

Examining and Promoting Chinese Seafarer Education and Training

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ABSTRACT: China has potential to become a seafarer supply country for international labour market. The qualification and competency of Chinese seafarers is essential for the relief of the shortage of worldwide officer crew and to reduce human-related sea accidents, to ensure maritime safety and protect marine environment. Chinese seafarer education and training system takes an important role in training Chinese seafarers to be qualified and competent. It is necessary to highlight how the system functions. This paper is going to introduce Chinese MET systems, Seafarer MET Academies, Practice of seafarer MET, Quality Management of Chinese seafarer MET, Continuing Training for Chinese Seafarers in order to promote the national and international communication and cooperation in the shipping industry.

1 INTRODUCTION

As a Party to International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978(hereafter referred to STCW Convention), China has formulated a set of complete legislation systems in terms of seafarer education, training, examination, assessment and certification, by which the STCW Convention has been fully, sufficiently and effectively implemented. China was among the first nations listed in the IMO's "White List".

The BIMCO/ISF manpower 2005 update provided a more encouraging picture than that projected in the 2000 study with the calculated shortage of officers being estimated at around 2%, reportedly due to increased levels of training in the Asian region. Currently, China has a total of about 400,000 seafarers, among whom 135,000 are officer¹. Enrollment of nautical and marine

engineering programs in 2005 amounts to 11230 students for maritime colleges and universities and 1460 for secondary technical schools in 2005. More than 7,000 cadets graduate from Chinese maritime academies every year.

China is becoming a potential seafarer supply country and the qualification and competency of Chinese seafarers is essential for the relief of the shortage of worldwide officer crew as well as to reduce human-related sea accidents and to ensure maritime safety and protect marine environment. It is necessary to highlight Chinese seafarer education and training in order to promote the national and international communication and cooperation in the shipping industry. To achieve this objective, Chinese MET systems, Seafarer MET Academies, Practice of seafarer MET, Quality Management of Chinese seafarer MET, Continuing Training for Chinese Seafarers are discussed.

¹Statistics included in this Paper ends in August 2005 and does not apply to Hong Kong, Macao and Taiwan Areas.

2 CHINESE MET SYSTEMS

2.1 *Administrative System for China's maritime MET*

Maritime academies in China are under sponsorship of the Ministry of Education, the ministry of communications, local governments or enterprises, for example, Dalian Maritime University is under sponsorship of the Ministry of Communication, while Wuhan University of Technology is fund by the Ministry of Education, Shanghai Maritime University is sponsored by Shanghai (local) governments and Qingdao Ocean Shipping Seafarers College is a Shipping Company owned MET academy. The educational administrative authority controls the academic education management while maritime administrative authority is in charge of the seafarer trainings in MET academies, supervising the implementation of related of maritime education and training rules and regulations in these MET academies. The State offers support to maritime education with governmental funding, offering tuition fee concession for nautical and maritime engineering students. Although a few maritime vocational and technical schools belong to large shipping companies, the qualification and quality issues are administrated by competent educational authority and the Ministry of Communications.

2.2 *Parallel standards of met*

The MET in China is conducted in Maritime Academies under the direct control of the Ministry of Education. Graduates will be awarded Certificates as well as Degrees if they meet *National Advanced Education and Graduation Standards* adopted by the Ministry of Education. On the other hand, Graduates should meet the Standards for seafarers' MET approved by the Competent Authority. That is the primary conditions for graduates from maritime academies to be allowed to take part in National Examination for Seafarers' Competent of Certificates. However, Seafarer Training Institutes are solely administrated by the competent authority. Chinese seafarer MET academies and training centers should meet the following requirements:

- 1 Training facilities and appliances should meet technical standards and functions required by the competent authority.
- 2 Teaching plans, curricula and teaching materials should comply with the relevant regulations required by the competent authority.
- 3 Teaching staff should have appropriate academic degrees, sea service experience, expertise and practical experience required by the competent authority. Teachers for training should be fully competent for corresponding training programs.

- 4 The staff, facilities and equipment for various training programs should meet the minimum standards required by the competent authority.

3 SEAFARER MET ACADEMIES

Chinese MET includes undergraduate, college, and vocational, secondary and secondary vocational maritime education. Chinese seafarer MET academies are capable of conducting all training programs stipulated by STCW Convention.

Most of 75 seafarer MET organizations in China, including 8 maritime universities, 14 maritime academies, 3 secondary technical schools, and 50 training centers are located in or near coastal areas in Mainland China.

China has a team of devoted teaching staff with solid theoretical knowledge and practical experience. Currently, the total number of teachers engaged in maritime education and seafarer training in maritime colleges and universities amounts to 1,726, 737 of whom are professors or associate professors, 910 lecturers, 79 teaching assistants and 784 holds captain's or officer's CoCs. Teachers of training academies meet the qualification requirements of competent authority regarding academic degree, seagoing experience.

Table 1. Enrolment of nautical and marine engineering programs per year

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
4-year Degree	1325	1521	1560	1912	2067	2637	2855	2955	2869	3271
3-year Non-degree	1211	1353	1563	1933	2813	2225	3453	5280	6401	7959
3-year Technical School	1910	1544	1590	1381	1373	1051	1387	1468	1153	1462
Total	4446	4418	4713	5226	6253	5913	7695	9703	10423	12692

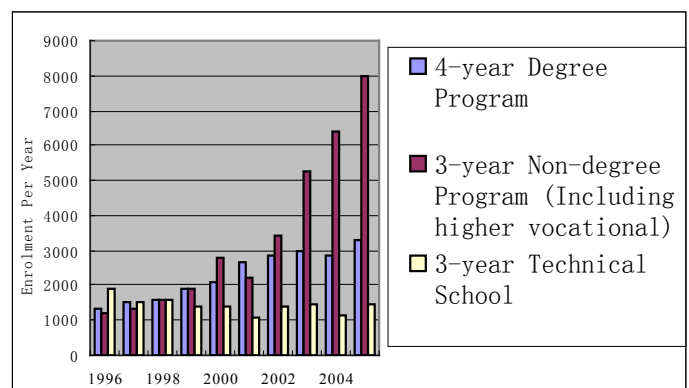


Fig. 1. Enrolment of nautical and marine engineering programs for a decade

4 PRACTICE OF SEAFARER MET

IMO's Model Courses are well referred to during the implementation of Chinese MET. Total 44 Model Courses have been or about to be published in Chinese Version. Curriculums of Training Programs, Teaching Plans and Training Outlines, Textbooks, Practicum in Chinese MET organizations are produced in accordance with respective Model Courses. Entry conditions are set for students as the same as that for other national advanced education.

4.1 *Entry conditions*

Applicants for maritime education should firstly pass the national entrance examinations for tertiary or secondary education. The qualification required by entrance examinations of higher education is: the applicant should finish nine-year compulsory education and three years' high school education; that for three-years technical secondary schools is: the applicant should finish nine years' compulsory education. Moreover, the physical condition of the applicant should meet physical standards of seafarers.

Students in a seafarer training program should meet related requirements of the specific training regarding age, physical condition, sea service experience, education etc.

4.2 *Teaching Plans and Training Outlines*

In accordance with the STCW Convention, China has amended comprehensively the academic program guidelines of maritime education, which have been effectively implemented in maritime academies. The modified guidelines set priority on new technology application, English competence, practical skills, professionalism, safety and environmental protection awareness, maritime legislations etc.

According to STCW Convention and national maritime regulations, the competent authority uniformly established assessment outlines of examinations of competency for seafarers, as well as professional and special training outlines, unifying standards of competency examinations and professional training for Chinese seafarers, ensuring Chinese MET to meet requirements of STCW Convention.

Students in Chinese maritime academies should complete all theoretical and practical courses stipulated by the academic program during school years, sit for examinations for regulated seafarer professional training certificates before graduation,

and pass examination and assessment for seafarer competency.

4.3 *Textbooks*

Putting great importance to textbook construction on MET and in compliance with requirements of STCW Convention, Chinese competent authority constituted outlines of assessment, professional and special training for seafarer competency examinations, and compiled uniform textbooks for maritime education, professional and special training courses. The textbooks meet requirements of modern maritime technology and management, as well as the needs of Chinese seafarer MET.

Chinese textbooks on MET are compiled for cultivating seafarers with compound skills, solid base and practicability. With superior pertinence and applicability, the current textbooks cover modern maritime technologies and advanced management ideals, providing a complete knowledge system for the improvement of seafarer competency.

4.4 *Practicum*

Strictly following provisions stipulated by assessment outlines for seafarer competency examination, professional and special training, Chinese maritime academies and training centers extensively utilize real or advanced simulated maritime instruments or onboard facilities for practical MET. Students undergoing maritime education should finish at least 16 weeks' onboard training and professional training stipulated by the competent authority. Besides, students in maritime academies should also finish 19 weeks' assessment and technical training for seafarer competency.

Chinese maritime academies possess 11 special training vessels. Meanwhile, school-business cooperation provides sufficient training ships for seagoing probations. Besides comprehensive laboratories and training bases, Chinese seafarer MET academies are equipped with various real and simulated ship facilities for training and assessment, such as ship propulsion facilities, cargo handling simulators, tanker training simulators etc. Currently, maritime colleges and universities own 19 sets of ship handling simulators, 38 sets of GMDSS simulators, 42 Radar simulators, 18 marine engineering simulators and 22 marine power plant simulators.

Maritime academies attach great importance to maritime practical training. Besides various training in laboratories and simulators onshore, students should also undergo practical training for a certain period of time onboard ships as required by

Guidance for Programs of Chinese MET, which is approved by the Competent Authority. The required practical training weeks are listed in Table 2-1 and Table 2-2 for undergraduate and college level respectively.

Table 2-1. Student Practical Training Time for maritime undergraduates

Specialty	Practical training (week)	Onboard practice (week)
Nautical technology	21 weeks	No less than 22 weeks
Marine engineering	19.5 weeks	No less than 22 weeks

Table 2-2. Student Practical Training Time for maritime colleges

(College) Specialty	Practical training (week)	On board practice (week)
Nautical technology	22 weeks	16 weeks
Marine engineering	19 weeks	16 weeks

4.5 Student administration

Chinese maritime academies carry out military or quasi-military management for maritime cadets, and nurture students' professional characteristics of being calm, courageous, resolute and ready to serve, aiming at enabling students to obtain superior systematical and disciplinary sense as well as the ability to handle affairs and meet emergencies.

5 QUALITY MANAGEMENT OF CHINESE SEAFARER MET

5.1 Quality control

Quality Control Regulations of Seafarer MET, China, established by the competent authority, stipulate that seafarer MET organizations must constitute and execute quality systems, pass audit of Maritime Safety Administrations authorized by the competent authority and conduct MET regulated by STCW Convention after obtaining the quality system certificate issued by the competent authority. At present, in compliance with the said provisions, Chinese various seafarer MET organizations have constituted and executed quality systems, passed auditing as well as obtained quality system certificates of the competent authority.

5.2 Supervision and Inspection of MET Quality

The whole process of academic program constitution, student admission, student administration,

academic program execution, facility installation and utilization for Chinese seafarer training should all undergo the supervision and inspection of seafarer examination, training and certification institutions.

Maritime education is conducted in accordance with national education standards, under the supervision and management of the competent authority. Contents and teaching activities of competency examination assessment, professional and special training outlines conducted by maritime education are monitored and guided by the competent authority.

6 CONTINUING TRAINING FOR CHINESE SEAFARERS

The competent authority requires seafarers to receive upgrading training so as to maintain their professional competency. The 2nd officers, the 3rd officers, the 3rd engineers, and the 4th engineers must attend required on-board training programs after passing the examination and assessment of competency. The Masters and Chief engineers must complete required on-board training program. Seafarers must attend knowledge updating training programs to revalidate their CoCs. The knowledge upgrading training is mandatory even when the certificate of seafarer special training is valid.

The competent authority also stipulates that the company should be responsible for the knowledge upgrading training of the employed seafarers and should keep records.

Seafarers' on-board training should be organized by shipping companies, which are also responsible for making on-board training programs, designating training supervisors and teachers. The trainees must complete on-board training indicated in the On-board Training Record Book under the supervision of teachers and supervisors. The Master or Chief Engineer should sign on the on-board training remarks. The on-board training will be supervised and managed by examination and certification institutions.

7 CONCLUSION

Equipped with sufficient and advanced seafarer MET facilities as well as high quality teaching staff, Chinese MET academies have established effective control mechanism to conduct seafarer MET in strict accordance with the state seafarer MET criteria and the needs of shipping industry. The standards of Chinese seafarer MET comply with requirements of national laws and regulations.

The entire process of Chinese seafarer education and training is conducted under consecutive supervision and control of quality system, in order to make sure quality standards of Chinese seafarer education, training, examination, assessment and certification are met.

Chinese seafarers possess superior quality and strong competency. Chinese seafarer certificates enjoy sound worldwide reputation. Chinese seafarers are well accepted by international shipping companies. Currently, more than ten countries and regions including Holland, Norway, Singapore etc. have signed agreements with the Chinese government recognizing Chinese seafarers' certificate of competency.

With unceasing emphasis on seafarer education and training, China will take more effective efforts to improve seafarers' all-round quality, especially the required competency of STCW Convention and will continuously strive to realize the goal

of "Safe, Secure and Efficient Shipping on Clean Oceans".

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