

Toward More Efficient Maritime Safety Administrative Structures in the APEC Region

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Abstract: This article aimed to find out suggestible model(s) of maritime safety administrative structure for the safer shipping environment in the APEC region.

The dominance of Asia-Pacific region in the world shipping demands a correspondingly high level of commitment to the world maritime safety. Consequently, the Asia Pacific community along with world maritime organizations including IMO have been seeking for common interests for the safer shipping and cleaner marine environment. However, up to date, the efforts to meet these regional and international demands have focused mostly on technical and human elements, with relatively little attention given to how effectively governmental agencies fulfill their responsibilities for maritime safety.

Following the study that attempted to assess the efficiency of maritime safety authorities in the individual APEC member economies, the result of which demonstrate that most economies as a whole have marginally efficient maritime safety authorities, though some of them having inefficient elements. Based on the assumption that maritime safety organizations are supposed to assume the roles and responsibilities as those of coastal states, flag states and/or port states, which are reflected in the regional and international conventions, this article focused on the

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searching for the factors that will affect the structures of governmental agencies responsible for maritime safety firstly. Secondly, the article analyzed the possible alternatives including maritime safety bureau type, coast guard type and maritime safety authority type and made possible recommendations for individual economies in the APEC region.

The result of the study will be meaningful for the APEC member economies to make a comparative analysis for more efficient maritime safety administrative structures, although the governmental structures are affected by a number of elements including political, historical, and economical aspects.

Keywords : Maritime Safety, Administrative Structure, APEC

I . Introduction

Asia-Pacific Economic Cooperation(APEC) is the premier forum for facilitating economic growth, cooperation, trade and investment in the Asia-Pacific region. APEC has 21 members¹⁾ which account for more than 2.5 billion people, a combined GDP of 19 trillion US dollars and 47% of world trade. APEC now represents the most economically dynamic region in the world having generated nearly 70% of global economic growth in its first 10 years and is expected to play a greater role in the forthcoming generations.

APEC is also playing a dominant role in the world shipping today that accounts for 21 percent of total world fleets and correspondingly required to commit high level of maritime safety in the region. A safer shipping encompasses human, technical, and institutional aspects of maritime safety efforts and these efforts need to be integrated. Up to now, growing efforts for a safer and cleaner shipping has been made across the world. These efforts have mostly focused on the human and technical elements, and very little attention has been given to how effectively governmental agencies fulfill their roles and responsibilities. Very recently, the world shipping community has come to recognize the importance of institutional and organizational aspects of maritime safety. Now it is assumed that strong and efficient administrative support from the government can enhance the quality of maritime safety and marine environment.

This article focused on first searching for the factors that will affect the structures of governmental agencies responsible for maritime

1) Australia, Brunei Darussalam, Canada, Chile, China, Hong Kong, Indonesia, Japan, Rep. of Korea, Malaysia, Mexico, New Zealand, Papua New Guinea, Peru, Philippines, Russia, Singapore, Chines Taipei, Thailand, United States, and Vietnam.

safety, and ultimately finding out any suggestible model(s) for efficient safety administrative structures for improving maritime safety. This article was initiated from the preceding one that handled the issue on the efficiency of maritime safety administrations in the APEC region. Chang(2001) assessed the efficiency of maritime safety administrations of each APEC member economy through the questionnaire survey and demonstrated some interesting results; Most of APEC member economies have marginally efficient maritime safety administrations, and particularly, some economies including Korea have some critical inefficient elements.²⁾ The result of this study has generated the motivation for further study on the efficient structures of maritime safety organizations.

The maritime safety administrative structures in any particular economy³⁾ will be decided considering historical, political and cultural backgrounds of the economy. As well, the strength and weakness of any structure type will be reflected. Therefore it is quite likely that every economy will have the administrative structure of its own and the structure will differ in a very diversified manner. Also, it seems not easy to define the maritime safety organization in a straight-forward way. Such diversity and complexity may undermine the value of this article. Fortunately, maritime safety service that every government is supposed to provide has homogeneity across the region and/or across the world. Shipping community has regional and international elements that require a number of regional and international conventions and regulations. For example, the Port State

2) The study has adopted as elements for assessing the efficiency magnitude of administration body, autonomy of maritime safety administrations, expertise, consistency in policy, fastness of decision making process, allocation of resources, compliance with the international maritime safety regime and degree of coordination.

3) APEC member economies are counted as unit of 'economy'. By this, Hongkong and China are different individual members.

Control will greatly affect the scope of service that each port state is supposed to offer. On the other hand, it is widely accepted that organizations are goal-oriented and have systematic structures and resources to achieve their goal. The homogeneity and the goal-oriented organization encourages us to expect fruitful result of this study. Therefore, it may be possible to make a suggestion for more efficient structures that will lead to a safer and cleaner shipping environment across the world.

Up to date, there are some studies⁴⁾ on the administrative structures of maritime safety, but overwhelming majority of them are limiting its scope to the issues of any single economy or country. Quite probably, this article will be the first one that covers nearly⁵⁾ all APEC member economies.

This article has some constraints as followings: Firstly, the article has focused on administrations under the central government. Most administrations have their local branches or local authorities for maritime safety activities, but the study has not covered them to concentrate in more detail on administrations under the central and federal governments. Secondly, the article has dealt with only primary administration for maritime safety in each member economy. Secondary administrations were not included in the analysis, but plural organizations with similar importance were equally treated. Finally, the article has dealt with the issues of administration structures as a tool for the improved safer shipping in the APEC

4) There are several studies on the maritime safety administration from the viewpoint of individual economies. For Korea, as an example, A Comparative Study on the Maritime Safety Administrations(in Korean), 1998, Korea Maritime Institute(KMI) and International Symposium on the Maritime Management Systems for Safer and Cleaner Seas in the New Millennium, 2000, The Korean Society of Marine Environment & Safety and Korea Maritime Institute(KMI) are available.

5) APEC has 21 member economies, but due to corresponding problem, Papua New Guinea, Peru and Russia were excluded in the analysis.

region.

This article forms a part of research study which has been undertaken through the APEC efforts that have carried out a preliminary survey to establish a systematic basis to investigate APEC member economies and international organizations to ascertain the parameters of an efficient maritime safety administration.

II. Data and Methods

A bunch of data and information in both qualitative and quantitative forms were collected through a questionnaire survey,⁶⁾ interview, document review as well as consultations from the member economies (countries) of the APEC.

Questionnaire survey was undertaken from October 2000 to April 2001 to obtain baseline information on the specific maritime administrative structures of maritime safety and marine environment protection.⁷⁾ One of the most critical things in designing questionnaire is to secure the validity and the reliability of the questionnaire. Several ways were introduced to secure the validity and the reliability of the questionnaire survey. In order to tackle the problem of validity, we have participated the experts who have much experience in designing research questionnaire and in maritime safety research. Questions were developed to be as clear and concise as possible to avoid misinterpretation and to permit short (yes/no) response.

The method employed in gathering data was 'the key informant

6) Questionnaire includes policy and administrative issues, legal issues, and maritime safety statistics.

7) In this study, the marine protection is defined as very narrow terms, or, the provision of oil spill treatment and prevention of oil spill pollution.

method', especially in gathering each economy's statistics on maritime safety. The key informant method is very useful technique for information gathering through a selected limited number of respondents. To avoid the shortcomings of questionnaire survey sometimes showing incomplete or unclear responses, interview survey was undertaken in selected economies. The economies invited to interview survey are⁸⁾; Australia, New Zealand, United States, Mexico, Taipei China, China, Japan, Thailand and Korea.

As fundamental materials, organization charts on maritime safety administration were collected to understand the structure of administrations in individual APEC member economies. 18 economies respectively provided its maritime safety organization charts.

III. Definition, Roles and Responsibilities of Maritime Safety Administration

1. Definition of Maritime Safety Administration

In this paper, maritime safety administration was defined as an agency that administer matters pertaining to the rules and procedures to ensure the implementation of maritime safety policy and to carry out the mandated safety and environmental functions and development and promotion of economic concerns. It is not straightforward to define maritime safety administrative structure, but the above-mentioned definition was the one that was widely accepted by the member economies.

8) The interview survey was undertaken in April through August in 2001.

As each administration carries out functions of policy development, administration of regulation, planning and implementation, the maritime safety administration will carry out the functions of policy development, administration of regulation, planning and enforcement of maritime safety and environmental services.

In general, the role and responsibility of maritime safety administration is also committed by each government, it will be also very difficult to delineate an widely acceptable one. To facilitate the comparative study of APEC member economies, we need to establish a widely acceptable role and responsibility of maritime safety administrations. This paper has attempted to deduce the role and responsibility of administrative agencies from the maritime safety activities which have been described in the regional and international conventions on the maritime safety.

2. International Conventions on Maritime Safety

Maritime safety by nature requires a regional and international cooperation, and world community are providing guidelines and regulations for improving maritime safety. The main sources of international conventions on maritime safety and marine environment protection come from United Nations(UN), International Maritime Organization(IMO), International Labor Organization(ILO), and regional mechanisms including Tokyo MOU. This paper does not provide detailed description of individual conventions due to the lack of time, but we need to understand the overview of international conventions on maritime safety through the abstracted explanation of individual conventions.

1) United Nations Conventions on the Law of the Sea

The United Nations Convention on the Law of the Sea (UNCLOS) was adopted in 1982. The United Nations Convention on the Law of the Sea lays down a comprehensive regime of law and order in the world's oceans and seas establishing rules governing all uses of the oceans and their resources. It embodies in one instrument traditional rules for the uses of the oceans and at the same time introduces new legal concepts and regimes and addresses new concerns. The Convention also provides the framework for further development of specific areas of the law of the sea.

2) IMO Conventions

IMO is the most important source of international conventions and regulations on maritime safety. It is known that IMO has so far enacted more than 40 international conventions, of which about 22 conventions are related to maritime safety and marine environment protection. SOLAS, MARPOL, STCW and ISM code are the most importantly relevant conventions to the maritime safety and marine environment protection. The major conventions and regulations on maritime safety in the IMO framework can be grouped in three areas; conventions regarding human element, conventions regarding the safety of asset, and conventions regarding marine environment protection .

3) ILO Conventions

ILO is an international organization that was founded in 1919 to bring governments, employers and trade unions together for united

action in the cause of social justice and better living conditions everywhere. In the context of maritime safety, it is particularly focusing on seafarers' interests. Of ILO conventions or recommendations up to date, ILO Convention Article 147 is the most relevant for maritime safety. Convention Article 147, which came into force in 1981, aims at improving the efficiency and safety of navigation, enhancing measures for the protection of marine environment and advancing seafarers' interests in the fields of health and safety, working conditions and trade union rights.

4) Tokyo MOU

The Memorandum of Understanding on Port State Control in the Asia Pacific Region (Tokyo MOU) is one of eight regional mechanisms⁹⁾ for a better implementation of Port State Control. The Memorandum was concluded in December 1993 and came into operation in April 1994. Presently Tokyo MOU has 18 member Authorities in the Asia Pacific region.

The main objective of the Memorandum is to establish an effective Port State Control regime in the region to eliminate substandard vessels for maritime safety, to protect the marine environment and to safeguard working and living conditions on board. Port State Control Committee monitors and controls the implementation of the Memorandum, consisting of representatives from IMO, ILO, ESCAP (The Economic and Social Commission for Asia and the Pacific), Paris MOU and the United States. The Memorandum uses relevant instruments as followings to achieve the purpose of the memorandum; LL 66, SOLAS 74, SOLAS PROT 78, MARPOL 73/78, STCW 78,

9) Tokyo MOU, Paris MOU, Acuerdo de Vina del Mar, Caribbean MOU, Abuja MOU, Black Sea MOU, Mediterranean MOU, and Indian Ocean MOU.

COLREG 72, and ILO 147.¹⁰⁾

The conventions and regulations we have outlined in previous section contain explicitly the roles and responsibility that a nation or an economy is to undertake in context of maritime safety. If a nation is required to undertake roles and responsibilities on maritime safety, it would act as a State which comes under one of the followings; 1) a coastal State, 2) a Port State, 3) a flag State and a mixture of them.

In order to examine the essential requirements for a maritime administration, it is therefore necessary to have a clear understanding of the roles and responsibilities that are stipulated in the international conventions and regulations by United Nations, IMO, ILO and others.

Further to identification of its roles and responsibilities, the maritime safety administration should have a clear policy statement, such as a corporate strategic plan, which articulates its strategy and policies, and states how these will be achieved and over what period of time. Key issues such as provision of personnel and financial resources should form a major part of the strategy.

3. Roles and Responsibilities of Maritime Safety Administrations

<Table-1> shows the maritime safety responsibility by coastal, flag and port States. All the activities except Port State Control inspection are included in the responsibilities of flag State control. Therefore the most significant challenge facing a maritime

10) International Convention on Load Lines (LL), International Convention for the Safety of Life at Sea (SOLAS), International Convention for the Prevention of Pollution from Ships (MARPOL), International Convention on Standards of Training, Certification and Watch Keeping for Seafarers (STCW), Convention on the International Regulations for Preventing Collisions at Sea (COLREG) 1972.

administration will be adequately fulfilling its responsibilities as a flag State. However, a number of economies experience difficulties in fulfilling this responsibility due to its broader responsibility. This has resulted in putting port States in place to take a place of flag States, especially to carry out an inspection regime by ensuring foreign ships visiting its ports to comply with international safety and marine environment protection conventions.

〈Table 1〉 Maritime Safety Activities of Coastal, Flag and Port State

Maritime Safety Activities		Coastal State	Flag State	Port State
Safety Assistance	Administration of safety regulation		○	
	Investigation and reporting of marine accidents		○	
	Vessel manning services		○	○
	Passengers safety		○	○
	Education and training of seafarers		○	
	Marine search and rescue	○	○	
	Salvage	○	○	
Inspection	Vessel registration		○	
	Port State control inspections			○
	Flag State inspections		○	○
	Vessel survey		○	
	Vessel classification		○	○
Navigational Aids	VTS and reporting system	○	○	
	Provision and maintenance of navigational aids	○	○	
	Pilotage		○	
Pollution	Provision of oil spill response (including HNS)	○	○	○
	Pollution prevention	○	○	○
International cooperation and others	International and regional Cooperation program (including IMO, ILO)	○	○	
	Implementation of international maritime conventions	○	○	○
	Promotion of safety culture		○	

IV. Factors Affecting Administrative Structures

1. Type of Administration

Considering the present types of each economy in the APEC region, administrative structures can be classified into several types such as Bureau (under Ministry), Authority, and Coast Guard. The selection of any type should be decided considering the historical and political background as well as the strength and weakness of each type.

2. The Level of Maritime Safety Administration

The level of maritime safety administrations in governance system is a critical issue in establishing a governmental agency. The questionnaire survey results show that most economies have the 'bureau' level for maritime safety, with some exceptions in Canada, Australia and USA. Though it is difficult to exactly understand the organizational hierarchy in each government, it is assumed that an administration (agency or authority) is higher than a bureau. The countries with greater demand for maritime safety and marine environment protection have administration system. Administration system will be benefited from a greater autonomy and a greater opportunity for enhancing personnel expertise. However, the system may lose some economic incentives.

3. Role of Education and Training

The role of education and training of seafarers and maritime safety

personnel is also becoming greater. Since a lot of maritime accidents are caused by human factors, education and training is assumed to contribute to decreasing maritime accidents. Most of APEC member economies have institutions for maritime education and training. Since detailed information on seafarers' training has already discussed in the China report¹¹⁾ which was completed in March 2000, our report covers only abstracted information. The issue will first focus on whether the role of education and training will be undertaken within the maritime safety administration or outside the administration.

4. Funding Sources

The result of our questionnaire survey shows that greater funding for the maritime administration has been the most crucial element in most APEC member economies. Funding for an administration may come from the national budget or from a levy on ship visiting its ports and a fee service or a mixture of these elements. In most APEC member economies, safety authorities are government-funded. A few, mostly from developed economies, are also industry-funded. Australia and New Zealand are prime examples of industry-funded maritime safety authorities. Australian Maritime Safety Authorities are funded from levy, fee and national budget, more than 80 per cent of its fund coming from levy.

The availability of these funding sources will affect the type of administration. Generally, 'Authority' type will have greater flexibility in funding sources, whereas 'Bureau' and 'Coast Guard' type are likely to more depend on the national budget.

11) APEC Seafarers Training Project (Phase II) was carried out by China Maritime Consultation & Service Centre.

5. Concentration of Maritime Safety Authorities

The structure of maritime safety administration will differ depending on whether maritime safety activities are concentrated into one administration or dispersed into two and more administrations.

This issue will be highlighted by whether services on marine environment protection and SAR are placed under same administration with the maritime safety functions.

6. Autonomy

The extent of autonomy will differ depending on the type of administration. It needs to be noted that some of the administrations independently operated of the ministry and less funded from government enjoy relatively greater autonomy. However, even though agencies are independently operated from the ministry, if they are mostly funded from the government, then they are likely to suffer from autonomy problems.

7. Enforcement

Another critical and most important function of the maritime administration is enforcement. Maritime States (economies) should act as a coastal State, flag State and/or port State. Therefore, it is essential for a flag State to establish and maintain effective control over ships flying its flag in accordance with UNCLOS Article 217 and Article 94. Further, an APEC member economy is required to fulfill its roles and responsibility as port State. Most APEC economies are parties to Tokyo MOU or Acuerdo de Vina del Mar and are supposed

to comply with related international regulations and conventions such as ISM code, STCW and MARPOL. Along with the roles and responsibility of coastal States in accordance with UNCLOS Article 220, the roles and responsibilities of flag or port State should be effectively implemented for improved maritime safety.

However, the application of international conventions and regulations into domestic maritime safety activities is slow for some economies. A variety of efforts by the international organizations including IMO, sometimes through cooperation with commercial sectors and individual States have been made to improve compliance of States to the international mechanisms.

The issue of enforcement, therefore, should be reflected in designing administrative structures for maritime safety. The issue of enforcement will focus on the establishment of unit (section) responsible for international conventions.

8. Coordination

Coordination between administrations or within administration is very important element for maritime safety administrations, especially in carrying out response services such as search and rescue and oil spill response. As these activities usually need coordinating actions between related agencies, ill coordination between agencies will bring greater damage on humans and assets at risk.

The extent of coordination with other administrations (or ministry) and within administration will differ depending on the type of administration. The result of survey shows that coordination is one of the critical problems for those economies with separate maritime safety administrations.

9. Expertise of Maritime Safety Personnel

Expertise of maritime personnel will be essential for the implementation of international mechanisms for safer shipping. The survey has found that many APEC member economies are facing with expertise problems. The expertise includes not only technical expertise and sea experience of crews, suitably trained PSC inspectors, and adequate administrative capabilities with sufficient knowledge of international safety requirements. Especially the lack of expertise on international maritime safety requirements are becoming an additive element for the necessity to set up the requisite administrative systems that will enable them to comply with international maritime standards.

10. Function of Policy Making

Whether an administration has policy functions or not will be affected by the type of administration. In some economies, they have some conflicts between maritime administrations over policy making functions, especially when there are two and more maritime safety administrations.

11. Other Factors

A key factor in the success of any maritime administration is the need for close consultations with its clients the shipping industry. Clear policy guidelines on communicating with industry are essential.

V. Suggestible Models

1. Types of Maritime Safety Administration

It will be the first task to decide the system of organization for maritime safety administration. Although there exist theoretically various organizational systems, most prevailing ones are bureaucracy, commission, and adhocacy.

Among these, bureaucracy system is assessed to be most appropriate for maritime safety administration. Bureaucracy is in some sense very ambiguous concept, which does not allow to be defined in a word. In general, it can be defined as a large system with a pyramid-type hierarchy and a solid legal and institutional framework. Bureaucracy is a large system with a mechanical and fixed structure. It has been most common type of organization both in public and in commercial sector, and most of current maritime safety administrations in the APEC region belong to this type. But it is sometimes criticized in many respects. In a severe case, it stands for 'inefficiency' in the public administration. However, under the current environments surrounding maritime safety services, bureaucracy system is most appropriate for maritime safety administrative bodies in the APEC member economies.

Considering the stability of maritime safety administrations to carry out enforcement services, particularly response services, commission system and adhocacy system are regarded as less appropriate for primary maritime safety organizations. Commission system can be adopted as an policy development or coordinating mechanism when maritime safety roles are dispersed in a several administrations, which was seen in China before mid-1990. Adhocacy is appropriate

for relatively small system with a flexible and adaptable structure.

If we adopt bureaucracy system for maritime safety administration, the subsequent thing is to decide the type of maritime safety administration. Based on the current types seen in the APEC member economies, possible types are to set up 'bureau', 'authority' and 'coast guard'. Each of these types has its strength and weakness. There is no type only having its strong points and merits. Therefore the selection of administrative type should be made by taking into consideration various attributes to enhance the efficiency of maritime safety administrations and individual economies' historical, political and geographical environment.

<Table-2> shows strength and weakness of each administrative type. Bureau type is assumed to have several strengths. In the first place, the Bureau type can achieve consistency between maritime safety policy and its planning and enforcement. The Bureau can also make relatively easy access to enacting or revising laws and regulations, since the Ministry to which the Bureau belongs has legislative power. In addition, it will enjoy comparatively higher organizational stability.

On the other hand, this type shows, for many cases, low priority of maritime safety functions in the Ministry and it may often fail to demonstrate the characteristics of maritime safety and marine environment protection function. Therefore it may suffer from comparatively smaller budget in allocating Ministry's budget. The Bureau type may suffer from poor enforcement when it (or the Ministry) does not have local branches. It also may have problem of inadequate experts if transfer of personnel happens between maritime safety bureau and other bureaus.

If the Bureau becomes larger, it can be enhanced to 'Administration'. Administration can enjoy greater autonomy than a bureau and, higher

opportunity for expertise, so it would be desirable for economies with greater demand for maritime safety services to adopt 'Administration' type. However, it should be noted that Administrations may lose its priority in the government unless sufficient budget and funding system is not available.

Coast Guard type has various advantages such as strong enforcement, faster response to emergency, greater autonomy, abundant resources and strong leadership. Above all, it has the advantage of abundant manpower and broader coverage in geographical location of its enforcing forces. However, Coast Guard, particularly in case it focuses on the security functions, has demerits of weak relationship with customers due to its strict operation, as well as no legislative right.

Authority type, first of all, has the merits of greater autonomy. It usually has the autonomy in planning and enforcing. Sometimes, they can have the policy development function. It also has independent power in budget and personnel management, although they are placed under a Ministry. This enables the Authority to secure experienced people for maritime safety. In addition, Authority system is easily ready for changing environment. Authority system will also take advantage of flexible operation, greater expertise and faster response to emergency in addition to the greater autonomy.

An authority usually does not have legislative power. In order to enact new laws or amend existing laws, it has to turn to the Ministry it belongs to. In most economies, head of ministries has right to submit a bill to the National Assembly, but head of administration and authority does not.

Sometimes, the Authority type does not have policy function. Instead, the Ministry under which the Authority is placed has policy formation function. This situation often causes conflict between the

Ministry and the Authority. Therefore the Authority recommended here is supposed to have policy development function on maritime safety.

〈Table-2〉 **Strength and Weakness of Each Administrative Type**

	Bureau Type	Coast Guard Type	Authority Type
Strength	<ul style="list-style-type: none"> - Consistency between policy and enforcement - Easy legislation - Higher stability 	<ul style="list-style-type: none"> - Strong enforcement - Faster response to emergency - Greater autonomy - Rich resources - Strong leadership 	<ul style="list-style-type: none"> - Greater autonomy - Flexible operation - Greater expertise - Faster response to emergency
Weakness	<ul style="list-style-type: none"> - Less autonomy - Poor enforcement unless local branches are available - Inadequate expertise - Lower priority in the Ministry 	<ul style="list-style-type: none"> - No legislative right - Strict operation - Weak relationship with customers 	<ul style="list-style-type: none"> - No legislative right - No policy power - Weakening autonomy unless stable budget is secured

〈Table-3〉 **Comparative Analysis between Administrative Types**

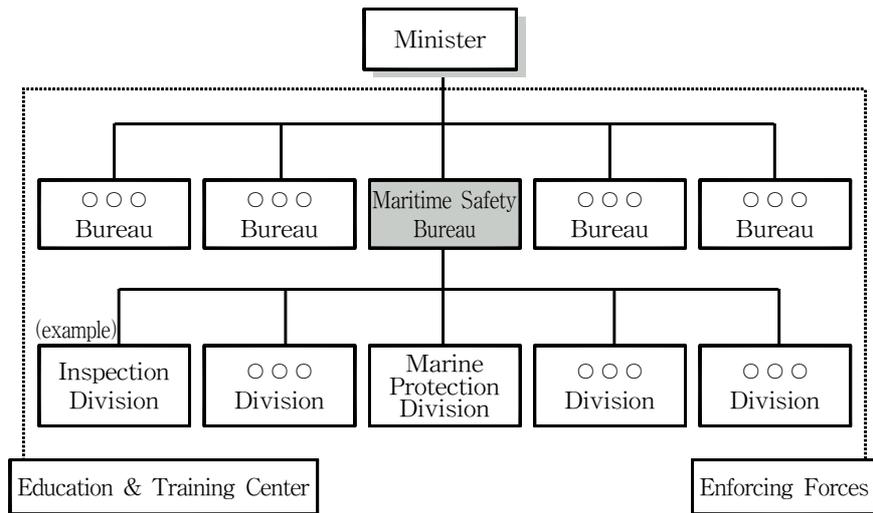
	Bureau Type	Coast Guard Type	Authority Type
Consistency between policy and enforcement	High	High	Maybe low
Legislative power	High	Low	Low
Expertise	Low	High/Low	High
Autonomy in budget	Low	Moderate	High
Autonomy in operation	Low	High	High
Organizational stability	High	High	High
Available resources	High/Low	High	Low
Flexibility	Moderate	Low	High
Coordination with other administration	High	Low	Low
Response to emergency	Low	High	Low

2. Maritime Safety Bureau

The first alternative for the optimum maritime structure is a conventional bureaucratic type organization. The Bureau will be placed under the Ministry who is responsible for transportation or maritime affairs and have several subordinate units (divisions or sections).

The Bureau will assume several responsibilities as followings; First, the Bureau covers all the maritime safety activities including prevention services and response services; secondly, some activities such as vessel registration and pilotage will be committed to 'recognized organization'; thirdly, oil spill response will be undertaken by local maritime branches and private companies; and finally, the Bureau will be responsible for seafarers training. The training center can be established under the auspice of the Ministry(Bureau).

〈Figure-1〉 Basic Structure of Bureau Type



The Bureau will have functions of policy development, regulation and legislation, planning and enforcement on maritime safety. Maritime safety policy will be reviewed by the Maritime Safety Committee, which can be installed under the Minister as an advisory body. It needs not to be standing committee. The Bureau will be also responsible for international affairs related to maritime safety conventions including IMO. In order to effectively implement international affairs, the Bureau needs to have a subunit (division).

The Bureau will be almost wholly government funded. The portion of levies and charges will be very minimal, but it will have to try to increase the portion of levies and charges. If the roles and size of the Maritime Safety Bureau becomes greater than the size of bureau level, the bureau needs to be restructured into an independent agency, say, Maritime Safety Administration. In this case, it is essential for the Administration to take measures or secure mechanism for stable and continued budget from government.

Brunei, Malaysia, Korea, Thailand, Vietnam, Mexico, Hong Kong and Indonesia are currently included in this category. Canada and Japan are partly included in this category. The Bureau type can be adopted by those economies that are generally recognized as rapidly growing maritime economies. These economies feature that Maritime Safety Bureau are closely cooperative with coast guard or marine police, because their role are essential to implement maritime safety services, especially response maritime services.

〈Table-4〉 Comparative Analysis on Three Alternatives

	Bureau System	Coast Guard	Authority
Basic Structure	Ministry > Bureau	Ministry > Coast Guard	Ministry > Authority
Functions	Legislation by Ministry Policy by Ministry Planning by Bureau Enforcement by local branches or local government	Legislation by Ministry Policy by Coast Guard Planning by Coast Guard Enforcement by local branches of Coast Guard	Legislation by Ministry Policy by Authority Planning by Authority Enforcement by local branches or local government
Activities	Prevention services Response services	Same as left	Same as left
Education and Training	Education committed to college or private institutions Training by Ministry	Education by Coast Guard Training by Coast Guard	Same for Education Training by authority
Fund	Government Funded	Government funded	Mixture of government funded, levy and charge
Level of person in charge	Director general in charge	Commandant or Vice Commandant	Administrator or Vice Administrator
Privatization	Vessel classification Manning services Pilotage Salvage	Vessel classification Manning services Pilotage	Vessel classification Manning services Pilotage Salvage
Economies To be possibly applied	Brunei, China, Malaysia, Indonesia, Japan, Korea, Peru, Philippines, Russia, Taipei, Canada, Hong Kong, Mexico, Thailand, Vietnam are possibly included	Chile, USA	Australia, New Zealand, Singapore

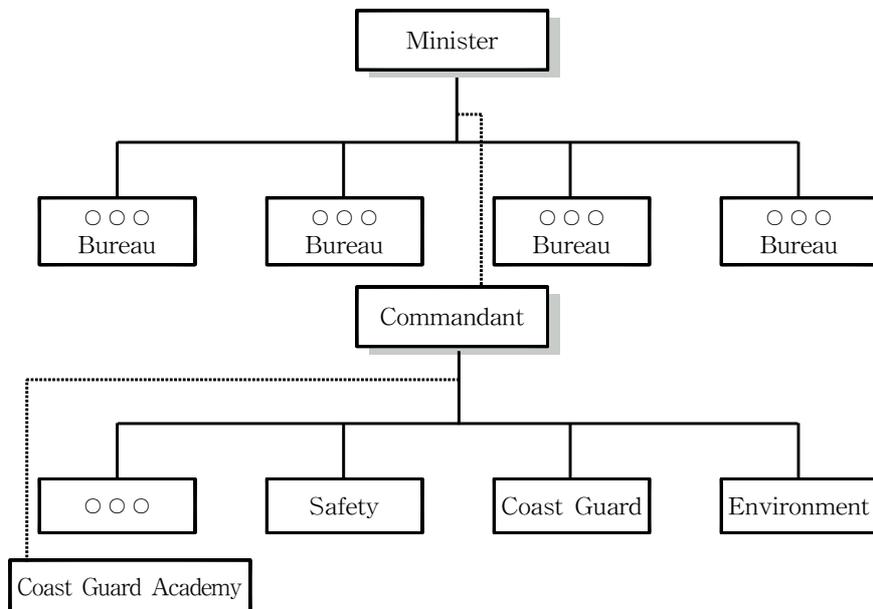
3. Coast Guard

The second alternative is Coast Guard. The Coast Guard in certain economies will be an agency with an independent right of budget and personnel management, though it is placed under a Ministry.

A suggestible model for Coast Guard can be United States Coast Guard, which acts as a primary agency responsible for maritime safety activities including response and prevention services. Coast Guard type is regarded as the most appropriate type for the implementation of response services including oil spill response.

Coast Guard is wholly government funded. Coast Guard will have an advantage in securing stable budget, if it is also responsible for maritime security. Unlike the Bureau type, it will have training and education institutions as its branches.

〈Figure-2〉 Basic Structure of Coast Guard Type



Under the Coast Guard type, the function of salvage needs not to be privatized unless the salvage market is huge. The critical issue for Coast Guard is to have policy development function. Of course, the Coast Guard will take responsibility of maritime security functions such as maritime guard, maritime criminal investigation and intelligence & security operation.

The United State Coast Guard is a typical one for Coast Guard type. It belonged to the Department of Transport,¹²⁾ but it is quite independent of the Department in implementing maritime safety functions. Its functions include safety policy development, planning and enforcement of prevention and response services. As the Navy of Chile is primary agency for maritime safety activities, if there is a growing demand for the maritime safety services, the establishment of Coast Guard will be one of institutional arrangements.

For some economies including Philippines, Korea and Japan, Coast Guard (including Marine Police) plays substantial roles in maritime safety sector. These economies have committed some of maritime safety roles, particularly marine environment protection to the Coast Guard. However, they are the secondary agencies in the maritime safety sector with very limited policy development function. For these economies, the clear statement of roles and responsibilities for each administration(agency) to avoid duplication of roles and responsibilities will be crucial for the integrated. Consistency in policy development, planning and enforcement needs to be secured in the establishment of administrations.

12) US Coast Guard now belongs to the Department of Homeland Security.

4. Maritime Safety Authority

The third alternative for the suggestible maritime safety structure is the Maritime Safety Authority. It is often observed across the world that if a bureau becomes larger than the size of a bureau in terms of budget and personnel, the bureau tends to become independent organization such as authority, agency or administration. The Authority will be within or outside the government structures depending on the national legislation. In either case, it will be directly or indirectly placed under the control of the Ministry responsible for the transport or maritime affairs. In general, the Authority is connected with the Ministry through the Board.

Most important thing for an Authority to be successful is funding. Without any mechanisms for an independent and continued funding for an Authority, it can not be independent in a real term. The success of Authority system therefore depends on how to secure stable budget for its activities. If an Authority depends the major portion of its annual budget on the Government side, the role and activity of the Authority may shrink over times, because the Authority often stays relatively far from the central Government compared to the Government structures.

Therefore, an Authority shall have to seek for its major sources of funds from outside the government sector. As we have seen in Australia and New Zealand, it has to diversify its funding sources. The Authorities in these two economies gets substantial parts of its annual budget from levy and charges.

In this context, the Authority type needs to focus on efficiency rather than effectiveness in assessing its performance. These two terms, efficiency and effectiveness are similar, but a straightforward difference between these two concepts is that effectiveness does not

put value on input. From this viewpoint, the Authority type needs to privatize as many functions as possible.

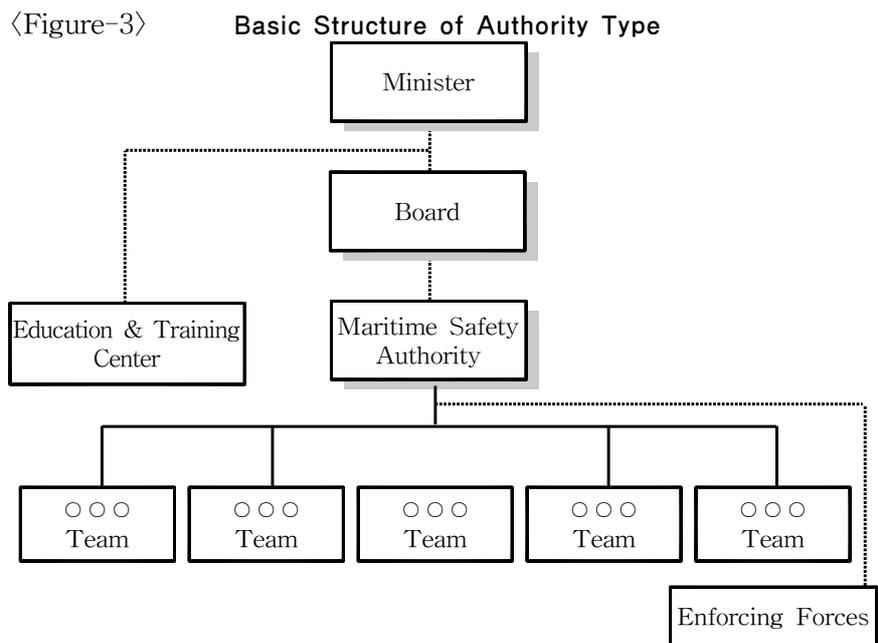
Education and training can be an inadequate function for Authority, because it is undertaken for public importance rather than profitability. Particularly, as the education and training in the maritime safety sector has very limited market, it can't be assessed in monetary terms. Taking this into consideration, the installation of education and training organization within a Maritime Safety Authority may be a burden for its future development. It can be therefore suggested that an Authority is preferred not to assume education and training responsibility. In this case the Education and Training Center can be established under the Ministry responsible for safety and transport by combining other transport sectors such as aviation safety.

Australia, China, New Zealand, Philippines, Russia, Singapore and Taipei are currently included in this Type. However, closer looking into them shows that they are grouped into two different types. China, Philippines, Russia and Taipei respectively has Administration for maritime safety, while Australia, New Zealand and Singapore respectively has Authority for maritime safety.

Australia, New Zealand and Singapore are seen not to have budgetary problems, because the majority portion of their budget is funded through levy and charge. They also have high quality personnel. However, the common problem for these economies is fragmented maritime regulatory bodies and no appropriate legislative framework.

To resolve these problems, strong leadership is needed. Strong and active leadership will help to gain broader cooperation from several regulatory bodies in establishing long-term maritime safety policy and in legislative activities. Such leadership can be generated from

the head of Authority and the Executive Board.



The economies with Administration type have merits of qualified and specialized personnel, but they are in common facing the problem of insufficient budget. To resolve this problem, these economies need to expand the portion of levy and charges. Whether or not it can be applied to individual economies will differ depending on each economy's maritime environment. Another suggestion is to secure a kind of quota from national budget, which will be helpful to preserve relative importance of maritime safety in the government. The proper mechanism adequate for each economy to secure stable budget should be developed.

VI. Conclusions

This paper aimed at identifying suggestible maritime safety administrative structures for safer shipping environment in the APEC region. The paper does not provide any single suggestible model for the APEC member economies, which might be the aim that can not be achieved from the beginning, as long as we accept and recognize the complexity of maritime safety structures and they are created reflecting their political, cultural and historical background in individual economies.

However, the paper for the first time attempted a systematic approach to find out any possible suggestible model(s) for the maritime safety structures that will help the APEC region and/or the world maritime community secure safer and cleaner shipping. Also, the data and informative results obtained from the comparative analysis across the member economies will be helpful for further maritime safety studies, considering there have been very few studies on the maritime safety administrative structures rather than technical and personnel approaches. In addition, It will be a reference to the possible future reorganization in the economies, particularly the economies which are currently facing government reform and long term development plan of maritime safety sector.

Nevertheless, the results of this article need to be interpreted and applied in a cautious way, because of the limitations that this paper exposes. Mainly, this study has mainly depending on the data and materials obtained by the questionnaire survey and interview, so in-depth survey was not available. Hopefully, further studies covering the remaining regions of the world are expected to come out in the near future, since this article only covers the APEC region alone.

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