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1.

WORLD MARITIME UNIVERSITY

MALMO - SWEDEN

**MARITIME EDUCATION AND TRAINING
IN TUNISIA**

**AN OVERVIEW OF THE SYSTEM & NEW CONCEPTS
IN THE INTERNATIONAL MARITIME FIELD**

BY

JEMMAL, Mohamed LOTFI

TUNISIA

A paper submitted to the Faculty of the World Maritime
University in partial satisfaction of the requirements
for the award of a

MASTER OF SCIENCE DEGREE

in

MARITIME EDUCATION AND TRAINING

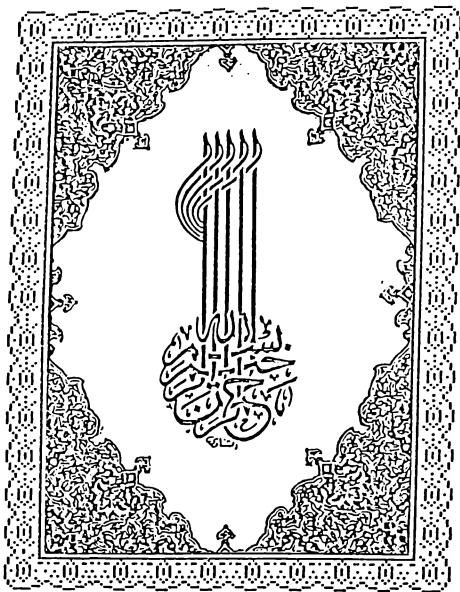
The contents of this paper reflect my personal views and
are not necessarily endorsed by the University

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IN THE NAME OF GOD, MOST GRACIOUS,
MOST MERCIFUL

A C K N O W L E D G M E N T

Before I begin to mention the main contributors to this paper, I acknowledge that all thanks are due to the Almighty God.

My deep gratitude and profound esteem are extended to Professor C.E. MATHIEU for his guidance, promptness and valuable suggestions without which this paper could not have been completed.

Special thanks and appreciations are due to my dear parents for their encouragement, advice, prayers and support which were my real light in this two hard working years.

Finally I owe my very sincere gratitude to all those who provided me with information and made it possible for me to complete this paper.

A B S T R A C T

The Maritime Education and Training in the Tunisian Naval Academy has existed since 1978.

Though the academic programme is very high, not enough attention is paid to international obligations.

The purpose of this project is to highlight some minor adjustments that are needed to comply with international standards. In view of the present situation prevailing in the system, there is an urgent need for revision.

My own experience supported by the knowledge gained during my two years of study at the World Maritime University has allowed me to introduce some concepts governing maritime education and training.

It has allowed me to recognise unfulfilled requirements of the above concepts.

However, since I am, as yet, uninvolved in the national system of maritime education and training in Tunisia, looking into it from outside, I find it imperative that these concepts be adapted to the actual determining factors of the present system. Nevertheless, the concepts mentioned in this paper are valid; they should be kept available and be updated whenever need arises to suit any future requirements.

In my overview on recommendations and conclusion, I have given certain steps to fulfill these obligations. Depending on the approval of the authorities concerned, this project could optimize and support these changes.

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CHAPTER 1

INTRODUCTION

As early as 1966, the Merchant Marine School in Sousse was established, and the training scheme at that time was only designed for merchant marine officers in the lower grade certificate of competency. The intake of students into this programme, required less than the "baccalaureate" level.

In 1976, the authorities decided to upgrade this scheme to a higher level needed for the National Merchant Fleet. Due to this change, higher level of students obtaining the "Baccalaureate Certificate" was recruited. However, because of the limitations and the constraints in the teaching facilities and equipment including inadequate staff, the students were required to complete their studies in France under bilateral agreements. When the need for a trained navy personnel was felt by the Ministry of Defence, in conjunction with the Ministry of Transport, the Tunisian Naval Academy was established in 1978.

The primary aim and objective of this change was to introduce the first and second class certificates of competency, both deck and engineering. An agreement between the Ministry of Defence, the Ministry of Transport, and the Ministry of Higher Education concluded that entry into this programme should have "Baccalaureate Certificate" level as a prerequisite. Also in the same year the Standards of Training, Certification, and Watchkeeping (STCW 1978) Convention was established.

Due to the socio-economical factors and other constraints it was felt that full compliance to the STCW should be met at a later stage.

The purpose of this project is to highlight the necessity and the benefit as to why the STCW should be included in the National Training Programmes. The introduction of the STCW 78 Convention provided minimum internationally recognised regulations to be observed in the operation of ships of various sizes and trades with the requirements and outline syllabuses for the issue of certificate of competency to masters, chief engineers, deck and engine marine officers.

The paper begins by presenting Tunisia and its early history, the economy basis, educational system, merchant fleet and its Maritime Administration.

It also discusses the existing shipping industry and endeavours to briefly describe the Government participation in its maritime infrastructure. This project outlines some of the parameters necessary to ensure appropriate efficient and effective training programmes in order to achieve international standards and obligations.

GENERAL

G E N E R A L

Tunisia is the smallest of the three countries that comprise the "Maghreb" of North Africa. It forms a wedge of territory 163,610 square Km. in extent between Algeria and Libya. It includes the easternmost ridges of the Atlas Mountains but most of it is low-lying and bordered by a long and sinuous Mediterranean coastline that faces both north and east. (1600 Km.)

Ease of access by sea and by land from the east has favoured the penetration of foreign influences and Tunisia owes its distinct national identity and its varied cultural traditions to a succession of invading peoples: Phoenicians, Romans, Arabs, Turks and French.

Recent census results indicated that the population has reached almost 7.5 m. At its closest point to Europe, Tunisia lies 144 Km. across the strait of Sicily from Italy. Situated strategically where the Sicilian channel links the western with the central Mediterranean and close to the site of ancient Carthage, Tunis combines the functions of capital and chief port. On the east coast both Sousse and Sfax provide modern port facilities, as does Bizerte on the north coast.

The official language is Arabic which is almost universally understood, and there is a small Berber speaking minority. French is widely used as a second language. Islam is the State religion, and almost all of the inhabitants are muslims. There are small minorities of Christians and Jews.

The climate is temperate on the coast, with winter rain, but hot and dry inland. Temperatures in Tunis are generally between 6°C and 33°C. Average annual rainfall is up to 1,500 mm. in the north but less than 200 mm. in

the southern desert, where extremes of temperature and wind are characteristic and vegetation is completely absent over extensive tracts.

1. Early History:

The history of early Tunisia and its indigenous inhabitants, the Berbers, is obscure prior to the founding of Carthage by seafaring Phoenicians from Tyre (in present-day Lebanon) in the 9th century BC. A great mercantile state developed at Carthage (near modern-day Tunis), which proceeded to dominate the western Mediterranean world. The great Carthaginian General Hannibal engineered the monumental trans-Alpine assault on Rome in 211 BC, and inflicted costly losses on the Roman Empire until driven to suicide in 183 BC. Carthage was eventually captured by Rome and burned to the ground at the culmination of the Punic Wars in 146 BC. The Romans subsequently rebuilt the city, making it one of the great cities of the ancient world. With the decline of the Roman Empire, Tunisia fell successively to Vandal invaders during the 5th century AD, to the Byzantines in the 6th century, and finally to the Arabs in the 7th century. Thenceforth, Tunisia remained an integral part of the Muslim world.

In the 9th century, the governor of Tunisia, Ibrahim ibn Aghlab, founded a local dynasty nominally under the sovereignty of the Abbasid caliphs of Baghdad. The Aghlabids conquered Sicily and made Tunisia prosperous. In 909, the Fatimids ended Aghlabid rule, using Tunisia as a base for their subsequent conquest of Egypt. They left Tunisia in control of the subordinate Zirid dynasty until the 11th century, when the Zirids rebelled against Fatimid control. The Fatimids unleashed nomadic Arab tribes, the Banu Hilal and Banu Sulaym, to punish the Zirids, a move resulting in the destruction of the Zirid state and the general economic decline of Tunisia. In the 13th century, the Hafsids, a group subordinate to the Almohad dynasty based in Morocco, restored order to Tunisia. They founded a Tunisian dynasty that, from the 13th century to the 16th,

made Tunisia one of the flourishing regions of North Africa. In the beginning of the 16th century, however, Spain's occupation of important coastal locations precipitated the demise of Hafsid rule.

In 1574, the Ottoman Turks occupied Tunisia, ruling it with a dey appointed by the Ottoman ruler. The dey's lieutenants, the beys, gradually became the effective rulers, in fact if not in name. Ultimately, in 1705, the bey Husayn ibn' Ali established a dynasty. Successive Husaynids ruled Tunisia as vassals of the Ottomans until 1881 and under the French until 1956, the year of Tunisia's independence (the dynasty was abolished in 1957). During the 19th century, the Tunisian dynasts acted virtually as independent rulers, making vigorous efforts to utilize Western knowledge and technology to modernize the state. But these efforts led to fiscal bankruptcy and thus to the establishment of an international commission made up of British, French, and Italian representatives to supervise Tunisian finances. Continued rivalry between French and Italian interests culminated in a French invasion of Tunisia in May 1881. A protectorate was created in that year by the Treaty of Bardo; the Convention of La Marsa (1883) allowed the Tunisian dynasty to continue, although effective direction of affairs passed to the French. French interests invested heavily in Tunisia, and a process of modernization was vigorously pursued; at the same time, direct administration in the name of the dynasty was gradually expanded. The Tunisians, in turn, supported France in World War I.

The beginnings of modern nationalism in Tunisia emerged before the outbreak of the war, with hopes of greater Tunisian participation in government fired during the war by pronouncements such as the Fourteen Points (1918) of Woodrow Wilson. When these hopes were not realized, Tunisians

formed a moderate nationalist grouping, the Destour ("Constitutional") party. Dissatisfaction over the group's poor organization led, in 1934, to a split; the more active members, led by Habib Bourguiba, founded the Neo-Destour Party. France responded to demands for internal autonomy with repression, including the deposition and exile of the sovereign Munsif Bey. On 23 August 1945, the two Destour parties proclaimed that the will of the Tunisian people was independence. But the French still held firm. In December 1951, they again rejected a request by the Tunisian Government for internal autonomy. The situation worsened when extremists among the French colonists launched a wave of terrorism. Finally, on 31 July 1954, French promised the bey internal autonomy. After long negotiations accompanied by considerable local disorder, a French-Tunisian convention was signed on 3 June 1955 in Paris. On 20 March 1956, France recognised Tunisian independence.

2. Economy:

Tunisia's development record in recent years has been fairly impressive, with the capital income reaching more than U.S. \$1,000 by 1981 and U.S. \$1,500 by 1983.

However, the rate of economic growth has fallen sharply: after recording annual growth in GDP, at market prices, of 13% - 20% between 1977 and 1980, there was a stepdrop to 5% in 1981 and to only 0.3% in 1982.

In 1983 the economy picked up again, with GDP growth of 4.5%. Total GDP at market prices was TD 3,888 m. in 1983, compared with TD 3,720 m. in 1982, according to estimates by the Banque Centrale de Tunisie. In 1983 the agricultural sector contributed about 12% of GDP, energy 11%, manufacturing 14% and Tourism 3%.

Agriculture and mining are the bases of the economy.

2.1 Agriculture:

About two-thirds of the total area of Tunisia is suitable for farming. Harvests vary considerably in size, determined by the uncertain rainfall, since cultivation is largely by dry farming and irrigation is, as yet, limited. The chief agricultural products are wheat, barley, maize, oats and sorghum, olives, grapes, dates, oranges, citrus fruit and figs grown for export as well as for the local market.

In recent years Tunisia has been importing increasing amount of cereals, as local production has failed to keep pace with population growth. During the 1960s the agricultural sector grew at only about 1.5% per year, but exceptional weather conditions and improved irrigation in 1971/72 resulted in excellent agricultural

fields, and during the fourth plan period (1973-1976) good weather, except in 1974, led to an average annual growth rate of 3%.

The (1977-1981) plan envisaged annual growth of 3.5%, whilst the (1982-1986) plan called for annual growth of 5%. In 1982 the onset of drought reduced the agricultural sector's share of GDP by 10%, and cereal imports rose steadily, reaching TD 124 m. in 1983.

The government's agricultural policy reflects several concerns: one is to achieve self-sufficiency, to save on expensive food imports and a second is to reduce regional imbalance by developing rural areas.

Since the early 1970s Tunisia has made some progress towards the diversification of crops, mechanization, irrigation and increased use of fertilizers. The World Bank is supervising the overall plan for a massive water development programme, which includes the construction of a number of dams for irrigation and flood prevention. At present some 80,000 ha. of land are irrigated. It is believed that the maximum area for potential irrigation is more than 200,000 ha., most of it in the north. A study is being undertaken of underground water resources in the Sahara.

The fishing industry employs about 30,000 people. Sfax is the main center of the industry, which is being expanded with government encouragement and some foreign aid. The total catch reached 67,000 tons in 1983. Tunisia exports fresh fish, crustaceans, molluscs and sponges.

The government has set up two institutions to address the problem of investment in the agriculture. The Agence de Promotion des

Investissements Agricoles (APIA) was created in 1982 to channel funds into productive projects, notably the development of new cash crops. In early 1983 the Banque Nationale de Developpement Agricole (BNDAA) was set up to ease investments in this sector.

2.2 Minerals:

Phosphates and petroleum are the principal minerals and together provide not less than 25% of export revenue.

Minerals are the most important foreign exchange earners. Tunisia is the world's fourth largest producer of calcium phosphates, which are mined mainly from six large deposits in Central Tunisia. Phosphates and phosphatic fertilizer, taken together, are Tunisia's second most important export.

About three quarters of phosphate out-put is still exported as phosphate rock but production of triple superphosphate (TSP) and phosphoric acid has increased dramatically in the past few years. Plans to develop "down-stream" industries are still being studied.

A vast investment program for the processing of phosphates is now under way and will enable the country's annual production of fertilizers to reach 7.5 m. tons.

Intensive exploration for petroleum has been carried out in Tunisia since the discovery of hydrocarbons in neighbouring Algeria. The Tunisian government took a 50% share in the El Borma (in southern Tunisia, near the Algerian border) Operating Company when petroleum was found in 1964.

In 1968 Tunisia's second oilfield came into operation at Douleb,

200 Km. north of El Borma. This field is operated by a joint French-Tunisian company. Other fields include Tamesmida, on the Algerian border south-west of Douleb (1969) and Bihrat and Sidi-al-Itayem, both of which began producing in 1972.

Important new finds off shore at Ashtart, east of Sfax in the gulf of Galès, now account for about one half of Tunisia's total output.

New Tunisian oil fields are being developed from which the Isis field is the largest, with estimated recoverable reserves of 20 m. barrels. Tunisia's reserves of natural gas are estimated to 85,000 m. cu. m. output of natural and manufactured gas was 441 m. cu. m. in 1983.

Production of iron ore has steadily declined since independence, when it was more than 1 m. metric tons per year. Output was 310,000 tons (gross weight) in 1983 compared with 400,000 in 1981. The ore's iron content is approximately 53%.

Lead is mined in the northern coastal region, and zinc in the north-west. Tunisia could produce 100 tons of "green-cake" uranium per year by 1983/1984 on completion of a purification plant by a French Company. About 90% of the salt produced by COTUSAL (320,000 - 350,000 tons per year) is exported chiefly to Japan.

2.3 Industry:

During the period of 1973-75 plan, the industrial sector grew by 7.4%. In 1977 the sector grew by only 4.2%, mainly because of a

sharp fall in agribusiness and the food processing industry. Tunisia's traditional reliance on petroleum has not prevented the development of a thriving industrial sector. This has grown from the traditional artismactivities, such as textile and leather, and the creation of "downstream" industries based on the country's phosphate reserves. In the 1980s, according to official plans, the industrial sector should expand further because of the prospect of reduced petroleum production and the need to create new labour-intensive outlets to combat the growing problem of unemployment.

2.4 External Trade:

Exports are heavily dependent on mineral and agricultural products and thus on the success of harvests and the conditions of world commodity markets.

Tunisia's main imports are machinery, crude petroleum (grades not produced locally) and petroleum products, iron and steel, sugar (raw and refined), wheat, vegetable oils and fats, electrical machinery, vehicles, timber, raw cotton and cotton yarn.

The main purchasers of Tunisia's goods are France, the USA, and the Federal Republic of Germany.

France is the largest exporter to Tunisia, followed by Italy, the Federal Republic of Germany, the USA and Spain.

Tunisia has a persistent trade deficit with the EEC. EEC member countries account for around 60% of Tunisia's imports and 60% of its exports.

3. Education System:

Rooted in the French educational tradition, the school system consists of six years primary cycle followed by a secondary program consisting of a three-year lower cycle and a four year upper cycle of study in academic or technical fields of concentration. More than 80% of school-age children receive education for between 10 and 12 years.

Paralleling the common cycle of secondary school is a terminal three-year vocational cycle leading directly to employment. Higher education is provided by the Universities of Tunis, Sousse, Monastir and Sfax or by a number of specialized institutions. The 1958 Basic Law of Education makes public education free at all levels and available to all, regardless of race, sex, or religion.

Private schools follow public-school rules on curriculum and staffing. They are financed chiefly by their sponsoring organizations and enrollment fees, although they receive some government assistance. Relatively few in number, they are most numerous in Tunis.

Primary and secondary schools hold classes six days per week during a three-semester school year that commences early in October and ends late in June. The government sees education as a vital key to socio-economic modernization and regularly devotes from one fourth to one third of its national budget to school costs. In the late 70's the current expenditures allocation to education represented more than 30% of the total, one of the highest in the world.

In an effort to democratize education and make schooling available to children who might not otherwise attend a school, the government finances the cost of school supplies, clothing and meals for the needy; and it

maintains liberal scholarship and financial assistance programs.

In order to meet its heavy commitments in the educational field, Tunisia has received outside financial and technical assistance. The World Bank has also extended several educational loans. In 1956 only about 30% of the children of primary-school age and 10% of those of secondary-school age were enrolled in schools. By 1982 these proportions had been raised to about 89% and 55%, respectively, and the total enrollment at primary and secondary schools was equivalent to 70% of the school-age population.

From 1977 greater emphasis was placed on scientific and technical schooling. Ranking high among the goals of the school program has been an improvement of educational opportunities for girls. In 1956 only about 70,000 girls and young women were enrolled in schools of any kind, but between 1957 and 1982 female enrollment rose from 30 to 60% of the total. All of the secondary as well as the primary classes are now coeducational.

Instruction is bilingual but courses conducted in French are gradually being switched to Arabic as suitably trained teachers and text books become available and as new syllabi are prepared.

First-year courses in primary school are taught entirely in Arabic, but French is introduced in the second and third years and additional classes in French are added in the upper years.

At the secondary level, in general French is used for mathematics, science and technical subjects.

In Tunisia as elsewhere in the Maghrib, efforts are being made to stress practical subjects needed by the developing economy.

The country's first university, the University of Tunis, was founded in 1960 by the consolidation of several existing institutions, one of these is the faculty of Theology and Religious Science which was formerly the Zituna University, founded in 1283 and a renowned center of Islamic Studies, one of the few to survive among many founded during the Middle Ages.

Most of the University classes are taught in French, although teaching is in Arabic in the faculty of Theology and Religious Science, the Department of Arabic Law, and the Department of Arabic Language and Letters.

In 1976, the Ministry of Education announced plans for a decentralization of higher education aimed both at lessening the concentration of students in the capital city and at developing facilities for the training of technical cadres in the regions where they would most be needed.

Adult illiteracy declined from 62% (males 48.9%; females 75.2%) in 1975 to 53.5% (males 38.9%; females 67.7%) in 1980.

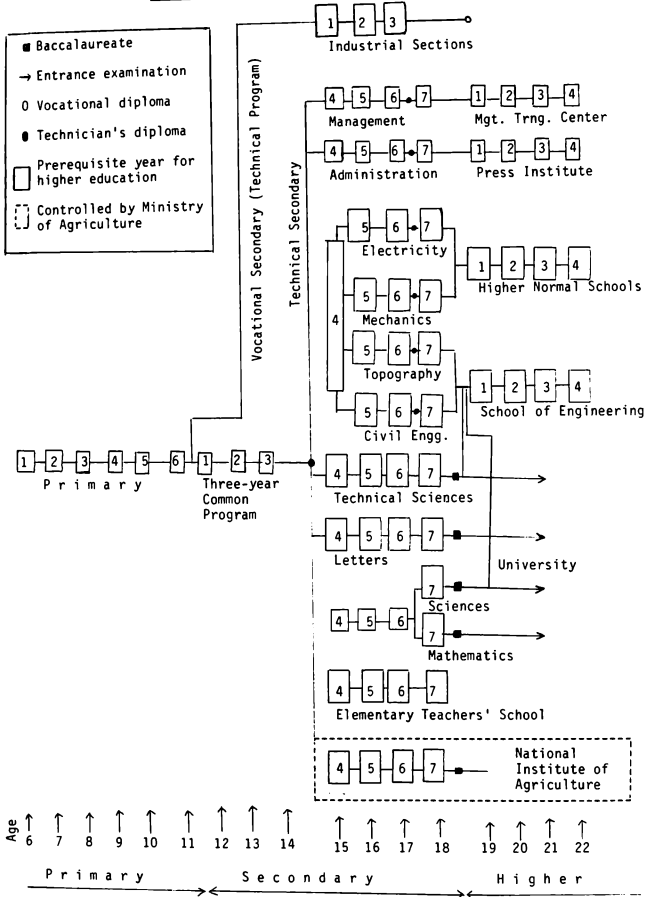
Overall approximately 80% of the Urban population is considered literate. For the most part Tunisia has relied principally on its expanding regular school system both for the reduction of illiteracy and for adult education. Soon after independence, however, the institute for Adult Education commenced to offer literacy and education programs in special centers. Literacy classes were also established for workers by business enterprises, by the armed forces, and by the National Federation of Tunisian Women. Most of these brief courses had been established immediately after independence as training centers hurriedly assembled to prepare nationals

for jobs vacated by the departing Europeans. Other programs included courses of study in basic literature and child care offered by the Ministry of Social Affairs. In addition, increasing use was being made of television as a means of teaching basic literacy skills and such subjects as history, geography, accounting, and family planning. Nowadays the television's lessons prepare students in final year classes of primary and secondary schools to upgrade their knowledge in subjects such as mathematics, physics, and literature in order to face competitive examinations at the end of the academic year in June.

During the years immediately after independence a shortage of teachers sometimes made double shifts in classrooms necessary. After 1973, however, it was apparent that the number of teachers available had been brought up to the need for personnel, and Tunisian teachers preside over nearly all of the classes, irrespective of the language of instruction.

At the university level, a number of expatriates is still needed, complete Tunisification of this level remains a goal to which much priority is being attached.

ORGANIZATION OF EDUCATIONAL SYSTEM - 1976



Source: Based on information from Tunisia, Secretariat of State for Information, "Tunisia Moves Ahead, Tunis, 1976, p. 280.

4. Merchant Fleet:

Tunisia's Modest Merchant Fleet, established in 1958, operates a freighter service principally to French ports in the Mediterranean Sea and Northern Europe ports in the Atlantic Sea. The two major state owned shipping companies are the only Tunisian ship owners.

4.1 Compagnie Tunisienne de Navigation: (CO. TU. NAV.)

This Company is the principal shipping firm with 17 ships, whose services cover Hamburg-Antwerp range to Tunisian ports and ro/ro operations from south France to La Goulette.

4.2 Gabès Chimic Transport:

This Company is a subsidiary of industries chimiques. It is concerned with the carriage of bulk chemicals with a fleet of five chemical tankers and an LPG carrier.

Shipowning League (Vessels over 1,000 grt.)

Position 1985(84)	Shipowner	No.	Grt	Dwt	Ave. age (years)	% Share
	State					
1 (1)	Cotunav	17	122 593	168 060	9.7	73.21
2 (2)	Gabès Chimie	6	44 857	64 663	6.1	26.79
Total		23	167 450	232 723	8.7	100.00

Fleet type analysis (at 1.1.85)

Type	No.	Cargo capacity (metres ³)					Total TEU	Pass-enger	Crew	Ave. Age (years)	% Share grt
		G r t	D w t	D r y	Reefer	Liquid					
DEEPSEA											
Bulk carrier	3	37 232	58 581	75 706	0	0	75 706	0	100	6.0	22.23
General Cargo	5	32 788	39 711	58 886	0	532	59 418	0	182	7.8	19.58
Chem tanker	4	31 496	49 802	1 000	0	25 350	26 350	0	102	5.5	18.81
Crude carrier	1	20 597	37 224	0	0	48 599	48 599	0	40	10.0	12.30
LPG carrier	1	10 081	9 996	0	0	12 000	12 000	0	30	1.0	6.02
Sub Total	14	132 194	195 314	135 592	0	86 481	222 073	0	454	6.5	78.94
SHORTSEA											
Ferry	1	11 179	3 372	0	0	0	0	1 150	135	7.0	6.68
General Cargo	3	8 589	10 300	13 678	698	0	14 376	0	78	18.9	5.13
Tanker	1	6 433	9 976	0	0	12 474	12 474	0	30	15.0	3.84
Chem tanker	2	5 513	8 465	0	0	7 091	7 091	0	63	9.8	3.24
Ro/ro	2	3 542	5 296	0	0	0	0	12	26	8.1	2.12
Sub Total	9	35 256	37 409	13 678	698	19 565	33 941	1 162	332	12.1	21.06
TOTAL	23	167 450	232 723	149 270 (58.3%)	698 (0.3%)	106 046 (41.4%)	256 014 (100.0%)	1 162	786	7.7	100.00

FLEET LIST

Name Shipowner Type and Trade	Call Sign	Year of build(acquired) and country Shipyard (yd no.) Class soc.	Grt DWT Nrt	Dry Cargo Reefer Liquid (metres ³)	Crew Pass. TEU	Length Breadth Draught (metres)	Propulsion Type Power (hp)	Speed (knots)
BIZERTE Cotunav General cargo-deepsea	TSLQ	1979 Japan Naikai Zosen (435) BV	7 806 8 312 4 370	14 810 0 0	36 0 0	137.32 19.54 7.01	1 Diesel Hitachi-B&W 7 050	15
DOUGGA Cotunav General cargo-shortsea	3VAE	1963 France L-Normandie (R326) BV	2 111 2 300 1 067	3 500 349 0	24 0 0	86.89 12.27 5.57	2 Diesel MMH 3 000	14
EL BORMA Cotunav Tanker - Shortsea	TSLA	1970 Spain EN Bazan (159) BV	6 433 9 976 3 618	0 0 12 474	30 0 0	86.89 17.25 7.81	1 Diesel AESAR 4 600	14
EL JEM Cotunav General Cargo-deepsea	TSLL	1977 Japan Naikai Zosen (412) BV	6 469 8 626 3 776	11 083 0 0	40 0 0	127.29 18.04 8.03	1 Diesel Hitachi-B&W 7 900	18
EL KEF Cotunav Bulk Carrier - deepsea	TSLV	1982 Japan Kurushima (2180) BV	17 074 26 355 10 496	36 986 0 0	40 0 0	182.82 24.01 9.79	1 Diesel Sumitomo-Sulzer 11 000	18
GABES Gabes Chimie Chem tanker - shortsea	TSLC	1971 France La Rochelle (0205) BV	3 280 4 865 1 287	0 0 3 791	25 0 0	103.99 15.81 6.49	1 Diesel Stork Werkspoor 4 450	14

Name Shipowner Type and Trade	Call Sign	Year of build(acquired) and country Shipyard (yd no.) Class Soc.	Grt DWT Nrt	Dry Cargo Reefer Liquid (metres ³)	Crew Pass. TEU	Length Breadth Draft (metres)	Propulsion Type Power (hp)	Speed (knots)
GAFSA Gabes Chimie Chem tanker-deepsea	TSLD	1974 France Dubigeon (139) BV	7 379 11 965 3 065	0 0 6 204	25 0 0	133.23 19.85 8.91	1 Diesel SEMT-Pielstick 8 000	16
GHANNOUCH Gabes Chimie Chem tanker-deepsea	TSLT	1981 France La Rochelle (1232) BV	4 765 6 972 1 936	0 0 3 620	25 0 0	116.61 17.29 7.31	1 Diesel SEMT-Pielstick 5 200	15
HABIB Cotunav Ferry - shortsea	TSLN	1978 W. Germany Nobiskrug (690) BV	11 179 3 372 5 858	0 0 0	135 1 150 0	145.73 23.49 6.16	1 Diesel Mak 24 000	23
KAIROUAN Cotunav General cargo-deepsea	TSLR	1979 Japan Naikai Zosen (434) BV	7 806 8 345 4 370	14 810 0 0	36 0 0	137.32 19.54 7.01	1 Diesel Hitachi-B&W 7 050	15
LA SKHTRA Cotunav Crude carrier-deepsea	TSLG	1975 (76) Japan Kasado Dock (285) BV	20 597 37 224 14 018	0 0 48 599	40 0 0	184.46 28.05 11.03	1 Diesel IHI-Suizer 13 200	15
MAKNASSY Gabes Chimie Chem tanker-deepsea	TSLU	1982 W. Germany Orenstein & Koppel(763) BV	11 197 18 771 6 201	0 0 9 100	27 0 0	157.51 23.07 9.22	1 Diesel Mak 10 400	16

Name Shipowner Type and Trade	Call Sign	Year of build(acquired) Shipyard (yd no.) Class Soc.	Grt DMT Nrt	Dry Cargo Reefer Liquid (metres)	Crew Pass. TEU	Length Breadth Draught (metres)	Propulsion Type Power (hp)	Speed (knots)
MEJERDA Cotunav Ro/ro - shortsea	TSLI	1977 W. Germany Schuite & B (281) BV	1 598 2 797 652	0 0 0	13 12 0	101.01 17.84 5.61	1 Diesel Atlas 6 400	17
MISKAR Gabes Chimie LPG carrier - deepsea	TSLW	1984 Spain Ruiz De Velas (160)	10 081 9 996 5 785	0 0 12 000	30 0 0	136.79 - 8.30	1 Diesel Bazan-MAN 8 755	15
MOULARES Cotunav Bulk carrier-deepsea	TSLK	1976 Japan Kurushima (926) BV	10 079 16 113 5 796	19 360 0 0	30 0 0	142.02 20.01 9.12	1 Diesel Kawasaki-MAN 8 400	15
NABEUL Cotunav Chem tanker - shortsea	TSLP	1979 W. Germany Menzer (508) BV	2 233 3 600 1 252	0 0 3 300	33 0 0	94.42 14.69 5.54	1 Diesel Mak 3 600	15
NEBHANA Cotunav Ro/ro - shortsea	TSLH	1976 W. Germany Menzer (504) BV	1 944 2 499 638	0 0 0	13 0 0	117.86 15.81 4.68	1 Diesel Mak 3 200	16
REMADA Cotunav General cargo - shortsea	TSLR	1969 (74) Bulgaria G. Dimitrov (391) BV	4 367 5 700 2 581	6 678 0 0	30 0 0	114.26 15.07 6.55	1 Diesel Halberstadt- MAN 3 250	14

Name Shipowner Type and Trade	Call Sign	Year of build(acquired) and country Shipyard (yd no.) Class soc.	Grt DMT Nrt	Dry Cargo Reefer Liquid (metres ³)	Crew Pass. TEU	Length Breadth Draught (metres)	Propulsion Type Power (hp)	Speed (knots)
S'HIB Cotunav Bulk carrier - deepsea	TSLJ	1977 Japan Kurushima (930) BV	10 079 16 113 5 796	19 360 0 0	30 0 0	142.02 20.01 9.12	1 Diesel Kawasaki-MAN 8 400	15
SFAX Cotunav General cargo-deepsea	TSLB	1971 Spain Juliana (196) BV	4 237 5 800 2 340	7 100 0 532	30 0 0	111.97 15.63 6.17	1 Diesel Maquinista- B & W 4 400	17
TACAPES Gabes Chimie Chem tanker - deepsea	TSLS	1980 France La Rochelle (1229) BV	8 155 12 094 3 163	1 000 0 6 426	25 0 0	145.01 20.11 8.25	1 Diesel SEM-Pielstick 8 000	16
TOZEUR Cotunav General cargo - deepsea	TSLM	1977 Japan Naikai Zosen (411) BV	6 470 8 628 3 741	11 083 0 0	40 0 0	127.29 18.04 7.91	1 Diesel Hitachi - B&W 7 900	18
ZARZIS Cotunav General cargo - shortsea	3VAZ	1963 France L-Normandie (R325) BV	2 111 2 300 1 067	3 500 349 0	24 0 0	86.91 12.27 5.57	2 Diesel MMH 3 000	14

5. The Port Authority:

As it is stated in the creating Legislation Act (Law of 1965) the Port Authority is a public institution having an industrial and commercial character, endowed with juridical personality and financial autonomy called the "Office des Ports Nationaux".

Its purpose is to assure the operation, maintenance and expansion of the national ports including pilot and towing services, lighting and beaconage within harbor limits, police and patrolling of the piers and water surface area, operation of railtracks and in general all other operations related to the entity's purpose.

Ports:

The port of Tunis-La Goulette is the principal gateway for the country. It handles about one fifth of Tunisia's port cargoes, over two million tons of general cargo, and over 300,000 passengers per annum.

The entrance from the Mediterranean is at La Goulette, not far from the ancient port of Carthage. However, with the development of the railroad system and government and commercial activities centered at Tunis, ten kilometers west, a ship canal was dredged thereto, in 1893 from La Goulette along the margin of a shallow lake.

The ten-kilometer canal had a depth of only 7.5 meters and had to be maintained at heavy expense. The government of Tunisia reluctantly came to the conclusion that the port development for the Tunis-La Goulette complex would have to be shifted to La Goulette as an alternative to the excessive costs of shipping operations, the difficult maintenance of the Tunis basin and the connecting canal. However, until now Tunis port still can serve ships with a draft up to 5 meters.

Tunis port has five quays comprising ten berths. At La Goulette the north basin provides general cargo quays and a ro/ro container terminal; the south basin has grain, ore and phosphate facilities. A new container-ro/ro terminal is being built on the south, and it will likely avoid future congestion of the port.

Another Tunisian port, Bizerte, on the north coast, is somewhat similar to Tunis La Goulette in geographic configuration with a waterway leading from the Mediterranean to a large and rather deep hack on which was located the former French Naval Base and dockyards at Menzel Bourguiba. Bizerte is of less importance as a general cargo port than Tunis La Goulette, but it achieved great importance for bulk petroleum as the site of a new refinery put into operation in 1964.

Bizerte main port consists of a quay of 500 m. and 9 m. depth, specialized mooring for molasses exports with 7.6 m. depth, grain mooring of 8.5 m. depth with a 20,000 ton capacity silo, cement berth and iron ore mooring. At Menzel Bourguiba there are two tanker berths for vessels of 50,000 DWT and 18,000 DWT. Facilities are being up-graded to allow for berthing of 150,000 DWT tankers.

To the south of Tunis-La Goulette, along the Mediterranean coast (170 miles, by road) lies the port of Sfax, serving as an outlet for the olive oil and phosphates of the southern part of the country. This is a breakwater enclosed basin of 10.5 m. depth. It consists of 23 berths of 2800 m., including oil and chemical terminals, quays for salt, phosphate and ro/ro berths and general cargo facilities. Additional facilities at the ro/ro berth will be operational next year.

Sousse, lying about mid way between Tunis La Goulette and Sfax, is a part of similar construction than Sfax but smaller in size and trade. South of Sfax, La Skhirra, where an oil storage depot came on stream in November this year. The 1.9 m.b./d. capacity Farm provides fourteen storage tanks and is the first oil products storage and transit depot on the North African coast. Between 50 and 60 vessels are expected to call each month at the 2 Km. jetty.

Further south, Gabès port which is to be given a face-lift, extension of the latter is considered, where two new quays are to be built for tugs and small craft. Gabès already has seven general cargo and bulk berths, one ro/ro berth, tanker and liquified gas terminals and facilities for phosphates, sulfur and ammonia imported for the chemical plants, which upgrade locally-mined phosphates. Current development will make Gabès a major export port for phosphates. Additionally an industrial complex linked to production at the El Borma oil field will provide the port with a variety of chemical exports.

In the extreme south of Tunisia, construction has started on a new industrial port at "Zarzis". The long-term aim is to produce potassium sulfate for export and to integrate Zarzis into the local phosphate-based chemical industry for production. The job involves 11.5 m.n. cubic metres of dredging and 1.9 m.n. cubic metres of earthfill, to be done, and the construction of breakwaters and quays.

Important oil finds off shore at Ashtart, east of Sfax in the gulf of Galès have facilities which include an oil terminal with SBM for vessels up to 150,000 dwt and for tankers of 70,000 dwt.

Ship-repairs Activities:

A scheme to set up a shipbuilding yard at Menzel Bourguiba was examined by the national authorities. A phased approach was adopted. It is concentrating initially on small construction of small fishing vessels of up to 10,000 dwt. There are already some small ship-repair yards and four docks at Menzel Bourguiba, around which a larger building industry could be based. SOCOMENA, the Tunisian corporation for mechanical and ship-repair activities, is actively marketing its services and facilities. Plans to increase turnover include a contract with Korea Maritime Consultant CO, KOMAC, involving the provision of technical assistance and transfer. The agreement will last for eleven years and initially will involve KOMAC providing work drawings for ten patrol boats in fibreglass and the secondment of thirteen Korean engineers to train the SOCOMENA workforce.

6. The Maritime Administration:

The maritime administration is under the auspice of the Ministry responsible of Maritime Affairs. Within the territorial waters, the functions of the maritime administration are exercised by the local maritime district. The organization and the lead role of the maritime administration are fixed by treaty of the Ministry of Maritime Affairs. Outside the national waters the Consular Authority shall be entrusted to do so.

Over the national coast there are districts and maritime stations; the limit of responsibility and the number of stations and districts are fixed by a treaty of the Ministry of the Merchant Marine.

Briefly, the objective of the Tunisian Maritime Administration is to provide the government with machinery to enable it to efficiently undertake those functions which are embodied within the Merchant Shipping Legislation, and the implementation of the requirements of international maritime safety conventions to which Tunisia is a party. Such Administration is also responsible for the different surveys and certification of ships, training and examination and certification of masters and officers, crew matters and registration of ships, etc.

6.1 Organization:

There is a specific Ministry of External Affairs and Ministry of Transport, they harmonize the implementation of the respective national policies relating to both external trade and shipping. The status of the officials of the Merchant Marine Department is defined as the following:-

6.1.1 Director

6.1.2 The Maritime Transportation Subdepartment:

- a. Auxiliaries and agency services:
 - Control of economical situation.
 - Elaboration of provisional budget and financial situation.
 - Control of activities and approved budget.
 - Harmonization between agencies and auxiliaries.
 - Settlement of dispute between agencies and customers.
 - Updating of every activity relating to those agencies.

- b. Port and traffic services:
 - Control of affreightment of foreign ships.
 - Visas for demands, conventions, agreement between Tunisia and foreign states.
 - Relation with maritime conference.
 - Control of delay cost.
 - Elaboration and modernization and development of port and cargo handling societies.
 - Record and statistic of traffic and ports.

6.1.3 The Maritime Navigation Subdepartment:

- a. The marine personnel service:
 - Settlement of disput arising from labour condi-

tions, manning, wages, collective agreement and arbitration procedures.

- To participate in elaboration of the status of merchant marine disciplinary act.
- Crew matters ie, hygienic, medical fitness, welfare.
- Elaboration and coordination of training programme, updating and refreshment courses.

b. The fleet and naval equipment service:

- Registration of ships.
- Certification.
- Maritime mortgage.
- Maritime wreck.
- Pleasure craft and fisheries.
- Record of ships.
- Supervise the statutory functions delegated to Classification Societies.
- Ships construction and repairs.
- Control of ships' transactions.

c. The safety of navigation services:

- Elaboration, formulation, control of all matters pertaining to the safety of navigation.
- Control of ports and harbours handling equipment
- Survey of ships.
- Certification.
- Formulation of rules and safety technical measures.

- Maritime salvage operations.
- Control/prevention/combat of marine pollution.

6.1.4 The Maritime Legislation Subdepartment:

a. The legislation services:

- Elaboration and updating of legal texts of the subdepartment activities.
- Elaboration and regulation of maritime labour.
- The assessment of taxes and fines.
- To ensure a special committee to deal with different matters of maritime legislation.

b. Maritime control services:

- Control and enforcement of the regulations relating to maritime transportation field.
- Control of agreement between owner and seamen.
- Ensuring the application of provisions embodied in the merchant shipping legislation.
- Control of sea traffic in navigable waters and continental shelf activities.
- Removal of any defects affecting the organization and the normal operation of ports and related agencies.

c. The international relation services:

- To study together with the legislation services and all organizations concerned, the enforcement of international laws and coordinate their implementation into national legislation.

- To broadcast the documentation arising from international organization and to collect the points of view of interested services.
- To prepare the Tunisian participation in the international conferences such as UNACTAD, IMO and ILO activities.
- To update the texts and documentations.

6.2 Any Course for Life Boatman, Fire Fighting, Etc.

There is neither statutory institutions dealing with those various courses nor the frame work within which the training is provided and funded. This is important because of the expensive equipment needed and also the shortage of the availability of expert staff, particularly for the highly specialist areas such as tanker cargo care/handling, safety courses, radar simulator, advanced fire fighting, etc.

In spite of the aforesaid difficulties there are some acknowledgments for the endeavour, being made by the officials of shipping companies; when they are facing a problem of how to put a well trained crew on board certain specialized categories of ships, in order to handle certain types of materials and equipment which need a certain minimum of training and adaptation.

So far these problems are (as far as I am aware to say so) resolved by the adaption of same such as the following ways:-

- 6.2.1 The formulation of purely theoretical advanced course on fire fighting training, or
- 6.2.2 The training on survival craft in using the life saving appliances of certain scrapped ships, or
- 6.2.3 The broadly adopted system, is to send the personnel to a recognized center of training generally arranged with France to deal with fire fighting and restrained radiotelephonist certificate, etc.

This latter system worked very well so long as the traditional technology covered all the requirements. However, difficulties began to rise as the need increased for "hands on" training on specific advanced discoveries of equipment such as: Crude oil washing, inert gas system, tank cargo care/ handling of chemical / oil gas ships.

The training became, therefore, more costly. Broadly thinking this problem will be more acute than it has been when the STCW convention came into force on 28th April 1984.

6.3 Procedure and System for the Issuing of Certificate of Competency to Merchant Marine Officers:

Some aspects relating to the decree of MTC 74/862 of 11th September 1974 as amended by the 12th of December 1983 decree.

- 6.3.1 First Class Master Certificate:
Long cycle certificate:

48 months of sea going services during which not less than 24 months as sea going foreign officer.
Master mariner.

6.3.2 Second Class Master Certificate:

Mean cycle certificate:

48 months of sea going service during which not less than 24 months as mate.

Master on board of cargo ship/passenger ship of not more than 5500 GRT engaged on home trade.

First mate of any ship.

6.3.3 Master Near Coastal Voyage:

48 months of sea going service during which not less than 24 months as mate.

Master on any cargo ship of not more than 1600 GRT engaged on near coastal voyage.

First mate, any cargo ship of not more than 4000 GRT.

6.3.4 First Class Mate:

Long cycle certificate:

18 months as sea going foreign cadet.

First mate, cargo ship of not more than 1600 GRT.

Mate, any cargo ship.

6.3.5 Second Class Mate:

Mean cycle certificate:

18 months of sea going service during which not less than 12 months as cadet on home trade.

First mate, cargo ship of not more than 400 GRT.

Mate, any cargo ship.

6.3.6 Navigational Watch Mate:

36 months of sea going service.

Mate, any cargo ship.

6.3.7 First Class Chief Engineering Officer:

Long cycle certificate:

36 months of sea going service during which not less than 24 months as sea going foreign officer.

Engineer chief officer, any cargo ship and passenger ship.

6.3.8 Second Class Engineering Chief Officer:

Mean cycle certificate:

36 months as sea going service during which not less than 12 months as officer.

Chief engineer, any cargo ship of not more than 8000 HP.

Second engineer, cargo ship of not more than 10,000 HP.

Officer, any cargo ship of not more than 20,000 HP.

6.3.9 First Class Engineering Officer:

Long cycle certificate:

12 months as sea going service.

Second engineer, every ship of not more than 10,000 HP.

Officer, every cargo ship of not more than 20,000 HP.

6.3.10 Engineering Rating:

24 months as sea going service.

Chief engineer, cargo ship of not more than 400 HP.

Second engineer, cargo ship of not more than 750 HP.

Officer, cargo ship of not more than 1000 HP.

6.4 Rules and System for Manning National Ships:

Decree of 74/101 of the 16th of November 1974 relating to the regulation of work on board, the minimum manning requirements and the personnel to be involved in ship's operations.

6.4.1 Preliminary Dispositions:

The present decree applies to every person registered in crew register book on board ships of 300 GRT and over.

The captain and pilot and doctors or other persons exclusively employed for medical purposes are excluded from these categories.

The service on board is divided into two categories in respect of ship's position:

- Sea service.

- Port service.

6.4.2 On Duty:

The normal service starts from the time fixed by the captain and between 5 AM to 8 PM.

The overtime shall not exceed twelve hours daily, unless in case of extreme emergency.

A collective agreement may be established to evaluate any remuneration or special indemnity of extra work subject to be involved.

6.4.3 The Manning of Ships:

The sea service constitutes a permanent service during which a required number of crew shall ensure without interrupting the conduct of the ship and without prejudice to its safety and the cargoes carried on board. During the sea service, the crew is separated into deck, engineering and general service personnel.

On board a ship of 500 GRT and over the navigational watch shall be ensured by at least one officer and deck rating while the engineering watch shall be ensured by at least an officer.

On board a ship with high technical characteristics to which a periodical unmanned engineering watch is allowed, the Ministry responsible for maritime affairs grants this authorization by a reduction in crew number, provided that there is a minimum number of certificated officers to ensure the ship's operations.

The maritime authority may request the addition of one extra crew number in respect of technical characteristics of ship, a voyage duration, the nature of work and whenever the safety is to be effected.

6.4.4 The Duration of Work and Control:

The manning and duration of work is ensured by the maritime authority, the control may take place before or during the construction of a ship.

A form of the organization work of any crew member is made by the captain and posted in a conspicuous place after its adoption by the maritime authority.

The captain shall let the maritime authority know about any change to the ship's organization.

The captain shall record any work subject to overtime as well as the name, rank or the seaman and the number of hours.

On board every ship, the radiotelephony shall be operated by a qualified crew member having at least the "radiotelephony" restrain certificate.

On board every ship, the radiotelegraphy watch keeping shall be operated by a certificated radiotelegraphy officer according to the radio regulations.

Any ship of 500 GRT and over and engaged on long international voyage shall have a specialist fire-fighting man and two qualified deck ratings.

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TUNISIA NAVAL ACADEMY

During several years prior to the creation of Tunisian training institutions for seafaring personnel, most of deck/engineering officers were trained in French naval academies. This is important because of the expensive equipment needed for "hands on" training, the lack of availability of expert staff particularly for highly specialist areas such as examinations, simulator programmes, etc.

By 1976, the decree 76/135 of February 1976 relating to the lead role and duties of SOUSSE Merchant Academy which was created because of the increasing amount of the technical contents needed to be covered and the increasing number of seafarers and maritime technicians.

In common with the French system over the years Tunisia had adopted a system of certification and examination. This system worked very well so long as the traditional written and oral examination covered all the requirements. However, difficulties remained in the need for training on specific equipment.

In 1978, as the country needed military navy skills, the Ministry of Defence thought of opening a combined academy which would train both merchant and military navy personnel, so an agreement was reached with the Ministry of Transport and the Academy was established in 1978 and the legislation act put into force in August 1984.

As in my paper I will be dealing with merchant navy training only, the legislation act including both trainings, articles related to military navy training as well as those not of interest will be skipped. However, the numbering of articles will be kept as given in the original version which is in French language.

1. Legislation Act:

Published in the (Tuesday 7th - Friday 10th of August 1984) Journal Officiel de la Republique Tunisienne as decrees related to the Ministry of Defence:

Decree No.: 84-851 on Organization of the Naval Academy

Decree No.: 84-852 on Organization of Studies at the Naval Academy

1.1 General Organization:

Art. 1 The Naval Academy is under the Ministry of Defence which lays down:

- All operating matters with regards to education.
- Development plans of the Academy.
- Internal regulations of the Academy.

The Ministry of Defence is assisted by a consultant organ called "The Council of Directors of the Naval Academy".

Art. 2 The Minister of Defence or his representative presides over the Council of Directors (Chairman).

The Council of Directors consists of:

- The quarter - master general of the naval army;
- The Commandant of schools in the Ministry of Defence;

- The Director of Personnel and Education in the Ministry of Defence;
- Two representatives of the Minister of Transport and Communications;
- The Director of the Merchant Marine Administration;
- Two representatives of the National Navigation;
- The Commandant of the Naval Academy (reporter);
- Invited person if any appointed by the chairman.

Art. 3 On educational matters, the Council of Directors is assisted by a specialized organ on studies and conceptions, called programs of Instruction Technical Committee.

Art. 4 The Technical Committee is in charge of studying and proposing:

- Studies organization.
- Programs of Instruction and their modifications (credit hours...).
- The profiles of students.
- The profiles of lecturers and their following-up (evolution of career).
- Exams organization and lay-out of their modalities.
- Pedagogical inspections and their organization.

Art. 5 The Technical Committee consists of:

- The quarter - master general of the Naval Army (as chairman);
- Two representatives of the merchant marine (members);
- The commandant or the deputy commandant of the Naval Academy (members);
- The Director of Studies: Academic Dean (as reporter).

The Technical Committee meets at least once a semester after decision of the chairman.

The President may invite any person which proves to be useful for the matter to be dealt with.

1.2 Organizational Structures:

Art. 6 The Naval Academy is under the command of a general officer called "The Commandant of the Naval Academy". The Commandant of the Naval Academy directs the establishment within the framework laid down by the Minister of Defence. He is assisted by a Deputy-Commandant and a Director of Studies.

Art. 7 The Commandant and the Deputy Commandant are appointed by the Minister of Defence.

The Director of Studies is nominated conjointly by the Minister of Defence and the Minister of Transport and Communications.

Art. 9 The Director of Studies, chosen among the principal officers of the Merchant Marine is in charge of the general organization of studies and their progress.

The Directorate of Studies includes:

- A Scientific and General Education Department.
- A Maritime and Technical Education Department.
- A Programs Department.
- A Training Department.

Art. 10 Each of the departments mentioned above is headed by a Chairman, chosen among the Navy Army Officers or among the Principal Officers of the merchant marine.

The head of the Scientific and General Education Department is chosen among the higher education professors.

Art. 11 The nomination procedure of the heads of departments is laid-down by regulations on proposal of the Ministers of Defence and of Transport and Communications.

Art. 12 On matters related to training, exams, and programs, the Commandant of the Naval Academy is assisted by a council called "The Naval Academy Council", over which he presides and that consists of:

- The Deputy Commandant.
- The Director of Studies.
- Two representatives of the corps of lecturers.
- The heads of departments.
- One officer of the Naval Academy (reporter)

The president may invite any person which proves to be useful for the matter discussed.

The Naval Academy Council meets each time the president decides to do so.

Art. 13 A disciplinary council presided over by the Commandant of the Academy is set up to look after cases of misconduct by students.

Art. 14 The Disciplinary Council consists of:

- The Commandant of the Academy (Chairman).
- The Deputy Commandant.
- The Director of Studies.
- Two representatives of the lecturers' corps appointed by the Commandant.

- One officer of the Naval Academy (reporter).

Art. 16 The permanent personnel of the Naval Academy, other than those of the Ministry of Defence, are in the position of being seconded to the Ministry of Defence (Naval Academy).

2. Studies:

2.1 Entry Requirements:

Art. 10 May apply for admission to the Naval Academy, the candidates which fulfill, in addition to those provided by the law No. 76-65 of the 12th July 1976 relating to the higher education, the following conditions:-

- To be medically fit for navigation.
- To be certified, with a Baccalaureate in Technical Sciences or Mathematics (high-School Certificate).
- To be Tunisian citizen.
- To be between 18 and 23 years old.
- To be single.
- For those who are under age, to have a legal authorization by the father or the tutor.

Art. 12 Students shall sign two obligations:-

- a. A contract to the profit of the Tunisian Army during the years of study at the Naval Academy.
- b. A contract to serve for at least ten years after graduation, either to the profit of the Ministry of Transport or to the profit of any organism pointed out by this department.

Art. 13 The duration of the academic year at the Naval Academy is eleven months.

2.2 Scheme of Studies:

Art. 1 The studies at the Naval Academy are comprised of two terms of duration:

- a. a long term
- b. a medium term

Art. 4 The two terms mentioned above consist of a common trunk, of four years duration which includes two cycles of two years each.

The first cycle, during which the student receives

instructions, where scientific, technic and general knowledge predominates.

The second cycle, during which the student receives instructions, where professional knowledge predominates.

Each year of this common trunk includes more than the studies, a period of sea service.

Art. 5 Each of the terms mentioned above comprises two options:

- "Deck" option
- "Engines" option

The students choose one or the other of the two options at the time of their enrollment into the Academy.

Art. 6 Students' orientation towards the long term or the medium term is based on the exams' results obtained at the end of the second cycle and to which the merchant marine criteria is applied, on one hand, and the expressed needs by this latter for each of the terms, on the other hand.

Art. 8 The long term comprises, in addition to the common trunk, a third cycle, divided into two phases,

including:

- The first, a practical training on board a merchant ship, which duration is two years.
- The second, a complementary theoretical studies at the Naval Academy, for a period of one year.

Art. 9 The medium term comprises, in addition to the common trunk, a two years' period of specific complementary education.

- One year of effective sea service.
- One year of maritime formation (Deck or Engines), depending on the specialization of the student.

2.3 Awards of Diplomas:

Art. 20 The cadet officers who succeed the common trunk at the end of the studies' exams, receive the Naval Academy Officer Diploma and are awarded the Second Class Midshipman Rank. In addition, they receive, depending on the term they were following; According to Art. 6.

1. Long Term:

- Either the first class maritime navigation lieutenant diploma, or

- The first class engineer lieutenant diploma.

2. Medium Term:

- Either the second class maritime navigation lieutenant diploma, or
- The second class engineer lieutenant diploma.

Art. 21 The long term students, who succeed the third cycle at the end of the studies' exams receive, depending on the option chosen:

- Either the first class captain diploma, or
- The first class engineer officer diploma.

Art. 22 The medium term students, who succeed at the end of the studies' exams of this term, receive according to the option chosen:

- Either the second class captain diploma, or
- The second class engineer officer diploma.

2.4 Staffing:

Art. 16 The teaching staff at the Naval Academy includes:

- a) A permanent staff, recruited:
 - Either among the military personnel of the

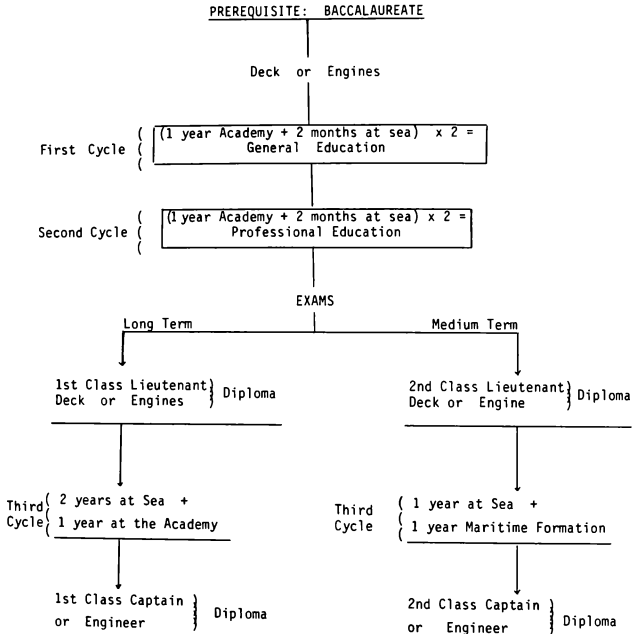
Ministry of Defence, who are affected
by the Academy, or

- Second staff, among the Ministry of Transportation personnel or the Ministry of Higher Education and Scientific Research Personnel, or other departments.

b. A part-time personnel, comprising:

- Lecturers to assure for a given period of educational missions. These are recruited by the decision of the Minister of Defence in conformity with the regulations into force.
- Foreign experts, recruited according to bilateral agreements between governments.

Art. 18 The programs of studies at the Naval Academy are laid out by a joint resolution of the Defence and Higher Education ministers.



C H A P T E R I V

INTERNATIONAL OBLIGATIONS

1. General

Tunisia's human resources are abundant; and even economists of late have come to believe that national economic development is closely linked to human resources development.

Dealing with the maritime sector, the lead role and primary responsibility in harnessing such human resources and utilising them appropriately to maximum national advantage in the shipping field, including benefits to the national seafarers themselves and the national shipping industry, have to be assumed by the government.

The main reasons for that are:

- a. In the interest of the country's maritime development it is the national government which has to:
 - i. make the assessment as regards the manpower needs in the maritime sector,
 - ii. plan for and ensure the availability of such manpower, both in quantity and quality, and
 - iii. the optimum utilisation of such manpower to national advantage.

- b. The national government is in the best position to:
 - i. monitor international developments affecting its (existing and/or future) marine personnel,

- ii. 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,
 - iii. evaluate such developments when they emerge finally, and
 - iv. adopt policies compatible with national interest.

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

- d. Shipping is an international industry. The maritime labour from the country may be subject to international pressures in various forms, and the Government is better equipped than the shipping industry and the national seafarers themselves, to deal with such pressures in the context of national interest.

- e. 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.

- f. It is the National 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.

Bearing in mind the aforesaid, the roles, responsibilities and functions of the government as regards the marine personnel needs to cover essentially the following:-

- I. Maritime Training
- II. Examinations and Certification of Seafarers
- III. Manning of Ships and Furthermore Crew Matters in General.

These three items are vital and inseparable links in a chain which determines the standards of safety and efficiency of the operation of ships.

Since the weakest link in the aforesaid chain shall determine the above standards, all the three links ought to be of equal importance to the government.

To deal with such matters, the government has to ensure, in addition to the national requirements, the conformity with relevant international law/conventions. This is backed up by many reasons from which:-

- The standards established by such conventions are justifiable on the grounds of safety and/or pollution prevention and not motivated by other considerations.
- The aspect which is so well known and by now so fully recognised and established in maritime circles that several

International Conventions on merchant shipping specifically provide an article or regulation on "Control" by virtue of which the contracting states are given powers to enforce the provisions of the convention in respect of "convention ships" visiting their ports.

It is because ships operate worldwide, which is so very essential economically and also justified legally on the basis of the recognised principle of freedom of navigation, that they at once furnish the object and become the potent instrumentality for effective enforcement of the international conventions of merchant shipping. Thus, even if a state is not party to an international convention, it has to comply willingly with the convention regulations to become acceptable to members of the maritime community with whom it has got to trade for reasons of share economics if nothing else.

To date, IMO has promoted and introduced several international conventions and other treaty instruments, codes and recommendations of various kinds, all related to merchant ships in terms of construction, equipment and operation, in order to satisfy the well known "twin motto" safer ships and cleaner oceans. From these, three conventions are important for seafarers:-

1. "International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978"
(STCW 78)

2. "International Convention for the Safety of Life at Sea, 1974" - "Protocol of 1978 relating to SOLAS 74".

3. "International Convention for the Prevention of Pollution from Ships, 1973" (MARPOL 73) - "1978 Protocol relating to MARPOL 73".

These are usually referred to as "MARPOL 73/78".

The 1978 STCW Convention came into force in April 1984 and provides on an international scale, standards for seafarers in terms of the levels of theoretical and practical knowledge related to the professional understanding and experience, being the requirements for the certification of competence of seafarers.

In view of its great importance and implications in the field of education of seafarers, the main features of the technical content of the same annex are described below briefly:

This contains the technical provisions of the convention. It is divided into six (6) chapters which deal with the following subjects:-

- I. General Provisions
- II. Master-Deck Department
- III. Engine Department
- IV. Radio Department
- V. Special Requirements for Tankers
- VI. Proficiency in Survival Craft

The minimum standards and requirements of the convention are expressed in terms of regulations and appendixes to them.

These are mandatory on all parties to the convention and are international in their scope and effect.

Now it is interesting to enlighten some major changes in the shipping that led to a new philosophy on the Maritime Education and Training worldwide and new trends of Ship Manning System.

The research confirmed that the world shipping industry was in the deepest recession since the 1930's, a situation that remains unchanged. In spite of the complex and unsettled nature of the international shipping situation certain features have become apparent. These are:-

- i. A huge surplus of tonnage particularly oil tankers caused by an overestimation of world trade prospects in the 1970's resulting in record laid-up tonnage. A consequent depression in freight rates, with little prospect of change in the near future - in spite of record scrapping of tonnage. The situation has been aggravated by the generally unrelieved world economic recession since the "second oil crisis".
- ii. A drastic reduction since 1979 in the merchant fleets of most traditional maritime countries (particularly Britain) and a distinguishable shift in shipowning and shipbuilding to countries in the far east.

- iii. A significant increase in the application of advanced technology to the building and operation of ships since the "second oil crisis" in 1979. (Initially the ship-building industry, responded by producing a class of ships that have altered the economies of operating ships. By means of the application of advanced technology both fuel consumption and manning have been significantly reduced). Even though fuel costs have stabilised, the impetus towards the application of advanced technology continues.

- iv. A tendency towards reduced manning levels in:
 - a. existing ships by a process of "rationalisation" (especially in ships owned and manned by the high-wage developed countries), a reduction claimed to enable these ships to operate in the difficult economic climate;

 - b. on new ships by a combination of "rationalisation" and advanced technology.

- v. A tendency towards progressively stricter legislation both national and international bearing on operating safety and environment protection.

It is noteworthy that in Western Germany, Japan, the Netherlands and France projects are currently being undertaken on the ship

of the future. These projects are attempts to optimize design, operations, maintenance, investments and energy consumption against the criteria of costs, safety, and efficiency.

2. Maritime Training and Education:

Maritime education and training is a subject which can be considered from various viewpoints. It is a subject on which many feel competent to comment and which can be discussed at length without arriving at an agreement. So the education would be, "we do it as others do it" or "we have to do it differently but not because we have to be different and copying others shows a lack of our own imagination." Maritime education and training is influenced to a great extent by the economy, the society and the administration and that is why the first part of this paper was dedicated largely to these aspects. We should bear in mind that the maritime education and training serves the maritime industry, the country and through this latter the man or vice-versa.

2.1 The Importance of and the Increased Need for Maritime Training:

Investigations into marine casualties have shown that most of them have resulted from human failure. 75% is a figure frequently mentioned in this context. Some experts even claim a higher percentage of human failure as causes of accidents with ships.

A close look at the causes of the 75 or more percent reveals that it is normally not a single failure that leads to a maritime casualty but a combination of causes. It can hardly be held that 75% or more of maritime accidents have to be attributed solely to human failure. Technical insufficiencies may also play a role. However, a human involvement in the development of most situations which lead to accidents has to be noted.

Endeavours aiming at the reduction of marine casualties must take the human contribution to the safety of ships into consideration. Thus training is of greatest importance and the main answer to unsafety. There are other factors in the development of shipping which establish an increased need for maritime training. They have resulted from the developments in shipping and on ships. Ships have become faster, bigger and more numerous. The amount of dangerous goods carried by sea has steadily grown. Spectacular accidents of ships carrying such goods have drawn the attention of the public to what before used to be of concern for ships' crews and shipowners mainly. Today, maritime accidents are no more a matter confined to those involved in them physically or financially. They have become of public concern.

Requirements which maritime training are expected to meet have been heightened both by the growing awareness of the human contribution to maritime accidents and the rapid

technological development of shipping which, combined with economic pressures, make the training requirements of the past appear partly old-fashioned and ought to urge responsible authorities and institutions to adapt maritime training to the new shipboard reality.

2.2 The Framework of Maritime Training:

Maritime training is part of a system. It operates in a dependence on and in an interrelationship with other parts of the system. It is influenced by some external forces.

In most countries, maritime academies (maritime training) are part of a triangle, the two other parts of which are the national maritime administration and the shipping companies of the country. In some societies the Ministry responsible for Education and Training may also have an influence on maritime training, in particular if maritime training is linked to the shore-based system of education by an academic degree which is issued, in addition to a certificate of competency, to those who have successfully completed their studies at a maritime academy.

In most countries maritime administrations have a great influence on maritime academies. They are usually responsible for the safety content of the syllabus for which the minimum requirements are derived from international conventions and for the issuance of certificates of competency. The most important and most influential one of

these is the STCW-Convention.

Influences from administrations and shipowners on maritime academies are not necessarily of benefit for maritime training. A too strong administrative influence on maritime training may result in a rather stationary system in which necessary developments are retarded. Too strong an influence from shipowners on maritime training may lead to frequent changes dictated or "sold" as being dictated by economic pressures. Maritime training in the first case falls behind the requirements. In the second case maritime training may be deprived of the necessary continuity and smoothness of development which education and training usually requires for the production of results.

Thirdly, a too intimate connection of maritime training with shore-based training may result in a loss of applicability and usefulness of training.

Maritime administration, shipping companies and maritime academies work in a framework of conditions which may change and may then make an adaptation in administrations and companies and of maritime training necessary. Safety standards usually gain attention and importance if a lack thereof has led to a major or a few major marine disasters.

The state of development of technology of a country influences the qualifications required from its labour force.

The rapid technological development in shipping has had the same effect and has changed the contents of maritime training syllabi and, prior to this, had a considerable influence on the work a shipboard officer was expected to attend to. Hardly any qualification lies anymore in the ability to climb a mast, to splice a mooring line, to carry heavy loads, etc. Skills in the operation of machines and mentally demanding activities have come into the foreground.

In such general developments, maritime training moves parallel to changes in societies. The seafarer today is to a lesser degree an outsider than before and the solitary confinement that separated seafaring from shore-based professions has - to a considerable extent - disappeared. Going to sea is no more choosing a different style of living but has become a profession with values closer to those ashore. It is part of this growing proximity between ship and shore that the affinity of value systems between ship and shore has grown and that developments on land have had and have a greater influence on work and life at sea than before.

Thus the triangle administrations - companies - academies is closer interlinked with the shore than before. This is economically exemplified by the development of container and intermodal transport and the owning of shipping companies by banks and other institutions which are not primarily interested in shipping. The three parts of the triangle

are embedded into the state of and are influenced by the developments in society. They have to observe the prevailing economic conditions and to follow the advances in technology. What specifically separates ship safety from safety in most other industries is a considerable autonomy in the navigation of a vessel and the nearly undivided responsibility for the safety of a sailing ship. A competent crew is of crucial importance for meeting the responsibilities which result from such independence.

2.3 Systems of Maritime Education Adopted Commonly in The World:

In pursuing the relevant two year course in Maritime Education and Training at the World Maritime University, I have gained, with the field trips which are an important part of the curriculum at the University, more knowledge about systems adopted in many other countries. In this respect I mention the countries visited while fulfilling the requirements of the course:

United States	King's Point Academy)	} State of New York
	Suny Academy)	
	Coast Guard Academy)	
U S S R	Leningrad Academy	
United Kingdom	Southampton College	Warsash
France	E.M.M. Le Havre 1 - Inspectorate general for Maritime Education.	

Poland	Maritime University	Szczecin
Netherland	Amsterdam	Nautical College/University of Delft
West Germany	Bremen	Nautical College
	Hamburg	Nautical College
East Germany	Var ne münde	Academy
Danmark	Copenhagen	Nautical School

Based on the aforesaid experience I would like to classify these systems of Maritime Education as follows:

- The United Kingdom and the Commonwealth countries:
The system is generally based on professional studies and practically oriented.
- The European countries (West Germany, Netherland, France) and United States:
The system is balanced between academics and training generally three to four years of theoretical studies recognized by the Higher Education Ministry and an adequate provision for a sea going period combined together for a certificate of competency.
- The eastern block countries (Russia, Poland, East Germany):
The system relies on high academics, a provision of

four to five years of theoretical studies supplemented by a period of sea going give a certificate of competency and a degree which is recognized by the industry ashore.

With the requirements of the STCW entered into force all these systems have undergone more or less deep changes. However, there is no standard of system of maritime education to date commonly agreed upon.

There is one feature the STCW Conventions called for which is very important: the specialized training courses. All the systems encountered in the world had to deal with these courses in one way or the other when the STCW 78 came into force.

2.4 The Role and Importance of Specialized Training Courses:

Specialized training courses have always been a more or less used method to cope with new training and qualification requirements in shipping. Several decades ago, these courses were the preferred approach. Their merging established the first more comprehensive courses for certificates. Then, for considerable time, nautical training rested on a coherent basis which gave little attention to specialized training courses. It was not before the rapid technological development had engendered major changes in shipping, that new training needs made such courses come to light again.

It is the scattered variety, in quantity and quality, of today's requirements as well as their continued enhancement resulting from a growing specialization in shipping, which have to be met by additional qualifications. Certain specialized knowledge and capabilities have in many a case to be taught to a restricted number of seafaring personnel only. The single certificate ideal, may then be "supplemented" by specialized certificates which have to be issued in addition.

There is another purpose beside the updating which may call for specialized training courses: refreshing. It may become necessary after some time to re-develop qualifications which are of great relevance to safety.

Both the innovation as well as the repetition aspect, together with a salient importance of the subject for safety, allocate considerable significance and urgency to the identification, elaboration and implementation of appropriate specialized training courses. This makes such courses the best suitable method to meet emerging requirements and to bring about change in maritime training. Although the majority of specialized training courses are designed to serve a beneficial purpose for marine safety and the protection of the environment, they do also in many a case respond to the shipping industry's needs for increased efficiency as well.

The updating or refreshing objectives of the courses have

always to be looked at in combination with the group of addressees and the type of ship the particular course is aiming at. These may be all officers and all ratings on all ships, certain officers and certain other personnel with special responsibility on all ships or a corresponding group of persons but on special types of ships only. The combination all personnel/all ships will only apply for courses the contents of which could alternatively be integral part of a syllabus leading to a certain certificate, but are dealt with separately because they are connected to a central location and combination of equipment.

2.5 Specialized Training Courses of the STCW Convention:

The STCW Convention, 1978, calls, implicitly or explicitly, in a mandatory or recommendatory form, for the following specialized training courses

<u>Specialized Training Courses</u>	<u>Advanced Specialized Training Courses</u>
<u>Sea Traffic Category</u>	
	1. Bridge Team Training and Passage Planning. cp/as
	2. Radar Simulator Training cp/as
	3. Shiphandling simulator (Large ships with unusual manoeuvring characteristics) cp/cs

4. Automatic radar plotting aids cp/cs

Dangerous Cargo Category

5. Dangerous and hazardous cargoes cp/cs

6. Oil Tankers cp/cs

6. Oil Tankers cp/cs

7. Liquefied Gas Tankers cp/cs

7. Liquefied Gas Tankers cp/cs

8. Chemical Tankers cp/cs

8. Chemical Tankers cp/cs

Other Categories

9. Human Relationship cp/as

10. Proficiency in Survival Craft cp/as

11. Personal survival Techniques ap/as

12. Fire-Fighting Course ap/as

12. Fire-Fighting Course cp/as

Note: cp= Certain Personnel cs= Certain Ships
ap= All Personnel as= All Ships

2.6 The Future of Maritime Training:

It is to a considerable extent in the hands of maritime

administrations and shipping companies what will happen to maritime training in a country or a region. The appreciation of the great importance of maritime training for "safer shipping and cleaner oceans" (twin motto of IMO) will lead to higher training standards. Training confined to the meeting of minimum requirements will be left in a condition that will not enable a country to gain the full benefits which can result from maritime training.

Seafarers educated and trained today will have to be able to operate ships of tomorrow with more technology than today.

However, as stated earlier, there is not and there will not be any standard system which can suit any country, so changes in maritime training should not be decided ad hoc. A thorough planning has to take place and it has to be a long term planning. Amendments to maritime training systems have to be governed by a certain continuity. Change and continuity are - in the strictest sense of the words - incompatible, although they will have to be combined for the development of a maritime training system. Qualified teaching staff in maritime academies, a competent and committed maritime administration and shipping companies aiming at long-term profits would be in the position to bring about the necessary change without affecting, shaking and endangering the continuity and the stability of a maritime training system. All three

parties are necessary to fulfill such task. None is sufficient on its own.

3. Examination & Certification of Seafarers:

The standards of examinations for various grades of seafarers (officers and key ratings) and their appropriate certification in a country are intended to establish and provide proof of the competence of the respective seafarers concerned for the levels at which they have to perform duties/operate on ships. These in turn constitute the first element which determines the standards of safety and efficiency at which the ships of the country are operated. While the human factor as a whole is dominant in the operation of a ship, the professional competence of the aforesaid management/supervisory personnel would be predominant. In view of the great importance attached to such examinations and the certification of seafarers, all maritime countries have accepted same as a direct responsibility of their governments. It is also the healthy practice to decide upon the standards and the systems in consultation with the shipping industry, and the maritime education authorities. Nevertheless, the standards and systems had varied considerably amongst the countries and there were no international standards established until the year 1978. This was indeed an anomalous situation, since:

- a. shipping is the most international of industries,
and

- b. the world maritime community had progressed quite far in establishing international safety standards for ships and their equipment.

The certification requirements of the STCW were set up by people who have an interest in safety at sea: safety of life and the avoidance of injury to persons or to the marine environment. They are of course the result of compromise to achieve consensus: many would like to see them more demanding in nature, while others would no doubt wish to see them less onerous.

With this in mind, no one should look upon these requirements as having been formulated upon any precise or scientific basis, although it is true to say that they are not unreasonable as a first step towards the setting of minimum international standards of competency in sea-going ships.

However, as explained earlier, it is better to have a comprehensive system of certification complying with these international requirements. For this the STCW parameters of certification are "the propulsion power" for Engineers or the "gross registered tonnage" for Deck Officers and the "Trading Area".

3.1 For the Deck Department:

The STCW requirements which are to be met by means of examinations to establish competency are applicable to all masters and deck officers intending to serve in

merchant ships. There are no exemptions from these requirements except in respect to certain small ships of less than 200 GRT, and then only as regards some of the requirements if the administration concerned is satisfied that the size of the ship and the conditions of its voyage render full compliance unreasonable. Some relation in the depth and scope of knowledge required for certification is however allowable for service in ships engaged upon near-coastal voyages, the scope of which is carefully defined in the convention, and on which new definitions are coming soon, I believe.

3.2 For the Engine Department:

Many national maritime administration have certificate structures which take into account not only the propulsion power of ships but also the limitations of their trading areas. This is recognised by the STCW Convention and so its regulations (III/2, III/3 and III/4) permit some relaxation of requirements for ships of "limited power" which operate solely in a defined near-coastal voyages area.

3.3 Tankers Provisions:

Due to the existence of many different types of ships, It may be considered that a fairly simple structure of certification is not sufficient for the intended purposes

of safety at sea and prevention of marine pollution. I am pointing out here especially the STCW resolutions (10, 11 and 12) which deal with tanker requirements. It is for the consideration of each administration whether or not to insist on suitable endorsements to the certificates of its basic structure as statutory requirements for sailing as certificated officers on the types of ships concerned.

The intention of the types of the STCW 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 appropriate period of ship-board service or an approved familiarization course. Requirements are more stringent for masters and senior officers. The provisions are for oil tankers, chemical tankers and gas tankers.

3.4 Proficiency in Survival Craft:

The STCW establishes requirements governing the issuing of Certificates of Proficiency in survival craft. These include approved sea-going service of not less than 12 months, or 9 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". An appendix lists the minimum knowledge required for the issue of certificate of proficiency.

3.5 Examinations:

Turning now to the examinations themselves a study of the syllabuses indicate the following methods of assessment as appropriate for the issue of certificates of competency under the STCW Convention:

- Written examination requiring essay-type answers.
- Written examinations using multiple-choice answer techniques.
- Oral/practical examination.
- Either written or oral examination, or a combination of both, at the discretion of the examining authority.
- Modular courses of training with separate terminal written/oral/practical examinations to cover specific areas of subject matter.

A typical examination syllabus may require two or more of those different methods of assessment to achieve the overall object of satisfactorily testing the competence of the individual.

4. Manning of Ships:

The next element that influences the safe and efficient operation of a ship is its manning structure.

The word "manning" used with reference to a ship, means the composition of her crew and therefore refers not only to the total number of her crew but also to each number of persons possessing particular relevant skills. However, the expression commonly used in the shipping circles, is "minimum safe manning" and it means "the safe manning" that is achieved with the minimum number of crew.

The "safe manning", in turn means the one that permits a ship to sail on her intended voyages with no more than the normally accepted degree of risk to herself, to those on board and to other ships. From this, we can ask why? The question of what is the minimum safe manning for a particular type of ship on a particular type of voyage is one that does not permit an answer in absolute terms and cannot be agreed upon on an international level.

The question above has generated high emotions and much controversy. This is very understandable since the question involves employment prospects, which are very much the concern of seafarer's unions, and involves crew costs, which are very much the concern of ship-owners.

Another factor of the controversy raised by the question of what is safe minimum manning is that of international competition in an

economic climate under which profitable cargoes are desperately sought.

The possibility of placing owned flag ships at an economic disadvantage in competition with other flag ships is to be taken into consideration by any maritime administration, and in the absence of any international agreement, the tendency is towards lower and lower safety standards since safety costs money.

When discussions leading to the "International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978" began, it was thought, by many of those concerned, that the subject of safe minimum manning was inseparable from the subjects under consideration and that the Convention should therefore have something to say on it.

For the reasons mentioned above, the subject was so controversial and emotive that its inclusion into the deliberations would have probably halted all progress towards what is generally regarded as a useful document. Thus specific manning requirements were not omitted from the STCW by oversight but by conscious decision.

After the STCW, efforts were made to reach agreements on scales of minimum safe manning for various types of ships on various types of voyages, but, many national practices were well established and views tended to be rather entrenched so no progress was made and not a single scale of minimum safe manning was produced.

A fresh approach was needed and it came later in the form of a resolution which was accepted more with resignation than with

enthusiasm and referred to as IMO Resolution A 481 (XII).

IMO Resolution A 481 (XII), like any other IMO Resolution, is not mandatory and so no party to the STCW Convention (or to any other Convention) is compelled to adopt it. It is expected, however, that most Parties to IMO Conventions will adopt it since there are advantages in doing so.

The Resolution calls for Member Governments to take the necessary steps to ensure that every sea-going ship to which the STCW Convention applies carries on board at all times a document issued by the Administration specifying the minimum safe manning required for such a ship. It then goes on to specify what information that document should contain and calls on all Member Governments to regard compliance with that document as evidence that the ship is safely manned when they are exercising Port State Control. The Resolution then recommends that, in establishing the minimum safe manning for each such ship, administrations should observe the broad principles given later in the preamble, and also the guidelines given in the annex to the Resolution.

It will be recalled that IMO discussions nearly foundered on the question of manning scales and that their production, as international requirement, was abandoned on favour of specifying only the principles and guidelines of safe manning. This at least allowed something to be internationally agreed but left much to the discretion of individual administrations and, in particular, left it to each administration as to whether it would publish manning scales for its own flag ships.

However, the following may be of interest whenever the subject is

to be dealt with:

The manning structure is divisible into two parts:-

1. Certificated Manning
2. Manning by other members of crew who need not hold certificates of competency.

Certificated Manning:

This relates to the minimum categories and number of certificated officers required to operate a ship safely and efficiently. The minimum standards of competence to be attained by the Certificated Officers have been spelt out in the STCW Convention and are further amplified by the national Rules/Regulations concerned.

However, the STCW Convention does not spell out the certificated manning structure, even though there are certificated manning implications in implementing the requirements of that Convention.

Manning by Other Members of Crew (Ratings)

This element is important to the country not only because of its importance to safe and efficient operation of ships, but also since it involves the vital matter of "employment" for the nationals.

While on the one hand there is the need for trained seamen (ratings), on the other hand the manning pattern deserves to be such as to provide employment for the maximum possible number

of such ratings. Therefore, as regards the national ships, technology related to automation and such labour-saving operations needs to be chosen with caution, and manpower resources should be utilised to the maximum extent.

It is for this reason that a number of countries tend to promote the carriage of a larger number of ratings in their national ships, as compared to the number of ratings in similar ships of other countries. Thus, while the "quality" of the ratings needs to be ensured through proper training of the ratings, the "size" of the crew on a ship of a country would have to be influenced by its national policy regarding the scale of employment required for its seamen (ratings). In this context it has to be appreciated that in the operation of its merchant fleet, a government has responsibilities and interests beyond "safety" and "protection" of the marine environment.

5. Future Trends in Ship Manning Structure:

The trend is towards the ships with integrated crews. This will be accepted as normal by both ratings as well as officers on European and Japanese ships around the year 2000.

It will be a slow and gradual process because only new-buildings will be technically fitted-out with the necessary automation equipment. For nearly all of the ships existing today it will be too expensive to be modernized so as to make them suitable for smaller and integrated crews.

It is expected that Japanese ships eventually will have crew complement of 10 to 12 whilst the Europeans are still experimenting with crews numbering 17 to 18 persons.

For the purpose of future manning of ships, all previous concepts will be discarded or modified. Manning levels in these new types of ships will be based on:

1. The levels of onboard equipment and level of automation.
2. A new system of job classification for mariners to gain full advantages of the previous criteria.

There is no doubt that merchant marine officers sailing aboard state-of-the-art vessels of the 1990's will be drastically different than the typical merchant marine officer who manned the ships of the 1960 and the 1970's. Whereas, the state-of-the-art vessels of the 1960's, with their limited automation, had crews of approximately 35 and those of the 1970's, with unattended engine rooms, had crews of approximately 25, the state-of-art vessels of the 1990's will most likely have crews of 10 or less.

The problem is further compounded by the probable complete elimination of certain shipboard technical billets such as that of the radio officer.

All the new projects under consideration suggest a further improvement by reducing the number of bridge personnel. A one officer-workstation is designed, where the officer is placed in the role of supervisor of automated bridge functions.

C H A P T E R V

CONCLUSIONS AND RECOMMENDATIONS

While at the University for the two year course in Maritime Education and Training, I have learned much from examining what is happening in other countries.

It appeared to me, that in many ways, improvement can be performed in the system implemented in my own country, by the adoption of some features existing in other systems.

However, that is not to say that I will try to recommend systems or parts of systems which are operating well in some other countries without first considering their relevance to the national education, social and economical conditions.

The Academy, the Maritime Administration and the Shipping Companies all together being government establishment present the advantage of looking after the best output on the national level and agreements can be reached easier because no conflict of interests is involved.

1. Recommendations on the Maritime Education & Training System:

Contributions to maritime education and training can be made from all parties involved, provided they would develop and keep an interest in maritime education and training on the basis of a long-term planning.

a. Companies' Contributions: Shipboard Experience and Job Satisfaction

The companies would, as before, have to accept responsibilities and take over costs for shipboard training. This could be increased in duration if a combination of shipboard qualifications

is aimed at.

The individual's capabilities in the performance of ship-board experience may be costly to provide for.

It is mainly a result of provisions made by shipping companies whether job satisfaction is created or not. Working conditions on board, planned leave periods and punctual replacements in foreign ports contribute to job satisfaction as do other measures which develop an identification with the employer. Such identification can be supported by job rotation schemes for shipboard officers who have been educated and trained for ship shore-employment. The work in the company office ashore in planned intervals produces a shipboard officer who can be of benefit for a company by increased qualification and loyalty.

b. Contribution from The Maritime Administration: Safety and Pollution Prevention Standards

The maritime administration (Ministry of Transport, Maritime Division) has to ensure that safety and marine pollution prevention standards are met as specified by national law that takes into account international (IMO) conventions. This task includes the specifying and prescribing of the parts of maritime education and training syllabi, which are related to maritime safety and marine pollution prevention, and requires a direct or indirect involvement into examinations.

In this connection the last article of the Legislation Act

creating the Academy which expressly states: "the programmes of studies at the Naval Academy are laid out by a joint resolution of the Defence and Higher Education Ministers" shows that the maritime administration which is responsible for enforcing international standards related to safety and marine pollution is left out and cannot influence the programmes of studies.

One can argue that their influence can come through the technical committee set up by the Article 3 of the same Act and where they are represented, but still this committee is an advisory body and thus has no enforcing power.

Consequently my suggestion would be an adjustment of the Act to include the maritime administration as an enforcing agency at the Academy.

c. Contributions from the Academy:

It is the primary task of the maritime academy to educate and train students for shipboard purposes. However, there are two developments from which the need for a broader approach to maritime education and training can be deduced.

Firstly, it can be expected that new requirements for shipboard training will emerge from future ship and cargo operations. This will result in a continued need for theoretical studies and shipboard experience. The Maritime Academy will have to provide for the theoretical part but it may - at the

same time - have to educate and train students more than it has up to now for an adaptation to future change. How to study, how to manage and how to cope with new requirements and other 'how to'-subjects will have to be enlarged.

Understanding the purpose and the concept of an activity as well as its interrelationship with its environment will help much more to develop capabilities for transfer of training than an abundance of unstructured details would cater to.

Secondly, the need for professional mobility in the maritime labour market will have to be responded to by the maritime education and training system.

Subjects will have to be introduced or enlarged in the syllabi for ships' officers which are of use aboard and ashore, e.g. personnel management and computer science. The unsatisfactory employment situation may also result in the appreciation of the need for a ship-shore bivalence.

The content of the training courses must reflect the skills which industry and commerce expect will be needed, and regulations require. A system of regular updating would minimise the uncertainty of prediction. The Education Courses must provide the knowledge necessary for the intelligent application of skills and for easy acquisition of new ones.

Education thus has a heavier responsibility for promoting adaptability among individuals and flexibility in their attitudes than

training which tends in the opposite direction.

The joint aims must be to produce competence for today and capability for tomorrow.

To produce a new type of seafarer who will match the requirements of the ships of the future, the philosophy of working together as a team must be introduced at the start of education and of training. The essential elements in such programmes would be in three phases:

Selection:

Must include assessment of mental and psychological suitability in addition to physical health and technical ability.

Common Trunk Studies (4 years at the Academy):

The maximum common core material related to ship operational team concepts must be used, with specialist activities limited to as few areas as possible.

Third Cycle/Advanced Studies:

Common core material more related to ship management team concepts would be involved, with more advanced specialist studies as necessary.

The use of simulators in training programmes is a very useful and helpful exercise and I believe there are still many unrecognized or unappreciated uses to which they can be put.

However, I am of the opinion that they, as indeed any other training device, cannot and do not remove the essential need for practical sea going experience of an officer's career.

Sea Training:

The sea training component is an important aspect of the programme related to the watchkeeping certificate, deck and engineering.

The sea training component should be seen as an extension of the programme of the land-based training. For this reason, it is important that there is effective and close cooperation and coordination between the personnel aboard and the Naval Academy.

As ships may be subject to quick turn rounds in ports and quick changes in their crew, this tends to make training activities somewhat difficult and possibly fragmented, and means that "on the job" training will have many problems and difficulties aboard ship.

It is crucial therefore that a properly structured and organized programme of activities is followed, in order that this period of "hands on" experience aboard ship can be fruitful and effective.

Models, related to sea training should be developed to offer guidance in this important and vital area.

It shall cover the practices and procedures of watchkeeping and the operation of ships and machinery, through a number of supervised activities. Each activity must be validated by a senior officer that it has been successfully and properly carried out.

Since the fleet is relatively limited to a small number the model can be based on the ship the student is on.

The Naval Academy in cooperation with the ships officers, may insti-

tute other training activities such as personal reports from the trainee, to supplement and reinforce the activities in the model programme.

Implementation of Certain Specialized Courses:

As explained earlier, beyond the Basic Training Courses, there is also a requirement for short specialist or updating courses, some of these are in either an integrated or separated form.

However, it can be taken for granted that new needs for qualification and training in shipping will arise. Therefore, it should be kept in mind that some of the courses should have a temporary existence before being integrated into the general course for certificates.

From the analysis of the fleet, it appears that a large number of chemical tankers is found, so an urgent need to set up this chemical tanker course rises. For the sake of global standard of the courses, and for efficiency considerations, we should gain profit from the model courses available to us in many countries.

The course should be guided by regulation V/2 and resolution 11 of the STCW Convention.

The two courses which also need to be made available are the fire-fighting course which is supported by resolution A 437 (XI) and the proficiency in survival craft which content shall be drawn out from Regulation VI/1 and Resolution 19 of the STCW Convention.

The content of these specialist courses is furthermore decided with the maritime administration as to suit its requirements.

2. Certification of Seafarers:

It is worth to emphasize once more that in no way the STCW defines a structure of certificates, the STCW Convention does not have prescribed structure of certificate grades, or classes. That is for each administration to decide for itself, within the broad requirements of the convention.

A common mistake that we should avoid is to confuse certificate grades with training courses and assume that we need a different course and examination syllabus for each grade or certificate. Thus a clear distinction between the certificate given by the Academy and the certificate of competency given by the Maritime Administration after having fulfilled the requirements of sea service and others must be made.

The Maritime Administration needs to evolve a suitable certificate structure which would both conform to the requirements of the STCW Convention and suit also the national requirements.

It is necessary to produce a system of equivalence, whereby certificates of competency previously provided and those produced later meet each other. It is important to define as precisely as possible the trading areas (by longitude and latitude on a suitable map):

- Coastal trade area
- Home trade area

- Foreign trade area as any location not within the home or coastal trade areas.

The Maritime Administration needs also to administer the certificate structure for small ships to be operated by certificated officers and those in near coastal voyages, accordingly it has to make special arrangement for ships:

- Under 200 GRT, or
- Under 700 KW, or
- Engaged in near coastal voyages.

Finally the Maritime Administration should provide all seafarers with a certificate that suits the system adopted and which is in conformity with the model recognised internationally and given in the STCW Convention.

3. Manning of Ships:

There is a need for publication of a general manning prescription in some form to provide, first, information to prescribe ship operation. This has to be complemented by flexible machinery to determine detailed special cases.

While promoting the cause of increased manning, every endeavour should be made to ensure that:-

- a. The crew wages are realistic and related to the cost of living and expected standards of living of seamen concerned in the home country, and

- b. The total crew costs per ship are such as to make the operation of the ship viable and able to withstand international competition.

In this endeavour, it is natural that external pressures are experienced and have to be dealt with on the basis of national interests and reasonable international views.

Deck manning and machinery space manning should be assessed separately and with reference to different parameters. This can usually be done quite easily since parameters considered relevant to deck manning are usually not considered relevant to machinery space manning and vice versa. Cooperation is necessary, however, in such assessments if they are carried out by different men - especially where a ship is to have a crew in which some men have both deck and machinery space duties.

Conclusion:

The international obligations are many and varied in respect to Maritime Law and Conventions. It is difficult to draw any conclusion as to how they can be met, however, the concepts highlighted are best interpreted by the Maritime Authorities to ensure that international standards and the national requirements are both met.

Maritime education and training is influenced to a great extent by economic and social factors. The Maritime Authorities also play an important role. If international obligations are to be met, then due consideration **should** be given to some parameters outlined in

this project.

The examination and certification of seafarers play an important role in ship's operation, safety and pollution prevention. If these are to be carried out effectively, support and assistance are needed from the Maritime Authorities. This will enhance compliance with international standards.

In conclusion I add that when a system has been organized and developed over many years, there is always a resistance to changes, particularly if such changes are sudden and dramatic. There is no doubt that a gradual approach to change would achieve a wider approval and support than a sudden one.

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