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Development of a Tunisian centre for training of ratings and port workers and for short courses

Karem Mansour
WMU

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WORLD MARITIME UNIVERSITY
Malmö, Sweden

DEVELOPMENT OF A TUNISIAN CENTRE FOR TRAINING OF RATINGS AND PORT WORKERS AND FOR SHORT COURSES

By

KAREM MANSOUR
Tunisia

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

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in

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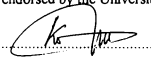
(Engineering)

1998

DECLARATION

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

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



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Supervised by:
Captain J. Horck
Lecturer
World Maritime University

Assessor
Captain M. Forkanul Quader
Senior Lecturer ALAM
Former World Maritime University Graduate

Co-assessor
Captain R.L. Tasker
Former Head of Simulation & Specialist Training
Australian Maritime College

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ABSTRACT

Title of Dissertation: **Development of a Centre for Training of Ratings and Port Workers and for Short Courses.**

Degree **Msc**

The dissertation examines the establishment of a maritime vocational training system in Tunisia. This system would incorporate the development of a centre for training of two categories of personnel who are being employed without prior formal training. These categories are at the basic level of maritime personnel, viz. Ratings on board ships and port workers in ports.

A general overview on the maritime education and training in Tunisia is conducted. It highlights the problems that would face the maritime vocational training system.

The training needs analysis is carried out, which take into account the future of the Tunisian shipping industry: ships fleet and port facilities development.

Course curricula were developed to constitute the main course that will be delivered by the centre. In addition, short courses based on the requirement of STCW 95 are identified. These courses could be taught to all seafarers including ratings.

A proposed structure of the Centre for Training of Ratings and Port workers (CTRP) is described. The administrative organisation of the centre, which is based on its

structure, is explained. It pinpoints the necessity to include in the process an audit committee to ensure quality of teaching and training in the centre.

Finally actions are recommended to be undertaken for setting an appropriate training system which would contribute to the development of the maritime sector in Tunisia.

KEYWORDS: Ratings, Port Workers, Vocational Training, Short Courses

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LIST OF ABBREVIATIONS

COTUNAV	Companie Tunisienne de Navigation
CTRP	Centre for Training of Ratings and Port workers
DGMM	Direction Générale de la Marine Marchande
IMO	International Maritime Organisation
MMSS	Merchant Marine School at Sousse
NAMB	Naval Academy of Menzel Bourguiba
OPNT	Office des Ports Nationaux Tunisiens
STAM	Societé Tunisienne d'Acconage et de Manutention
STCW	Standards of Training, Certification and Watchkeeping
TRAINMAR	Training Development in Maritime Transport
UNCTAD	United Nations Conference on Trade and Development
UNDP	United Nations Development Programme
WMU	World Maritime University

CHAPTER 1

INTRODUCTION

In 1988, the Tunisian government adopted a new strategy to enhance vocational training, mainly, by the creation of a Ministry of Vocational Training and Employment. Furthermore, pupils who leave primary-school are highly encouraged to apply for enrolment in one of the training centres, which were created in different areas of the country. Besides the navy training system, there is a lack of centres for vocational training of personnel such as ratings for shipboard operations and watchkeeping and port workers for cargo handling operations in port.

The necessity of the establishment of a specialised centre for maritime vocational training was highlighted in the report by the General Directorate of the Merchant Marine (1996, p. 11). The report recommends that the Tunisian government should focus, during the next development plan (1997-2002), on training of maritime personnel who are working at supports level in the maritime industry.

The aim of the dissertation, which takes into account this recommendation, is to initiate the development of a maritime vocational training centre, mainly for ratings and port workers. The dissertation would also constitute a fist step toward the establishment of a training centre for all categories of workers in the maritime sector, such as shore based personnel working in a maritime administration, a port authority or a shipping company.

Regulations II/4 of the revised Internatioanl Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW 95 Convention) stipulates that ratings forming part of navigational watch of engineering watch are required to be duly certified. Candidates for certification have to complete special training ashore or on board. For these reasons Tunisian ratings should firstly comply with STCW95 provisions, and secondly they have to attend courses concerning shipboard operations such as maintenance of ship structure and equipment, ship handling and cargo handling. Furthermore, current ratings should also attend refesher courses to get new knowledge and skills such as operating advanced on board equipment and application of updated safety procedures.

The research undertaken by the Society of Naval Architects and Marine Engineers (1988, 1-3) demonstrates that in 25 years the maritime transportation system changed dramatically. Changes in port environment are noticeable, in particular, concerning the mode of transport of cargo from conventional to containerised cargo. However, the development of terminal facilities requires skilled and competent personnel to conduct cargo handling operations and operate sophisticated equipment. In addition, knowledge and skills of current personnel working at all levels have to be refreshed and updated to cope with changes in the maritime transportation system. In fact, the improvement of the transportation process caused many problems for ports, in that human resources are not well prepared to apply correctly the new cargo handling methods and to handle new equipment ashore or on board. Personnel injury, damage and loss of cargo and equipment is experienced during cargo handling operations as a result of human error, accidents, poor judgement, inadequate equipment, insufficient packing, lack of training and safety procedures and pilfering. Therefore, all these problems have a significant effect on the economics of the total transport chain.

As in other ports in the world, Tunisian ports are in continuous development; terminals are being constructed and new equipment is being purchased, but, similar problems are unfortunately still occurring.

The dissertation focuses on training of one category of port personnel, namely port workers such as dockers, vehicle drivers and operators of heavy equipment. The author considers that this category who plays a very important role in the maritime transport system, has to be concerned with planned training as other categories of personnel.

The main body of the dissertation is presented from Chapter 2 to Chapter 5.

Chapter 2 presents an overview of the Tunisian vocational training system. It highlights the current methods used for the recruitment and training of ratings and port workers. The situation of the maritime training in general is also discussed.

Chapter 3 discusses problems facing the vocational training in Tunisia. This Chapter describes different types of problems which could occur based on the experience of the Merchant Marine School at Sousse.

Chapter 4 presents an analysis on maritime vocational training needs which take into account the present and future activities of the shipping industry and natioanl and international regulations. It gives a description of the new requirement of the STCW 95 Ammendments related to certification and training of ratings of deck watch and engineering watch.

Chapter 5 develops new curriculum for ratings and port workers. The method used was described by Print (1993, 81-88) in his model of curriculum development. This

includes developing short courses for seafarers and refresher and updating courses for the existing personnel. The short courses are bases on IMO model courses.

Chapter 6 proposes a structure and an administrative organisation of the centre. It gives requirements for qualification of staff and faculties, teaching facilities and equipment. These are based on IMO model courses and the author's working background experience and knowledge as well as information gained during the two years studying at World Maritime University.

Chapter 7 presents the conclusion and recommendations made in order to acheive the aim of the dissertation in the development of the centre of training. The main objective is to improve safety and working procedures.

The methodology undertaken to develop the dissertation is based on literature search in books and publications available at the WMU library, and on lecture notes by WMU resident and visiting and associate professors. In addition, information and data on the Tunisian maritime sector were collected by the author through personal contacts.

CHAPTER 2

2.1. An overview of the Tunisian vocational training system

Before describing the vocational training system in Tunisia, it is necessary to give a brief overview of both the General Education System and the Maritime Education System.

2.1.1. Background of the General Education System

Education in Tunisia comprises three systems: primary, secondary and higher. The public expenditure on these three systems, at current market prices in 1995, was about 789 MD (million dinars).

The primary and the secondary systems are supervised by the Ministry of Education, and the higher system is under the authority of the Ministry of Higher Education.

The primary-level cycle includes a nine-year program of studies. In 1993 there were 1,476,329 pupils studying at this level of which 47% were females. The primary level curriculum includes many common subjects such as Arabic, Arithmetic, Religion, Geography, and French.

The students attend the secondary-level cycle after they have successfully passed the

entrance examination at the end of the nine-years of primary education. Those who do not succeed are directed to the vocational institutions for their future employment as skilled workers. This secondary program of four-years contains many specialities, which can be chosen by the students, such as languages (letters), experimental sciences, mathematics and technical sciences. In 1993, there were 639,403 students studying at this level.

The third level of education in Tunisia is the higher level, which is open to the students who successfully complete the secondary program and succeed at the final examination. In 1993, there were 87,780 students studying at this level. The percentage of females was approximately 41%. There are also other universities where students can study in Tunisia, for example the universities of Science, Medicine, Letters, Theology, Pharmacy, Economics and Law.

The programs of studies at these universities are organised in three cycles of two years. The third cycle requires writing a thesis or dissertation.

However, the percentage of illiterate population in the age group over 15 years is still high, being about 42%. As is common knowledge education is the primary vehicle for effecting social change.

2.1.2. Maritime Education System

In Tunisia there are two institutions of maritime education. The first is the Merchant Marine School at Sousse, which was established in 1976 and is supervised by the Ministry of Transport. The second is the Naval Academy at Mensel Bourguiba, which was created in 1984 and is under the authority of the Ministry of Defence.

The Merchant Marine School courses contain two levels of education, which are the

vocational level and the high level.

Until 1996, 845 students had attended the following courses at the vocational level:

1. Course for administrative personnel:
   - Technician in maritime transportation.
   - Technician in naval techniques.

2. Courses for seafarers:
   - Deck officer on ships less or equal to 1600 gross tonnage.
   - Engineer officer on ships with machinery less or equal to 2200 kW.
   - Master on ships less than 300 gross tonnage.
   - Chief engineer on ships with machinery less or equal to 1000 kW.

Regarding the high level courses, the number of students who have followed these courses was 375, until 1996. These courses are as follows:

1. Administrative personnel:
   - Junior engineer in maritime transportation.
   - Junior engineer in naval techniques.
   - Engineer in maritime transportation.
   - Engineer in naval techniques.

2. Seafarers:
   - Deck officer on ships more than 1600 gross tonnage.
   - Engineer officer on ships with machinery more than 2200 kW.
   - Master on ships more than 300 gross tonnage.
   - Chief engineer on ships with machinery more than 1000 kw.

The course for deck and engineer officers is shown in figure 1.

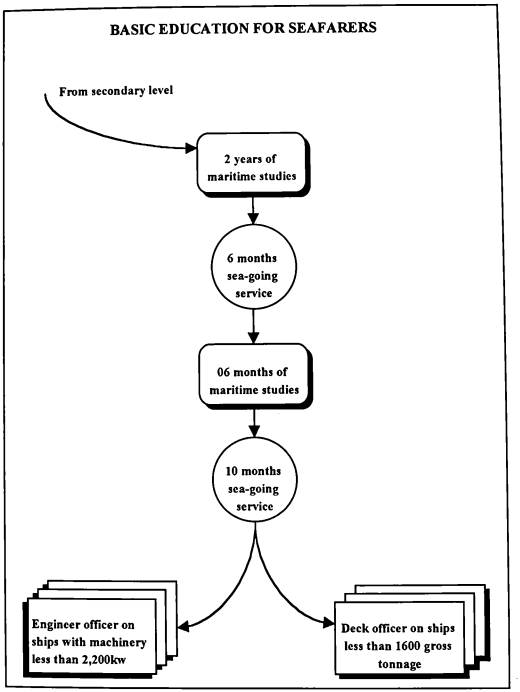

Figure 1 : Basic education for seafarers

The Naval Academy specialises in teaching courses at the high level for both the merchant marine and for the navy. These courses are concentrated, especially, in navigation and engine matters. Since 1984, 335 civil officers have graduated in the following specialities:

- Master on ships over 4000 gross tonnage.
- Chief engineer on ships with machinery over than 5000 kw.

The course is described in Figure 2.

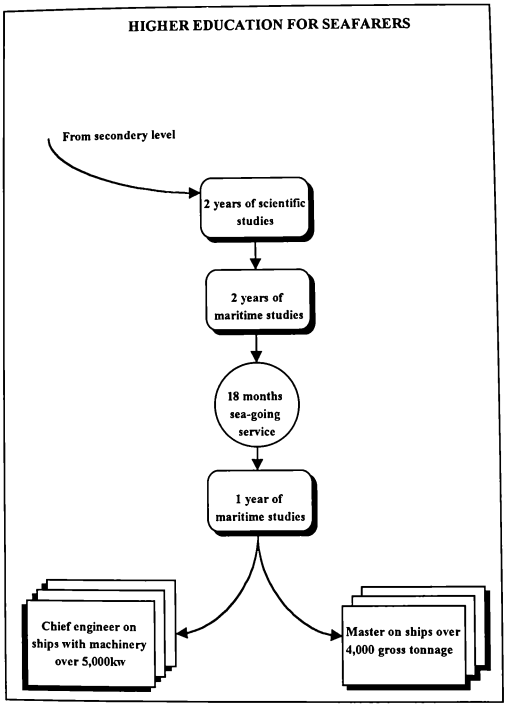

Figure 2 : Higher education for seafarers

In addition, the Naval Academy has held many training courses for seafarers in fire-fighting and proficiency in survival craft and rescue boats.

The General Directorate of Merchant Marine, which is one of the departments of the Ministry of Transport, is involved with the supervison of the curricula and the procedures of teaching in the two institutions. This Directorate stipulates the number of students to be enrolled every year at the maritime institutions in Tunisia. The intake depends on the requirements of the shipping companies and the Maritime Safety Administration. Figure 1 shows a general view of the structure of the maritime education and training in the country.

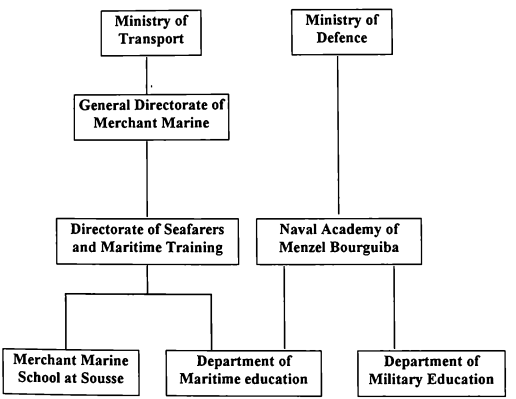

Figure 3 : General view on the structure of the MET in Tunisia

2.1.3. Vocational training

The vocational training system comprises initial and refresher training and updating training. The main objectives of the vocational training are

- diffuse technical knowledge for a better mastering of the technology;
- satisfy the needs of the economy in qualified workers and technicians;
- improve the professional qualification of workers and their productivity;
- promote social and professional conditions of workers.

Based on these objectives, the vocational training in Tunisia concerns three main sectors:

1. Shore industry.
2. Agriculture
3. Fishing

The Ministry of Vocational Training and Employment is responsible for the training of shore workers to satisfy the needs of the industry. Under this Ministry there are many centres of vocational training which are spread over the country. These centres provide different types of training such as repairing and maintenance of vehicle engines and bodywork, manufacturing of clothes and shoes, metal work and welding and handicraft work.

After a successful completion of the ninth year of primary school, students have the possibility to join a vocational training centre to acquire knowledge and skills in a speciality, which they choose depending on their own ability and wish to study. The duration of training depends on the speciality chosen; it can vary between six months

to five years. The highest level, which can be attained by students, is equivalent to the first degree of university studies e.g. two years of study at the tertiary level. This new approach of vocational training allow student to move from the hands on or practical training for the acquisition of skills to the training in decision-making such as in the management and economic fields.

The second type of vocational training concerns the land agricultural sector. This training, supervised by the Ministry of Agriculture, focus on the acquisition of skills in different areas such as horticulture, arbroculture, maintenance and repair of agricultural machines, tree planting and cultivation of land.

The fishing sector is also considered as a kind of agriculture and for that reason the centres of fishing training are under the authority of the Ministry of Agriculture. The fishing vocational training includes many areas of activities such as construction of fishing boats, fishing.. techniques, navigation and engines/fishing equipment maintenance and repair. This sector constitutes an important supplier of rating for the maritime transport sector. In fact, a great number of ratings employed by the national shipping company "Companie Tunisienne de Navigation" (CO.TU.NAV) are recruited from the fishing sector.

2.2. Training of ratings

Due to the non-existence of a dedicated centre for training of ratings, the shipping industry employs persons who have different educational backgrounds. However, these persons acquire knowledge and skills concerning shipboard operations, through daily contacts with their seniors- the so called on the job training. Figure 4 illustrates the origin or sources of ratings employed on board the Tunisian merchant ships.

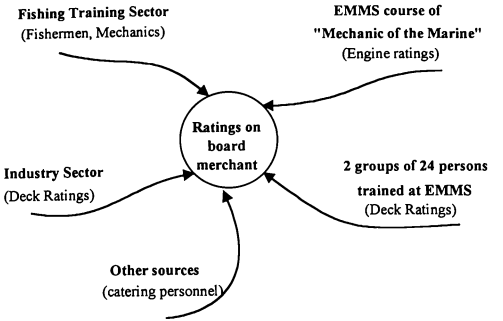

Figure 4 : Origin of ratings employed on board Tunisian merchant ships

The Merchant Marine School at Sousse offers a course in ship mechanics for the second year of those who leave the secondary school. The duration of the course is 18 months including sea experience on board ships. After successful completion of the course students obtain a Certificate of the Marine, which allows them to occupy the function of chief engineer on board ships with a propulsion power less than 400 HP. This course was running for many years after the inception of the school. The majority of the current oilers, working on board Tunisian ships attended this course. However, due to the decrease in demand, the course was suspended in 1982.

In addition, the EMMS twice carried out a special course for deck ratings of six months duration. The purpose of this course was to train seamen to satisfy the needs of the CO.TU.NAV.

2.3. Training of port workers

The "Societé Tunisienne d'Acconage et de Manutention" (STAM) monopolises the stevedoring activities in many ports of Tunisia (ports of Tunis, La Goulette, Radès, Sousse, and Sfax). Due to this fact, the majority of port workers are managed by STAM. In addition, private stevedoring companies employ a limited number of port workers to carry out cargo handling operations in ports such as Bizerte, Gabès and Sfax.

In general, port workers are trained for the job by the port itself and within the port area. Some spot training programmes on safety and security problems in ports are held by stevedoring companies or by port authorities.

It is worthwhile mentioning the United Nations Conference on Trade and Development (UNCTAD) programme of action to help developing countries become self-sufficient in port management training. In Tunisia, this programme was carried out through one important project: Training Development in Maritime Transport (TRAINMAR) financed by the United Nations Development Programme (UNDP) with contribution of the "Office des Ports Nationaux Tunisiens" (OPNT), which represents the Port Authority. However, this project was stopped in 1986. It had as an objective to strengthen the local training capability and hence include the training of port management instructors. Therefore, many courses were developed under the TRAINMAR programme: Port Planning, Port Operations for Supervisors, General Cargo Operations in a Port Section, Management of Container Terminal Operations and Cargo Storage and Warehousing (UNCTAD, 1985, 6-10). Some of these courses were taught for port personnel at management level within an institution called "Institut Arabe Technique pour les Ports et les Transports Maritimes", where they also trained personnel for shipping and multimodal transport. Yet, this programme does not concern workers at operational levels.

CHAPTER 3

PROBLEMS FACING MARITIME VOCATIONAL TRAINING

3.1. Pedagogical problems

In any system of education there are pedagogical problems, which have to be highlighted in order to find solutions to these problems. Pedagogic matters are related to the methods and the theory of teaching. Naturally, it concerns the teaching staff, but also curricula, library material and equipment.

3.1.1. Teaching staff

The teacher or the instructor for vocational training plays an important role in the learning process. His/her role is focused on two areas namely : lecturing in a classroom, in a laboratory or in a workshop and assessing students.

However, like in higher maritime education, also vocational maritime training will face a shortage of qualified instructors. This, mainly in maritime subjects e.g. navigation, machinery, shipboard operation and port operations. The later statement was pinpointed in the report on maritime education training in Tunisia, which was prepared by the General Directorate of Merchant Marine in 1996 (DGMM, 1996, page 8).

- Instructors are, mainly, recruited from two categories of persons:

  - Seafarers who worked for many years onboard ships in either on deck or in the engine department. These seafarers should have very good experience in practical matters.

    Furthermore, attractive wages and better social conditions are proposed for seafarers by the industrial sector ashore, in particular for those who worked in the machinery department. Therefore, after their definitive disembarking, they are not too interested in teaching, but rather prefer in working in the industry. This situation is not specific for Tunisia, but the whole maritime world has the same problems regarding this.

  - Shore based personnel who are working in shipping companies, maritime administrations or ports authorities. They are non-permanent instructors as they teach once or twice a week as part time teachers. Because they are not devoted totally to teaching, the efficiency of the learning process and the quality of the education will be affected.

- Instructors start teaching without prior training in methods of how to lecture and to communicate with trainees. Furthermore, these instructors do not have information on how to use media, and interact with trainees.

3.1.2. Curricula

Due to the non-existence of a centre of training maritime trainers, there are no defined curriculum for training of ratings, port workers and shipping shore-based personnel.

Firstly, concerning ratings, the IMO model courses constitute a substantial basis for

elaborating course curricula. The content of each course should be well defined and developed.

Secondly, special courses for training of port workers and shipping agents are not yet developed at the two institutions. Unlike for the training of ratings, there are no international conventions or guidelines for conducting such courses. For example, for the training of port workers, many ports, therefore, develop their own curricula, which are based on their proper experiences and working conditions.

3.1.3. Library Materials

As mentioned in the report on maritime education and training in Tunisia (DGMM, 1996, 7-8), maritime text books, reference books and maritime journals present some insufficiencies in quantity and in quality. These insufficiencies have certain negative effects on education and training. The absence in Tunisia of a maritime library is also noted. Such a library could contribute to the improvement of the MET and the realization of studies and research in this domain. Consequently, the vocational maritime training will be affected by this lack in specialised maritime books, periodicals and journals.

3.1.4 Equipment

Training of ratings and port workers, for example, needs proper equipment because it is principally based on teaching practical skills. However, training of personnel who are employed in chartering, or by a shipping agency requires essentially didactical material e.g. proper classrooms, whiteboard and audio-visual aids.

The necessary equipment for training of ratings and port workers can be divided in two types, which are

- Safety equipment
- Professional equipment

Safety equipment can easily be procured from the local market or from recuperation of equipment on board national merchant ships. This equipment concerns mainly the training in fire prevention and fire fighting on board ships or ashore. Equipment is also needed in training on survival techniques at sea. Breathing apparatus, fire extinguishers, hoses, survival suits, survival crafts and rescue boats. would then be necessary to obtain.

Another problem in Tunisia would be to obtain equipment, such as cranes, straddle carriers, forklifts and yard tractors because these are not always available in the Tunisian market and if any, these would cost a lot of money to acquire.

3.2 Financial problems

In order to realise this project, it is necessary to obtain funds to finance the establishment of the centre e.g. buildings, equipment and didactical material. In addition, it is also necessary to find a suitable way to finance the students' study costs and the operational costs of the centre.

Financing is an important factor for the realisation of the project; therefore, it is essential to identify the difficulties at an early stage. To do so, short and long term alternatives need to be found. There are three alternatives, which, of course, all present their respective difficulties.

- **First alternative (international co-operation)**

The first alternative would be bilateral co-operation with a country willing to partially or totally finance the project. This financing could be a long term loan or a donation. To find a country or an international organisation that would be prepared to provide the required funds, naturally, would need some extra efforts.

- **Second alternative (domestic co-operation)**

The second alternative would be to agree with national/private shipping companies and maritime professionals, such as shipping agents, shippers, trustees of cargo and multimodal carriers, to contribute to financing. These organisations would be granted discounted fees for their trainees. Another difficulty would be the need to establish legal procedures to oblige the interested parties to contribute to the financing of the centre.

- **Third alternative.(development plan)**

The third alternative would be to incorporate this project into the development plan of the country. A five-year plan prepared by the government, comprising all new perspectives of development of the country, expended over five years. Defending the project in front of the national commission of the Prime Ministry would be the difficulty in this alternative. Actually, for an important project like the development of this centre, it is not so easy to convince this commission to accept the project because of its financing size.

Another possibility would be a combination of the above cited alternatives to procure funds for the project; but then other difficulties have to be added.

3.3. Organisational problems

Regarding organisational difficulties, which could face the development of the centre, these could be described as external and internal.

3.3.1 External organisation

As mentioned in chapter II, the existing maritime institutions, the Merchant Marine School at Sousse (MMSS) and the Naval Academy of Menzel Bourguiba (NAMB) are respectively under the authority of the Ministry of Transport and the Ministry of Defence. The current organisation of the NABM generated a conflict of authority between the two ministries, particularly concerning educational matters of merchant marine officers who are educated together with naval officers. However, the General Directorate of the Merchant Marine is the administration responsible for the implementation of the STCW and the approval of curriculum related to merchant marine subjects. The assessment of students is carried out by the NABM without any consultation with the Ministry of Transport.

Similarly, the organisational aspects of the centre can be divided between two ministries, which are the Ministry of Transport and the Ministry of Vocational Training and Employment. Why is the latter ministry involved? The answer is that the training figures in the frame of vocational training because it is related, mainly, to specific tasks or group of tasks. For example, the training to be given to port workers includes cargo handling onboard, on the quay and in the shed, crane and winch driving, operating forklifts, lashing and unlashing, and stripping and stuffing containers and pallets.

This overlapping of responsibility between the two ministries will cause difficulties at

the following levels:

- Operational management of the centre
- Administrative management e.g. personnel, finance and trainees
- Auditing and control of the training including the instructors and administrative staff
- Assessment of trainees

3.3.2. Internal organisation

The diversity of courses could also present some difficulties. The spectrum of courses is spread from pure theoretical training for personnel at shipping agencies, and chartering companies to practical training for port workers and ships ratings.

This mixture of two extreme maritime training types could raise some problems in the following areas:

- Elaboration and revision of curricula
- Scheduling and programming of courses
- Relationships between trainees within the centre
- Controlling teaching techniques and methods used by instructors.
- Controlling instructors' performances
- Purchase and store keeping of materials used for practical exercises.

CHAPTER 4

MARITIME VOCATIONAL TRAINING NEEDS

In order to determine the Tunisian training needs, it is necessary to make an overview of activities of the shipping industry. This analysis will focus on the following areas:

- Employment of ratings and port workers by both public and private companies.
- Current situation and the future of the merchant fleet.
- Ports facilities and equipment.

4.1. Present and future activities of the shipping sector

Since 1988 and particularly during the 8th plan of development (1992-1997), some efforts were devoted to improve the quality and the quantity of the contribution of the maritime transport activities to the economical development of the country. The main objective of these activities is to encourage the growth of the exports of national products and services.

The orientations, which were chosen, and the actions, which have already been undertaken, in the setting of new maritime policies are essentially based on:

- The preparation of operators in the public and the private sectors to face, confidently, their environment, which is characterised by more liberalism and competitiveness.

- The improvement of the quality of services and the imperative restraint of costs all a long the chain of transport, in order to facilitate the movement of goods and to sustain the efforts in matters of export.

- The involvement, to an acceptable level, of the Tunisian merchant fleet in the seaborne trade of the country. Thus, to master an economical and centennial maritime activity and contribute to the effort of job creation in the maritime domain. Therefore, the presence of Tunisia in the seas and, particularly, in the waters under its jurisdiction will be reinforced.

So, the strategy adopted in order to achieve the economical objectives of the country rests on the following options:

- Liberalise, progressively, the shipping activities by organising an access to the market and by instituting a controllable system of competition.

- Encourage private shipping initiatives that gradually will take over from the State. The State will monitor and control these activities and will assure co-ordination between the public and private operators.

- Invest in modernisation of the fleet of the national company "Companie Tunisienne de Navigation" (CO.TU.NAV). Also renewal of the fleet of the private companies and adaptation of port infrastructure under the authority of the "Office des Ports Nationaux Tunisiens" (OPNT).

- Adapt the maritime administration and maritime regulations to be in conformation with the considered reform.

- Prepare the human element for the implementation of the intended maritime policies.

The mobilisation of the human resources for better qualification and better motivation constitutes a key factor in the strategy of development of the shipping sector.

4.1.1. Shipping Companies

Based on the above-cited policies, undertaken by the Government concerning the maritime transport sector, many private shipping companies were established in addition to the national shipping company (CO.TU.NAV).

Until November 1997, eight private shipping companies have been established:

1. TSTC: Tunisian Shipping Transport Company.
2. GMT: Gabes Marine Tankers.
3. PETRONAV: "Societé PETRONAV".
4. HMT: Hannibal Marine Transport.
5. GAZ MARINE.
6. CARTHAGE MARINE.
7. COGEMAR: "Companie Générale Maritime"
8. CMN: "Companie Mediterranéenne de Navigation".

Table 1 lists current companies by name and type of ships, which they operate. The total Tunisian fleet is composed of 22 ships with a tonnage of about 191,842 tons. The CO.TU.NAV fleet represents 53% of the total tonnage. Hence, eight private companies assure the remaining 47%. This progression towards privatisation of the

shipping sector has the benefit to improve the quality of maritime transport services. The main areas of activities of these private companies are the transport of chemical products (phosphoric acid), liquefied gas, oil and general cargo. However the activities of the CO.TU.NAV are concentrated on the transport of passengers, roll on/roll off vehicles, containers and bulk products.

COMPANY	SHIP'S NAME	TYPE	TONNAGE (tons)	AGE (years)
	HABIB	Passengers/car ferry	2000	20
	MEDJERDA	Ro/ro	2535	21
	NEBHANA	"	2500	22
	ULYSSE	Ro/ro passenger	9514	6 months
COTUNAV	SALAMBO 7	"	9514	3 months
	KAIROUAN	General cargo	8345	19
	BIZERTE	"	8345	19
	EL KEF	Bulk	26335	16
	S'HIB	"	15880	21
	MOULARES	"	15880	22
Sub-total	10		100848	Average 16
TSTC	JERBA	General cargo	1863	15
	AMILCAR	Chemical	6972	16
GMT	SADRABAL	"	18771	15
	MERIT	"	16281	14
PETRONAV	BELLI	Oil	4361	24
	CAP FARINA	"	7000	23
HMT	TOZEUR	General cargo	6288	21
GAZ MARINE	AZUR GAZ	Liquefied gas	6526	16
CARTHAGE MARINE	RO RO STAR	Ro/ro	2432	20
COGEMAR	GOLKANE	Oil	5000	24
CMN	BRAHIM	General cargo	7250	19
	CARTHAGE	"	7250	19
Sub-total	12		89994	Average 19
Total	22		190842	Average 18

Table 1: List of Tunisian Shipping Companies (1-1-1998)

4.1.2. Port Facilities and Traffic

In Tunisia, there are eight main ports located along the east coast. These ports are under the authority of the "Office des Ports Nationaux Tunisiens" OPNT, except the port of Gabès, which is managed for the profit of the State:

1. The port of Bizerte-Menzel Bourguiba, situated in the north of the country, handles essentially oil traffic.
2. The port of Radès is specialised in the treatment of ro/ro and container traffic.
3. The port of Tunis-Goulette is characterised by the receipt of conventional ships such as vehicle/passenger ferries and cruise ships.
4. The port of Sousse is a port of various goods.
5. The port of Sfax is a polyvalent port.
6. The industrial port of Gabès is specialised in chemical products.
7. The port of Zarzis assures currently the export of crude oil from the field of EZZAOUIA by means of a pipeline of seven kilometres in length.

The bar graph in Figure 5 shows, both the percentage of ships and the tonnage of each type of ships, which called Tunisian ports in 1996.
These figures highlight the following points:

- The majority of ships, which were handled within the Tunisian ports, are cargo ships. This type of ships requires, in many cases, the use of more port workers than other types.

- In terms of tonnage, the total tonnage of liquid/solid bulk carriers is the highest due to the size of these ships. However, they do not necessitate the same number of human resources for their cargo handling as for general cargo ships.

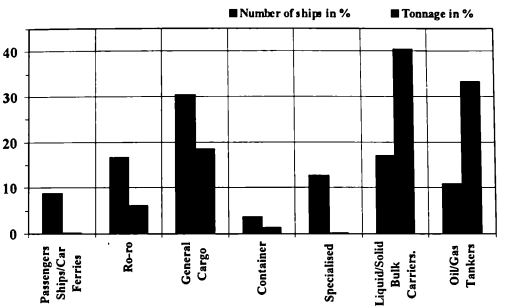

Figure 5: Ships called Tunisian ports during 1996

Source: The 1996 Annual Report of the OPNT

According to the annual report of the OPNT, the total traffic in 1996 reached 17,880,497 tonnes. Figures 4 and 5 illustrate respectively the main goods unloaded and loaded.

After analysis of the data, it appears that the category of goods requiring more personnel constitutes 20% of the total merchandises for imports and 30% for exports. Therefore, it corresponds to 24% of the total traffic of merchandise.

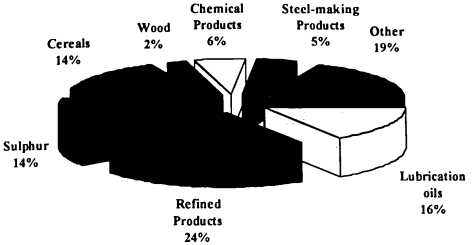

Figure 6: Main cargo discharged

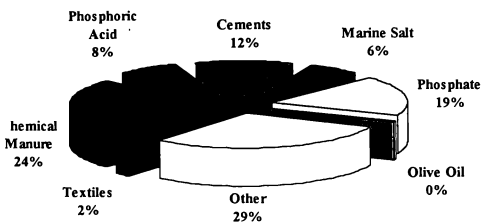

Figure 7: Main cargo loaded

Another factor also to be considered is the type and number of the existing quayside equipment in each port. Table 2 provides a list of the type of equipment available.

This information will support the development of courses for truck drivers and persons responsible for cargo handling equipment.

		EQUIPMENT								
		Forklifts (T)*			Lift truck with spreaders (T)		Tractors (Hp)**		Trailers	Straddle Carriers
		2 to 4	5 to 8	10 to 15	10 to 15	25 to 40	60	180		
Ports	Tunis	4	8	1	0	0	6	0	9	0
	La Goulette	4	8	1	1	1	6	2	9	0
	Radès	6	12	0	6	4	6	12	16	3
	Bizerte	8	8	2	0	0	12	2	17	0
	Sousse	9	9	3	3	3	12	6	17	0
	Sfax	20	20	5	5	5	10	10	25	0
	Gabès	24	8	0	0	0	16	0	26	0
	Zarsis	2	2	1	0	0	2	0	2	0
	Total	77	75	13	15	13	70	32	121	3

* (T) : Tonnes ** (Hp) : Horse power

Table 2: Type and Number of Quayside Equipment

4.2. National and International Regulations

National and International regulations are concerned, mainly, with the training of ratings or port workers. These regulations are related to skills and competence of these workers.

4.2.1. Ratings

Firstly, at the national level there are two requirements concerning the qualification of ratings working on board Tunisian ships :

- **The Maritime Labour Code** instituted by the law 67-52 of 7 December 1967, in particular Chapter III of this code, which deals with obligations of seamen and onboard working regulations.
- **Decree 74-1001 of 16 November 1974**, in particular article 36, which stipulates that on board ships over or equal to 500 gross tonnage should have one seafarer specialised in fire fighting and two qualified ratings.

Secondly, at an international level, there are the requirements of the revised STCW 95. The provisions of this convention, related to ratings, are classified in two groups : ratings of the deck department and ratings of the engine department. These requirements are:

- **Regulation II/4 :** Ratings forming part of a navigational watch.
- **Regulation III/4 :** Ratings forming pat of an engineering watch.

Under these regulations it is required that ratings have to undergo special training, which may be a pre-sea training (shore based training) or on board training.

In addition to above, there are, also under the provisions of STCW 95, other requirements for training of ratings on particular ships such as tankers and ro-ro passenger ships.

Under Regulation V/1 (Training and qualification of masters, officers and ratings on tankers) there are four types of training programmes that may concern the ratings :

1. Tanker familiarisation

2. Oil tanker
3. Chemical tanker
4. Liquefied gas tanker

Furthermore, Regulation V/2 (Training and qualification of masters, officers, ratings and other personnel on ro-ro passenger ships) deals with training of ratings on ro-ro passenger ships. There are five types of training :

1. Crowd management
2. Familiarisation
3. Safety
4. Passenger safety, cargo safety and hull integrity.
5. Crisis management and human behaviour.

Finally, in Regulation VI/1 (Familiarisation and basic safety training and instruction for seafarers) it is stipulated that all seafarers, including ratings, have to be trained in the following:

1. Familiarisation training.
2. Basic training.
   - Personal survival techniques.
   - Fire prevention and fire fighting
   - Elementary first aid.
   - Personal safety and social responsibilities.

Figure 8 indicates the main training courses that ratings have to take before they work on board any ship and in particular, before starting to work on board tankers and ro-ro passenger ships. All the above training courses will be discussed in Chapter 5 of this paper.

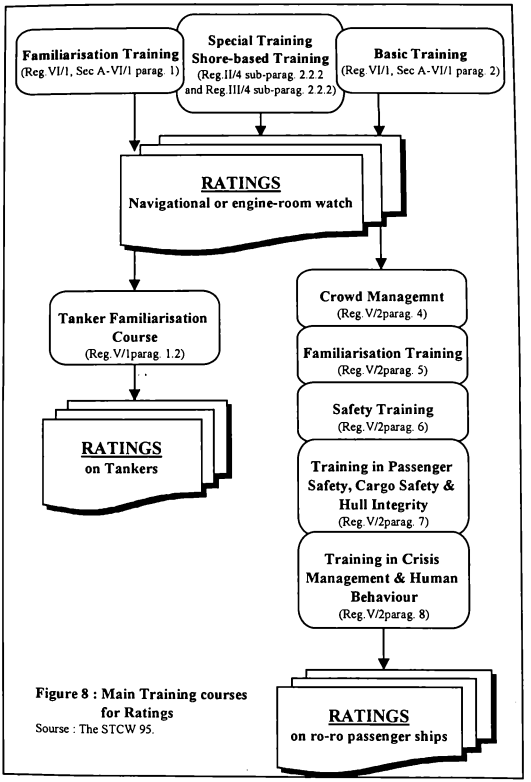

Figure 8 : Main Training courses for Ratings

Sourse : The STCW 95.

4.2.2. Port workers

The Tunisian national regulation does not contain any specific requirement for the training of port workers. It is also the case internationally. However, there is in Tunisia an informal system of training. A new recruit joining a stevedoring gang would be expected to learn from more experienced workers. This system became insufficient to cope with the development of highly mechanised and very expensive equipment for cargo handling, such as the gantry cranes and straddle carriers.

What type of training do the port workers need today? An answer to this question is provided by the study commissioned by the International Labour Organisation and carried out by A. Couper (1986, 94-101), which defines the training that has to be given to port workers. This training is vocational and relates to specific tasks. These tasks are classified as follows:

- Cargo handling in the hold, on the quay and in the shed.
- Crane driving.
- Tallying.
- Winch signalling.
- Winch driving.
- Tractor and trailer driving.
- Operating fork lift trucks, tugmasters and other vehicles.
- Operating container gantry cranes, straddle carriers and front and top loaders.
- Lashing and unlashing.
- Stripping and stuffing.
- Supervising.
- Inspecting.
- Recording data.

- Reading instructions in symbolic, written and computer print out.

In addition, the study recommends that specific courses in safety, fire fighting and first aid be included. These subjects can be similar to and taught together with courses for ratings.

The main types of training courses described in the study by A. Couper are cited below:

- Pre-vocational courses where young people can enrol in college and continue their education with an orientation towards specific forms of training for port occupations. These courses are generally completed at the age of 16. This pre-vocational or apprenticeship courses are used by the Port of Rotterdam in the Netherlands within the Port Transport College.

- Induction courses are initial courses for new entrants. They last for one to three weeks and are normally compulsory and combine classroom, demonstration and on-the-job tuition. For example, the Port of Sydney in Australia requires new workers to attend a five-week induction course at the National Training Centre in Melbourne.

- In service courses are conducted on a continuous rotational basis between workers. These courses allow workers to acquire a new knowledge to improve their skills and safety awareness and to demonstrate new equipment to enable their professional skills to be expanded.

- Multi-skills training concerns workers operating highly mechanised systems. This training allows them to have a higher degree of flexibility in

their work. In effect, these workers would be able to operate any port equipment from a crane to a terminal tractor. They also could be assigned in stuffing and stripping containers, driving fork lift trucks, tallying, providing data for internal administration, counting and stacking goods and making the cargo seaworthy.

4.3. Profile and Number of Trainees

4.3.1. Profile of trainees

As it was highlighted in chapter 3, the vocational training system in Tunisia is supervised by the Ministry of Vocational Training and Employment. Therefore, the training of ratings and port workers would also be supervised and controlled by the same Ministry with the collaboration of the Ministry of Transport in matters related to development of curricula and pedagogical aspects. For that reason, the profile of the trainees has to comply with the vocational training regulations. These regulations stipulate two important conditions:

1. The age of the trainee must be not less than 16.
2. The trainee have to complete the 9th year of primary or basic school.

Then, for ratings and port workers, they have to satisfy these two conditions before being enrolled by the centre.

4.3.2. Number of trainees

To estimate the number of trainees one has to look in the future and make a projection over a period of time which can be five to ten years. But the future could be alliterated by some changes which lead to an overestimation or an underestimation.

To make the job easier, it is essential first to have a clear idea of the current situation of the employment of seafarers and dockers.

Table 3, concerning all Tunisian seafarers, is based on data collected by the General Directorate of the Merchant Marine in 1997. This Table shows that about 615 ratings are working on board merchant and service ships. The functions occupied by these ratings are listed in the table under the heading subordinates.

To estimate the number of ratings to be trained each year, the following assumptions which were adopted by the Report of the D.G.M.M (1996, page 23) have to be considered:

- 10% of ratings retire or quit each year.
- 5% for new job assignments because of the privatisation and the establishment of new shipping companies.

Taking into account these two assumptions, the number of ratings will be equal to 90 trainees (15% of 615).

		CTN	GMT	PETRONAV	TSTC	Others	Total
Deck	Master	13	4	2	2	19	39
	Chief Mate	19	6	4	2	10	41
	Mate	36	10	5	2	29	82
	Radio Officer	11	-	-	-	2	13
	Sub-Total	79	20	11	6	60	176
Engine	Chief Engineer	19	5	4	2	18	48
	Second Engineer	18	5	2	1	10	36
	Officer Engineer	27	11	4	1	21	64
	Sub-Total	64	21	10	4	49	148
Subordinates	Bosun	5	5	3	-	19	32
	Oiler	73	15	6	1	43	138
	Pump Man	10	8	5	-	4	27
	Electrician	25	5	-	-	5	35
	Cook	19	6	3	3	14	45
	Seaman	59	30	15	5	79	188
	Steward	98	11	-	-	13	122
	Cleaner	20	4	-	-	4	28
	Sub-Total	309	84	32	9	181	615
General Sevice	Doctor	1	-	-	-	-	-
	Chief Steward	7	-	-	-	-	-
	Controller	3	-	-	-	-	-
	Guard	4	-	-	-	-	-
	Hostess	2	-	-	-	-	-
	Store Keeper	3	-	-	-	-	-
	Shop Keeper	4	-	-	-	-	-
	Administ. Agent	2	-	-	-	-	-
	Sub-Total	26	-	-	-	-	26
	Total	478	125	53	19	290	965

Table 3 : Number and function of seafarers working on Tunisian Ships (1997)

The total number of officers both on deck and in the engine department is important to determine the number of officers who need training in short courses. These courses will further be described in Chapter 5.

Table 4 indicates the number of dockers working in each port. The total number of port workers is 894, which includes occasional dockers. The estimated number of trainees to be enrolled each year in initial courses is determined by considering that 10% of the existing workers leaves each year. Then, the final estimated number will be equal to 90 trainees (10% of 894).

		Professional Dockers			S/T*	Occasional Dockers	T**
		Leader	Winchmen	Dockers			
PORTS	TUNIS GOULETTE RADES	45	35	172	252	9	261
	BIZERTE	8	13	39	60	97	157
	SOUSSE	9	15	71	95	53	148
	SFAX	22	36	111	169	36	205
	GABES	30	31	62	123	-	123
	ZARZIS	-	-	-	-	-	-
	Total	114	130	455	699	195	894

(*): Sub-total (**): Total

Table 4 : Port workers currently employed by the STAM (12/1997)

CHAPTER 5

DEVELOPMENT OF NEW CURRICULA

5.1. Approach used to develop curricula

The approach undertaken to develop new curricula for ratings and port workers is based on the model of curriculum development described by Print (1986). The model provides a useful and easily understandable approach for curriculum developers. This algorithmic approach has four features, namely, sequential due to its step by step procedures, logical, clear and prescriptive. The basis of this model is composed of three phases viz. Organisation, Development and Application. The structure of the model is showen in Figure 9.

The organisation phase is selecting and organising teams or groups of curriculum developers.

The development phase concerns the devising of curriculum document, projects or materials. It is a cyclical procedure composed of five activities, which are presented in sequence of curriculum elements. These activities are defined as follows:

1. Situational Analysis: By undertaking this activity, developers will be aware of the needs of the trainees and the resources available to meet those needs. This activity has already been developed in Chapter 4.

2. Aims, goals and objectives: Based on the data collected in the previous activity, developers make clear, useful and appropriate statement of aims, goals and objectives which will help the trainee to achieve the knowledge and required standards.

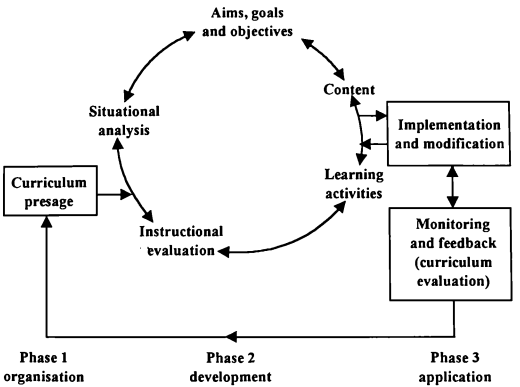

Figure 9: Model of curriculum development
Source: PRINT (1986)

3. Content: Developers devise an appropriate content.
4. Learning Activities: Similar to the third activity, appropriate learning activities can be organised so that the content is learnt effectively and thus the objectives are achieved.
5. Instructional evaluation: Developers devise effective assessment procedures to determine the degree to which trainees have achieved the objectives.

After a period of time, the initial situation may require a revision due to changes. Therefore, the other activities or elements of curriculum development would be also revised in order to take into account these changes. This interrelation between activities constitutes the main feature of the cyclical and continuous curriculum development process.

The third phase of the model is application, which incorporates three sets of activities:

1. Implementation of the curriculum.
2. Monitoring of and feedback from the curriculum.
3. The provision of feedback data to the presage group.

The present chapter focuses on three activities of the development phase of this model, namely aims, goals and objectives, content and learning activities.

5.2. New curricula for ratings

The courses developed hereafter are based on the analysis made in Chapter 4 paragraph 4.2.1, regarding training needs for ratings. The choice of the training courses, to be organised by the centre, are founded on the following decisions:

- The main training of ratings will cover regulations II/4 and III/4 of STCW 95. In addition, there are short courses stipulated in regulation V/1 to be included, namely familiarisation training and basic training. Hence, trainees will attend courses for both navigational and engine room watch. This system of training is called a dual-purpose system. On the completion of this type of training, the trainees will have the opportunity to become dual-purpose ratings on board.

- In addition to the main course described above, there are other short courses necessary for ratings on ro-ro passenger ships. These short courses, which can be delivered to all seafarers, will be dealt with in paragraph 5.3 of this chapter.

5.2.1. Title of the curriculum unit

The title of the curriculum unit is Dual-Purpose Rating course, which includes familiarisation and basic training in safety procedures. The award delivered at the completion of the course is a Certificate of Dual-Purpose Rating.

5.2.2. The learners

This course is offered mainly to students who are completed primary school level. They are generally aged between 16 and 19 years old. It is also open to other persons working in the maritime industry who would like to work on board as ratings. For the later category of trainees they have to undergo an entry test to assess their pre-entry knowledge.

5.2.3. Course aim

To develop knowledge, practical skills and attitudes, which will enable trainees to perform ratings' duties and particularly to be qualified as a member of a navigational and engineering watch.

5.2.4. Course structure

The total duration of the course is 24 months. The course is divided in three parts:

1. 6 months of training at the CTRP
2. 12 months on board training
3. 6 months training at CTRP

5.2.5. Specific Objectives and Content

On successful completion of this course the trainee should be able to carry out the six duties as listed below.

1. Navigational watch

1. Steer the ship and comply with helm orders given in the English language
2. Keep a proper look-out by sight and hearing
3. Contribute to monitoring and controlling a safe watch
4. Operate emergency equipment and apply emergency procedures

The Content of the first module:

- Basic principals of Navigation
- Magnetic and gyro-compass
- Helm orders
- Hand steering & automatic pilot
- Collision regulations
- Methods of reporting the bearing of sound, signal and light
- Shipboard terminology
- Internal communication
- Alarm systems
- Basics in marine environment protection
- Alarm signals, pyrotechnic distress signals, EPIRBs & SARTs

2. Engineering watch

1. Carry out a watch routing appropriate to the duties of rating forming part of an engine-room watch.
2. Understand orders and be understood in matters relevant to watchkeeping duties.
3. Keep a boiler watch and maintain the correct levels and steam pressures
4. Operate emergency equipment
5. Apply emergency procedures

The content of the second module:

- Description of machinery and equipment
- Engine room alarm systems
- Watchkeeping procedures
- Description of boilers
- Boilers operations
- Emergency duties
- Fire-fighting equipment in machinery space
- Escape routes in machinery space

3. Maintenance and Cargo Handling

1. Describe the phenomena of corrosion on board ships.
2. List the basic compositions of paint
3. Identify the causes of paint failures
4. List different types of surface preparations for paintings
5. Inspect and grease on board cargo handling equipment
6. Maintain life boats
7. Identify different types of ropes

The content of the third module:

- Maintenance
- Composition of paint
- Modern paint types
- Paint failures
- Power wire brushing
- Power disking

- Air hammer
- High-pressure water blasting
- Cargo handling equipment
- Description of different types of life boats
- Synthetic & Natural fibre ropes
- Practical methods to maintain and handle ropes

4. Personal survival techniques

1. Identify safety and survival procedures
2. Act correctly in case of emergency situations
3. Explain the procedures of evacuation
4. Describe survival craft and rescue boats
5. Launch lifeboats
6. Use of life saving appliances
7. Describe the principles of survival at sea
8. Demonstrate how to use emergency radio equipment

Content:

- Introduction-safety and survival
- Emergency situations
- Evacuation
- Survival craft and rescue boats
- Personal life-saving appliances
- Survival at sea
- Emergency radio equipment

5. Elementary first aid

1. Describe the general principles of medical emergency
2. Describe the human body structure

3. State the function of parts of the body
4. Demonstrate the correct procedure for positioning casualties
5. Recognise the necessity of immediate resuscitation
6. Apply resuscitation techniques
7. Apply appropriate basic measures to limit bleeding
8. State the main factors causing shock
9. Apply appropriate measures of basic shock management
10. Apply the appropriate measure for burns and scalds
11. Apply appropriate transportation of a casualty
12. Improvise bandages by available means

Content:

- General principles of medical emergency
- Body structure and functions
- Positioning of casualty
- Unconscious casualty
- Resuscitation
- Bleeding
- Management shock
- Burns and scalds
- Rescue and transport of casualty
- Bandaging

6. Fire prevention and fire fighting

1. List conditions for fire to occur
2. Explain the fire triangle
3. Identify and sources of ignition

4. List the ways of propagation of fire
5. Explain how fire can be prevented
6. List general fire safety procedures
7. Describe the construction of an automatic fire-detection system
8. State the main types of automatic fire detectors
9. Explain fixed-fire extinguishing systems
10. Describe miscellaneous fire-fighting equipment
11. State ship fire-fighting organisation
12. Describe fire-fighting methods
13. Demonstrate the correct way to use breathing apparatus
14. Use portable extinguishers to combat fire

Content:

- Theory of fire
- Fire hazard and spread of fire
- Fire prevention principles
- Fire and smoke detection systems
- Automatic fire alarm
- Fire extinguishing systems
- Fire-fighting equipment
- Muster list
- Fire-fighting methods

5.3. Main Course for Port Workers

5.3.1. Title of the curriculum unit

The unit is composed of two courses, namely the course for cargo workers and the course for mechanical equipment drivers. Trainees have to attend the first course before to join the second one.

After successful completion of the course for cargo workers and the course for mechanical equipment drivers both receive a certificate, namely a certificate of cargo worker or a certificate of multi-skilled port worker.

5.3.2. The trainees

The same entry conditions as for ratings are required for port workers.

5.3.3. Course Aim

To develop knowledge, practical skills and attitudes, which will enable trainees to carry out cargo handling operations and respect safety procedures in port environment.

5.3.4. Course duration

The total duration of the main course is 18 months.

1. Course for cargo workers (12 months)
   - 3 months at CTRP
   - 6 months in port
   - 3 months at CTRP
2. Course for mechanical drivers (6 months)
   - 2 months at CTRP
   - 3 months in port
   - 1 months at CTRP

5.3.5. Course Objectives and Content

5.2.5.1. Course for Cargo Workers

On successful completion of this course the trainee should be able to carry out the three duties listed below.

1. General

1. Describe the functions of a cargo worker in the port
2. Describe the main functions of a port
3. List accident factors and results
4. Identify fire-fighting and fire prevention procedures

Content:

- Role of cargo worker in the port
- Port operations
- Safety and hygiene
- First aid
- Fire fighting
- Fire prevention

2. Ships and Equipment

1. Describe the layout of a cargo ship
2. List types of hatch covers
3. Explain the lifting system on board: Derricks and cranes
4. List stevedoring tools used for handling different cargoes
5. Make useful knots in work
6. List mechanical equipment used in port

Content:

- Ship's particulars
- Hatch covers
- Tween deck covers
- Ladders
- Lifting systems
- Cargo handling gears and aids

3. The cargo

1. Make a proper handling and stowage of cargo
2. Sort, stack and stow cargo
3. Identify cargo-packings and markings
4. Explain cargo-handling instructions and symbols
5. Work with mechanical equipment
6. Lashing and securing cargo

Content:

- Cargo handling

5.3.5.2. Course for Mechanical Drivers

On successful completion of this course the trainee should be able to carry out the four duties listed below.

1. Trailers/Lorries and Pallets

1. Describe types of trailers and lorries used in the port
2. Explain the load distribution
3. Describe the braking system of the trailers

4. Identify measurement, weight and capacity of pallets

2. Road Traffic Rules

1. Identify signs-warning, directing and information
2. Explain traffic rules

3. Driving Tractor and Trailers

1. Describe tractors specification
2. Drive the tractor correctly while towing trailers

4. Driving Forktrucks and Cargo Handling

1. Describe forktruck specification
2. Operate a forktruck to handle different types of cargo

5.4. Short Courses for Seafarers

The CTRP would organise short courses for all categories of seafarers such as catering personnel. These courses, which are mandatory by STCW 95, are cited in Chapter 4.

- The familiarisation training course contains elementary safety matters, safety information symbols, signs and alarm signals and actions to be taken in case of emergency.

- The basic training course comprises four short courses, namely personal survival techniques, fire prevention and fire fighting, elementary first aid and personnel safety and social responsibilities. These short courses are includes in the main course for ratings.

- The familiarisation training for seafarers on board ro-ro passenger ships contains subjects such as design and operational limitations, procedures of opening, closing and securing hull openings and emergency procedures.

- Safety training for personnel providing direct service to passengers in passenger spaces contains subjects such as communication and life-saving appliances.

- Passengers safety, cargo safety and hull integrity training course for personnel on ro-ro passenger ships comprise subjects such as loading and embarkation procedures, carriage of dangerous goods, securing cargoes, stability, trim and stress calculations and ro-ro deck atmosphere (ventilation).

CHAPTER 6

STRUCTURE AND ORGANISATION OF THE CENTRE

6.1. Structure and Administrative Organisation

The Centre for Training of Ratings and Port Workers (CTRP) should be under the supervision of the Ministry of Transport together with the Ministry of Vocational Training and Employment.

The mission of the CTRP is to:

1. Educate and train ratings and port workers in subjects related to shipboard operations and safety on board ships and techniques of cargo handling of different cargos in ports;
2. Ensure any action of refresher, updating and continuous training for ratings, port workers and other personnel of the maritime sector;
3. Organise seminars, conferences and workshops related to the maritime domain;
4. Contribute to the research and development of different maritime specialities.

The structure of the CTRP, which will be described hereafter, is illustrated in Figure 10.

6.1.1. The Director

The Centre of Training of Ratings and Port Workers is managed by a director, who is nominated by a decree based on a common proposition of both the Ministry of Transport and the Ministry of Vocational Training and Employment. He should be selected from the specialised personnel of the merchant marine, marine officer or any person with a management background. The director should co-ordinate the activities of the centre, including pedagogic, administrative and financial matters. He should be the chairman of the Pedagogic Council.

6.1.2. Division of Studies

The head of the division of studies should be responsible for the overall organisation of training and the co-ordination between departments. He is nominated by the Ministry of Transport. He should have pedagogic experience as a teacher or lecturer of maritime subjects. The division comprises one sub-division and is responsible for

- organisation of studies,
- co-ordination between different departments, and
- ensuring appropriate practical training inside and outside the centre.

6.1.2.1. Sub-division of practical and continuous training

The head of the sub-division of practical and continuous training should be a former teacher or instructor. The sub-division, which is under the authority of the division of studies is responsible for the following:

- Organisation and supervision of on board training for ratings and port training for port workers
- Organisation of field visits
- Preparation and organisation of seminars, conferences and workshops
- Planning and devising, in co-ordination with the interested maritime services, cycles of continuous training to refresher and upgrade ratings, port workers and other personnel at the support level

6.1.3. General Secretariat

The general secretariat co-ordinates administrative and financial services of the CTRP. It is composed of four sub-divisions.

6.1.3.1. Sub-division of Trainees

The sub-division of trainees is responsible for the following:

- Implementation of the entry standards for each course;
- Organisation of exams;
- Enrolment of trainees;
- Maintaining and updating trainees records;
- Ensuring order and discipline within the centre.

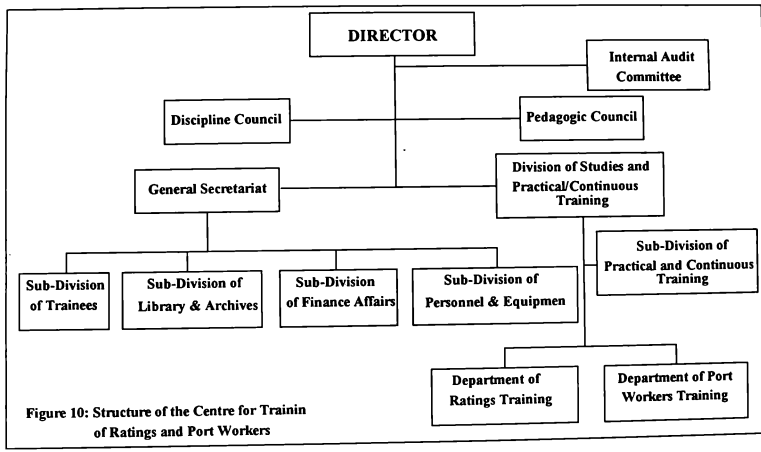

Figure 10: Structure of the Centre for Trainin of Ratings and Port Workers

6.1.3.2. Sub-division of Finance Affairs

The sub-division of finance affairs is responsible for:

- Maintaining records related to the opening of engagement and payment credits;
- Keeping the accounting of the budget of the centre;
- Application of the bidding procedures, drawing up reports on bids' evaluation and awarding contracts to the selected bidders.

6.1.3.3. Sub-division of Personnel and Equipment

The sub-division of personnel and equipment is responsible for:

- Management of human resources;
- Preparing and monitoring the evolution of the staff career;
- Implementing the recruitment program of personnel;
- Managing and maintaining equipment and assets of the centre;
- Preparing the work of the discipline council.

6.1.3.4. Sub-division of Library and Archives

The sub-division of library and archives is responsible for:

- Management of the library and updating of references material;
- Participation in the preparation of the course syllabus and teaching aids;
- Maintaining the current and the intermediate archives.

6.1.4. Departments, Council and Committee

The CTRP comprises two departments, one council and one committee, namely the department for ratings training, the department of port workers training, the pedagogic council and the internal audit committee.

6.1.4.1. Departments

The role of the departments of ratings' training and port workers' training is summarised in the following points:

- Ensuring an appropriate implementation of course curriculum in order to achieve overall aims and objectives;
- Co-ordination between different divisions and sub-divisions to plan, organise and supervise outside practical training;
- Reviewing and updating the curriculum;
- Maintaining course materials valid and updates;
- Proposition to the Pedagogic Council relevant changes or development to subjects and syllabus;
- Improvement of methods of teaching.

6.1.4.2. Pedagogic Council

The pedagogic council is composed of representatives from both the Ministry of Transport and the Ministry of Vocational Training and Employment, heads of departments, representatives of the shipping industry and the head of the division of studies. The role of the pedagogic council is to:

- Enhance development of training programmes and teaching methods;
- Approve changes and the creation of new courses;
- Consider appeals which are submitted by trainees;
- Set quality standards of the centre.

6.1.4.3. Internal Audit Committee

The internal audit committee should carry out the control and evaluation of the quality assurance system of the CTRP. Each activity of the centre is checked and compared with the pre-set standards procedures. A report of each internal evaluation is submitted to the director in order to be discussed within the pedagogic council meetings.

6.2. Staff Qualification and Experience

Regulation I/6 of the STCW 95 stipulates that seafarers training and assessment is required to be conducted, monitored, evaluated and supported by instructors, supervisors and assessors who are appropriately qualified for the particular types and levels of training or assessment, either on board or ashore. Therefore, the instructors of the CTRP have to fulfil these requirements. To do so, the CTRP has to attract and retain qualified and competent staff by sending them for further updating and upgrading training. In addition, the centre policies have to incorporate allowances for instructors to compensate the difference in salaries between the shipping industry and training sector.

6.2.1 Qualification

Each instructor for the ratings' courses must hold a certificate of competency as an officer in charge of either a navigational watch or an engineering watch as stipulated in STCW 95. Each instructor for port workers must hold a document which certify that he is qualified in operating cargo handling equipment or specialised in cargo handling operations. He could be a former mariner who has received further training in port operations.

6.1.2. Experience

The minimum practical experience of instructors on board ships or a in port should be at least 5 years.

6.3. Teaching Aids and Equipment

Teaching aids and equipment for training of ratings and for running short courses should be in conformity with the requirements of the IMO model courses cited in Appendix 1.

Port workers should use the same equipment as is used for the safety and the fire fighting subjects. For subjects related to cargo handling operations the following requirements are suggested:

- Workshop to practice practical cargo handling exercises
- Port equipment to carry out driving and operating exercises
- Models of cargo handling equipment for demonstrations in the classroom
- Videos and films on cargo handling operations.

CHAPTER 7

CONCLUSIONS AND RECOMMENDATIONS

7.1. Conclusions

The analysis of the current maritime training system in Tunisia highlights the necessity to train the lower category of maritime personnel e.g. among others, ratings and port workers. The idea of combining the training of port workers and ratings in a same centre is based on some similarities, which exist in shipboard and port operations. These similarities concern the techniques of cargo handling on board and ashore, and fire fighting procedures.

The creation of a centre for training of ratings and port workers became indispensable due to following factors:

- The non-existence of a dedicated centre for training of ratings and port workers: Ratings are recruited from the fishing and the industry sectors and port workers are trained on the job.

- The lack of appropriate training for personnel involved in port operations means that cargoes and equipment in many Tunisian ports are being damaged and lost.

- The development of technology on board ship and in port: Ships and port equipment is becomming more sophisticated.

- The new international provisions of STCW 95 concerning ratings: Special training for new ratings and refresher and updating training for those on board Tunisian ships are required.

- The liberalisation of the shipping sector: Private shipping initiatives are highly encouraged by the Tunisian government; consequently, new jobs are being created and human resources are being required to be qualified and competent.

Some problems related to organisational and financial matters would have to be overcome during the early stage of establishment of the centre. Hence, the Ministry of Transport and the Ministry of Vocational Training and Employment would be responsible for the management of the project which includes the providing funding and the construction of the centre.

Initially, the Centre for Training of Ratings and Port Workers (CTRP) would offer courses for the basic level such as course for cargo workers, courses for mechanical equipment drivers and courses for dual-purpose ratings. In addition, short courses for seafarers would be delivered, such as safety familiarisation training, personal survival techniques and familiarisation training for seafarers on board ro-ro passenger ships.

At a second phase, the CTRP would develop and devise courses for upper level or management level. For example, these courses would concern the training of multi-skilled port workers and port supervisors.

7.2. Recommendations

In order to develop the centre for training of ratings and port workers, which would constitute an important step for the development of a maritime vocational training in Tunisia, it is essential to take into account the following recommendations:

- Select the appropriate instructors and organise their subsequent preparation for the task through a locally or an abroad training programme

- Involve shipping and port managers and worker's representatives in the development of training courses and in the continuous identification of training needs

- Create a permanent retraining procedures for port workers to maintain their competence and to update their knowledge and skills in learning new tasks

- Develop a dual purpose ratings training scheme that will improve both the level of safety knowledge on board and prepare Tunisian seafarers for new technology and on board operations needs

- Develop a proper co-operation with similar centres abroad to exchange experience and maintain the quality standards required

- Define appropriate maritime vocational training policies for ratings and port workers, which take into account the requirements of relevant IMO/ILO instruments and national regulations

- Develop training courses for ratings that comply with the provisions of STCW 95.
- Set up a working group that would be responsible for the management and

the monitoring of any action taken for the development of the centre. Working group members would be mainly persons involved in training within the Ministry of Transport and the Ministry of Vocational Training and Employment

- Attract and maintain instructors with experience in matters related to shipboard and port operations

- Select suitable administrative staff for the centre who have worked before within educational institutions

Finally the author considers that the effective implementation of these actions would contribute to the economic development of the country and would improve safety on board and in port.

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APPENDIX 1

TEACHING FACILITIES AND EQUIPMENT

Personal Survival (Source IMO model course 1.19)

Ordinary classroom facilities and an overhead projector are required for the lectures. In addition, a demonstration table measuring 3m X 1m would be an advantage. When making use of audio-visual material such a videos slides, make sure the appropriate equipment is available.

The practical lessons require access to water, i.e. a swimming pool, a lake or the sea.

The following items of equipment are required:

- 25 lifejackets
- 5 inflatable lifejackets
- 2 lifebuoys
- 1 rigid liferaft
- 2 20-person inflatable liferafts for wet drills
- Portable emergency radio
- Survival suits
- Complete set of liferaft equipment
- Complete set of lifeboat equipment
- 1 emergency position-indicating radio beacon (EPIRB) operating on 406 MHz
- Shark repellent

- Safety/first aid equipment comprising:
  - high speed rescue boat *
  - powerful searchlights **
  - light reflecting badges **
  - stretcher
  - first aid kit
  - resuscitation kit with oxygen/suction unit.

(*) Include if drills are to take place in the sea.

(**) Include if night drills are to be performed.

Basic Fire Fighting (Source IMO model course 1.20)

Ordinary classroom facilities and an overhead projector are needed for the theoretical part of the course. When audio-visual materials such as video programmes, slides and taped recordings are used, the appropriate equipment must be available. In addition, a demonstration table measuring 3m X 1m would be an advantage.

For the practical part of the course, it would be advantageous if the training facilities of a local or port fire brigade could be used. Alternatively, the following structure and equipment are required:

- Building for smoke and fire drills, or similar facility (see Figure A below)
- Facilities for recharging compressed-air bottles with spare parts for maintenance
- Room with work-bench area for inspection and maintenance of breathing apparatus
- 2 steel fire trays approximately 1m X 1m X 0.3m
- 2 three-sided brick fire trays

- 2 fire hydrants with 2 outlets each, or similar water supply from open water and fire pump
- A large supply of carbonaceous and hydrocarbon fuels (wood, diesel and lubricating oils, etc.) for the fire trays
- 6 dummies for search and rescue procedures
- 6 fire hoses (70-mm diameter)
- 3 fire hoses (45-mm diameter)
- 3 branch pipes
- 6 fire nozzles (2 standard, 2 diffuser and jetspray)
- 2 mechanical foam branches
- 1 high-expansion foam generator and foam compound
- 2 standpipes, keys and bars to operate hydrant supply
- 6 9-litre water extinguishers
- 6 9-litre foam extinguishers
- 6 5-kilogramme carbon-dioxide extinguishers
- 4 2.5-kilogramme halon-1211 extinguishers
- 10 10-kilogramme dry powder extinguishers
- refills for all types of extinguishers
- 30 sets of protective clothing, overalls, gloves, fire-boots, helmets and rainproof clothing
- 25 sets of self-contained breathing apparatus, complete with spare cylinders, spare parts and maintenance tools (including sets for use by instructors only)
- 25 distress signal units (DSVs) for attachment to breathing apparatus sets
- Smoke generator
- Smoke helmets with air pump
- A shower at the site
- 1 stretcher
- 1 first aid kit
- 1 resuscitation kit with oxygen/suction unit

- 2 sets of fire-protective clothing
- 2 helmets with visor and neck protector
- 2 fire axes
- 2 36-metre safety lines with snaphooks

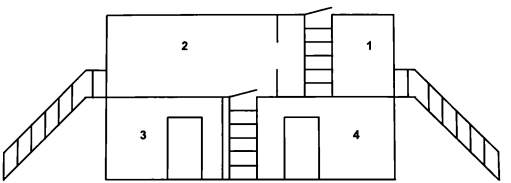

Figure A

The building can easily be constructed by placing two steel containers one on top of the other, arranged as shown in the illustration above. Each container should measure approximately 7m X 3m X 2m. The different rooms should be designed as follows:

1 a cabin

2 corridor/open room

3 electric board room

4 engine room with grating floor

Every room in the building must be readily accessible from the outside as a safety precaution. In addition, there should be access between rooms 1 and 2 by manhole 2 and 4 by manhole and vertical ladder, and between 3 and 4 by a door.

Note: The location of this building and the area for the fire-fighting drills should preferably be adjacent to the lecture room, toilet and shower facilities. There should be no restrictions concerning smoke emission in the area.

Medical Emergency - Basic Training (Source IMO model course 1.13)

A lecture room or hall with suitable wall (Chalk) boards and overhead projector will provide the main teaching area. A slide and film projector will be required if audio-visual aids are to be used.

Smaller rooms for practical instruction, demonstration and application should be available.

The following equipment should be available:

- ship's medical chest with contents (no drugs)
- various splints, braces, etc.
- Dressings badages
- life-size dummy for practical resuscitation training
- stretcher