



THE IMPLEMENTATION OF PORT STATE CONTROL IN TAIWAN

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THE IMPLEMENTATION OF PORT STATE CONTROL IN TAIWAN

Rong-Her Chiu*, Chien-Chung Yuan**, and Kee-Kuo Chen*

Key words: Taiwan, port state control, Tokyo MOU, PSCO.

ABSTRACT

Port state control (PSC) is the inspection of foreign flagged vessels in national ports to verify that the condition of ships and equipment comply with the requirements of international conventions and that ships are manned and operated in compliance with applicable international laws. To do its duty as an important maritime country to combat substandard shipping and protect marine environment, Taiwan began implementing its PSC system from the beginning of 2003 although it has not been accepted as a member state of the IMO or Tokyo MOU.

The purpose of this paper is to investigate the newly implemented PSC system in Taiwan. It is hoped that Taiwan's experience on launching PSC operations will be a good referral to other country's system. The major contents include the introduction of the system and the analysis of ship's inspection results over the past four years. The paper further discusses some in-depth issues about the system including the difficulties of the implementation and the inadequacies of the system.

I. INTRODUCTION

Port state control (PSC) is the inspection of foreign flagged vessels in national ports to verify that the condition of ships and equipment comply with the requirements of international conventions and that ships are manned and operated in compliance with applicable international laws. The primary responsibility for ensuring that a ship maintains a standard at least equivalent to that specified in international conventions rests with the flag state, and, if all flag states performed their duties satisfactorily, there would be no need for PSC. Unfortunately, this is not the case as evidenced by the many marine accidents around the world; hence there is a need for additional controls. Nevertheless, port state control is not and can never be a substitute for the proper exercise of the flag state responsibility. Only when the flag states fail to meet their commitments, then the port state

comes into play. The control measures taken under PSC are supposed to be regarded as complementary to national measures taken by flag state administration and are intended to provide assistance to these administrations ([12], p. 1).

As a small scale economy system, shipping industry has been well-developed in Taiwan. First, its national private shipping companies such as Evergreen Group, YangMing Line, and Wan Hai Line were ranking the 3rd, 17th and 20th of the container carriers in the world in July 2006 ([1], p. 68). Secondly, around 2.69 percent of world fleet tonnage was under the control of persons domiciled in Taiwan; the figure of 24.38 million dead weight tonnage supported Taiwan as the 9th most important maritime country in the world on January 2006 ([14], p. 33). Thirdly, port of Kaohsiung situated in southern Taiwan was the 6th biggest container port in the world in 2005 ([6], p. 67). To do its duty as an important maritime country to combat substandard shipping [11] and protect marine environment, Taiwan began implementing its PSC system from the beginning of 2003 although it is not a member state of the International Maritime Organization (IMO). Taiwan also has not been accepted in the Tokyo MOU¹ although it has continued making efforts and taking every possible opportunity to build contact with the regional PSC agreement [3].

The purpose of this paper is to investigate the newly implemented PSC system in Taiwan. It is hoped that Taiwan's experience on launching PSC operations will be a good referral to other country's system. The paper is organized as the following. First, it illustrates the importance to Taiwan for launching the PSC operation. Secondly, the introduction of the system's background, the organizational structure and the inspection task is followed. Thirdly, it conducted an empirical study to analyze the ship's inspection results over the past four years; in the meantime, the paper further discusses some in-depth issues about the system's implementation difficulties and inadequacies. Finally, the conclusion summarizes the research results of the study.

¹ Tokyo MOU is "the Memorandum of Understanding on Port State Control in the Asia-Pacific Region" established in 1993; it is the PSC agreement Taiwan should apply for becoming a member and getting comprehensive information to operate its PSC system. Currently, there are eight well organized PSC agreements as the following: the Paris MOU established in 1982, the Latin American Agreement established in 1992, the Tokyo MOU established in 1993, the Caribbean MOU established in 1996, the Mediterranean MOU established in 1997, the Indian Ocean MOU established in 1998, the Abuja MOU established in 1999, and the Black Sea MOU established in 2000. For further information, please refer to [12].

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II. PSC REGIME IN TAIWAN

1. Background

As mentioned previously, although not being a member state of IMO, Taiwan is, nevertheless, willingly committed to comply with IMO resolution A.787(19)² and participated in the responsible maritime nation's league to jointly combat substandard ships through performing PSC regime. National law is the authority by which the PSC is implemented and administered. A port state need not be a signatory of such conventions in order to exercise PSC. When commenting on Article 218 of the 1982 Law of the Sea (LOS) Convention, McDorman also pointed out three situations that a state can exercise its authority to enact and enforce regulations against foreign vessels: (1) customary and conventional international law, subject to limited exceptions, allows a port state to enact and enforce regulations against foreign vessels for actions or inactions that occur or exist while such vessels are in ports; (2) the LOS Convention provides that a port state can enact and enforce regulations against foreign vessels for actions or inactions that occurred while such vessels were in the territorial sea or the Exclusive Economic Zone (EEZ) of the port state; (3) the customary international law prohibits enforcement of local laws against foreign vessels for actions or inactions that took place beyond the national waters of the enforcing country; however, the Article 218 of the LOS Convention, the "port state enforcement provision", is providing port states with a greater ability to enact and enforce laws against foreign vessels for marine pollution incidents that take place on the high seas or in the waters of other states ([9], p. 307).

To be cautiously, Taiwan authority (Ministry of Transportation and Communications, MOTC) requested assistance from the Canadian Trade Office in Taipei (CTOT) to develop a PSC system for Taiwan. CTOT together with the Canadian Coast Guard, submitted their proposal to the MOTC in September 1998. The MOTC, with a mandate to implement a PSC system covering all domestic ports open to foreign shipping, joined with Transport Canada (TC)--Canada's federal-level transportation authority, and CTOT to determine the most effective way to implement such a system in Taiwan. The PSC system in Taiwan is defined to cover ship safety, pollution prevention, and shipboard living and working conditions. With the PSC system being introduced since January 2001, Taiwan has already had operative PSC procedures in place for five years until 2006. The immediate results have been realized in enhanced ship safety, reduced pollution, and improved shipboard living and working

conditions [15].

2. The Current PSC System in Taiwan

Taiwan's PSC system aims to meet or exceed, in all respects, the requirements of the Tokyo MOU on PSC. It requires foreign merchant ships calling at, or anchoring off, Taiwan ports to comply with relevant convention standards. The recording and reporting system shall, at the time of commissioning, comply and agree with that currently used by Tokyo MOU signatories. In Taiwan, the PSC system further allows for the delay or detention of ships identified as substandard or unsafe. An appeal process is available to ship owners to challenge Port State Control Officer (PSCO) decisions. However, initiation of an appeal alone is not sufficient to retract a PSCO decision to detain a ship. Taiwan's PSC system has also fostered effective and comprehensive technical cooperation programs that have significantly improved PSCO professional qualifications and further augmented PSC-related activities in the Asia Pacific region. MOTC-sponsored training courses, seminars and visits to ports in other countries have been instrumental in raising professional standards and sharing experiences.

The authority to conduct foreign ship inspections, originating from the MOTC, is granted to the international Harbor Bureaus of Keelung, Kaohsiung, Taichung and Hualien (and their branch bureaus). A ship will be detained when either its condition or that of its crew fails to correspond substantially with applicable conventions. The ship will not be permitted to sail until compliance with such conventions is demonstrated in order to ensure the safety of the vessel, crew, and marine environment. Currently, the Commercial Harbor Law provides the legal basis for Taiwan authorities to detain commercial vessels [2]. Under this Law, a ship may be detained if it is found to be operating under a certificate issued in accordance with the following conventions that is found to be invalid. The applicable conventions referred by Taiwan's PSC system would be the same as that used by Tokyo MOU, such as: Load Line 66/88, Tonnage 69/82, COLREG 72/77, STCW 78/95, MARPOL 73/78, ILO Convention No. 147 76/81, SOLAS 74 as amended/78/88/2002 ISPS Code, and the Protocol of 1978 relating to SOLAS 74. (IMO, International Conventions for SOLAS and STCW) A ship found not compliant with terms in the above shall be deemed as holding invalid certificates and, therefore, subject to detention. The inspection procedures shall adhere to instructions provided in Chapter I, Section 3 of the Tokyo MOU.

Each port shall be staffed by a minimum of two PSCOs licensed as either a Master Mariner (unlimited tonnage) or Chief Engineer (unlimited tonnage). The qualification of other staff at least should be: (1) holding a valid STCW 78, as amended, continued proficiency endorsement; (2) having experience sailing on international routes in a position not lower than Chief Officer or Second Engineer (second in command of the engineering department); and (3) fluent in both spoken and written English. Also, it is preferable that a certain number of PSCOs have previous experience on oil, chemical and/or LPG tankers.

² Resolution A.787(19) was adopted by the 19th Assembly of the IMO. The Resolution is intended to provide basic guidance of the conduct of port state control procedures and afford consistency in the conduct of such inspections, the recognition of deficiencies of a ship, its equipment, its crew and the application of control procedures. It is published as a booklet with the title of *Procedures for Port State Control. The draft Assembly resolution on Amendments to the procedures for port state control (Resolution A.787(19))* was approved for submission to the 21st Assembly of IMO for adoption. Consequently, the 21st Assembly, in November 1999, adopted Resolution A.882(21) Amendments to the procedures for port state control (Resolution A.787(19)). For further information, please refer to [12], pp. 106-07.

Table 1. Implementation results of 2003-2006.

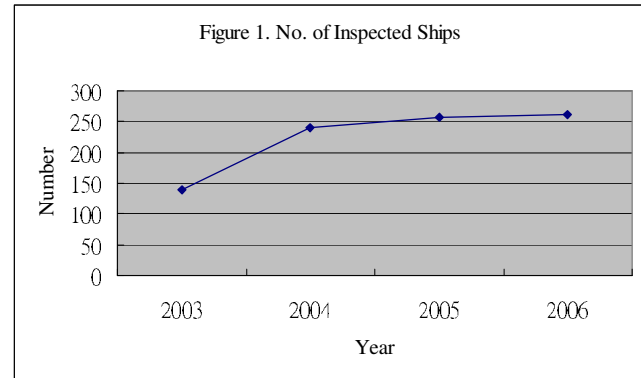
Year	Item description	Statistics
Grand Total (2003-2006)	Total number of inspected ships	898
	Total number of inspected ships found having deficiencies	461
	Percentage of inspected ships found having deficiencies	51.3%
	Total number of inspected ships which were detained	156
	Detention rate of inspected ships found having deficiencies	33.8%
	Total number of deficiencies that was recorded	2683
2003	Total number of inspected ships	140
	Total number of inspected ships found having deficiencies	104
	Percentage of inspected ships found having deficiencies	74.3%
	Total number of inspected ships which were detained	9
	Detention rate of inspected ships found having deficiencies	8.7%
	Total number of deficiencies that was recorded	445
2004	Total number of inspected ships	239
	Total number of inspected ships found having deficiencies	120
	Percentage of inspected ships found having deficiencies	50.2%
	Total number of inspected ships which were detained	38
	Detention rate of inspected ships found having deficiencies	31.7%
	Total number of deficiencies that was recorded	747
2005	Total number of inspected ships	258
	Total number of inspected ships found having deficiencies	112
	Percentage of inspected ships found having deficiencies	43.4%
	Total number of inspected ships which were detained	49
	Detention rate of inspected ships found having deficiencies	43.8%
	Total number of deficiencies that was recorded	747
2006	Total number of inspected ships	261
	Total number of inspected ships found having deficiencies	125
	Percentage of inspected ships found having deficiencies	47.9%
	Total number of inspected ships which were detained	60
	Detention rate of inspected ships found having deficiencies	48%
	Total number of deficiencies that was recorded	744

Source: Calculation based on the statistics derived from PSC database, Ministry of Transportation and Communications, Taiwan.

III. THE EMPIRICAL STUDY

1. The Achievements after Conducting PSC Operations

From the beginning of 2003, Taiwan began implementation of PSC system and took action to inspect foreign vessels calling at Taiwan's international ports--Keelung, Kaohsiung, Taichung and Hualien, respectively. During the period of 2003 to 2006, as

**Fig. 1. No. of inspected ships.**

shown in Table 1, PSCOs in Taiwan conducted a total of 898 random inspections on ships registered under 72 flags. PSCOs totally recorded 2683 deficiencies which including all conditions on board found not in compliance with relevant instrument requirements and requested that such deficiencies to be rectified. The averaged percentage of inspected ships found having deficiencies was 51.3 percent; in addition, over the past four years the detention rate was slightly over one third of the total ships found having deficiencies (33.8%).

For Taiwan, a territory with short history of PSC system enforcement, there are some more information to be noted from those statistics presented in Table 1. First, the number of inspected ships steadily increased every year, from 140 ships in 2003 to 261 ships in 2006 as shown in Fig. 1, which showed that PSC implementation in Taiwan has been gradually established.

Secondly, the purpose of PSC inspection is to improve ship's safety; the percentage of inspected ships which were found having deficiency was over 50 percent over the past four years in Taiwan's international ports, which could indicate that Taiwan installs the PSC system is meaningful in that Taiwan can joint together with the other maritime nations to combat the substandard ships for better protecting the marine environment. As indicated in Fig. 2, the ratio of inspected ships which were found having deficiency decreased yearly; that result could indicate that Taiwan's PSC system may help owners reduce ships' defects.

Thirdly, the detention rate of deficiency ships were increased yearly, from less than 10 percent in 2003 to 48 percent in 2006 as shown in Fig. 3; the statistics could imply that PSCOs in Taiwan have been better trained and are more capable of conducting their duty confidently and appropriately.

In order to obtain more information from the past experience, the authors further analyze the statistics recorded by PSCOs from 2003 to 2006 to characterize those deficiencies detected from those inspected ships by code (type) of deficiency, classification society, and some ship's features in terms of flag, type, tonnage, as well as age. The information derived from the empirical data analysis may provide as the basis for selecting ships to be monitored in the future by PSC regime in Taiwan.

According to Table 2, the most frequently recorded defi-

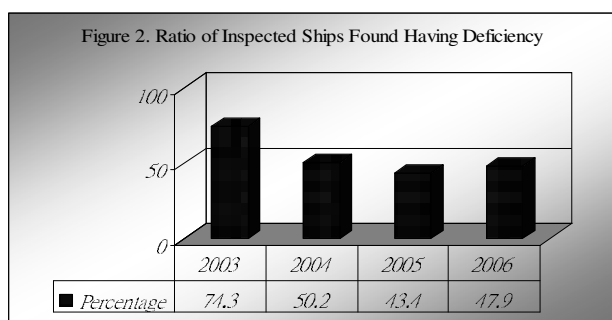


Fig. 2. Ratio of inspected ships found having deficiency.

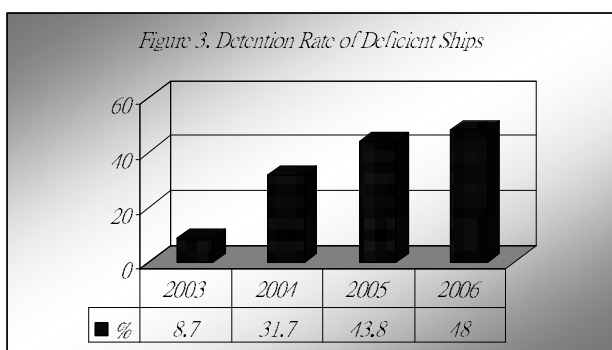


Fig. 3. Detention rate of deficient ships.

ciency items by Taiwan PSCOs were as the following: 0720 (ready availability of fire fighting equipment), 0956 (gangway, accommodation-ladder), 1275 (ventilators, air pipes, casings), 0985 (maintenance of condition), 1310 (ropes and wires), 1430 (auxiliary engine), and 1220 (freeboard marks). The information can provide all PSCOs for reference and remind them paying more attention on those factors.

Over the past four years, as shown in Table 3, ship flying the Panamanian flag has been singled out on the top of the list showing inspected ships to have deficiencies. The other flag-state ships frequently being detected to have deficiencies include: Cambodia, Belize, Hong Kong, and Liberia, etc. One possible reason can be employed to explain the situation because Panama is one of the major FOC (Flag of Convenience) registry countries ([14], p. 35). Due to its liberal registration and taxation advantages, it attracted huge tonnage flying its flag ([13], p. 158). Most of the FOC ships have been notorious for their low safety standard³ and naturally they will become the target group to be inspected by any country's PSC system. In Table 3, not only Panama, Cambodia, Belize and Liberia were all categorized under FOC register ([12], p. 33). Ships registered under flag-state of Belize, North Korea, and Cambodia were even evaluated as ships with "very high risk" by Paris MOU in 2002 ([12], p. 28).

Information in Table 4 showed that higher percentage of inspected ships detected having deficiencies were frequently

³ FOC ships were classified as the substandard ships by OECD report. ITF also has been continued advocating the "boycott" actions against those FOC ships with low safety standard. For more background information of FOC, please refer to [12], pp. 23-33.

Table 2. Major deficiency codes of inspected vessels recorded by Taiwanese PSCOs (2003-2006).

Deficiency Cod	Number of Ship Inspected Having Deficiency	Percentage of Deficiency coded recorded from inspected ships*
0720(Ready availability of fire fighting equipment)	92	3.4 %
0956(Gangway, accommodation-ladder)	69	2.6 %
1275(Ventilators, air pipes, casings)	59	2.2 %
0985(Maintenance of condition)	29	1.1 %
1310(Ropes and wires)	26	1.0 %
1430(Auxiliary engine)	24	0.9 %
1220(Freeboard marks)	24	0.9 %

* As shown in Table 1, the total number of deficiencies recorded is 2683. Source: Calculation based on the statistics derived from PSC database, Ministry of Transportation and Communications, Taiwan.

Table 3. Distribution of detected deficiency among major flag-states (2003-2006).

Flag-State	Number of Ship Inspected Having Deficiency	Percentage of Deficient Ships to Total Ships Inspected*
Panama	179	38.8 %
Cambodia	29	6.3 %
Belize	24	5.2 %
Hong Kong	12	2.6 %
Liberia	10	2.2 %
Others	207	44.9 %

* As shown in Table 1, the total number of ships being inspected with deficiency is 461.

Source: Calculation based on the statistics derived from PSC database, Ministry of Transportation and Communications, Taiwan.

carrying certificates issued by classification societies of NK, CR, CCS, ABS, BV, and KR, etc. The three classification societies NK, CR, CCS have been put on the top of list that their certified ships being inspected having more deficiencies than the other societies. If we can crossly check what kind of deficiencies discovered on certain classification society, it would provide greater help for conducting ship's inspection.

Tables 5, 6 and 7 displayed those inspected ships' features in terms of ship type, tonnage and age respectively over the past four years. Three types of ship-bulk carrier, general cargo and multi-purpose ships were pinpointed carrying higher percentage of deficiencies. Regarding the tonnage, the empirical data pointed out that less than 10,000 Gross Tonnage (GT) ships have been spotted having highest ratio of deficiency; which was followed by ship's group between 10,000 and 20,000 GT. Data in Table 7 revealed that ships operating over 20 years were having extremely high percentage of deficiencies. It seems

Table 4. Classification society of inspected ships detected having deficiency (2003- 2006).

Classification Society	Number of Ship Inspected Having Deficiency	Percentage of Deficient Ships to Total Ships Inspected*
Nippon Kaiji Kyokai (NK) (Japan)	75	16.3 %
China Corporation Registry of Shipping (CR) (Taiwan)	35	7.7 %
China Classification Society (CCS)(China)	26	5.8 %
Others	325	70.2 %

* As shown in Table 1, the total number of ships being inspected with deficiency is 461.

Source: Calculation based on the statistics derived from PSC database, Ministry of Transportation and Communications, Taiwan.

Table 5. Type of inspected ship detected having deficiency (2003-2006).

Ship Type	Number of Ship Inspected Having Deficiency	Percentage of Deficient Ships to Total Ships Inspected*
Bulk Carrier	171	37.1 %
General Cargo	168	36.4 %
Multi-purpose	47	10.3 %
Oil Tanker	15	3.2 %
Full Container	8	1.8 %
Chemical Tanker	6	1.3 %
Others	46	9.9 %

* As shown in Table 1, the total number of ships being inspected with deficiency is 461.

Source: Calculation based on the statistics derived from PSC database, Ministry of Transportation and Communications, Taiwan.

logically that older ships were susceptible to have deficiencies and require more maintenance.

2. Implications and Challenges

The empirical data analysis discussed in the previous section may provide some implications and guidance for the future implementation of PSC regime in Taiwan. First, PSC regime in Taiwan has been gradually established as evidenced by the increasing number of inspected ships, decreasing percentage of inspected ships which were found having deficiency. Secondly, when inspecting vessels, PSCO should pay attention on those major deficiency items discovered over the past years' data such as 0720 (ready availability of fire fighting equipment), 0956 (gangway, accommodation-ladder), 1275 (ventilators, air pipes, casings), 0985 (maintenance of condition) and 1310 (ropes and wires), etc. Thirdly, according to the empirical data showed in Tables 3 and 4, it is seemingly reasonable that MOTC should request PSCO to inspect vessels flying FOC flags (such as Panama, Cambodia, Belize, Hong Kong, and Liberia) and car-

Table 6. Gross tonnage of inspected ships detected having deficiency (2003-2006).

Gross Tonnage (GT)	Number of Ship Inspected Having Deficiency	Percentage of Deficient Ships to Total Ships Inspected*
<10000	274	59.4 %
10000-20000	113	24.6 %
20000-30000	38	8.2 %
30000-40000	24	5.3 %
>40000	12	2.5 %

* As shown in Table 1, the total number of ships being inspected with deficiency is 461.

Source: Calculation based on the statistics derived from PSC database, Ministry of Transportation and Communications, Taiwan.

Table 7. Age of inspected ships detected having deficiency (2003-2006).

Ship Age (years)	Number of Ship Inspected Having Deficiency	Percentage of Deficient Ships to Total Ships Inspected*
≤5	32	7.1 %
6-10	48	10.3 %
11-15	47	10.2 %
16-20	69	15.0 %
>20	265	57.4 %

* As shown in Table 1, the total number of ships being inspected with deficiency is 461.

Source: Calculation based on the statistics derived from PSC database, Ministry of Transportation and Communications, Taiwan.

rying certificates issued by some classification societies (e.g. NK, CR and CCS). Those ships have been most frequently found having deficiency. Finally, the empirical data also apparently point out some indications for Taiwan's PSCO to conduct PSC inspection on those ships with the following attributes: (1) bulk carrier or general cargo ship, (2) ships less than 20000 GT, and (3) ships have operated over 20 years.

Based on the past four years' experience, some challenges and obstacles also occurred. Therefore, there are still many things should be done to make PSC system in Taiwan be more completed and to improve the ship's inspection practice. Among those most important matters need to be tackled are: (1) establishing an independent governmental agency to carry out the PSC duty; (2) enacting comprehensive national laws for enforcing the PSC system; (3) recruiting appropriate persons to be the PSCO and providing more training for PSCOs to renew and enhance their capabilities for conducting their task; (4) improving PSCO's equipments and working benefits; (5) increasing contacts with Tokyo MOU or foreign country's PSC organization to exchange information and experience on PSC implementation ([4], p. 358; [5]; [8], p. 77; [15]; [10]). Those issues will be elaborated in the following.

Regarding the issue of setting up an independent PSC administration unit, currently Taiwan government still has no plan

Table 8. PSCOs appointed in international ports in Taiwan as of November 2006.

Port	No. of PSCO	Qualification of PSCO
Kaohsiung	26	Chief engineer: 3; Shipbuilding engineer: 2; Staff with 10-15 years of ship's inspection experience: 21.
Keelung	13	Master mariner: 2; Chief engineer: 2; Chief mate: 1; Second mate: 3; Ship engineer: 4; Staff with 10-15 years of ship's inspection experience: 1.
Taichung	14	Chief mate: 2; Second mate: 2; Ship engineer: 1; Shipbuilding engineer: 2; Staff with 10-15 years of ship's inspection experience: 7.
Hualien	4	Chief mate: 2; Staff with 10-15 years of ship's inspection experience: 2.
Total	57	Master mariner: 2; Chief engineer: 5; Chief mate: 5; Second mate: 5; Ship engineer: 5; Shipbuilding engineer: 4; Staff with 10-15 years of ship's inspection experience: 31.

Source: [15].

to do that. Due to the lack of independent agency, some drawbacks occur such as: no budget to build up and maintain PSC databank; no staff and full-time PSCOs to take charge of the PSC affairs⁴; and no definite administration office responsible for arranging the training for PSCOs and building regular links with foreign PSC organizations to exchange information and experience. As for providing comprehensive national laws to support the PSC inspection and ship's detention, many studies suggest the government should enact an independent domestic law governing the implementation of PSC system. ([4], p. 359; [8], p. 76) At present, the legal basis for Taiwan to implement PSC regime is the Article 50 of Commercial Port Law to cite the international conventions and the PSC rulings of Tokyo MOU. Nevertheless, Taiwan PSCOs consider the legal basis is too weak. Besides, Taiwan has not been accepted by Tokyo MOU as a member or obtaining observer status; that make most of the PSCOs worry about not having strong support to conduct their duties.

With regard to recruiting and training of PSCOs in Taiwan, some subjects deserve special attention. As shown in Table 8, there were totally 57 PSCOs conducting duties in four international ports and their subsidiary ports as of November 2006. Although Taiwan recruited 57 PSCOs allocating in four international ports, some challenges existed and caused them unable to carry out PSC task in good condition. The first problem was the qualification of current PSCOs should be enhanced; in particular, more numbers of qualified master mariner and chief engineer were needed to be recruited to conduct the PSC task. Secondly, all of PSCOs were all government employees working in harbor bureaus and conducting PSC duties as a part-time job; accordingly, they cannot devote themselves to handling

PSC mission. In addition, more than half of the current PSCOs have no on board working experience; they urgently need more continuous training for upgrading knowledge and skill on PSC implementation ([10], p. 13). According to Liao's research, Taiwan's PSCOs require more professional training to enhance the following most needed items: updated rulings of international conventions, spoken English proficiency, as well as oil pollution equipments and prevention measures ([8], p. 51).

With short PSC implementation history, Taiwan's PSCOs responded that the following equipments were needed: safety equipment (including safety helmet, steel-toed boots, high-visibility vest, rainy coat, working uniform, hat), and inspection equipment (including digital camera, notebook or PDA, flashlight, small measuring tape, chipping hammer, transportation vehicle, cellular telephone, PSC manual including all relevant instructions, regulations and conventions consolidated edition). Besides, all PSCOs requested the improvement of their working benefits; at least, the over-time working hours should be paid [15]. In the final report of the Canada-Taiwan Maritime Systems Technology Program-Year 6 Port State Control, it also recommended to purchase some database, such as the IMO-Vega Database developed by IMO and Det Norske Veritas, the Computerized IMDG Code with amendment 29-98, and the IMO Resolutions Database ([10], p. 9).

As mentioned in the previous section, Taiwan has been concertedly making efforts to contact with the Tokyo MOU and trying to apply for an observer status in the organization. Unfortunately, Taiwan has not been formally accepted by Tokyo MOU owing to complex political factors. For PSC implementation, MOTC also organized PSC field-study trip to visit foreign countries to exchange information and share experience on PSC enforcement. Since 2004, MOTC PSC field-study group has visited the following nations: South Korea, Japan, Hong Kong, Singapore, Canada, and Malaysia.

IV. CONCLUSION

Port state control (PSC) is the inspection of foreign flagged vessels in national ports to verify that the condition of ships and equipment comply with the requirements of international conventions and that ships are manned and operated in compliance with applicable international laws. To do its duty as an important maritime country to combat substandard shipping and protect marine environment, Taiwan began implementing its PSC system from the beginning of 2003 although it has not been accepted as a member state of the IMO or Tokyo MOU.

The information derived from the empirical data analysis may provide as the basis for selecting ships to be monitored in the future by PSC regime. The following aspects deserve paying special attention: (1) the top five deficiency items recorded over the past years' data were 0720 (ready availability of fire fighting equipment), 0956 (gangway, accommodation-ladder), 1275 (ventilators, air pipes, casings), 0985 (maintenance of condition) and 1310 (ropes and wires); (2) vessels, flying FOC flags (such as Panama, Cambodia, Belize, Hong Kong, and Liberia) and

⁴ Currently PSCOs in Taiwan are recruited from the government employees working in respective Harbor Bureaus-Kaohsiung, Keelung, Taichung and Hualien; they are conducting the PSC task as a part-time job.

carrying certificates issued by some classification societies (for example, NK, CR and CCS), had been frequently found having deficiency and should be inspected when calling at Taiwan's port; (3) ships with the following characteristics also should be inspected in the first priority because they were most frequently detected having deficiency; they are: (a) bulk carrier or general cargo ship, (b) ships less than 20000 GT, and (c) ships have operated over 20 years.

Based on the past four years' experience, some important matters need to be tackled to make PSC system in Taiwan be more completed and improve the ship's inspection practice; they are: (1) it is urgently needed to establish an independent governmental agency to carry out the PSC duty; (2) in order to provide a solid foundation for PSCO to conduct ship's inspection, it is important to enact comprehensive national laws for enforcing the PSC system; (3) the current practice for PSCO to conduct their PSC task as a part-time job needs to be changed as soon as possible; besides, it is also imperative to recruit more qualified persons as PSCO and to provide more training for PSCO to renew and enhance their capabilities for conducting their task; (4) the equipments and working benefits for PSCO are needed to be improved continuously; (5) due to lack of formal status in IMO and Tokyo MOU, Taiwan's PSC authority should increase informal contacts with Tokyo MOU or foreign country's PSC organization to exchange information and experience on PSC implementation.

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