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WORLD MARITIME UNIVERSITY

Dalian, China

**Formulating a District Rule and Corresponding
Exam Syllabus for Certifying Sand
Transportation seafarers in Guangdong through
Comparison of Existing District Rules**

By

Liu Tianshu

The People's Republic of China

A research paper submitted to the World Maritime University in partial
Fulfillment of the requirements for the award of the degree of

MASTER OF SCIENCE

**(MARITIME SAFETY AND
ENVIRONMENTAL MANAGEMENT)**

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DECLARATION

I certify that all the materials in this research paper that are not my own work has been identified, and that no materials are included for which a degree has previously been conferred on me.

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

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ABSTRACT

Title of Dissertation: Formulating a District Rule and Corresponding Exam Syllabus For Certifying Sand Transportation seafarers in Guangdong through Comparison of Existing District Rules

Degree: **MSC**

This paper introduces the need of converting inland water crew to seafarers for sand mining activity in the Pearl River estuary, as well as the China's national rule which specially addresses the promotion paths for inland water crew to obtain a seafarer's certification. Through introduction of STCW Convention, with emphasis on its definition of "seagoing ships", this paper argues that seaships which are used in this "sand mining activity" are not considered as "seagoing ships", so seafarers onboard those seaships are not covered by mandatory standards of STCW Convention.

As power conferred by China's national law, many district MSA's branches has enacted their district rules addressing the certification of seafarers who are exclusively onboard "port area seaships". Through comparing them with the 11 RULE which is the national regulation for certification of seafarers, it is found that the required qualifications and KUP standards in those district rules are actually based on those of the 11 RULE. Furthermore, it is listed in this paper where the KUP standards are lowered from that of 11 RULE.

Guangdong has not enacted a rule of such kind. In order to regulate the certification of the sand mining seafarers, this paper attempts to formulate appropriate qualifications

and syllabus. Based on comparison of the existing qualifications and syllabuses in those MSAs' district rules, this paper formulates a batch of proposed qualifications and syllabuses for the sand transportation seafarers. In the end of this paper, the proposed syllabus are compared with the 10 Rule syllabus (which is originally applicable for certification of the original inland water crew engaged in sand transportation), to illustrate the gaps between the 2 rules.

KEY WORDS: STCW Convention, port regulation, seafarers' certification, qualification, syllabus.

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LIST OF ABBREVIATIONs

AIS	Automatic Identification System
COCs	Certificates Of Competence
COPs	Certificates Of Proficiency
DWT	Dead Weight Tonnage
ECDIS	Electronic Chart Display and Information System
GPS	Global Positioning System
gt	gross tonnage
ILO	International Labor Organization
IMCO	Intergovernmental Maritime Cooperation Organization
KUP	Knowledge, Understanding and Proficiency
MET	Maritime Education and Training
MSA	(China) Maritime Safety Administration
PRC	People's Republic of China
STCW	the Manila Amendments to the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978
TRB	Training Record Book
UNCLOS	United Nations Convention on the Law Of the Sea
UNCTAD	United Nations Conference on Trade and Development
VDR	Voyage Data Recorder
VHF	Very High Frequency
VTS	Vessel Traffic Service

CHAPTER 1: Introduction

1.1 Background: Relocation of the sand mining area generates needs of seafarer training

There has been sand mining activity for over 20 years within Pearl River Estuary, and the excavated sand are transported to coastal cities by inland water ships. However, after the completion of the Hong Kong Zhuhai Macao Bridge, the Pearl River Estuary is divided into two parts by the Bridge. As illustrated in figure 1, the northern part where traditional sand mining activity was located are no longer permitted for this activity, while the outer (southern) part of the estuary, as the new location ever since, is at sea area. Consequently, inland water ships are not permitted to be used in sand transportation now, and ship owners are busy building new seaships¹. The estimated number of seaships engaged in sand transportation is stated in Table 1.

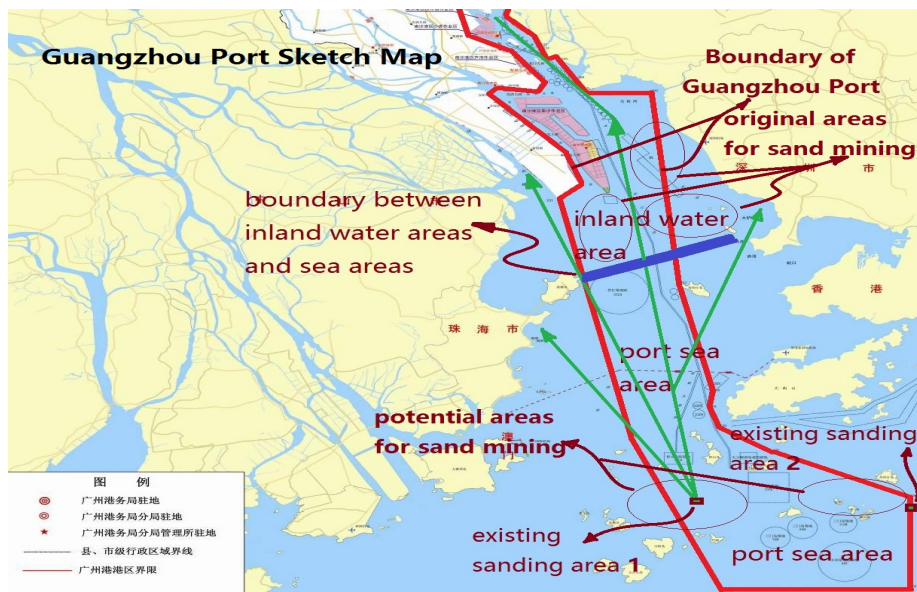


Figure 1:Relocation of sand mining activity and the route of sand transportation seaships

¹ In this paper, a "seaship" specially means a ship which is constructed, equipped and regulated as a seagoing ship but never navigates outside the waters within or adjacent to port area. It is not covered by STCW Convention's definition of "seagoing ship". In this paper, its meaning is equivalent to that of phrase "port area ship".

Source²: <http://sfzb.gzlo.gov.cn/sfzb/file.do?fileId=436F729FF1EA43D3B5557C2C957E37CE>, <http://www.doc88.com/p-9592777066208.html>

Table 1: Estimated number of seaships engaged in sand transportation at sea areas

Schedule	July, 2016	By the end of 2016	By the end of 2017	ultimately
Number of seaships	47(real existing)	approximately 70(estimated)	approximately 200(estimated)	More than 300

Source: Information provided by an officer of Guangdong MSA

Subsequently, it generates the demand of seafarers, because those newly built seaships' manning are seafarers instead of inland water crew. This demand is hard to satisfy because seafarers engaged in coastal voyages onboard seagoing ships of 500-3000gt are in short supply, and wage for sand transportation is relatively low. That can cause 2 problems, one is that those inland water crew may lose their jobs considering that domestic shipping has been in recession for years. The other is that, substandard manning is likely to become a serious problem.

Thus, the most appropriate way may be to train these inland water crew to obtain seafarer's certificates. Xu.& Xu (2015, p.42) argues that "For the operating vessels at Jiangsu's coastal ports, the most appropriate management measure is to train those inland water crew to improve their competence. And simultaneously the qualifications can be regulated step by step, which improves navigation safety. " But training and certification is not a easy job. Although they have proficiency in this activity, however, the examination requirements for common coastal seafarers are too high for them, such as English assessment (sea call and response, VHF on duty, Collision avoidance communication, etc.), radar plotting, weather maps analysis, and so on.

1.2 Legal background and technical syllabus for training inland water crew to obtain seafarers' certificates

A national rule of China specially addresses training of inland water crew to become seafarers, namely "The Rule for certain crew to apply for Examination and

² This sketch map is drafted based on annex 1(Sketch map of Guangzhou Port) of the "Port regulation of Guangzhou", thus the source stated here is actually the source of the port regulation.

Certification of Seafarers(2011)”(11 RULE). As power conferred by “The Regulation of the People's Republic of China on Examination and Certification of Seafarers for COCs(2011)”, several district MSAs’ rules³ for certification of port area seafarers⁴ detailedly stipulates what qualification is needed for an inland water crew to apply for a port area seafarer’s certificate. Whether these rules are compatible with STCW Convention needs proved. Considering that Guangdong has not enacted such a rule, it is the aim of this paper to discuss the principle questions and remove main obstacles for enacting a new rule in Guangdong.

From a technical perspective, it is very important to lay down standards of competence (in the form of exam syllabus⁵) that is applicable and practical for those port area seafarers to meet with and show their competence. Because based on the laid down syllabus, the gap between inland water crew and port area seafarers can be found out and subsequently be used for guiding MET institutions to design their training syllabus. Several district MSA has designed their own exam syllabus for port area seafarers, and this paper aims to compare them to get useful information for formulating syllabus for seafarers in Guangdong.

1.3 Objective of research

Firstly, this paper intends to discuss the validity of the “port area seafarer” clause in 11 RULE and several district MSAs’ rules. Although their enacting power is conferred from China’s national regulation, it is worth reviewing whether it is incompatible with the principle of STCW Convention.

Secondly, this paper compares the required qualifications and syllabuses in several district MSA’s rules addressing the examination and certification of port area seafarers, and ultimately a “proposed syllabus” for sand transportation seafarers in Guangdong is formulated.

³ In this paper, the phrase “district MSAs” represents MSA branches located in every coastal province of China, such as Liaoning MSA, Jiangsu MSA, Shandong MSA, Fujian MSA, Guangdong MSA, Guangxi MSA, etc.

⁴ In this paper, “port area seafarer” means a seafarer who works exclusively onboard port area ships.

⁵ In China, “exam syllabus” is formulated by groups of expertise from MSA and MET institutions, and is used for designing the test questions in exams and tasks in assessments.

Thirdly, this paper compares the “most appropriate syllabus” with the syllabus according to which those former inland water crew are examined, finds out the gaps between each corresponding requirements and classifies them. This comparison further proves that training those inland water crew to become seafarers is the most convenient and practical way.

1.4 Scope of research

This paper concentrates on port area seafarers onboard sand transportation seaships which are seaships of 1000-3000 gross tonnage with power of less than 750 kw, so qualifications and syllabuses of seaships more than 3000gt or 750kw are not in the scope of discussion.

And in this paper, the qualifications and syllabus for engine room officers and ratings are not discussed, because the required standards of the above seafarers onboard a port area seaship is generally the same as a seagoing ship.

1.5 Methodology of research

The main methodology of research in this paper is comparison. In this paper, this methodology is used in 4 aspects. Firstly, in chapter 4, candidates’ required qualifications in 3 district MSA’s rules are compared with each other. Secondly, in chapter 5, requirement of “500-3000gt seafarers” is compared with that of “less than 500gt seafarers” in 11 RULE’s syllabus, in order to list out all the items where there exists differences. Subsequently, such items are compared with corresponding provisions in 2 district MSA’s syllabuses, to figure out which standard (“the less than 500gt” or “the 500-3000gt”) is preferred by the 2 district MSAs. Thirdly, all provisions in the 2 district MSA’s syllabus are compared with provisions for “less than 500gt seafarers” in 11 RULE, to figure out what standard is appropriate for Guangdong’s practice, and finally a proposed syllabus for Guangdong is formulated based on the comparison. Lastly, in chapter 6, the proposed syllabus for Guangdong’s sand transporting seafarer is compared with syllabus of 10 Rule (regulation for certification of inland water crew) to find out suggestions for training an inland water crew to be a port area seafarer.

1.6 Layout

The paper is of 7 chapters.

Chapter 1 introduces the background of sand mining activity, the needs to train inland water crew to become seafarers and the objective, scope and methodology of this study.

Chapter 2 introduces STCW Convention and china's national laws for examination and certification of seafarers, with focus on their flexibilities and self restrictions. Chapter 3 discusses the understanding of "areas where port regulation apply" in the definition of "seagoing ships" in STCW Convention, to argue that the training and certification of seafarers onboard sand transportation ships are out of the application of the STCW Convention.

Chapter 4 compares the requirements of qualifications for port area seafarers in several district rules, with emphasis on promotion paths for inland water crew to be trained to obtain a port area seafarer certificate.

Chapter 5 compares the syllabus of "less than 500gt seafarer" and "500-3000gt seafarers" and conclude that, the gaps between them are small for "port area seafarers". This chapter also formulates a proposed syllabus for Guangdong's sand transporting seafarers.

Chapter 6 compares this proposed syllabus with the 10 rule syllabus which is originally applied for training and certification of inland water crew.

In the last chapter, Chapter 7 gives conclusions of this study.

CHAPTER 2: Flexibility of STCW Convention and China's laws for seafarers'

certification

Every enactor of a conventions or law thinks highly of its practicality. This chapter aims to explore the flexibility of STCW Convention and China's laws related to seafarers' certification. In general, adequate consideration is given to flexibility in the process of formulating those laws, to ensure the practicality of them.

2.1 Conventions are from practical needs rather than naturally existent

Through review of the birth of maritime regulations and conventions, it can be clear that no regulation is naturally existent, and all maritime regulations should have necessity. In early times, when seaborne trade is only a private sector without regulation, there were lots of accidents. Later, British and French government started to take measures to address the huge amount of loss. Among those measures, the survey of ship's structure and facilities, and the mandatory requirements toward the conditions of loading (known as the "Plimsoll Act" by British government in its ports applicable upon both foreign and domestic ships Since 1876) are the early ones (Boisson, 1999, p.50). From then on, treaties were enacted between maritime states concerning the safety of navigation, which started from rules addressing lights and signals to prevent collision at sea, the international radio communication, etc.. Ultimately, the consensus of regulating maritime safety was achieved among traditional maritime states, especially after the tragedy "Titanic", which promote the first comprehensive international convention addressing safety of life at sea- the SOLAS convention.

After world war II, international organizations become the driving force of enacting international laws, among them the IMCO and ILO were the leaders. ILO were devoted to conventions protecting welfare of seafarers and she also took the initiative in enacting of the first batch of conventions addressing certification of officers and ratings (ILO, 1992, p.105), such as "Officers' Competency Certificates Convention, 1936 (1936)"(C053) and "Certification of Able Seamen Convention, 1946

(1946)”(C074). IMCO is engaged in the safety of maritime activity. After collaborating work with ILO, IMCO in 1978 convene an international conference, in which the 1978 STCW Convention came into birth and were widely accepted by most countries. Compared with the former enacted ILO convention C053 and C074, STCW Convention additionally addresses the training of seafarers, which was based on the consensus that, holding a certificate is not enough to guarantee seafarers’ competence, because it is the training that promotes seafarers’ knowledge, skills and proficiency.

The 1978 STCW Convention underwent several revisions and amendments. Among those, the 1995 amendment is a radical reform. It is upon the call of maritime industry aiming to addressing the substandard manning and competence of seafarers. McCarter, p. (1999) stated that:

The 1995 amendments of STCW’78 were sorely needed as critics of the earlier 1978 Convention had identified major shortcomings. Stratton noted that STCW’78:

- 1.lacked the means of defining competency,
2. lacked effective control and verification processes,
3. lacked the flexibility to facilitate new methods of training and education.

It is believed that substandard construction and manning of ship is the reason why unbearable number of disasters occurred in 1980s and 1990s. The need to revise the 1978 STCW Convention was based on that it was not uniformly enforced adequately by member states, with the expression of “to the satisfaction of the authority” providing too much flexibility to member states.

From this legislative process in international maritime sector, it is easily found that, regulations are based on needs to address maritime safety (and environment protection) uniformly and globally. It is not naturally existent, therefore, its requirements should be adjustable according to local practice and circumstances.

2.2 Flexibility of STCW Convention

Compared to the former revision, the 1995 STCW Convention has a mandatory technical code attached. Its annex regulations list out the qualification requirements, while the attached code lists out all KUP standards, which are divided into 3 levels

and 7 functions. These standards are combined to form different KUP table, and these tables are treated as guidance for Parties to formulate their exam syllabus for corresponding ranks of seafarers.

As a universally applicable mandatory standard, STCW Convention is flexible enough to make room for Parties to formulate their practical rules. The main method is to allow flexibility in both the qualification requirements in annexed regulations and the KUP standards in STCW Code.

2.2.1 Flexibility shown in “approved seagoing service”

In regulation II/1 of the MANILA amendments to the 1978 STCW Convention (2010), it is stated that, “every candidate for certification shall: 2.2 have approved seagoing service for not less than 12 months(...)2.5 have completed approved education and training(...)”. This gives the member states flexibility to define what is approved.

For example, when a skipper onboard an inland water ship wants to engage in seagoing service, could his inland water service be considered as equivalent or a contribute to the required seagoing service? It is easily understood that the knowledge and proficiency in handling a ship has been gained from inland water service, so it is not meaningless, which can be discounted and treated as equivalent to the seagoing service. In fact, China in practice approves this service to be discounted into “seagoing service”.

2.2.2 Flexibility shown in “near coastal voyages” clause

Requirements in the required qualifications are lowered in the near-coastal voyages clause of STCW Convention. In regulation II/3, it states that:

“The Administration, if it considers that a ship’s size and the conditions of its voyage are such as to render the application of the full requirements of this regulation and section A-II/3 of the STCW Code unreasonable or impracticable, may to that extent exempt the master and the officer in charge of a navigational watch on such a ship or class of ships from some of the requirements, bearing in mind the safety of all ships which may be operating in the same waters.”

For another thing, in section A-II/1 of part A of the STCW code, the “near-coastal voyages” clause states that:

“7 The following subjects may be omitted from those listed in column 2 of table A-II/1...,

.1 celestial navigation; and

.2 those electronic systems of position fixing and navigation that do not cover the waters for which the certificate is to be valid.”

In section A-II/2, the “near-coastal voyages” clause also stated that:

“8 ...for the issue of such a certificate, may exclude such subjects as are not applicable to the waters or ships concerned...”

The differences between the above two exemptions are that, the former permits exemptions both for the qualification requirements and for the KUP requirements listed in the table, while the latter only accepts exemptions for some of the KUP requirements or subjects. Obviously the former is looser than the latter.

That difference is very meaningful. The qualification requirements for ships more than 500 gross tonnage cannot be lowered because of near-coastal voyage, but for ships less than 500 gross tonnage, discretion are left for administration to decide. It indicates that, STCW Convention intends to impose strict standards upon ships more than 500gt. As is known, ships of the tonnage of 3000 to 5000gt are usually of length about 100 meters. It is necessary to point out, most of the wave length is approximately 100 meters at sea, thus ships with length approximately 100 meters are more vulnerable to sea conditions because the easily caused hogging, sagging and resonance. So the convention decides not to lower its standard for tonnage of more than 500. However, as illustrated in figure 3, wavelength in Pearl River Estuary and many ports areas are less than 100 meters, so it is not necessary to impose strict standards upon ships more than 500gt.

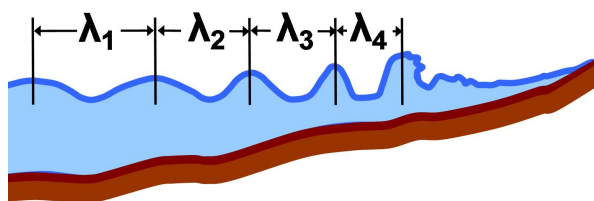


Figure 2: Various local wavelengths on a crest-to-crest basis in an ocean wave

approaching shore

Source: Paul, 2008, p.242

2.2.3 Flexibility shown in self restriction of STCW Convention on its application

In 19th century, there was no convention addressing the manning and certification of seafarers. Those affairs were regulated by flag states' national shipping laws. However, conventions are now regulating those affairs globally. What is the conventions' application scope? It is proper to invoke a treaty's application to explain its application. Here is the text of the Vienna Convention on the Law of Treaties (1969):

Article 5 The present Convention applies (...) to any treaty adopted within an international organization without prejudice to any relevant rules of the organization.

Article 26 Every treaty in force is binding upon the parties to it and must be performed by them in good faith.

Article 26 Unless a different intention appears from the treaty or is otherwise established, a treaty is binding upon each party in respect of its entire territory.

Because a convention's application covers entire territory of a party, a convention should be prudent in defining its own application, or it would not be approved. The UNCLOS doesn't regulate too much of shipping affairs, especially when it is in the application of territorial waters. The STCW also shows care in its definition of "seagoing ship" which is inextricably linked to the definition of "seafarers". In the "application" clause in article III of the text, it states that:

"The Convention shall apply to seafarers serving on board seagoing ships entitled to fly the flag of a Party except to those serving on board..."

And for the definition of seagoing ships, in article II(g) it states that:

"Seagoing ship means a ship other than those which navigate exclusively in inland waters or in waters within, or closely adjacent to, sheltered waters or areas where port regulation apply".

According to this definition, STCW Convention does not intend to regulate seaships which “navigates in areas where port regulation apply”. It is because that practical circumstances is different in various ports. Furthermore, there are lots of inland water ships navigating in port areas, and a port regulation is more competent to regulate both seagoing ships and inland water ships in port areas. Thus, STCW convention choose to respect the jurisdiction of port regulations.

2.3 Introduction to China’s laws for seafarers’ certification and their flexibility

The most important national regulation related to certification in China is “the Regulation of PRC on Examination and Certification of Seafarers for COCs (2011)”(11 RULE). The 11 RULE stipulates the types of COCs and corresponding qualifications, as well as the conditions of revalidation, exemption, recognition.

2.3.1 Flexibility of 11 RULE in approving the qualification of certain crew

One is that, in regulation 19, it stipulates the conditions upon which the service onboard inland water ships, fishing vessels, military ships could be recognized to be compatible to “seagoing services”. This clause constitutes the legal ground of another bye-law, namely “the Rule for certain crew to apply for Examination and Certification of Seafarers” (MSA Notice 2011/12), which explicitly clarify how the above crew’s in-service experience can be converted into seagoing service, as shown in table 2.

Table 2: How an inland water service could be converted into seagoing service

How long of inland water service at the original position is needed before exam of the corresponding position onboard a seaship		Chief mate of a seagoing ship (500-3000gt)	Second mate of a seagoing ship (500-3000gt)	Third mate of a seagoing ship (500-3000gt)
Inland water service (> 1000gt)	Master	12 months	0	0
	Chief mate	18 months	12 months	0
	Second mate	—	18 months	12 months
	Third mate	—	—	24 months

Source: annex 1 of “the Rule for certain crew to apply for Examination and

Certification of Seafarers” (MSA Notice 2011/12)

As discussed in paragraph 2.2.1, this approve is not incompatible with STCW Convention’s requirements, although it needs further discussion that, in what condition could a water service be recognized as compatible to “seagoing service”.

2.3.2 Flexibility shown in self restriction of 11 RULE on its application

As conform to “seagoing ships” definition clause in article II(g) of STCW Convention, regulation 60 of “11 RULE” excludes 5 types of seafarers from its application, one of which is “Seafarers onboard ship which navigate or work exclusively in waters within or closely adjacent to ports to which they registers.”

Regulation 3 in “Bye-law of Regulation of PRC on Examination and Certification of Seafarers for COCs (2012)” further confirms that, the rules covering the above 5 types of seafarers may be enacted by district MSAs at their discretion. This may be out of the consideration that real circumstances are different between each district, and it is more flexible and practical for the district MSAs to be conferred power to formulate detailed examination syllabus.

2.4 Summary of this chapter

In this chapter, STCW Convention as well as China’s corresponding national rule(11 RULE) is introduced, with focus on their flexibility in qualifications and KUP standards. Inspired by their handling techniques, formulating of qualifications and exam syllabuses will be the key points in enacting Guangdong’s own rule to address the certification of sand transportation seafarers. Whether those sand transporting ships in question can be excluded from “seagoing ships” defined in regulation II(g) of STCW Convention will be discussed further in chapter 3.

CHAPTER 3: Exclusion of application of STCW Convention on sand ships in question

Whether the sand transportation seaships are excluded from application of STCW Convention is due to the understanding of the expression “areas where port regulation apply”. Before we discuss the interpretation of this expression, it is necessary to understand what is “port regulation”. Furthermore, which regulations in China can be identified as “port regulation” will also be discussed in this chapter.

3.1 Brief introduction to “Port regulation”

The phrase “port regulation” should be distinguished from “port law”. UNCTAD (1993, February 11, p.23) stated that, “every port operation occasions the application of rules that are of a legislative character or regulatory character. The former are issued by the Government and the latter by an administrative authority”. Port law is the former. Like maritime law, it is a comprehensive law, with both private law and public law characters. When governing the operation of port in a unilateral way, it is a public law; when governing relations between the port authority and users, it is a private law (UNCTAD, 1993, February 11, p.17-19). Ports Act (1999) in the UK, Port and Harbour Law (1950) in Japan, Port Authorities Act (1963) of Malaysia falls into this category.

In contrast, port regulation is definitely a public law. Its application can be obtained in below materials, such as stated by “port regulations” clause of the Maritime and Port Authority of Singapore Act (1996):

“41.—(1) The Authority may, with the approval of the Minister, **make regulations for** the control and management of the port and the approaches thereto and for the maintenance of good order therein(...)”

Maybe it's better to call it "port police regulation" or "house rule", such as in Municipal Port Police Regulations (2014) of Antwerp. As UNCTAD (1993, February 11, p.41) stated,

"the organization and coordination of port activities involving all port activities on sea (movement of ships) and on land (storage of goods, etc.), including conditions of access to the port. Depending on the country, the requirements are contained in **police regulations, rules of operation, a code** (seaports code or merchant marine code) **or the decisions** of the port authorities or local administrative authorities; in some cases, they may be contained in more than one instrument at a time."

The expression "house rules" used by Port of Rotterdam (Harbour Master Port of Rotterdam, January, p.15) may help understand "port regulation" :

"The rules and regulations in the port contribute to the safe, efficient and environmentally responsible handling of shipping traffic. The international rules of the IMO, such as the SOLAS convention and its amendments (e.g. the IMDG code and IBC) and national regulations, including the recommendations of the European Community, are in force in the port of Rotterdam. Furthermore, the Port Bye-laws are the "**house rules**" of the port. Based on the Rotterdam Port Bye-laws, the Port Rules on dangerous substances contain additional, specific regulations for ships carrying dangerous cargoes in the port."

In this introduction, the word "house rules" is mentioned. It is a local regulation that applies only to waters within or adjacent to port areas. The expression of "house rules" is exactly the "port regulation" that corresponding to the expression of "port regulation" in article II(g) of STCW Convention.

It is worth noting that, some "port police regulations" are included in Port Act(not separated from it), such as "Maritime and Port Authority of Singapore Act (1996)", but more often, the "house rules" are supplement of general Port Act in the form of a "policing regulation" or "bye-laws" if there are too many issues to be explicitly listed in the general Port Act. An example is the Municipal Port Police Regulations of

Antwerp (2014). It is a comprehensive police regulation which addresses both rules governing port operations (such as pilotage, mooring, towage, oil spill control, storage and handling of goods, etc.) and rules regulating shipping and the order, security, safeguard of environment (Municipal Port Police Regulations, 2014, p.2-p.9).

3.2 Is there any “port regulation” in China?

In China, in 2001, a council notice No.[2001]91 (2001, November 23) start a port decentralization reform. From then on, ports are managed and supervised by municipal government. In 2003, the Port Act of the People’s Republic of China (2003) was enacted, which confirmed the decentralization reform and generally established port authorities in every port. The supervision of ports’ management belongs to Ministry of Transportation, and China MSA is designated to supervise safety of ships’ activities in port areas, such as dangerous cargo handling, notification of ships approaching to and out of ports, etc.

As UNCTAD (1993, February 11, p.44) explains, the police force in charge of port police regulations “is not open to anybody to take on police duties. The police force must be established by the competent authority and belong to a category defined in the laws and regulations”. And it is also stated in “the function of special police in seaports” that:

“In those countries where there is a special port police force, the organization of the port area is generally ensured through regulations (decrees or orders) containing provisions applicable to all. These instruments impose both obligations (e.g. the obligation to request authorization for a ship to enter port) and prohibitions (e.g. no fires to be lit and no smoking in the vicinity of an oil landing-stage)”.

China MSA falls in this category. It is a police force with power conferred from Port Act of PRC and many other shipping laws. It also delegates to district MSAs to enact rules applicable in a single port or district, such as “Navigation Regulation for Ships in navigatable waters of Guangzhou (2006,p.302)”, “Navigation Regulation for Ships in the Pearl River Estuary(2014)”,etc.

Therefore, in China, port regulations not only includes rules enacted by port authority such as Guangzhou Port Regulation, Shanghai Port Regulation, but also includes rules that enacted by district MSAs related to navigation safety, environmental protection and order of activities in port area.

3.3 “the areas where port regulation apply”

Conventionally, a port regulation defines its applicable geographical areas in its content, such as “2010 Rotterdam Port Management Bye-Laws” (version: January 2016, p.2) in “ARTICLE 1.1.1 DEFINITIONS” defines and Municipal Port Police Regulations (2014, p.1) in “Article 1.1 Definitions(52)” defines.

However, some district MSA’s “port regulation” does not focus on a single port. Instead, it focuses on a whole estuary water which contains several neighborhood ports. A typical example is “Navigation Regulation for Ships in the Pearl River Estuary (2014, July 10)”, which is applicable in Pearl River Estuary, covering port areas of Guangzhou, Dongguan, Zhongshan, Zhuhai, Shenzhen. Then, in this circumstance, could this regulation be deemed as a port regulation?

The answer is positive. In STCW Convention it defines as “areas where port regulation apply” instead of “port area”, so the geographic scope is decided by the “port regulation”. That means wherever a port regulation covers, it is the areas. Another reason is, this regulation is enacted by a single port administration (Guangdong MSA), and the effects and functions are the same with a port regulation enacted by a single port authority.

Based on above reasoning, the “port area” generated by “Navigation Regulation for Ships in the Pearl River Estuary” may be different from the geographic scope defined by port authority. Take Guangzhou Port as an example. Figure 3 shows the “port area” where Guangdong MSA’s rule (Navigation Regulation for Ships in the Pearl River Estuary)applies, and it is different from port area defined by Guangzhou Port authority in figure 1. This paper supports this area based on analysis in proceeding paragraphs.



Figure 3: The area where "Navigation Regulation for Ships in the Pearl River Estuary" applies

Source: Inner material annexed to the above rule.

3.4 Sand transportation seaships should be excluded from "seagoing ships"

The definition in article II (g) of STCW Convention is not clearly enough when we seek to judge if those sand transportation seaships in question should be excluded by the clause. We can definitely judge that a ship is not a seagoing ship if she navigate exclusively in inland waters, and a ship is not a seagoing ship given that she navigate exclusively in or adjacent to sheltered waters, and a ship is not a seagoing ship because she navigate exclusively within or adjacent to areas where port regulation apply, however, when it come to the sand transportation seaships in question, which navigate from port area to inland waters and then come back to this area without

heading anywhere else, is it a seagoing ship? There might be different interpretations because of the word “exclusive” in this clause.

However, it will be clear if this question is thought of in a reverse way- does this kind of ship conduct a seagoing voyage? No, it is within the inland water and port area. The intention of the convention is to excluded the above 3 types of ships, so to treat a ship which navigate from port area to inland waters and then come back to this area without heading anywhere else as a seagoing ship is not reasonable. So, this kind of ship can be excluded from the category of “seagoing ship”, and falls out of the application of STCW Convention. It is worth noting that, to exclude this kind of ship from “seagoing ship” does not necessarily mean it falls within the 3 categories of ships (which navigate exclusively in inland waters or in waters within, or closely adjacent to, sheltered waters or areas where port regulation apply), nor does it necessarily mean those ships fall within category of harbour vessel that is used for port service. It is a new situation. Although it is not listed out explicitly by the exempting clause in the definition of “seagoing ship”, it still falls out of the STCW application, so it should be covered by national legislation.

3.5 Summary of this chapter

This chapter intends to discuss whether or not STCW Convention has application on those sand transportation ships in question, and the main point is the meaning of “areas where port regulation apply” in the definition of “seagoing ship” in article II(g) of STCW Convention. Although the port regulations by port authorities do not regulate maritime safety and seafarers’ certification(regulated by the MSA), however, the port regulations do exist, and play an important role in deciding whether ships are under the application of STCW Convention. Furthermore, this chapter argues that district MSA’s rules can be deemed as “port regulation” too, even if the rule’s application covers entire estuary. Based on the above analysis, the sand transportation seaships can be excluded from sea-going ships and seafarers onboard them shall not be regulated by STCW Convention.

CHAPTER 4: Comparison of the required qualifications in 3 district MSAs’

rules⁶ addressing certification of port area seafarers

4.1 The development: from 04 RULE to 11 RULE

Before 11 RULE there was an ancestor, namely “the Regulation of PRC on Examination, assessment and Certification of Seafarers (2004)” (04 RULE). There are several differences between 04 RULE and 11RULE, among which the most significant is the change in types of COCs, and their corresponding syllabus of examination.

In 04 RULE, navigatable water are divided in to 4 areas according to the distance form coast. And there were 4 certificates corresponding to these areas. Among them the nearest 2 areas are near-coastal area and costal area, with the former not more than 50 nm from coast and the latter covering all main port areas and seas along the coast. The STCW “near-coastal voyages” clause is believed to be applicable to the former. The above two navigatable areas are merged in the 11 RULE, with the new name “costal area”. Although the original “near-coastal area syllabus” under 04 RULE is no longer valid, its examination syllabus is valuable for reference when we seek advice to formulate Guangdong’s examination syllabus for the “port area seaships”.

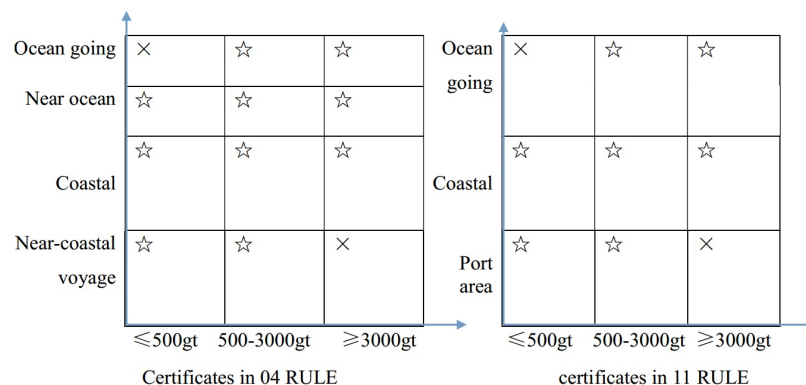


Figure 4: Comparison of types of certificates in 2 regulations of China (divided by

⁶ In this paper, the phrase “district MSAs’ rule” represents those rules concerning certification of port area seafarers which are enacted by district MSAs.

navigatable areas and ships' tonnage)

Note: “☆” represents there exists a type of certificate in this rule of the corresponding navigation area and tonnage.

“×” represents there does not exist any type of certificate in corresponding rule.

Source: Requirements from 04 RULE and 11 RULE.

4.2 Introduction of rules of 3 districts MSAs on certification of port area seafarers

In fact, empowered by the bye-law of 11 RULE, many district MSAs have enacted rules especially for certification of seafarers onboard “port area seaships”, such as Liaoning MSA(revised in 2013), Shandong MSA, Jiangsu MSA(revised in 2014), Guangxi MSA(revised in 2013),etc. Hebei MSA(in 2005) and Fujian MSA(in 2007) also enact their “port area seaship” rules, however, it is not revised and thus are not discussed in this paper. Different types of certificates is listed in Table 3

Table 3: Different types of “port area seafarer” certificates issued by 4 MSA branches (deck department only)

	Type of port area seaship(gt)	Type of certificate	
11 RULE (not port area ship)	>3000	Master, chief mate, second mate, third mate	able deck rating,
	500-3000		deck rating
	≤500	deck rating	
Liaoning	All tonnage range	Master, deck officer ⁷	deck rating
Jiangsu	>500	Master, chief mate, second mate, third mate	deck rating
	100-500	Master, deck officer	
	≤100		
Guangxi	>500	Master, chief mate, second mate, third mate	deck rating
	≤500	Master, deck officer	
Shandong	100-500	Master, chief mate, second	deck rating

⁷ In this paper, deck officer is use to represent the single position of deck officer in Liaoning’s rule.

		mate, third mate	
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Source: Liaoning Port Area seafarer Rule (2013)⁸; Guangxi Port Area seafarer Rule (2012), Jiangsu Port Area seafarer Rule (2014) and Shandong Small Ship Seafarer Rule (2016).

The source of candidates are various. Take Liaoning MSA’s rule as an example, there are 4 kinds of people constitute the source of “port area seaship” candidates. The first is a candidate holding a deck rating certificate. This candidate with 12 months’ seagoing service can apply for exam after finishing a 12-month-training, and after passing the exam he can obtain a certificate of third mate. No cadet duration is required upon him. The second is a deck officer originally fitting for seaships less than 100 gt. For him, although no training is required, he still should participate in an exam to apply for a deck officer certificate onboard this kind of port-area-ship (with no tonnage limit). The third is a seafarer who already had a coastal certificate(less than 500gt or more) under 11 RULE. He can directly apply for a port area ship deck officer certificate. The fourth is a chief mate with 12 months’ service onboard an inland water ship. He can be allowed to participate in an exam after a training, after which he can be qualified to apply for a deck officer certificate.

Requirements are different in Jiangsu MSA’s rule from Liaoning’s rule. For instance, a graduate from a maritime vocational school (or higher education) who has passed the exam can obtain a certificate after 12 months seagoing service recorded on a training record book, including a 6-month watch-keeping under supervision of an officer. Another difference is, a deck officer is required to participate in training before the exam. What is more, all candidates should have undergone 2 months’ cadet duration before they obtain a certificate. And obviously the required COPs are different too.

4.3 Comparison of qualifications listed in 4 district MSAs’ rules on certification of seafarers onboard “port area seaships”

Qualifications and examination syllabus in a district rule reflect the formulator’s sense

⁸ In the source of this quotation, “Liaoning Port Area seafarer Rule represents “Liaoning Rule for Examination and Certification of Seafarers onboard a Port Area Seaship”, and it is the same with other 3 rules.

of safety and expertise. To clarify the sense of safety in different circumstances is helpful in enacting Guangdong’s own rule. This chapter compares qualifications in 4 different district rules. The comparison of syllabus is in chapter 5.

There are 2 comparisons in the following text. One is comparison of the qualifications for applying for a “port area seafarer” certificate. Another is comparison of the promotion paths for an inland water crew candidate.

4.3.1 Comparison of the qualifications required by district MSAs’ rules

The qualifications in question include the necessary original lower certificate and its corresponding in-service duration, training duration, examination syllabus, cadet duration, etc. Table 4 lists out the comparison of qualifications listed in different district MSAs’ rules (taking “third mate of a 500-3000gt seagoing ship” as an example, assuming this ship is without fast rescue boat).

Table 4:Qualifications needed for a third mate(500-3000gt) on a “port area seaship”

rules	certificate or diploma	Seagoing service	Training	Cadet duration	COPs	Inlandwater serviceaccepted
11R ULE	1.deck rating’s certificate;or 2.Maritime graduate; or 3.Trainee finishing 2 years’ training; or 4.Inland water certificate	1. 18 months for deck rating 2. 12 months for graduate/ trainee using training record book(TRB) 3. None for others	12 months for original deck rating; TRB must be used for graduate/ trainee; None for others	6 months watch keeping supervised by a deck officer	VI/1, 2-1, 3, 4-1, 6, 7	According to table 2
Liao ning	1.deck rating’s certificate;or 2.Deck officer’s certificate (special for ship<100gt); or 3.Deck officer’ certificate(11 RULE); or 4.Inland water certificate	1. 12 months for deck rating 2. None for others	For deck rating, deck officer or inland water crew, need training;None for others	No need	VI/1, 2-1, 3, 4-1	Inland water crew (300gt or more) can participate in exams of corresponding rank
Jiang	1.deck rating’s certificate;or	1. 18 months for	For deck	2 months	VI/1,	The same as

su	2.Maritime graduate; or 3.Trainee finishing 2 years training; or 4.Deck officer’s certificate (for ship<500gt); or 5.Deck officer’ certificate(11RULE); or 6.Inland water certificate	deck rating 2. 12 months for deck officer(<500gt) 3. Number of months for graduate and trainee is not indicated 4. None for others	rating, deck officer or inland water crew, need training;None for others	for all	3, 6-1	what indicated in Table 2
Guan gxi	1.deck rating’s certificate;or 2.Maritime graduate; or 3.Trainee finishing 2 years training; or 4.Deck officer’s certificate (for ship<500gt); or 5.Deck officer’ certificate(11RULE); or 6.Inland water certificate	1. 12 months for 1,2,3,4 and 6 listed in the left column; 2. No need for a deck officer holding a 11 RULE certificate	For deck rating, deck officer or inland water crew, need training for 180 hours; None for others	3 months for 1,2,3,4,6 listed in the left column; None for others	VI/1, 2-1, 3, 4-1, 6, 7(sam e as 11RU LE)	Seaship’s position should be a closely lower one than original ; 12 months’ inland-service required
Shan dong	1.deck rating’s certificate;or 2.Maritime graduate; or 3.Trainee finishing 2 years training; or 4.Deck officer’s certificate (for ship<100gt); or 5.Deck officer’ certificate(11RULE); or 6.Inland water certificate	12 months for deck rating and deck officer, None for others	30 days needed for deck rating with experience of “port area seaship(100-500gt)”. None for others	Not less than 1 month’s watchkeeping under supervision of the Master	VI/1	The highest rank which a inland water crew can apply for exam is second mate.

Source: Liaoning Port Area seafarer Rule (2013); Guangxi Port Area seafarer Rule (2012), Jiangsu Port Area seafarer Rule (2014) and Shandong Small Ship Seafarer Rule (2016).

Table 4 indicates that, the requirements of qualifications have been lowered for port area seaships. Take qualifications for applying a third mate certificate as an example,

the required seagoing service needs not be recorded in a “training record book”, and needs not to be under supervision of an officer(except in Shandong, with duration of only 1 month). The required training hours is far less than 12 months. And the cadet duration is far less than 6 months. The required COPs is not as many as in 11 RULE.

Compared with normal candidates for a 11 RULE certificate, the source of the candidates for a “port area seaship” certificate is of wider-range. Usually, a candidate is an experienced rating, or a graduate from vocational school (higher education). However, for the “port area seaship”, the candidate may be a 11 RULE certificate holder, or a holder of lower “port area seaship” certificate (a deck officer). That is because all the 11 RULE certificates can be converted into “port area seaship” certificates of a corresponding rank, and all holders of lower “port area seaship” certificates can apply for higher “port area seaship” certificates after training(the lower service duration is recognized).

As bye-law of the 11 RULE states, a inland water certificate holder’s inland water service can be converted and recognized to be valid in applying for a sea-going ship certificate. Those 4 district MSA’s rules further confirm its validity in applying for a “port area seaship” certificate.

It is worth noting that, these district MSA’s rules do not explicitly indicate how a maritime school (or higher education institution) graduate or a trainee(having finished 2 years’ training) can obtain a third mate certificate. Furthermore, in Liaoning’ rules, there is no path for a graduate to directly apply for a third mate certificate. Consequently, there are only 2 possible paths for him. The first one is, he can obtain a rating’s certificate first, then after 12 months service he can participate training and exam again, to obtain a third mate certificate of port area seaship. The second one is, he can obtain a 11 RULE coastal third mate certificate first, than this certificate can be converted into a third mate certificate of a port area seaship. This may reflect the reality that “port area seaships” are not willing to offer cadet position for graduate, and they emphasize practice more than a diploma.

Although the Shandong MSA’s rule limits the tonnage of port area seaships to less

than 500gt, the qualification and examination syllabus is of reference value. This rule exempts the inland water crew from training requirement. For a third mate intending to apply for a second mate, or a second mate to a chief mate certificate, the training and examination requirements are exempted, and the only requirement is 6 months service in the lower position. It may be due to the port area ship's tonnage is less than 500gt, and it is the practice that really matters rather than the examination.

4.3.2 Promotion paths for “port area seafarers”

This paper's ultimate goal is to find out what qualifications and standards of competence are required for an inland water crew (with certificate capable of more than 1000gt) who want to be trained to gain a “port area seaship” (500-3000gt, <750kw) certificate. Thus, promotion paths for inland water crew are specially selected for comparison from 4 district MSAs' rules and the 11 RULE, as listed in Table A in the APPENDIX.

Table A in the APPENDIX illustrates that, apart from the same requirement for examination, different MSAs have different attitude towards training and cadet duration of those port area seafarers converted from inland water crew. Liaoning MSA believes they can obtain the competence without cadet duration, while Guangxi MSA holds that their service experience is enough and don't need to be specially trained before applying for a certificate. Jiangsu MSA provides that the training and undergoing a cadet duration is necessary, while the requirements need to be lower than 11 RULE requirements.

Consequently, having considered advice in A-I/3 of STCW Convention, in the process of enacting Guangdong's rule, it is suggested the training should be 2 month, which is higher than standards of Liaoning and Jiangsu. For the cadet during, the suggested duration is 1 month, which is a little shorter than Jiangsu. That is because, training is necessary for inland water crews to familiar with the new construction and equipment of a seaship, as well as necessary for them to gain proficiency in COPs such as survival at sea, fire fight, first aid treatment and so on. For cadet duration, because they are experienced sand transportation, the cadet duration can be shorter.

It must be noted that, there is no path for an inland water master to apply for. The only path for him is to obtain a chief mate or deck officer's certificate and then be promoted to the master. While an 11 RULE master can directly apply for a master's certificate onboard a "port area seaship". It is the same with an inland rating, who cannot directly applies for a deck rating's certificate onboard a "port area seaship". (while an inland officer is allowed to apply for a deck rating's certificate).

4.4 Summary of this chapter

This chapter introduces China's 04 RULE (revoked) and 11 RULE for examination and certification of seafarers. Furthermore, qualifications required in 4 district MSAs' rules addressing the certification of port area seafarers are listed and compared. Possible promotion paths are listed specially for those inland water crew to be trained to become port area seafarer. After comparison, each MSA's sense of safety is clear through analyzing their requirements. Consequently, the required qualifications for sand transportation seafarers in Guangdong are suggested. The suggested KUP standards will be discussed in chapter 5.

CHAPTER 5: Formulate a proposed syllabus for port area seafarers onboard

sand transportation seaships

The existing inland water crew who originally engaged in inland water sand transportation are trained and examined according to syllabus of “The Regulation of PRC on Examination and Certification of COCs for inland water crew (2010)”(10 RULE), if it is intended to train them to be qualified as a “port area seaship” seafarer, two steps need to be done. Step one is to figure out “the proposed examination syllabus” for a “port area seafarer” who want to be engaged in sand transportation in Pearl River Estuary, and step two is to compare this “proposed syllabus” with the corresponding syllabus of “10 RULE”, in order to find out the gap and then to fulfill it. Those two steps will be done by using of comparative methods. This chapter aims to discuss the step one, and chapter 6 is to explore the step two.

5.1 How district MSAs formulate their exam syllabus for port area seafarers

Based on “04 RULE syllabus” and “11 RULE syllabus”, “Liaoning RULE⁹” syllabus and “Jiangsu RULE¹⁰” syllabus for certifying “port area seafarers” are enacted. It is meaningful to explore how several district MSAs formulate their own syllabus.

As indicated in figure 4, the 04 RULE includes a syllabus especially for seaships less than 500gt engaged in “near-coastal voyages”, while 11 RULE does not. Although the “near-coastal voyages” syllabus in 04RULE is so cursory that, it was not actually used by district MSAs (they enact their own rules), this syllabus is still valuable because it reflects central MSAs’ attitude towards what standard is practical for near-coastal voyages. For instance, this rule doesn’t require officers engaged in near-coastal voyages to participate in assessment of the subject “Maritime English Listening and Communication”, as shown in Table H.

⁹ “Liaoning RULE” is the shorthand of “Liaoning rule for examination and certification of seafarers onboard a “port area seaship”, it is the same in the following text.

¹⁰ “Jiangsu RULE” is the shorthand of “Jiangsu rule for examination and certification of seafarers onboard a “port area seaship”, it is the same in the following text.

It is the 11 RULE syllabus based on which many district MSAs formulate their own rules. One of the Liaoning RULE’s enactors stated that, the syllabus of Liaoning RULE is mainly based on the syllabus of 11 RULE for ships less than 500gt. They cancelled some knowledge requirements which are deemed not practical for port area seafarers. This attitude is confirmed again by regulation 31 of “Guangxi rule for examination and certification of seafarers onboard “port area seaships” (2012)”, which clearly stated that “the examination syllabus in Guangxi rule is generally based on the syllabus of 11 RULE of the corresponding rank”.

Then comes the question that, is it reasonable to formulate syllabus of a sand transportation seaship (which is a “port area seaship of 500 to 3000gt”) **based on** the “less than 500gt syllabus” of 11 RULE? It sounds unreasonable for size and tonnage of these sand transporting ships is more than 500gt. However, actually for a “port area ship”, it is reasonable. The following argument will prove it.

5.2 District MSAs prefer to adopt the syllabus of “less than 500gt” than “500-3000gt” in 11 RULE

5.2.1 Theory test subjects and assessment subjects required in 11 RULE

As introduced in figure 4, 11 RULE certificates are divided into 3 categories, namely “less than 500gt”, “500-3000gt”, and “more than 3000gt”. Annex 3 of the 11 RULE lists out the subjects for a candidate who must pass in the form of exam or assessment, as shown in Table 5.

Table 5: Theory test subjects for Masters, Officers and (able) Ratings in 11 RULE

Subjects of theory test for Promotion, Enlargement & Upgrade	Master			Chief mate			Second/thire mate			Deck rating	Able deck rating	
	A	B	C	A	B	C	A	B	C	A	A	B
Maritime Navigation	☆	☆		☆	☆		☆	☆				
Ship Maneuvering and Collision Prevention	☆		☆	☆		☆	☆		☆			
Ship Management	☆	☆		☆	☆		☆	☆				

Ship Construction and Cargo Operation			☆	☆		☆	☆		☆			
Maritime English	☆	☆		☆	☆		☆	☆				
Deck Rating Skills										☆	☆	
Deck Rating English												☆

Source: Annex 3 of the Regulation of PRC on Exam and Certification of Seafarers for COCs (2011).

Note: A- promotion of position; B- navigation areas enlargement; C- upgrade of tonnage capacity; ☆ - Theory test needed.

Table 5 illustrates that, if a master(or an officer) wants to upgrade his certificate’s tonnage capacity from “500-3000gt” to “more than 3000”, he only needs to participate in 2 subjects, namely “Ship Maneuvering and Collision Prevention” and “Ship Construction and Cargo Operation”. This fact does proves that, the requirement of standard of competence in certain subjects (such as “Maritime Navigation” and “Ship Management”) does not increase when ship’s tonnage increases from 500-3000gt to more than 3000gt. Then, whether it is also true when tonnage increases from less than 500gt to 500-3000gt?

After comparing Liaoning and Jiangsu’s rule with 11 RULE (in Table B and Table C of the APPENDIX), it is found that, for syllabus of “Maritime Navigation” subject and “Ship Management” subject annexed to these 2 district rules, all the provisions in 11 RULE wherever there exists gaps between “less than 500gt”and “500-3000gt” are cancelled by Liaoning and Jiangsu’s rule. Therefore, for port area seafarers, there is no gap for the standard of competence between seaships of “less than 500gt”and “500-3000gt”.

Table 6 shows various types of theory tests a candidate must undergo who intends to be qualified to apply for a certificate of a certain position of the corresponding tonnage. It is obvious that, in 11 RULE, difference exists between “the syllabus of less than 500gt” and “the syllabus of 500-3000gt”.

Table 6: Which subjects must be examined before applying for certificate of a certain

position (of corresponding tonnage) in 11 RULE

Subject	Where a theory test of a corresponding subject is needed			
Ship Construction and Cargo Operation		Master/ Chief mate		Second/ third mate
	> 3000gt	☆		☆
	500-3000gt	☆		☆
	≤500gt	☆		☆
Ship Maneuvering and Collision Prevention		Master	Chief mate	Second/ third mate
	> 3000gt	☆	☆	☆
	500-3000gt	☆	☆	☆
	≤500gt	☆	☆	☆
Maritime Navigation		Master	Chief mate	Second/ third mate
	> 500gt ocean-going	☆	☆	☆
	> 500gt coastal	☆	☆	☆
	≤500gt coastal	☆	☆	☆
Ship Management		Master	Chief mate	Second/ third mate
	> 500gt ocean-going	☆	☆	☆
	> 500gt coastal	☆	☆	☆
	≤500gt coastal	☆	☆	☆

Source: annex 2 of the Bye-law of 11 RULE(2012)

☆ - For promotion to this position (of corresponding tonnage), a theory test of a corresponding subject is needed. For each subject there is a distinctive syllabus.

Table 7 shows the assessment subjects in 11 RULE for Masters, Officers and (able) Ratings both for ocean-going and coastal trade. Before we discuss the difference between 11 RULE and Liaoning RULE and Jiangsu RULE in these subjects, it is worth noting that, for sand ships not equipped with NAVTEX which navigate

exclusively within port areas, it is not necessary to assess “No.2” subject in the table. In fact, Liaoning syllabus only requires to assess No.1 for master, No.11 and No.14 for deck officer, while Jiangsu syllabus only requires to assess No.3,6,12 for master and officers, No.14 for officers and No.17 for deck ratings.

Table 7: Assessment subjects for Masters, Officers and (able) Ratings in 11 RULE

Subjects of Assessments for Promotion, Enlarge-ment & Upgrade	Master			Chief mate			Second mate / Third mate			Deck rating			Able de-ck rating	
	A	B	C	A	B	C	A	B	C	A	B	C	A	B
Voyage Planning	1★ ★	☆												
Analysis of Meteorological facsimile chart	2★	☆												
ECDIS / Electronic nautical chart				5★	☆		9★	☆						
Route design							10★ ★	☆						
RADAR operation and application							11★ ★							
Ship Maneuvering, Collision Prevention and Bridge Resource Management	3★ ★		☆	6★ ★			12★ ★		☆					
Cargo stowage and Securing				7★ ★	☆		13★ ★ ¹¹		☆					
Using of Nautical Instruments							14★ ★							
Maritime English Listening and Communication	4★	☆		8★	☆		15★	☆						
Deck rating Watchkeeping										16★ ★		☆		
Deck Ratings’Skills										17★ ★		☆	19★	
English Listening and Communication for Deck Ratings										18★	☆		20★	☆

Source: Annex 3 of the Regulation of PRC on Exam and Certification of Seafarers for COCs (2011).

Note1: A- promotion of position; B- navigation areas enlargement; C- upgrade of coverage of capable tonnage;

¹¹ This mark “★” is not originally in this place in the table of 11 RULE, however, it is added after comparison.

☆ -Assessment subjects for seafarers onboard seagoing ships more than 500gt;

★ -Assessment subjects for seafarers onboard seagoing ships less than 500gt;

Note 2: Deck ratings and able deck ratings are exempted from “English Listening and Communication for Deck Ratings” subject.

5.2.2 Comparison between 11 RULE and district MSAs’ rules concerning requirements in theory test subjects

Table B and Table C in the APPENDIX compares the “syllabus of less than 500gt” with “syllabus of 500-3000gt” for subject of “Ship Maneuvering and Collision Prevention” and “Ship Construction and Cargo Operation”, in which all the relevant provisions are listed where the requirement of “500-3000gt” is different from those of “less than 500gt”.

It is illustrated in Table B in the APPENDIX that, whenever syllabus of “500-3000gt” requires an item to be mastered by a candidate, while syllabus of “less than 500gt” does not require that, ultimately, Liaoning and Jiangsu’s rules don’t require that item to be mastered (except for the towing provisions:1.2.5.1-1.2.5.5). For example, when an item is required for a second / third mate (or deck officer in Liaoning RULE) onboard 500-3000gt seaships, while it is not required for those onboard less than 500gt seaships, subsequently the Liaoning and Jiangsu rules don’t require these second / third mates onboard a port area seaship to master this KUP item.

However, it does not mean these district rules adopt a lower standard without any consideration. As is observed, wherever an item is not required to be mastered by a second / third mate (or deck officer in Liaoning RULE), this item is required to be mastered by a Master. In this circumstance, the Master backs him up to fulfill this function. What’s more, those relevant functions are all related to knowledge or emergence reflection, and none of them is related to an independent watchkeeping duty, so it is enough to have only one man on duty in the bridge to master it. Vice versa, for some items that is required to an officer but not for the master, it is believed that the master has already mastered it. This is easy to understand that a master is

promoted from an officer, he does not need to be examined once again.

After counting, it is found that, there are total 318 items in the syllabus of “Ship Maneuvering and Collision Prevention” of 11RULE, in which Liaoning’s rule cancels 109 items. Among the 318 items, there are 77 items representing those provisions where there exists different requirements between “500-3000gt” and “less than 500gt”, and 50 items of them are cancelled, as shown in Table B of the APPENDIX.

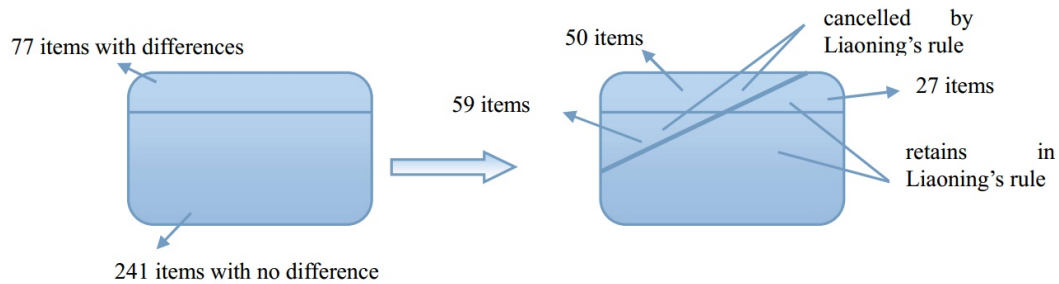


Figure 5: Divisions of items in syllabus of “Ship Maneuvering and Collision Prevention”.

Source: Data is from counting of the items in Table B of the APPENDIX.

As shown in Table B of the APPENDIX, in the subject of “Ship Maneuvering and Collision Prevention”, there are 27 items which were not cancelled by Liaoning’s rule where the requirements on seafarers are different between seaships of “500-3000gt” and “less than 500gt”. Compare with the total number of 318, it is really a small percentage. Those items in Liaoning’s rule mainly adopt the “less than 500gt” standard, which shows the district MSA’s attitude that the standard of competence required by syllabus of “less than 500gt” is enough to guarantee the navigation safety.

For the subject of “Ship Construction and Cargo Operation”, in following text, the items will be listed for which the requirements of “500-3000gt syllabus” are different from that of “less than 500gt syllabus”.

As indicated by Table B of the APPENDIX, all the items where there exists different requirements between “500-3000gt syllabus” and “less than 500gt syllabus” in 11 RULE are cancelled in Liaoning’s Rule, which reflects that there is no different requirement for “500-3000gt” port area seafarer and “less than 500gt” port area

seafarer. It is worth noting that Jiangsu doesn't require this subject to be examined.

It is the same for the other 2 subjects. For the "Maritime Navigation" subject, there are 126 difference, but only 31 items were not cancelled by Liaoning's rule, the other 95 items are thought to be irrelevant to port area ships(as illustrated by Table 8). Compared with the total 303 items, it is still a small percentage. What's more, for "Ship Management" subject, there are only 4 differences.

Table 8: Number of items where there exists differences between "less than 500gt" and "500-3000gt" in 11 RULE, Liaoning's RULE, and Jiangsu's RULE respectively

	Ship Maneuvering and Collision Prevention	Ship Construction and Cargo Operation	Maritime Navigation	Ship Management
Number of items where there exist differences(in 11 RULE)	77	29	126	55
Items with differences (in Liaoning's rule)	22	0	23	4
Items with differences (in Jiangsu's rule)	24	this subject not required to be examined	9	4
Items with differences (Liaoning add Jiangsu minus those overlapped)	27	0	31	4

Source: Data is from counting of the items in Table B, Table C of the APPENDIX and in syllabus of 11 RULE

It is very important to point out that, in this paper, the comparative table of "Maritime

Navigation” subject and “Ship Management” is not detailedly listed out as being done for the other two subjects. One reason is that there are 126 differences in the “Maritime Navigation” subject, so listing out the difference will be a redundant job. Another reason is more essential. It is because that, among the 31 retained items, only 1 of them is considered necessary and retained by both Liaoning and Jiangsu. For the other 30 items, 8 items are thought to be unnecessary by Liaoning, and 22 of them are deemed as useless by Jiangsu. Considering from Guangdong’s sand transportation practice, it is believed that those knowledge not being cancelled by Liaoning is not necessary for Guangdong’s training of inland water seafarers, because it is mainly related to the Meteorology theory used in coastal voyages. Therefore, the detailed comparative table is not given in this paper.

For the syllabus of subject “Deck Rating Skills”, there are also 9 out of 43 items showing differences between “500-3000gt” deck ratings and “less than 500gt” deck ratings. And all of them are cancelled from Jiangsu’s rule because they are not necessary to port area seaships. Liaoning’s candidate need not participate in this exam.

In conclusion, for subject of “Ship Maneuvering and Collision Prevention” and “Ship Construction and Cargo Operation”, differences between “the syllabus of less than 500gt” and “the syllabus of 500-3000gt” are small for a port area seafarer, at 27 and 0 respectively. For subject of “Maritime Navigation” and “Ship Management”, differences for a port area seafarer are small too, at 31 and 4 respectively. As illustrated in table 8, it is rather a small percentage.

Although it needs reviewing whether Liaoning and Jiangsu’s cancelling of provisions is reasonable (in following “section 5.3” it will be discussed), it is proper to conclude that, comparison of theory test syllabus shows that, difference between syllabus of the “500-3000gt” and the “less than 500gt” for a port area seafarer is rather negligible.

5.2.3 Comparison between 11 RULE and district MSAs’ rules on assessment subjects

In this section, all items are listed in Table D to Table H of the APPENDIX where the

assessment items of “500-3000gt” are different from “less than 500gt” in 11 RULE, and Liaoning and Jiangsu’s attitude as which standard are applicable in their rules for a port area seafarer. For the subject of “Route design” and “RADAR operation and application”, no difference is found between them, so there is no table for these 2 subjects. For the subject of “ECDIS / Electronic nautical chart” Liaoning and Jiangsu have no requirement for them, however, I think it is necessary to do some basic training as how to read the data displayed in the screen, correctly setting of ships’ own data, etc., so Guangdong’s syllabus should be based on the syllabus of 11 RULE.

For the subject of “Maritime English Listening and Communication”, Liaoning and Jiangsu also have no requirement for them, however, in 04 RULE’s syllabus, it is required that the master of “near-coastal voyage” ship must have the competence of 2 aspects, namely communication and listening ability in the occasions of collision prevention and distress call, he must be familiar with the basic expression.

In conclusion, for assessment requirements, differences between “less than 500gt” and “500-3000gt” are also negligible for port area ships. However, it is based on an assumption that, it is really reasonable of Liaoning and Jiangsu to cancel certain provisions from 11 RULE’s syllabus for “port area ships”. Whether it is reasonable needs to be proved in Section 5.3.

5.3 Formulate a proposed syllabus for Guangdong’s sand transportation seafarers

Based on comparison of Liaoning RULE syllabus, Jiangsu RULE syllabus and 11 RULE syllabus and corresponding comments given in Section 5.2, 2 comprehensive syllabuses for theory exam subject “Maritime Navigation” and “Ship Construction and Cargo Operation” are formulated in Table I and Table J as the sample, which includes all provisions that are thought to be necessary for a port area seafarer onboard a sand transportation ship in Guangdong. Requirements which are necessary for coastal seafarers but obviously not necessary for sand transportation seafarers are excluded, such as being familiar with English nautical charts, dead reckoning and estimated position, radar plotting, some detailed meteorology and

oceanography knowledge, etc. .

Due to limit of space, this paper does not list “proposed syllabuses” for the other 2 subjects “Ship Maneuvering and Collision Prevention” and “ship management”, however, the principle of formulating these proposed syllabuses is similar, and consideration must be given to the comparison listed in Section 5.2, and Guangdong’ practice, as well as advices listed in regulation A-I/3 of STCW Convention.

This paper does not list syllabuses of assessment subjects. Based on comparison in Table D to Table H, it is held that “RADAR operation and application”, “ECDIS / Electronic nautical chart” and “Ship Maneuvering, Collision Prevention and Bridge Resource Management” are necessary for Guangdong’s port area seafarers onboard sand transportation seaships. for former 2 subjects, proposed syllabuses are based on 11 RULE’s corresponding syllabuses. While for the latter 1 subject, Jiangsu’s syllabus is chosen for it is more practical and useful to be used to assess those sand transportation seafarers in Guangdong

It is worth emphasizing that, Table I and Table J are generally based on Liaoning’s syllabus. All items in Liaoning’ syllabus which is thought to be necessary to be retained in Guangdong’ proposed rule are marked “☆ ”, which will not be discussed further. Whether an item is thought to be useful is based on author’s experience and the suggestion listed in regulation A-1/3 of STCW Convention.

However, whenever there is a necessary knowledge which has not been included in Liaoning’s syllabus, it will be added into the proposed syllabus of Guangdong. Usually the added knowledge comes from 04 RULE(near-coastal voyages syllabus), 11 RULE(less than 500gt syllabus) and Jiangsu’s syllabus. Those added knowledge is located at where Liaoning’s rule marked “NO” while others marked “YES”. Some items in Liaoning’s rule are thought to be unnecessary both by the author and by other RULEs, and thus is marked “cancel” which means it will not be in Guangdong’s proposed syllabus.

Take item 13 of “Maritime Navigation”(in Table I) as an example, it is originally in

11 RULE, but Liaoning and Jiangsu cancelled it from the syllabus, the comments for this is “adopted”, which means it is considered to be necessary to train a sand transportation seafarer to be familiar with GPS, and it is not reasonable for Liaoning and Jiangsu to cancel this item. Consequently, whenever an item is marked “adopt”, it will be list in the proposed a “proposed syllabus” of Guangdong’s rule.

Ultimately, Table I and Table J (after provisions which are marked “Cancel” being excluded from them) are the proposed syllabuses for Guangdong’s sand transportation seafarers. They are for 2 subjects only, and formulating of the syllabuses of other 2 theory exam subjects and 3 assessment subjects shall follow the method of formulating Table I and Table J.

In conclusion, Tables I and Table J not only formulates proposal syllabus for Guangdong’s sand transportation seafarers, but also comments on whether it is reasonable of Liaoning and Jiangsu to cancel certain provisions from 11 RULE’s syllabus for “port area ships”.

5.4 Summary of this chapter

This chapter contains 2 steps in order to formulate a “proposed syllabus” for sand transportation seafarers in Guangdong. Firstly through comparison it is found that Liaoning and Jiangsu’s syllabus are generally based on syllabus of “less than 500gt” in 11 RULE. Furthermore, some assessment subjects are deemed unnecessary thus cancelled from the 2 district rules. These findings support that Guangdong’s syllabus can also be based on the syllabus of “less than 500gt” in 11 RULE. Secondly based on Liaoning’s rule, taking into consideration of useful information collected from Jiangsu’ rule and 11 RULE, a “proposed syllabus” is formulated for sand transportation seafarers in Guangdong.

CHAPTER 6: How much difference between syllabus of “10 Rule” and the

“Proposed syllabus”

In order to prove that training the inland water crew in question to be qualified as “port area seafarers” are convenient and practical, and also in order to provide guidance to the training in future, it is necessary to compare the syllabus of “10 RULE” with the “Proposed syllabus” to find out the gaps of standards of competence between those 2 types of crew. In this chapter, through comparison of the “Proposed syllabus” and the 10 Rule, the gaps are classified. Detailed proposal to fulfill the gaps is not given out, which needs further research.

6.1 Brief introduction of 10 Rule and its annexed syllabus

“10 Rule” states how to exam and certificate an inland water crew. It also states the division of certificates. In general, there are 2 types of crew members in deck department, with one type is deck officer for ships less than 1000gt, when for ships with tonnage more than 1000gt, it includes chief mate, second mate, and third mate; and the other type is deck rating. What’s more, there are 3 classes for them(divided by tonnage), one is for crew onboard more than 1000gt inland water ships, another is for crew onboard 300-1000gt ships, the third one is for crew onboard less than 300gt ships. In fact, those inland water crew onboard sand transportation ships of 1000-3000gt are holding certificates of “more than 1000gt” class.

As illustrated in figure 1, in the Pearl River Estuary, there is a division line(or called boundary) between inland water area and sea area. For inland water ships navigating in inland water area, the “International Regulations For Preventing Collisions At Sea, 1972” (COLREG) is applied rather than “Regulations of PRC For Preventing Collisions At Inland Waters (2003)”.

6.2 Comparison between syllabus of 10 Rule and “the proposed syllabus”

Above mentioned “the proposed syllabus” is based on Liaoning’s RULE, and absorbs necessary KUP items both in 04 RULE, 11 RULE and Jiangsu RULE’s syllabus. Table 9 illustrates that, for theory exam, subjects in 10 Rule’s syllabus are corresponding to subjects in syllabuses annexed to 11 Rule, Liaoning and Jiangsu’s rules.

Table 9: Correlation between 10 Rule’s subjects and 11 RULE’s subjects

Subjects of Inland water syllabus	Briefly corresponding to	Subjects of Seafarer exam syllabus
Waterways and Navigation		Maritime Navigation
Ship Management		Ship Construction and Cargo Operation
		Ship Management
Ship Maneuvering		Ship Maneuvering and Collision Prevention
Collision Prevention		

Source: Data collected from 11 RULE and 10 Rule

The subjects in the “proposed syllabus” is the same as those in 11RULE, Liaoning and Jiangsu’s rules, and therefore can be compared with syllabus of 10 Rule, to find out the gaps of KUP standards and classify them. Detailed comparison are listed in Table K, Table L and Table M. it is worth noting that, it is not the intention of this chapter to classify those gaps precisely, in contrast, the key point of the comparison is to provide vivid sense perception as how similar and correlative of the 2 syllabus listed in Table 9.

For instance, one of the most important gaps between the 2 syllabus is the rules governing preventing collision. In general, China’s domestic rule-“Regulations of PRC for Preventing Collisions at Inland Waters (1991)”- is similar to International Regulations for Preventing Collisions at Sea, 1972 (1972)(COLREG) with some slightly differences. It conforms to the expression in Rule 1(b) in PART A of

COLREG (1972), “Nothing in these Rules shall interfere with the operation of special rules made by an appropriate authority for (...). Such special rules shall conform as closely as possible to these Rules.”

For “Ship Maneuvering” subject, gaps between the 2 syllabus is small, because size, power, construction and equipment for those newly built sand transporting seaships are generally the same with the original inland water ships. the original inland water crew are familiar with this type of seaships. However, gap does exists, such as the structures related to initial stability are different, as well as some life saving appliances and firefighting equipments.

For the subject of “Ship Management”, because applicable regulations are different, so the gap is not negligible. For instance, the VTS area regulation, anti-fire rule for trade ships, dangerous cargo safety rule, safety rule of certain works in port area, which are specially for sea-going ships. The watch keeping rules are different too.

For surrounding environment, although inland waterways differ widely from sea conditions, the gap between “Waterways and Navigation” subject of 10 Rule and “Maritime Navigation” subject of 11 RULE is tolerable. It is because sand transportation seaships only navigate in or adjacent to port areas.

6.3 Summary of this chapter

In this chapter, Detailed comparison are listed between requirements for inland water crew and port area seafarers, and gaps for every corresponding provisions are classified, which facilitate MET institutions to design their training syllabus to fulfill those gaps. The classification is given in the form of comments, which means it is from the experience and understanding of a person rather than formal evaluation from a group of expertise. Therefore, it lacks authority and objectivity. It is necessary to emphasize the intention of this chapter is to provide vivid sense perception to the difference between the 2 syllabuses, rather than to classify those gaps precisely.

CHAPTER 7: CONCLUSION

In the beginning of this paper, a practical demand is raised, which is related to the training of original inland water crew to seafarers engaged in inland water transportation route especially between port sea area and inland water areas. This paper researches in 3 aspects to respond to the demand.

Firstly, it proves that this kind of seafarers are not covered by mandatory standards of STCW Convention because this kind of ships is not considered as a “seagoing ship” from the legal perspective, so the regulating of this kind of certification falls into the adjustment scope of national regulations.

Secondly, through analysis of the structure of STCW Convention, it is clear of the principle that, STCW Convention controls standards of competence through adjusting requirements in qualifications and KUP standards. Therefore, an administration can also control its standards of competence through adjusting of statutory qualifications and exam syllabus. This principle is followed throughout preparation stage of formulating Guangdong’s rule in chapter 4 and chapter 5.

Thirdly, for how to formulate Guangdong’s rule concerning the qualifications and syllabus, chapter 4 and chapter 5 compares several existing district MSAs’ rules and 04 RULE and 11 RULE. It is found that, in general, Liaoning and Jiangsu adopted syllabus of “less than 500gt” in 11 RULE, based on which they formulate their syllabuses for certification of “port area seafarers”. What’s more, through comparative study, appropriate qualifications are proposed, and a “proposed syllabus” is formulated. They are based on Liaoning’s RULE, while simultaneously absorb necessary provisions from Jiangsu’s RULE, 04 RULE and 11 RULE.

Lastly, the “proposed syllabus” is compared with syllabus of 10 Rule, which is originally applicable to those inland water crew. It is believed that through comparison, the gaps between the 2 syllabuses are listed and analyzed, which will give a vivid perception on the gap between levels of required competence, and further

proves the feasibility of training those inland crew to become seafarers for this sand transportation activity.

There are also shortcomings that need further study. The first one is lacking of evidence to prove the effectiveness of Liaoning's rule and Jiangsu's rule in guaranteeing port area seafarers' competence, which is essential to the validity of these rules and therefore is also essential to solid foundation of the comparative study in this paper. It will be improved a lot if the information of the competence of those seafarers is clear, or if the relevant accidents' data (especially those related to seafarer's competence) are analyzed to support the study.

The second is that, the comments in chapter 6 are based on authors' experience and several interviews to relevant expertise of China MSA, as well as professors of DMU, without using methodology of Questionnaire or Delphi method. If those methodologies were used, the comments would be more practical and objective. Due to time limit, this study has not overcome those shortcomings, which need further concentration in the enacting of Guangdong's rules.

APPENDIX

Table A: Comparison of promotion paths for an “inland water crew” aiming to obtain a seafarer’s certificate onboard a 500-3000gt port area seaship

Promotion paths	Inland water service of	Equivalent to Seagoing service of *months (m)	Training of * months(m)	Examination (according to tonnage)	Cadet duration (months)	Can Obtain certificate of	
11 RULE		Chief mate service >18 m	3 m	Master (500-3000gt)	3 m	master	
	Master (service>12m)	chief mate	3 m	Chief mate (500-3000gt)	3 m	Chief mate	
	Chief mate (service>18m)						
		Second mate service >12m					
	Master (0 service)	second mate	No need			second mate	
	Chief mate (service>12m)						
	Second mate (service>18m)						
		third mate service >18m					
	Master and chief mate (0 service)	Third mate	12 m	Third mate (500-3000gt)	6 months' watchkeeping under supervision	Third mate	
	Second mate (service>12m)						
	Third mate (service>24m)						
		Deck rating service >18m					

		Seafarer service >6m	4 m	Deck rating (>500gt)	3 ms' Watch-keeping(supervision)	Deck rating
Liaoning		deck officer	1 m	Master	No need	master
	Master, deck officers (0 service)	deck officer		Deck officer		deck officer
	Master, deck officers (0 service)	Deck rating	No need	No need		Deck rating
		Seafarer service >12m				
Jiangsu		Chief mate service >18m	104 hours	Master (>500)	2m	Master
	Master (service>12m)	Chief mate	194 hours	Chiefmate (>500)		Chief mate
	Chief mate (service>18m)			Chiefmate (>500)		
				Second mate service >12m		
	Master (0 service)	Seconde mate	200 hours	Second mate(>500)	No need	Second mate
	Chief mate (service>12m)					
	Second mate (service>18m)					
	Master and chief mate (0 service)	Third mate		Third mate(>500)	2m	Third mate
	Second mate (service>12m)					
Third mate (service>24m)						
	Deck rating service > 18m					

	Master, deck officers (0 service)	Deck rating		Deck rating	2m	Deck rating
		Seafarer service >0				
Guangxi		Chief mate service >18m	60 hours	Master	3m	Master
	Master (service>12m)	Chief mate	No need	Chief mate		Chief mate
		Second mate service >12m	60 hours			Second mate
	Master and chief mate (service >12 m)	Second mate	No need	Third mate		Third mate
		Third mate service >12 m				Third mate
	Master, chief/ second mate (service >12 m)	Third mate		180hours		
		Deck rating service >12m				
		seafarer service >3m	No need			Deck rating

Source: 11 RULE; Liaoning Port Area seafarer Rule (2013); Guangxi Port Area seafarer Rule (2012), Jiangsu Port Area seafarer Rule (2014) and Shandong Small Ship Seafarer Rule (2016).

Note: if not mentioned otherwise, the default tonnage rank introduced in the No.2 column(“service” column) is “500-3000gt”.

Table B: Items for which the requirements on “500-3000gt” are different from “less than 500gt”(in the subject of “Ship Maneuvering and Collision Prevention” of 11 RULE)

Item No.	All the provisions in which the requirements for “500-3000gt” and requirements for “less than 500gt” are different.	“Ship Maneuvering and Collision Prevention” Syllabus of 11 RULE						Liaoning and Jiangsu’s requirements are the same for M & ST		Jiangsu’s requirement for C	Comments (for Guangdong sand transportation ships, better cancelled or follow their syllabus?)
		Master (M ¹²)		Chief mate (C)		Second/third mate (ST)					
		500-3000	≤500	500-3000	≤500	500-3000	≤500	M	ST	C	
1.1.4	Effects of ship’s maneuverability indices (K,T indices)	Y	-	-	-	-	-	Cancelled			Better cancelled
1.2.2.5	Emergency steering control system	Y	-	Y	Y	Y	Y	-	Y	Y	follow
1.2.2.7	Shift of follow up/Auto-pilot/emergency steering control system	Y	-	Y	Y	Y	Y	-	Y	Y	
1.2.3.9	Holding power of Single Anchor Leg Mooring System	Y	Y	Y	Y	Y	-	Y	-	Y	
1.2.3.10	Length of anchor chain.	Y	Y	Y	Y	Y	-	Y	-	Y	
1.2.3.13	Untwine the foul hawse	Y	Y	Y	-	-	-	Y	-	-	
1.2.5.1	Types of towing ships	Y	-	-	-	-	-	Jiangsu cancels them			Guangdong sand

¹² In the tables of this chapter , “M” represents Master, “C” represents Chief mate, “ST” represents Second and third mate(but for Liaoning’s RULE, “ST” represents deck officer)

1.2.5.1-3	Use of tugboat and the estimated powers	Y	-	-	-	-	-	all, but Liaoning			ships don't need.
1.2.5.4	Ship's movement pattern under towing	Y	-	Y	-	-	-	retains them all.			
1.2.5.5	Safety notice under towing	Y	-	Y	-	-	-	Y	Y	Y	follow
1.3.1.5	Course stability handling limitation under strong wind	Y	Y	-	-	Y	-	Y	-	-	
1.3.4	Ship-ship interaction and its influencing factors	Y	Y	Y	-	Y	Y	Y	Y	-	
2.1.1	Slow down when entering a port	Y	Y	Y	-	Y	Y	Y	Y	-	
2.1.2	Ship Maneuvering when receive and sending off pilots	Y	Y	Y	-	Y	Y	Liaoning cancels, Jiangsu retains. will cancel.			
2.2.1-2	Prepare and Maneuvering in berthing and unberthing	Y	Y	Y	-	Y	Y	Y	Y	-	follow
2.2.7	Ship Maneuvering points when docking & undocking	Y	Y	Y	-	-	-	Cancelled			Better cancelled
2.4.1.3	Ship Maneuvering when navigating in canals	Y	-	Y	-	Y	-				
2.5.1	Risk for underway ships in heavy sea	Y	Y	Y	-	Y	Y	Y	Y	-	follow
2.5.3	Preparation work before entering heavy sea	Y	Y	Y	Y	Y	-	Y	-	Y	
2.5.4	Ship Maneuvering points when in heavy sea	Y	Y	Y	-	Y	Y	Y	Y	-	
2.5.5	Ship Maneuvering when avoiding typhoon	Y	Y	Y	-	Y	Y	Liaoning cancels, Jiangsu retains			Cancel (for port area seaships)
3.3.3	Beaching or abandoning a ship after collision	Y	Y	Y	Y	Y	-	Y	-	Y	follow
3.4	Ship Maneuvering when in fire	Y	Y	Y	Y	Y	-	Y	-	Y	
3.5	Preparation and maneuvering under emergency towing	Y	Y	Y	-	-	-	Y	-	-	
4.1.1	Searching organization	Y	Y	Y	-	Y	Y	Liaoning cancels,			Cancel(can be

								Jiangsu retains	organized by MSA)		
4.1.2	Identifying the most likely area of survivor	Y	Y	Y	-	Y	Y	Liaoning cancels, Jiangsu retains	Cancel(can be organized by MSA)		
4.1.3-4	Searching methods and rescue procedure	Y	Y	Y	-	Y	Y	Y	Y	-	follow
4.1.5.1	Turning maneuvering when finding survivor	Y	Y	Y	-	Y	Y	Y	Y	-	
4.1.5.1-3	Release lifeboat/craft and rescue from lifeboat/craft	Y	-	Y	-	Y	-	Cancelled			No rescue boat, can't
5	Introduction to marine engineering(4 items)	Y	Y	Y	-	Y	Y	Y	Y	-	follow
8	Bridge resource management(37 items)	-	-	-	-	Y	-	Cancelled. But Jiangsu introduces “simplified teaching of the points”			Follow Jiangsu, to introduce briefly
9	Transmit and receive information through visual signal (4 items)	-	-	-	-	Y	-	Cancelled			Better cancelled

Source: China MSA. (2012). *Syllabus of Examination of Seafarers for COCs.*

Note: “Y”- this item is required to be mastered by a candidate.

“-” – this item is not required to be mastered by a candidate.

Table C: Items for which the requirements of “500-3000gt syllabus” are different from “less than 500gt syllabus”(in the theory exam subject of “Ship Construction and Cargo Operation”)

Item No.	All the provisions in which the requirements for “500-3000gt” and requirements for “less than 500gt” are different.	“Ship Construction and Cargo Operation” Syllabus of 11 RULE				Liaoning’s requirements for deck officer	Comments (for Guangdong sand transportation ships, better cancelled or follow their syllabus?)
		Master/ Chief mate		Second/ Third mate			
		500-3000	≤500	500-3000	≤500		
6.1.1.2	block coefficient of ship hull	Y	Y	Y	-	cancelled	Should be cancelled, not necessary to know it
8.3.3.5	Effect of hanging and movement of cargo to ship’s initial metacentric height	Y	Y	Y	-		
8.4.2	Calculation of static stability arm	Y	-	-	-		
8.4.3	Effect to stability at large angle by free surface	Y	-	-	-		
8.4.4	Drawing of static stability curve	Y	-	-	-		
8.4.5	Meaning of characteristic parameter of static stability curve	Y	-	Y	-		
8.4.6	Factors influencing the static stability curve	Y	-	-	-		
8.5.1	Measurement index of ship's dynamic stability	Y	- 50	Y	-		
8.5.1-3	Drawing and using Dynamic Stability Curve to obtain	Y	-	-	-		

	Minimum Overturning Moment					
8.6	The influence of trim to intact stability	Y	-	-	-	Necessary to know it
8.7.1	IMO requirements to the intact stability of cargo ships	Y	-	Y	-	Should be cancelled, not necessary to know it
8.7.2.1	National requirements to the intact stability of ocean-going ships	Y	-	Y	-	
8.8.3.1	Methods of adjusting the static stability of ships	Y	Y	Y	-	Necessary to know it
9.3.3	Calculation of the change of trim due to change of water density	Y	-	-	-	Necessary to know it
10.3	IMO requirements to the damage stability	Y	-	-	-	Should be cancelled, not necessary to know it
10.4	Influence to floatability and static stability due to hull flooded	Y	-	-	-	
11.3.2	Check of longitudinal strength by calculating the shear force and bending moment of certain sections	Y	-	-	-	
12.5.1-2	Using of IMDG, EMS table and MFAG	Y	-	Y	-	
14.1.7	Verifying the securing plan for non-standard cargo	Y	-	-	-	
14.3.3	IMO requirements to the static stability of timber ships	Y	-	-	-	
14.6	Types and safely shipping requirements of Ro-ro cargo	Y	-	Y	-	
15.5.3	Check of the stress of securing of containers	Y	-	-	-	
16.4	Drawing of stowage plan for the grain bulker	Y	-	-	-	

16.5.1.1	International Grain Code's requirements to the static stability of grain bulker	Y	-	Y	-		
16.5.1.2	Check of the static stability of grain bulker	Y	-	-	-		
17.3	Application of the IMSBC	Y	-	Y	-		

Source: China MSA. (2012). *Syllabus of Examination of Seafarers for COCs.*

Table D: Items for which the requirements of “500-3000gt syllabus” are different from “less than 500gt syllabus” (in the assessment subject of “Ship Maneuvering, Collision Prevention and Bridge Resource Management”)

Item No.	All the provisions in which the requirements for “500-3000gt” and requirements for “less than 500gt” are different.	“Ship Maneuvering, Collision Prevention and Bridge Resource Management” Syllabus of 11 RULE						Liaoning’s requirements			Jiangsu’s requirements			Comments (for Guangdong sand ships)
		Master (M)		Chief mate (C)		Second/third mate (ST)								
		500-3000	≤500	500-3000	≤500	500-3000	≤500	M	C	ST	M	C	ST	
1.2.2	Upstream backward turning around	Y	-	-	-	-	-				Cancelled			Not necessary for port area seaships
1.2.3	forward turning around	Y	-	-	-	-	-							
1.3.5-6	Berthing and unberthing assisted by a towing ship	Y	-	-	-	-	-							
3.1.1.1	Basic steps of planning of BRM	Y	-	Y	-	-	-							
3.1.1.2-4	Obtain of information,resources and team organization	Y	Y	Y	Y	Y	-	Liaoning does not require	Y	Y	-	Adoptthe standard of “≤500”		
3.2.1.1-2	Recognition of attitude and ability of team member	Y	Y	Y	-	-	-		Y	-	-			
3.2.1.3	Allocation, coordination of resources in BRM	Y	Y	Y	Y	Y	-		Y	Y	Y	Jiangsu think highly of BRM and require it for all officers		
3.2.2	Team work in the bridge	Y	Y	Y	Y	Y	-		Y	Y	Y			
3.2.3.1	Judgment and decision in occasional events	Y	Y	Y	Y	Y	-		Y	Y	Y			
3.2.3.2-3	Handling of emergency or occasional events	Y	Y	Y	-	-	-	Y	Y	Y				

Source: China MSA. (2012). *Syllabus of Examination of Seafarers for COCs.*

Table E: The items for which the requirements of “500-3000gt” and “less than 500gt” ships are different, in the subject of “Voyage Planning”

Item No.	All the provisions in which the requirements for “500-3000gt” and requirements for “less than 500gt” are different.	“Voyage Planning” Syllabus of 11 RULE			Liaoning’s Requirements for Master	Jiangsu’s requirements for Master	Comments (for Guangdong sand ships)
		Master					
		ocean-going ≥500	Coastal ≥500	≤500			
1.2.7	Using “ <i>List of lights</i> ” to obtain information of China’s coastal beacons and beacons of DGPS	Y	Y	-	Cancelled	Jiangsu does not require this subject	Not necessary for port area seaships
3.3	Risk recognition and control in piracy areas	Y	Y	-			

Source: China MSA. (2012). *Syllabus of Examination of Seafarers for COCs*.

Table F: The items for which the requirements of “500-3000gt” are different from “less than 500gt” in the subject of “Nautical Instruments”

Item No.	All the provisions in which the requirements for “500-3000gt” and requirements for “less than 500gt” are different.	“Using of Nautical Instruments” Syllabus of 11 RULE			Liaoning’s Requirements for Master	Jiangsu’s requirements for Master	Comments (for Guangdong sand ships)
		Second or third mate					
		ocean-going ≥500	Coastal ≥500	≤500			
1.2	Construction, maintenance and operation of Gyro compass	Y	Y	-	Cancelled	Cancelled	No use for port area seaships

Source: China MSA. (2012). *Syllabus of Examination of Seafarers for COCs*.

Table G: The items for which the requirements of “500-3000gt” and “less than 500gt” ships are different, in the subject of “Cargo stowage and Securing”

Item No.	All the provisions in which the requirements for “500-3000gt” and requirements for “less than 500gt” are different.	“Cargo stowage and Securing” Syllabus of 11 RULE				Liaoning’s Requirements for Master	Jiangsu’s requirements for Master	Comments (for Guangdong sand ships)
		Chief mate		Second / third mate				
		500-3000	≤500	500-3000	≤500			
4	Stowage of contains onboard containerships	Y	-	-	-	Liaoning and Jiangsu does not require this subject	Not necessary for sand ships navigating in port areas	
3.3	Stowage and isolation of contains with dangerous cargo			Y	-			
3.6	Stowage and Securing of steel cargo			Y	-			
4.4	Stowage plan of liquid cargo			Y	-			
5.1	Check of the static stability and partial stress using stowage plan and information of ship’ structure			Y	-			

Source: China MSA. (2012). *Syllabus of Examination of Seafarers for COCs.*

Table H: Comparative between 04 RULE requirements for near-coastal sefarer and 11 RULE requirements for coastal seafarer concerning the subject of Maritime English Listening and Communication

Item No.	All the abilities required by “more than 500gt coastal” of 11 RULE and “less than 500 gt near-coastal voyage” of 04 RULE	“Maritime English Listening and Communication” Syllabus				Liaoning's Requirements for Master	Jiangsu's requirements for Master	Comments (for Guangdong sand ships)
		≥500gt			≤500gt			
		Master	Chief mate	Second/third mate	Master			
1.1-1.2	Daily greetings, common life language	Y	Y	Y	-	Liaoning and Jiangsu does not require this subject	Not necessary for sand transportation ships	
2	Common command	-	-	Y	-			
3.1	Communication with a pilot	Y	-	-	-			
4.3, 4.5	Communication between bridge and towing ships, hubour master and shipyards	Y	-	-	-			
4.4	Communication between bridge and VTS	Y	-	Y	-			
6.2-6.3	Communication in collision prevention and VHF duty	Y	Y	Y	Y		Necessary	
6.4	NAVTEX reception	Y	-	-	-		No use	
7.1-7.4	Distress call and answer, emergency,safety call and answer	Y	Y	Y	Y		Necessary	
7.5	SAR communication	Y	-	-	-	Not necessary for port		

9.4	Servival at sea	Y	-	-	-		areas
12.4-12.6	Emergency contact shore base, apply for armed assisstant, deal with piracy	Y	-	-	-		
12.7	Anti-terrorist and ISPS related affairs	Y	Y	-	-		

Source: China MSA. (2012). *Syllabus of Examination of Seafarers for COCs*

Table I: Proposed syllabus of “Maritime Navigation” for port area seafarers onboard sand transportation seaships

Provisions (understanding of...)	Liao ning	Jian gsu	04 near coastal voyage	11 RULE for less than 500gt	Comments
1. Orientation and position, speed and distance	☆				
2. Scale of nautical chart. Read information such as depth of water, bottom, navigation obstruction, navigation AIDS, Separation zone, a no-navigation zone, etc.	☆				
3. Ship positioning: Chart work, Leeway and drift angle, Landmark locating method	☆				
4. Radar range. Radar precision. Image distortion. Interference and the false characteristic of the echo. Radar assistant navigation.	NO	YES	YES	YES	Adopted
5. Compass error measurement using a landmark	☆				
6. The use of tide tables. Tide prediction and trend prediction.	☆				
7. Chinese catalogue of navigation books. AIDS to navigation table. Notices to mariners. Radio navigational warnings. Ship routing information	NO	NO	YES	NO	Cancel
8. Beacon types and functions in China coastal areas, and the new danger signs.	☆				
9. Route design and Notices within China coastal areas. Notice of navigating in fog or reef area.	☆				
10. Notice when navigating in narrow waterway	NO	NO	YES	YES	Adopted
11. Functions and management of VTS, information reported to VTS, navigating in VTS areas	☆				
12. Read data in ECDIS, data setting, Route design using ECDIS, monitoring of navigation	☆				

condition, system alarm.					
13.GPS	NO	NO	YES	YES	Adopted
14. The principle and error of sounder.	NO	NO	NO	YES	Adopted
15. The structure of the magnetic compass, use, maintenance and their correction methods	☆				
16. Structure and application of AIS	☆				
17. Reading of the ship log	☆	YES	NO	YES	Cancel
18.VDR	☆	YES	NO	YES	Cancel
19. Basic knowledge of meteorology: air temperature, air pressure, wind scale and the measurement, monsoon, the natural of the fog, visibility and measurement of it.	☆				
20. Basic knowledge of Oceanography: the wind and waves, swell, the definition and characteristics of near-shore wave, current and waves in the Pearl River Estuary.	☆				
21. Basic knowledge of the weather system: anticyclone, cold wave, warning and grading of tropical cyclone.	☆				
22. The storm surge and the winter winds.	NO	NO	NO	NO	Adopted
23. Application of Ship weather report announced by Guangzhou Marine meteorological station. Access to and read the radio weather reports announced by city meteorological station.	☆				

Source: Data collected from syllabus attached to 04 RULE(for near-coastal seafarers onboard less than 500gt seagoing ships), syllabus annexed to 11 RULE(*Syllabus of Examination of Seafarers for COCs*), Liaoning RULE(for port area seafarers) and Jiangsu RULE(for port area seafarers).

Table J: Proposed syllabus of “Ship Construction and Cargo Operation” for port area seafarers onboard sand transportation seaships

Provisions (understanding of...)	Liaoning	04 near coastal voyage	11 RULE for less than 500gt	Comments
1.Composition of a ship, dimensions and tonnage.	☆			
2.Ship structure, general arrangement plan,ventilation pipe, fire fighting pipe, deck drain system	☆			
3. Bilge water piping, ballast piping	NO	NO	YES	Cancel
4. Ice structure strengthening, tunnel structure, bilge keel, anti-rolling fin.	☆	NO	YES	Cancel
5. Lifting appliances: block, deck cranes, light and heavy derrick	NO	YES	YES	Cancel
5. Cargo hold, cargo hatch and ballast tank	☆	NO	YES	Cancel
6. Performance of ship buoyancy, Capacity coefficient, draft calculation, scale of DWT, freeboard and load line marks.	☆			
7. Sheer drawing, hull coefficient, hydrostatic curve, the hydrostatic parameters table	NO	NO	YES	CANCEL
8. Calculating the impact on ship's draft caused by changing of density of surrounding water.	NO	NO	YES	Adopted
9. Property and classification of cargoes, and its influence on safety of its transportation.	☆			
10. Cargo packing, marking, natural attrition rate, rate of broken stowage, stowage factor.	☆	NO	YES	CANCEL
11. The definition and calculation of loading capacity of the ship.	☆			
12. Parameter of Initial stability and influence of fluid free surface on them.	☆			
13. Initial metacentric height, stability of large dip Angle, the critical curve of metacentric	☆	NO	YES	CANCEL

height, the curve of height limit of gravity center.				
14. Criterion on the intact stability of general cargo ship by national regulations.	☆			
15. Calculate initial stability height by observe ship's rolling period and judge the ship's stability. Judging the stability of a ship by observing the symptoms of ship's condition.	☆			
16. Calculation of the Trim, the forward draft and the after draft. Statutory criterion on the trim, the method and principles of adjusting the trim.	☆			
17. Influence to the trim caused by longitudinal movement of load.	☆	NO	YES	CANCEL
18. Types of ship's flooded	☆	NO	YES	CANCEL
19. Definition of ship's strength and longitudinal strength. Analysis of the cause of the longitudinal deformation and stress. Test the longitudinal strength through field observation.	☆			
20. Calculation of shear force and bending moment in certain sections of a ship, and its verification method. Verification of Local strength and corresponding protection measures.	☆	NO	YES	CANCEL
21. Classification, stowage, isolation, loading and control of dangerous cargo in packaged forms.	☆	YES	YES	CANCEL
22. General cargo stowage, isolation, stacking, packing, process control, cargo hold ventilation	☆	YES	YES	CANCEL
23. Classification and securing of goods. Shipment safety of ISO and non-ISO goods.	☆	NO	YES	CANCEL
24. Transportation of awkward and lengthy cargo, steel cargo.	☆	NO	YES	CANCEL
25. Classification and characteristics of solid bulk cargo, its risk and its stowage. Classification of solid bulk carriers and their safe shipping.	☆			
26. Draft survey.	☆	NO	YES	CANCEL

Source: Data collected from syllabus attached to 04 RULE, 11 RULE, Liaoning RULE and Jiangsu RULE.

Table K: “Ship Maneuvering” subject and “Collision Prevention” subject in 10 Rule’s syllabus compared with “Ship Maneuvering and Collision Prevention” subject in the proposed syllabus

	“Ship Maneuvering” subject in 10 Rule syllabus	“Ship Maneuvering and Collision Prevention” in “proposed syllabus”	Comment
1	Ship’s speed performance, turning performance and course stability performance		A
2	Steering device and control system, emergency steering, steering function, types and steering	Rudder pressure and steering, essentials of steering and rudder order	D
3	Composition of ship resistance, slip ratio, classification according to power and speed.	Function of the propeller.	C
4	Types of anchor, holding power, cable markers, chain length, anchorage selection, one leg anchor, cast anchor operation essentials, judgment of anchor dragging, foul clear.		B
5	Use of cable: Types of cable, application of mooring equipment, types of mooring winch, operational essentials on departure.		A
6	Notices under towing: tugboat mooring, cable length, the drag force, heeling prostrate.	Moors the single or double buoy. Manipulation when enter into or out of locks.	E
7	Influence on ship maneuvering by external factors such as wind flow, shallow water, the quay wall effect, the interaction between ships.		A
8	Manipulation in berthing and unberthing or turning in port area.		B
9	Ship maneuvering at narrow channel, bridge area and reef area.	Ship maneuvering in case of ship power outages, or host, windlass, rudder is damaged, or cable ties with the blade	E
10	Ship manipulation in heavy sea.		A
11	Ship manipulation in case of grounding, stranding, collision, fire emergency. Abandoning of ship. Emergency towing.		B

	“Collision Prevention” subject in 10 Rule syllabus	Ship Maneuvering and Collision Prevention in the proposed syllabus	
1	Regulations of PRC for Preventing	International Regulations for Preventing	B

	Collisions at Inland Waters,	Collisions at Sea	
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Source: The Regulation of PRC on Examination and Certification of Inland Water Crew for COCs (10 Rule), syllabus attached to 04 RULE(for near-coastal seafarers onboard less than 500gt seagoing ships), syllabus annexed to 11 RULE(*Syllabus of Examination of Seafarers for COCs*), Liaoning RULE(for port area seafarers) and Jiangsu RULE(for port area seafarers).

Table L: “Ship Management” subject in 10 Rule’s syllabus compared with “Ship Construction and Cargo Operation” subject and “Ship Management” subject in the proposed syllabus

	“Ship Management” subject in 10 Rule syllabus	“Ship Management” subject in “proposed syllabus”	cmt
1	The duty of Master and the duty of crew.		B
2	Regulation of PRC on watch keeping for inland water crew(2015).	Regulation of PRC on watch keeping for seafarers(2012).	C
3		Ship daily fire and explosion prevention. Naked fire hot work, high outboard work. Enter into the enclosed space.	E
4	(Not required in the syllabus)	Rules of the bridge, telegraph log records, before departure inspection, safety notice for departure in restricted visibility and heavy sea.	E
5	Strain deployment and drills: fire (explosion), rescue drowning person, self rescue (including abandoning of ship), reaction in case of ship flooded or steering gear failure.		C
6	As stated in item 11 of Table K.	Response to emergency in case of grounding, stranding, collision.	C
7		Response to emergency in case of oil leakage, daily drills.	E
8	(Not required in the syllabus)	Training and lecture for emergency drills.	E
9		Keep available of the life saving and fire	E

		fighting appliances.	
10	Regulation of PRC on safety of navigation at inland waters (2002)	Regulation of PRC on safety of navigation at sea (1983)	B
11	Familiar with rules related to Safe manning, FSC regulation, rule of displaying of flag.		B
12	Familiar with Accident investigation regulation		C
12	(Not required in the syllabus)	VTS area regulation, anti-fire rule for trade ships, dangerous cargo safety rule, safety rule of certain works in port area	E
13	Regulations of crew, 10 RULE, Penalty rules for crew	Regulations of crew, 11 RULE, Penalty rules for crew	B
14	Regulation on pollution of waters, Regulation on Prevention of pollution from inland water ships	Regulation on investigation of pollution accidents, Regulation on Prevention of pollution from sea-going ships,	C
15	(Not required in the syllabus)	Familiar with ship statutory survey	E

	“Ship Management” subject in 10 Rule syllabus	“Ship Construction and Cargo Operation” in “proposed syllabus”	cmt
1	Management of cable, anchor, rudder, ship collision equipments. Hull maintenance.	(in the syllabus of “Ship Maneuvering and Collision Prevention”)	D
2	Magnetic compass, AIS, GPS		A
3	Navigational instruments: radar, VHF, sounder	(it must be added into Liaoning rule!)	E
4	Composition of a ship, dimensions, tonnage and DWT.		A
5	Ship’s piping	Ship structure, general arrangement plan, ventilation pipe, fire fighting pipe, deck drain system	D
6	Ship’s floating state and equilibrium conditions, load line, draft readings.	Performance of ship buoyancy, Capacity coefficient, draft calculation, scale of DWT, freeboard and load line marks.	C
7	Not required	Calculating the impact on ship's draft	E

		caused by changing of density of surrounding water.	
8	Property and classification of cargoes, and its influence on safety of its transportation.		A
9	The definition and calculation of loading capacity of the ship.		B
10	Concept of stability. Influence to the stability in case of loading and unloading, shipping bulk cargo, fluid free surface.	Parameter of Initial stability and influence of fluid free surface on them.	D
11	Not required	Criterion on the intact stability of general cargo ship by national regulations.	E
12		concept of stability, loading and unloading, bulk, free fluid in the face of stability	E
13		Calculation of the Trim, the forward draft and the after draft. Statutory criterion on the trim, the method and principles of adjusting the trim.	E
14		Definition of ship's strength and longitudinal strength. Analysis of the cause of the longitudinal deformation and stress. Test the longitudinal strength through field observation.	E
15	Loading capacity of the vessel. Stowage requirements.	Classification and characteristics of solid bulk cargo, its risk and its stowage. Classification of solid bulk carriers and their safe shipping.	E
16	Notices in using telegraph, alarm devices	Not required	E
17	Types of ship repair and relevant documents. Notice during ship repair. Knowledge of Ship survey.	Not required	E
18	Basic knowledge of engine: principle of four-stroke diesel engine. Types of emergency equipment. Emergency steering	(Listed in subject of "Ship Maneuvering and Collision Prevention" rather than in this table)	D

	gear and emergency power supply, fire pump, the function of the watertight doors		
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Source: The Regulation of PRC on Examination and Certification of Inland Water Crew for COCs (10 Rule), syllabus attached to 04 RULE(for near-coastal seafarers onboard less than 500gt seagoing ships), syllabus annexed to 11 RULE(*Syllabus of Examination of Seafarers for COCs*), Liaoning RULE(for port area seafarers) and Jiangsu RULE(for port area seafarers).

Table M: “Waterways and Navigation” subject in 10Rule’s syllabus compared with “Maritime Navigation” subject in the proposed syllabus

	“Waterways and Navigation” subject in 10 Rule syllabus	“Maritime Navigation” subject in “proposed syllabus”	cmt
1	Inland waterway and river hydrology factors	Water depth, bottom features, navigation obstruction marked in nautical charts.	E
2	navigation AIDS at inland waters. Traffic safety signals.	navigation AIDS at sea	D
3	Inland navigation map	Nautical charts and Chart work. Ship positioning.	D
4	Estuary tidal characteristics and the using of tide table.		B
5	Route selection, analysis of navigation conditions, inland river turning point, ship collision avoidance	Orientation and position, speed and distance. Route design and Precautions for coastal voyages.	E
6	Notices when navigating in curved reach, banks, locks, rapids, sailing river crossings, and at night navigation.	Notice when navigating in near-coastal voyages, narrow waterways, or reef area.	E
7	Notice when navigating in fog area, bridge area and estuaries.		B
8	Knowledge of Meteorology and weather, such as wind, visibility, fog, thunderstorms, cold wave, the typhoon	Knowledge of weather and oceanography: air pressure, wind scale, monsoon, fog, visibility, the wind and waves, swell	D
9	Radar assistant navigation	(it must be added into Liaoning rule!)	E

10	VTS services	VTS services and reporting obligation of seagoing ships.	C
11	(Not required in the syllabus)	The use of ECDIS.	D
12	(in the syllabus of “Ship Management”)	Magnetic compass, AIS and ship log.	A

Source: The Regulation of PRC on Examination and Certification of Inland Water Crew for COCs (10 Rule), syllabus attached to 04 RULE(for near-coastal seafarers onboard less than 500gt seagoing ships), syllabus annexed to 11 RULE(*Syllabus of Examination of Seafarers for COCs*), Liaoning RULE(for port area seafarers) and Jiangsu RULE(for port area seafarers).

Note: In Table(10), Table(11) and Table(12), for comments “A”, “B”, “C”, “D”, “E”, it is explained as:

“A” represents “they are generally the same knowledge or skill”;

“B” represents “they are the same knowledge while has slight difference in details”

“C” represents “they are the same knowledge but seafarer’s is deeper and theoretic”

“D” represents “they are same knowledge but has big difference in practical uses ”

“E” represents “they are totally different knowledge or skill ”

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