

World Maritime University

The Maritime Commons: Digital Repository of the World Maritime University

World Maritime University Dissertations

Dissertations

1985

Education and training of nautical officers in Panama

Eduardo E. Arauz M.

World Maritime University

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

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

WORLD MARITIME UNIVERSITY MALMO - SWEDEN

EDUCATION AND TRAINING OF NAUTICAL OFFICERS IN PANAMA

BY

EDUARDO E. ARAUZ M.

Panama

A paper submitted to the Faculty of the WORLD MARITIME UNIVERSITY in partial satisfaction of the requirements of the MARITIME EDUCATION (NAUTICAL) COURSE.

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



Signature:

01 July 1985

Paper directed and assessed by
GUENTHER ZADE
Professor WORLD MARITIME UNIVERSITY

Paper co-assessed by:
P. VAN DEN DRIEST
Director
Dutch Maritime Teachers' Training College
Amsterdam
Visiting Professor WORLD MARITIME UNIVERSITY

ABSTRACT

Panama has a very large fleet consisting of 3873 vessels of 59637294 million DWT. Accordingly there is a large requirement of marine personnel for the fleet. Most of the marine personnel are trained at the Nautical School of Panama.

The Nautical School of Panama is a government training institution which trains Nautical and Engineer Officers and Ratings for a marine profession.

In this paper, the training system of Nautical Officers at the Nautical School of Panama and the total Maritime Education, Training and Certification of Nautical Officers of Panama has been described.

Recently the Maritime Education and Training System of Panama has been revised to meet the requirements of the STCW convention 1978. Technical and financial assistance was obtained from IMO and UNDP for this purpose.

The Maritime Education and Training System in several developed maritime training countries have also been included in this paper.

A sincere effort now needs to be made in the training of seafarers of Panama to bring up the overall standards of education and training as prescribed in the STCW convention 78, in order to fulfill the overall objective of IMO, namely "Safer Shipping and Clearer Oceans". In this regard some suggestions are also offered in the final analysis of this paper.

TABLE OF CONTENTS

CHAPTER	PAGE
ABSTRACT.....	i
1.0 INTRODUCTION.....	1
1.1 Setting up of the Nautical School of Panama	1
2.0 ENTRANCE REQUIREMENTS PRIOR TO JOINING THE NAUTICAL SCHOOL OF PANAMA.....	2
2.1 General Education.....	2
2.2 Physical and Psychological Requirements.....	3
2.2.1 Physical Requirements.....	3
2.2.2 Psychological Requirements.....	5
2.3 Admission Examination Requirements.....	6
2.4 Interview and Selection.....	7
2.4.1 Interview.....	7
2.4.2 Selection.....	8
3.0 TRAINING IN THE NAUTICAL SCHOOL OF PANAMA.....	9
3.1 Shore Based Period.....	9
3.1.1 Duration and Sequence.....	9
3.1.2 Shore Period with School Attendance.....	10
3.1.3 Time Units of Study.....	10
3.1.4 Attached syllabus.....	10
3.2 Controlled Sea Service Periods.....	12
3.2.1 Duration and Sequence of Sea Service Period, Controls and Supervisions.....	12
3.2.2 Kind of Control (Type of Vessels).....	12

3.3 Assessment.....	14
3.3.1 Internal Assessment.....	14
3.3.1.1 Type and Duration of Assessment.....	14
3.3.1.2 When are the Assessment Carried Out.....	14
3.3.1.3 Subjects Assessed.....	14
3.3.1.4 Organization of Assessment.....	14
3.3.1.5 Range of Marking Scale.....	15
3.3.1.6 Examiners.....	15
4.0 EXAMINATION AND CERTIFICATION.....	16
4.1 Examination.....	16
4.1.1 Examination Syllabuses.....	16
4.1.2 Setting Written Examination Questions.....	17
4.1.3 Procedure of the Examination System for Officers Aboard Panamanian Ship.....	18
4.1.3.1 Objective.....	18
4.1.3.2 Places Where Examination Will Be Administered....	19
4.1.3.3 Languages.....	19
4.1.3.4 Preparation of the Applicants.....	20
4.1.3.5 Type of Examination.....	20
4.1.3.6 Level of Knowledge Required for Passing the Examination.....	22
4.1.3.7 Qualification.....	22
4.2 Certification.....	24
4.2.1 Minimum Certification Requirements.....	24
4.2.2 General Information Concerning the Issuance of Certificate of Competency.....	24
4.2.3 General Provision.....	25
4.2.4 Presentation of Applicants.....	27
4.2.5 Statutory Certificate.....	29

4.2.6 Provisional Certificate.....	30
4.2.7 Reason for the Cancellation of the Certificate of Competency.....	31
4.28 Penalties for Holding Improper Certificate.....	32
5.0 COMPLIANCE WITH STCW CONVENTION.....	33
5.1 The Impact of the STCW Convention.....	33
5.2 Master and Deck Department.....	34
6.0 DESCRIPTION OF THE NAUTICAL EDUCATION AND TRAINING SYSTEM IN CERTAIN OTHER COUNTRIES.....	40
6.1 Maritime Education and Training System in the Federal Republic of Germany.....	40
6.1.1 Block Diagram.....	40
6.2 Maritime Education and Training System in Finland....	43
6.2.1 Block Diagram.....	43
6.3 Maritime Education and Training System in Sweden.....	44
6.3.1 Block Diagram.....	44
6.4 Maritime Education and Training System in Belgium....	45
6.4.1 Block Diagram.....	45
6.5 Maritime Education and Training System in USSR.....	46
6.5.1 Block Diagram.....	46
6.6 Maritime Education and Training System in Holland....	47
6.6.1 Block Diagram.....	47
6.7 Maritime Education and training System in Panama.....	48
6.7.1 Block Diagram.....	48
7.0 ANALYSIS OF THE SYSTEM.....	49
8.0 BIBLIOGRAPHY.....	52

9.0 APPENDIXES.....	53
Appendix No 1 Cadet Evaluation.....	53
Appendix No 2 Certificate of Sea Service.....	55

1.0 INTRODUCTION

1.1 Setting up of The Nautical School of Panama

In 1958, the Panamanian Marine Syndicate proposed to the Legislative Camera, a Government body responsible for making legislation, regarding the creation of a school for Deck and Engine Crew. Accordingly, the institution was set up in 1959.

The school was re-named as "The Nautical School of Panama ", in 1960. The school had a humble beginning in a state building. Unfortunately, after a few months of functioning of the nautical school, the state building was destroyed by rough weather. Hence, the nautical school was shifted and accommodated in five classrooms and a gymnasium in the, " School of Arts (Melchor Laso de la Vega) ".

In 1961, the Panama Transport Co. (Esso Tankers), gave a substantial donation for the running of the Nautical School.

Financial assistance for construction of a new building for the Nautical School, was sanctioned by the International Development Bank in 1967. A site was chosen at Paitilla and in 1971 the building was constructed.

In 1971, the Nautical School was re-organized and in 1972 training for Deck and Engineer Officers was also commenced. Since 1972 till date, the Nautical School of Panama has been training the following categories of maritime personnel:

- Deck and Engineer Officers,
- Deck, Engine and Catering Crew.

2.0 ENTRANCE REQUIREMENTS PRIOR TO JOIN NAUTICAL SCHOOL OF PANAMA

2.1 GENERAL EDUCATION.

The General Education system in Panama is divided into two sectors, namely;

- .1 Elementary Education:..... 6 years
- .2 High School..... 6 years

This makes a total duration of General Education of twelve years.

The High School education is divided into two parts. Part I is of three years duration and on satisfactory completion, students are awarded a diploma. After obtaining the part 1 diploma, a student can select any one of the following four branches for part II, namely; Arts, Science, Commerce and Technical. Part II is also of three years duration and at the end of it the students are awarded another diploma.

In order to be eligible for the Nautical School of Panama, students should have completed High School in either Science or Technical branches.

The average age of students on completions of High School is eighteen years. This is the highest level of School education and thereafter, students are eligible to join a University for pursuing further studies.

In the Science and Technical branches of High School Education,

students are required to take up Mathematics, Physics and Chemistry as special subjects. These subjects are also a pre-requisite for joining the Nautical School of Panama.

The academic period of study in Elementary and High School is divided into four bimesters per year. At the end of each semester there is an examination. Grades are given on a scale of 1 to 5, where 1 is lowest and 5 is highest. The passing grades and marks are given below:

Mathematics.....	Grade 4.....	75% marks
Other Subjects..	Grade 3.....	60% marks.

2.2 PHYSICAL AND PSYCHOLOGICAL REQUIREMENTS

2.2.1 PHYSICAL REQUIREMENTS

All candidates for admission to the Nautical School of Panama must be in good physical health and must meet the requirements for appointment as a cadet in the Nautical School of Panama. Physical examination is conducted by social insurance or by a private clinic.

In the Nautical School of Panama the applicants should have the following requirements to be accepted.

.1 Vision:

A candidate for appointment to the Nautical School of Panama must

have a minimum uncorrected vision of 20/100 in both eyes; correctable to at least 20/20 in one eye and 20/40 in the other.

.2 Hearing:

Auditory acuity of all candidates will be determined by a specialist. Hearing should be normal.

.3 Heart and Vascular system:

An electrocardiogram is required of all candidates. The following conditions may reject a candidate and require complete medical evaluation;

all organic valvular diseases of the heart, including those improved by surgery;

hypertension evidenced by predominant blood pressure.

.4 Serologic Test:

A serologic test for syphilis is performed on all candidates. This examination is done by a laboratory.

.5 Dental Standards:

All candidates should undergo a special examination with the dentist.

.6 Diabetes:

Candidates should not suffer from diabetes, TB and other long term diseases.

2.2 PSYCHOLOGICAL REQUIREMENTS.

The Psychological examination in the Nautical School of Panama is carried out by a psychologist.

On the Human side, reference can be made to short comings in Education and Training in the specific are of work related to the ship. A comprehensive analysis of all the factors which have played a part in the education and training of seafarers can frequently lead to the conclusion that the psychological requirement is one of the most important requirement for the applicants in the Nautical School of Panama.

Many of the following human traits influence and affect an individual's performance:

--Perception, what we perceive is not always what we see or hear.

--Motivation, is involved in arousing.

--Directing and integrating most human behavior.

--Job satisfaction, the satisfaction derived from one's work affects the quality of the performance.

--Complacency, can lead to a reduced awareness of the work on board ship.

--Emotion, can have a dramatic effect on how an applicant may respond to set of circumstances.

After the psychological test the candidates need to pass the aptitude test with good stress resistance and also should be of a good mental state.

2.3 ADMISSION EXAMINATION REQUIREMENTS.

All the candidates are required to take the Nautical School examination on scheduled dates organized by the school.

Examination is held two months before the admission. It is the candidate's responsibility to register for the examination. Registration instructions are available in the secretariat of the Nautical School of Panama.

The main subjects examined in the Nautical School of Panama for applicants are:

- .1 General Physics, with statics and dynamics.
- .2 Mathematics, including algebra, arithmetic, calculus.

The duration of each written examination paper is two hours.

The total marks are 100 points and marking scale is divided as follows:

91 - 100.....	points.....	A
81 - 90.....	points.....	B
71 - 80.....	points.....	C
61 - 70.....	points.....	D
0 - 60.....	points.....	F

The candidates must pass the written examination with a minimum of 61 points, to be accepted in the Nautical School of Panama.

The Nautical School carries out admission examination under the authority of the Ministry of Education.

Two or three professors in Mathematics and Physics are appointed as examiners and they are responsible for the assessment of the written examination papers.

2.4 INTERVIEW AND SELECTION.

2.4.1 INTERVIEW.

All the candidate of the Nautical School of Panama have to pass the interview before joining the school.

The purpose of this interview is to assess the interest of the candidates in taking up a sea career.

During the interview, candidates are discouraged to take up a sea career, just to know the degree of keenness of the candidate. They are then graded according to their answers. The grading is based on the candidates' interest for a sea career.

2.4.2 SELECTION.

There are a large number of candidates for a total of only 75 seats in the Nautical School. Hence, selection plays an important role, to pick up the best of the candidates.

Selection is based on the merit list drawn up after the written examination, psychological test and interview.

3.0 TRAINING IN THE NAUTICAL SCHOOL OF PANAMA.

3.1 SHORE BASED PERIOD.

3.1.1 DURATION AND SEQUENCE.

The shore based education consist of four academic years continuously.

The first year (new cadets) is general and common for every one giving particular emphasis in Mathematics, Physics, Chemistry, Nautical Science, General ship Performance. At the end of the first academic period all the cadets who are successful receive a training in the Canal area for at least 6 weeks, in: tug boats, launches, dredgers, canal transit, pollution control, admeasurement. This training is evaluated in conjunction with the second semester of the related subjects or Nautical Science and general ship performance.

At the beginning of the second year the cadets have to select the branch they want to study, e.g. deck or engine; therefore he receive specific training for that choice. At the end of the second theory period he receives another training in the Panama Canal area and related with his department, in actual working units. The duration is 6 weeks at least, and training is evaluated in conjunction with the related subjects for the second semester.

The remaining years, third and fourth (senior - cadets) are continuous. Separated for one month of holiday.

3.1.2 SHORE PERIOD WITH SCHOOL ATTENDANCE.

As Mentioned in 1.1 the shore periods consist of four academic years all of them are of school attendance.

3.1.3 TIME UNITS OF STUDY.

Each academic year is divided into two semesters, each one consist in general of 20 weeks of duration. The shore based period consist of 8 semesters.

3.1.4 ATTACHED SYLLABUS.

The attached syllabus contains all the subjects in each semester, the number of lessons per week in each subject. Each class of lecture have a duration of 45 minutes.

NUMBER OF LESSON PER SUBJECTS PER YEAR

YEAR-----	1	2	3	4
SUBJECTS				
Calculus	160	160		
English	128	128	128	128
Nautical science	160	96		
Physics	224	48		
Engineer Elements	48			
Navigation		160	160	192
Mechanics and Strength of Material		48		
Astronomy		160	160	
Topography		96		
Technical drawing		96		
Stability		96	160	
Electricity		128		
Solas Marpol Convention,IMO			96	
Electronics			160	
Maritime economy			96	
Electrotechnics			96	
Naval Hygiene			96	
Manoeuvring				192
Electronics Navigation				164
Rules of the Road				160
Maritime Law				96
Cargo				112
Meteorology				96

3.2 CONTROLLED SEA SERVICE PERIODS.

3.2.1 DURATION AND SEQUENCE OF SEA SERVICE PERIOD.

CONTROL AND SUPERVISIONS

The sea service period has a duration of twelve (12) months continuously, it begins at the end of the fourth academic year at the school, as a requirement of the " STCW 1978 " Convention. All the training is under the supervision of the ship's master who receives the instruction from the Panama Nautical School. See cadet evaluation in the appendix 1.

During the sea training the cadets have to develop a series of requirements such as: Personal log book, task book, and work book.

These documents have to be submitted to the examination board at the Panama Nautical School, at the end of the training period for the respective evaluation. In addition, the cadets have to submit the certificate of sea service; see appendix 2. All official documents have to be sealed and signed by the ship's master and the local Consul of Panama or the local port authority. The cadet is obligated to submit a monthly report to the school, see table No 1 , and the ship's master has to send to the school a progress evaluation report at the middle of the period and at the end.

3.2.2 KIND OF CONTROL (TYPE OF VESSELS)

In all cases, assignments will be for deck cadets on vessels over 200 GRT, whenever possible assignment should be on vessels over 1600 GRT.

3.3 ASSESSMENT.

3.3.1 INTERNAL ASSESSMENT.

3.3.1.1 TYPE AND DURATION OF ASSESSMENT.

In general the final evaluation is per semester.

The final evaluation per semester consist of 60% marks for the average of the quizzes, it may be: oral, written, practical or projects. Each cadet must have at least three evaluations.

The balance 40% marks is for final examination conducted at the end of the classd period. Therefore the final evaluation consist of the average of these two figures.

3.3.1.2 WHEN ARE THE ASSESSMENT CARRIED OUT.

The quizzes are carried out during the class period, at least three per semester at any time and it depends on the professor. The final examination is at the end of the class period.

3.3.1.3 SUBJECTS ASSESSED.

All the subjects have to be assessed.

3.3.1.4 ORGANIZATION OF ASSESSMENT.

The assessment for each subject are programmed in advance by the professor or instructor with the head of the related department.

3.3.1.5 RANGE OF MARKING SCALE.

The marking scale is from 1 to 100. The passing mark per subject is 71%.

3.3.1.6 EXAMINERS.

The assessment board or academic board are concerned with the evaluation of all cadets, it is formed by the school Director, Heads of each department (deck) and two professors of each department.

4.0 EXAMINATION AND CERTIFICATION

4.1 EXAMINATION:

Examinations are the only means of assessing the competence of persons who seek certification as master or Deck Officers in a merchant ship. The skill of the examiner is to establish an individual's competence as objectively and impartially as possible.

4.1.1 Examination Syllabuses:

These must meet a minimum requirement of the STCW Convention, but may cover a higher standard or be expanded to include other materials. According to Regulation II/4 of the convention above described, the examination syllabus for officers in charge of the navigational watch in ship of 200 GRT or more can cover not only navigational aspects and ship handling, but they also cover the other subjects as: ship stability, construction and damage control, stowage, fire prevention, medical care, maritime law, (including Solas and other IMO Conventions), personnel management and training, communication, life saving, search and rescue, and methods for demonstrating proficiency. Among the additional requirements each country can integrate adequate knowledge of the english language, including ability to use the IMO Standard Maritime Navigational Vocabulary.

As the technology and other factors in this era is changing continuously, it is important that masters, and officers keep up to date.

4.1.2 Setting Written Examination Questions

Required standards must be established and maintained, but in relation to examination, could provide a fair and reliable test of competence and can be conducted as efficiently as possible and according with the economy of each administration, as possible. The examination questions are carefully planned and expressed exactly with this in mind. In this condition the candidate is aware of exactly what is required for him to obtain the necessary marks to pass.

It is important that the examiner develops an examination paper with clear direction according to exactly what is required to be answered by a candidate. The calculations in the examination papers are also important for the candidates to demonstrate that they are able to develop calculations for example celestial observation with two stars or more to fix the position of the ship at any time interval or any other particular aspects. But in this part it is important to take care not to concentrate too much on calculations since to do so may affect the balance of the question paper.

In any particular examination paper the number of questions set in can be determined by the importance of the subject area, how fully the syllabus is to be sampled and whether a choice of question is to be allowed. In considering the balance of the question paper the number of marks assigned to each question must reflect the amount and the relative importance of the work involved in its completion.

At last the procedure adopted is for marks to be deducted from the total assigned to any question according to the type of error made: 50 per cent for every error in principle and 10 per cent for every error of a clerical nature. Written answers other than calculation should be awarded a pass mark for the question if the candidate makes all the essential points on the specimen answer, increasing up to full marks if a candidate brings out all the points in the specimen answer.

One of the most important part of the examination questions is regarding the higher standard in the examination than are specified for the level of certificate under consideration, because it is easy for examiners to fall into the trap expecting candidates to have a level of knowledge up to a standard approaching their own and care should be taken to avoid it.

4.1.3 Procedure of the examination system for officers aboard Panamanian ship.

4.1.3.1 Objective.

.1 That the Republic of Panama adopt a national system of licensing of officers of the Merchant Fleet and satisfy the growing international demands concerning navigational safety, productivity and an effective prevention of pollution of the marine and coastal environment.

.2 That the system of examination meets the national norms concerning maritime traffic, coastal and open seas navigation, including the international convention on standards of training, certification

and watchkeeping for seafarers, 1978 (STCW) and convention No 53 of the International Labour Organization (I.L.O.) .

The system of examination must satisfy these principal objectives which justify its implementation.

4.1.3.2 Places Where Examination Will Be Administered

An applicant requesting his first license in a determined classification to renew or for up grading, can fill out the application form for examination in any of the Consuls General offices of the Merchant Marine or in the technical office of the Directorate General of Consular and Maritime Affairs in Panama City.

The examination can be taken in many port-cities around the world according to a program of periodic testing sessions which will be widely publicized in marine publications, and the direct channel of communications, correctly established with the shipping registry system, the shipowners, the shipping agents, and personnel on board vessels.

The applicants will have an opportunity to select the place and date he wishes to be examined in accordance with the program.

4.1.3.3 LANGUAGES.

The examination will be prepared in Spanish the official language of the Republic of Panama, and in English.

However in accordance with the analysis of the applications

requesting examinations in other languages the administration will also accept Japanese, Chinese, Korean, Greek, etc, to mention some without excluding other possible choices.

4.1.3.4 PREPARATION OF THE APPLICANTS.

The applicants which have available study material work books and technical manuals which will allow adequate preparation before the exam, will contain the following:

.1- Manuals that develop adequate information to be able to answer a wide range of questions contained in the Data Bank of the program (see appendix) in accordance with rate or grade for which the applicant is being examined.

.2- An explanation of the methodology utilized in the examination including practical exercises which allow the examiner to familiarize himself with the type of questions in the exam.

.3- A list of reading material which will permit the applicants to broaden his basic knowledge and with the emphasis in the subjects of safety and productivity.

4.1.3.5 TYPE OF EXAMINATION.

The examination will be made up of significant number of multiple choice questions where the applicants will choose the correct answer from the four possible choices.

The contents of the examinations will be selected at random from the Data Bank of questions stored in a Data Processing system. Changes are done periodically in accordance with high level of standards which prevent possible malpractices by use of unauthorized copies.

COMPOSITION OF DATA BANK

SUBJECTS	NUMBER OF QUESTIONS			
	CONCEPTS		MATHEMATICS	
	Basic	Advanced	Basic	Advanced
Navigation	250	250	60	90
Deck Seamanship	150	130	50	70
Watchkeeping	150	50	15	10
Navigation Safety	450	150	--	--
Ship Management	100	150	30	20

4.1.3.6 LEVEL OF KNOWLEDGE REQUIRED FOR PASSING THE EXAMINATION.

The system has been formulated taking into account the human component of the actual Merchant Marine, with emphasis in technical knowledge.

However higher grades require sufficient theoretical knowledge to ensure the primary objectives indicated in the system.

The level of each examination will be decided with that established for the grade that each applicant wished to obtain and in this manner non pertinent questions will not be included.

Each level will be especially designed to test the applicant for sufficient knowledge for his functions and responsibilities on board, basically in those subjects involved in the secure operation of vessels. So any crew member who has sufficient knowledge of his profession and who is updated in modern technics and regulations corresponding to his grade should pass the examination with relative ease. The system is designed to prevent incompetent persons from obtaining work on board the vessels, placing them in charge or producing risks to navigation which damages the growing prestige of the Panamanian Merchant Fleet.

4.1.3.7 QUALIFICATION.

After an examination is completed, the answer sheets are sent to the central office in Panama City to be processed by a computerized system with optical mark scanners.

The system ensures the objectivity of the result preventing in this manner human errors which are possible in other types of examinations and different criteria in the interpretation of the piece of writing on a subject, into the type of answers.

Immediately after qualifying in the examination along with other required documents, photographs etc, are sent to The Directorate General of Consular and Maritime Affairs which is the authority to issue the official documents of professional competency to persons passing the examinations. In this manner competency certificates are issued and the new officer identification card, which is valid for five years.

The levels of examination for Deck Officer are:

- Master
- First Mate
- Second Mate
- Third Mate.

4.2 CERTIFICATION.

Certification is essential to ensure minimum standard of competence for Safety at Sea. It should form an integral part of an administration's objective for promoting safety at sea.

4.2.1 MINIMUM CERTIFICATION REQUIREMENTS.

Every ship requires a master, who has duties and obligations under the various conventions. Every ship also needs one or more deck officers in addition, to share navigational watchkeeping duties. The senior deck officer is the chief mate and onus of command falls on him in the event of death or incapacity of the master.

The STCW convention does not specify the deck officer manning scale of a ship but lays down the minimum requirements to be met by the master, the chief officer and other watchkeeping officers.

4.2.2 GENERAL INFORMATION CONCERNING THE ISSUANCE OF CERTIFICATE OF COMPETENCY.

The National Merchant Marine Administration has recently inaugurated its new licencing program for officers and crew working on board Panamanian flag vessels.

This new program contributes positively and effectively to the increase of maritime safety.

The Republic of Panama hopes to fulfill through this new certification program the many international obligations it has acquired

by virtue of the ratifications of several International Conventions of International Maritime Organization (I.M.O) and International Labour Organization (I.L.O) It thus hopes to contribute not only to the improvement of Maritime Safety, but also to the reduction of Oil Pollution incidents, the lowering of insurance cost and the elimination of problems with other Maritime Administrations.

4.2.3 GENERAL PROVISIONS.

Each officer on board Panamanian vessels of over 200 gross register tons (GRT) will hold a Certificate of Competence issued by the Directorate General of Consular and Maritime Affairs which authorize the execution of the duties corresponding to the position described in such certificate.

According to the provision of this regulation the Directorate General of Consular and Maritime Affairs can issue Statutory Certificate of Competency, and also when it is necessary Provisional Certificate of Competency.

These Certificates of Competency will authorize its holder to perform the duties indicated with the limitations or restrictions indicated as well as to perform any duties in a lowerranking position.

The Certificate of Competency will be of the following classes:

Deck

- .1 Master
- .2 Chief Mate
- .3 Second Mate
- .4 Third Mate

Engine

- .1 Chief Engineer
- .2 First Engineer
- .3 Second Engineer
- .4 Third Engineer

Radio

- .1 General Radio Communication Operation
- .2 First Class Radio Communications Operator
- .3 Second Class Radio Telegraph Operator.

These Certificates will be subject to the restrictions and limitations provided by it, in due consideration of the type of vessel where the work will be performed. Its limitations are power, tonnage, type of engine, navigation area and any other limitation which the Directorate General of Consular and Maritime Affairs may consider appropriate relative to the applicant's academic background.

4.2.4 PRESENTATIONS OF APPLICANTS.

In order to obtain the Certificates of Competency interested parties or their authorized representative shall obtain the official application forms and present them to the Directorate General of Consular and Maritime Affairs in Panama City or at the special Merchant Marine Consulates abroad, which are authorized for this purpose. Interested parties will attach the following documents to their applications:

- .1 Copy of the passport showing its number and the general description of the applicant.
- .2 Copy of a Certificate of competency and other similar documents issued by a Maritime Authority for comparison by the officers of the Directorate General of Consular and Maritime Affairs in the Republic of Panama. In the absence of the Certificate of Competency the applicants may present the examination approval Certificate issued by competent authorities.
- .3 Any documents which attest to the applicants experience the names and main characteristics of vessels aboard which he has served and duties performed.

.4 Three full-face photographs approximately 4 cm by 3.5 cm.

.5 Medical Certificate indicating applicant's physical fitness according to the form provided by the Directorate General of Consular and Maritime Affairs and which need to be examined by the public hospital or private clinic.

The following criteria will be observed according to the medical requirements:

.1 Applicants whose past or present medical history reveals epilepsy, acute venereal disease, neurosyphilis, varicose veins, narcotics use, or other serious diseases according to the medical criterion will not be considered for the issuance of a Certificate of Competency.

.2 Regarding vision, Deck Officers are required to have perfect color perceptions and good vision equivalent to at least 20/100 in both eyes without correction, and corrected to at least 20/20 in one eye and 20/40 in the other.

.3 A general satisfactory physical condition must be confirmed by laboratory tests.

All the applicants for Certificates of Competency will be processed once the applicants have paid the corresponding fees for which receipts shall be issued.

In case of documents sent directly by the petitioner to the Directorate General of Consular and Maritime Affairs, they shall be

accompanied by a certified cheque for the required amount in dollars in favor of the Administration.

Certificates of Competency will not be issued to applicants under 18 or over 65 years of age, except in the event that a correct medical certificate indicates the conditions of health of the applicant over 65 years of age, allows him to perform the duties in the position for which he is applying and the certificate will not be issued for a term exceeding two years.

4.2.5 STATUTORY CERTIFICATE.

The granting of the Statutory Certificate of Competency will be conditioned on the applicant authentically proving, by passing the examination and verifying his experience that he is in possession of the knowledge and academic standards necessary for the rank to which he aspires.

The minimum mandatory requirements for the certification of officers will be those provided by the "STCW 1978" Convention.

Applicants who must renew their appropriate Certificate of Competency will follow the procedures indicated under the "Presentation of applicants" described in the paragraph 4.2.4. Certificates of Competency will be renewed for those applicants whose application is made six months before or after the expiration date of such Certificate.

The professional competency for the applicants of the certificate of Competency will have to fulfill the following:

- .1 Sea service of at least one year during the previous five years as an officer in the category in which he is certified.
- .2 The performance of duties related to the functions corresponding to the rank of the certificate which he holds, considered at least as equivalent to the sea service.
- .3 One of the following :
 - Passing an approved test.
 - Completing successfully on approved course or courses or
 - Having completed sea service as an officer for a period of less than three months in a supernumerary capacity or in lower rank than that for which he holds the certificate immediately prior to taking up the rank to which he is entitled by reason of his certificate.

4.2.6. PROVISIONAL CERTIFICATE.

In the case of Provisional Certificate the candidate have to fulfill the following:

- .1 During two of the last three years the applicant has to prove that he has held the position for which he is applying.
- .2 Within the last five years he has held the position for at least three years of which at least twelve months service has been performed in the two years period prior to the application.

The experience of the applicants shall be proven by means of discharge papers or by means of letters of reference from the companies in which the applicant has worked or where he is presently working, stating his capacity and ability to carry out his duties. The Directorate General of Consular and Maritime Affairs must be satisfied as to the authenticity of the contents of the letter.

Every provisional Certificate of Competency shall be valid for two years beginning of the issuance date.

4.2.7 REASON FOR THE CANCELLATION OF THE CERTIFICATE OF COMPETENCY.

The Directorate General of Consular and Maritime Affairs will base its suspension or cancellation orders on the following:

- .1 The serious violation of current standards regarding safe navigation, hazard to human life at sea or the contamination of the sea.
- .2 The alteration of the documents carried out by the holder himself or with his consent, which affects its validity or the grade of its holder.
- .3 Substantiation of the holder of the documents having presented documents that are false or illegally obtained.
- .4 Proven professional incompetence.
- .5 Alteration of mental faculties due to drug or alcohol abuse.

.6 Physical or mental defects which hinder the performance of duties corresponding to the position held.

.7 Negligence in the performance of duties .

.8 Acts of omission which endanger lives and property.

.9 The violation deemed serious by the Directorate General of Consular and Maritime Affairs of Panamanian maritime law, decrees or regulation.

4.2.8 PENALTIES FOR HOLDING IMPROPER CERTIFICATE.

The Directorate General of Consular and Maritime Affairs will impose the following penalties:

.1 Every officer aboard Panamanian registry vessel, without holding a Certificate of Competency or Temporary Permits for such positions, may be fined up to one thousand balboas (B/ 1000.00).

.2 Every ship owner, master, or agent who employs officers who do not hold valid Certificates of Competency or Temporary Permits corresponding to their position, may be fined up to five thousand balboas (B/ 5000.00).

5.0 COMPLIANCE WITH STCW CONVENTION.

The Convention which has great relevance to Maritime Education and Training at this time is the " STCW 1978 " or to give its full title, " The International Convention on Standard of Training, Certification, and Watchkeeping for Seafarers, 1978 ".

This Convention came into force in april 1984 and provides for the first time, on an international scale, minimum standards for seafarers in terms of:

The levels of theoretical and practical knowledge, linked to professional experience and understanding required for the certification of professional competence of seafarers.

5.1 THE IMPACT OF THE STCW " 1978 " CONVENTION.

The " STCW 1978 " was adopted by IMO at an International Conference held in London in 1978. At that time the majority of the traditional maritime countries were rated as " developed countries " possessing well established maritime infrastructures, with Education and Training Programmes for their seafarers which could meet the majority of the convention requirements.

The convention would come into force one year from the date on which twenty five countries, the combined merchant fleets of which constitute not less than 50% of the world's shipping fleets (of ships of 100 gross register tons or more) have acceded to it. This position was reached in April 1984.

For many of the Developing Countries the central issue was possession of effective National Maritime Legislation which would control through its various sections:

- .1 A system for the Examination and Certification of Seafarers.
- .2 The levels of Education, Training and Experience required by seafarers before the issue of Certificate of Competency.

5.2 MASTER AND DECK DEPARTMENT.

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

Regulation II/2 establishes mandatory minimum requirements for certifying masters and chief mates of ships of 200 gross tons to 1600 gross tons and for ships of 1600 gross tons and more. For that matter, candidate must meet the requirements for certification as an officer in charge of a navigational watch on ships of 200 gross tons or more and have approved sea-going service in that capacity.

Candidates must also have passed an appropriate examination covering not only navigation aspects and ship handling but also ship stability, construction and damage control, power plants, cargo

handling and stowage, fire prevention, medical care, maritime law (including SOLAS and other IMO Conventions), personnel management and training, communications, life saving, search and rescue and methods for demonstrating proficiency. The examination may be varied for officers and masters of ships engaged on near-coastal voyages.

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

For ships of less than 200 gross tons which are not on near-coastal voyages, appropriate certificates for ships of 200 gross tons to 1600 gross tons must be held (in the case of masters) and above 200 gross tons in the case of officers.

For ships of less than 200 gross tons engaged on near-coastal voyage master must hold an appropriate certificate be not less than 20 years of age, have approved sea-going service of not less than 12 months as officer in charge of a navigational watch and satisfy the administration that they possess adequate knowledge, including knowledge of the subjects listed in an appendix to the regulation. Officer must have an appropriate certificate, be not less than 18 years of age, be medically fit, have undergone special training, have completed three years service in the deck department and possess adequate knowledge of the subjects listed in the appendix.

The mandatory minimum requirements for certification of officers in charge of a navigational watch on ships of 200 gross tons or more are contained in regulation II/4. The age limit is 18 years and

the three years sea-going service must include at least six months of bridge watchkeeping duties under the supervision of a qualified officer.

Candidates must also pass an examination based upon the subjects listed in an index which includes many of the subjects appended to regulation II/2. Among the additional requirements is one for an adequate knowledge of the English Language including ability to use the IMO Standard Marine Navigation Vocabulary.

In an era when technology and other factors are changing rapidly, it is necessary that masters and officers keep up to date. This aspect is covered in regulation II/5. Officers and masters shall be required at regular intervals and not exceeding five years to satisfy their administration as to their fitness and professional competence.

To ensure that this can be done, administrations are required to formulate a structure of refresher courses, especially for re-entrance to sea-going service. They must also ensure that all ships under their jurisdiction are provided with tests of changes in international regulation concerning safety at sea and marine environment protection measures.

Requirements for deck ratings forming part of a navigational watch, form the subject matter of regulation II/6. Ratings who comply with this regulation, must be not less than 16 years of age. They should have completed at least six months sea-going service or undergone special training in a prescribed number of subjects.

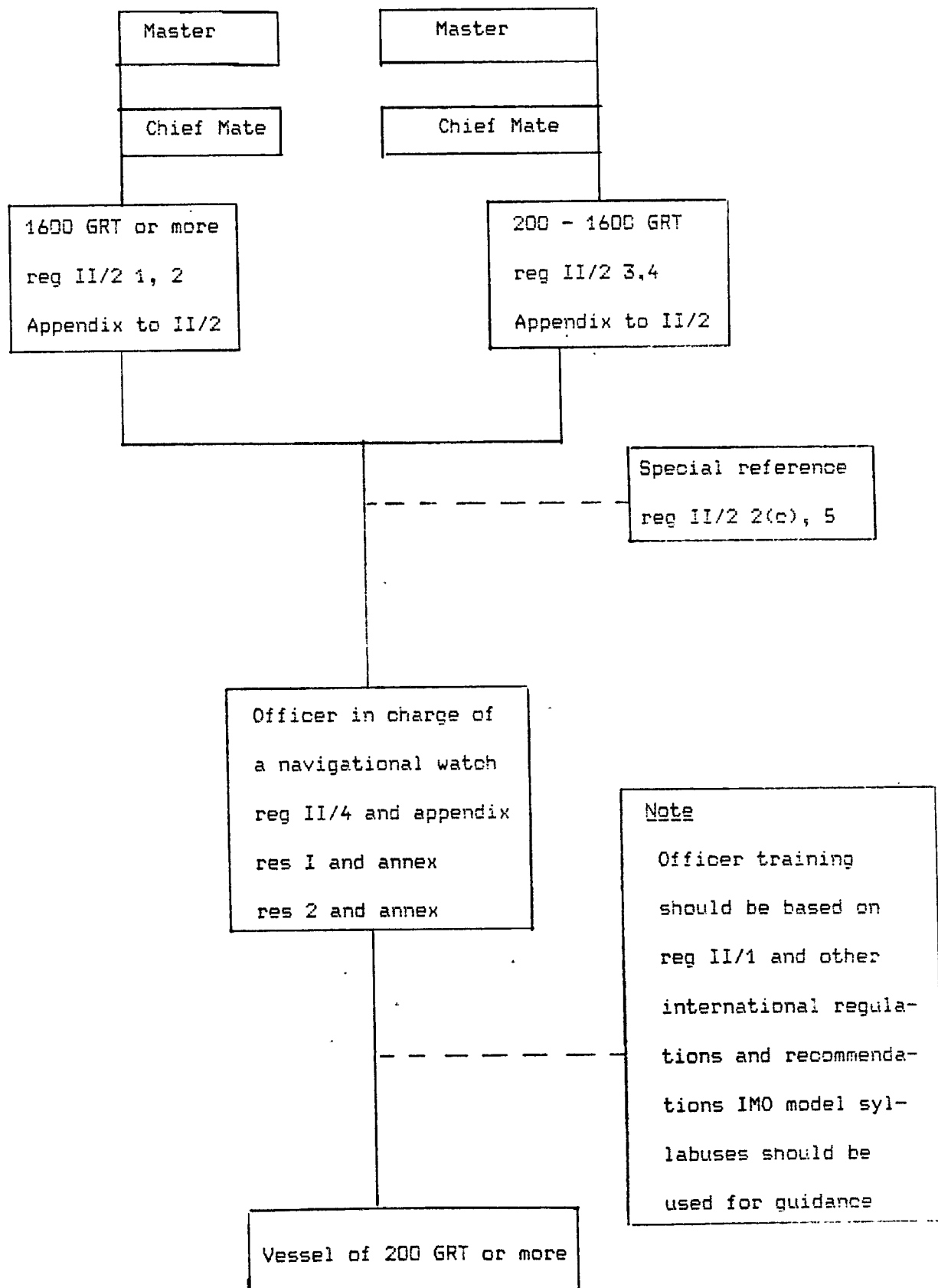
Service of at least one year during the five years prior to the entry into force of the convention for their administration may be regarded as equivalent.

The last two regulation in this chapters deal with basic principles to be observed in keeping watch in port and mandatory minimum requirements for a watch in port on ships carrying hazardous cargo. In both cases, note or account must be taken of the provision of two recommendation adopted by the 1978 conference. These are the recommendation on principles and operational guidance for deck officers in charge of a watch in port and recommendation principles and operational guidance for engineer officers in charge of an engineering watch in port. See the structure relating to deck officer certification in table No:2

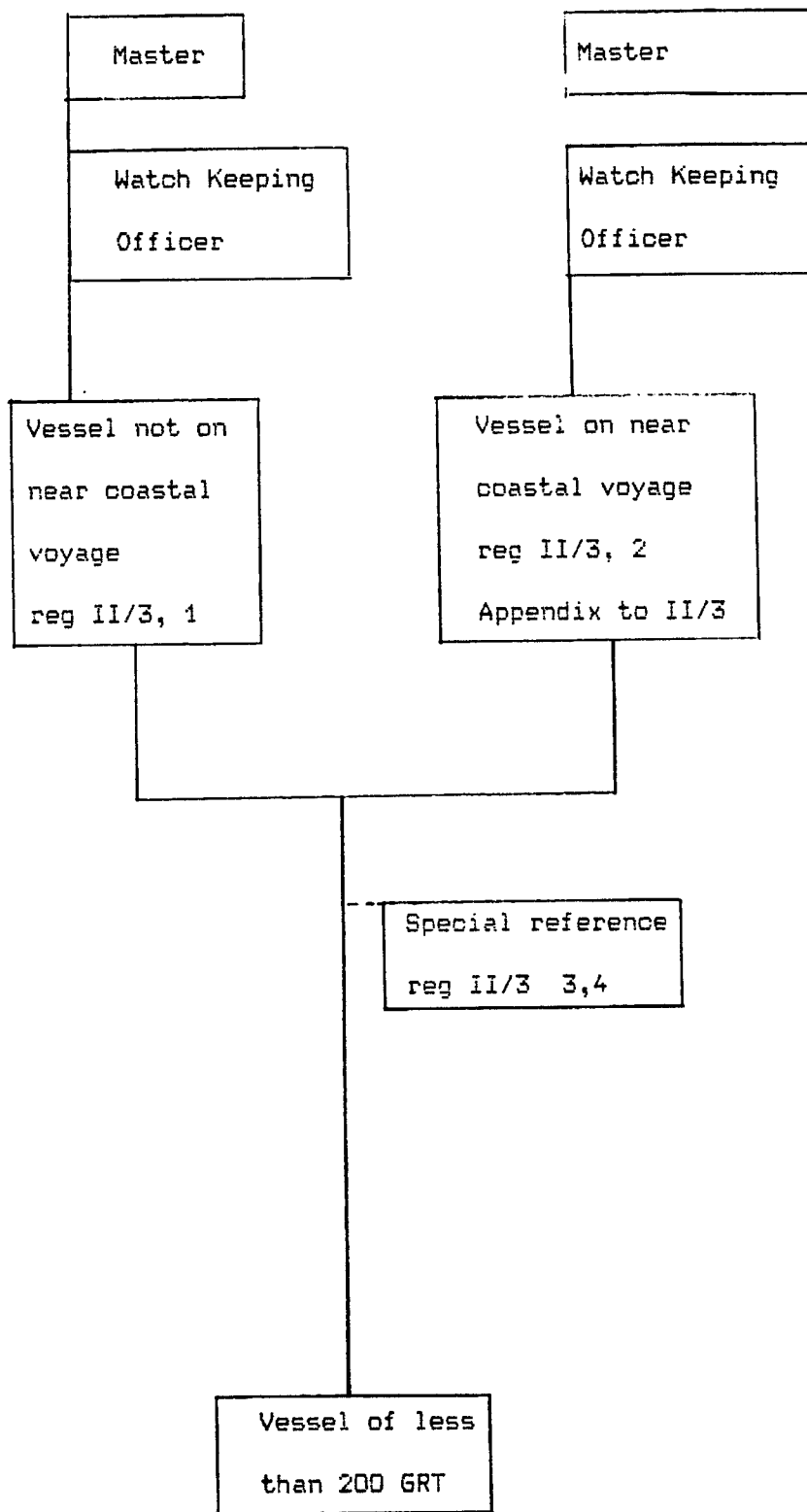
TABLE No. 2

DECK OFFICER TRAINING AND CERTIFICATION AS REQUIRED BY IMO, STCW CONVENTION.

a)



b)

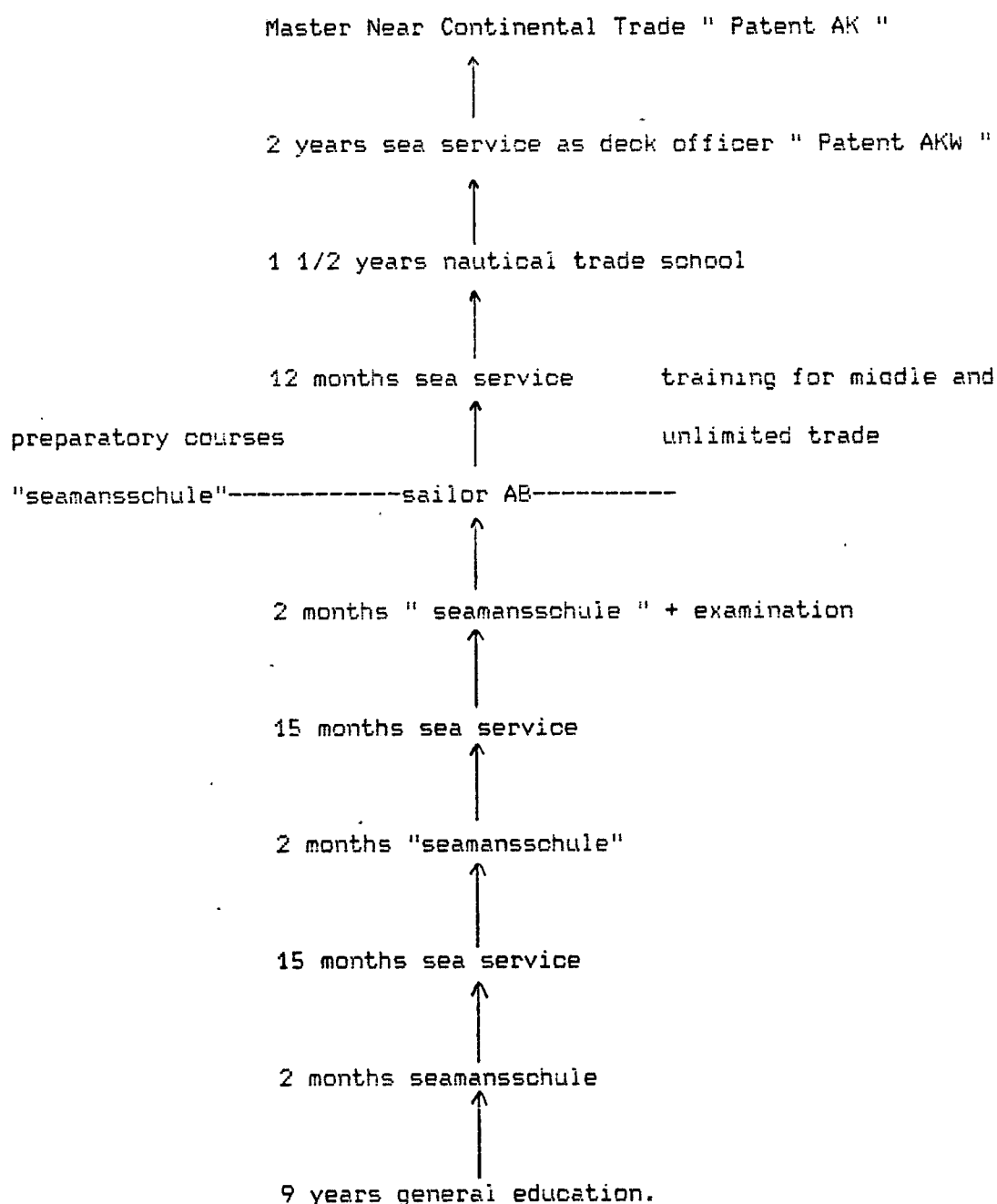


6.0 DESCRIPTION OF THE NAUTICAL EDUCATION AND TRAINING
SYSTEM IN CERTAIN OTHER COUNTRIES.

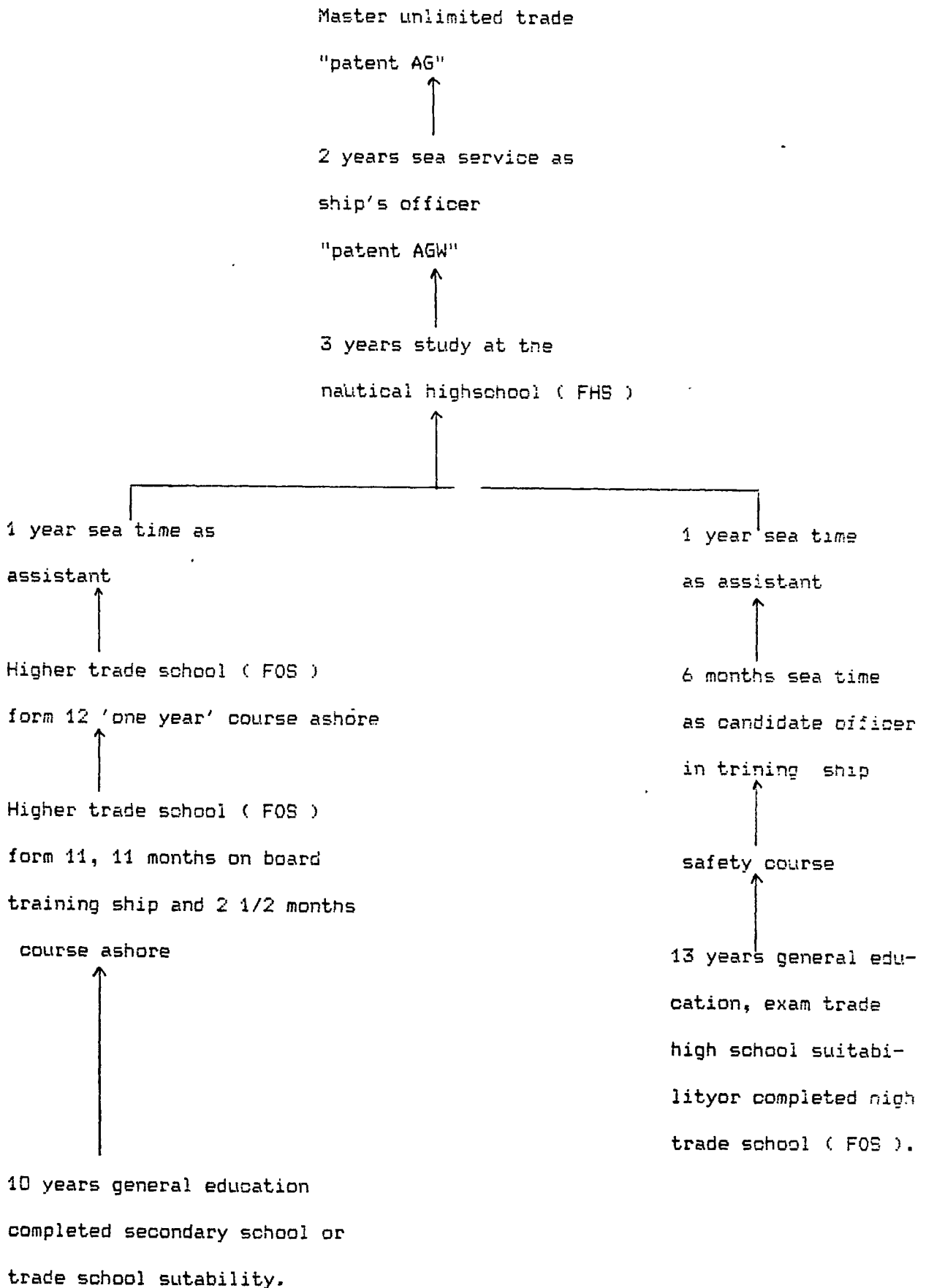
6.1 MARITIME EDUCATION AND TRAINING SYSTEM IN THE FEDERAL
REPUBLIC OF GERMANY.

6.1.1 BLOCK DIAGRAM

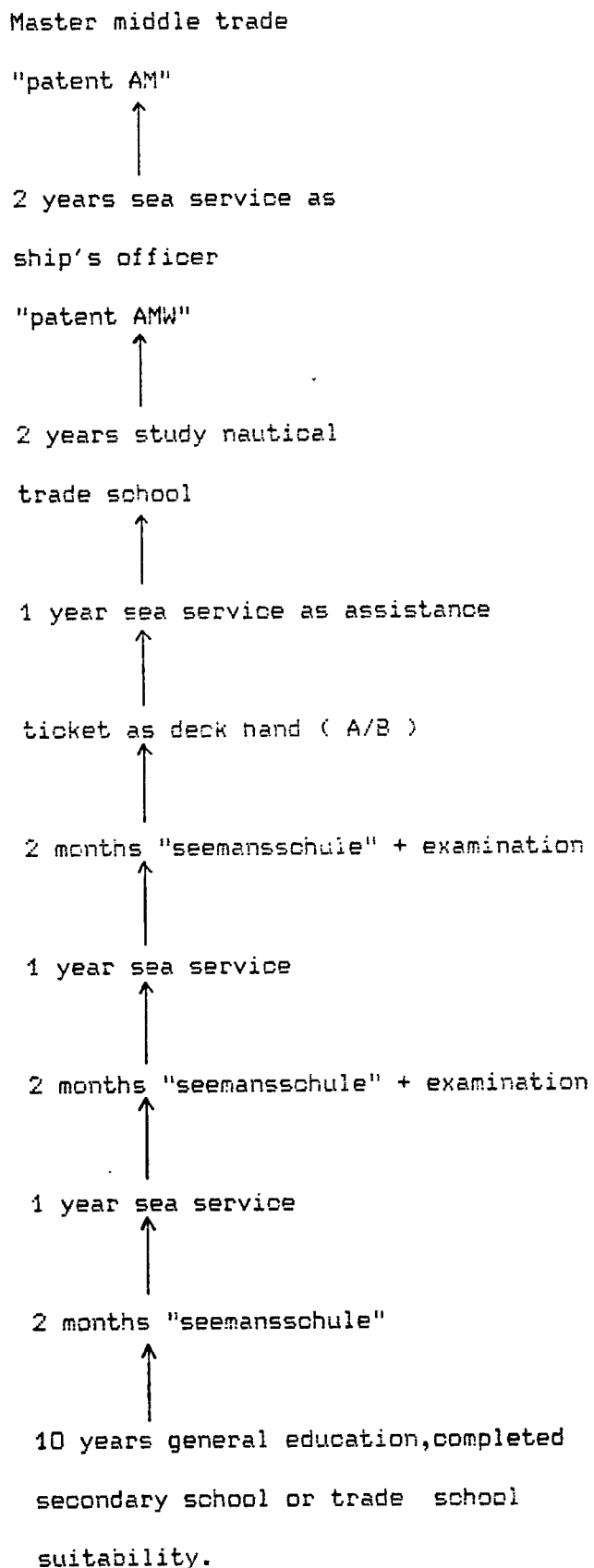
a) Training Scheme for near continental area

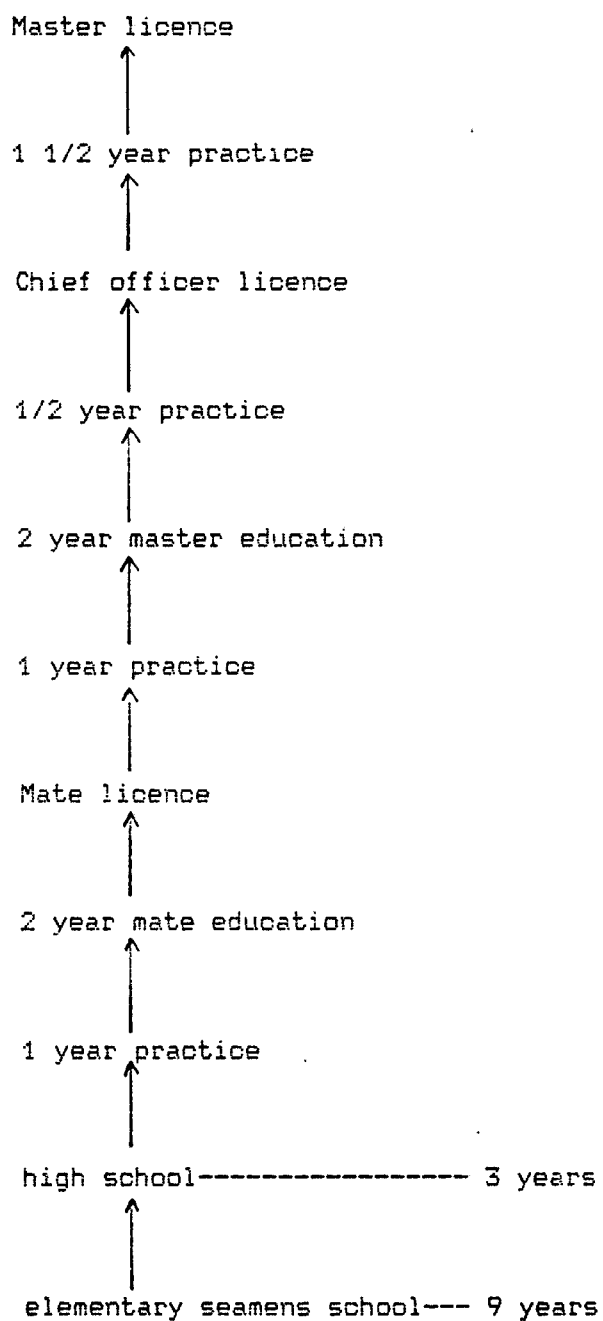


b) Training Scheme for Master unlimited area



c) Training for master middle trade area



6.2 MARITIME EDUCATION AND TRAINING SYSTEM IN FINLAND6.2.1 ROCK DIAGRAM

6.3 MARITIME EDUCATION AND TRAINING IN SWEDEN

6.3.1 BLOCK DIAGRAM

Traditional training scheme

Foreign going trade

Master certificate



minimum 24 months sea

time as Mate



Mates certificate



18 months sea time



2 years masters course



Mates' certificate



1 year mates' course



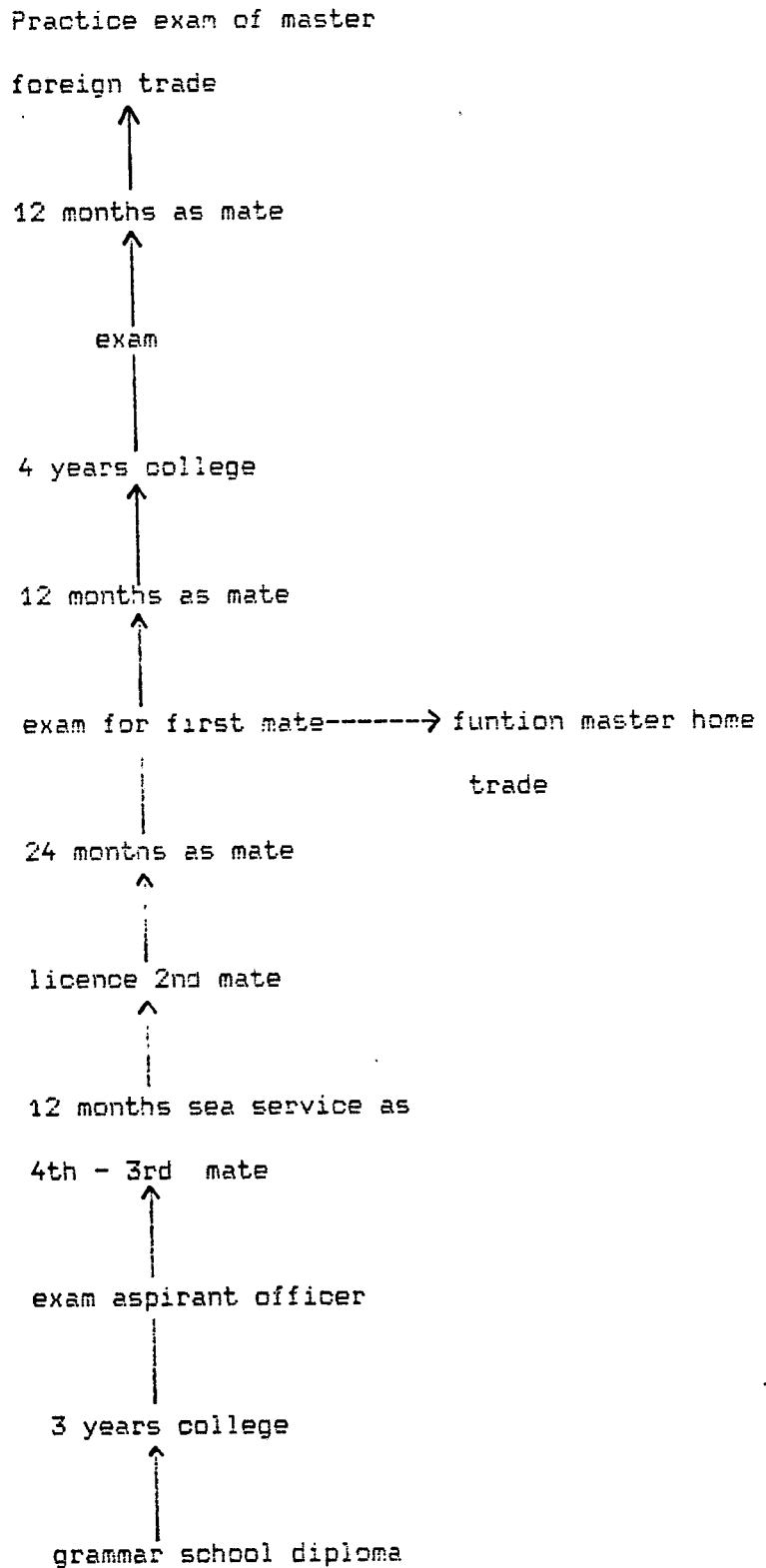
27 months sea time as rating

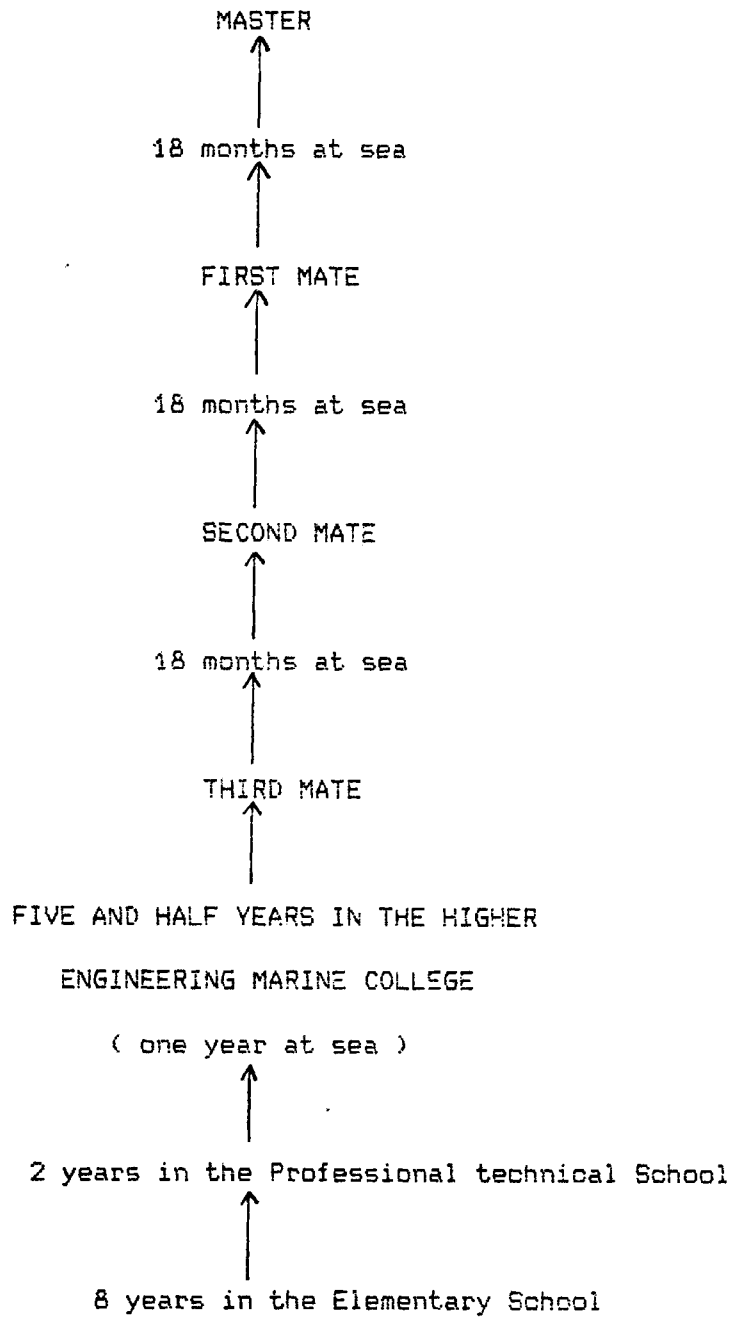


9 years compulsory common basic
education

6.4 MARITIME EDUCATION AND TRAINING IN BELGIUM

6.4.1 BLOCK DIAGRAM



6.5 EDUCATION AND TRAINING SYSTEM IN USSR6.5.1 BLOCK DIAGRAM

6.6 MARITIME EDUCATION AND TRAINING SYSTEM IN HOLLAND

6.6.1 BLOCK DIAGRAM

First Mate / Master (F.G.) certificate (unrestricted)



Short application course 6 weeks



Two years of sea time as watch keeping officer



Second Mate certificate



Two years of sea time as watch keeping officer



Third Mate certificate



-----> Higher Vocational Education
Certificate

Final Year Study in Nautical College (Graduation Year)



Practical Year - One year as a Trainee on board a Merchant Ship



Two years study in Nautical College

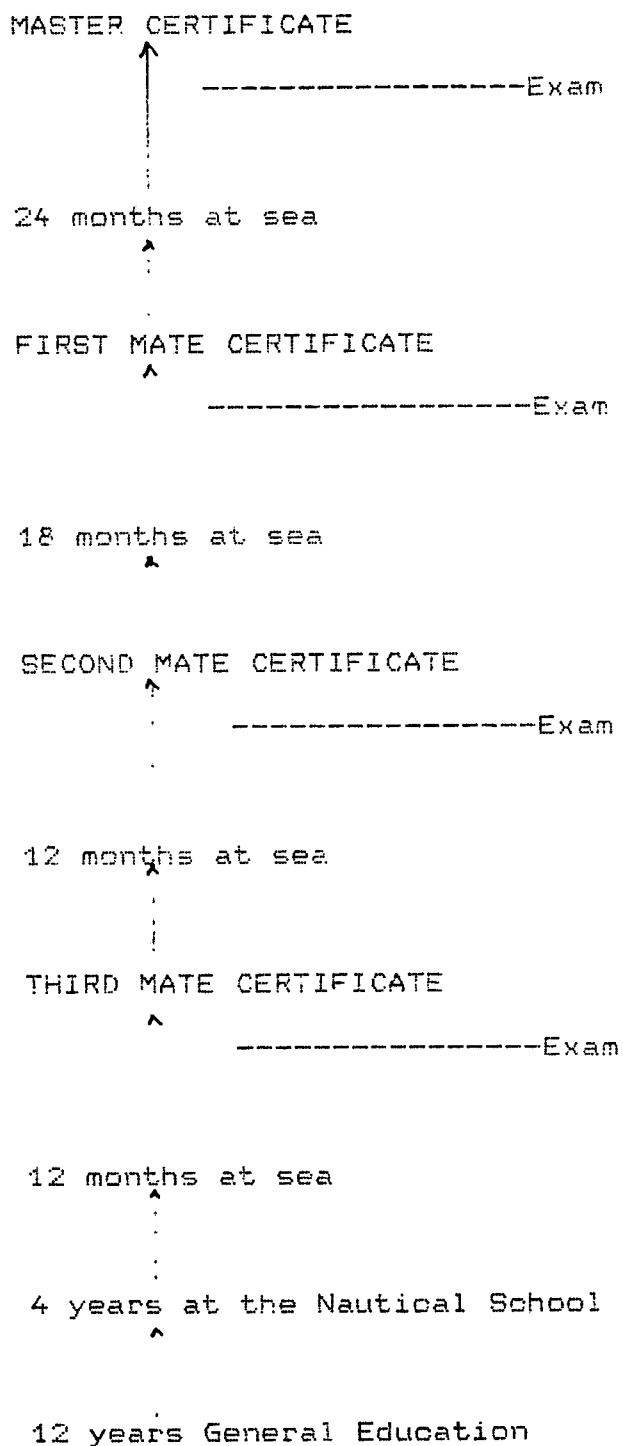


Diploma of Secondary School ----- 5 years



Primary School ----- 6 years



6.7 MARITIME EDUCATION AND TRAINING SYSTEM IN PANAMA6.7.1 Block Diagram

7.0 ANALYSIS OF THE SYSTEM.

It will be observed from the description of the Nautical Education and Training System of Panama that the system has been recently changed to incorporate the mandatory minimum requirements of the STCW Convention 1978.

In the recent past there has been growing criticism from the World Maritime Community, about the high accident rate in the Panamanian fleet. This can be seen from the statistics of ship losses taken from Liverpool Underwriters' Assotiation, which are given below:

	1980	1981	1982	1983	1984
No	47	50	58	56	48
GRT	134139	227850	332278	312026	284750

There has been a growing concern as to how to reduce the ship lost or in other words, how to improve safety on board Panamanian ships. Since the human factor plays the biggest role in enhancement of safety, higher standards of education and training is a step in the right direction.

The STCW Convention 1978 has recognized the importance of the human factor by specifying the mandatory minimum standards of training, certification and watchkeeping for Seafarers. Further, Panama has also recognized the importance of education and training of seafarers by updating the Nautical Education and training system to meet the mandatory minimum requirements of the STCW Convention 1978.

In order to update the Nautical Education and Training system of Panama, assistance was also received from IMO and UNDP.

One of the important requirements of every Nautical School, is a dedicated well qualified and trained teaching staff. Such a staff would in turn, be able to improve the standards of education and training at the school which would finally result in improving safety standards.

The World Maritime University has been very successful in training maritime teachers in their Maritime Education course. It is therefore proposed that the Maritime Teachers at the Nautical School of Panama be encouraged to participate in such training programmes at the World Maritime University.

There is a need to develop specialised short courses as recommended by the STCW convention 1978. These courses are very practical oriented and take into account the new technological developments in the maritime industry. Development of such courses would also enhance the safety standards on Panamanian ships. Some of the recommended specialised short courses, which need to be developed, are given below:

- Radar Observed
- Course on crude Oil Washing
- Course on Inert Gas System
- Survival at Sea and
- Course Designed for Tanker Crewmembers.

Finally, it is hoped that with the implementation of the education and training schemes, there would be an improvement in the safety

record of Panamanian ships although it may take a little time to reap the benefits of the system.

8.0 BIBLIOGRAPHY.

- International Convention on Standard of Training, Certification and Watchkeeping for Seafarers 1978.
By: IMO, London.

- Guide for the Issuance of Certification of Competency to Officers Aboard Panamanian Vessels.
By: Directorate of Consular and Maritime Affairs
Ministry of Finance and Treasury Republic of Panama.

- Special Report on New System of Examination For Officers of the Merchant Marine.
By: Mariexam Corporation 1984, Republic of Panama.

- The Magazine of the International Maritime Organization,
Number 1; 1984.

- Conference Education and Training for Seafarers - What Policy for the 1990's.
By: The Institute of Marine Engineers; London, february 9-10 1984.

- The Design and Conduct of Examination for Certificate of Competency.
By: Capt. A.M Jestic; Chief Examiner of Masters & Mates
Marine Division, Department of Transport.
United Kingdom, London.

CONCEPTS	EXCELLENT	GOOD	FAIR	POOR	UNSATISFACTORY	(*)	(**)
1. General interest in the ship							
2. Hand/mechanical ability							
3. Initiative							
4. Ability to learn							
5. Judgment							
6. Reliability							
7. Attitude							
8. Leadership potential							
9. Promptness							
10. Work habits							
11. Interest in specific works							
12. Accuracy							
13. Performance of duties							
14. Watch standing proficiency							
15. Capacity to assume responsibility							
16. Willingness to assume responsibility							
17. Reaction under stress							
18. Progress of professional skills							
19. Knowledge of bridge, cargo equipment, machinery plant, etc.							
20. Cooperation with the crew							
21. Ability to work with unlicensed crew							
22. Care of quarters							
23. Personal appearance							
24. Conduct ashore							

25. When this Cadet becomes an Officer, would you desire to serve with him aboard ship?

- particularly desire
- accept
- not desire

(*) Not observed.

(**) Not answered.

26. In your opinion, the Cadet's aptitude for a life at sea is:

- Very good
 Average
 Below average

27. Considering the Cadet's performance, how would you rate his overall progress?

- Excellent
 Very good
 Good
 Satisfactory, but not as rapid as possible
 Not satisfactory

28. Approximately how many hours a day does the Cadet work on his own studies not including watch time and other works aboard?

An average of _____ hours per day

29. Does the Cadet use his own time in observing ship machinery operations and ship repairs?

- Often
 Seldom
 Never

30. Would you recommend the Cadet to the Nautical School Examining Board to obtain his Officer License?

- Highly recommend him
 Recommend him
 Not recommend him

Additional comments: _____

Name and signature of Chief Engineer or Ship's Officer drafting this report

 Name and Signature of Ship's Master

 Name of Cadet

 Name of Ship

 Date

For many of the Developing Countries the central issue was possession of effective National Maritime Legislation which would control through its various sections:

- .1 A system for the Examination and Certification of Seafarers.
- .2 The levels of Education, Training and Experience required by seafarers before the issue of Certificate of Competency.

5.2 MASTER AND DECK DEPARTMENT.

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

Regulation II/2 establishes mandatory minimum requirements for certifying masters and chief mates of ships of 200 gross tons to 1600 gross tons and for ships of 1600 gross tons and more. For that matter, candidate must meet the requirements for certification as an officer in charge of a navigational watch on ships of 200 gross tons or more and have approved sea-going service in that capacity.

Candidates must also have passed an appropriate examination covering not only navigation aspects and ship handling but also ship stability, construction and damage control, power plants, cargo