

Auditing MET-Systems, Maritime Schools and Training Centres



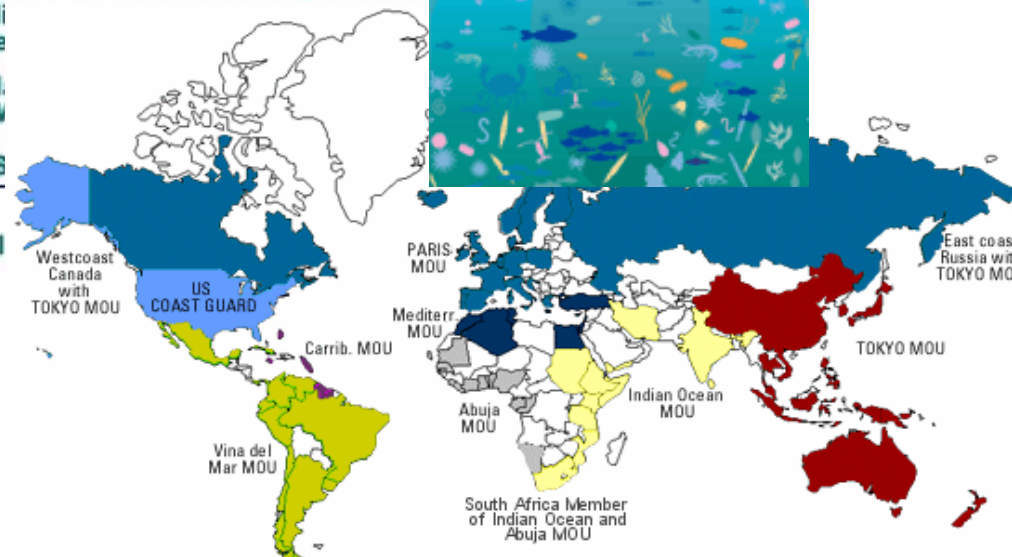
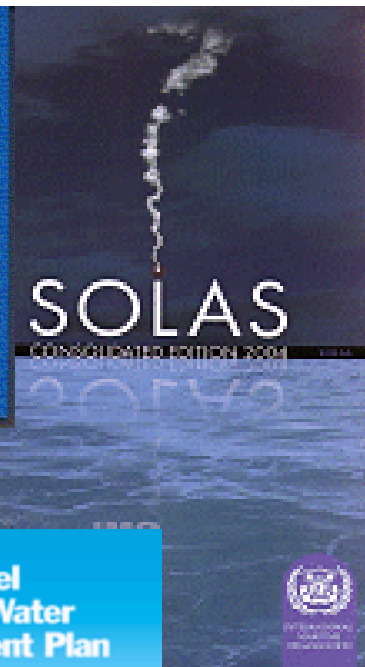
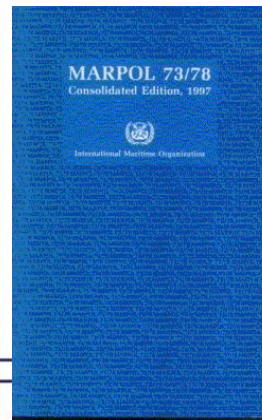
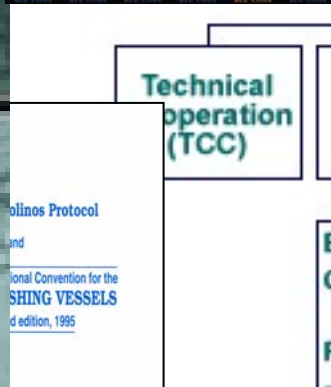
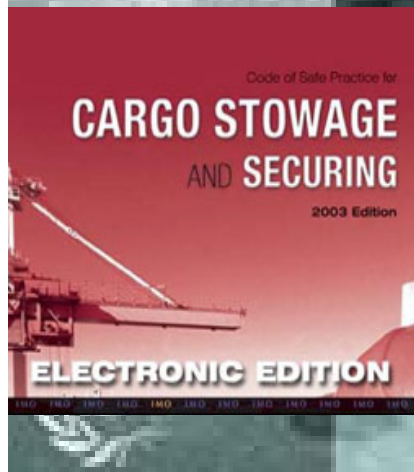
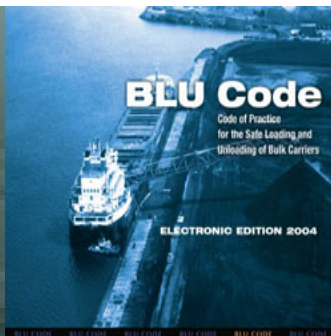
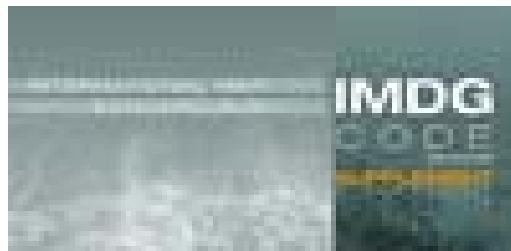
**A Mission
Impossible?**



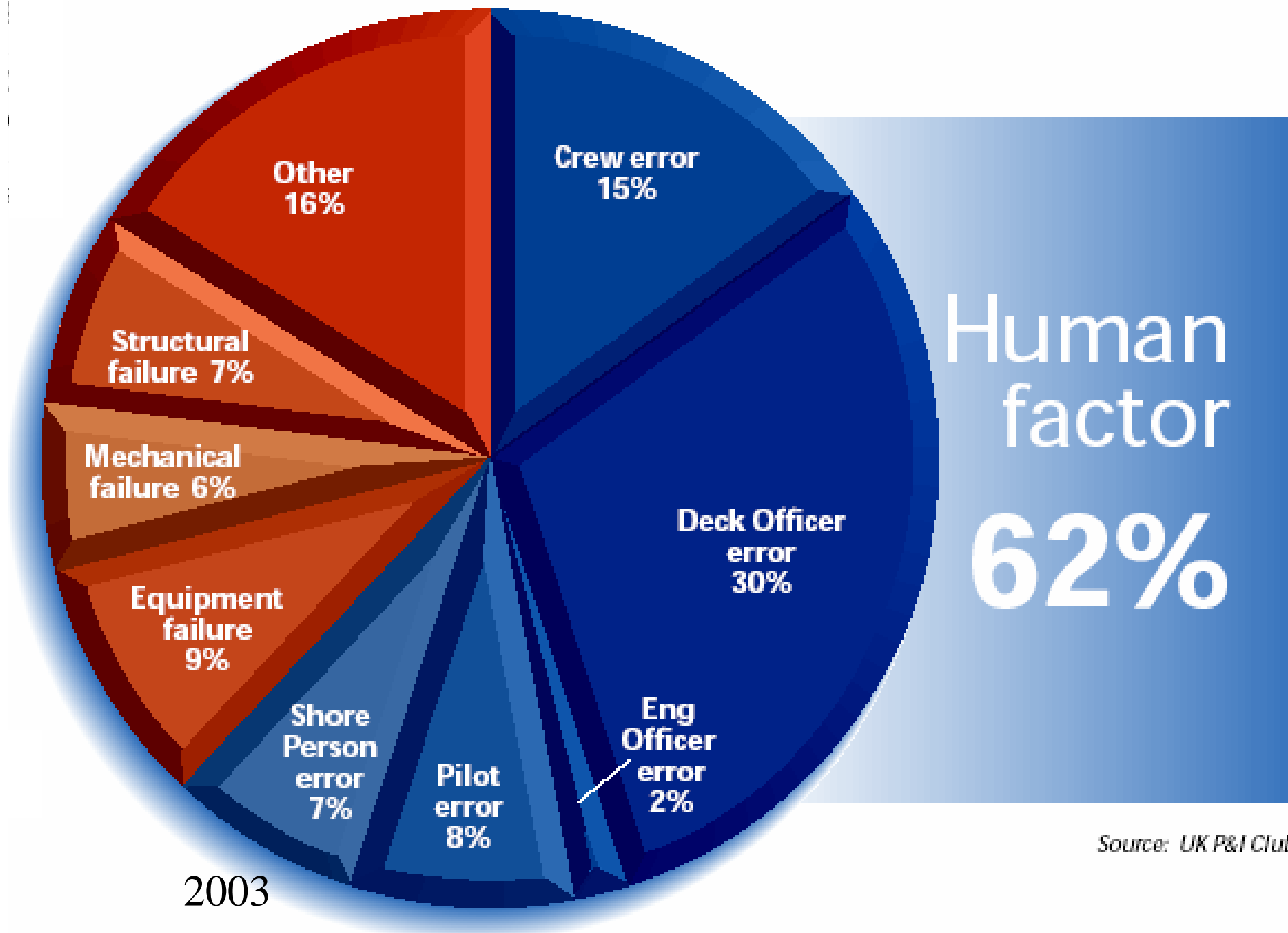
Some Background



Fix the hardware!

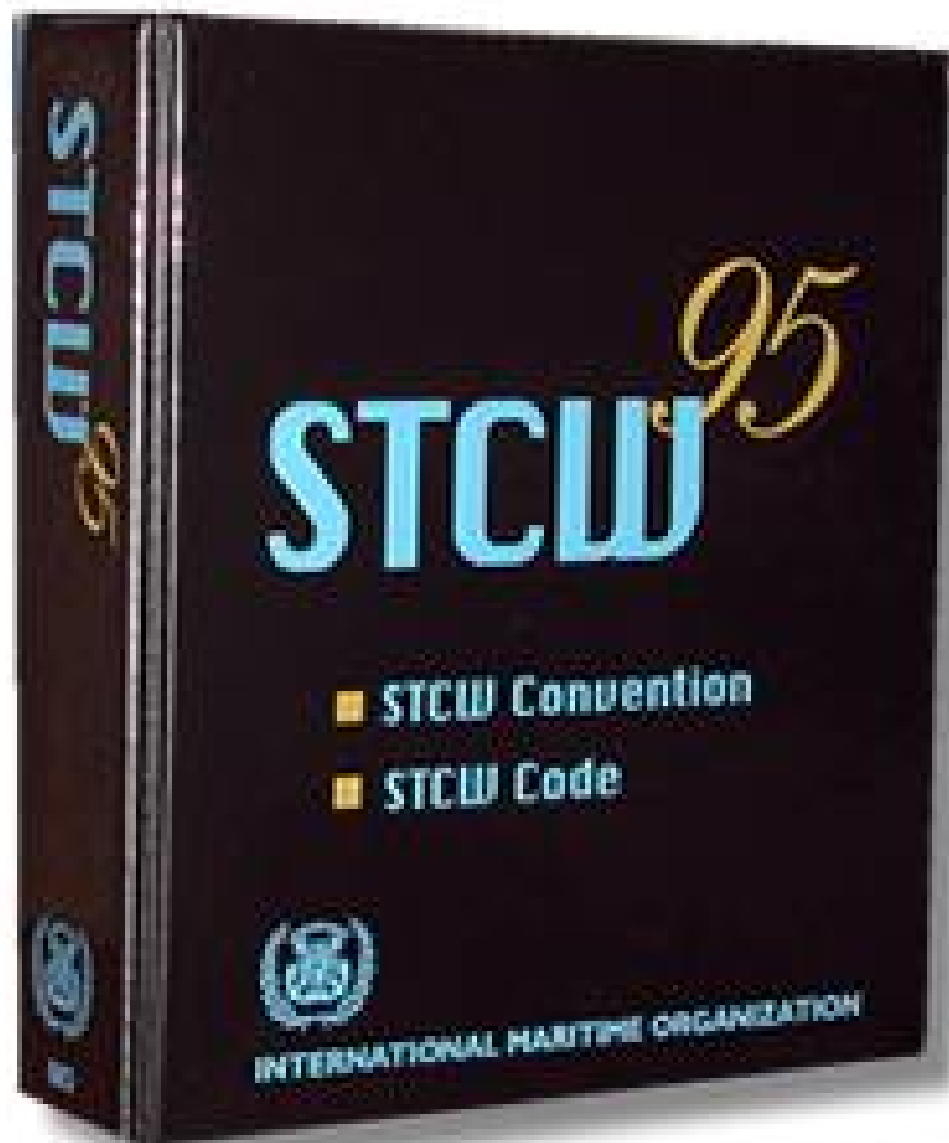


**Almost
all accidents
are caused by
human failure**



Source: UK P&I Club

Fix the people!



Seafarers in EU



EU Nationals

1985: 200.000

2003: 120.000

Non EU Nationals

1985: 29.000

2003: 34.500

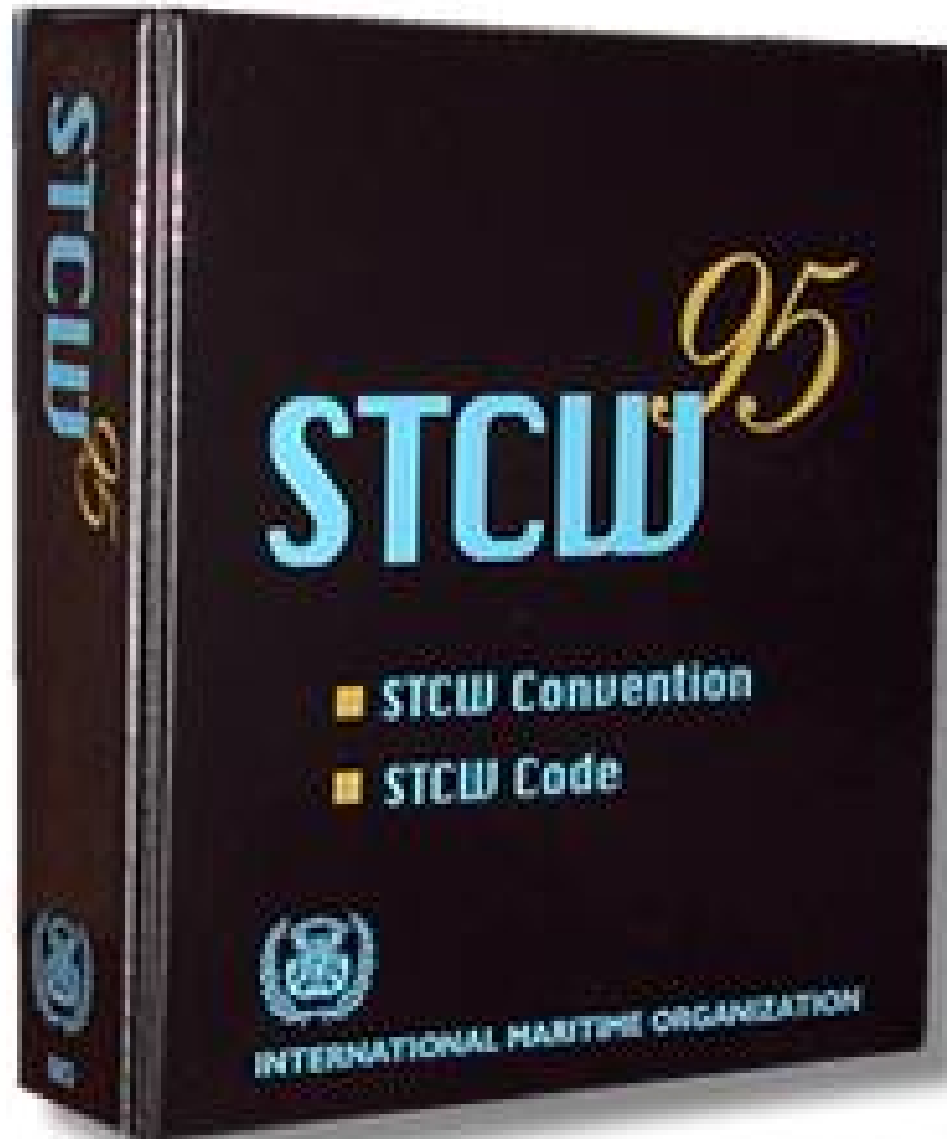
Shortage of Officers

- 2001: 13.000
- 2006: 36.000

A map of Europe and surrounding regions, including parts of North Africa, the Middle East, and Northern Asia. The text "1/2 of the World fleet is owned in Europe" is overlaid in large white font. The map shows various countries, cities, and bodies of water. The text is centered over the European continent. The map includes labels for countries like Iceland, Norway, Sweden, Finland, Denmark, Germany, France, Italy, Spain, Portugal, Greece, Turkey, Iran, Iraq, Syria, Jordan, Kuwait, Saudi Arabia, Oman, Yemen, Egypt, Libya, Tunisia, Algeria, Morocco, and Western Sahara. It also shows major cities like Reykjavik, Oslo, Stockholm, Helsinki, Copenhagen, Berlin, Paris, London, Rome, Madrid, Lisbon, Athens, Istanbul, Ankara, Baghdad, Tehran, and Moscow. The map also shows the Arctic Ocean, Barents Sea, Norwegian Sea, North Atlantic Ocean, and the Mediterranean Sea. The text "1/2 of the World fleet is owned in Europe" is overlaid in large white font. The map includes a copyright notice at the bottom: "© 1988-1997 Microsoft and/or its suppliers. All rights reserved."

**But there is a big
misbalance between
demand and supply
of ships officers**





Recognition of Certificates

STCW'95



Regulation I/10

Recognition of certificates

The Administration has confirmed, through all necessary measures, which may include inspection of facilities and procedures, that the requirements concerning standards of competence, the issue and endorsement of certificates and record keeping are fully complied with and

an undertaking is agreed with the Party concerned that prompt notification will be given of any significant change in the arrangements for training and certification in compliance with the convention



National objectives and quality standards

1 Each Party shall ensure that the education and training objectives and related standards of knowledge to be achieved are clearly defined and identify the levels of knowledge, understanding and skill appropriate to the examinations and assessments required under the Convention. The objectives and related quality standards may be specified separately for different courses and training programmes and shall cover the administration of the certification system.

2 The field of application of the quality standards shall cover the administration of the certification system, all training courses and programmes, examinations and assessments carried out by or under the authority of a Party and the qualifications and experience required of instructors and assessors, having regard to policies, systems, controls and internal quality assurance reviews established to ensure achievement of the defined objectives.

STCW'95

SOLAS: ISM

Port State Control

STCW'95



Article X: (Port State) Control

Fraudulent certificates and crew deficiencies

Regulation I/4: (PS) Control Procedures

“...assessment of capabilities of seafarers...”

Section A-I/4: (PS) Control Procedures

“...can require the seafarer to demonstrate the related competency...”

Maritime Education and Training



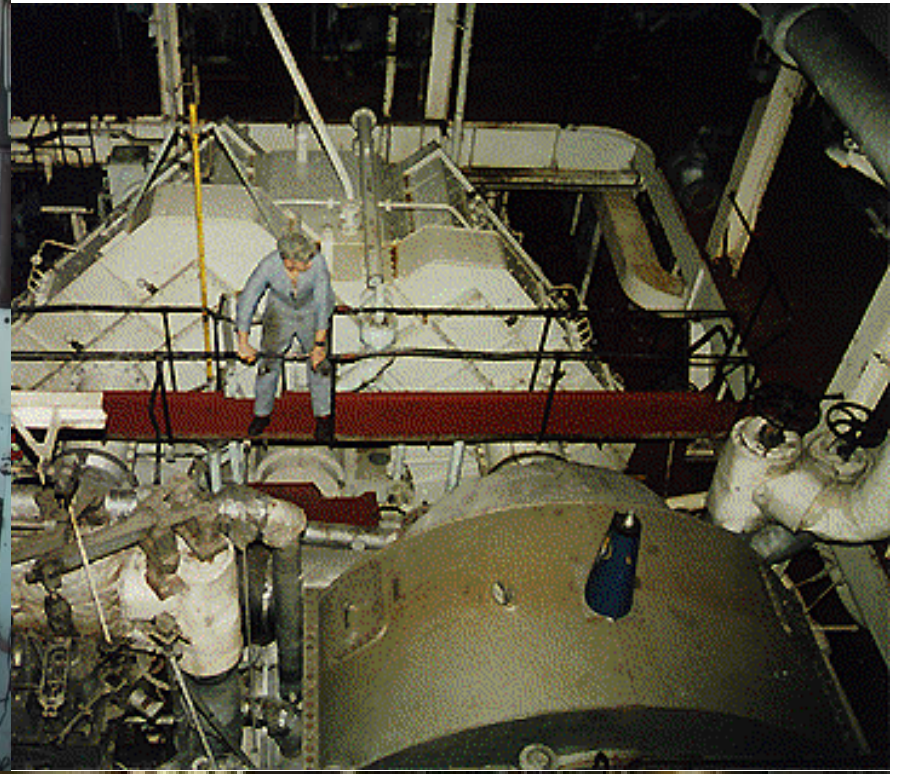
STCW 1978

1980

Ship's crew 30-40 persons

On the job training







STCW 1995



2002

Ship's crew 10-15 persons

No time for on the job training





STCW



Standards

of

Training

Certification

and

Watchkeeping

**Convention 1978
Amendments 1995
and later**

Competency Tables

STCW'95

Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Plan and conduct a passage and Determine position	<p>Celestial navigation Ability to use celestial bodies to determine position Terrestrial and Coastal navi Ability to by use</p> <p>1. 2. 3 4.dead and the</p> <p>Note:ECDIS to be included</p>	<p>In service experience Training ship experience Simulator training Laboratory equipment training</p>	<p>The information obtained from navigational charts and publications is relevant, interpreted correctly and erly applied. All potential ational hazards are accurately</p> <p>method of fixing on are appropriate circumstances.</p> <p>under all safety.</p> <p>largest scale charts are used and e latest information</p>



A man with a beard and glasses, wearing large headphones and a dark jacket, is smiling while working on a complex industrial machine. He is holding a wrench. The machine is filled with numerous white pipes, valves, and electrical components. The setting appears to be a ship's engine room or a similar industrial environment. The lighting is somewhat dim, with a blueish tint.

Can this man
do his job?

Competence!

Maritime Education and Training



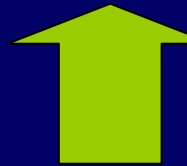
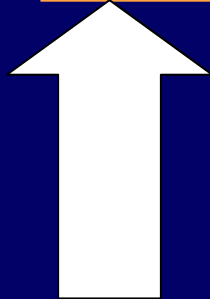
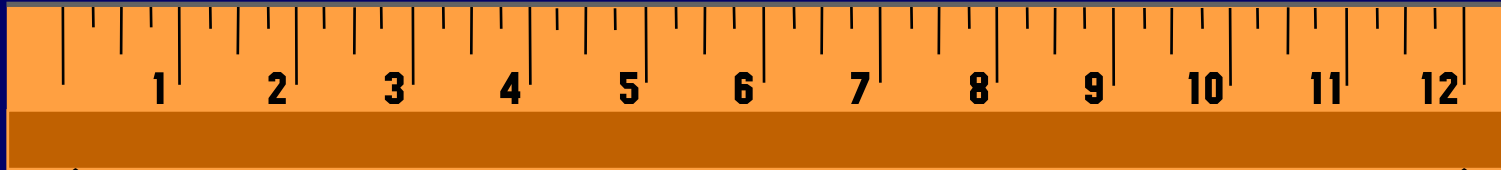
Education

versus

Training

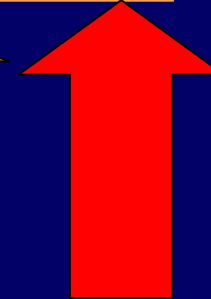
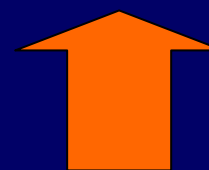
WHY

HOW



STCW
'78

STCW
'95



Education

- Theoretical
- Academic
- Classroom based
- Books



Training

- Practical
- Proficiency
- Workshops
- Simulators



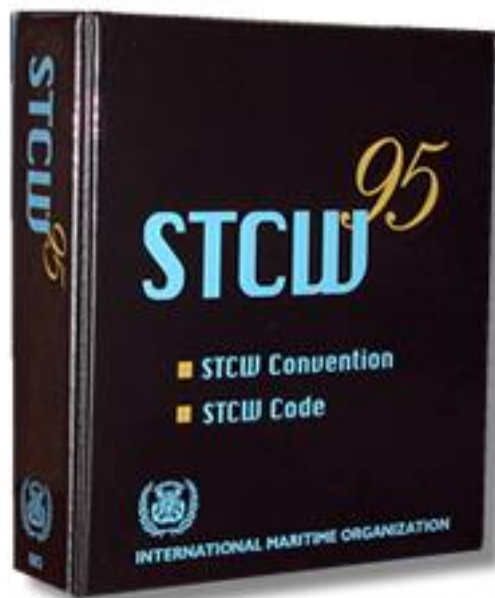
STC-GROUP

Hear and forget

See and remember

Do and understand

Confusius

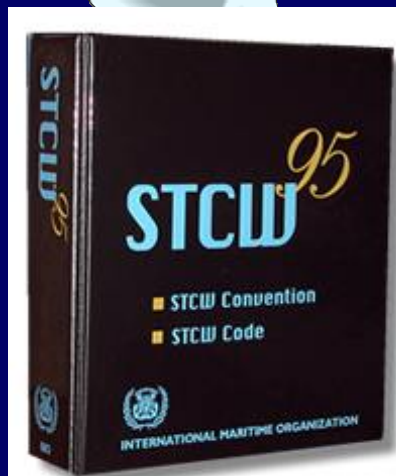


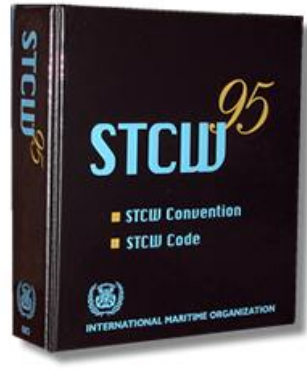
STCW'95 and amendments



**A big step forward
but for many just a bunch of words**

Where is the “spirit” of STCW???





**Regulation I/8
Section A-I/8
Section B-I/8**

National Objectives and Quality Standards (NOQSS)

- **Education and training objectives and related standards of competence**
- **Levels of knowledge, understanding and skills.**
- **Examinations and assessments**
- **Administration of the certification system**
- **Qualifications and experience of instructors and assessors**
- **Internal quality assurance**
- **Independent evaluation**

**National Objectives
and Quality Standards
System (NOQSS)
is NOT just another
Quality Management
System**

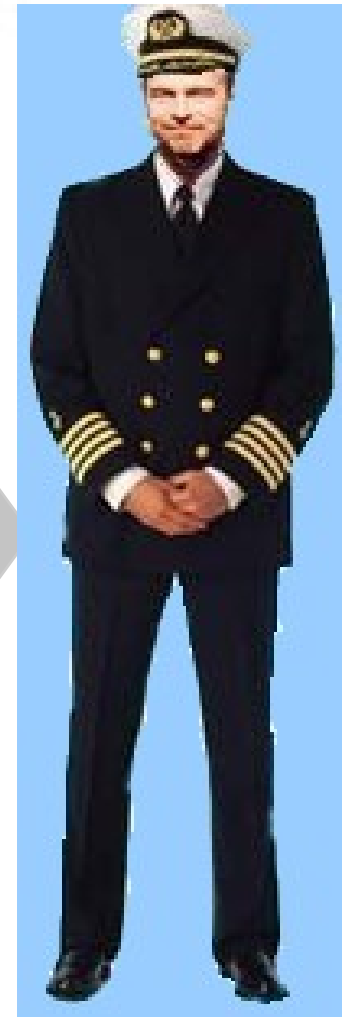
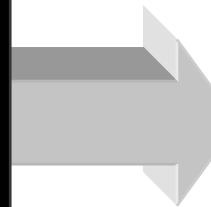
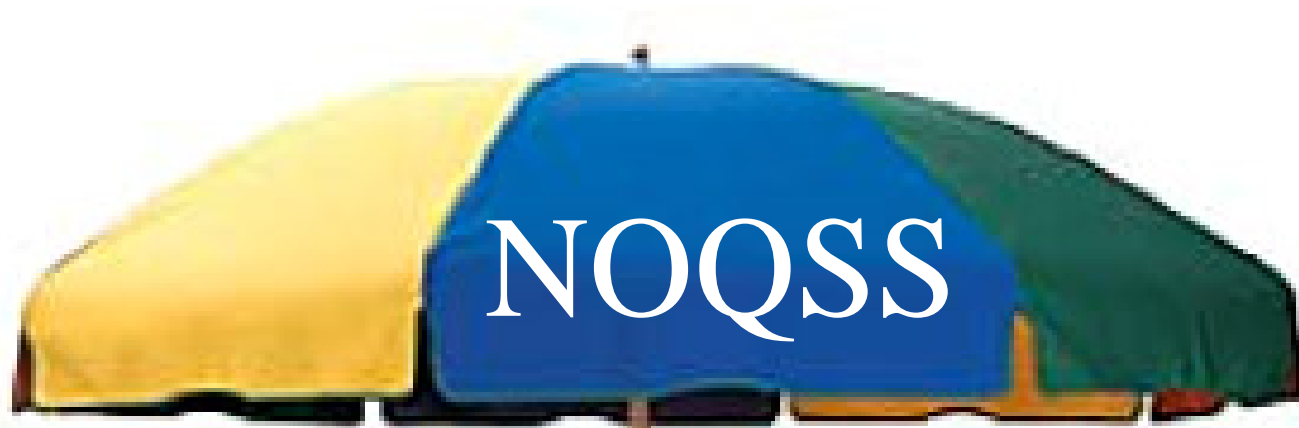
The major question is:

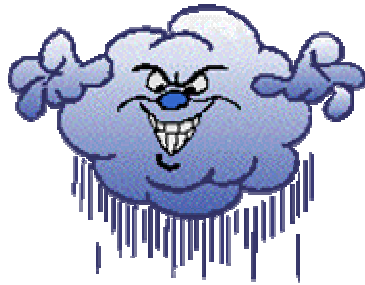
**If schools/training centres
have been approved, by the
“Party”, under a NOQSS,
are they then “good”?**

What is “good”?

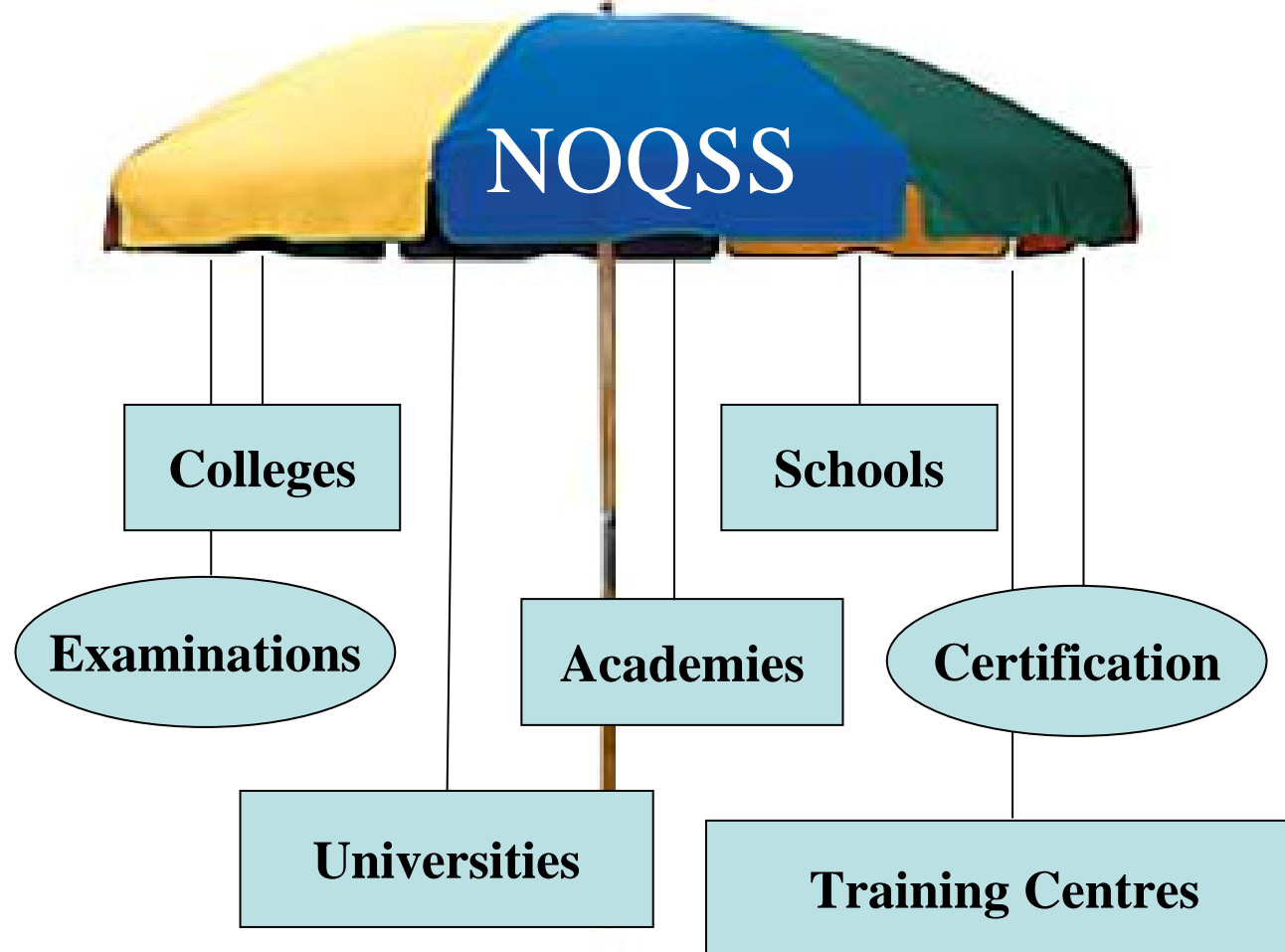
**Can a “good” school do
in 6 months,
what a “bad” school
cannot do in 6 years?**

**What
is a
MIET-System?**





Maritime Administration



“System”

National Education System

Anglo-Saxon System

Sandwich System

No System at All

Bologna Convention

Separate Maritime School

Department of a large school

School examinations

National examinations

State examinations

Vocational certificate

(National) Diploma

BSc

MSc

PhD

Certificates of Competence

Ministry of Education

Ministry of Transport

Ministry of Manpower

National Legislation

Constitution: freedom

Supervision

Quality Control

Simple NOQSS

MoT in charge of everything

Only a few Public schools/training centres

Central examinations under MoT

Complicated NOQSS

Many Government Agencies

Numerous Public and Private Schools

Separate Training centres

Local examinations



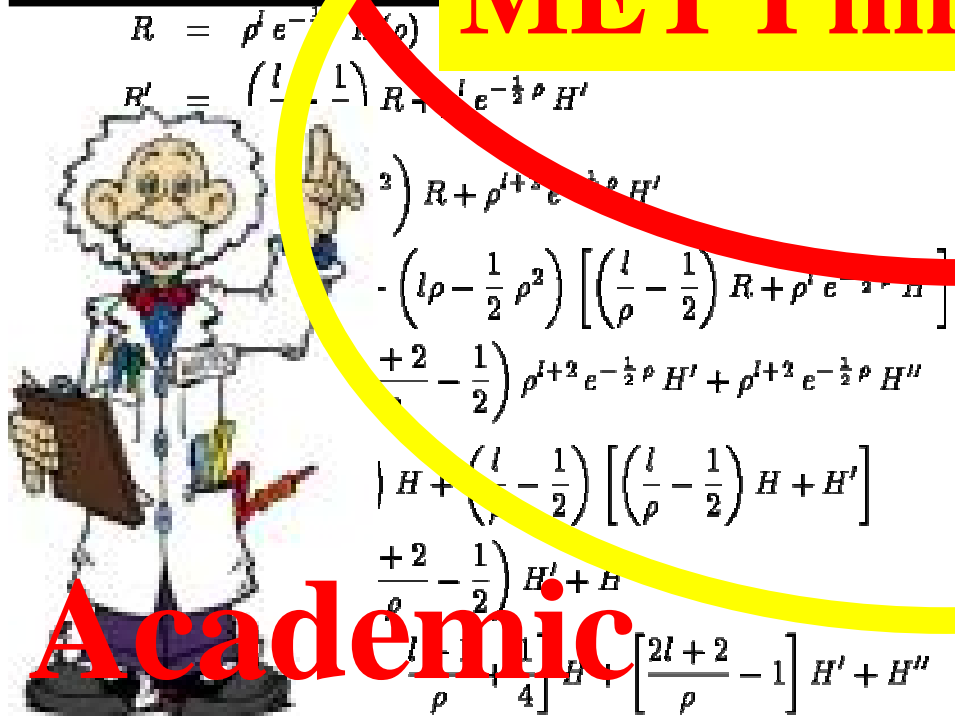
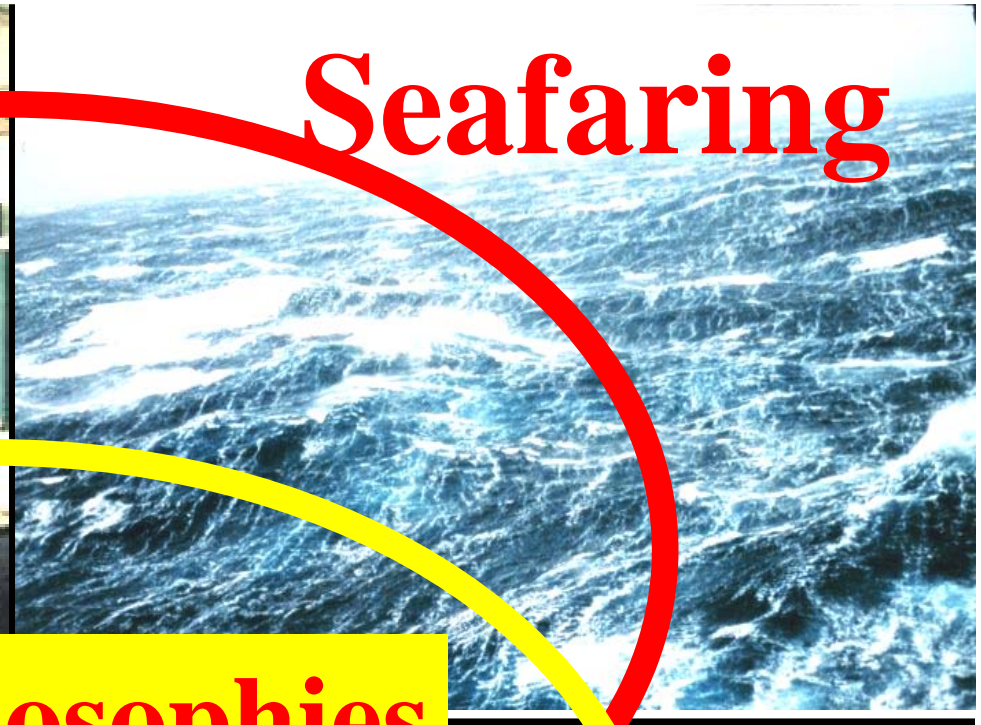
Practical

Seafaring

MET Philosophies

Academic

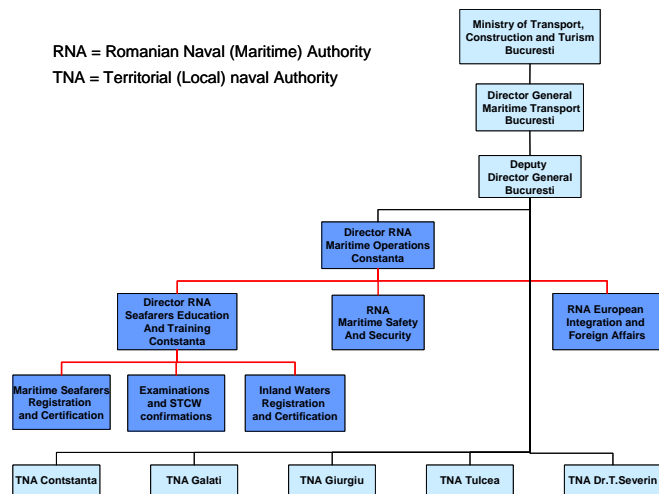
Future jobs



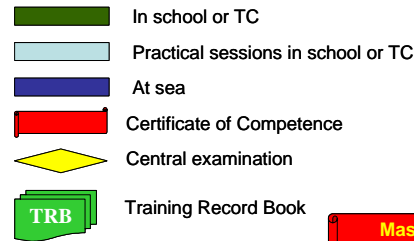
**Does the fleet need
Professors or Professionals?**

Education or training or the right mix?

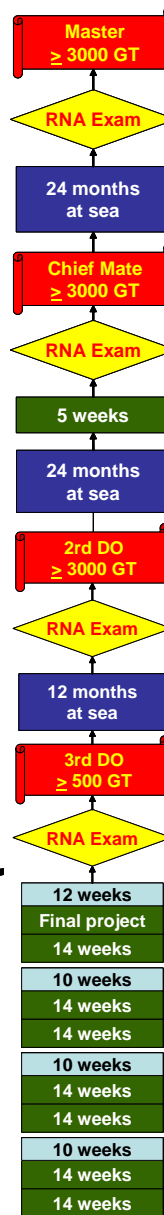
But what is the right mix?



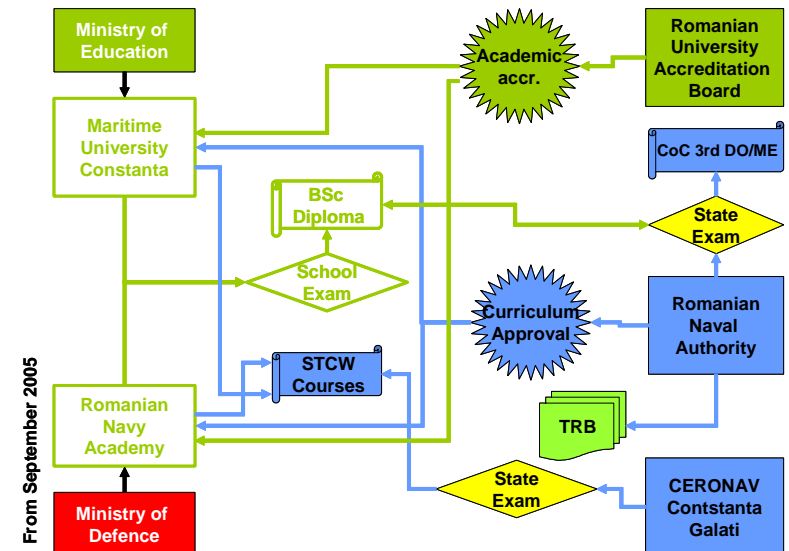
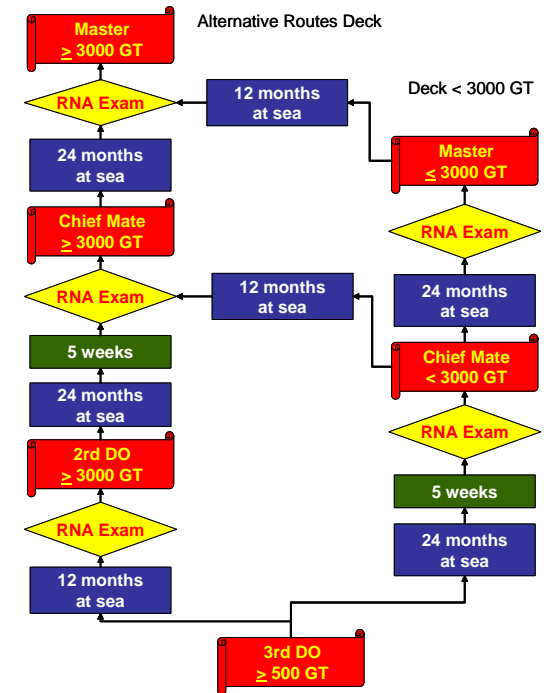
RNA = Romanian Naval (Maritime) Authority
TNA = Territorial (Local) naval Authority



**Main Stream
Management
Level
Deck**

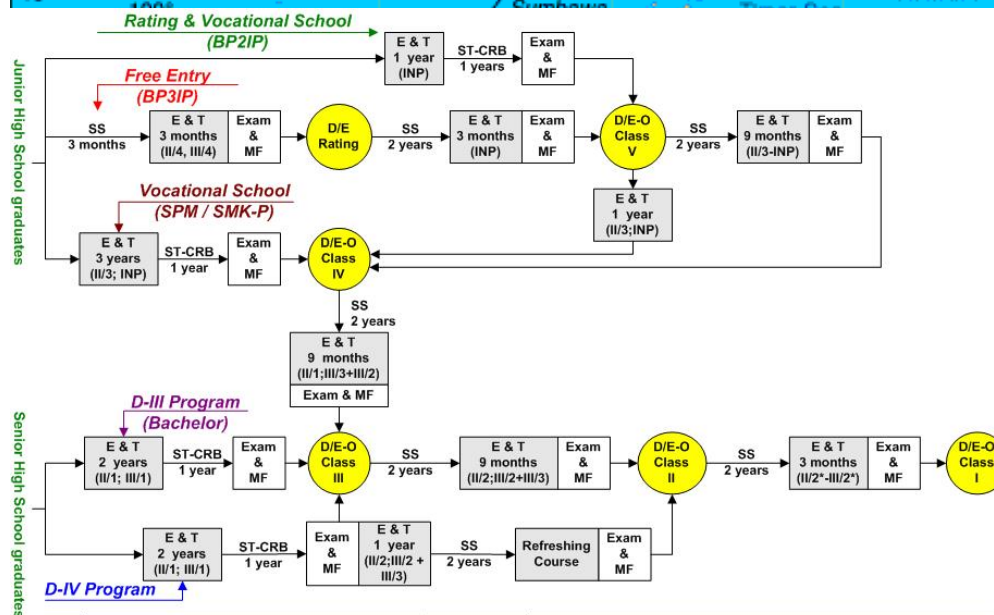
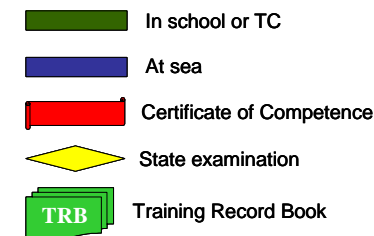


**Main Stream
Operational
Level
Deck**



From September 2005

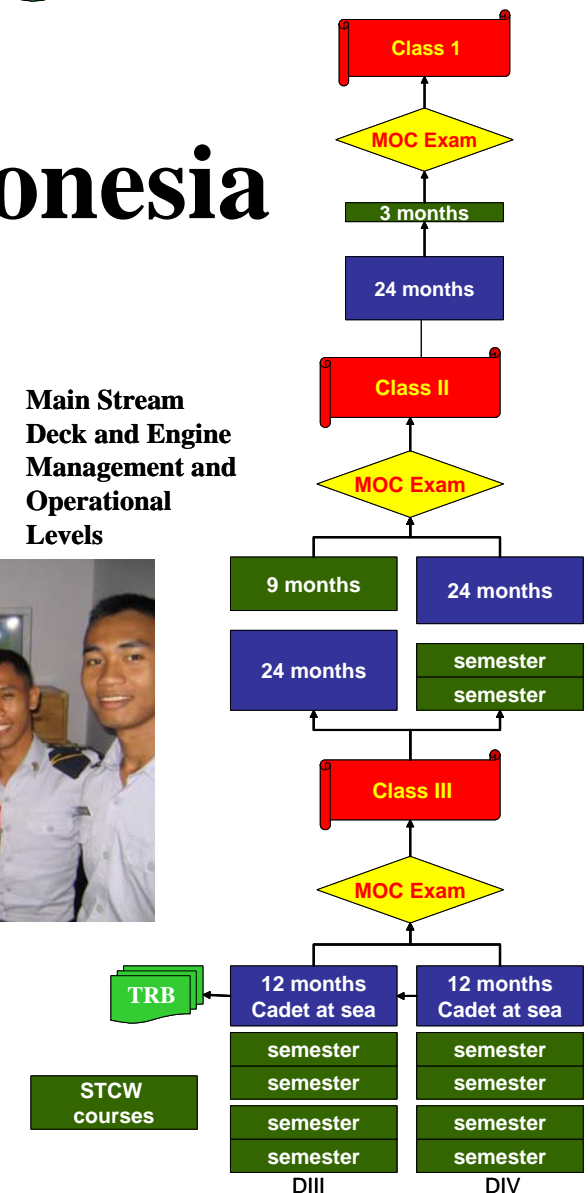




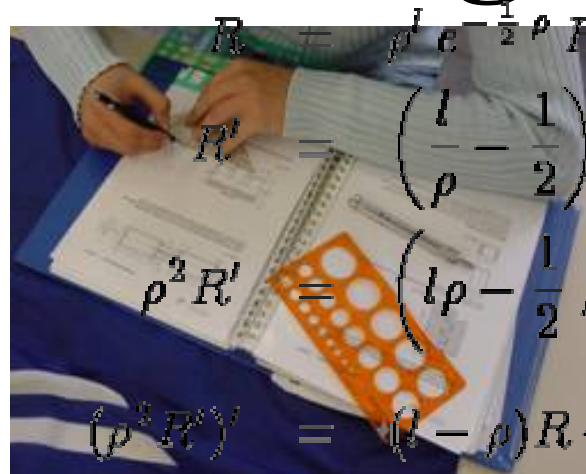
Note :

- E & T = Seafarer's Education and Training;
- D/E = Deck Department or Engine Department
- ST-CRB = Sea Training with Cadet Record Book ; and - SS = Approved Sea Service;
- Exam = Seafarer's National Examination;
- D/E-O = Deck Officer or Engineer Officer;
- MF = Medical Fitness (Medically Fit);

- (II/*-III/*2) = in compliance with STCW Code Table II/2 or III/2 + ISM Code, Shipping Economic, Shipping Law, and Marine Insurance;
- INP = Indonesian National Provisions;
- To obtain Rating Cert = 6 months including 2 months approved sea training
- Approved sea training or App. sea service to obtain any COC, shall include 6 months watch/keeping on the bridge for the Deck Dept. or 6 months watch-keeping in Engine room for the Engine Dept.



Is maritime education and training hopelessly traditional?

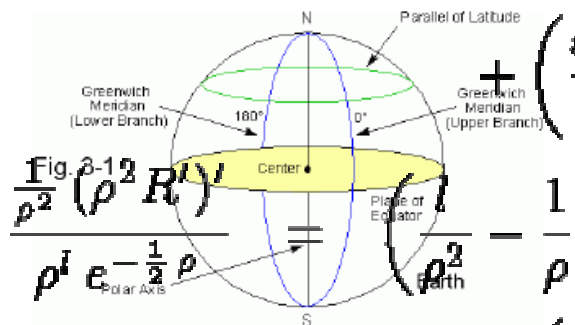


$$R = \rho^l e^{-\frac{1}{2}\rho} H(\rho)$$

$$R' = \left(\frac{l}{\rho} - \frac{1}{2} \right) R + \rho^l e^{-\frac{1}{2}\rho} H'$$

$$\rho^2 R' = \left(l\rho - \frac{1}{2}\rho^2 \right) R + \rho^{l+2} e^{-\frac{1}{2}\rho} H'$$

$$(\rho^2 R')' = (l - \rho) R + \left(l\rho - \frac{1}{2}\rho^2 \right) \left[\left(\frac{l}{\rho} - \frac{1}{2} \right) R + \rho^l e^{-\frac{1}{2}\rho} H' \right]$$

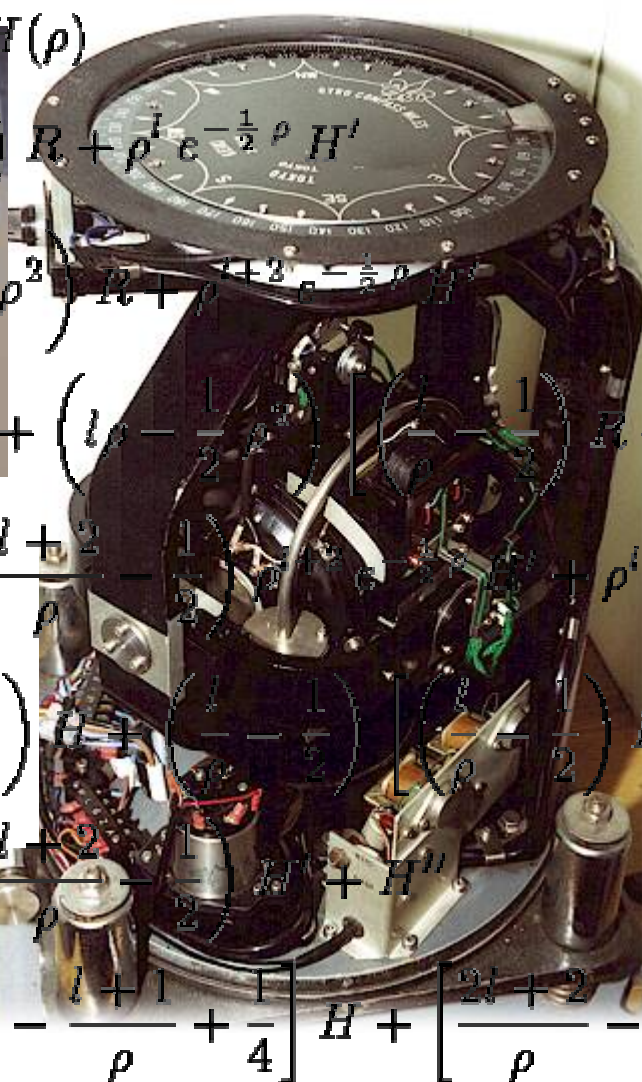


$$\frac{\rho^{l-1/2} (\rho^2 R')'}{\rho^l e^{-\frac{1}{2}\rho}}$$

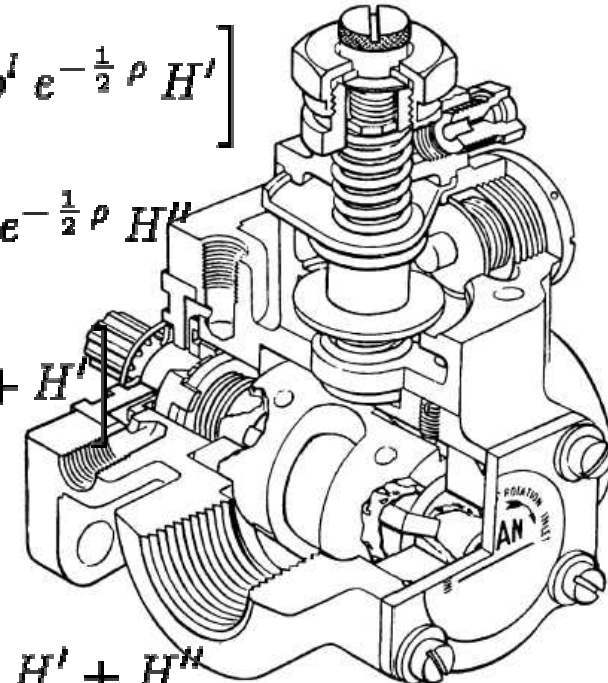
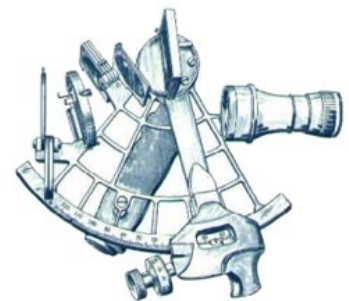
$$+ \left(\frac{l+2}{\rho} - \frac{1}{2} \right) \rho^{l+2} e^{-\frac{1}{2}\rho} H''$$

$$+ \left(\frac{l+2}{\rho} - \frac{1}{2} \right) H' + H''$$

$$= \left[\frac{l(l+1)}{\rho^2} - \frac{l+1}{\rho} + \frac{1}{4} \right] H + \left[\frac{2l+2}{\rho} - 1 \right] H' + H''$$



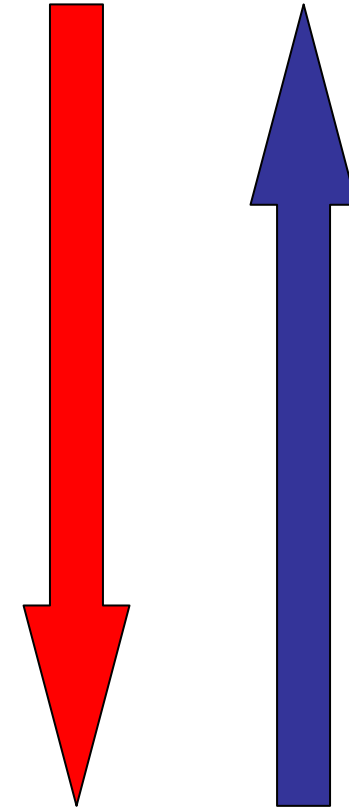
CELESTIAL
NAVIGATION



**What determines
the quality of
maritime
education and training?**

Management

Sea time



Salary

Coordinators



Cluster managers

Directors

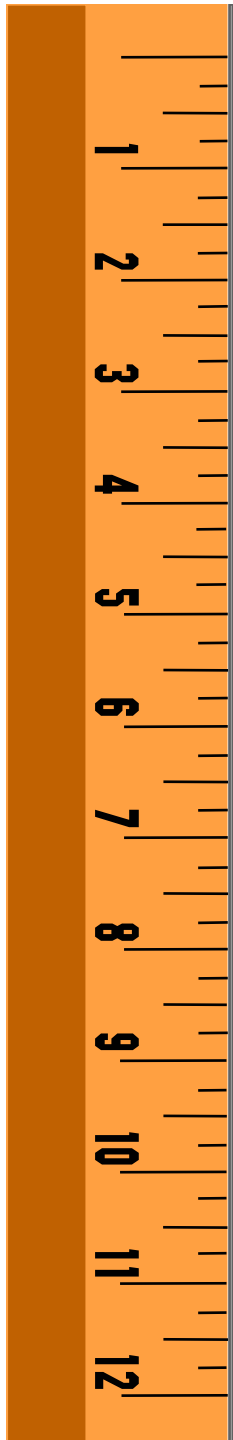


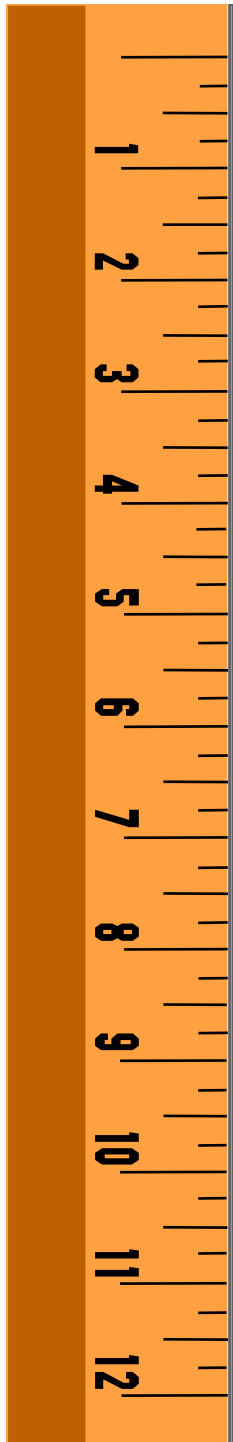
Deans

CEO's



Presidents





Assistants

Instructors

Teachers

Lecturers

Assistant professors

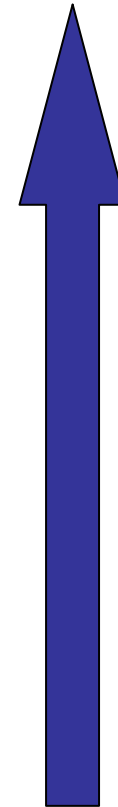
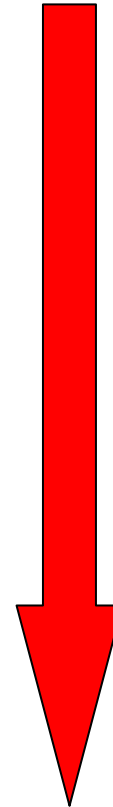
Associate professors

Professors



Teaching Staff

Sea time



Salary

Group/Class room size

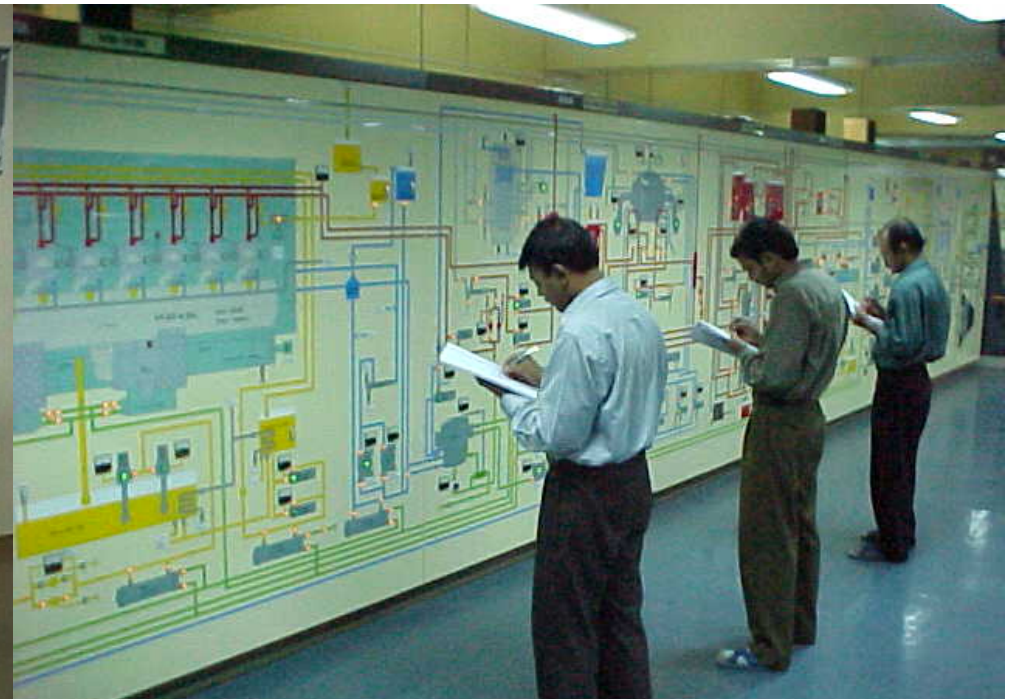




Books and computers



Training equipment



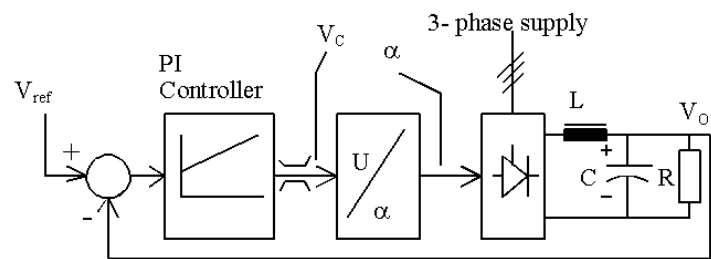
Training equipment



Discipline?

Theory

Examinations

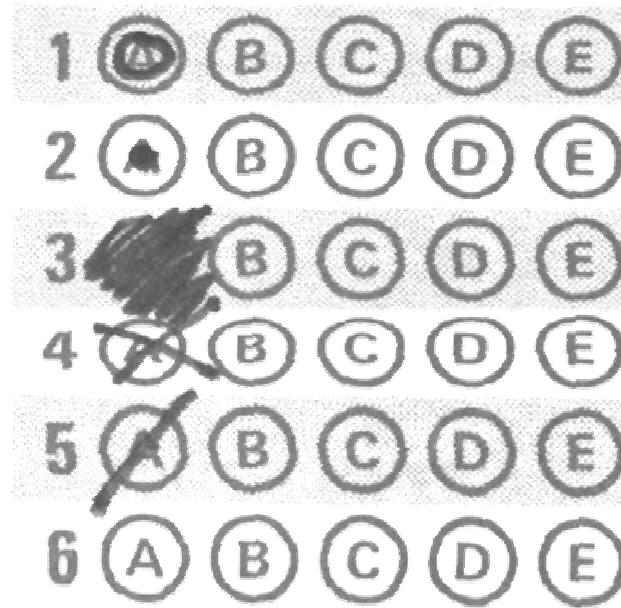


BLOCK DIAGRAM

OR



Examinations



OR



Certification



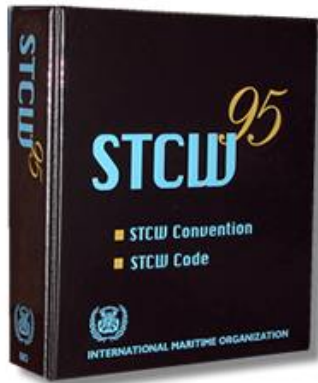
**There are fantastic paper NOQS-Systems
(24 kg)**

**But implementation is completely
lacking**

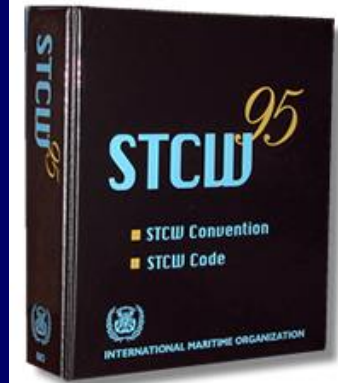
There are NOQSS looking like:

**Covering fantastic schools and
fabulous training centres**

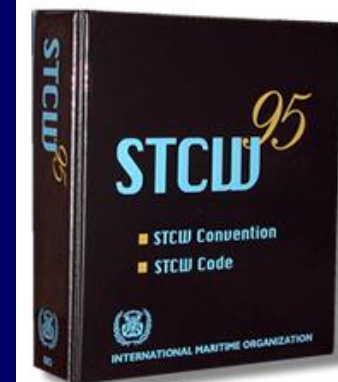
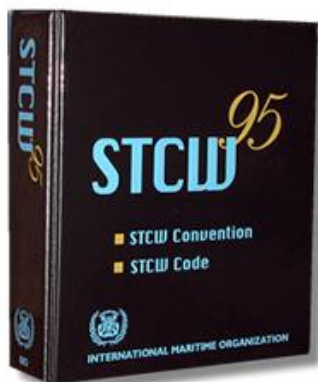


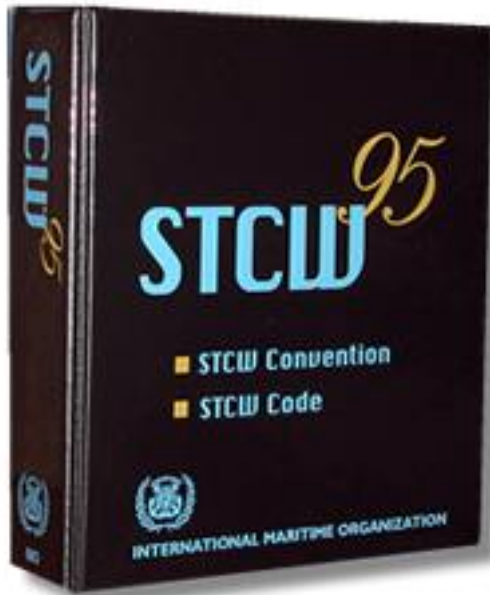


There are many (valid) opinions



**The only valid question is:
Is the system
STCW proof?**





+ Approvals of the Party

**The Convention has laid down specific and detailed frameworks but the implementation and approval of the training courses, institutes, methods of demonstrating competence etc is in the hands of the Party itself.
(Regulation I/1.2 Approved means approved by the Party in accordance with these regulations.)**

**So,
the EMSA audit methodology
will have to be
based on
STCW implementation**

Finally

**The biggest problems in most crew
Supplying nations are:**

Lack of ships for cadets

Lack of “qualified” teachers/instructors

Lack of training equipment

Lack of demonstration of competence



Do not shoot the piano player!
Thank you!