (1) of the STCW Convention reads as follows :-

"Ships , except those excluded by Article III, are subject , while in the ports of a party , to control by officers duly authorized by that party to verify that all seafarers serving on board who are required to be certificated by the Convention are so certificated or hold an appropriate dispensation . Such certificates shall be accepted unless there are clear grounds for believing that a certificate has been fraudulently obtained or that the holder of a certificate is not the person to whom that certificate was originally issued ."

The certificates issued to seafarers by the many different Administrations vary greatly in appearance as well as in language and so it is often difficult or impossible for a control officer even to recognise a seafarer's certificate as being the certificate in question if it has

been issued by an Administration other than his own .
Even if it is so recognised it will not be possible for a control officer to fulfil his duties unless he is familiar with the language in which the certificate is written and is also aware of how the various grades and types of certificates , issued by the state in which the ship is registered , relate to STCW requirements.

Regulation I/2 is intended to remove these difficulties . Paragraph 1 should remove the problem of language and paragraph 3 should remove the remaining by specifying the form of endorsement required by Article VI of the Convention. With reference to paragraph 2 of Regulation I/2 , it should be noted that radio certificates are usually issued by telecommunications Administrations (not Maritime Administration) but that the STCW Convention has , in its Chapter IV of the Annex , some requirements additional to those of the Telecommunications Administrations . These additional requirements must be covered by certification in one of the two forms given .

5.6.4 REGULATION I/3 - PRINCIPLES GOVERNING NEAR COASTAL VOYAGES

There are four paragraphs in this regulation and it might be said that each one of them defines one or more principles to be observed by any Administration which defines "near coastal voyages" under the terms of the Convention . All of these principles can be fully understood on careful reading and sufficient thought but the following guidance might be considered to be of some advantage.

In order to define "near - coastal voyages" an Administration must define a sea area in some way - either by

defining it as that area which has all points within some specified distance from a coast , or as that area bounded by lines (rhumb lines or arcs of great circles) joining points defined by latitude and longitude , or by some combination of both , or by some other way . In doing so , the only restriction placed upon the Administration by definition (n) of Regulation I/1 is that the area must be in the vicinity of the state defining it . That is to say it must be the area surrounding the state of the Administration concerned , or, if not surrounding it, be adjacent to it .

Having defined "near coastal voyages" for the purpose of the Convention , an Administration will then specify seafarer certification requirements taking advantage of the Convention 's concessions with respect to such voyages . If it did not take advantage of the concessions there would be no purpose in defining "near coastal voyages" under the terms of the Convention .

Paragraph 1 of Regulation I/3 defines two principles . The first of these , defined in the first sentence of the paragraph , is that if an Administration defines an area of near coastal voyages (in its vicinity) and specifies seafarer certification requirements for its own ships operating solely in that area , then it cannot insist on higher seafarer certification requirements for foreign ships whilst they are operating solely in the same area .

In other words - what ever STCW concessions an Administration allows on its own ships on voyages within its own "near coastal" area , it must also allow on foreign ships on voyages within the same area .

The second principle defined in paragraph 1 of Regulation I/3 is defined in its second sentence which states , in effect , that no matter how high an Administration's seafarer certification requirements may be for its own ships (coastal or otherwise) , it cannot require any foreign ship to have seafarer certification requirements in excess of the full Convention requirements. This particular principle is a little out of place in the Convention since its application is not confined to coastal voyages of any description . It is , however , a principle that needed to be stated somewhere in the Convention and paragraph 1 of Regulation I/3 is where it rests.

Paragraph 2 of Regulation I/3 also defines two principles. The first , defined in the first sentence of paragraph 2 , is that if a party A to the Convention has ships which are regularly engaged on near coastal voyages off the coast of party B to the Convention , then the seafarers certification requirements of party A for those ships must be at least equal either to the requirements of party B for its own ships on the same voyages , or to full Convention requirements - whichever is the less .

The second principle defined in paragraph 2 of regulation I/3 is defined in its second sentence which states , that any ship which extends its voyage beyond what is defined as a "near coastal voyage" by any party to the Convention (i.e. its own Administration or any other) must meet the full Convention requirements . In other words - no "near coastal voyage" concession of the STCW Convention can be extended to ships which operate outside (as well as inside) the various "near coastal voyage" areas defined by the various parties to the Convention . Rather obviously so , one would have thought , but there is no harm in

explicitly stating the principle . This particular principle is another which is rather out of place in the Convention .

Paragraph 3 of Regulation I/3 defines only one principle . From this definition it is seen that state A , which is a party to the Convention, may define a "near coastal voyage" area bordering the coast of state B if state B is not a party to the Convention . Having so defined such an area , state A may then give its ships the benefits of the Convention's relevant concessions whilst those ships are regularly engaged on voyages within the defined area , just as if that area were bordering the coast of state A instead of bordering the coast of state B .

The text of paragraph 3 raises no problem of interpretation if state B is near to (in the vicinity of) state A since the "near coastal voyage" area defined by state A will also be in the vicinity of state A - and therefore in accordance with definition (n) in Regulation I/1 .

But the question arises as to whether or not state A can define a "near coastal voyage" area bordering the coast of state B if state B is far away (e.g. on the other side of the world) from state A. Definition (n) of regulation I/1 seems to rule out this possibility since it specifies that "near coastal voyages" means voyages in the vicinity of a party as defined by that party . However , the wording of paragraph 3 in Regulation I/3 raises reasonable doubt as to whether the "vicinity" restriction applies to the principle defined ; and at least one Administration has , on legal advice , decided that it does not .

Paragraph 4 of Regulation I/3 appears to negate everything contained in paragraph 1, 2 and 3. Other Conventions

contain paragraphs which are identical with or similar to paragraph 4 of STCW Regulation I/3 .

On re-reading the whole of Regulation I/3 in light of the information contained in these notes, we can see that the principles governing near coastal voyages are fairly well defined and should provide little or no cause for dispute .It might be noted that the regulation does not preclude the possibility of a party state A defining a near coastal voyage area which , in addition to bordering all or some of its own coastline ,also borders the coastline of party state B - as can happen if state A adjoins state B or is separated from it by a short stretch of sea .

In this situation, the interests of state B are protected by the first sentence of paragraph 2 and so state B can , unilaterally , impose its own requirements (to the limit of full convention requirements) on the ships of state A which call at its ports .It is , however, undoubtedly better if the two states concerned - and any others that may be concerned - can reach agreements on the requirements for such near coastal voyages .

5.6.5 REGULATION I/4 - CONTROL PROCEDURES

The control procedures referred to are those to be followed by a duly authorised control officer in exercising control under the terms of Article X of the Convention . Regulation I/4 is selfexplanatory when read in conjunction with Article X of the Convention . Both the regulation and the article should be carefully read and fully understood by any administrator - technical or nontechnical - who is likely to be involved with control procedures and particularly with the possibility of detention. With regard to this latter point, paragraph 3 of Regulation I/4 is of supreme importance since it gives the grounds , and the only grounds, for detention of a ship under Article X of the Convention .

5.7 CHAPTER II: MASTER-DECK DEPARTMENT

The Chapter establishes the basic principles to be observed in keeping a navigational watch , covering such matters as watch arrangements, fitness for duty, navigation, navigational equipment, navigational duties and responsibilities, the duties of the look-out , navigation with a pilot on boards (... his presence on board does not relieve the master or officer in charge of the watch from their duties ...), and protection of the marine environment.

Regulation II/2 establishes mandatory minimum requirements for certificating masters and chief mates of ships of 200 gross tons to 1,600 gross tons and for ships of 1,600 gross tons and more .For that matter, candidates must meet the requirements for certification as an officer in charge of a navigational watch on ships of 200 gt or more and have approved sea-going service in that

capacity .

Candidates must also have passed an appropriate examination covering not only navigational aspects and ship--handling but also ship stability , construction and damage control; power plants ; cargo handling and stowage ; fire prevention; medical care; maritime law (including SOLAS and IMO Conventions); personnel management and training ; communication; life - saving ; search and rescue ; and methods for demonstrating proficiency .

The examination may be varied for officers and masters of ships engaged on near-coastal voyages.

Regulation II/3 sets out mandatory minimum requirements for certification of officers in charge of a navigational watch and masters of ships of less than 200 gross tons.

For ships of less than 200 gross tons which are not engaged on near-coastal voyages, appropriate certificates for ships of 200 gross tons - 1,600 gross tons must be held (in the case of masters) and above 200 gt in the case of officers.

For ships of less than 200 gross tons engaged on near-coastal voyages, masters must hold an appropriate certificate; be not less than 20 years of age ; have approved seagoing service of not less than 12 months as officer in charge of a navigational watch ; and satisfy the Administration that they possess adequate knowledge , including knowledge of the subjects listed in an appendix to the Regulation . Officers must have an appropriate certificate ; be

not less than 18 years old ; be medically fit ; have undergone special training ; have completed three years'

service in the deck department ; and possess adequate knowledge , including knowledge of the subjects listed in the appendix.

The mandatory minimum requirements for certification of officers in charge of a navigational watch on ships of 200 gt or more are contained in regulation II/4 . The age limit is 18 and the three years' sea-going service must include "at least six months of bridge watchkeeping duties under the supervision of a qualified officer".

Candidates must also pass an examination based upon the subjects listed in an appendix which includes many of the subjects appended to Regulation II/2 .

Among the additional requirements is one for an "adequate knowledge of the English " including ability to use the IMO Standard Marine Navigational Vocabulary .

In an era when technology and other factors are changing rapidly, it is necessary that masters and officers keep up to date. This aspect is covered in Regulation II/5.

Officers and masters shall be required at regular intervals and not exceeding five years to satisfy their Administration as to their fitness and professional competence. To ensure that this can be done , Administrations are required to formulate a structure of refresher courses, especially for re-entrance to sea-going service.

They must also ensure that all ships under their jurisdiction are provided with texts of changes in international regulations concerning safety atsea and marine environment protection.

Requirements for deck ratings forming part of a navigational watch ,formthe subject matter of Regulation II/6. Ratings who comply with this regulation must be not less than 16 years old .They should have completed at

least six months' sea-going service or undergone special training in a prescribed number of subjects.

Service of at least one year during the five years prior

to the entry into force of the convention for their Administration may be regarded as equivalent.

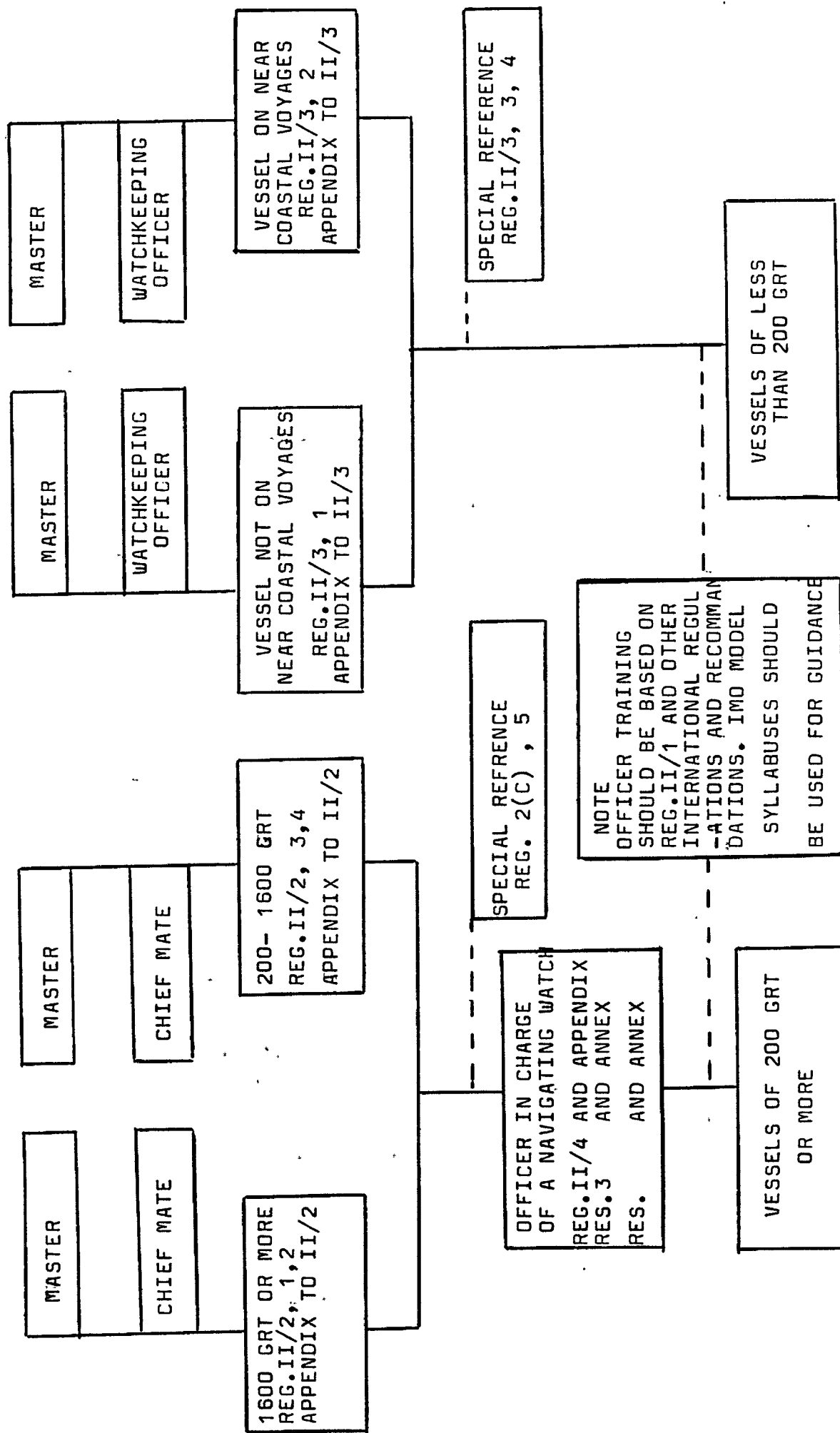
The last two regulations in this chapter deal with basic principles to be observed in keeping watch in port and mandatory minimum requirements for a watch in port on ships carrying hazardous cargo. In both cases, note or account must be taken of the provisions of two recommendations adopted by the 1978 conference.

These are the Recommendation on principles and operational guidance for deck officers in charge of a watch in port and Recommendations on principles and operational guidance for engineer officers in charge of an engineering watch in port.

The convention requirements and associated recommendations concerning navigational watchkeeping are essentially the same as those contained in Assembly Resolution A.285(VIII), adopted in 1973. The provisions concerning watchkeeping in port are based on Assembly Resolution A.337(IX), adopted in 1975.

Deck officer training and certification structure as required by IMO STCW 1987 Convention is shown at diagram 5.7.1

DAYAGRAM 5.7.1 DECK OFFICER TRAINING. AND CERTIFICATION AS REQUIRED BY IMO STCW 1978 CONVENTION.



5.7 CHAPTER III: ENGINE DEPARTMENT

This follows a similar format to chapter II and begins with a regulation which outlines basic principles to be observed in keeping an engineering watch.

While requirements for deck officers vary according to the tonnage of the ship, for engineer officers the determining factor is the propulsion power of engine.

Regulation III/2 for example deals with mandatory minimum requirements for certification of chief engineer officers and second engineer officers of ships powered by main propulsion machinery of 3,000 kw propulsion power or more . Candidates for certification as second engineers must have not less than 12 months sea-going experience as engineer officers or assistants .

Candidates as chief engineers must have at least 36 months sea-going experience, including at least 12 months as an engineer officer in a position of responsibility while qualified to serve as second engineer officer . They must have attended an approved fire-fighting course and have passed an examination covering subjects listed in the appendix.

Regulation III/3 contains similar requirements for ships with main propulsion machinery between 750kw and 3,000kw . The main difference between this and the previous regulation is that the requirements for previous service for candidates as chief engineers is reduced from 36 months to 24 .

Officers qualified to serve as second engineers on ships of 3,000 kw or more may serve as chief engineers of ships of lesser power , provided that not less than 12 months approved sea - going service have been served as an engi-

neer officer in a position of responsibility .

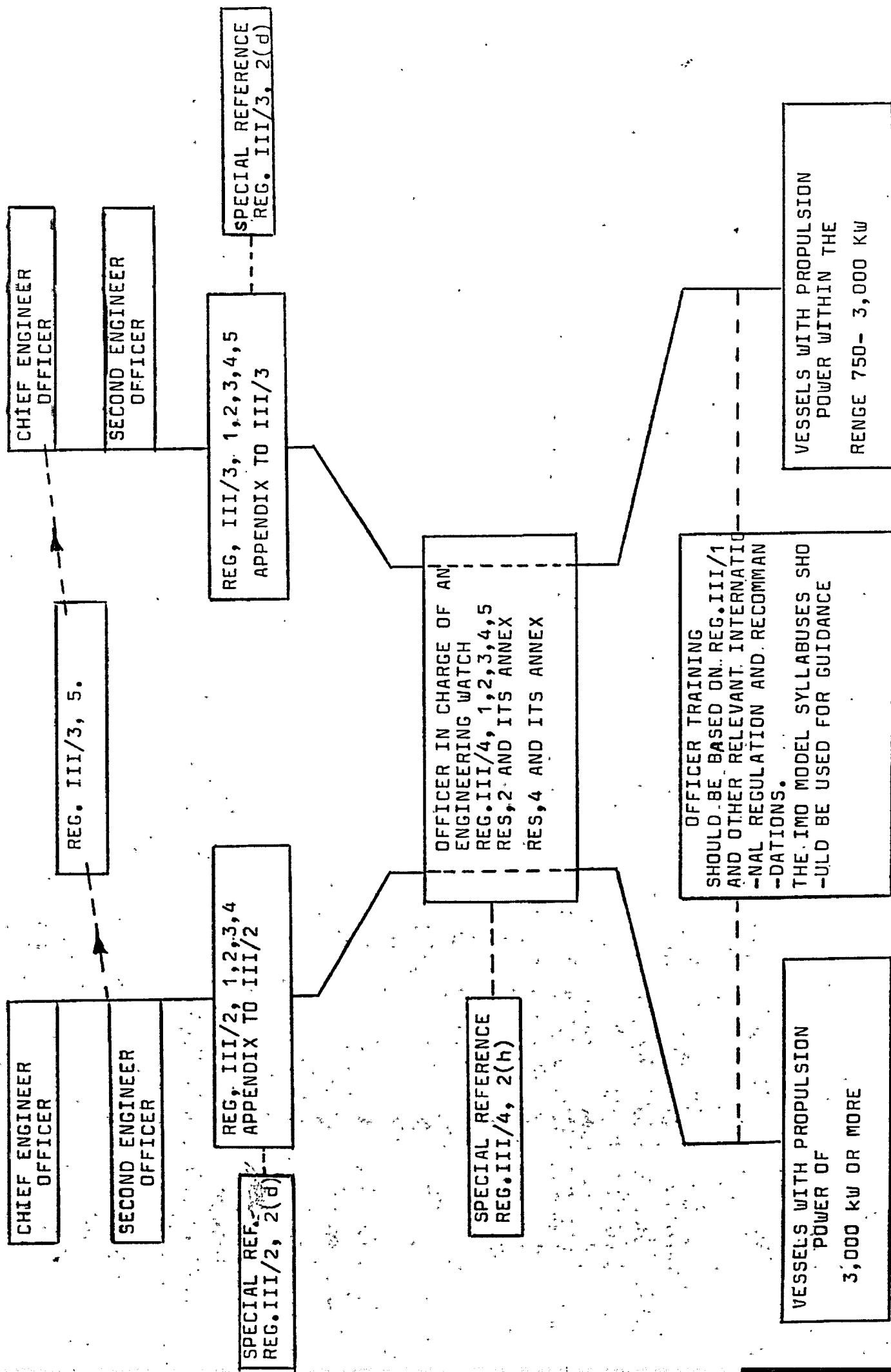
Regulation III/4 contain mandatory minimum requirements for certification of engineer officers in charge of a watch in a traditionally manned engine room or designated duty officers in a periodically unmanned engine room. The minimum age requirement is 18 and candidates must also have not less than three years approved training or education and have completed an adequate period of sea-going service . Candidates must have knowledge of the operation and maintenance of marine machinery, together with a knowledge of watchkeeping routines; main and auxiliary machinery; pumping systems ; generating plant safety

and emergency procedures; anti-pollution procedures ;and first aid .The next regulation includes requirements to ensure the continued proficiency and updating of knowledge for engineer officers .

The final regulation in the chapter (III/6) contain mandatory minimum requirements for rating part of an engine room watch.The minimum age permitted is 16 .

Although the regulations in this chapter are not based on earlier resolutions of the IMO Assembly (unlike those in Chapter II) they reflect standard good practice and are therefore not expected to cause any difficulties with regard to implementation.

The structure for the Training and Certification of Marine Engineering officer required by IMO STCW 1987 Convention is shown in diagram 5.8.1 and 5.8.2



MARINE ENGINEER OFFICER TRAINING AND CERTIFICATION IN TERMS OF THE
IMO STCW 1978 CONVENTION

CHIEF ENGINEER OFFICER CERTIFICATE

ENGINE POWER 3000 KW OR MORE

EXAMINATION BY ADMINISTRATION
REG.III/2 AND ITS APPENDIX

12 MONTHS APPROVED SEA SERVICE

REG.III/3 (5)

CHIEF ENGINEER OFFICER CERTIFICATE

ENGINE POWER 750-3000 KW

EXAMINATION BY ADMINISTRATION
REG.III/3 AND ITS APPENDIX

12 MONTHS APPROVED SEA SERVICE

SECOND ENGINEER OFFICER CERTIFICATE

ENGINE POWER 3000 KW OR MORE

EXAMINATION BY ADMINISTRATION
REG.III/2 AND ITS APPENDIX

SECOND ENGINEER OFFICER CERTIFICATE

ENGINE POWER 750-3000 KW

EXAMINATION BY ADMINISTRATION
REG.III/3 AND ITS APPENDIX

12 MONTHS APPROVED SEA SERVICE

CERTIFICATION BY ADMINISTRATION AS ENGINEER OFFICER-IN-CHARGE OF THE
WATCH AS PROVIDED BY REG.III/4
APPLICABLE TO ALL VESSELS WITH ENGINE POWER 750 KW OR MORE

MANDATORY COURSES : FIRE FIGHTING; FIRST AID; PERSONAL SURVIVAL.

A MINIMUM OF 3 YEARS APPROVED MARINE ENGINEERING EDUCATION AND TRAINING
RELEVANT TO THE DUTIES AND RESPONSIBILITIES OF A MARINE ENGINEER OFFICER
WITH AN ADEQUATE PERIOD OF SEA TRAINING BASED ON AND MAKING USE OF
REGS.III/1 AND III/4, WITH RESOLUTIONS 2 AND 4 WITH THEIR ANNEXES TO
ACHIEVE MINIMUM STANDARDS OF TRAINING.

RECRUITMENT: ADEQUATE BASIC EDUCATION; MEDICAL EXAM. - HEARING, EYESIGHT.

ENTRY

5.9 CAPTER IV:RADIO DEPARTMENT

5.9.1 Radio Watchkeeping and maintenance

An explanatory note points out that mandatory provisions relating to radio watchkeeping are set forth in Radio Regulations and safety radio watchkeeping and maintenance provisions are included in the Radio Regulations and in SOLAS .

RegulationIV/1 (mandatory minimum requirements for certification of radio officers) states that radio officers must hold a certificate issued under the provisions of the Radio Regulation and have adequate qualifying service .Radio officers must also be over 18 and have passed an examination which shall take into account subjects listed in the appendix , particularly concerned with safety and emergencies .

The next regulation contains provisions which are designed to ensure the continued proficiency and updating of radio officers and the finalregulation establishes requirements for certification of radiotelphone operators .

5.10 CHAPTER V:SPECIAL REQUIREMENTS FOR TANKERS

The importance of tankers in world shipping today is recognized by the inclusion of this chapter .

The intention of the chapter is to ensure that officers and ratings who are to have specific duties related to the cargo and cargo equipment of tankers shall have completed an apporroriate shore-based fire-fighting course; and have completed either an appropriate period of ship-board service or an approved familiarization course .

Requirements are more stringent for masters and senior

officers . Attention is paid not only to safety aspects but also to pollution prevention .

The chapter contains three regulations dealing with oil tankers , chemical tankers and liquefied gas tankers ,respectively . .

5.11 CHAPTER VI : PROFICIENCY IN SURVIVAL CRAFT

This chapter establishes requirements governing the issuing of certificates of proficiency in survival craft. This include approved sea-going service of not less than 12 months , or nine months if the candidate has attended an approved training course . There is provision for testing "by examination or continuous assessment during an approved training course". The appendix lists the minimum knowledge required for the issue of certificates of proficiency .

5.12 RESOLUTIONS

In some regulations of the convention the language is fairly general ,with much detail being incorporated in resolutions adopted by the conference.

A resolution is not , of course , a mandatory instrument. It can be used by a government in any way it sees fit , in whole or in part - or not at all .

For this reason , therefore , resolutions are not as important as conventions, whose observance is mandatory on all contracting parties . Nevertheless , the resolutions adopted by STCW Conference are mostly closely linked to the convention and are designed to back up the convention itself.

- Resolution 1 ,for example,is related to Regulation II/1 (basic principles to be observed in keeping a navigational watch).An annex contains a recommendation on operational guidance for officers in charge of a navigational watch.
- Resolution 2 -Operational guidance for engineer officers in charge of an engineering watch . Relates to Regulation III/1. Annex deals with engineering watch underway and at an unsheltered anchorage .
- Resolution 3 - Principles and oprational guidance for deck officers in charge of a watch in port . Relates to regulation II/1. Detailed recommendations are contained in an annex .

- Resolution 4 - Principles and operational guidance for engineer officers in charge of an engineering watch in port . Related to Regulation III/1, with recommendations in an annex .
- Resolution 5 - Basic guidelines and operational guidance relating to safety radio watchkeeping and maintenance for radio officers . The comprehensive annex is divided into basic guidelines and safety radio watchkeeping and maintenance.
- Resolution 6 - Basic guidelines and operational guidance relating to safety radio watchkeeping for radio telephon operators . Follows the same format as Resolution 5.
- Resolution 7 - Radio operators. Four recommendations are annexed to this resolution dealing with (i) minimum requirements for certification of radio officers ; (ii) minimum requirements to ensure the continued proficiency and updating of knowledge for radio operators ; (iii) basic guidelines and operational guidance relating to safety radio watchkeeping and maintenance for radio operators; and (iv) training for radio operators .
- Resolution 8 - Additional training for ratings forming part of a navigational watch . Relates to Regulation II/6 and recommends that such ratings be trained in use and operation of appropriate bridge equipment and basic requirements for the prevention of pollution.

- Resolution 9 - Minimum requirements for a rating nominated as the assistant to the engineer officer in charge of the watch . Recognizes that suitable training arrangements are not widely available . Detailed requirements contained in an annex.

- Resolution 10 - Training and qualifications of officers and ratings of oil tankers . Refers to Resolution 8 adopted by International Conference on Tanker Safety and Pollution Prevention ,1978, which deals with the improvement of standards of crews on tankers . Recommendation in annex.

- Resolution 11 - Training and qualifications of officers and ratings of chemical tankers. Refers to Resolution A.286(VIII) adopted by the IMO Assembly , which deals with training . Recommendations in annex.

- Resolution 12 - Training and qualification of masters, officers and ratings of liquefied gas tankers. Recognizes that "suitable arrangements for mandatory training ...are not widely available" .Detailed recommendations in annex.

- Resolution 13 - Training and qualifications of officers and ratings of ships carrying dangerous and hazardous cargo other than in bulk .Recognizes that there is an urgent need for establishing such training requirements and invites IMO to study this problem as a matter of urgency .

- Resolution 14 - Training for radio officers. Recognizes that despite adoption of Regulation IV/1 additional training requirements are still needed. Detailed recommendations in annex .
- Resolution 15 - Training for radiotelephone operators . Similar to Resolution 15, but refers to Regulation IV/3
- Resolution 16 - Technical assistance for the training and qualification of masters and other responsible personnel of oil, chemical and liquefied gas tankers. Refers to requirements in several convention regulations and recognizes that training facilities may be limited in some countries .Urges governments which can provide assistance to do so .
- Resolution 17 - Additional training for masters and chief mates of large ships and of ships with unusual manoeuvring characteristics. Is designed to assist those moving to ships of this type from smaller vessels, where characteristics are very different .
- Resolution 18 - Radar simulator training .Recommends that such training be given to all masters and deck officers .
- Resolution 19 - Training of seafarers in personal survival techniques .A recommendation is annexed*.
- Resolution 20 - Training in the use of collision avoidance aids. Refers to Resolution 13 adopted by the TSPP Conference requesting IMO to develop requirements for such equipment. Invites IMO to prepare appropriate

training requirements or recommendations . (In 1979 the IMO Assembly adopted Resolution A.422(XI) , containing performance standards for automatic radar plotting aids and in 1981 adopted Resolution A.482(XII) , dealing with training in their use .)

- Resolution 21 -International Certificate of Competency.
Invites IMO to develop a standard form and title for this certificate.
- Resolution 22 - Human relationships . Emphasizes the importance to safety of good human relationships between seafarers on board.
- Resolution 23 - Promotion of technical co-operation .
Records appreciation of IMO's work in assisting developing countries to establish maritime training facilities in conformity with global standards of training ,and invites the organization to intensify its efforts with a view to promoting universal acceptance and implementation of the STCW Convention.

The Deck and Engineer officers training and certification in terms of IMO ,STCW Convention 1978 as minimum required may best be illustrated by the charts at pages...

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* CHAPTER SIX *
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* RECOMMENDATION FOR DEVELOPING THE MARITIME *
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* TRAINING INFRASTRUCTURE IN IRAN *
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6.0 RECOMMENDATION FOR DEVELOPING THE MARITIME TRAINING INFRASTRUCTURE IN IRAN

6.1 Introduction

At the time of the adoption of the STCW Convention in 1978 a majority of the established maritime countries already possessed a well established maritime infrastructure which include excellent maritime education and training facilities, examination and certification system etc..The impact on them was very little and only minor adjustment were required to meet the convention requirements.

But in developing countries such as Iran which has not yet ratified convention, there is a continuous need for preperation and adjustment of regulatory and developmental functions for responsible organization to deal with updating the skills of Iran merchant marine officers and personnel in view of rapid technological developments.

So, the prime objective of this chapter is to urge both maritime administration and the maritime training academies and other related and responsible agencies such as Ministry of higher education, Islamic Republic of Iran Shipping Line, National Iranian Oil Company and Port and Shipping Organization to be aware of the impact of this convention and its implemetation and for both ,to prepare their organizations to meet the convention requirements and, to understand and realize their lead role to promote the Iran maritime training and also maritime manpower planning and improtance of becoming a party to the STCW 87 Convention as well as its advantages and disadvantages.

In this chapter I shall permit to recommand feasible and suitable infrastructure to build up for carry out a programme towards the typical maritime training insti-

tution and roles of Government or maritime administration to meet the STCW Convention and proposal of related matters.

6.2 THE ROLE OF THE MARITIME ADMINISTRATION IN MARITIME TRAINING

In pursuing the Maritime Administration activities in the development of the maritime field, the appropriate Government Authorities would, therefore, need to have an efficient administrative machinery to advise them on the adoption and implementation of the National Legislation and other Regulations required for developing and operating the maritime programme under international Convention which may be applicable.

This machinery can best be provided through a well organized Maritime Administration. Such an Administration will also be responsible, under the general direction of the Ministry responsible for transport for providing and organizing the appropriate facilities for the training, examination and certification of ship's Master officers, engineers and other maritime personnel.

The most abundant resources available in my country is human resources. The lead role and primary responsibility in harnessing such human resources and utilising them appropriately to maximum national advantage in the maritime (shipping) field, including benefits to the national seafarers themselves and the national shipping industry, need to be assumed by the Government (Maritime Administration).

The main reasons for same are as follows:

- (i) The political, social and economic philosophies of the Government as regards labour matters in general are also bound to affect maritime labour (seafarers) in spite of the latter's special characteristics.
- (ii) In the interest of the country's maritime development it is the Government (Maritime Administration) which has to:
 - (a) Make the assessment as regard the man power needs in the maritime sector.
 - (b) Plan for and ensure the availability of such manpower, both in quantity and quality, and
 - (c) Promote the optimum utilisation of such manpower to national advantage.
- (iii) It is the Government which has to ensure that the national merchant shipping law, applicable to the national marine personnel (seafarers), is such as to suit their extra-ordinary working/living environment. (In this case Port and Shipping Organization on-behalf of the ministry of road and transport is acting as responsible organization.)
- (iv) Since shipping is an international industry, the maritime labour from a developing country may be subject to international pressures in various forms, and the Government of the country is better equipped than the shipping companies and the national seafarers themselves to deal with such pressures in the context of national interest.
- (v) The Government is in the best position to :
 - (a) monitor international developments affecting its

existing / future marine personnel.

- (b) Seek and avail itself the opportunity to influence in its favour, to the maximum extent possible, such developments, through international fora and support from other Governments and Bodies with common interests.
- (c) Evaluate such developments where they emerge finally, and
- (d) Adopt policies compatible with national interest

- (vi) The Government has international obligations as regards International Maritime Conventions which it has to meet, including international standards for the competency / proficiency of its seafarers.

In view of the aforesaid, the primary purpose of the following parts is to describe the roles, responsibilities and functions of the Government (maritime Administration) with regard to marine personnel (seafarers).

These cover essentially the following:

- 1- Maritime training
- 2- Examinations and certification of seafarers
- 3- Manning of ships
- 4- Crew matters (i.e., matters affecting marine personnel)

6.3 MARITIME TRAINING PREPARATION

Maritime Training, Examinations and Certification of seafarers and manning of ships are three vital and inseparable links in a chain which determine the standards of safety and efficiency of the operation of ships. Since in fact the weakest link in the chain mentioned shall determine the above standards, all the three links are of

equal importance to the maritime administration of Iran.

The roles and functions of the Maritime Administration as regards matters relating to the examinations / certification of seafarers and the manning of ships are being dealt with further on. It is now proposed to deal with its role and functions regarding maritime training.

In this area as stated before, it appears inevitable that the Government take the lead role, bearing in mind that proper maritime training is the very fundamental requirement and the first element which ensure the safe and efficient operation of ships.

In this respect, the Maritime Administration shall no doubt have to act in concert with the shipping industry, companies, the national seafarers, relevant organizations and institutions, and appropriate maritime education institutions. Whether such concerted action is taken through suitable consultative procedures or through the establishment of a merchant navy training board in which all interested parties are represented and which can serve as a collective advisory body, is a very important matter for Government of Iran to examine and decide.

The type of maritime training facilities / courses needed for seafarers can be summarised as follows:

6.3.1 RATINGS

6.3.1.1 Deck Department

- (a). Pre-sea training for the new entrant, which needs to include "personnel survival techniques".
- (b). Subsequent refresher training, for ratings with appropriate sea-service, so as to meet the mandatory minimum requirements for a rating,

forming part of a navigational watch, as specified in the STCW Convention. It is most desirable that such training leads to the "Efficient Deck Hand Certificate" or its equivalent, and the "Proficiency in Survival Craft Certificate".

(c). Fire-fighting Training.

(d). Training in basic First Aid.

6.3.1.2 Engine-Room Department

(a). Pre-sea training for the new entrant, which needs to include "Personal Survival Techniques".

(b). Subsequent refresher training, for ratings with appropriate sea-service, so as to meet the mandatory minimum requirements for a rating, forming part of an engine-room watch, as specified in the STCW convention. It is most desirable that such training leads to a suitable certificate.

(c). Fire-fighting training.

(d). Training in basic First Aid.

6.3.1.3 Catering Department

(a). Pre-sea training for the new entrant, which needs to include "Personal Survival Techniques".

(b). Either as part of the pre-sea training or subsequent to appropriate sea-service, the trainees who are to become cooks on ships, need to be so trained as to be eligible for "Certificate as

ship's cook"

6.3.1.4 Ratings related regulations and resolutions

The international convention on the standards of training certification and watch keeping of seafarers 1978, embodies a number of Regulations and Resolutions which affect the training of ratings. These are as follows:

6.3.1.4.1 REGULATIONS

- i.Regulation II/6: Minimum requirements for ratings forming part of a navigational watch.
- ii.regulation III/6: Minimum requirements for ratings forming part of an Engine Room watch.
- iii.Regulation V/2: Minimum requirements for the training and qualifications of ratings of chemical tankers.
- iv.Regulation V/3: Minimum requirements for the training and qualification of ratings of liquefied gas tankers.
- (v).Regulation VI:Minimum requirements for the issue of a certificate of proficiency in survival craft for all seafarers.

6.3.1.4.2 RESOLUTIONS

- i.Resolution VIII:Additional training for rating forming part of a navigational watch.
- ii.Resolution X: Training and qualification of ratings of oil-Tankers.
- iii.Resolution XI :Training and qualification of ratings of chemical tankers.
- iv.Resolution XIII : Training and qualifications of

rating of ships carrying dangerous and hazardous cargo other than in bulk.

v. Resolution XII : Training and qualifications of ratings/liquified gas tankers.

vi. Resolution XIX : Training of seafarers in personal survival.

6.3.2 OFFICERS

6.3.2.1 DECK DEPARTMENT

- (a) Pre-sea training for the new entrant as deck (Nautical) cadet / Apprentice.
- (b) Training on board ships at sea, as deck (nautical) cadet / Apprentice.
- (c) Post-sea training leading to the first certificate of competency as a watch-keeping officer.
- (d) Subsequent post-sea training leading to all higher certificates of competency, including as "Master".

6.3.2.2 ENGINE-DEPARTMENT

- (a) pre-sea training for the new entrant as engineers cadet / Apprentice.
- (b) Training on board ship at sea, as junior engineer.
- (c) Post-sea training leading to the first certificate of competency as a watch-keeping Engineer.
- (d) Subsequent post-sea training leading to all higher certificates of competency, including as "Chief Engineer".

6.3.2.3 RADIO DEPARTMENT

In addition, there is the need for the training of radio officers and radio telephone operators.

However, matters pertaining to the training of such personnel are:

(a) primarily governed by the requirements of the radio Regulations of the International Telecommunications Union, and

(b) dealt with by the Ministry responsible for all forms of telecommunications. Therefore the Maritime Safety Administration need not involve itself directly in such training but needs to liaise with the Ministry referred to above so as to ensure the availability of such personnel for ships and that they also meet the additional requirements prescribed under chapter IV of the STCW Convention.

6.3.2.4 Officer related regulations and resolutions

6.3.2.4.1 Regulations

i. Regulation II/2 : Minimum requirements for masters and chief mates of ships of 200 grt and for ships of 1,600 grt and more.

ii. Regulation II/3 : Minimum requirements for certification of officers in charge of navigational watch and masters of ships of less than 200 grt.

iii. Regulation III/2 : Minimum requirements for certification of chief engineer officers.

iv. Regulation III/4 : Minimum requirements for cer-

- tification of engineer officers in charge of watch
- v.Regulation IV: Minimum requirements for certification of radio officers
 - vi.Regulation V: Minimum requirements for the training and qualifications of officers of chemical and gas tankers.
 - vii.Regulation VI: Minimum requirements for the issue of a certificate of proficiency in survival craft for all seafarers.

6.3.2.4.2 Resolutions

- i.Resolution X: Training and qualification of officers of oil tankers.
- ii.Resolution XI: Training and qualification of officers of chemical tankers.
- iii.Resolution XII: Training and qualification of masters and officers of liquefied gas tankers.
- iv.Resolution XIII: Training and qualification of officers of ships carrying dangerous and hazardous cargo other than in bulk.
- v.Resolution XVII: Additional training for masters and chief mates of large ships
- vi.Resolution XVIII: Radar simulator training for all masters and deck officers.
- vii.Resolution XX: Training in the use of collision avoidance aids for masters and deck officers.

6.3.3 Additional special courses (If required)

- (a) Training of officers and ratings of oil tankers.
- (b) Training of officers and ratings of chemical tankers.
- (c) Training of officers and ratings of liquified

gas tankers.

(d) Radar Simulator training for Deck officers.

6.3.4 Conclusion

The afforesaid are the maritime training courses / facilities that would need to be arranged for its seafarers by any maritime country which has ships (of size 200 GRT and over, and with propulsion power of 750 KW and over) engaged in international trade, and which intends to man such ships with its own nationals.

In case of Iran which is not yet to develop such maritime training facilities / courses to meet their present and future requirements, as well as to meet the mandatory international standards, there would be the clear need to take the following steps:

- (i) A man-power study to be undertaken to make an assessment of the man-power needs (categories and numbers) of the shipping industry (present and future) for at least (10) years.
- (ii) Based on the man-power study just mentioned, man-power planning to be made for the next ten-years period, reduced to an annual basis.
- (iii) In order to meet the planned man-power requirements it is important to formulate recruitment policy, as regards the number and quality of person to be recruited as new entrants to the seafaring profession one standard for the seaman (rating) entry and a higher standard for cadet / apprentice (officer) entry.
- (iv) In conjunction with the above, suitable training

programme have to be formulated and training courses / facilities, both pre-sea and post-sea, have to be identified / provided for the various categories of personnel. therefore the essential reasons in support of the need for training of seaman are :

- (a) Training of seamen improves safety standards and efficiency, both of which are vital.
An untrained seaman would be, at least in the early stages, a liability to others and to himself, especially in emergencies.
- (b) "Trained seamen" of a country would in fact increase the "employment potential" of seamen of the country in the long run, particularly because:

- * Ship owners or shipping companies at large are becoming keen on employing trained seamen;
- * Maritime Governments are being particular about trained seamen being employed on their ships ;
- * There is strong and increasing demand in international fora, such as I.M.O and I.L.O for the highest standards of safety and manning of ships, including trained / competent seamen ;

- (v) The availability of duly trained a) Maritime Educators for the training institutions, and b) Examiners, should be ensured.

In this connection the facilities available at the World Maritime University can be most useful and I will discuss that in chapter 8.

6.4 EXPENDITURE & OTHER COST IMPLICATIONS

Having identified the needs for the development of mari-

time training facilities, it is considered necessary to point the elements with cost implications that would be involved in the setting up of a maritime training institution, so as to enable the Government (or organization responsible) to take appropriate decisions. These are expected to be:

6.4.1 Items involving capital expenditure

(a) Land site

(b) Building for training institutions consisting of :

Class rooms

Offices for teaching staff

Offices for administrative and secretarial staff

Library

Common room for students

Chart-room and instrument Laboratory

Electronics Laboratory

Mechanics Laboratory

Electrical Laboratory

Simulator facilities

(c) Furniture required in above building.

(d) Teaching equipment and instruments.

(e) Equipment for :

Seamen centre (including boats and davits)

Fire-fighting facilities

Training workshops

Plant maintenance

Welding shop

Fitting and machine tools workshop.

- (f) A small training vessel
- (g) Hostel building if the institution is to be residential.
- (h) Furniture, furnitioning and fittings in the above hostel building.

6.4.2 ITEMS INVOLVING RECURRING EXPENDITURE

- (a) Salaries of staff
- (b) Premises charges -Light,Power,Water,maintenance,etc.
- (c) Supplies and services-Equipment,stores,stationery and other supplies.
- (d) Debt charges if any
- (e) Misceleneous expenditure
- (f) Catring expenditure,if the institution is residential
- (g) Receation facilities
- (h) Running costs of the training vessel,if acquired
- (i) Maintenance of equipment

Since the availability of adequate funds to meet the expenditure in connection with the aforesaid items is likely to be a major factor influencing the decisions making, the folowing suggestions are offered for their consideration:

- (i) Regional (or sub-Regional) co-operation between a number of Governments would not only enable pooling of resources,but also permit sharing of costs,with consequential reduction in expenditure for Government involved.

In this regard we may consider sort of co-opration with India or Pakitan or even with Arab state in Persian Gulf,such as United Arab Emirates (UAE) in order to have a pooling of resources,etc.

- (ii) Funding assistance and / or other forms of contributions (Experts, equipment, etc.) can be sought at least for the initial stages.

This has been done already in form of establishing of shaheed Rajae training centre in Bandar abbas by IMO and UNDP.

- (iii) Since the immediate beneficiaries of maritime training facilities are the shipping companies who engage the trained seafarers, every effort needs to be made to prevail upon them to assume the responsibility for a reasonable share of the expenditure. Alternatively, the levy of "training cess" on ship owners may be considered.

- (iv) The recurring expenditure may be shared by the Government, The ship owners concerned, and the students (through payment of fees).

With regard to the students, who are economically weak, it is expected that appropriate scholarships would be obtained from or through all available sources.

We should consider that the ultimate aim needs to be for all the beneficiaries, viz, the Government, the ship owners and the students, to share the recurring expenditure on an equitable basis, ie. 33% or 1/3 each

- (v) Because maritime training is also part of education, efforts need to be made to prevail upon national Authorities / bodies responsible for education to make funds for such maritime education available.

6.5 RECOMMENDATION FOR ESTABLISHMENT OF MERCHANT MARINE TRAINING COMMITTEE

In this part of chapter six I would like to suggest the establishment of merchant navy training board (committee) to avoid of any scattered of maritime training or dispersion of decision making about the present and future of our shipping needs and training policies or estimation of new man power recruitment and other related matters. To collect and adequate discussion and revision, they would recommend suitable suggestion to the government for implementation.

6.5.1 COMBINATION OF COMMITTEE (Suggestion)

A Merchant Navy Training board will set up within six months after preparation of its initial draft by responsible organization (Port and Shipping Organization) and final adoption by government of Iran. The Board is reconstituted every 2 years. All interests connected with the training of merchant marine personnel and the development of shipping are represented on it including members of :

- Islamic Parliament.
- Islamic Republic of Iran Shipping Line.
- National Iranian oil Company.
- Ministry of higher education and culture.
- Ministry of education and training.
- Ministry of state for plan and budget organization.
- Merchant marine officers and seamen.
- The heads of the Maritime Training Institutions.

The secretariat for Board will be provided by the Ministry of

road and Transport and its its responsible organization,-
Port and Shipping Organization.

6.5.2 FUNCTION

The Board would be an ADVISORY BODY and its function is to consider all matters pertaining to the training of Merchant Navy officers ,Ratings and other sea going personnel,supervise the training imparted in the training institutions and recommend,from time to time such measures as may be necessary for the building up of an adequate,efficient and devoted merchant navy personnel.

The Board is required,in particular:

- (i) To recommend ,from time to time the number of trainees to be recruited for training in various institutions.
- (ii) To review,from time to time the syllabus for training in various institutions.
- (iii) To form of small committees to deal with the problems of training,the Nautical and technical college.
- (iv) To constitute inspection teams for the periodical inspection of various training institutions.
- (v) To collect and maintain statistics relating to the merchant marine personnel.
- (vi) To maintain contact with the comparable training institutions aboard with a view to keeping up to date the training level for development and improv-

ments of courses specially regarding with STCW Convention and its requirements.

(vii) To consider and recommend the introduction of new courses of training and study.

(viii) To maintain the requisite co-ordination between the various branches of training particularly Navigation and Engineering among different universities and marine academies.

The Merchant Marine Training Board also can made many useful recommendations in the field of training of merchant navy officers and ratings.

A few of these important recommendations to government which can made by Board are as fallows:

- To prepare national Legislation (primary and subsidiary) regarding with STCW Convention and its amendments.

- Up dating maritime legislation.

- Establishing a proper system for examination and certification of seafarers.

- Controlling and monitoring level of education and training.

- Controlling and monitoring of pre-requisite of seafarers as condition of entry to the examination for certificate of competency.

The Merchant Navy Training Board meets at least twice in a year and more often if required.

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7.0 GENERAL REQUIREMENTS FOR IMPROVMENT OF THE M.E.T. INSTITUTION.

7.1 COURSES REQUIREMENTS FOR UP DATING THE SEAFARERS

The programme of education and training maritime officers must be sufficiently broad based at the basic level to cover all the required knowledge, ie a large number of subjects and discipline be involved in its structure.

At more advance levels, where the officer is transferring from junior to more senior ranks and above, the programme will have fewer subjects and will be concentrated in to those specialist areas reflecting the higher technology and responsibilities that are associated with senior rank aboard ship and /or senior posts ashore.

In the general the programme of education and training must be structured and organized so that knowledge , understanding, skill and experience is steadily and progressively acquired.

Monitoring and assessment procedures will form an important element in the programme in order to insure that at each stage the specified objectives are being achieved.

Continuous assessment procedures with syllabues written in learning objectives format should establishe within the educational system and should be effective methods of ensuring that educational and training objectives are met.

Knowledge , understanding , skill and experience are the principal components which together provide competence. Unfortunately the sea training phase, not structured in Iran. Assessment and examination procedures should be concerned with these principal components in order that

marine officers, at the end of their education and training, are competent to take charge of the ship's watchkeeping duties and be responsible for its safe and efficient operation and maintenance with the minimum effect on the environment.

The programme of conducting the specialised and refresher courses has to be properly balanced in terms of the distribution of hours to the various subjects and activities, and provision should be made for activities such as tutoring/private study, recreation/sports, free study time etc.

The basic level course is important as it must provide a firm foundation on which more advanced and specialized studies can be built. The basic level programme should aim at graduating a junior officer competent to be in charge of the bridge and engine room watches. Service experience in a watchkeeping capacity is required before more senior certificates of competency can be obtained.

It is necessary, when formulating a programme of maritime studies for seafarers, to ensure that, in addition to satisfying national requirements, it also meets the international standards now accepted by all shipowning and ship operating countries who give priority to ship safety and the prevention of pollution.

There are three important IMO Conventions which need to be considered when formulating training programme.

- * Safety of at sea (SOLAS 1974 and its 1978 protocol);
 - * Prevention of pollution (MARPOL 73/78);
 - * Standards of training, Certification and Watchkeeping for seafarers (STCW) 1978 ;
- of which the STCW 1978 has the greatest significance when

formulating the content of education and training courses or programmes for seafarers .

7.2 BUILDING AND FACILITIES

Shore-based maritime education and training units (school,institutions,college,academies,etc.) consist of a number of closely inter-related elements,each of which has an important function in ensuring that education and training objectives are achieved.These elements are:

- I. Laboratories and practical training facilities :
education and training programme will require effective support from laboratories and practical training units,and these facilities need to be compatible with the high and advance technology used in ship and marine operation.The technical staff who maintain and operate these facilities must be highly skilled in their field of special support to the teaching staff.
- II. Training equipment:
This must be relevant to the machinery and systems used in modern merchant vessels in order that the practical training activities can be correlated to the duties and functions aboard ship.

7.3 TYPICAL MODEL OF MARITIME TRAINING PHYSICAL FACILITIES.

.1 Administrative Block:

The Administrative Block will accommodate the following:

- a -Office of the head of the institution;
- b -Chambers for the heads of the departments;
- c -Rooms for members of faculty;
- d -offices of Administrative personnel;
- e -Common room for members of the staff;
- f -Conference room; -Space for security officer and maintenance personnel
- g -Visitor's space

.2 Academic Block: The Academic Block will accommodate the following:

- i-Library;
- ii-Class rooms;
- iii-Laboratories,instruments and simulators;
- iv-Exhibition Hall;
- v-Marine engineering workshop;
- vi-Maritime research centre.

i. LIBRARY

The library has to be design to accommodate about at least 2000 books ,with separate sections for general refrence ,journals and priodicals,reading area,and librerian's office.

The library should be so designed that there would be scope for extension with the growth in the number

of books.

ii. CLASS ROOMS

The number and size of the class rooms,would be as follows:

- Three class rooms,of about 150 square meters each;
- One class room ,of about 100 " " " ;
- Two class rooms of about 75 " " " ;

Each class room would be provided with rolling black board and arrangments for audio-visual presentation.

iv. EXHIBITION HALL

An exhibition Hall would be provided for displaying for displaying various machineries,plants and equipments of maritime interest.

v. MARINE ENGINEERING WORKSHOP

The area which should be allocate for the workshop is about 300 square meters.The workshop would be equipped with the equipment generally found in a ship's workshop.

vi. OTHER FACILITIES

The other facilities will consist of the following:

- Hostels for officers ,cadets,petty officers and other member of crew;
- Kitchen,Pantry and dining arrangment for 150 persons;
- Residential Quarters for faculty and staff;
- Guest house for visiting faculty;

- Medical aid and essential service;
- Gymnasium, recreation area and playground.

7.4 FUNDEMENTAL TRAINING COURSES AND IT'S FACILITIES

Mandatory requirement under international convention provide that every prospective seafarers should before being employed in a sea-going vessel, receive approved training in fire-fighting , survival techniqes and first aid.

7.4.1 FIRE - FIGHTING TRAINING FACILITIES

The fire-Fighting Training facilities would consist of pump-house, fire-fighting area, smoke-room and a mock-up model of a ship.

.1 SMOKE - ROOM

The smoke-room would consist of a two tiered concrete structure with ladders ,platforms and railings, as foud on ships, for demonstration of breathing apparatus, fire fighting and rescue operations in smoke-filled compartments. CO2 and sprinklers installation would also be provided for demonstration and visual observation of their action through large glass windows.

.2 MOCK - UP MODEL OF A SHIP

The Mock-up model of a ship will be constructed entirly of steel and cement (Land-ship).

The model would be used to provide realistic fire-fighting exercises with capability to simulate engineroom, cargo hold, gally and accomodation fires.

Water mains, hydrants and other fire-fighting appliaces as

generally found on board ships, should also be provided. The proposal plans for mock-up model of a ship has given in figures 7.4.3 ,7.4.4 ,7.4.5 ,7.4.6

7.5 SURVIVAL AT SEA TRAINING FACILITIES

Survival at sea training facilities should be provided in and around the port and harbour basin.

Two class rooms, each of area of about 50 square meters and a changing room for participants, should be provided.

7.6 LABORATORIES ,INSTRUMENTS AND SIMULATORS

.1 Manoeuvring Tank:

A manoeuvring tank should be provided for demonstration of manoeuvring and handling of vessels.

.2 Laboratories:

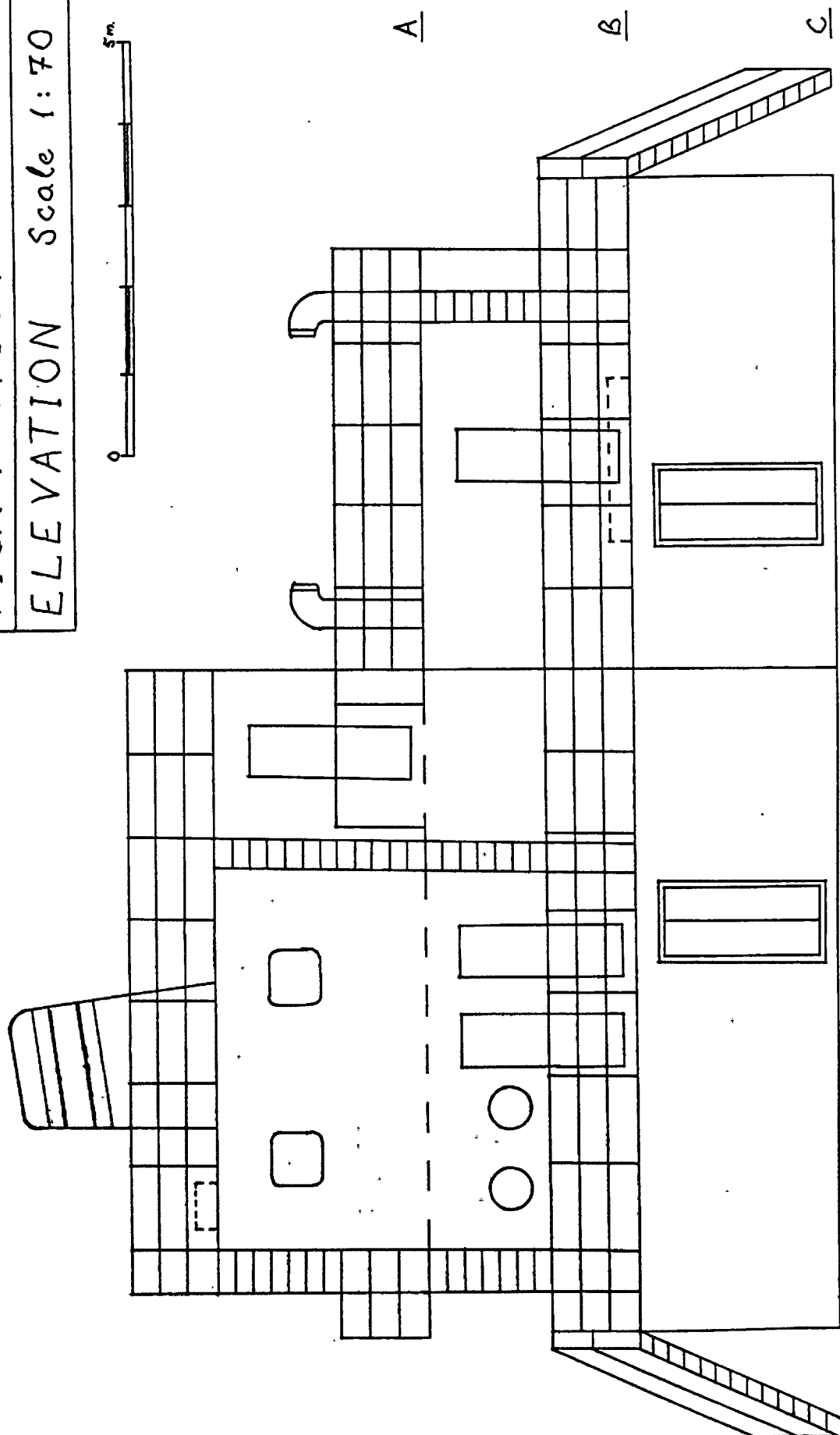
In the Academic block, space should be allocated to provide the following laboratories :

- Navigation and communication Laboratory;
- Seamanship Laboratory;
- Meteorology Laboratory;
- Control Engineering and Electronics Laboratory;
- Computer Laboratory.

.3 Simulator:

In the Academic block, space should also be allocated to accommodate a Radar simulator.

FIG. 7.4.3 MOCK-UP MODEL
ELEVATION Scale 1:70



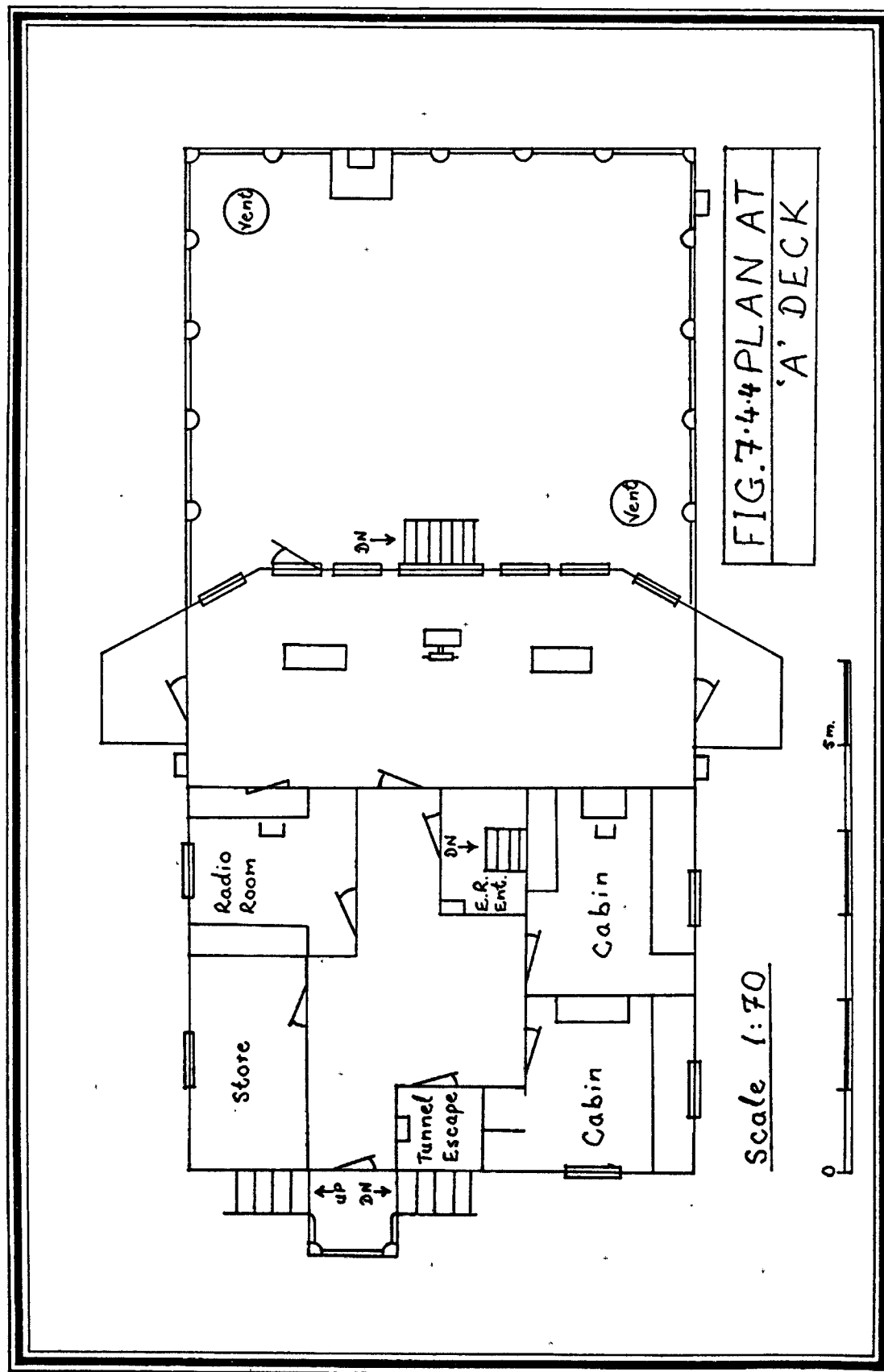
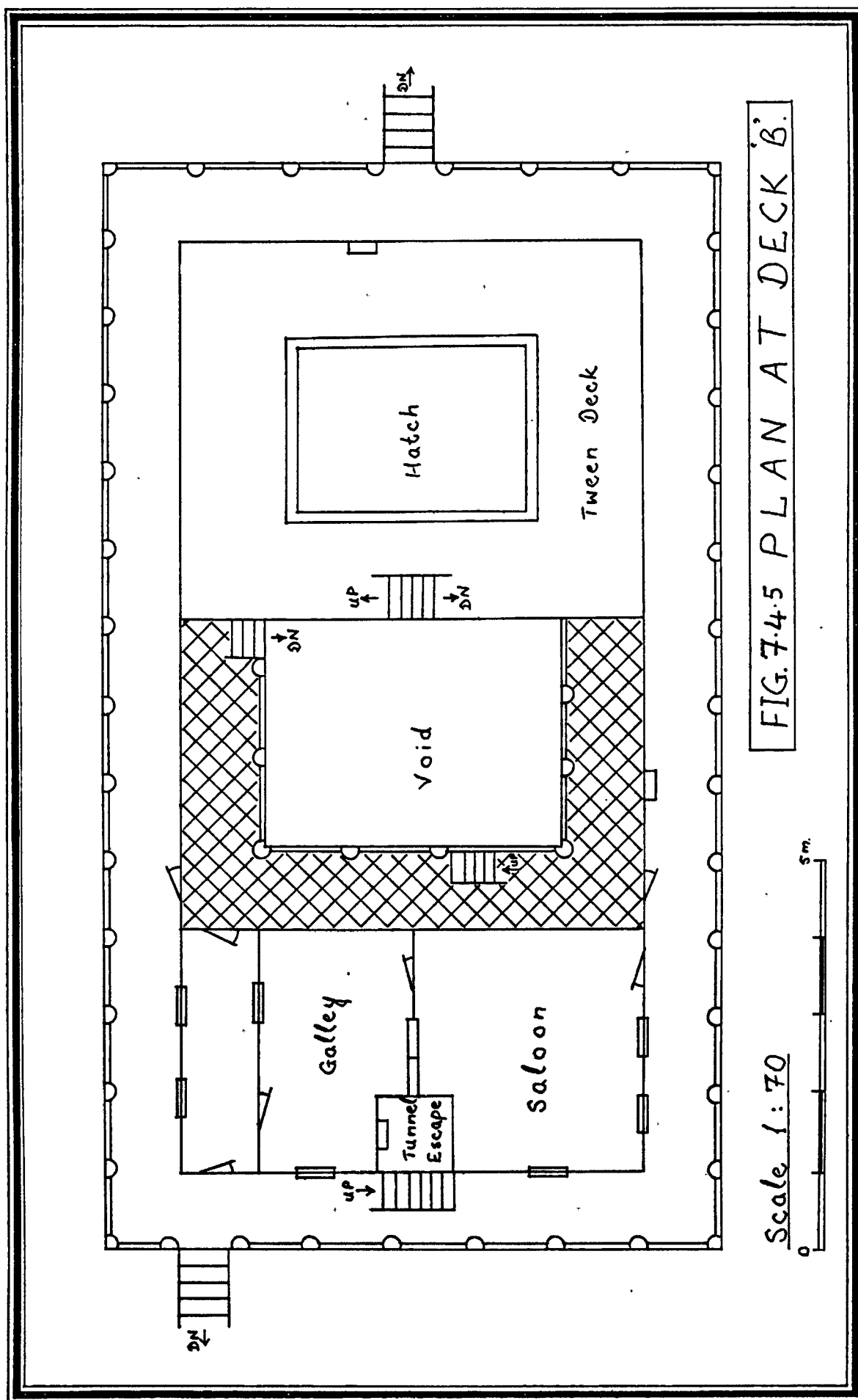
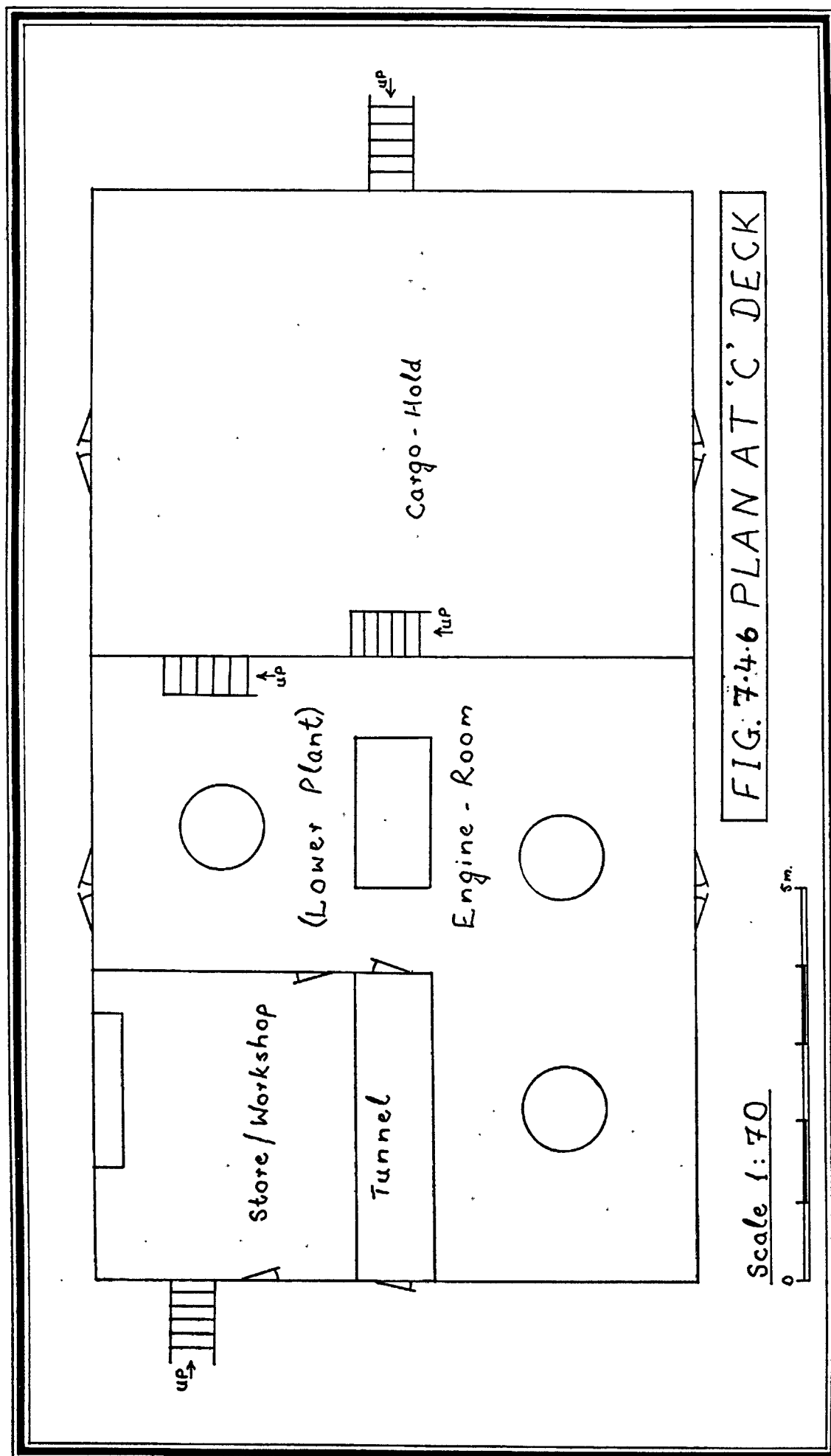


FIG. 7.4.4 PLAN AT
'A' DECK





7.7 LECTURERS AND OTHER STAFF MEMBER

7.7.1 General Requirements:

The most important requirement of a successful maritime training institute, would be a team of well qualified, well trained, dedicated and a highly motivated faculty members.

The success of the institute would depend on the manner in which the lecturers are able to impart knowledge and the benefit of their experience to the participants. They should be able to set a good example so that the participants can hold them in high esteem and follow their footsteps.

At present most of the teaching staff are recruited from abroad on contract basis. When the contract of these officers expires there does not appear to be any local individuals with the qualification and experience to carry out their functions.

A very careful staff development programme should be followed by the maritime academies and responsible organization of Iran.

The majority of lecturers, should be officers (either from IRISL or ex-navy officers) with a master's qualification. In order to get the right people for the job, selection of lecturers plays a crucial role. There would be no difficulty in getting the required number of lecturers from within the IRISL Company or Navy.

After selection, the officers should be tried out as a lecturer for a minimum period of six months and if he is found suitable and he likes the adjustment to a lecturer's job, he should be absorbed as a lecturer.

7.8 TRAINING OF LECTURERS AT THE WORLD MARITIME UNIVERSITY, MALMO, SWEDEN

After a lecturer has been found suitable to continue in his assignment at the Academy, the next step, for providing him with higher education and training .

As the equivalent qualifications and experience to that of his own, namely, the lecturers, the only way to build up the standards of the Academy, would be to first build up the standard of the faculty.

*"The establishment of the World Maritime University provides a critical element now missing but necessary for a coherent and comprehensive system of training and education an international centre for advanced study for high level specialized personnel in developing countries including maritime features , inspectors , technical managers and maritime administrators."

The world maritime university provides a pivotal link in the international system for training in the maritime sector. It complements , supplements and strengthens the training activities now being carried out in the developing countries .

It is a unique institution which offers an advanced level of training in a number of different maritime fields at a single institution, which is presently not available elsewhere.

* Source: Foreward to organisation and structure of world Maritime University, December 1982 by Dr. C.P. srivastava, S. General, IMO.

Based on the foregoing ,it will be observed that the most suitable institution available for providing advanced high level education and training in the maritime sector ,for the development of the Iran merchant marine Academy (Chah-bahar or Shahid Rajaei),is the World Maritime University(WMU).

7.8.1 MARITIME EDUCATION AND TRAINING COURSES OF WMU

The World Maritime University has specially developed the maritime Education and Training courses for the benefit of prospective lecturers in maritime education and training institutions. -

The courses are divided into two fields ,namely , nautical and marine engineering .

As these courses would be the most appropriate courses for the lecturers of the Iran merchant marine academy (Chah-Bahar or Shahid-Rajaei)the modules of these courses have been enumerated at table 7.8.2

In addition to the modules based programme field trips are organised to various institutions in various countries.As an example,the field trips organised for the Maritime Education and Training (Nautical)course of 1986-87 is illustrated at table 7.8.3

An out line of the WMU method of education and training is shown at table 7.8.4

- | | |
|--|--|
| .13 Use of computers. | .13 Review and upgrading of mechanics as applicable to specialization. |
| .14 Theory and practice of maritime education and training. | .14 Review and upgrading of physics, chemistry and thermodynamics as applicable to specialization. |
| .15 Human information processing, teaching methods. | .15 Review and upgrading of fluid mechanics as applicable to specialization. |
| .16 Teaching technology. | .16 Use of computers. |
| .17 Organization and management of maritime education and training institutions. | .17 Theory and practice of maritime education and training . |
| .18 Assessment of students and examination of marine personnel . | .18 Human information processing, teaching method . |
| .19 Cargo handling systems and equipment. | .19 Teaching technology. |
| .20 Packaged dangerous goods solid and liquid bulk cargoes, including necessary and documentation. | .20 Packaged dangerous goods, solid and liquid cargoes necessary and documentation. |
| .21 Law and practice of marine pollution prevention | .21 Law and practice of marine pollution pre- |

	vention.
.22 Selected topics of maritime law.	.22 Selected topics of maritime law.
.23 Shipboard navigation instruments and system.	.23 Machinery control and automation.
.24 Collision avoidance including use of radar.	.24 Selection, fabrication and care of ship building. .
.25 Navigation simulators.	.25 Marine electrical system.
.26 Navigation support equipment, systems and services.	.26 Diesel engine operation design, lubrication.
.27 Ship dynamics and manoeuvring of ships.	.27 Principles of naval architecture.
.28 Ship stability and securing of cargo.	.28 Ship construction and shipyard operations.
.29 Search and rescue, survival craft, survival techniques, life-saving equipment.	.29 Fire prevention, detection and fire fighting.
.30 Marine accident investigation.	.30 Life-saving equipment and procedures.
.31 Occupational safety and crew health.	.31 Occupational safety and crew health.

.32 Personnel management and human relationships on board.	.32 Personnel management and human relation- ships on board.
.33 Man-machine systems, maritime ergonomics, work science.	.33 Marine accident investigation.
.34 Special project/thesis.	.34 Special project/the- sis.

Source :Courses of study ,World Maritime University
March 1986

Table 7.8.3 Field trips of Maritime Education and Training (Nautical course of 1986-87)

Field Trip	Duration	Education Gains
1. Polish sail Training Vessel	3 days	Voyage under sail from Malmo to Kotka (Finland) Polish system of Maritime Education and Training. Training of cadets on board, "Dar Młodzieży".
2. Fourth International Conference on Maritime Education and Training (I.M.L.A) (KOTKA, Finland)	5 days	Different lectures concerning Maritime Education and Training, Electronic Navigation chart and dual-purpose system.
3. Disc Navigation, Sjöbo, Sweden	1/2 day	Developing an Electronic sea chart.
4. Netherlands	6 days	Rotterdam vessel traffic Management system. Amsterdam Maritime Academy, Delft University, Soesterberg Maritime research

Inst. of the
Netherlands, Wagenin-
ge.

- | | | |
|--|---------|---|
| 5. Bremen Polytechnic
FRG. | 5 days | Continuation of
tanker course. Exer-
cises on liquid
cargo Handling
simulator, Loading,-
Discharging, IGS and
COW operations. |
| 6. Nautical College
Copenhagen: | 1 day | Maritime Education
and Training system
in Denmark. |
| 7. Maritime Engineering
College Leningrad
U.S.S.R | 2 weeks | Attending to Baltic
Shipping Company
Radar and ARPA And
shiphandling simu-
lator. |
| 8. U.S coast guard,
Governor's island
New york U.S.A | 1 day | Search and Rescue
organization. |
| 9. Coast guard Mechant
Marine Academy
New London (New york). | 2 days | Training system of
U.S coast guard per-
sonnl. |
| 10. Sea Land Terminal,
Port Elizabeth,
U.S.A | 1 day | Sea-land's world
wide container ope-
rations. Container |

handling facilities,
computerised contain-
er tracking and
stowage

- | | | |
|--|--------|---|
| 11. Copenhagen Navigation school
Denmark | 5 days | ARPA Training

Course. |
| 12. SUSAN, Hamburg
Nautical Institute
FRG. | 5 days | Ship's handling
Simulator. |
| 13. IMO, London. | 3 days | Various
facilities at IMO. |
| 14. Maritime Academy | 5 days | GDR system of
Maritime Education
and training.
Various training
facilities. Computer
programmes developed
for distribution of
cargo and ship
stability. A mathematical
approach to
collision avoidance
manoeuvres. Exercise
on Radar Simulator. |

Table 7.8.4 Outline of WMU Method of Education and Training .

.1 Academic Programme

-Inaccordance with prescribed course modules.

* -General Philosophy of Academic programme.

"As SCIENTIFIC AS NECESSARY
AND
AS PRACTICAL AS POSSIBLE"

.2 Duration

- Two years divided into four semesters.

.3 Examinations

-Generally two/three per semester.

.4 Project

-A paper is to be written by every students, under guidance of the course professor.

-The paper is to be submitted for assessment about three months before completion of the course.

-The paper is assessed by at least two assessors.

-This paper is an example of such a project.

.5 Assessment

- By marks obtained in written examinations.
- By class excercises.
- By home exercises.
- By field trip reports.
- By specific assignments given by course professors.
- By assessment of project.

.6 Index for Grades

- | | | | |
|----|-----------------|-------|-----------------------|
| ** | - 80% and above | | Very good. |
| | - 60% to < 80% | | Good |
| | - 50% to < 60% | | Satisfactory |
| | - 40% to < 50% | | Subject to moderation |
| | - 30% to < 40% | | Unsatisfactory |
| | - 0 % to < 30% | | Very " " |

.7 Award of degree

A Master of Science degree is awarded to successful candidates.

* Source : Prof.G.ZADE ,Lecture delivered at IMO/WMU seminar for heads of Maritime Training Institutes from Developing contries,September 1984

** " : WMU examination results,september 1985

*
* CHAPTER EIGHT *
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*
* PROPOSAL TRAINING COURSES FOR IMPROVEMENT *
*
* AND DEVELOPMENT OF M.E.T IN IRAN *
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8.0 PROPOSAL TRAINING COURSES FOR IMPRVEMENT AND DEVELOPMENT OF MARITIME INSTITUTES IN ORDER TO COMPLY WITH MANDATORY MINIMUM REQUIREMENTS OF STCW CONVENTION

8.1 What courses need to be developed ?

When under taking the task of "development of courses",the first question that come up is ;

What courses need to be developed?

There are several answers to this question,but viewing it as a member of the port and shipping organization (P.S.O) which is responsible for counducting the examination and granting the certificate of competency to the Iranian seafarers ,the answers can be sub-divided into the following categories:

.1 Minimum

To develop courses in order to comply with;

- The Mandatory Minimum Requirements of the STCW convention.

.2 Maximum

To develop courses in order to comply with;

- The Minimum Requirements of the STCW convention ,
- All the Resolutions of the STCW conference,
- All the Resolutions related to STCW conference,adopted vide IMO Assembly sessions XI,XII,and XIII.

.3 Middle

To develop courses in order to comply with;

- The Mandatory minimum requirements of the STCW convention,
- Selected Resolutions of STCW conference,
- Selected Resolutions related to STCW conference,adop-

ted vide IMO Assembly sessions XI,XII,and XIII.

The next question that comes up is,which of the three afore-mentioned categories of "Development of courses " should be adopted ?

.1 Minimum , .2 Maximum or .3 Middle

It will be observed from chapter 4.0 that in Iran, in the field of Maritime Training Education and Training ,there is a lack of adequate training facilities in the area of short courses particularly concerning with conducting the refresher and updating courses.

Hence the Ministry of higher education or in other word Chah-Bahar Merchant Marine academy in order to compliance with STCW 78 should concentrate its efforts in the area of development of short courses.

Considering the resources available within the Chah-Bahar Academy and Port and Shipping Organization Training centre,both financial and technical,it is presently not advisable to adopt the "Maximum category for the development of courses.

Accordingly,this chapter will describe essential courses that need to be exist or developed on a selective basis from the numerous recommendations contained in the Regulation of the STCW conference.

8.2 DEVELOPMENT AND UPDATING OF FUNDAMENTAL COURSES REGARDING TO SUPPLEMENTARY CERTIFICATES

The following certificate of competency courses should conducte on a basis at the nautical college:

- .1 Master (foreign-going)
- .2 First Mate(" ")
- .3 Second Mate(" ")
- .4 Master (home trade)
- .5 mate (" ")

As the above courses has to be conducted on a regular basis at the Chah-Bahar Academy ,it would be easy for the nautical college to develop updating and Refresher courses for deck officers.

A major part of the syllabus could be taken from the existing courses to gether with the incorporation of modern technological developments.

The existing certificate of competency courses are of six months duration and hence an updating and Refresher courses of about tow months duration ,would be adequate.

A co-operation scheme can be organised between the Chah--Bahar Merchant Marine Academy and Shahid-Rajaei training centre so that the applicable short courses which have not been completed by the condidates can be under taken during the period of their stay for the refresher and up-dating courses.

8.3 FIRE-FIGHTING COURSE

8.3.1 Purposes

The objectives of the Fire-fighting course are as follows:

- To comply with the requirements of STCW 78 ,Regulation II/2,"Mandatory Minimum Requirements for certification of Mastersand chief mates of ships of 200 Groos Register tons or more",Appendix to Regulation II/2,paragraph 11(d),"Attendance at an approved fire-fighting courses";
- To comply with the requirements of STCW 78,Regulation II/4,"Mandatory Minimum Requirements for certification of officers incharge of a Navigational Watch on ships of 200 Gross Register tons or more",Appendix to RegulationII/4,paragraph 11(d),attendance at an approved fire-fighting courses";
- To comply with the requirements of STCW 78,Regulation II/2," Mandatory Minimum Requirements for certification of chief Engineer officer and second Engineer officers of ship's powered by Main propulsion Machinery of 3000 KW propulsion power or more",paragraph 2(c) "have attended an approved practical fire-fighting course";
- To comply with the requirements of STCW 78,Regulation III/3, "Mandatory Minimum Requirements for certification of chief Engineer officers and second Engineer officers of ships powered by Main propulsion machinery between 750 KW and 3000 KW propulsion power",paragraph 2(c),"have attended an approved

- practical fire-fighting course ;
- To comply with the requirements of STCW 78, Regulation III/4, "Mandatory Minimum requirements for certification Engineer officers in charge of a Watch in a traditionally manned Engine room or designated duty engineer officers in a periodically unmanned engine room", paragraph 2(f), "have attended an approved practical fire-fighting course",
 - To comply with the requirements of STCW 78 , Regulation IV/1, " Mandatory Minimum requirements for certification of Radio officers ", appendix to regulation IV/1, "... radio officers shall have knowledge and training including practical training ,in the following : " , paragraph (c), " fire-prevention and fire-fighting with particular reference to the radio installation";
 - To comply with the requirements of STCW 78, Regulation V/1, " Mandatory Minimum Requirements for training and qualification of Masters, officers and rating of oil Tankers", paragraph 1, " officers and Rating ,who are to have specific duties and responsibilities related to those duties ,in connection with cargo and equipment on oil tankers and who have not served on board an oil tanker as part of the regular complement before carrying out such duties shall have completed an appropriate shore-based fire-fighting course";
 - To comply with the requirements of IMO resolution A.437(XI) "Training of crew in Fire-fighting".

8.3.2 Participants

The participants for this course are all categories of officers.

8.3.3 Duration

The duration of this course is three days.

8.3.4 Faculty

The Faculty for this course will be provided either by Chah-Bahar merchant marine academy or Shahid-Rajaei Training centre in Bandar Abbas.

8.3.5 Course programme and syllabus

Day 1 Theory

.1 Introduction

-Introductory talk on special need for sea-going personnel to be effective fire-fighters when required.

-Film, " Fire chemistry, (20 minutes).

.2 Theory of combustion

-Fire triangle, heat, fuel, oxygen. Ignition temperature, spontaneous ignition, spontaneous combustion, range of flammability. Effect of heat on different combustibles transmission of heat.

- Principles of fire extinguishing:
- = Starvation, removal or limitation of fuel.
- = Smothering or the limitation of oxygen.
- = Cooling or the limitation of temperature.
- = Examples of each.
- = Interference with flame reaction.

.3 Fuels

-Solid :

- = Carbonaceous, wood, linen, clothing, furniture, rope and canvas, electrical insulation, rags and waste, some plastics, curtains, towels, decorative finishes, general cargo.
- = Evolution of gases ,smoke,danger of flash over,- reignition, importance of surface area.

-Liquids :

- = Oils, class A, Flash point less than 73 F (23C), Highly Flammable .
- = Class B, Flash point between 73F (23c) and 150F (60C) Flammable.
- = Class c, Flash point above 150 F(66C), Combustible.
- = Crude oils, refined oils, spirits, paints, Lubricating oils, oils in hydrolic presure system, e.g telemotor and remote controls. Effect of reid vapour pressure, ignition temperature and spontaneous ignition temprature.

- Gases :

- = Methane, propane, butane, liquified petroleum gas ,li- quified natural gas. Gases evolved when bunkering in

empty tanks. Gases evolved in pump.

Concentration, stratification and vapour travel.

.4 Sources of ignition on ships

-The particular hazards, protective arrangements and devices and their limitations should be stressed in each case.

-Flame or smouldering source:

=Lighted matches'cigarettes, open stove or gallery fire ,boiler.

-Heated surfaces:

=Electric lamps, electric hot plates, heated surfaces in galleys and pantries, steam pipes, diesel exhaust pipes, boiler casings, hot machinery (e.g. pump glands) in gaseous spaces.

-Sparks and hot flying particles:

= Friction and mechanical sparks, e.g. grinding, chipping, welding and cutting.

= Impact of ferrous and non-ferrous metals, e.g. anodes and tools on tankers, seizure of moving machinery.

= Sparks from electrical switches and even hand torches in gaseous spaces.

-Electrical:

=Over loading of circuits giving excessive current, - poorly fitted or improper connections, e.g. twisting one wire with another, fitting extra capacity fuses, over loading of plugs and sockets by adding other appliances, chafing of wires, short circuits, sparks at motors etc. particularly in gaseous atmospheres.

- Spontaneous combustion:

= Cargo of cotton, wet slurry, coal etc. storage of mattresses and bed linen, particularly if damp.

- Static electricity in gaseous atmospheres:

= Steam, CO₂ tank washing water spray in oil tank.

Importance of electrically bonding tools and appliances.

.5 Fire Prevention

- Stress need for good house-keeping, care to avoid disposal of lit cigarettes and matches, danger of smoking in bed, care to avoid faulty electrical fittings, security of possible sources of ignition in heavy weather, e.g. light or radio falling on floor or on combustible material, accumulation of rags, waste or oil drippings, to avoid completing the fire triangle by bringing heat and fuel together in air, e.g. towel or clothing in contact with electric light etc.

.6 Portable Extinguishers

- Types of extinguishers, principles, operating instructions. Methods of inspection, cleaning and recharging water, foam and dry powder extinguishers.

.7 Fixed installations, Fire mains, pumps etc.

- Description of typical installation of water services, including emergency fire pump, isolation valve. International shore connection and hose connections. Use and care of fire hose and appropriate nozzles for various type of fire and for boundary

cooling. Description and made of operation of foam making branch pipe and inductor unit.

Day 1 Practical

.1 Portable and semi-portable extinguishers:

-Operation by each participants of water CO2, dry powder and foam type portable extinguishers on carbonaceous fire (wood cribs or similar fire in braziers) and oil or spirit fire in steel trays.

Water and foam extinguishers are to be recharged by the participants. Actual experience of the effect of using a water jet on an oil fire in a tray.

-The means of ignition could be arranged to be some action of a participants ,e.g. dropping a lighted match, switching on a defective circuit, or spilling flammable liquid on to a hot surface, he would then have to give an alarm, go for an extinguisher, come back and put the fire out.

-Operation of larger sizes of extinguishers on larger oil spirit fires.

.2 Hoses ,Nozzles etc.

-Coupling up hoses, use of jet and spray nozzles on carbonaceous and oil fires .Use of spray nozzles, water curtain and very fine spray on larger oil or spirit fire, two hoses method of attack.

-Use of foam making branch pipe and inductor unite on oil.

Day 2 Theory

-Merchant Shipping Fire Appliances rules dealing with the provision of Fire protection on ships of various types.

-Passenger ships:

- = Fire protection ,zoning,fire-proof bulkheads,Fire doors,fire integrity and fire insulation systems.
- = Patrol and alarm systems.Portable extinguishers in passenger and crew accomodation,in galleys and services spaces.Fire main ,Fire hydrants and hoses in accomodation and on deck .

Sprinkler system in accomodation,with detection alarm on bridge,pressure tank and automaticpumps.

- = Fixed fire extinguishing systems for cargo holds and main machinery spaces and detection system.
- = Emergency fire pumps,shut off valve in rising main, Fireman'outfit i.e. breathing apparatus and protective clothing .

-Cargo Ships:

- = Generally as above ,without sprikler system,with reduced amount of protective bulkheads and without patrol alarm systems.

-Additional appliances on special ships:

- = Tankers.
- = Ro-Ro vessels.
- = Container vessels.
- = Ships carrying explosives.
- = Ships carrying dangerous goods as specified in the IMDG Code.

.2 Respiration, Breathing Apparatus and Resuscitation:

- Respiration and the need for the body to have oxygen.
Effect of rest, work and excitement on breathing rate and oxygen intake.

- Film, "Emergency Resuscitation".

- Use of breathing apparatus when entering a space where smoke vapours or foul air may be present, whether a fire evident or not.

- Types of breathing apparatus, description and use:

- = Helmet or face mask type with air hose supplied by bellows.

- = Self contained compressed air type.
constructional features, operation, reducing and demand valves. Use and maintenance of apparatus, precautions in use, signals and emergency procedure and by-pass valve. Rescue operations.

.3 Fireman's out fit and protective clothing

- Breathing apparatus, electric lamp, axe, helmet, suit, gloves, boots, life line and signal plates.

.4 Fixed Fire Extinguishing Instalations

- Description, operation, precautions, testing and maintenance:

- = Sprinkler system.

- = CO2 system.

- = Halon system.

- = Foam system.

- = Inert gas system.

Day 2 Practical

.1 Breathing Apparatus

- Instruction in wearing and usage of each type of breathing apparatus. each participant to operate in both types of breathing apparatus in a restricted smoke filled chamber for 15 to 20 minutes with simulated fires. Difficulties and dangers to be made clear by demonstration.

.2 Fixed systems of instalation

- Demonstration and operation of mock-up of sprinkler system, CO2 system and foam system.

-Resuscitation:

- = All participants to have some practice in simulated rsuscitation on a dummy provided for the purpose.

Day 3 theory

.1 Built-in Fire protection

Additional information on zoning and isolation of each zone by fire-proof doors, fire-proof and installed bulkheads etc. and including:

- Ventilation arrangements and closure arrangements.
- = Importance of the isolation of a space on six sides, closure of all openings, means of stopping fans

and closing ducts at main supply and between zones. Closure of mashinery spaces, cargo spaces, pump rooms etc. The need to see that self-closing doors are not usedged open or hooked back except by fusible or magnetice catch and so prevented from operating in case of fire.

- Oil fuel arrangments.

= Control of oil fuel pumps, boiler fans, remote control of valves on oilfuel tanks, where this could release oil into a fire, danger of isolated and badly situated tanks and of unsatisfactory level indicators, e.g. gauge glasses which break in a fire and wire arrangements which allow overflow to fall on to hot surfaces. precautions to be taken at oil fuelling stations, tankers loading and discharging cargo.

.2 Control stations

- Concept of a protected space, with safe and easy access from deck to embarkation stations which can be used as a centre for fighting a fire.

Desirability of remot controls to tanks, pumps and closing arrangements being grouped in or adacent to such a station with fire plans, fire equipment of all kinds and master lists being placed there in .

.3 Damage control

-Effects on stability of free water in the ship, how to reduce total input of water to any space and to remove excess water or allow it to drain to less dangerous position. Danger of any opening in ship's side, portho-

les, cargo doors etc. if vessel lists or due to sinkage.
Possibility of bottom damage in shallow water.

.4 Organization of fire parties

- Need for overall leadership possibly with a number of parties.
- Organization of parties for combating following fires:
 - = Accommodation and service spaces.
 - = Cargo tank and deck spaces.
 - = Machinery spaces.
 - = Large "spill over" fire on a tanker.
 - = Special cases- L.P.G, L.N.G, RO-RO, Container ship etc.

Day 3 Practical

.1 Fire fighting exercise

- Practical fire fighting exercises with and without breathing apparatus to give all participants of the course a realistic and convincing experience of operating under conditions involving smoke, heat and flame in large fires. Exercises would show the need for organised fire parties, demonstrate common faults in fire fighting i.e. reliance on too small or unsuitable extinguishers and the impracticability of fighting a large fire single handed when a party is available at a short distance. The need to give a rapid alarm and to demonstrate the rapid increase in intensity to emphasize the need to attack quickly unless the fire can be controlled by closure e.g.-

ship's holds, until the necessary appliances are brought up.

.2 Type of fire to be simulated

- Accommodation with large quantities of smoke and heat. Demonstrate re-ignition and flash over from mattresses and curtains etc.
- Galleys and pantries
- Machinery spaces, introduce obstacles and limited access with consideration smoke. Demonstrate re-ignition and difficulty in bringing hoses to bear .

8.4 SURVIVAL AT SEA COURSE

8.4.1 purpose

The purpose of the survival at sea course is to comply with the mandatory requirements of stow 78, "Training of seafarers in personal Survival Techniques".

8.4.2 Participants

The participants for this course are all officers, - cadets, petty-officers, and ratings.

8.4.3 Duration

The duration of this course is one day (8 hours).

8.4.4 Faculty

The faculty for this course consists of an experienced Master and an ex-Naval petty-officer.

8.4.5 Course programme and syllabus

Session I

Duration 30 minuts. (Class rooms)

Introduction

- .1 Types of emergencies, such as fire, collision, stranding, etc.
- .2 Needs to adhere to the principles of survival to combat:

- Drowning.
- Exposure to sea / weather.
- Lack of nourishment / water.

.3 Survival factors: Equipment, knowledge and will to survive.

-Drills and their value, use of life jackets, Life buoys, Life rafts and buoyant apparatus.

-Sensible use of time prior to abandonment:

=Take possible precautions to minimise hazards likely to occur on abandonment.

=Collect additional food, blankets, water etc.

-Importance of maintaining body heat:

=Clothing, effects of immersion in cold/tropical waters.

=Rate of heat loss.

-Panic and its consequences:

=Caused by fear.

=Drills and knowledge give confidence, boost up morale.

-Case history.

Session II

Duration: ...90 minutes (Class room)

Dry Drill

.1 Life jackets, description, wearing and use.

.2 Life rafts:

- Rigid and inflatable type, operation ,stowage,release auto/manual.
- Inflation and boarding.
- Description of parts,capacity,safety factors, fixed equipment.
- Ancillary equipment,survival pack,location aids,rations ect.

.3 Initial action on boarding life raft:

- Cut painter,clear away from vessel.
- Stream drogue.
- Close entrance.
- Maintain life raft.

.4 Film

Session III

Duration....90 minutes (Class room)

.1 Principles of craftmanship :

-Protection:

=Initial and secondary action in hot and cold climates,against fire,oil pollution,shark infested waters,treatment to injured survivors,seasickness,loss of body fluid,morale.

-Location:

= Pyrotechnics,radio,torch,heliograph and improvisation.

-Water:

=Dehydration,rationing,sources of water,seawater,urine,-misbeliefs.

-Food:

=Misbeliefs, eat carbohydrates, avoid proteins (e.g. fish and meat), survival ration, avoid alcohol.

.2 Medical Aspects

-First aid in survival environments:

=Breathing difficulty, bleeding, unconsciousness, wounds, - burns, resuscitation.

-Cold injuries:

=Frostbite, immersion foot.

-Hypothermia:

=Symptoms, causes, consequences, exposure, Loss of body heat, body temperature less than 36.9 C, treatment, prevention.

.3 Films, "Survival at Sea"

Session IV

Duration...60 minutes (Class room)

.1 Rescue

-Helicopter rescue, hoisting and signals.

-SAR Procedures.

-Search and rescue organisations.

Session V

Duration...3 hours (Swimming Pool)

Wet Drill

- .1 Life jackets, wearing and checking.
- .2 Swimming with life jackets on.
- .3 Floating in "HELP" posture (minimum heat loss posture).
- .4 Rescuing procedure, towing, pushing.
- .5 Inflating the life raft:
 - Familiarisation, parts and equipment.
 - Initial action on boarding.
 - Rough weather routine.
- .6 Jumping from 5 meter height with life jacket on.
 - Entering life raft:
 - =Unaided ...twice each participant;
 - =aided...once each(as injured)participant.
- .7 Uprighting on inverted life raft,twice each participant

8.5 RADAR OBSERVER COURSE

8.5.1 purposes

The purposes of the Radar observer course are as follows:

- To comply with the supplementary certificate requirements for a second Mate (F.G) certificate of competency ;
- To comply with the requirements of STCW 78 ,Regulation II/4,"Mandatory Minimum Requirements for certification of officers in charge of a Navigational Watch on ships of 200 Gross Register tons or more",Appendix paragraph 3,"Radar Navigation" ; and
- To comply with the requirements of IMO Resolution A.483 (XII),"Training in Radar observation and plotting".

8.5.2 Participants

The participants for this course are cadets with a minimum priod of one year sea service.

8.5.3 Duration of this course is two weeks.

8.5.4 Faculty

The faculty for this course consists of experienced masters and an experienced Electrical officer with an ex-Naval background and having a good knowledge of Radar electronics.

8.5.5 Course programme

Day 1

0800 - 1030 :Radio waves,principles of Radar,simple block diagram.

1045 - 1245 :Important characteristics of targets,aspects etc. on detection and range.

1345 - 1600 :Radar reports.Introduction to plotting.Relative and true plots.

Day 2

0800 - 1030 :Radar plotting.

1045 - 1245 :-Contd. -

1345 - 1600 :-Contd. -

Day 3

0800 - 1030 :C.R.T."A" scan,P.P.I,operating controls. Advanced block diagram.

1045 - 1245 :Radar picture and chart,weather effects,anomalous propagation.

1345 - 1600 :Radar plotting.

Day 4

0800 - 1600 :Ship visit for Radar practicals.

Day 5

0800 - 1030 :Blind and shadow sectors,spurious echoes,Radar interference.

1045 - 1245 :Radar plotting.

1345 - 1600 :Factors governing maximum and minimum range .
Effects of pulse length,pulse repetition
frequency,horizontal beam width.Bearing and
range discrimination.

Day 6

0800 - 1030 :Types of scanners,siting scanners,wave guide.
Display unit,Transceiver unit etc.
1045 - 1245 :Misalignment of heading line / scanner.
Errors in Radar ranges and bearings .Errors
of parallax.
1345 - 1600 :Radar plotting.

Days 7

0800 - 1600 :Ship visit for Radar practicals.

Day 8

0800 - 1030 :Radar log,operation manual an records .
1045 - 1245 :Performance monitor.Radar maintenance.
1345 - 1600 :Application of collision Regulations.

Day 9

0800 - 1030 :Radar plotting.
1045 - 1245 :--Contd.--
1345 - 1600 :--Contd.--

Day 10

0800 -1030 :Radar beacons.Plotting aids ,ARPA.Limitations.
1045 - 1245 :Radar plotting .

1345 - 1600 :Parallel index techniques.
Application of collision Regulations.

Day 11

0800 - 1600 :Ship visit for Radar practicals

Day 12

0800 - 1600 :Ship visit for Radar practical examination.

Day 13

0800 - 1030 :Theory revision.
1045 - 1245 :Plotting revision.
1345 - 1600 :Class test.

Day 14

0900 -1200 :Radar theory and plotting examination.

8.6 RADAR SIMULATOR TRAINING AND ARPA COURSE

8.6.1 The need for existing and developing Radar simulator and ARPA course.

Since the last four decades,marine radar have been developed into one of the most important navigational aids for the mariner.However,improper use of radar data or misinterpretationof radar data,may result in a catastrophic disaster.

The famous "Stockholm / Andrea Doria" collision case is a typicalexample of what is now known as,"A Radar Assisted Collisioin" .Hence,in order to train mariners,to interpret radar data correctly,"Radar observer course, were developed.

Over the last decade,Radar Navigation Simulators have been developed into an effective tool for Radar and ARPA training.However,it must be borne in mind,that a good navigator is also a good seaman and he has to assimilate every available factor which exists in the real situation at sea ,but it is so far not possible to exactly simulat such a real sea situation,hence,the role of simulation techniques should not be overestimated.

For best results ,there should be a combination of simulator aided training and practical experiene at sea. Further,with the aid of a simulator the amount of practice that can be given in a short span of time and the situations which can be created could be likely to encounter,this would build up the confidence of the participant and he would be well prepared to face the real situation at sea .

The development of Automatic Radar Plotting Aids (ARPA) is fairly recent. Improper use of ARPA may result in what today be termed as, "A Computer Assisted Collision". Hence, Radar Simulator Training should be augmented to include ARPA training.

Recognizing the benefits of a simulator for Radar and ARPA training, a number of IMO Regulations and Resolutions have recommended the use of such simulators for training. At the present, Chah-Bahar merchant marine academy is not equipped with Radar simulator and Navigating officers to undergo a Radar observer course should go to abroad. Recently, after a long study and negotiations, a contract has been signed between the Government of Iran and the Nor-Control company to obtain a very advanced Radar simulator.

With the acquisition of a simulator, it would be possible to make this course effective and further, based on the foregoing and considering the increasing number of ships being fitted with ARPA Radar s, there is a need to have Radar simulator training and ARPA course.

8.6.2 Purposes

The purposes and objectives of the Radar simulator training and ARPA course, should be as follows:

- To comply with the requirements of STCW 78, Regulation II/2, "Mandatory minimum Requirements for Certification of Masters and chief Mates of ships of 200 GRT or more", Appendix paragraph 4, "Radar equipment";
- To comply with the supplementary certificate requirements for a second mate (F.G) certificate of competency;

- To comply with the requirements of STCW conference Resolution 18,"Radar simulator Training";
- To comply with the requirements of STCW conference Resolution 20,"Training in the use of collision Avoidance Aids";
- To comply with the requirements of IMO Resolution A.483 (XII),"Training in Radar observation and plotting";and
- To comply with the requirements of IMO Resolution A.482 (XII),"Training in use of automatic radar plotting Aids (ARPA)".

8.6.3 Participants

The participants for this course would be Masters, and Navigating officers.

8.6.4 Duration

The duration of this course should be two weeks.

8.6.5 Faculty

The faculty for the Radar observer course consists of experienced masters and an experienced Electrical officer with an ex-Naval background and having a good knowledge of Radar electronics.

The same faculty could also be utilized for Radar simulator Training and ARPA course after adequate specialized training.

8.6.6 Syllabus :Would consist of the following parts;

Part I : Radar theory revision

- .1 Principles of Radar.
- .2 Main units.
- .3 Block Diagram;
 - Modulator, Magnetron, Scanner, Time - base, Brightening pulse etc.;
 - Transmitter;
 - Receiver.
- .4 Characteristics of Radar Pulses;
 - Wavelength, Electro-magnetic spectrum, S - band, X - band;
 - Pulse duration (length), Pulse repetition frequency;
 - Pulse power;
 - Beam width.
- .5 Radar Receiver;
 - Problem, Task, Principle, Technique, Local Oscillator, Mixer, I.F. Amplifier, Tuning, Amplification, Demodulation, Video Amplifier, Control, Quality.
- .6 Time Base and Range Measurement.
- .7 Fast Time Constant (FTC), (Anti-clutter Rain);
 - Problem, Objective, Principle, Technique, Examples, Control, Disadvantage, Modern Alternative, Technique of differentiation.
- .8 Sensivity Time Control (STC), (Anti-clutter Sea);
 - Problem, Aim, Principle, Result, Technique, Video signal, Control, Modern Alternative.
- .9 Cathode Ray Tube (CRT);
 - Task, Technique, Electron Gun, Brilliance, Focus, Centering, Deflection Coils.

- .10 Echo distortion and discrimination;
 - Bearing distortion, Bearing discrimination;
 - Range discrimination, Minimum range.
- .11 Range and Bearing Measurement and Accuracy.
- .12 IMO Resolution A.477(XI), "Performance Standards for Navigational Radar Equipment".
- .13 False and Unwanted Echoes (Spurious Echoes);
 - Side Echoes, Multiple Echoes, Indirect Echo, Second Trace Echoes;
 - Interference, Spoking, Crossing high tension cables, Sea-clutter.
- .14 Modes of Presentation;
 - Relative motion, Head up, North up, Course up;
 - True motion, North up, Course up;
 - Centred, Off-centre.
- .15 Comparative study of Technical Specifications.
- .16 Radar Beacons and Transponders, Radar Reflectors, Radaflare.

Part II : Plotting Techniques Revision

- .1 Manual plotting techniques, reflection plotters, plotting exercises, relative / true motion. Real time exercises on simulator.
- .2 Identification of critical echoes
 - Position fixing by radar from land targets and sea marks.
 - Accuracy of position fixing by ranges and by bearings.
 - Importance of cross checking accuracy of radar against other navigational aids.
 - The value of recording ranges and bearings at frequent, regular intervals when using radar as an aid to collision avoidance.

.3 Course and speed of other ships

- Different methods by which course and speed of other ships can be obtained from recorded ranges and bearings;
 - = unstabilized relative plot,
 - = stabilized relative plot,
 - = true plot.
- Relationship between visual and radar observations; detail, accuracy of estimates of course and speed of other ships. Detection of changes in movements of other ships.

.4 Time and distance of closest approach of crossing, meeting or overtaking ships

- Use of recorded data to obtain;
 - = measurement of closest approach distance and bearing,
 - = time to closest approach.
- The importance of frequent, regular observations.

.5 Detecting course and speed changes of other ships

- Effects of changes of course or speed by other ships on their tracks across the display.
- Delay between change of course or speed and detection of that change.
- Hazards of small changes as compared with substantial changes of course or speed in relation to rate and accuracy of detection.

.6 Effects of changes in own ship's course and speed or both

- On a relative motion display; effects of own ship's movements, effects of other ships' movements, advantages of compass stabilization of a relative display.

- On a true motion display.
- Effects of inaccuracies; of speed and course settings on a true motion display, of compass stabilization data driving a stabilized relative motion display.
- Effects of changes in course or speed by own ship on tracks of other ships on the display.
- Relationship of speed to frequency of observations.

.7 Application of the International Regulations for Preventing Collisions at Sea

- Relationship of the Regulations for Preventing Collisions at Sea to the use of radar.
- Action to avoid collision; dangers of assumption made on inadequate information and the hazards of small alterations of course or speed. The advantages of safe speed when using radar to avoid collision. The relationship of speed to closest approach distance and time and to the manoeuvring characteristics of various types of ships.
- The importance of radar observation reports being well defined; radar reporting procedure.
- Use of radar in clear weather, to obtain an appreciation of its capabilities and limitations, compare radar and visual observations and obtain an assessment of the relative accuracy of information.
- The need for early use of radar in clear weather at night and when there are indications that visibility may deteriorate. Comparison of features displayed by radar with charted features. Comparison of the effects of differences between range scales.

Part III : Exercises on Radar Navigation Simulator

- To be developed by the faculty.

The simulator facilities should provide a capability such that the participants undergo a series of real - time exercises in basic radar format and also in ARPA format. Realistic exercises should be developed to provide the participants with a wide range of displayed information and to consolidate their ability to effectively use basic radar and ARPA systems.

Part IV : ARPA Training

Theory and Demonstration

.1 Digital Radar Data Processing :

- Problem, aim, principle, precautions;
- Quantization, range, bearing, amplitude;
- Improvement of signal, correlation, echo stretch, echo brightening, retiming, recycling;
- Rasterscan.

.2 ARPA Philosophy :

- Introduction;
- ARPA procedure overview;
- The acquisition and tracking windows;
- Target tracking;
- Filtering.

.3 ARPA Features :

- Acquisition;
- Vectors;
- Past trails;
- Alphanumeric data;
- Possible points of collision (PPC);
- Predicted areas of danger (PAD);
- Dangerous sectors;
- Trial manoeuvres;
- Operational warnings;
- Navigation lines;

- Speed and Course measurement.

.4 Errors and Limitations :

- Introduction;
- Sensor errors;
 - = IMO Resolution A.422(XI), Annex 3,
 - = Radar, errors in range, bearing error,
 - = Speed input error,
 - = Course errors,
 - = Influence on vectors,
 - = Influence on PPC's;
- ARPA errors (tracking errors);
 - = Sea clutter,
 - = Target swop,
 - = Fast manoeuvre,
 - = Display delay,
 - = Reasons for target loss;
- Errors of interpretation;
 - = Misinterpretation concerning vectors,
 - = Misinterpretation due to ground or sea stabilized motion,
 - = Misinterpretation because of display symbols.

.5 The possible risks of over - reliance on ARPA

- Appreciation that ARPA is only a navigational aid and that its limitations, including those of its sensors, make over - reliance on ARPA dangerous, in particular for keeping a look - out. Need to comply at all times with the basic principles and operational guidance for officers in charge of a navigational watch.

.6 The principal types of ARPA systems and their display characteristics

- Knowledge of the principal types of ARPA systems in use; their various display characteristics and an understanding of when to use ground or sea stabilized modes and north-up, course-up or head-up presentations.

- .7 IMO performance standards for ARPA
 - An appreciation of the IMO performance standards for ARPA, in particular the standards relating to accuracy.
- .8 Factors affecting system performance and accuracy
 - Knowledge of ARPA sensor input performance parameters - radar, compass and speed inputs, effects of sensor malfunction on the accuracy of ARPA data.
 - Effects of the limitations of radar range and bearing discrimination and accuracy; the limitations of compass and speed input accuracies on the accuracy of ARPA data.
 - Knowledge of factors which influence vector accuracy.
- .9 Tracking capabilities and limitations
 - Knowledge of the criteria for the selection of targets by automatic acquisition.
 - Factors leading to the correct choice of targets for manual acquisition.
 - Effects on tracking of "lost" targets and target fading.
 - Circumstances causing "target swop" and its effects on displayed data.
- .10 Processing delays
 - The delays inherent in the display of processed ARPA information, particularly on acquisition and re-acquisition or when a tracked target manoeuvres.
- .11 When and how to use the operational warnings, their benefits and limitations
 - Appreciation of the uses, benefits and limitations of ARPA operational warnings; correct setting, where applicable, to avoid spurious interference.
- .12 System operational tests
 - Methods of testing for malfunctions of ARPA systems including functional self-testing.
 - Precautions to be taken after a malfunction occurs. ✓

- .13 Manual and automatic acquisition of targets and their respective limitations
- Knowledge of the limits imposed on both types of acquisition in multi-target scenarios, effects on acquisition of target fading and target swap.
- .14 When and how to use true and relative vectors and typical graphic representation of target information and danger areas
- Thorough knowledge of true and relative vectors; derivation of targets' true courses and speeds.
 - Threat assessment; derivation of predicted closest point of approach and predicted time to closest point of approach from forward extrapolation of vectors, the use of graphic representation of danger areas.
 - Effects of alterations of course and / or speed of own ship and / or targets on predicted closest point of approach and predicted time to closest point of approach and danger areas.
 - Effects of incorrect vectors and danger areas.
 - Benefits of switching between true and relative vectors.
- .15 When and how to use information on past position of targets being tracked
- Knowledge of the derivation of past positions of targets being tracked, recognition of historic data as a means of indicating recent manoeuvring of targets and as a method of checking the validity of the ARPA's tracking.

Practice

- .1 Setting up and maintaining displays
- The correct starting procedure to obtain the optimum display of ARPA information.
 - Choice of display presentation; stabilized relative motion displays and true motion displays.
 - Correct adjustment of all variable radar display controls for optimum display of data.

- Selection, as appropriate, of required speed input to ARPA.
- Selection of ARPA plotting controls, manual / automatic acquisition, vector / graphic display of data.
- Selection of the time scale of vectors / graphics.
- Use of exclusion areas when automatic acquisition is employed by ARPA.
- Performance checks of radar, compass, speed input sensors and ARPA.

.2 System operational tests

- System checks and determining data accuracy of ARPA including the trial manoeuvre facility by checking against basic radar plot.

.3 When and how to obtain information from ARPA display

- Demonstrate ability to obtain information in both relative and true motion modes of display, including :
 - = identification of critical echoes;
 - = speed and direction of target's relative movement;
 - = time to and predicted range at, target's closest point of approach;
 - = courses and speeds of targets;
 - = detecting course and speed changes of targets and the limitations of such information;
 - = effect of changes in own ship's course or speed or both;
 - = operation of the trial manoeuvre.

.4 Application of the International Regulations for Preventing Collisions at Sea

- Analysis of potential collision situations from displayed information, determination and execution of action to avoid close quarters situations in accordance with International Regulations for Preventing Collisions at Sea.

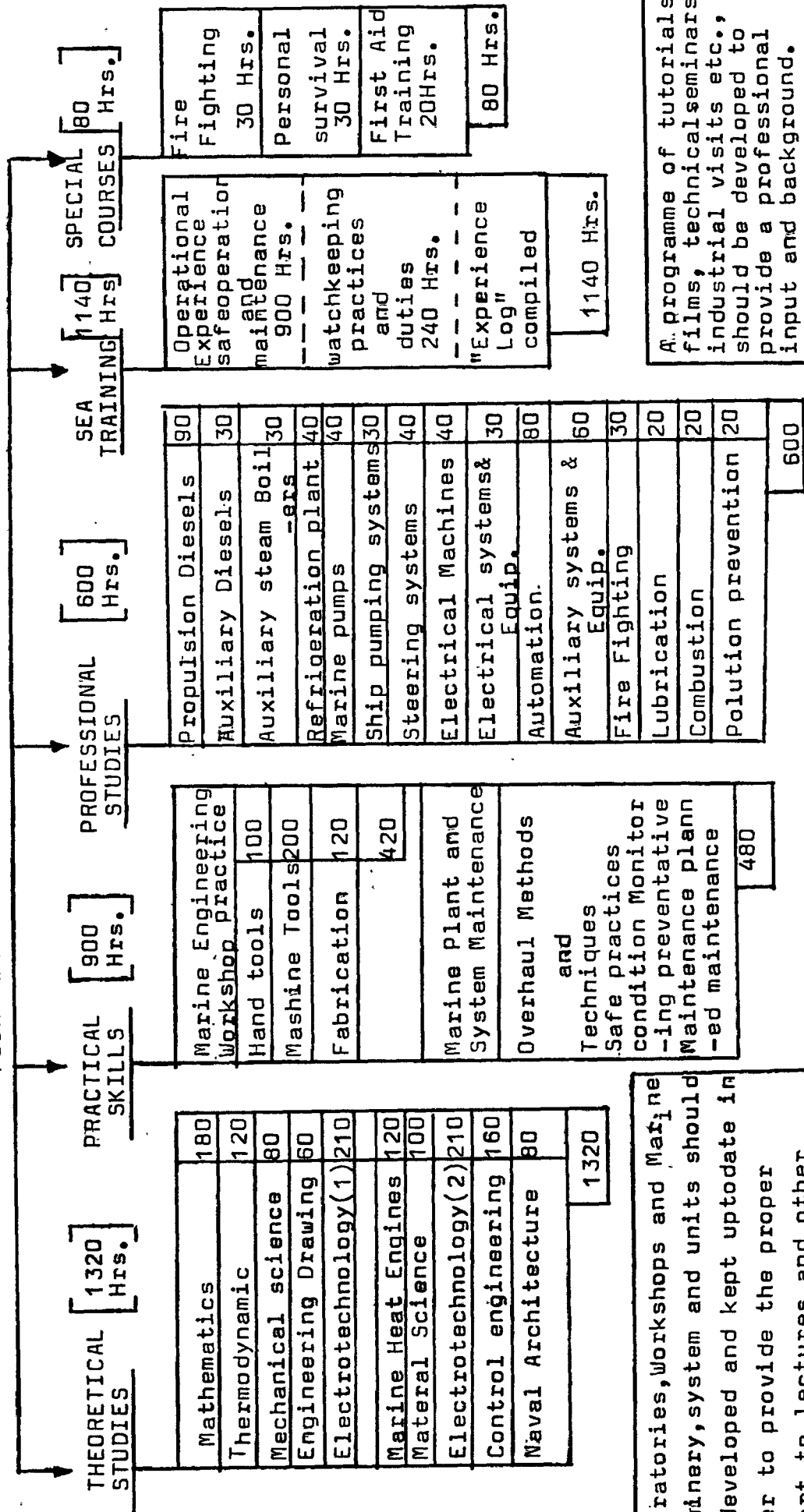
The above syllabuse has been developed, based on the following:

- "Radar and ARPA", lectures delivered by Dr.B.Berking, at World Maritime University June-September 1987;
- IMO Resolution A.483(XII), "Training in Radar observation and plotting; and
- IMO Resolution A.482(XII) , "Training in the use of Automatic Radar plotting Aids (ARPA).

PROPOSAL FOR 4 YEAR GRADUATE LEVEL MARINE ENGINEERING PROGRAMME

PROGRAMME COVERS REQUIREMENTS FOR WATCHKEEPING CETIFICATE (STCW REG. III/4)

FOUR YEAR EDUCATION AND TRAINING PROGRAMME



Laboratories, Workshops and Marine Machinery, system and units should be developed and kept upto date in order to provide the proper support to lectures and other activities.

A. programme of tutorials, films, technical seminars, industrial visits etc., should be developed to provide a professional input and background.

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* CHAPTER NINE *
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* PROPOSAL DRAFT OF SUBSIDIARY LEGISLATION *
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*
* FOR CERTIFICATION OF SEAFARERS *
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9.0 PROPOSAL DRAFT OF SUBSIDIARY LEGISLATION FOR EXAMINATION AND CERTIFICATION OF IRANIAN SEAFARERS

9.1 Intrduction

One of the major steps towards implementation of any training scheme in a country is to examine the legislative provisions or ordinances and judge whether it is adequately fashioned along the lines of legally acceptable national and international standards.

There has been considrable development in the maritime industry in that the condition of services have either improved. Ships either better equipped or will be better equipped and marine legislation is being revised and brought up to international standards.

Syllabuses and regulations of Maritime Board examination should also have to be revise and up graded to the STCW code requirements and satndards.

I come now to the question of how we can to gear ourselves to meet the requirements and be able to ratify the convention. In this conection we need to prepare appropriate Rules / Regulations for conduct of the various Examinations and Certification of Seafarers.

9.2 Requirements regarding the number and type of certificates for different types of vessels

These proposed draft of Regulations Governing Examination and Certification for marine personnel of Islamic Republic of Iran are framed for aimes of promoting the technical proficiency level of seafarers of foreign - going , home -trade , and local - trade ships continuously , and

ensuring ships safety navigation ,and fulfilling the task of the national water transportation better .

These Recommendatory Regulations (hereinafter referred to as "Ordinance") would be as subsidiary legislation (suggestion) for covering Chapter two of Iranian Maritime Code (matters concerning seafarers and certification), from Articles 49 to 63 which it has submitted to parliament some times last yaer is under ratification process .

9.2.1 "Certificates of competency to be held by officers of foreign - going ships"

49. (1) Every foreign - going Iranian ship , when going to sea from any port or place in Iran , shall be provided with officers duly certificated under this ordinance according to the following scale ,namely :

(a) every ship shall have a master holding a certificate of competency as master of a foreign-going ship ;

(b) if the ship is of five thousand gross tons or more, there shall be, besides the master-

(i) a chief officer holding a certificate of competency not lower than that of first mate of a foreign-going ship;

(ii) a second officer holding a certificate of competency not lower than that of second mate of a foreign-going ship;
and

- (III) a third officer holding a certificate of competency not lower than that of third mate of a foreign-going ship;
- (c) if the ship is of less than five thousand gross register tons, there shall be , besides the master-
- (i) a chief officer holding a certificate of competency not lower than that of first mate of a foreign-going ship; and
 - (ii) a second officer holding a certificate of competency not lower than that of a third mate of a foreign-going ship;
- (d) if the ship is a vessel of 3000 KW propulsion power or more (4,080 hp and over), there shall be at least four engineers ,as follows:
- (i) one first-class engineer (chief-engineer)
 - (ii) one engineer who shall be at least a second-class engineer(second-engineer);and
 - (iii) two engineers who shall be at least fourth-class engineers or first-class engine drivers;
- (e) if the ship is a vessel of more than 750 KW propulsion power but less than 3000 KW propulsion power (1,020 hp or more but under 4,080 hp) there shall be at least three engineers , as follows:

(i) one engineer who shall be at least a second -class engineer;

(ii) one engineer who shall be at least a third-class engineer; and

(iii) one engineer who shall be at least a fourth-class engine driver;

(f) if the ship is a vessel of 750 KW propulsion power or less there shall be at least two engineers ,one of whom shall be at least a third-class engineer and the other at least a first-class engine driver.

(2) The Port and Shipping Organization may , subject to such conditions as it thinks fit exempt any ship or class ship from any of the provisions of this section.

(3) For the purposes of this section, 745.7 Watts propulsion power is equal to one horsepower.

9.2.2 "Certificates of competency be held by officers of home-trade ships"

49 A. (1) Every home-trade ship, when going to sea from any port or place in Iran ,shall be provided with officers duly certificated under this ordinance according to the following scale,namely

(a) if the ship is of five thousand gross register tons or more, there shall be -

(i) a master holding a certificate of competency as master of a foreign-going ship or a master holding both a certificate of competency as master of a home-trade ship and a certificate of competency as first mate of a foreign-going ship;

(ii) a chief officer holding a certificate of competency not lower than that of first mate of a foreign-going ship; and

(iii) a second officer holding a certificate of competency not lower than that of mate of a home-trade ship;

(b) if the ship is of less than five thousand gross register tons, there shall be -

(i) a master holding a certificate of competency not lower than that of master of a home-trade ship ;

(ii) a chief officer holding a certificate of competency not lower than that of mate home-trade ship ; and

(iii) a second officer holding a certificate of competency not lower than that of mate of home-trade ship ;

(c) if the ship is a vessel of 3000 KW propulsion power or more , there shall be at least three engineers , as follows:

(i) one engineer who shall be at least a second-class engineer ;

(ii) one engineer who shall be at least a fourth-class engineer or first-class engine driver ; and

(iii) one engineer who shall be at least a second-class engine driver ;

(d) if the ship is a vessel of more than 750 KW propulsion but less than 3000 KW propulsion power ,there shall be at least three engineers as follows :

(i) one engineer who shall be at least a first-class engine driver ;

(ii) one engineer who shall be at least a second-class engine driver; and

(iii) one engineer who shall be at least a third-class engine driver;

(e) if the ship is a vessel of 350 KW to 750 propulsion power ,there shall be at least two engineers ,one of whom shall be at least a first - class engine driver and the other at

least a second-class engine driver ;

(f) if the ship is a steamship of less than 350 KW propulsion power , there shall be at least one engineer who shall be at least a third-class engine driver .

(2) The port and Shipping Organization may , subject to such conditions as it thinks fit , exempt any ship or class of ship from any of the provisions of this section.

9.2.3 "Certificates of competency to be held by officers of local-trade ships"

49.B (1) Every local-trade ships when going to sea from any port or place in Iran, shall be provided with officers duly certificated under this ordinance according to the following scale, namely :

(a) if the ship is of five thousand gross register tons ,there shall be -

(i) a master holding a certificate of competency as master of a foreign-going ship:

(ii) a chief officer holding a certificate of competency not lower than that of first mate of a foreign-going ship; and

(iii) a second officer holding a certificate of competency not lower than that of a home--

trade ship;

(b) if the ship is of one thousand and six hundred gross register tons , there shall be -

(i) a master holding a certificate of competency not lower than that of master of a home-trade ship ;

(ii) a chief officer holding a certificate of competency not lower than that of a home-trade ship ; and

(iii) a second officer holding a certificate of competency not lower than that of a local-trade ship;

(c) if the ship is of two hundred gross register tons or more but less than one thousand and six hundred gross register tons , there shall be-

(i) a master holding a certificate of competency not lower than that of master of a local-trade ship ;

(ii) a chief officer holding a certificate of competency not lower than that of mate of a local-trade ship.

(d) if the ship is of less than two hundred gross register tons , there shall be -

(i) a master holding a certificate of competency not lower than that of master of a local trade ship ; and

(ii) a chief officer holding a certificate of competency not lower than that of a local-trade ship ;

(e) if the ship is a vessel of 3000 KW propulsion power or more , there shall be at least three engineers ,as follows :

(i) one engineer who shall be at least a second - class engineer ;

(ii) one engineer who shall be at least a fourth-class engineer or first-class engine driver ; and

(iii) one engineer who shall be at least a second - class engine driver ;

(f) if the ship is a vessel of more than 750 KW propulsion power but less than 3000 KW propulsion power ,there shall be at least three engineers, as follows:

(i) one engineer who shall be at least a first-class engine driver ;

(ii) one engineer who shall be at least a second engine driver ; and

(iii) one engineer who shall be at least a third-class engine driver ;

(g) if the ship is a vessel of 350 KW to 750 KW propulsion power , there shall be at least two engineers , one of whom shall be at least a first-class engine driver and the other at least a second -class engine driver .

(h) if the ship is a vessel of less than 350 KW propulsion power , there shall be at least one engineer who shall be at least a third - class engine driver .

(2) Port and Shipping Organization may , subject to such conditions as it thinks fit , exempt any ship or class of ship from any of the provisions of this section.

Ship's Officers

Gross Tonnage	Foreign Going			Home Trade Going		
	Master	Chief Officer	Other Officer	Master	Chief Officer	Other Officer
5000 and over	1 Mfg	1	1 sofg 1 Tofg	1 Mfg or 1 Mfg	1 Co or 1 Fmfg	1 So
1600 up to 5000	1 Mfg	1	1 Sofg	1 M ht	1 Co	1 so

Master Foreign Going = Mfg
Chief Officer Foreign Going = Cofg
Second Officer Foreign Going = Sofg
Third Officer Foreign Going = Tofg
Master of Home Trade = Mht

Engineer Officers

Propulsion power	Foreign Going			Home Trade Going		
	Chief Engineer	2nd	Other Officer	Chief	2nd	Other Engineer officer
3000 or Over	1	1	2Fce	1	-	1 Tce
750 up to 3000	-	1	1Tce 1 Fce	-	-	1 Fce 1 Tce
750 or Less	-	-	1 Tce 1 Fce	-	-	1 Fce

Fourth-class engineer = Fce
First-class engine driver
Third-class engineer = Tce

9.3 PROPOSAL REGULATION FOR EXAMINATION AND GRANTING OF CERTIFICATES (DECK)

In exercise of the powers conferred by Articles 53 to 63 of Iranian Maritime Code ,the POtr and Shipping Organization on be half of the Ministry of road and transport makes the following rules (suggestion).

9.3.1 PART I : CONDITIONS OF ENTRY

" Qualifications for examination"

1. These rules may be cited as the Examination for certificates of competency (Deck).
2. (a) A candidates shall be eligible to sit for an examination for a certificate of competency if he satisfies the Board of Examiners that he has complied with the preliminary requirement for such examination.

(b) The qualifying sea service required before a candidate is eligible to sit for an examination for a certificate of competency shall , unless the Director of Marine otherwise permits or otherwise provided in these Rules, be service performed in an ordinary trading ship and in accordance with provisions of Part III of these Rules .

"Applications for examinations"

3. (a) A candidate desirous of sitting for an examination , other than for a Certificate of Competency as Helmsman or any supplementary certificate as is specified in rule 26 shall make an application in a form which can be obtained from the Board of Examiners and send the same to such Board together testimonials , a document of discharge , a watch-keeping certificate and any other certificates as are required by the board , at least thirty days before the date of the examination . No such requirements shall be necessary if the candidate who has made an attempt on any part of the examination wishes to sit for any other parts of such examination at a subsequent examination.
- (b) A candidate desirous of sitting for a Certificate of Competency as Helmsman shall apply personally to the Board of Examiners and for the purpose of such examination, produce evidence to the effect that he possesses the required qualification .
- (c) Any application for an examination for a certification of Efficiency in Survival Craft shall be made to the Board of Examiners in a form which can be obtained from such board and the applicant shall pay the fee as provided in section 205 of the maritime code in respect of such examination.

"Application for re-examination"

- (d) (i) A candidate shall be required to sit for the examination in the his first attempt unless otherwise provided in these rules.

(ii) Subject to paragraph (i) of rule 33 , a candidate who fails in one subject in the written part of the examination in his first attempt may , if the Board of Examiners thinks fit , be re-examined in that subject only in his second attempt .

(iii) A candidate who fails in the written part of the examination in his second or subsequent attempt shall again be required to sit for the whole examination; but the same shall not apply to a candidate who fails in the oral or signal part of the examination . A pass in any part of the examination shall be valid for a period of twelve months from the date of the examination unless otherwise provided in these Rules.

" Proof of citizenship"

4. A candidate shall be a citizen of Iran . The proof of citizenship shall be made by producing a birth certificate.

"Testimonials"

5. (a) Testimonials as are required under paragraph

(a) of rule 3 shall describe a candidate's character , sobriety , experience and ability on board ship, and shall bear the signature and stamp of a master of a ship or any other person authorised by the Port and Shipping Organization.

(b) A candidate shall not be required to produce testimonials if such candidate is able to produce a watch-keeping certificate , or sitting for an examination for a supplementary certificate .

"Enquiries"

6 (a) A candidate who wishes to make an enquiry in respect of an examination shall state clearly any point on which information is sought and send such enquiry together with a watch-keeping certificate , any other certificates , a document of discharge and testimonials to the Board of Examiners .

(b) A candidate may call personally at the office of the board of Examiners for the purpose of making such enquiry .

"Fees"

7 A candidate for an examination shall pay the fee as provided in section 205 of the Maritime Code in advance before sitting for such examination.

(b) The fee paid by a candidate in respect of an examination shall not be returned to the candidate if he fails in the examination.

(c) Where a candidate sits for the signal part of the examination separately from the other parts of the examination, only the fee prescribed for the signal part of the examination shall be paid.

8 Particulars of sea service

(a) A candidate's eligibility for an examination shall depend (among other things) upon the amount of sea service performed and upon the ranks held by the candidate on board the various ships in which he is employed. For the purpose of this paragraph it shall be necessary for the candidate to state accurately in the application form all particulars in respect of his sea service.

(b) A candidate who makes any false representation to the effect that he has served in a higher capacity than his actual rank shall be guilty of an offence punishable by Court of Law.

(c) The amount of sea service laid down in these Rules for each grade of a certificate of competency shall, unless otherwise specified by the Port and Shipping Organization, be the minimum that can be accepted and a candidate shall not be admitted to the examination unless he can prove the full amount of sea service performed by him.

9 Insufficient sea service

If after a candidate has passed an examination it is found that the candidate's sea service is insufficient to entitle the to receive a certificate of competency of the grade for which the candidate has passed and the error in the calculation of the amount of such sea service occurs through fraud or wilful misrepresentation on the part of the candidate, such certificate shall not be granted to the candidate:

10 Making false statement

Any person who makes any statement which he knows or believes to be false, or negligently makes any statement which is false in any material particular for the purpose of obtaining for himself or other person a certificate of competency or other documents which may be issued under these Rules shall be guilty of an offence punishable under the Law of general punishment of the Iran and should be barsed from sitting for any examination under these Rules for a period not exceeding twenty four months.

9.3.2 PART II CONDUCT OF EXAMINATIONS

A (1) An examination for all grades of certificates of competency shall be conducted in accordance with the provisions of this part.

Any contravention with any provisions of this part by candidate may result in a failure in the examination or exclusion from any further examination for such period as the Director of Marine may determine.

(2) The examination shall commence each day at a time appointed by the Board of Examiners.

A candidate shall, as far as possible, be given ample notice of the day and time of his oral and, if appropriate, signal examination.

(3) No person other than those whose duties require them to be present shall be allowed to be in the examination room.

(4) Complete silence shall be maintained in the examination room.

(5) No candidate shall leave the examination room without the permission of, and without giving up the answer paper for the examination with respect to which he is engaged to, the Board of Examiners, nor shall such candidate be allowed to leave the building without the permission of the Board of Examiners.

Any candidate who contravenes the provisions of this paragraph shall be regarded as having failed in the examination.

(6) Any work shall be shown and any rough working shall

be done on the answer papers and handed in the end of each examination.

(7) Any candidate who, in the course of the examination, is found referring to any unauthorised book, paper or material, or copying from any person or affording any assistance or giving any information to any other candidate, or accepting assistance or information from any person, or communicating in any way with any person, or copying any part of the answers for the purpose of taking the same out of the examination room shall be regarded as having failed in the examination and shall not be accepted for re-examination for a period not exceeding twelve months.

(8) The following books of nautical tables are specified by the Director of Marine and available for use in the examination room:

- (a) Nautical Tables: Norie(full edition) or Burton;
- (b) Azimuth Tables
- (c) Admiralty Tide Tables
- (d) Nautical Almanac.

The Director of Marine may, upon due notice given by him, change or add such books or editions as are necessary for the efficient conduct of the examination.

(9) A candidate who wishes to use in the examination his own copies of any tables as specified or any tables other than those specified under the said paragraph may do so on the condition that he shall, before the examination commences, submit the same to the Board of Examiners for scrutiny and approval. Subject to the

approval of the Board of Examiners, no restriction shall be imposed on the use of any tables, but the candidate shall understand the theory on which the tables are based and such tables shall be capable of giving an answer within the required limits of accuracy. When any tables other than those specified under this rule are used in answering any question the name of such tables shall be stated on the candidate's answer paper.

B Supplementary Certificates:

A candidate shall be required to produce documentary evidence in respect of any supplementary certificates held by such candidate before qualifying for the issue of a certificate of competency. The supplementary certificates specified for each grade of a certificate of competency are as follows:

- (a) Mate of Local-trade Ship-
 - (i) Fire-fighting Certificate;
 - (ii) Efficiency in Survival Craft Certificate;
- (b) Master of Local-trade Ship-
 - (i) Radar Operator Certificate;
 - (ii) Fire-fighting Certificate;
 - (iii) Efficiency in Survival Craft Certificate;
- (c) Mate of Home-trade -
 - (i) Radar Operator Certificate;
 - (ii) Fire-fighting Certificate;
 - (iii) Efficiency in Survival Craft Certificate;
 - (iv) Restricted Certificate of Competency in Radio Telephony;

- (d) Master of Home-trade Ship -
 - (i) Radar Observer Certificate;
 - (ii) Fire-fighting Certificate;
 - (iii) Efficiency in Survival Craft Certificate;
 - (iv) Restricted Certificate of Competency in Radio Telephony;

- (e) Third Mate of a Foreign-going Ship-
 - (i) Radar Observer Certificate;
 - (ii) Fire-fighting Certificate
 - (iii) Efficiency in Survival Craft Certificate;
 - (iv) Restricted Certificate of Competency in Radio Telephony;
 - (v) Electronic Navigational Aids (Operation) Certificate;

- (f) Second Mate of a Foreign-going Ship-
 - (i) Radar Observer Certificate;
 - (ii) Fire-fighting Certificate;
 - (iii) Efficiency in Survival Craft Certificate;
 - (iv) Restricted Certificate of Competency in Radio Telephony;
 - (v) Electronic Navigational Aids (Operation) Certificate;

- (g) First Mate of a Foreign-going Ship-
 - (i) Radar Observer Certificate;
 - (ii) Fire-fighting Certificate;
 - (iii) Efficiency in Survival Craft Certificate;
 - (iv) Restricted Certificate of Competency in Radio Telephony;
 - (v) Electronic Navigation Aids(Operation) Certificate;
 - (vi) Radar Simulator Certificate;
 - (vii) Ship Captain Medical Training Certificate;

- (h) Master of a Foreign-going Ship-
- (i) Radar Observer Certificate;
 - (ii) Fire-fighting Certificate;
 - (iii) Efficiency in Survival Craft Certificate;
 - (iv) Restricted Certificate of Competency in Radio
Telephony;
 - (v) Electronic Navigational Aids(Operation) Certificate;
 - (vi) Radar Simulator Certificate;
- Ship Captain Medical Training Certificate.

APPENDIX

- (I) SECOND MATE
(II) FIRST MATE, and
(III) MASTER MARINER.

The following are the Syllabus and Time Tables of the exam :-

PREScribed MARKING

THIRD MATE CERTIFICATE OF COMPETENCY (FOREIGN-GOING)

	Time	Total marks	Percentage pass
<i>First day</i>			
1. General Ship Knowledge	3 hrs.	200	50 %
2. Chartwork	2 hrs.	150	70 %
<i>Second day</i>			
3. Practical Navigation	2 hrs.	150	70 %
4. Meteorology	2 hrs.	150	50 %
Oral and Signals : as arranged by Examiner		—	—
		<u>650</u> Aggregate	<u>60 %</u>

Syllabus

- General Ship Knowledge — As for Paper 1. Second Mate Foreign-Going
Chartwork — As for Paper 2. Second Mate Foreign-Going
Practical Navigation — As for Paper 3. Second Mate Foreign-Going
Meteorology — As for Paper 4. Second Mate Foreign-Going
Orals and Signals — As prescribed for Second Mate Foreign-Going.

Note: Where Oral Examinations or Signals Examinations are required in the case of a Third Mate Certificate of Competency (Foreign-Going) (Class B), these shall be of the same standard as that prescribed for Second Mate Foreign-Going.

PRESCRIBED MARKING
SECOND MATE CERTIFICATE OF COMPETENCY (FOREIGN-GOING)

	Time	Total marks	Percentage pass
<i>First day</i>			
1. General Ship Knowledge	3 hrs.	200	50 %
2. Chartwork	2 hrs.	150	70 %
<i>Second day</i>			
3. Practical Navigation	2 hrs.	150	70 %
4. Meteorology	2 hrs.	150	50 %
<i>Third day</i>			
5. Applied Science	3 hrs.	200	50 %
6. Principles of Navigation	2 hrs.	150	50 %
<i>Fourth day</i>			
7. Mathematics	2½ hrs.	150	50 %

Orals: as arranged by Examiner.

PRESCRIBED MARKING
FIRST MATE CERTIFICATE OF COMPETENCY (FOREIGN-GOING)

	Time	Total marks	Percentage pass
<i>First day</i>			
1. Coastal Navigation	2½ hrs.	200	70 %
2. Ocean and Offshore Navigation	2½ hrs.	150	60 %
<i>Second day</i>			
3. Meteorology	2½ hrs.	150	50 %
4. Ship-board Operations	2½ hrs.	150	50 %
<i>Third day</i>			
5. Ship Construction and Stability	3 hrs.	200	50 %
6. Business and law	2 hrs.	150	50 %
		<u>1,000</u> Aggregate	<u>60 %</u>

Orals: as arranged by Examiner.

PREScribed MARKING

CERTIFICATE OF COMPETENCY MASTER MARINER (FOREIGN-GOING)

	Time	Total marks	Percentage pass
<i>First day</i>			
1. Business and Law	3 hrs.	200	50 %
2. Navigation	2½ hrs.	200	50 %
<i>Second day</i>			
3. Ship Construction and Stability	3 hrs.	200	60 %
4. Engineering and Control Systems	2½ hrs.	200	50 %
<i>Third day</i>			
5. Navigational Aids and Instruments	3 hrs.	<u>200</u>	<u>60 %</u>
		<u>1,000</u> Aggregate	<u>60 %</u>

Orals: as arranged by Examiner.

10.0 CONCLUSION

The Convention itself entered into force on the 28 th of April 1984. This urges non-parties to the convention, which have their fleets engaged on International seas, to consider the ratification of the convention, because it is disadvantageous not to ratify it.

The disadvantages of not to ratifying the convention include:

- .1- The difficulties and delays which may be encountered by ships of a state not party when calling at ports of a country that is party to the convention (Art.X, - paragraph 5);
- .2- The Certificate of competency issued by a state not party would not be recognised nor probably accepted for service on board ships of states party to the convention; and
- .3- The training given in maritime educational institutions of a state not party would not be readily accepted as being adequate.

On the other hand, there are some advantages of becoming party to this convention, which include the following consideration:

- a)- Technical co-operation and assistance in maritime training would be simplified because of the greater harmony that would exist in certification structures and training syllabuses would include a common core of basic requirements;

- b)- The recognition of training given or certificates issued by administration to its seafarers would be more easily achieved including the acceptance of such qualification for purpose of employment in ships of other nationalities;
- c)- Conversely an Administration can more easily accept training received abroad by its own seafarers if the country in which the training is received is a party to the convention;
- d)- The acceptance and clearance of ships of its parties to the convention is regulated by the provisions of Article X and Regulation 1/4 of the convention.

The convention, in fact, takes account of the differing approaches taken by various countries suited to its need. However, the minimum training requirements must always be met or exceeded whatever system may be adopted.

Again the certification structure adopted by a party may vary from that identified in the convention but any certification structure adopted must be compatible with the provisions of the convention.

Under the convention an Administration may delegate the functions of conducting the training, examining and issuing certificates.

The administration is, however, responsible for taking all steps necessary to give full and complete effect to the convention. In this connection, it must specially approve certain items such as sea-going service and special courses and be satisfied that all candidates meet the requirements of the convention before the certificate is issued. In addition, the Administration is required, in

accordance with Article VI and Regulation 1/2, to endorse the certificates issued to masters and officers, using the standard form identified in Regulation 1/2, consequently, an increasing harmony in maritime education can be expected to emerge.

To achieve aforementioned advantages of Ratification of STCW Convention all organizations concerned in Iran should take into account the following considerations:

- The most important requirement of improvement and development of Chah-Bahar merchant marine academy or any other maritime institute in Iran, would be a team of well qualified, well trained, dedicated and a highly motivated faculty. The success of the Academy and consequently ratification and implementation of STCW Convention would depend to a great extent on the maritime lecturers and faculty.
- Owing to continuous technological developments in the maritime sector and in order to comply with the requirements of the STCW Convention, there is a vital need in maritime institutes in Iran to develop the updating and Refresher courses.

A COMPARATIVE TABLE OF SHIP'S OFFICERS EDUCATION

Country	Name of School or Course	Responsible Authority	Entry Qualification		Duration of Study	At College	Sea-Training/Workshop		Certificate or Qualification Gained
							Period	When	
J A P A N	Merchant Marine Junior College (5 colleges)	Ministry of Education, Ministry of Transport	Deck, Engine Dept.	Junior High School	5½ years	4½ years	Deck: 1 year 6 months on sail. Ship 6 months on motor ship	Between 5th and 6th year	- Graduates of Deck Dept: Class 3 The Offr. Certificate + Class 3 Eng. Watchkeeper Cert. without written exam.
			Deck, Engine and Naval Eng. Dept.	High School	1½ years *	3½ years	Engine: 9 months; sea 3 months; Workshop	Ditto	- Graduates of Eng. Dept. Class 3 Engg. Officer Cert. + Class 3 Dr. Watchkeeper Cert. without written exam.
	University of Merchantile Marine (2 Universities)	Ditto	Deck, Eng. Dept. 1 year of sea career as officer	Special Course Class 1-3, and Class 4	2 years	2 years	12 months	End of 2nd, 4th and 6th Semester & 4th year	- University Terminal Exam for the University Students leading to B.E. Qualification.
	Marine Technical College (Retraining Course)	Ministry of Transport	Short course for officers for ratings		4-6 months 3-6 months				Candidates with four years sea experience: Written Exam Exempt. Updating courses or Refresher course
			Radio Depart. for officers for ratings		1 year 1½ year				

Country	Name of School or Course	Responsible Authority	Entry Qualification	Duration of Study	At College	Sea-Training/Workshop		Certificate or Qualification Gained
						Period	When	
THE U. S. A.	United States of Merchant Marine Academy (Federal)	MarAd	High School, Sat Exam, Recom- mendation of Congressmen	4 years	3 years	300 days	A semester of 2nd year and another of 3rd year	B.Sc. Degree, Third Mate or Third Assis. Eng. Cert. or Dist License. Reserve Naval Officer
	Maritime College State University (6 universities)	State Edu- cational Committee + MarAd	High School Graduate (12 years)	4 years	4 years	6 months	Summer sea term 2 months x 3.	B.Sc. Degree, Third Mate or Third Assis. Engineer Certificate.
	Cathoon Maba Engineering School	Marine Eng. Beneficial Association	High School Graduates (12 years)	3 years	2 years	1 year		Third Assistance Marine Engineer.
THE U.K.	BTEC/SCOTEC Nautical Science Diploma Programmes	BTEC/SCOTEC & DES & GORS	GCE O-Level 4 subjects	3½ years	54 weeks	21 months		BTEC/SCOTEC Diploma & Class 4 Th. Officer EDH, RTRC, CPSC, Radar Observer, First Aid, Nav. Aids, Fire-fighting
	BTEC/SCOTEC Marine Engg. Diploma Programmes	BTEC/SCOTEC & DES & GORS	GCE O-Level 4 subjects	4 years **	3 years	1 year	During Third year	BTEC/SCOTEC Diploma Class 4 Certificate

Continued from the previous page.

Country	Name of School or Course	Responsible Authority	Entry Qualification	Duration of Study	At College	Sea-Training/Workshop		Certificate or Qualification Gained
						Period	When	
U.S.S.R.	HMC (Higher Marine Eng. College) (4 colleges)	Morskot. (Maritime Administration) and Ministry of Education	Junior High School (10 years) Max. Age: 35	5 1/2 years		8-15 months	3 months at the end of each year	Degree & Intercoastal Navigator Class 3 Engineer Officer or Class 3 Electrician.
	MC (Marine College) 15 Colleges		Junior High School (8-10 years) Max. Age: 31	3 1/2 years		8-15 months		Technician-Navigator or Technician Engineer or Technician Radioman.
FRANCE	ENM (Ecoles Nationales De la Marine Marchande)	Ministry of Transport	Baccalaureat Examination Pass	4 years	4 years	24 months	two months each at the end of 1st & 2nd years and 20 months during 3rd year.	36 months sea career after graduation then CTM can be obtained (Captain 1st Class of Merchant Navy: Dual License)

Continued from the previous page.

Changes currently taking place are not taken into consideration.

* Those who do not want to go to sea can complete their course in four years.

** Three years cadet scheme is recently introduced.

**COMPARATIVE TABLE OF EDUCATIONAL SYSTEMS FOR MARINE
ENGINEER OFFICERS IN ASIAN COUNTRIES**

Item		Bangladesh	Burma	Hong Kong	Indonesia	Malaysia
Entry Age		18	16	16	19	17
Entrance Examination		HSC		O-Level	SMA	O-Level
Number of Subjects for Examination		6	6	5	6	4
Scheme	1st year	College	College	College + 6 months Workshop	Academy	College
	2nd year	College	College	College	Academy	College
	3rd year	Sea-Training	Ship Technical College	Sea-Training	Sea-Training	Sea-Training 1 year
	4th year	College	1 month Sea-Training + 3 1/4 years of Workshop Training	College	Academy	Workshop Training six months
	5th year			Workshop Training		College
	Total Duration	4 years	6 1/4 years	5 years	4 years	4 1/2 years
Certificate of Other Qualifications		DOT Exam Pass then Class 2 Engr. Offi.	Class 2 Engineer Officer	Higher Diploma	3rd Engineer Officer	Technician Diploma
Minimum Qualified age as an officer		22	23	21	23	22
The First Position		Junior Engineer	Junior Engineer	Junior Engineer	Third Engineer	Junior Engineer

Item		Papua Nya-Guinea	Phillipines	Republic of Korea		Singapore	Thailand
Entrance Exam		SC	O-Level	National Preliminary Exam		O-Level	SC
Number of Sub- jects for Exam		4	4	5		3	7
S c h e m e	1st year	College	College	University/ College		College + 2 months Workshop	Academy + 1½ months of sea training
	2nd year	Sea-Train- ing or Workshop	College	University/ College		College	Ditto
	3rd year	Sea-Train- ing: 6 months College: 3 months	Sea- Training	College Sea- Training 6 months each	Sea-Training six months	6 months Workshop + 6 months College	Ditto
	4th year		Sea- Training	University		Sea- Training	Ditto
	5th year						Ditto
	Total Duration	2 3/4 years	4 years	4 years	2½ years	4 years	5 years
Certificate or other Qualifications		Class 3 Eng.Offi. Restricted	Diploma	B.E. Class 3 Eng.Offi.	Class 3 Engg.Offi.	Technician Diploma	B.Sc.
Minimum Qua- lified age as an officer		21	21	22	21	20	23
The First Posi- tion on Board		Class 3 Eng.Offi. Restricted	Class 4 Eng. Officer	3rd Engr.	Junior Engineer	Junior Engineer	Third Engineer
Remarks			Associated Degree in Marine Engineering				

Continued from the previous page.

BIBLIOGRAPHY

- 1.2 Prof.MONSEF W.M.U 86
- 1.3.1 I.M.O Publication
- 1.3.2 I.M.O "
- 3.2.1 Islamic Republic of Iran Shipping Line Publication
1985
- 3.5 " " " " "
- 3.5.1 " " " " "
- 3.5.2 " " " " "
- 4.4.1 University of Chah-Bahar Publication
- 4.5 Final Report of the Training Programme (Project No
IRA / 183 / 016 from contractor to I.M.O)
- 5.4 Prof. Balmar W.M.U 86
- 5.7 International Conference on Training and Certifica-
tion of seafarers 78
- 6.0 IMLA Conference 84 Malmo Sweden :The Role of mari-
time administration in maritime training and rela-
ted matters in a developing country,P.S.Vanchiswar
W.M.U
- 8.1 I.M.O Sub-Committee on standards of Training and
Watchkeeping.17th. Session,"Model Training courses"
Feburary 1984.

7.8 W.M.U,The World Maritime university,courses of study,july 1985

7.8.2 Courses of study,World Maritime University March 1986

7.8.3 W.M.U,The World Maritime University,courses of study

7.8.4 ZADE G.,Lecture delivered at IMO/WMU Seminar for heads of Maritime training Institutes from developing countries ,September 84.

9.2.1 Proceeding of Seminar on Seafarers' Training and Certification October 1983 Japan (ESCAP)