

Challenges and Opportunities for Maritime Education and Training: China's Perspective

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1. Impacts of the world financial crisis on Chinese Maritime Education and Training (MET) system

The global financial crisis has been influencing various industries since September, 2008 and has resulted in a recession of the world economy. The shipping industry, carrying 90% of world trade in volume, has also suffered heavily, due to its close relationship with and functions in the macro economy and international trade. For instance, the BDI, which reflects the trend of the world shipping freight, dropped down to about 600 within half year from 11,000 in June of 2008. Meanwhile, the freight for Brazil steel ores sharply went down from 120 USD/T to 12 USD/T and Australian steel ores fell from 54 USD/T to 5 USD/T. “zero” freight appeared in the main routes between China, Japan and Korea in containerized shipping. Daily hire for capsized bulk carriers was also affected, dropping from approximately a hundred thousand US Dollars to approximately a thousand Dollars. Generally speaking, for the shipping industry, sharp reduction of freight and hire, limited quantity of cargoes and difficulties in funding are the main problems arising out of the crisis.

The crisis also hits the seafaring labor market, and furthermore the MET system. Some possible reasons for the changes of the labor market are:

- Many seafarers from European countries particularly eastern European countries came back to ships due to the financial situations of their countries and sharp depreciation of European currencies;
- Many ex-seafarers from Asian countries such as Korea and India who used to serve on the shore have rejoined the ships;
- Quite many shipowners canceled or delayed ship-building plans due to the world financial crisis;
- More and more aged and single-hull ships are being phased out due to IMO regulations, for which many seafarers have to be signed off.

Therefore, the market can now be seen as “shipowner-oriented market” instead of “seafarer-oriented”. More and more seafarers, particularly the ratings, have to compete with others for a job onboard. Therefore, MET systems, including the scale, teaching curriculum and modes for both cadet program and seafarers updated training, is required to be adjusted accordingly to provide better services for the industry.

2. New requirements upon the Chinese MET from the full review of STCW Convention

STCW 78/95, as an international convention specifically setting standards for seafarers, is now under reviewing and amending. Main reasons for such a review include: the fast development of world shipping industry, more applications of new maritime technologies onboard, stricter standards in maritime safety and pollution prevention, more functions of human factors in maritime technical operations, as well as the flaws in the original convention.

The review and amendment attempts to reflect the following trends: “specialization” and “higher-level” maritime operations onboard and “wider

coverage” of knowledge and techniques of the competency standards. For example, advanced navigational technologies, specialized and professional transportation technologies and pollution prevention technologies are to be incorporated into seafarers competency standards.

Up to May, 2009, the main topics of the full review of the STCW Convention are:

- To improve the competency standards for ratings and to update the requirements and standards for certification of able-seafarer deck and able-seafarer engine;
- To introduce a three-level maritime security training system;
- To define the requirements for BRM and ERM training;
- To revise the training requirements for masters, C/O and officers of watch-keeping, for the purpose of including VTS into those standards;
- To devise the definition and competent standards for “electronic technical officers”;
- To set up higher standards for the training of seafarers engaging in special cargo transportation, such as the Regulation V/1-1 “Mandatory minimum requirements for the training and qualifications of masters, officers and ratings on oil and chemical tankers”, Regulation V/1-2 “Mandatory minimum requirements for the training and qualifications of masters, officers and ratings on liquefied gas tankers” and to introduce a new Regulation “Mandatory minimum requirements for the training and qualifications of masters and officers in charge of a navigation watch on offshore supply/support vessels” . A new Table A-V/X “Specification of minimum standard of competence for Master, Chief Mate or any other person with immediate responsibility for loading, discharging, cargo handling, ship-handling, towing and anchor handling operations on an

- Offshore Supply Vessel” is being taken into account, where training for DP technologies, navigation in icy-zone and OSV are addressed;
- To include new requirements in Chapter VI “Emergency, occupational safety, security, medical care and survival functions” for fatigue management, effective ship-to-ship and ship-to-shore communication and maritime environment awareness.

The full review of the STCW Convention is an opportunity for the international shipping industry to speak out its needs and requirements for seafarers’ competent standards. The revised convention will be effective in the year 2012 and applicable in 8-10 year thereafter. It will play important roles in keeping maritime safety and pollution prevention through its effective implementation world-wide. For MET institutions, the revised convention will set up new standards in respect of training facilities and equipment, teaching staff, quality management and maritime expertise, etc,. It is therefore one of the biggest challenges in the years ahead for the global MET system.

3. The strategies of Shanghai Maritime University (SMU)

3.1 Understandings and confidence

The financial crisis destroyed the world economy to a certain extent and shipping industry is also badly hit. Trade protectionism may appear in some sections during this crisis, which will affect the economic globalization. The key challenge facing maritime industry is how the maritime economy can recover in shortest time. Now, what we should be confident is that the world economy will be recovered finally though joint and international efforts, and the roles and functions of maritime transportation will be always irreplaceable. A new “Blue Economy” on the basis of energy-saving, higher efficiency, low-cost and higher quality maritime transportation and logistic system will

appear.

The shipping industry consists of a wide variety of shipping business and operations known as “industrial chains”. The chains are spreading in the context of globalisation of world economy and integrated transportation, and therefore, play more and more important role in the macro economy. As one of the key elements in the chains, seafarers are not only the navigators at sea, but also a very important resource of shipping talents for shore-based shipping operations – in shipping industry, it is widely accepted that shipping-related professionals ashore are ideally those with sea-going background.

Furthermore, the requirements for quality seafarers keep updating, because of the advancement of navigational technology, development of maritime administration systems and higher standards in maritime safety, security and marine environment protection. In some respects, such requirements are even higher than those defined by the STCW Convention. Today, ships are becoming bigger, faster and more automatic. And seafarers are required to be more professional and specialized. MET universities and academies should pay special attention to those, and understand that “Quality seafarers” needs to be developed to satisfy the social request for “quality shipping industry”. To us, “Quality seafarers” refer to those with good experiences onboard, excellence in seamanship, computer operations, English language, ship management, interpersonal communication, professional virtues and commitment, etc.

Fortunately, the maritime community has been already taking actions. The Secretary-General of IMO proposed a “campaign for young man for seagoing profession” at the beginning of Seafarer Training and Watch-keeping Sub-committee (STW) 40 in Jan. 2009. The BIMCO/ISF 2005 Manpower

Updates estimates that “there will be a lack of 270,000 senior officers by 2015 worldwide”. In China, even in the recession of maritime economy, the demands for senior officers continue going up, although the demands for ratings decreases sharply. Many shipping enterprises are reserving quality seafarers, particularly senior officers, for future development. Most of them believe that the crisis is just temporary, and the quality human resource is the competitive factor for long-term development. Shipping industry will definitely boom again after the crisis.

3.2 Strategies

■ *Adoption of “innovative” and “customer-oriented” MET*

Seafaring profession is a specialized profession, which has to meet the requirements of both shipowners and international maritime conventions. Accordingly, Chinese MET system, on the condition of satisfying relevant conventions, rules and regulations, always tries to meet the needs of various customers.

In view of this, Shanghai Maritime University believes that innovation and customer orientation are important. The university is dedicated to satisfying the needs of customers by offering comprehensive MET programs, from B.Sc programs, to diploma study and on-job trainings. The total number of regular students and irregular trainees of those programs and course are about 7,000 each year.

- **B.Sc Program:** it is a four-year program conducted in accordance with the requirements of Bachelor degree study. In addition to normal navigation and engineering studies, they learn more Mathematics and Physics, more advanced theories in navigation and more knowledge in

maritime business and administration. This will enable them to explore careers in other maritime-related professions, such as in pilot station, maritime safety administration, maritime research institute, freight-forwarding, VTS management and shipping company, although their first career is mostly seafaring.

- **STCW courses and on-job trainings:** those programs are designed and introduced for the purpose of STCW certificate, intensive skills in navigation and engineering particularly in advanced maritime operations and foreign language proficiency. In terms of market share, SMU is responsible for a large percentage of such trainings in China.
- **Customerized joint classes:** SMU and NYK (Japan) launched the first joint class in 2002. The most important feature is that the owners (future principals), manning agents and SMU cooperate closely in a tailor-made program. All parties are involved jointly in the selection of new students, formulation of curriculum, contents of the lectures, organization of visiting professors, development of the corporate culture, etc,. The program devotes to developing students' commitment to their careers and professional virtues. Meanwhile, in addition to the STCW Convention, the program takes more owners' requirements into considerations. Currently, this type of program has attracted large companies such as COSCO, MAERSK (Singapore), V-SHIPS, COSTAMARE, SEASPAN, SINOCHEM and National Search and Rescue Bureau (CHINA).

Meanwhile, there are more innovations in SMU to meet the needs of the customers, such as the combination of “navigation and radio-communication

onboard”, “Engineering and Electrical”, and “technical navigation and shipping management”.

■ ***Sticking to “Quality First” principle***

SMU attaches great importance to the quality of MET activities. The University reviews from time to time the factors influencing the quality of MET by continuously applying philosophies and mechanism of Quality Management System. One of the good examples reflecting the quality is the passing rate of MET students in National Maritime Examination for Certificate of Competency, in which for most of times SMU ranked the first among all Chinese MET institutions. The MET students of the University are welcomed by most of shipping companies and more than 95% of the MET students can find their employment before their graduation.

SMU’s dedication in developing maritime disciplines and researches contributes to the quality of MET and the creation of new maritime knowledge branches and applications. By means of multidisciplinary study, students can then be offered with more systematic knowledge, which combines navigation or marine engineering with logistics, economics, management and maritime laws etc.. Today, SMU’s excellence in more than 30 maritime-related programs enable the University to construct a “Systematic MET”.

For the purpose of improving quality, SMU also takes positive actions to continuously develop her teaching and researching faculty, and improve training infrastructures. SMU new campus, located in the New Harbor City of Shanghai with an area of 133.33 hectares, is capable of accommodating 20, 000 students. Various facilities and equipments, such as full-mission ship-handling simulators and oil and chemical training facilities, have been already in use. An

automatic engine-room training center is also being under construction and expected to be completed between the year 2010-2011.

Back to the strategies toward the newly revised STCW convention, the University will:

- Fully review and modify the curricula and training plans for maritime courses;
- upgrade training facilities;
- Update the qualification of maritime instructors and teaching staff related;
- Improve the quality management system;
- Promote exchange and cooperation with the industry both home and abroad

4. New opportunities

Due to the development of national economy , China' shipping industry is growing very fast, and has huge demand at the same time. However, many shipping operations, particularly high level shipping operations, are done in other regions of the world, rather than in China . With an aim to match with her macro economy, the Chinese government decided to forge a full function shipping industry. The central government has just elaborated a plan to build Shanghai into an international financial and shipping center, rendering Shanghai more favorable policies for the development of maritime financial operations, ship brokerage, ship management and maritime information services. It can be foreseen that the developing Shanghai International Shipping Center will improve the total capability of Chinese shipping industry. Chinese MET system, particularly SMU, is faced with many new opportunities.

The current development of Chinese MET system will help to seize this opportunity. It is now a system combining high level and middle level, degree and non-degree maritime studies through 100 years of practice. The system enjoys many advantages, especially in academic management, human resource management, education and training facilities and maritime expertise. Together with good basis of Chinese fundamental education and China's large population, Chinese MET institutions will be able to serve better for the international maritime society .

It should be stressed that the development of economy will result in the booming of shipping and in return shipping secures and promotes the economy. The growth of shipping relies on excellent maritime people, who would not exist without the good performance of MET. Those are important experience, logic and conclusion. For this reason, the world maritime universities and academies should act effectively and confidently. With joint efforts and contributions coming from other entities and organizations in the industry, the quality of shipping and its functions in the macro society will reach new heights.