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Port state control and its implication on ship safety

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**PORT STATE CONTROL AND ITS IMPLICATION
ON SHIP SAFETY**

by

Stephen Yiu Kwong LI

A thesis submitted to the University of Plymouth in partial fulfilment
for the degree of

DOCTOR OF PHILOSOPHY

Institute of Marine Studies

Faculty of Science

**In collaboration with
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Port State Control And Its Implication On Ship Safety

Stephen Yiu Kwong LI

ABSTRACT

Over the past twenty years a growth in sub-standard shipping has been observed. The thesis identifies the causes of this growth. It then identifies Port State Control (PSC) as a measure evolved by some states, with the purpose of removing sub-standard shipping from their waters, and thereby improving maritime safety and the protection of the environment. The purpose of this programme of research is to assess the effectiveness of PSC in achieving its purpose.

An eclectic research methodology has been adopted which first considers, in depth, the global and regional context in which PSC functions. Taking the Port of Hong Kong as an example, the study then reviews how PSC operates in practice. Shipping casualty data is examined to test the merits of targeting ships for PSC inspection. Finally the expert opinion of both official and wider marine communities in Hong Kong is sampled in order to form an overall view on the effectiveness of PSC.

The research reveals considerable agreement between all parties that PSC, in general is achieving its purpose. It also recognizes that PSC should only be a "second line of defence" in combating sub-standard shipping. The first line remains Flag State enforcement of standards, accompanied by wider development of a safety culture in the shipping industry.

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DECLARATION

At no time during the registration for the degree of Doctor of Philosophy has the author been registered for any other University award.

Publications by the author, in connection with this research, are included at the end of the thesis in Appendix 1 & 2.

The author has been a Port State Control (PSC) officer in the Hong Kong Marine Department since July 2000 and acting head of the PSC section from August 2001 to February 2002.

The author attended the PACON 97 Proceedings in August 6-8, 1997 at the Chinese University of Hong Kong and presented the paper "Port State Control and Its Implication on Ship Safety".

Signed:



Date: 15 August 2002

CHAPTER ONE

INTRODUCTION

1.1 Development of Shipping

The shipping industry has always been international in its nature. The world merchant fleet transports more than 90 per cent of global trade and modern society has an increasing reliance upon the commodities – particularly hazardous and dangerous cargoes that are carried by ships. The demand for ships is derived from the need to move large quantities of goods (and people) from one part of the world to another, in the cheapest and most reliable way possible. The demand for sea transport would be affected by the level of world economic activity and this in turn, would be expected to have a significant impact on the supply of ships and hence, the size of the world merchant fleet [1-1]. It is essential that safety in this industry is given the priority it deserves and that international shipping is governed by effective regulatory mechanisms, mechanisms that are, in turn, properly monitored and enforced to ensure full compliance with agreed standards.

The reconstruction of Western Europe and Japan after World War II gained momentum by the mid 1960s. Whatever domestic sources of raw materials existed were simply inadequate to fuel desired levels of economic activity, and large quantities of steel-making ores, coking coal and crude oil had to be imported from foreign sources [1-2].

The effects of these developments on the world merchant fleet were two-fold. The first

was a rapid increase in the supply of ships to meet the additional demand for sea transport. The second was a marked change in the size distribution of ships within the fleet, as economies of scale were being explored to the fullest, especially by Japanese, Greek and Norwegian shipowners who sought a competitive edge in the market.

1.2 Commercial Pressures - The World Economic Situation And The Ageing Fleet

World economic conditions in combination with an excess of tonnage (contributed to at least in part by the operation of sub-standard vessels), have reduced freight rates to levels where, in some trades, returns barely meet a vessel's expenses. This is particularly the case when items of depreciation and maintenance of the capital asset are included in the equation. The position was summarized thus in the report of the Australian Inquiry into Ship Safety:

In response to commercial pressures sub-standard ship owners / managers are accepting lower freight rates, leaving responsible ship owner / managers who are unable to operate at the lower freight rates with a declining market share. This is particularly evident in the bulk trades. The acceptance by charterers of low freight rates available through the operation of sub-standard shipping exacerbates this situation [1-3].

In its turn some of the World's trade has come to rely on cheap sea transport. The following example illustrates the World's dependence on cheap shipping:

Wastepaper is collected in Germany; because of various environment laws, it is not profitable to recycle it here in Germany, so it is shipped in containers to Canada where it is pulped. It is then shipped to Indonesia to make new paper which is then shipped to Taiwan for printing. The finished product is then returned to Germany for final consumption. This is an extreme example; but without a cheap and effective transport system many industries would not have survived. [1-4].

Low financial returns mean that new buildings are in many cases difficult to justify. This has led in recent years to an increasing number of vessels remaining in operation in circumstances where they might otherwise have been scrapped and replaced with newer tonnage.

The average age of the world fleet was 17 years in 1998 and was increasing at the rate of nine months per year.

Three quarters of the world's tankers are over 15 years old, the age that IMO estimates to be about the safe working life of a ship, depending upon her initial scantlings and the quality of her maintenance and management [1-5].

This is not to say that old ships are necessarily unsafe. An old but well maintained and crewed vessel will be safer than one which is newer but has not had the advantage of maintenance and a well trained crew. The fact is that older vessels tend not to be properly crewed or maintained. That older ships are lost more often than newer vessels is clearly reflected, in the casualty statistics [1-6].

Low financial returns also mean that owners look to cut costs. Safety is not without financial cost and is thus too often one of the first casualties.

1.3 Insurance

The marine insurance industry is fiercely competitive. Towards the end of the 1980s, and in the early years of the 1990s, significant losses were incurred. Premiums did not reflect the risks involved as fierce premium cost cutting battles raged amongst the marine insurance industry for the purpose of maintaining customers in business. Whilst the case with which insurance could be obtained was perhaps not in itself a primary cause of

sub-standard vessels, it can certainly be argued that it is a contributory factor and a factor due in part to competitive commercial pressures. There have undoubtedly been some improvements in more recent years. More detailed attention is being paid to risk analysis and the Joint Hull Committee, representing Lloyds underwriters and the non-Lloyds commercial underwriters has introduced the classification clause and structural condition warranty. Under these conditions, vessels can be subjected to survey by the salvage association, on behalf of the underwriter, as a condition of insurance being granted or maintained. The danger remains however, that as the market improves standards will again begin to fall and underwriters will become less concerned with the standard of vessels taken on their books.

Whilst not in itself a cause of sub-standard ships the lack of a compulsory requirement for all vessels to hold adequate insurance in respect of at least third party liabilities is a symptom of sub-standard operations. Vessels carrying in excess of 2,000 tonnes of persistent oil in bulk, must carry appropriate cover under the 1976 Civil Liability Convention. Similar requirements are imposed by the laws of various individual countries. Unfortunately not all countries in the maritime world make mandatory the requirement for the ship owner to hold adequate insurance in respect of third party liabilities. These situations amplify the scale of damages to the victims in the case of marine accident, in particular with the sub-standard ship operators whose capital investment in these vessels is already at minimal. In case of a major disaster let alone the damages that had created due to the accidental nature, there would be a heavy loss in a sense of financial consequences when no adequate insurance was covered in respect of third party liabilities. However, if sub-standard operators were insured then at least the victims of damage from such vessels would stand a better chance of receiving compensation. In this regard it may

be right to say that failure to hold evidence of valid insurance could be made a ground for detention by Port State inspectors, yet none of the Memorandum of Understandings (MOUs) has reached the stage of taking marine insurance into their consideration.

1.4 Problems with Classification Society

In the past classification societies were largely associated with the vessels registered in the Flag State in which each society was situated. The rise of the open register has changed this and societies must now compete for business. In addition to classing ships, the classification societies are also, in certain cases, appointed by Flag States to carry out regulatory surveys and inspections. There is thus significant scope for commercial pressures and conflicts of interest to impinge on the operation of the societies. The Australian Inquiry into Ship Safety considered that:

There seems little doubt that the quality of classification society inspections declined as societies sought to maintain their client base. It is abundantly clear to the Committee that while classification societies remain subject to unregulated commercial competition there is the possibility of inspections not being carried out properly. Put bluntly, ample evidence was put to the Committee that the quality of inspections had gone down as the intensity of competition for clients has gone up [1-7].

Whilst steps have been taken within International Association of Classification Societies (IACS) to improve co-operation between the societies (including liaison in respect of owners seeking to transfer between societies or class hopping) and the quality of their organizations, it appears that there is still some way to go before classification societies could pose heavier weight on maintenance of standard rather than competition of commercial interest [1-8].

1.5 The Evolution of Open Registry

One of the principal means by which owners may seek to cut costs is to register their vessels under the flag of an open register or flag of convenience country.

Much is made of the fact that in excess of 50% of the world's tonnage is registered under flags of convenience. It is also a fact that vessels registered under certain of such flags appear in the casualties statistics and in the defect reports of Port States on a much more regular basis than those registered under the flags of the traditional maritime States [1-9]. That is not to say however, either that all ships registered under flags of convenience are sub-standard or that all vessels registered under traditional maritime flags are beyond reproach. Some flags of convenience operate with accident rates that are less than those achieved by certain of the established national flags.

There are some professional, competent and efficient operators who choose to operate under flags of convenience for legitimate reasons, or at least for reasons which do not involve a desire to cut down on the safety and efficiency of their ships and crews. There are a number of reasons, not related to cost savings or reduced adherence to safety regulations, why operators may choose to register under a flag of convenience. In the case of certain eastern European States for example, registration under a flag of convenience brings with it the opportunity to grant a mortgage over the vessel in a form acceptable to western banks, thereby giving access to sources of finance which might otherwise be unavailable. Vessel under South African control during the period of that country's isolation from world affairs were registered under flags of convenience with a view to hiding their ultimate beneficial ownership.

What then is a flag of convenience and why do such flags tend to attract sub-standard ships and crews? Generally speaking there are two types of ship register: open registers and closed registers. Registration under the flag of an open register is available to any shipowner, regardless of nationality, who applies for registration and satisfies the necessary conditions. In contrast, closed registers restricted registration to the nationals of a country [1-10].

At one end of the spectrum are the national registers that treat the shipping company in the same way as any other business in that country. Countries such as France, Japan and the United States operate national registers and use their vessels principally for their own domestic needs. These vessels are closely controlled as to safety and environmental standards, and are generally owned and crewed by citizens of the same country.

In the centre of the spectrum are the cross-trading nations such as the United Kingdom, Norway, and Greece that use their ships primarily to carry cargoes among countries other than their own. Vessels registered under these flags are also usually regulated and often owned, managed and crewed by citizens of the Flag State.

The international open registries are located at the opposite end of the spectrum from the national registries and are operated primarily by developing countries such as, traditionally, Honduras, Panama and Liberia, and more recently, for example, Vanuatu and Mauritius. Insofar as their import and export requirements are concerned, these countries have virtually no need for most of the shipping registered under their flags. They have been set up with the specific aim of offering foreign shipowners internationally competitive terms, as a means of earning revenue for the Flag States.

One might also make reference to a fourth category, namely international or second registers. These are secondary registers operated by some of the traditional maritime States, the Norwegian International Ship Register (NIS) being a prime example. Under these arrangements, traditional countries have attempted to make available to their own nationals certain of the financial benefits of the open registry whilst at the same time to maintain existing safety and pollution prevention standards.

In 1974 the ITF defined flag of convenience in the following terms: Where beneficial ownership and control of a vessel is found to lie else where than in the country of the flag the vessel is flying, the vessel is sailing under a flag of convenience [1-11]

Whilst not everyone necessarily agrees with the International Transport Federation (ITF) definition of flags of convenience, the following features are now generally accepted as indicative of as flag of convenience or open register:

- .1 Non citizens may own and /or control vessels.
- .2 Access to registry is easy. A vessel may be registered at a consulate office. (In certain cases, Liberia being the prime example, the operation of the registry is not even located in the Flag State but in another commercial center).
- .3 Taxes on income from the ships are low or non-existent. Revenue is obtained by the levy of a registry fee and annual tonnage charge. Relatively speaking these costs are nominal.
- .4 The state registry is a small, often third world, power with no requirement for all of the tonnage registered under its flag in terms of transporting its own exports and imports. However receipts from the relatively small annual charges levied against ships registered under that flag produce a substantial effect on the Flag State's national income.
- .5 There is no restriction on the crew of vessels. Crewing by non-nationals is

freely permitted.

- .6 The Flag State has neither the administrative machinery, competence, nor the power to effectively impose any government or international regulations.
- .7 The Flag State does not have the will or ability to control the corporate bodies which are invariably the owners of vessels registered under the flag.

1.6 The Reward of Sub-standard Operation

The competitive advantages to be obtained by using some registers, through non-observance of the applicable international rules and standards, are considered in the following occasions.

One of the examples used in the Organization for Economic Cooperation and Development (OECD) report to illustrate the savings which may be achieved by operating a vessel at a sub-standard level relates to the costs of operating a late 1970s built 30,000 deadweight (dwt) bulk carrier operating within the handy-size time charter market in late 1994.

Assume that the ceiling, (which may be defined as the level of maximum expenditure, influenced by the financial revenue earning potential of the vessel in the freight market and financial costs of the owner) at which a vessel might be operated, is set at US\$7,500 per day. Operation of the vessel at a level of good practice, (defined as being a high level of expenditure adopted by a minority of shipowners), would then give a cost in the region of US\$4,500 per day [1-12].

Dropping to the level of “common practice”, defined as the average level of expenditure adopted by a majority of shipowners, the costs fall to US\$3,750 per day. Falling further to “standard practice”, defined as a minimum level of expenditure to ensure owners’ compliance with basic safety standards, the cost falls to US\$3,250 per day. At the “base

floor”, being defined as the minimum level necessary to keep the vessel operation, it will be US\$2,750 per day.

It will be seen that the difference between the “floor” and the “ceiling” amount to some US\$4,750 per day. The difference between the industry average “common practice”, and the “floor” stands at US\$1,000 per day whilst the margin between the level of “standard practice” required to comply with minimum safety standards and the lowest level of sub-standard operation can be seen to equate to some US\$500 per day or nearly US\$182,500 per year. A reduction of 13% in the annual running costs for this vessel type is apparent when the common “practice” and “floor” levels are compared.

A similar exercise carried out in relation to the operation of a 1990’s 40,000 dwt products tanker revealed saving of 15% per annum or US\$237,250 per year as between operation at the “common practice” level and the “floor”. It will thus be seen that the rewards for the operation of sub-standard vessels are not inconsiderable. The scope for obtaining such rewards is significantly wider under flags of convenience which in many cases permit operation at the lowest levels [1-13].

1.7 The Growing Importance of Port State Control

In accordance with international law each state has the sovereign right and responsibility to exercise control over foreign flag ships within its territorial jurisdiction. In addition to territorial jurisdiction, a number of international maritime conventions adopted by the International Maritime Organization (IMO) and the International Labour Organization (ILO) provide for countries to conduct inspections of foreign ships visiting their ports.

The object of these conventions is to improve maritime safety, protect property, life and

the marine environment and to promote and ensure compliance with acceptable on board living and working conditions. The responsibility for ship safety and pollution prevention lies primarily with the Flag States, the ship's owner and operator and its crew [1-14]. However, many Flag States are either unable or unwilling to maintain full and continuous control of their ships and increasing responsibility is placed on the Port State.

Long term viable solutions to problems associated with sub-standard and un-seaworthy vessels can only be achieved through international action by individuals, organizations and governments, taking responsibility for ship safety. The answer lies in all owners or operators and Flag States implementing convention requirements to acceptable levels [1-15]. If such effective action is implemented there should be no place on the international shipping scene for the ship owner who seeks to operate ships that do not comply with the relevant international conventions.

Port State Control is a method of checking the successful enforcement of the provisions of various international conventions covering safety, working conditions and pollution prevention on merchant ships. It is the process by which a nation exercises authority over foreign ships when those ships are in waters subject to its jurisdiction. The right to do this is derived from both domestic and international law.

A nation may enact its own laws, imposing requirements on foreign ships trading in its waters, and nations which are party to certain international conventions are empowered to verify that ships of other nations operating in their waters comply with the obligations set out in those conventions. Under international law the ship owner has prime responsibility for ensuring compliance with international conventions. The Flag State involved should

carry out safety inspections to their ships on a continuous basis when they are away from their registered ports, either by the Flag State surveyors or delegated classification society. However in the case that the Flag State fails to regulate such measures, Port State Control provides a back up for monitoring the implementation of international shipping regulations. Under the Port State Control system ships failing to comply with the international conventions could be detained by the Port State authority.

The stated purpose of Port State Control in its various forms is to identify and eliminate ships which do not comply with internationally accepted standards as well as the domestic regulations of the state concerned. When ships are not in substantial compliance, the relevant agency of the inspection of the Port State may impose controls to ensure that they are brought into compliance. It is the ship owner who is ultimately responsible for all compliance with international and national obligations but it is incumbent upon any state which allows the registration of ships under its flag effectively to exercise jurisdiction and control in administrative, technical and social matters. A Flag State is required to take such measures as are necessary to ensure safety at sea with regard to construction, maintenance and seaworthiness, manning, labour conditions, crew, training and prevention of collisions of ships flying its flag.

The Memorandum of Understanding (MOU) on Port State Control is a regional administrative agreement signed by the regional maritime authorities. In the memorandum of understanding the participating maritime authorities agree to establish in their ports a harmonized system of Port State Control with the aim of eliminating the operation of sub-standard ships.

The Paris Memorandum of Understanding on Port State Control entered into effect on 1 July 1982. Its present membership consisted of 19 members. The co-operating countries were Japan and United States.

In November 1992, an agreement for co-operation on Port State Control was signed by 10 maritime authorities in Latin American region, subject to their acceptance of the agreement. Under the agreement each country will inspect 15% of foreign merchant ships visiting their ports to ensure that they comply with major IMO/ILO instruments.

On 29 November - 2 December 1993, the Tokyo MOU in Asia Pacific Region was concluded and signed at the Tokyo meeting on 2 December 1993. The Tokyo MOU was signed by 18 maritime authorities in the Asia-Pacific region.

On 23rd November 1995, International Maritime Organization (IMO) of the United Nation adopted a resolution providing procedures for the uniform exercise of Port State Control and regional agreements have been adopted by individual countries within Europe (Paris Memorandum), various Asian states (Tokyo Memorandum) and other states in Caribbean, South America and countries in the Mediterranean regions. In addition, some countries such as United States of America have adopted a unilateral approach to the subject, which nevertheless has the same aims [1-16].

Shipowners and operators should take measures to reduce the likelihood that their ships will be subjected to intervention or detention, bearing in mind that increasingly efficient databases will enable the maritime authorities who participate in the growing range of international agreements, memoranda and conventions to exchange information. Being

inspected by one state and given a clean bill of health will not necessarily prevent further inspections being made by another maritime authority, and, as information is exchanged between various organizations, non-compliant ships will find it increasingly difficult to continue operations.

1.8 Problems Associated With European Port State Control Experience

The introduction of Port State Control, in North West Europe, was met with some prejudice on the part of the maritime industry in general and ship owners in particular. An unbalanced "witch hunt" in European ports was feared, causing apprehension on the part of many Flag States, especially developing countries, who considered Port State Control to be a European protectionism measure [1-17]. This general hesitance in wide maritime circles portrays the overall conception climate in which Port State Control under the Paris Memorandum had to make a start.

In October 1999, Cyprus, burdened by a 20% detention rate compared with 7% for European Union member states, conveyed its disillusionment with the system to the European Commission and was in the process of substantiating what it claims are the frequent excesses of inspectors. Cypriot officials were enraged by the detention of the general cargo ship 'Anais' at Antwerp in early October 1999 while the ship was in the act of changing flag to Cyprus and under Flag State inspection [1-18]. Nine of the deficiencies reported by the Belgian inspectorate confirmed the absence of safety certificates on board, but these were being examined at the time by the Cypriots for registration purposes, thus they could not be found on board. According to the director of Cyprus' shipping department, Serghios Serghiou, Port State Control had lapsed from its serious purpose. He raised the concern that ships had been detained by the Port State for

very minor deficiencies, in many cases for insignificant deficiencies and in many other cases for no reason at all.

This fact, however, generated a renewed concern on the part of some sectors of the shipping industry, particularly ship owners and some Flag States that this form of Port State Control would lead to unacceptable interference with normal shipboard operations[1-19]. However many Flag States continue to ignore the maintenance of a proper control of ships on their respective registers. This applies in particular to the shipping in developing world countries, where low profit margins and heavy competition are likely to be expected, often resulting in sub-standard ships and poor crew standard. This situation amplifies the role of the Port State Control in ensuring that ships continue to comply with acceptable standards of maritime safety, pollution prevention and on board living and working conditions [1-20].

However the long term goal of the Port State Control is to minimise the operation of the sub-standard vessel by re-allocating the role in maintaining a good standard ship to the Flag State and the ship owner manager on an self initiative base rather than as a preventive measure [1-21]. Recognising that a Port State could not eliminate the operation of sub-standard ships singled handed, the lesson of past Port State Control experience in Europe demonstrates also that no one region can effectively eliminate the operation of sub-standard ships. The best possible result one region can achieve is to keep sub-standard ships at an arm-length, just outside the region, ready to re-enter the region only when the commercial benefits for the ship owner exceed the costs of compliance with the international convention in the case his ships being detained by the Port State authorities.

1.9 Port State Control - the Practice

Post 1960 developments in shipping have been characterized by a rapid increase in the number and size of ships, as shipowners sought to match a seemingly insatiable demand for seaborne transport with tonnage supply. A significant highlight of this era, has been the phenomenal growth in the tanker and dry bulk fleets, as attempts were made to secure operational advantages from greater economies of scale. This has held a number of far-reaching implications for the maintenance of standards of safety in shipping. The probability of collisions, a major cause of marine casualties, occurring became higher, due to the increased traffic intensity, resulting from a more than tripled bulk fleet, by the early 1970s.

The demand for trained officers and crew sky-rocketed, thus causing a sudden graduation of seafarers from small ships to much larger ones, thereby creating a greater focus on the human error element which it is estimated to be responsible for over 75% of all marine accidents. Tankers which, prior to 1960, averaged under 30,000 deadweight were approaching the 500,000 deadweight mark by the mid 1980s and there was now a likelihood of wider scale pollution damage to the marine environment, as a result of tanker accidents.

Of further significance was the vulnerability of the bulk fleets, in particular, to changing freight market conditions, which manifested itself, during the prolonged periods of recession that characterized the post 1970 - 1985 era. Huge tonnage surpluses and the resultant depressed freight market resulted in shipowners flagging out their ships to open registers in order to survive periods where revenues were inadequate to cover the cost of operating.

The powers of ship registration granted to states under Article 5 of the 1958 Geneva Convention [1-22] were conditional upon there being a “genuine link” between the ship and the flag of registry. However, the conventions avoidance of a definition of what constituted this “genuine link”, encouraged a proliferation of open ship registers as shipowners sought to gain further competitive advantages over their competitors who had also switched to open registers. These registers were set up by most developing countries with their aim primarily to generate much needed foreign currency. Thus tonnage moved to these registers and there was no corresponding effort directed towards the development of the administrative machinery necessary to ensure the maintenance standards on board the ships belonging to these registers.

Despite the ratification of the relevant IMO and ILO conventions by most of these registers, many of them lacked the will and resources control, particularly with respect to their easy ship registration requirement, that are so essential to enforcing the rules embodied in these conventions. The quality of Flag State control therefore became doubtful as much of the power, necessary to ensure that standards of safety are maintained on board all ships, was suddenly out of the reach of traditional maritime states. A proliferation of classification societies which also resulted in falling standards, coupled by depressed freight rates which saw shipowners making further cutbacks in repairs and maintenance expenditure, both added to the already deep concern about the adequacy of Flag State control.

The inadequacy of Flag State control manifested itself in a few major marine accidents involving ships that were later found to be sub-standard. Particularly, the much publicized, and occasionally exaggerated, pollution damage caused to coastal areas of traditional and

socially developed maritime states. This resulted in the general public and other concerned organizations exerting pressure on their governments to take preventive action. Port State Control was therefore a most urgent necessity.

Given the wide powers of ship Administration and control bestowed on Flag States, under the international law, it is evident that the practice of well co-ordinated Port State Control can prove to be an effective means available to Port States desirous of exercising some degree of control over safety standards on foreign ships calling at their ports. Despite the continued operation of sub-standard ships, after almost ten years of Port State Control activities in various part of the world, there have been a number of important developments in shipping that owe their origins to the recognized decline in safety standards in shipping, uncovered by Port State Control activities. Examples such as serious attempts to improve the standard of class surveys, the pursuit of uniform ship management standards, the International Safety Management Codes which will be put in force to all ships and their management companies by 1.7.2002, greater effort at better enforcement by the major open registers and the formation of a new sub-committee on Flag State implementation. All these changes are capable of contributing positively to the maintenance of international standards of safety on board ships, thereby reducing accidents and hence, the threat of loss of life and pollution damage to the marine environment.

There is no doubt that initiatives such as the contemplation by the Maritime Safety Committee and the Marine Environment Protection Committee within the IMO on the establishment of an international ship information database, in order to facilitate the interchange of knowledge about vessel quality amongst regulatory authorities,

classification societies, insurers, shipowners, operators, charterers and others can enhance the effectiveness of Port State Control. However, in the meantime, the spread of Port State Control accompanied by extra regional co-operation amongst Port States can in itself, improve its own effectiveness, since it would affect a significant portion of the world merchant fleet on most trade routes, in the course of its daily operation. At the same time, it reduces Port State reliance on some of the other players such as insurers, Classification societies, in the industry who, while keen on putting their own houses in order, appear to be less enthusiastic about the idea of sharing information with outsiders.

Since the standards of safety embodied in the relevant IMO/ILO conventions are internationally agreed, they should continue to form the basis for Port State Control in order to preserve uniformity which ensures strictness, while removing suspicions of protectionism which unilateral legislation often attracts. However, there is still work to be done in the area of uniform interpretation and application of convention rules.

Variations in the practice of Port State Control from state to state and region to region, which undermine its effectiveness, require a great deal more of thought and attention. The short-listing and selecting ships for Port State Control inspections is one such area. However, it has been shown that this can be effectively improved without states having to resort to “flag targeting” and preferential treatment to ships having on board masters and crews of a particular nationality. These can all harm, rather than enhance Port State Control, since the manner in which they are proposed is bound to harbour inconsistencies that can have far-reaching political implications.

In both class surveys and Flag State control, the quality of surveyor / inspectors used is

probably the most important factor upon which effectiveness hinges. Even though training seminars for inspectors are important, harmonisation of surveys, especially on a regional basis will be difficult to achieve, as long as activities such as the categorisation of deficiencies and detention of ships are left solely to the “professional” judgement of surveyors. The latter must be kept to a minimum in order to ensure uniformity, while allowing for some flexibility. Memory aids for inspectors, in the form of simple check-lists and guide-lines, coupled with region-wide categorisation and identification of ship deficiencies that will result in automatic detention, are necessary to promote consistency amongst inspectors and hence, strictness.

1.10 Port State Control – The Cost Elements

The cost element involved in the execution of Port State Control must be addressed. Though Port State Control became necessary as a result of the inadequacy of Flag State control, it amounts to “self defence” by practising states and hence they should be shouldered whatever costs are incurred. However, if the opportunity cost of Port State Control in some states increases and becomes too great a cost to sustain indefinitely, then the practise of such control could be weakened. Such a situation could be further exacerbated by any increases in the cost of Port State Control due to situations where such control is done, at the expense of Flag State control, in most of the developing countries with limited resources but under an obligation to inspect a certain number of ships annually due to regional agreements such as Tokyo MOU.

Therefore, Port States need to devise some transparent and legally enforceable means that could bring about a reduction in the cost of Port State Control over time, whilst ensuring the continued maintenance of internationally agreed standards of safety on board ships.

Taking Hong Kong and the positive effects on sub-standard shipping in Hong Kong waters as an example, apart from the heavy financial consequence due to ship's detention, the Marine Department levied heavy charges for further follow up inspections imposed on safety-deficient ships and sub-standard operators in addition to detention of vessel. This is well known by the sub-standard operators. Therefore, by ensuring that transgressors pay heavily for their transgressions, the spread and effective practice of Port State Control, by itself, is capable of significantly reducing the level of sub-standard shipping, and can partly sustain its continued practice and effectiveness, by generating some revenue which, though still beyond the target of self budget balancing, could still offset some of its cost in the Port State Control-section.

1.11 Summary

In the past, the shipping industry has been one of high risk and high profit. In recent years a transformation of the world economy and an excess of tonnage, has been accompanied by a dramatic increase in competition in every trade. Freight rates have fallen to a very low level. To survive, shipping companies and operators have few options but to reduce their costs, especially those spent in manning and vessel maintenance, which usually form a large portion of the overall operational cost. But adequate expenditure in these areas is central to vessel safety and environmental protection. Unqualified seafarers and poor maintenance are widely considered to be the most common causes of substandard shipping.

The tough situation in the shipping industry has also spread to other shipping related fields. Shipping companies and operators are switching to underwriters who can offer low premiums. They are also seeking class societies whose inspections are not so strict, and

flying a Flag of Convenience to enjoy the advantage of a register with few minimum requirements. That all these parties may have lowered their standards in face of competition for clients give rise to cause for concern, not only in relation to lowering safety standards, but also to weakening enforcement of international regulations.

Increasing responsibility for ship safety is being transferred from Flag States to the Port States. Port State Control may offer a very effective way to ensure that international regulations are fully complied with. The practice of Port State Control in many regions has in fact faced a number of difficulties since its implementation. Some of these issues might cause complication when it was escalated to a sense of cost in the operation of Port State Control. It is known that the transgressors pay principle has been implemented by few participating Port States.

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CHAPTER TWO

METHODOLOGY

2.1 Introduction

Identified, in general terms, has been the growing concern with issues relating to safer ships and cleaner seas. Also identified is the initiation of action by European Port States against sub-standard shipping. Following the lead of the Paris MOU, maritime nations in the SE Asia Pacific area met to develop the Tokyo MOU and introduce PSC to the region. The purpose of the study is to see whether PSC is having an effect on ship safety and where other measures have failed.

The fact that the author is serving as a PSC inspector puts him in a strong position to attempt to answer the question. In that attempt the first step is to select a simple aim for the investigation, and objectives through which that aim may be achieved.

A preliminary literature review found that although there were a few official reports and some individual comments on the PSC subject, no evidence of any formal research into the subject could be identified within the region. The author further searched available marine sources for similar academic research originating in the Asia Pacific region. None was found. That being so it is thought this is an original study into the operation of PSC within the Tokyo MOU region, relating specifically to the role of Hong Kong. As the study is original it needs to set out the background to PSC, including the forces that

brought its introduction.

To set a contextual background the thesis will examine the operation of Port State Control activities in different regions, review current developments, and then attempt to determine the effectiveness of Port State Control as a means of improving ship safety with reference to world shipping casualty statistics.

A scenario analysis exploring the background environment of the world shipping industry and the commercial pressures that have caused some ship owners to limit spending to the well being of their vessels will be made. The problem of sub-standard shipping, and human factors such as crew standards and the lack of transparency of the ship owner will also be reviewed as part of the background to the study.

The study will explore the practice of Port State Control inspections taking the work of a Hong Kong Port State Control officer as an example. Detention, follow up action, reporting procedure, and the actual conduct of inspections will be studied.

In an attempt to identify any relationship between PSC and ship safety, statistical analysis of world shipping casualty figures and PSC annual records from the Paris and Tokyo MOU regions will be made. This analysis will be directed into the causes of shipping casualties, a comparison of the various divisions of data such as differences of standard of seamen, loss ratio of FOC vessels, ship age and preventative measures against shipping casualties and the significance of Port State Control inspections.

Appraisal will be made of the unique environment of the Asia Pacific States, and

evaluation of the Port State Control co-operation with respect to that environment and the strategic alternatives.

The expert opinion of both official and wider marine communities in Hong Kong is sampled in order to form an overall view on the effectiveness of PSC. The differences of opinion between the two sectors on the views of Port State Control would be elaborated with a view to find the causes of difference.

2.2 The Research Process

Productive research needs to be structured. A simple sequential structure is shown below:

Research Idea

Research Statement

Research Outline

Decisions about information-gathering techniques

Participant Observation - Interviews - Questionnaires - Documentary analysis

Decisions about source of information

Research Design

Getting the information

Recording the data

Analyzing the data

Writing the paper

2.3 Selection of Aim and Objectives

The study needs also to make an assessment of how effective PSC has been in achieving its own aims and objectives. Based on the foregoing factors the chosen aim for this

programme of research is:

To assess the effectiveness of PSC as a means of improving ship safety.

The objectives through which the aim will be achieved have been outlined in paragraph 2.1, to which is added sampling opinion amongst the maritime community.

2.4 Limitations of the Study

Recognizing the increasingly widespread introduction of PSC the review will be general in approach. Similarly casualty trends are considered in the international rather than regional or local dimension. The study in its consideration of the practical application of PSC and determination of its impact will be based on the Hong Kong experience, knowledge of which is held by the author. It will thus be aimed mainly at the regional rather than international nature of PSC.

2.5 Choices of Approach

Before commencing the formal research programme a number of approaches to the work were considered. These included:

Research families

Quantitative or qualitative

Deskwork or fieldwork

Research approaches

Action research

Ethnographic research

Experiments

Surveys

Research techniques

Documents

Interviews

Observation

Questionnaires

Quantitative research is, as the term suggests, is concerned with the collection and analysis of data in numeric form. It tends to emphasize relatively large scale and representative sets of data, and is often, falsely in some views, presented or perceived as being about the gathering of 'facts'. Qualitative research, on the other hand, is concerned with collecting and analyzing information in as many forms, chiefly non-numeric, as possible. It tends to focus on exploring, in as much detail as possible, smaller numbers of instances or examples which are seen as being interesting or illuminating, and aims to achieve 'depth' rather than 'breadth'. As the nature of this research involves practical experience, interpretation and opinion, rather than the gathering of 'facts', a qualitative research approach will be adopted.

The distinction between deskwork and field work offers alternative ways of thinking about basic research strategies. Fieldwork refers to the process of going out to collect research data. Such data may be described as original or empirical, and cannot be accessed without the research engaging in some kind of expedition. It might, for example, involve visiting field sites and to interview other members of the industry, or by administering questionnaires to the industry.

Deskwork, on the other hand, comprises those research processes which do not necessitate going into the field. It consists, literally, of those things which can be done while sitting at a desk. These may include, for example, the Administration, collection and analysis of postal surveys, the analysis of data collected by others, certain kinds of experimental work, literature searches in the library, and, of course, writing.

The distinction between fieldwork and deskwork is obviously also not clear-cut. It is debatable, for example, into which category one would place telephone interviews, such as the author subsequently had during initial interviews before construction of a questionnaire. This was work conducted at the desk that effectively took the author into the field. A similar case would be the use of postal questionnaires. The development of information and communication technologies has undoubtedly allowed a great deal more 'fieldwork' research to be carried out from the comfort of the office. This might seem to be a mixed blessing.

Action research is an increasingly popular approach in small-scale social science research, particular for those working in professional areas. It is well suited to the needs of people conducting research in their workplace, and who have a focus on improving aspects of their own and their colleagues' practices. It is also an on the spot procedure designed to deal with a concrete problem located in an immediate situation. This means that ideally, the step by step process is constantly monitored over varying periods of time and by a variety of mechanisms so that the ensuing feedback may be translated into modifications, adjustments, directional changes, re-definitions, as necessary, so as to bring about lasting benefit to the ongoing process itself [2-1].

Brown and McIntyre, who describe an action research model for curriculum innovation in Scottish schools, also draw attention to the principle of deriving hypotheses from practice. The research questions arise from an analysis of the problems of the practitioners in the situation and the immediate aim then becomes that of understanding those problems. The essentially practical, problem-solving nature of action research makes this approach attractive to practitioner-researchers who have identified a problem during the course of their work and see the merit of investigating it and, if possible, of improving practice. There is nothing new about practitioners operating as researchers, and the 'teacher as researcher' model has been extensively discussed [2-2].

The ethnographic style of fieldwork research was developed originally by anthropologists wishing to study in depth some aspect of a society, culture. They developed an approach which depended heavily on observation and, in some cases, complete or partial integration into the society being studied. This form of participant observation enabled the researchers, as far as possible, to share the same experiences as the subjects, to understand better why they acted in the way they did and "to see things as those involved see things" [2-3]. This approach is no longer limited to anthropological studies and has been used effectively in a good many studies of small groups. In ethnographic research, the researcher has to be accepted by the individuals or groups being studied, and this can mean doing the same job, or living in the same environment and circumstances as the subjects for lengthy periods. Time is not the only problem with this approach.

Clearly the techniques, documentary, interview, observation, questionnaire, can be applied to any one of the approaches. The adopted methodology is given in para. 2.7, which briefly notes the research techniques the thesis will use. Research interviews can be

structured, where the researcher is seeking answers to pre-conceived questions, or unstructured, where the topic is defined but the interviewee is not lead. There may be problems of time or cost involved with generating a large enough sample of respondents when using interviews; questionnaires properly devised and trialed can widen the population. Results from interviews can be validated by questionnaire.

Documents will form part of any literature search and observation needs a rigorous and consistent form of information recording [2-4].

2.6 Cost Benefit Analysis

Cost benefit analysis is a technique used to evaluate if the benefits of implementing a programme justify its costs. The outcome of analysis may determine other options, perhaps less costly methods that will achieve the same results. This is purely an economic procedure in which dollar values are assigned to various costs and benefits. Then total costs are divided into total benefits. If the resultant is greater than one benefit outweighs costs.

Shipping economists have used cost benefit analysis to evaluate the effect of universal commercial shipping efficiency. The costs are primarily the dollar value of ship hiring and other maintenance costs to be paid by ship owners. The benefits include the dollar value of freight earnings and so on.

Cost benefit analysis is not as scientific as it appears at first. There is a great deal of subjectivity in deciding what will be included as costs and benefits, in particular with the PSC activities which involve a great deal of government obligation to maintain a safe port.

Nevertheless, it is a useful tool for evaluating the economic efficiency of a programme and determining whether a programme should be started or continued.

Because there is almost always more than one way, or one programme, to achieve a single goal, the second efficiency question is also important: Are there other, less costly methods that will achieve the same results?

Process evaluation is the types of evaluation to see if the programme was implemented as planned and if it was effective, adequate, and efficient. These criteria determine the success of the programme. In addition to knowing whether the programme was successful, it is often useful to know why it was or was not successful. That is the purpose of process evaluation.

A process evaluation assesses the components of a programme to identify which ones contributed to its success and which did not. It traces the history of the programme and the implementation of its various features to give us an understanding of what happened.

2.7 Adopted Methodology

Having reviewed a range of research methodologies it is apparent the nature of this study tends towards the adoption of an integrated methodology, in which various families, approaches and techniques are used. The study would be essentially qualitative and would involve both desk and fieldwork, while the techniques involved would include document search, interviews, questionnaires and observations. This inevitably leads to an eclectic approach in which no method is either exclusive or excluded.

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CHAPTER THREE

THE CONTEXTUAL BACKGROUND – INTERNATIONAL CONVENTIONS

3.1 The Problem with Sub-Standard Shipping

3.1.1 The Ageing Fleet

The ageing fleet is reflected in the increasing number of very large crude oil carriers (VLCCs) and large bulk carriers sold for scrap. Meanwhile, according to Metaxas (1985) the demand for quality shipping is undercut by low freight rates and fierce competition exacerbated by:

- .1 Badly maintained ships as owners cut maintenance,
- .2 Reduced crews who are poorly paid, under-trained,
- .3 Lack of technical competence in management as maintenance/ technical management are cut,
- .4 Reduced quality standards,
- .5 The descent through flags/registries, classification societies, insurers, ship management companies, charterers; cheap construction,

3.1.2 Crew Standards

The cost of crewing a vessel is a significant proportion of the owner's operational expenditure. It is also an area to which some owners look in cutting costs, often with a consequent reduction in safety. Having few restrictions as to crew and, in some cases, no

programme of enforcement of required standards of competence, flags of convenience, which the flag requirement does not normally require own nationals to be engaged onboard its vessel, provide opportunities for sub-standard operations.

Safe and efficient crews are a pre-requisite for safe and efficient ships. It is generally recognized that a good crew may save a bad ship in times of stress and alternatively that a bad crew can destroy a good ship. Clearly the combination of a sub-standard ship and a sub-standard crew is a recipe for disaster. There are a number of aspects arising in relation to the debate over crew standards.

3.1.3 Human Error

One point which surfaces in every study of shipping casualties, and which is relevant to any discussion on sub-standard ships and crews, is that human error plays a part in a large majority of casualties.

There is wide agreement that about 80% of maritime casualties are caused, or aggravated by human error [3-1].

A study undertaken by the Institute of Shipping Economics in Bremen, Germany examined 330 merchant shipping accidents occurring between 1987 and 1991 and concluded that two factors were principally responsible for 75% of the incidents[3-2]:

- .1 Too heavy a crew workload, particularly when in port,*
- .2 Inadequate training*

An analysis undertaken by the UK P&I Club during the same period concluded that overall 60% of the 1,444 claims reviewed were the result of human error, including 50%

of pollution claims and 90% of collisions[3-3].

The British Advisory Committee on Oil Pollution considered that of 182 oil spills in United Kingdom waters in 1990, human error was responsible for 66%[3-4].

In Australia a Department of Transportation and Communications report produced in 1992 concluded that 75% of accidents arose as the result of human error[3-5].

“There is no more recent evidence to suggest any change in the role of human error as a major cause of accidents.” [3-6]

While it is not possible to eliminate human error, there is clearly room for significant reduction.

3.1.4 Crew Size

A future aspect of the “human factors” reason behind sub-standard ships and crews relates to the issue of crew size. Lack of hands on board ship can mean reduced ability to perform essential tasks in an efficient manner and reduced ability to deal with disaster situations. It can also result in those holding positions of responsibility suffering serious fatigue, a factor mentioned in the Bremen study and one which inevitably leads to accidents. The capacity of such persons is further weakened, when, in addition to coping with their own increased work load, they are required to carry out the tasks of other personnel whose competency and ability to carry out their own duties are questionable or non-existent.

The trend is towards fewer and fewer crew members on board. This is true not only of flag of convenience vessels but generally across the board. During the PSC inspection the author observed that vessels previously operating with crews of 42 or more now operate

with as few as 17 onboard. The advent of new developments in technology has increased the commercial pressure within the shipping industry for the introduction of one man bridge operation, where vessels may operate with crews of 6 or 7.

A number of carefully supervised trials utilizing high technology ships and competent crews, have been taken to establish that the concept is safe. However it has also been said that with regard to high technology ships:

"The real life situation will be the fatigue of the watch-keeper, after a brief stay in port, or a series of brief stays, alone on the bridge in the middle of the middle watch, at times only kept awake by dead man alarms or other ingenious devices designed to snap him out of his reverie" [3-7].

Whilst such vessels may be safe when they are new and operated in a controlled manner by competent crew, one wonders what will be the position in 12 to 15 years when they have changed ownership for the third or fourth time and come into the hands of operators who are neither prepared nor forced to maintain those initial high standards.

Apart from issues of fatigue there are other factors to be considered in relation to smaller crew. The lonely watch keeper has no one to relate to. His social isolation on watch, and in many modern ships, even when he is off watch, is such that loneliness can lead to severe de-motivation. Alertness is likely to suffer. In addition to safety concerns, the social desirability of one man bridge operations should be carefully thought of. Are highly alert well-trained individuals going to be prepared to work in such an environment, particular if there is little to do other than monitor the technology and keep a look out for external dangers [3-8].

3.1.5 Maintenance

Whilst modern technology may be touted as a basis for reducing crew sizes, it would appear that it might have the opposite effect in certain cases. For example, it seems that excessive use of high tensile steels in the construction of tankers [3-9] and bulk carriers has been a factor in some of the recent losses. The extra strength of high tensile steel when compared with the more traditional mild steels has meant that less material is required for a given task. The use of less steel has, however, decreased the resistance to corrosion and may thus have led to premature ageing of some vessels where proper maintenance has not been carried out [3-10]. Smaller crews mean less opportunity for the conduct of routine maintenance. Whilst sometimes additional riding crews are placed on board to deal with such matters, often they are not.

3.1.6 Recruitment and Qualifications

A further factor arising in relation to vessels registered under flags of convenience is the fact that owners acquire a greater freedom to recruit masters, officers and crew from any country able to supply them, often without regard to compatibility, competence or to the training undergone. On a world-wide basis over 60% of ships' officers and 75% of ratings now come from developing nations [3-11].

Many of these countries simply do not have maritime education of a high standard, nor do they have effective examination and certification programmes, even though they may be signatories to the STCW Convention. One is forced to agree with the following comments:

"We do not wish to suggest that mariners of one nationality are necessarily better or worse than those of another: that would be as untrue as it would be offensive. But it is certainly true that standards of training vary between countries and that there are

fundamental problems of communications within mixed crews, not just because of language differences but also because of cultural differences" [3-12]

In a similar vein the Australian Inquiry into Ship Safety concluded that:

The poor quality of crew training and lack of experience dominated the evidence received by the Committee. It became apparent that the crews of many bulk carriers are inexperienced and lack any formal training. The increasing use of crew members from non-traditional maritime nations on very low wages was put forward as a major reason for the decline in crewing standards. This is not to suggest that nationality has anything to do with proficiency as a seaman, but rather the level of training available in these countries [3-13].

It is unlikely in the foreseeable future that vessels will be operated at sea without human input. Urgent attention is required to ensure that all engaged in the operation of vessels have the level of skill and training sufficient to ensure safe and pollution free operations.

The burgeoning shortage of qualified and competent seafarers, more particularly officers, is the subject of increasing comment within the industry. It has been foreseen for some time and arises from the fact that in the 1980's many owners, principally for economic reasons, halted or cut back their training for seafarers. The industry is now feeling the effect of that shortsighted policy. The ITF estimated that the shortage was in the vicinity of 18,000 officers world-wide and that the difficulties were compounded by the fact that 10% of officers trainees dropped out before they qualified [3-14]. Other studies suggested that the situation was even worse. A report prepared by the University of Warwick Institute for Employment Research in 1990 suggested that 35,000 officers per year were required simply to maintain the status quo at the turn of the century [3-15].

Lack of qualified seagoing personnel also has a flow on effect, given that it is traditionally from their ranks that staffs are recruited for areas such as port Administration, Port State Control inspection and surveying of ships.

Engaging and retaining within the industry individuals possessing the appropriate calibre and motivation requires that a career at sea provides the satisfaction and rewards commensurate with the expectations of those whom it is sought to attract.

Fraudulent certificates of competency are common. Even genuine certificates may be suspect where they have been issued by states which do not exhibit the proper control in respect of the conduct of examinations and the subsequent issue of certificates [3-16].

In some cases training given to both rating and officers, although purporting to comply with the requirements of STCW, is insufficient to ensure the safe operation of large vessels. Anecdotal evidence of certificates bought and paid for, or examination papers purchased prior to sitting around. It is clearly important that the standard of seagoing qualifications should meet an acceptable minimum that is applied on a world-wide basis and that the actual documents should be issued in a manner which reduces the opportunity for fraud.

3.1.7 Communication

The English language is nominally (although not officially) the language of the sea. It is clear however, that not everyone engaged in shipboard operations has sufficient understanding of that language.

Mixed nationality crews can result in communication difficulties causing operational problems for the vessel. It is obviously imperative that orders relating to the safe navigation and operation of a ship are understood and obeyed. It is equally clear that manuals which are not written in the crew's language will not be understood and are unlikely to be complied with. There are a number of incidents which have illustrated the problem. In the incident involving a fire on the "Scandinavian Star" in 1990[3-17], one of the difficulties experienced appears to have been an inability for crew members to understand each other and to instruct passengers in appropriate disembarkation procedures. Communication problems increase with stress, people tend to panic in the case of emergency when heavy stresses are expected.

In the case of some polyglot crews the practice has arisen whereby orders are directed through a bosun or senior petty officer. Relying on a single person for communication in cases of urgency is clearly an unacceptable risk. Good communication is an essential part of safe operation, lack of communication can lead to disaster.

3.1.8 Operational Responsibility

Notwithstanding the importance of a well trained, properly motivated crew which can adequately communicate with itself and the outside world, the human input extends further. Properly functioning competent crews require a properly managed organization:

Bad management, however, is a problem everywhere. The inquiry into an incident involving a European ferry, the "Herald of Free Enterprise" which capsized with heavy loss of life. The inquiry said that from top to bottom the body corporate was infected with the disease of sloppiness while the inquiry into a major spill by a Liberian tanker "Exxon

Valdez” in North America referred to the failure of the ship owner to provide a fit master and a rested and sufficient crew[3-18].

Responsibility for the safe operation of a ship does not, as some owners or managers might believe, rest solely in the master. The importance of the shore-based organization in respect of the safe operation of vessels has now been recognized in an IMO Code. The recently adopted International Safety Management (ISM) Code takes a broad based approach applying to all those involved in the industry, and in particular imposes an obligation on ship owning companies to set, implement and maintain effective safety management systems. As with all IMO sponsored initiatives, the issue will be whether the regulations are adequately implemented and enforced.

3.1.9 Crew Conditions

Consideration must also be given to the issue of the treatment of crews and their living conditions. Report from seamen’s union to the Marine Department has been received that mistreated crews are reluctant to complain as they will be blacklisted by crewing agencies and refused work as seamen. The extent of this maltreatment extends to:

- .1 provision of inadequate food,
- .2 inadequate and non hygienic accommodation and washing facilities,
- .3 no proper working equipment provided for job,
- .4 unsafe working environment.

As a general comment, it could also be fairly added that an unhappy ship is more likely to be an unsafe ship.

3.1.10 Anonymity - Lack of Transparency

Another of the principal areas of concern is the lack of transparency in the shipping industry as a whole. The attitude taken by some flag of convenience states to disclosing information in relation to the corporate background or individuals involved with the ownership of any given vessel has been noted in the discussion relating to ownership.

The lack of transparency in the industry is further reflected in the apparent unwillingness of other participants to engage in mutual disclosure of relevant information. An inability to ascertain the identity of the parties responsible for the operation of sub-standard vessels results in major problems in determining accountability. The introduction of International Safety Management System by IMO aims to rectify this situation, clause 3.1 of the ISM code stipulates:

“If the entity who is responsible for the operation of the ship is other than the owner, the owner must report the full name and details of such entity to the Administration.”

Classification societies have in the past been reluctant to disclose records relating to vessel deficiencies without the written consent of the owner. That consent was not often forthcoming.

Similarly, underwriters, for reasons of commercial secrecy, have in the past maintained the confidentiality of their databases.

The salvage association, tasked by the insurance industry to conduct condition surveys, pursuant to the classification condition and structural condition warranty, in relation to vessels seeking cover, no longer publishes the result of such surveys.

In 1992 the United States and United Kingdom government made submissions to the IMO on the issue to the effect that:

"There can be no doubt that a central information system which recorded serious deficiencies and defects would help to identify sub-standard operators, owners, Flag States and classification societies" [3-19]

There are signs, particularly with the advent of increased use of the Port State Control mechanism, that the position insofar as the exchange of information is concerned, is changing. The Paris MOU states have made use of computer technology to permit the sharing of information relating to inspection results through the SIRENAC system operated by the French Government under the Paris MOU.

Canada, with its central location between Europe and the Asia Pacific region has linked its own coastguard Port State Control inspection database to the European system. Similarly, the data exchange system established in Russia for the Asia Pacific region pursuant to the Tokyo Memorandum of Understanding was linked to the Paris MOU database as Russia now takes over on database management. This will provide for a significant degree of international co-ordination in relation to Port State Control data.

3.1.11 Regulations and Standards

The principal regulatory body in respect of matters related to safety at sea and the prevention of marine pollution is the International Maritime Organization (IMO). Criticism has been leveled at that organization to the extent that it is reactive as opposed to pro-active, and that when it does react to significant issues it does so too slowly. Major decisions require consensus among member states and consensus is difficult to achieve

when certain states are engaged in protecting their own vested interests. Difficulties are increased by the fact that the organization as a whole faces funding problems due to the failure of some member states to pay their dues.

3.1.12 Enforcement - International Maritime Organization (IMO)

Under current conventions there is little in the way of direct enforcement action that may be taken by the IMO. To the extent that countries which although signatories to its conventions do not adhere to their obligations, it may be possible to procure their suspension from the organization or to remove the right to vote at an Assembly. At the very least IMO should be put in a position to publicly sanction those members whose fleets are deficient. The possibility of such action providing a significant incentive for compliance by Flag States which had already exhibited contempt for their obligations would depend on charterers, underwriters and Port States declining to do business with that flag. The IMO could readily publish details of those flags, ships and owners which failed to comply with IMO standards and should consider changes to conventions to provide for more robust disciplinary action.

3.1.13 Enforcement - Flag States

The IMO is principally a body for the formulation of policy and international ship safety regulations. The primary responsibility for implementing and enforcing those policies and regulations rests on the member states in which vessels are registered, the Flag States. Unfortunately it has become clear that some of those states either by intent, ignorance or incompetence are failing to detect and eradicate sub-standard shipping.

3.1.14 Enforcement - Port States

While it remains the primary obligation of Flag States to ensure that vessels registered in their jurisdictions meet appropriate standards, it is clear that this source of control cannot be completely relied upon. The focus has therefore of late turned to enforcement by those with the most to lose, namely Port States. It is these states which are, by default, being forced to assume the role of the policeman and to become the first line of defence against sub-standard vessels.

There are a number of problems with sub-standard shipping and their remaining in operation today. The underlying causes of those problems may be summarized as follows:

3.1.15 Sub-Standard Shipping Today (Summary)

In recent years, significant actions have been taken by various authorities and organizations to improve the shipping standard. Among them are the Port State Control activities, which have been extensively implemented under different regional MOUs. All around the world, ship owners and operators have realized that the safety of ships and protection of the environment will never be overemphasized. In fact, improvement measures have been carried out by ship owners to comply with new regulations and requirements, either voluntarily or passively. Modern technologies and advanced designing methods also help to make ships safer and more environmental friendly.

On the other hand, introduction of modern technology equipment onboard ships requires large numbers of well-trained professional seafarers, which are in great shortage at present. Fewer crew members, faster ship speed, shorter port stay period, and more dependent on electronic systems – the pattern of navigation has been changed rapidly. Today, not

adequately trained seafarers and poor management also makes a ship to be sub-standard.

Driven by cost saving and other financial restraints, flying convenient flag is becoming the first choice for most of ship operators. The fleet size of convenience flag has increased tremendously with a high speed over last two decades. In this connection, there is no real meaningful connection between those convenience Flag States and ships, near to an out of control status. Unfortunately, existing code and regulations system could do nothing to stop this trend. It may conclude that the convenience flag system could contribute as the main factor for sub-standard shipping. Under the circumstances, there should be an efficient system to cope with the various problems arisen from the global sub-standard shipping situation.

3.2 International Shipping Conventions & Regulations

3.2.1 Background

Although under Article 5 of the 1958 Geneva Convention, whilst every state is given the right to set its own standards for the ships flying its flag, it would be difficult for different states to impose their own requirement on international shipping. There would be no uniformity and consistency of standard in regulating safety of ships, thus causing lots of arbitration for international trade ships if every state were to set their own requirements. To prevent such a situation the IMO and ILO have developed a number of conventions and regulations setting out minimum operation standards of safety for ships abided by the signatory states.

3.2.2 The International Maritime Organization (IMO)

The IMO, formerly known as Intergovernmental Maritime Consultative Organization (IMCO) prior to 1982, the principal regulatory body insofar as international shipping is concerned, is a specialist agency of the United Nations (UN). Conceived at a UN conference in 1948, the IMO was the first international governmental body devoted exclusively to maritime matters. The convention establishing the new organization entered into force in 1958 and the first meeting of the 31 founding members was held in 1959.

The IMO, with its headquarters in London, is governed by an assembly consisting of representatives from each of the 149 member states that now make up the Organization. The Assembly meets once every 2 years. Between assembly meetings the governance of the organization falls to a council consisting of 32 elected members. The Council is divided into the following committees:

- .1 Maritime Safety
- .2 Marine Environment Protection
- .3 Legal
- .4 Technical
- .5 Facilitation

The committees, and in particular the important Maritime Safety Committee, are further divided into sub-committees dealing with areas such as safety of navigation, radio communication, life saving, search and rescue, ship design and equipment and training and watch keeping.

In addition to the various committees and sub-committees there is a permanent secretariat headed by a Secretary General who is appointed by the Council and approved by the Assembly.

Representation in the form of consultative status has also been granted to a number of non-governmental organizations such as Baltic International Maritime Council (BIMCO), the International Association of Classification societies (IACS), International Transport Workers Federation (ITF), the Oil Companies International Marine Forum (CIMF) and the International Chamber of Shipping (ICS). Representation of these organizations give IMO access to highly qualified technical experts who not only provide advice on particular problems or take over a whole complex of preparatory work, but also promote the implementation of convention provisions following their adoption.

Since its establishment, IMO has promoted the adoption of over 30 conventions and associated protocols and has adopted a large number of codes and recommendations on various matters relating to maritime safety and the prevention of pollution. Conventions are legal regulatory instruments and are subject to ratification, while recommendations provided more specific guidelines and are not subject to ratification [3-20]. The obligations to which a state ratifying an IMO Convention commits itself include:

- .1 to give effect to the treaty, in particular by promulgating the necessary laws, decrees, orders and regulations.
- .2 to communicate to the Organization national texts and also, where appropriate, a list of non-government bodies authorized to act on behalf of the government

and models of certificates issued [3-21].

Insofar as can be said in relation to an international body which is a part of the UN, the IMO is largely a non-political organization. It has, since its inception, been principally concerned with technical matters related to maritime safety and marine pollution. The IMO has never been particularly involved in matters bearing directly on the economic aspects of the seaborne trade.

Boasting a wealth of experts in maritime affairs on its various committees and sub-committees, the IMO has been recognized by the US Department of State as one of the most cost effective, well run and efficient of the UN specialized agencies [3-22]. However, the Organization has been criticized for its inability to react speedily to well publicized marine disasters and its not so infrequent compromises to the lowest common denominator in order to obtain consensus on common international standards [3-23].

3.2.3 International Labour Organization (ILO)

The ILO was established under the Treaty of Versailles in 1919 to promote joint action between governments, employers and trade unions in the cause of social justice and the establishment of decent living standards, satisfactory conditions of work and pay, and adequate employment opportunities [3-24]. It is a tripartite organization (government / employers / trade unions) comprising over 144 member states, with the representatives of workers and employers participating in its work on an equal footing with those of governments.

The organs of the ILO are the International Labour Conference which is the governing

body, and the International Labour Office which is the Organization's permanent secretariat. It also works through subsidiary bodies such as regional conferences, industrial committees and panels of experts serving on technical co-operation programmes around the world. Questions of policy and the organization's programme of work are decided by the governing body.

The International Labour Conference has adopted a total of 173 conventions and 180 recommendations over the last 74 years [3-25]. The ILO's maritime standards cover training and certification of seafarers engagement, conditions of employment, labour problems arising from technological changes, wages, safety, health, welfare, repatriation, social security and labour inspection. On the question of the training and certification of merchant seafarers, the ILO co-operates with the IMO through the Joint IMO / ILO Committee on Training. Through its technical co-operation programme the organization provides assistance to countries that are in the process of establishing, developing or improving their maritime industries to facilitate the application of ILO maritime labour standards.

Evidence of the ILO's success is reflected in the nearly two thousand cases of progress made since 1964 towards the implementation of the Organization's standards by states, following assistance given to individual governments (via comments and reports which set out guidelines for a systematic and consistent approach to ILO's standards implementation) by its supervisory bodies [3-26].

3.2.4 Relevant IMO / ILO Conventions And Regulations

The relevant IMO and ILO Conventions with regards to Port State Control have been

identified as follows:

- .1 International Convention on Load Lines, 1966 and its Protocol of 1988,
- .2 International Convention for the Safety of Life at Sea, 1974 or SOLAS 1974 with 1978, 1988 protocol and amendments,
- .3 International Convention for the Prevention of Pollution from ships, 1973 as modified by the Protocol 1978 relating thereto (MARPOL 73/78),
- .4 International Convention on Standards of Training, Certification and Watchkeeping for Seafarer, 1978 and 1995 (STCW, 1978) & (Revised STCW 95),
- .5 International Regulations for Preventing Collisions at sea (COLREG), 1972 as amended,
- .6 Merchant Ship (Minimum Standards) Convention, 1976 (ILO Convention No. 147),
- .7 International Safety Management Code (ISM).

3.2.5 International Convention on Load Lines, 1966 and its Protocol of 1988

This Convention applies to all ships of 24 metres in length or more built after May 1970 and ships of 150 gross tonnage or more build before that date. Such ships are required to be in possession of an International Load Line Certificate which has a maximum duration period of 5 years.

The need for a ship's side to be marked with lines to indicate its safe carrying capacity was recognized as early as 1834 when a committee of Lloyd's Underwriters proposed that a freeboard should be set down each side of a ship equal to a quarter of the depth of the hold

of the ship. In the years to follow, efforts were made to determine the best method of computing an assigning freeboard in an attempting to overcome the problem of dangerously overloading ships. They included calculations proposed by Liverpool Underwriters (1834-1854), the Institution of Naval Architects report to the British Parliament (1870), and the work of Samuel Plimsoll, MP for Derby (1870-1875). However, the most significant of these was the 1930 International Convention on Load Lines.

The knowledge and experience gained from the operation of the 1930 Convention, combined with considerable developments in areas of ship design and construction, shipbuilding techniques, methods of closing openings, weather forecasting, aids to navigation and radio-communications, led to the 1966 Load Line Convention which updated the 1930 Convention and incorporated new and improved measures. The new Convention was the end product of an international conference held by the IMCO in London in 1966 and came into force on 21 July, 1968. The preamble to the Convention States its objective as follows:

To establish uniform principles and rules with respect to the limits to which ships on international voyages may be loaded having regard to the need for safeguarding life and property at sea [3-27].

Article 13 places an obligation on Flag States that are signatories to the Convention to ensure that the ships flying their flags are surveyed, inspected, marked and, if necessary, granted with appropriate exemptions in line with Articles 4-6. While Flag States may entrust these duties to nominated surveyors or recognized organization, the responsibility is still theirs to fully guarantee the completeness and efficiency of the survey, inspection and marking.

Initial and periodical surveys are to ensure that the structure, equipment, arrangements, material and scantlings fully comply with the requirements of the present convention. Annual inspections are necessary to ensure that alterations have not been made to the hull or superstructures which would affect the calculations determining the position of the load line and so as to ensure the maintenance in an effective condition of fittings and appliances for protection of openings; guard rails; freeing ports; and access to crew quarters.

An International Load line Certificate (1966) must be issued after ships have been surveyed and marked. The certificate is required to be endorsed for annual surveys within 3 months before or after each anniversary date of the certificate's issue. Renewal of a certificate may be extended for a period of up to 5 months after a renewal survey has been carried out and there is good reason for delay in issuing a new certificate. The certificate may also be extended for a period of up to 3 months to permit it to proceed to another port to be surveyed for renewal of the certificate. It is understood that classification societies prefer to issue short dated or interim certificates rather than endorse the existing certificate.

An International Load Line Exemption Certificate may be issued to a ship, which exempts the ship from any of the provisions of the 1966 Convention where, either:

- .1 the ship embodies features of a novel kind (under Article 6(2) of the Convention); or
- .2 the ship is not normally engaged on international voyages and under exceptional circumstances is making a single voyage (under Article 6(4) of the Convention).

This certificate when issued under 3.2.4.1 has the same period of validity and requirement for annual surveys as an International Load Line Certificate. The Port State Control officer should ensure any certificate issued under 3.2.4.2 is for the voyage currently being undertaken.

Port State Control of load lines is authorized by Article 21 of the Convention which empowers contracting Port States to carry out inspections to ensure that a valid Load line Certificate (1966) is on board the ship and that the ship is not loaded beyond the limits allowed by the Certificate; the position of the load line of the ship corresponds with the certificate and the ship has not been so materially altered that the ship is manifestly unfit to proceed to sea without danger to human life.

As a general guide, ships from non-convention states are expected to have been surveyed and marked in a similar manner to those from convention states and should meet all the requirements of the Convention. Therefore, the Port State would usually require a full survey to be carried out to ensure that the ship meets the requirements of the convention, unless it has some reciprocal (bilateral) agreement with the particular Flag State, which provides for some alternative course of action [3-28].

An International Load line Certificate which is current when the present Protocol enters into force in the ship's Flag State shall remain valid until it expires. Contracting states must however issue all new Load Line Certificates in accordance with the provisions of the present Protocol only. Moreover, the new provisions shall be applied to all foreign ships on which Port State inspections are carried out by a state which has ratified the 1988 Load Line Protocol. The 1988 Load Line Protocol is yet to receive the threshold number

of ratifications, necessary for it to enter into force [3-29].

3.2.6 International Convention for the Safety of Life at Sea, 1974 (SOLAS 1974) and the 1978, 1988 Protocols

The sinking of the Titanic on her maiden voyage in April 1912, which resulted in the death of more than 1500 passengers and crew, led to the convening of the first International Convention for SOLAS which was adopted in 1914. It was however put on hold due to the outbreak of World War I [3-30]. SOLAS conferences were again held in 1929 and 1948 with the aim of improving many aspects of vessel safety design and construction which in the past, were left to the shipyards under the close supervision of classification societies [3-31].

These SOLAS Conventions were designed with the aim of improving safety in shipping by establishing commonly agreed standards that would ensure that a ship is fit for its intended service without posing any danger to safety of life [3-32]. Even though SOLAS 1960 was amended several times in response to new developments, the rather difficult requirements for bringing amendments into force prevented any of these amendments from becoming binding internationally.

SOLAS 1974 along with its amendments in 1981, 1983, 1988 and 1989 have been adopted by more than 100 states, controlling 95% of the world's merchant tonnage. Article II of the 1978 SOLAS protocol which was incorporated in the 1974 Convention, requires contracting governments to apply the requirements of both the Convention and Protocol to ships belong to non-party states to ensure that no more favourable treatment is given to such ships.

Only ships engaged on international voyages are affected by the regulations. Port State Control is enshrined in Chapter I, Part B, Regulation 19 of SOLAS 1974, as amended by the 1978 SOLAS protocol. Paragraphs (a) and (b) state that every ship is subject to Port State Control when in a port of another party to the Convention, provided that such control is directed towards verifying the validity of the ship's certificates which if valid shall be accepted.

A number of important amendments were made to the SOLAS 74 by IMO in May 1994. Among those amendments, it is of particular importance that Regulation 4 in new Chapter XI provided legal basis for Port State Control on operational requirements. This amendment came into effect on 1 January 1996.

Chapter XI, Regulation 4 of SOLAS 74 stipulates the Port State Control on operational Requirements. A ship when in a port of another contracting government is subject to control by officers duly authorized by such government concerning operational requirements in respect of the safety of ships, when there are clear grounds for believing that the master or crew are not familiar with essential shipboard procedures relating to the safety of ships [3-33].

3.2.7 2000 Amendments to 1974 SOLAS

At the 73rd session of the Maritime Safety Committee of the IMO in December 2000, substantial amendments to Chapters II-2 and V of 74 SOLAS, as amended were adopted together with amendments to Chapters II-1, IX and X (IMO Resolution MSC.93(73)) and related IMO guidelines. The amendments are entering into force on 1st July 2002.

Among these amended chapters, Chapter II-2 “Fire Protection, Fire Detection and Fire Extinction” and Chapter V “Safety Navigation” have been comprehensively reviewed and re-written. Basically new amendments are applied to ships the keels of which are laid or which are at a similar stage of construction on or after 1st July 2002 (new ships). However, some of the new requirements are also applied to ships constructed before 1st July 2002 (existing ships).

3.2.7.1 New Chapter II-2 of SOLAS

The regulations of new Chapter II-2 are grouped by function required for fire safety, that is fire prevention, fire detection, fire suppression, escape and operational requirements. In addition to these common requirements in Parts B & E, special requirements for helicopter facilities, ships carrying dangerous goods and ro-ro spaces are provided separately in Part G as special requirements. A new regulation for approval of alternative designs and arrangements is provided in Part F. Under the regulation, a design of new concept deviating from the prescriptive requirements may be accepted as alternative design and arrangement if considered equivalent.

Other amended areas include the incorporation of IMO interpretations into the regulations, amplification of operational requirements in Part E of the Chapter, incorporation of IMO guidelines on helicopter facilities. There are also some new requirements for enhancement of fire safety additional fire safety measures related to oil fuel piping. Regulation 4.5.10 describes the protection of cargo pump rooms of tanker and a fixed local application fire fighting systems, in addition to the current requirement of a fixed fire extinguishing system is required to be equipped with. Deep fat cooking equipment should also fit with the fire extinguishing systems. Emergency escape breathing devices are to be provided to

machinery spaces and accommodation.

3.2.7.2 New Chapter V of SOLAS

The revised chapter V applies to all ships on all voyages irrespective of type, size and date of construction of ships with some exceptions and is entering into force on 1st July 2002.

New ships shall be fitted with navigational systems and equipment in the chapter including newly specified equipment such as automatic identification system (AIS) and voyage data recorder (VDR) depending on ship's size and type. Regulation 15 stipulates the principles relating to Bridge Design and electromagnetic compatibility on or in the vicinity of bridge shall be required to new ship only. Regulation 14.4 describes the use of English language as bridge-to-bridge and bridge to shore safety communications as well as for communications on board between the pilot and the bridge watch keeping personnel, unless those directly involved in the communication speak a common language other than English. There are also new requirements for records of navigational activities and voyage planning for the safe navigation and avoidance of dangerous situations that may expect during the voyage.

The new SOLAS regulations shall have effect to Port State inspection after 1st July 2002 and the PSCO should familiar themselves with the new regulation before the implementation date. Appropriate MOU guidelines for the inspection have been issued under the respective MOU as to the consistency of measures to be taken in case the ships do not meet the new requirement.

3.2.8 International Management Code for the Safe Operation of Ships and for Pollution Prevention (The International Safety Management (ISM) Code)

The ISM Code was adopted by the IMO by resolution A.741 (18) and has been made mandatory by virtue of the entry into force on 1 July 1998 of SOLAS Chapter IX on Management for the Safe Operation of Ships. The ISM Code provides an international standard for the safe management and operation of ships and for pollution prevention.

The task facing all shipping companies is to minimize the scope for poor human decisions which contribute, directly or indirectly, to a casualty or a pollution incident. One aim should be to ensure that staff are properly informed and equipped to fulfil their operational responsibilities safely. Decisions taken ashore can be as important as those taken at sea, and there is a need to ensure that every action affecting safety or the prevention of pollution taken at any level within the company, is based on a sound understanding of its consequences.

The adoption by IMO of the ISM code is the reflection of this objective on the part of the Flag States. The ISM Code establishes an international standard for the safe management and operation of ships by setting rules for the organization of company management in relation to safety and pollution prevention and for the implementation of a safety management system (SMS) [3-34].

The rules and regulations governing safety and environmental protection have progressed over time through interrelated stages, all of which have relevance to today's shipping industry. The earliest and most basic stage concentrates on the consequences of safety failures where, in the aftermath of personal injury cases, damage to ship or cargo or environmental pollution, where the essential theme is to identify and then to apportion blame, frequently to the last person in the chain of events. The underlying principle is that

the threat of punishment influences company and individual behavior to the extent that safety gains a higher priority.

The ISM code concentrates on internal management and organization for safety and encourages individual industries and companies to establish targets for safety performance. Self-regulation also emphasizes the need for every company and individual to be responsible for the actions taken to improve safety, rather than seeing them imposed from outside. This requires the development of company specific, and in the case of shipping, vessel specific, safety management systems (SMS). In this third stage, importantly, safety is organized by those who are directly affected by the implications of failure.

Historically, the regulation of safety and pollution prevention in a world wide shipping industry has been characterized by a culture of punishment and a culture of external compliance. IMO's adoption of the ISM Code and its mandatory application by all member states is an important step towards the creation of a culture of self-regulation in shipping. Self-regulation is not, however, wholly effective on its own. In order to achieve safer seas and environment protective it is necessary for all three stages to coexist. Each stage plays a significant part in influencing company and individual behaviour.

The application of the requirement of the ISM code may be applied to all ships regardless of the date of construction, as follows:

- .1 passenger ships including passenger high speed craft, not later than 1 July 1998;
- .2 oil tanker, chemical tankers, gas carriers, bulk carriers and cargo high speed craft of 500 grt and upwards, not later than 1 July 1998; and other cargo ships and mobile offshore drilling units of 500 grt and upwards, not later than 1 July

2002 [3-35].

3.2.9 International Convention on Prevention of Marine Pollution 73/38 – Marpol 73/78

The publication of a comprehensive report on the causes and effects of oil pollution and the short and long term solutions, by the Faulker Committee in 1953, led to the International Convention for the Prevention of Pollution of the Sea by Oil, 1954 (OILPOL' 54) [3-36]. The Convention focused on pollution from routine tanker operations and from discharge of oily wastes from machinery spaces. Particular attention was paid to the unloading of ballast water carried in cargo tanks prior to reloading cargo, which inevitably contained a certain amount of oil and hence polluted the sea.

The pollution damage caused by the "Torrey Canon" in 1967 signalled the need for a more broadly based convention on marine pollution. MARPOL '73 was adopted by the International Conference on Marine Pollution convened by IMO in 1973. It was modified by the protocol of 1978 relating thereto which was adopted by the International Conference on Tanker Safety and Pollution Prevention (TSPP Conference) convened by the IMO. The Convention, as modified by the Protocol of 1978 is known as MARPOL 73/78 [3-37].

The objectives, as stated in the preamble to the Convention, are to achieve the complete elimination of international pollution of the marine environment by oil and other harmful substances and the minimization of accidental discharge of such substances.

Flag States must establish sanctions which should be applied to any of their ships if found to be in violation of the requirements of MARPOL 73/78 (Article 4). Any party is allowed to furnish evidence of detected violations to the Flag State Administration which must take

any necessary action against the ship, provided that it is satisfied that enough evidence is available (Article 6). Flag States are also responsible for the issuing of any certificates as required by the Convention to the ships flying their flags and these shall be accepted as valid by all other parties.

The authorization for Port State Control is found in Art. 5, which makes any ship that is required to hold a certificate under MARPOL 73/78, subject to inspection by Port State inspectors whenever it is in the ports of another party. Such an inspection shall be limited to "verifying" that there are valid certificates on board, unless there are clear grounds for believing that the condition of the ship or its equipment does not correspond substantially with the particulars of that certificate. If there are indeed "clear grounds" or the ship is not carrying a valid certificate, the Port State is authorized to take whatever steps are necessary to ensure that the ship does not sail until it can proceed to sea without presenting an unreasonable threat or harm to the marine environment. In doing so, the ship must not be unduly delayed since such unnecessary delay will entitle the ship to compensation for any loss or damage suffered (Article 7). Ships belonging to Flag States that are non-parties to MARPOL 73/78 are subjected to similar treatment, based on the principle of "no more favourable treatment" (Article 5). Any action taken by a Port State must be communicated to the relevant Flag State Administration.

It is important to note that a Port State which is not a party to MARPOL 73/78 can still impose Port State Control in relation to pollution, under Article 220(1) of UNCLOS III which provides that a State may arrest and prosecute a vessel in one of its ports which is alleged to have violated that State's pollution laws. Even though Article 219 further empowers a Port State to take administrative measures to prevent a vessel in one of its ports

from sailing, where it has ascertained that the vessel is in violation of applicable international rules and standards relating to seaworthiness of vessels and thereby threatens damage to the marine environment, it is less likely to be acted upon by a non-party to MARPOL 73/78, since it is this Convention which embodies all pollution related internationally agreed rules and standards.

3.2.10 Standard Of Training, Certification And Watchkeeping For Seafarers Convention (STCW 1978 as amended 1995)

A report on the findings of a study carried out by the Netherlands Maritime Institute, published in 1978, revealed that 75% of all shipping incidents were due to human operating errors in some form or another [3-38]. This realization that human error played a prime role in marine casualty led to the adoption of STCW 1978 Convention at an International Conference on Training and Certification of Seafarers convened by the IMO, in association with the ILO in London. The Convention came into force on 29 April 1984 and applies to all merchant ships when visiting ports of states that are parties to the Convention.

3.2.10.1 Authorization

The authorization for Port State Control is found in Article 10, as amplified by Regulation 4 of Chapter 1. It renders ships affected by the Convention, subject to control of Port State officers (PSCO) while in the ports of a party to the Convention. Such control is limited to:

- .1 Verification that all seafarers serving on board hold a valid certificate or a valid dispensation.
- .2 Assessment of the ability of the seafarers of the ship to maintain watchkeeping standards as required, if there are “clear grounds” for

believing that such standards are not being maintained.

3.2.10.2 Restrictions

Unlike the other conventions already covered, “clear grounds” in this Convention is restricted only to situations where:

- .1 The ship has been involved in a collision, grounding or stranding;
- .2 There has been a discharge of substances from the ship where underway, at anchor or at berth which is illegal under International Conventions; or
- .3 The ship has been manoeuvred in an erratic or unsafe manner or navigational course markers or traffic separation schemes have not been followed.

Where a ship is found to be deficient in any of the above respects, the master and the Flag State Administration must be notified in writing. However, if after taking into consideration the size and type of the ship and the length and nature of the voyage, these deficiencies pose a danger to persons, property or the environment, the Port State is authorized to detain the ship until they are corrected and the danger has been removed.

3.2.10.3 STCW 95

The STCW 78 was extensively revised at the STCW Conference in June/July 1995. The revised STCW Convention was aiming at providing more strict competence criteria to ensure that seafarers were properly trained and certified and operated the ship in a safe manner. The revised STCW convention gave IMO the power, for the first time, to supervise over Flag States on the establishment of appropriate seafarers’ training and certification system.

The STCW 78 Convention (previous Conventions) was the principal international treaty regulating seafarers' training, certification and watchkeeping arrangements, and forms the basis of national standards world-wide. However, even when adopted in 1978 it was regarded as a compromise between those nations wanting very high standards and those countries concerned about their ability to implement such measures.

In more recent years, three particular concerns about the previous Convention have been identified, which the 1995 amendments are to address:

- .1 The previous Convention did not in fact contain precise standards of competence relating to the abilities needed to perform shipboard functions safely and effectively - it only stipulated minimum knowledge requirements for the issue of certificates. Moreover, evidence that required knowledge has been absorbed by candidates for certification is currently left to be determined "to the satisfaction of the Administration". Because the provisions of the existing Convention have been open to different interpretation, they have failed to establish a uniform minimum level of competence internationally.
- .2 Neither the process by which countries have ratified the Convention, nor the provisions of the Convention itself, have been sufficient guarantees to ensure that STCW requirements have been implemented world-wide or sufficiently enforced. Consequently, there has been a loss of confidence in the reliability of STCW certificates issued by certain governments as an indicator of seafarers' competence.

- .3 The previous Convention was written in terms of conventional shipboard work organization based on traditional divisions between the deck and engine departments. It has therefore failed to accommodate modern developments in training and shipboard organization. This has already proved too restrictive, limiting the potential career development of seafarers and preventing any safety-enhancing redistribution of workload on board during intensive working periods. In short, the previous Convention lacked the flexibility to meet the industry's anticipated needs in the 21st Century.

In response to various piecemeal amendments that were then being considered, International Shipping Federation (ISF) proposed, in 1992, that IMO should undertake a complete review of the STCW Convention. And with the strong support of the government representatives to IMO, a comprehensive review was subsequently commenced [3-39].

Following a series of high profile maritime casualties, which drew additional attention to concerns about general levels of crew competence, the IMO Secretary General initiated a fast track revision of the Convention in co-operation with the ILO which is responsible for global labour standards relating to seafarers' employment. In July 1995, this accelerated revision process was finalized with the adoption of a package of radical amendments to the STCW Convention.

The 1995 amendments to the STCW Convention represent a comprehensive package of interrelated measures. Collectively they are designed to address the inadequacies of the current Convention and improve overall standards of seafarers' competence world-wide.

3.2.10.4 Main Features of STCW 95

The main features are covered in three essential areas:

.1 New responsibilities for shipping companies

These stipulate the explicit responsibilities of shipping companies for ensuring that the seafarers they employ meet minimum international standards of competence, that ships are manned in accordance with Flag State requirements and that detailed records are maintained of all seafarers.

Companies will also have to ensure that all seafarers, on being assigned to their ships undergo familiarization on board and that measures are adopted to ensure effective co-ordination between seafarers.

These provisions will be enforced by requiring governments to apply penalties to companies found to be in breach of the Convention and by expanding the circumstances in which Port State Control Officers (PSCO) can question the operational competence of seafarers.

.2 New uniform standards of competence.

These establish, for the first time, uniform standards for the attainment of competence in particular maritime skills. The revised Convention contains specific detailing the standards of knowledge, understanding and proficiency to be achieved in each element of competence by candidates for certification, and the criteria for evaluating them.

The revised Convention also extends elementary standards of competence to

categories of shipboard personnel not addressed by the present Convention.

.3 New measures to ensure implementation by governments:

The revised Convention incorporates measures designed to help ensure that governments that are Parties to the Convention actually implement STCW requirements and that certificates are only issued to seafarers that meet the minimum competency standards.

3.2.10.5 Outcome of IMO Sub-committee - Standard of Training and Watchkeeping 33 (STW 33) on matters affecting PSC relating to the implementation of STCW 95

The sub-committee of STW 33 held from 21-25 January 2002 approved two circulars in providing advice to PSCO and recognized organizations issuing the ISM certificates. Under the circulars, until 31 July 2002, if seafarers do not carry STCW 95 certificates or Flag State endorsement, PSCOs are recommended to issue only a warning to companies and to notify the seafarers and Administrations concerned accordingly.

The reason for these circular to be issued was because the non-availability of many nations to issue the Flag State endorsement to their seafarers working on board their ships. Many nations are still not ready to sign the undertaking with other states for reciprocal recognition of certification under Regulation I/10 of the STCW 95 Convention.

There are two reasons for these circulars to be issued. The first reason was the belated announcement of the White List. The White List would state the acceptance of standard of the listed maritime states as to its compliance to the STCW 95 requirement. The

announcement of the first batch of the approved 70 States to be included in the White List was made in November 2000, less than 15 months to the implementation date of the STCW 95 Convention. Some delegates to IMO considered such belated announcement was due to the reluctance in submission of documentation by some states under assessment to the IMO assessors, which had delayed the assessment schedule.

The second reason was the mis-interpretation of Regulation I/10 by some member states before signing the undertaking with the other states. The purpose of Regulation I/10 is to provide change of information regarding certification arrangement between both signatory states. This was the main purpose of Regulation I/10. Unfortunately many states considered this signing of undertaking a diplomatic agreement, once getting into such idea it would take ages for the officials to clear their national procedures before the agreement could be signed between the two states.

3.2.10.6 Other Provisions

The revised Convention contains a wide range of other provisions the most significant of which include the use of simulators in training, the qualifications of training instructors and assessors, measures to prevent fatigue, and principles governing alternative arrangements for issuing certificates which depart from conventional departmental divisions. Together with the three major components outlined above, these provisions form part of the total STCW package intended to ensure that the principal factors determining standards of training and crew competence would be sufficiently regulated internationally [3-40].

Although the speed at which governments are able to implement the new requirements

may vary, it should be assumed that all new provisions placing additional obligations on shipping companies have been in force already by 1 February 1997.

The acceptability of certificates already issued to seafarers will not be affected unless they have lapsed or individual certificate holders are subsequently found to be incompetent or fraudulent. However, governments will be obliged to compare the standards of competence that will be required under the revised Convention with those required nationally under the existing Convention and to determine whether existing STCW certificate holders need to undergo appropriate refresher and updating training or assessment.

To take account of the International Tonnage Convention, the tonnage thresholds applying to standards in the deck department required for various sizes of ship will be:

- .1 500 gross tonnage instead of the current 200 gross registered tons; and
- .2 3,000 gross tonnage instead of the current 1,600 gross registered tons.

3.2.11 Merchant Shipping (Minimum Standards) Convention 1976

ILO Convention No. 147

The non-observance of accepted international standards governing ship safety and crew conditions has been a subject of discussion within the ILO for some time. As early as the 1930s and 1940s, the Organization drew the attention of governments, shipowners and seafarers to this problem with a view to correcting deficient practices. The Seafarers' Engagement (Foreign Vessels) Recommendation (No. 107) and the Social Conditions and Safety (Seafarers) Recommendation (No. 108), adopted in 1958, requested ILO member

states to discourage their seafarers from serving on foreign flag ships under sub-standard conditions, in particular as regards repatriation, medical care and maintenance in foreign ports, supervision of signing on and off ships, freedom of association, certificates of competency and the provision of a ship inspection service [3-41].

As part of its long-standing efforts and in response to greater international concern for safety at sea and the prevention of marine pollution, the ILO adopted the Merchant Shipping (Minimum Standards) Convention, 1976 (No. 147). This Convention was recognized as having strengthened substantially the international will to eliminate the operation of sub-standard ships. It aimed to improve the efficiency and safety of navigation, enhanced measures to protect the marine environment and advance seafarers' interests in the fields of health and safety, working conditions and trade union rights. The Convention, which essentially applied to every seagoing ship employed for any commercial purpose, entered into force in November 1981.

Convention No. 147 prescribed a set of minimum standards relating to safety, social security, shipboard conditions of employment and living arrangements to be observed in merchant shipping registered under any flag, by reference to a number of other ILO conventions listed in an Appendix to Convention No. 147. These conventions covered minimum age, medical examination, articles of agreement, officer's competency certificates, food and catering on board ship, crew accommodation, prevention of occupational accidents, sickness or injury benefits and repatriation. The Appendix also referred to two other Conventions, on freedom of association and the protection of the right to organize, and on collective bargaining. In addition, one provision of Convention No. 147 refers to standards of hours of work and manning to ensure the safety of human

life aboard ships. Another required that due attention be given to an ILO recommendation concerning the vocational training of seafarers, so as to ensure that seafarers are properly qualified and trained for the duties for which they were engaged.

The substantive obligations on states party to Convention No. 147 were set out in Article 2, which required that ratifying states undertake to have laws or regulations laying down, for ships registered in their territory, provisions which were substantially equivalent to those of the conventions or articles of conventions referred to in the Appendix to Convention No. 147, in so far as such states were not otherwise bound to give effect to any of the conventions in question by virtue of having ratified them [3-42]. In other words, if a state was already to become a party to any of the conventions listed in the appendix, it must apply precisely the terms of those conventions.

Convention No. 147 also required ratifying states to exercise effective jurisdiction or control over ships which were registered in their territory as regard to:

- .1 Safely standards, including standards of competency, hours of work and manning, prescribed by national laws or regulations;
- .2 Social security measures prescribed by national laws or regulations; and
- .3 Shipboard conditions of employment and shipboard living arrangements prescribed by national laws or regulations, or laid down by competent courts in a manner equally binding on the shipowners and seafarers concerned.

In addition, a ratifying Flag State must satisfy itself that measures for the effective control of other shipboard conditions of employment and living arrangements, where it has no effective jurisdiction, were agreed between the organizations of shipowners and of

seafarers concerned.

Under Convention No. 147, a ratifying Flag State also undertook to ensure that adequate procedures existed for:

- .4 The engagement of seafarers on ships registered in its territory and for the investigation of complaints arising in that connection, and
- .5 For the investigation of any complaint made in connection with the engagement in its territory of seafarers of its own nationality on ships registered in a foreign country. It also undertook to ensure that any complaint made in connection with the engagement in its territory of foreign seafarers on ships registered in foreign country was reported to the competent authority of the country in which the ship was registered.

A further point under Convention No. 147 was that ratifying Flag States must verify by inspection or other means that their ships complied with national laws and regulations which applied the standards prescribed by the Convention and with applicable collective agreements.

The authority for Port State Control was found in Article 4 which empowered Port States that had ratified the Convention to take any measures necessary to rectify any condition on board a foreign ship in its ports, which were clearly hazardous to safety and health. Action by a Port State was limited to situations where it received a complaint or obtained evidence that the ship did not conform to the standards of this Convention". "Complaint" as defined in paragraph 3 of this Article, included information submitted by any person

with an interest in the safety of the ship, including an interest in safety or health hazards to its crew” which should cover any reports by authorized Port State Control officers. Port States were once more reminded not to detain or delay the ship unreasonably.

3.3 International Shipping Conventions & Regulations Today - Summary

As the principal regulatory body of international shipping, IMO has been playing an important role in setting up and promoting the adoption of conventions and regulations relating to maritime safety and prevention of pollution. To cope with the change and development of the shipping industry, and to fulfill the world's requirement on environmental protection, these conventions and regulations are revised from time to time.

Beyond IMO Conventions, ILO Convention No. 147 is another important shipping convention. Although its objectives are similar, namely safety and environment protection, ILO 147 differs from all IMO conventions in that its emphasis is much more on crew's welfare and living conditions onboard.

In the past, these conventions and regulations were implemented mainly through classification societies and Flag State authorities. Classification societies, on one hand, participate in setting up these provisions in the form of sending consultative representatives in IMO, and on the other hand, implement them through classification for new building and existing vessels. Flag States that are parties of these conventions and regulations will reflect them in the national laws and regulations. Port State Control has further enforced these conventions and regulations through its regional networks. Most conventions have given explicit authorization to Port State Control, and have been

adopted by various MOUs as basic guide lines when undertaking PSC inspections.

The PSC system is directly aimed at sub-standard shipping. IMO has developed a number of conventions and regulations concerning minimum operation standards of safety of ships. These conventions and regulations provide PSC strong support on legal basis. Under these conventions and regulations, all vessels compliance with the standards would be an obligation.

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CHAPTER FOUR

THE CONTEXTUAL BACKGROUND - REGIONAL MEMORANDA OF UNDERSTANDING

4.1 Paris Memorandum Of Understanding

The Paris Memorandum of Understanding on Port State Control is a regional administrative agreement, concluded in Paris on 26 January 1982 by the maritime authorities of 14 European countries. In this memorandum of understanding the participating maritime authorities agree to establish in their ports a harmonized system of Port State Control with the aim of eliminating the operation of sub-standard ships [4-1]. The Paris Memorandum of Understanding on Port State Control entered into effect on 1 July 1982. Its present membership consists of 19 Members: Belgium, Canada, Croatia, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Netherlands, Norway, Poland, Portugal, Russian Federation, Spain, Sweden, United Kingdom. Further adherence is anticipated. The co-operating countries were Japan and United States.

4.1.1 The Objectives of the Paris MOU

The objectives of the Paris MOU as stated in the preamble to the Memorandum are:

- .1 To co-ordinate and harmonize the efforts of the maritime authorities in relation to Port State Control activities;
- .2 To assist in securing the compliance of ships with international standards regarding:

- a. Safety of life at sea;
- b. Prevention of pollution of the marine environment; and
- c. Working and living conditions on board.

Each authority will maintain an effective system of Port State Control to ensure that foreign merchant ships visiting its ports comply with the standards laid down in relevant International Conventions and will achieve an annual total of inspection corresponding to 25% of the estimated number of individual ships which entered the ports of its state during a 12 month period. In practice this will result in an inspection rate of around 90% of all ships using ports in the region.

The Paris MOU does not contain any new regulations, but aims to ensure the enforcement of the relevant International Conventions currently in force, which themselves provide the basis for Port State Control of foreign ships. Inspections under the provisions of the Paris MOU are governed by principles and guide-lines developed by the Port State Control Committee, the executive body of the Paris MOU.

The Paris MOU Port State Control Committee (PSCC) is the executive body instituted by the Paris Memorandum and it is composed of the representatives from each of the participating maritime authorities and of the European Communities. IMO and the ILO participate as observers in the work of the Port State Control Committee.

The Committee has the task of carrying out the specific duties assigned to it under the Paris Memorandum and to promote by all necessary means the harmonization of procedures and practices relating to inspection, rectification, detention and the application

of the no more favourable treatment clause.

The Committee (PSCC) held its 33rd meeting in Southampton, United Kingdom, from 9 to 12 May 2000. The Committee discussed a range of issues and made a number of decisions in order to improve the targeting of sub-standard ships and work on the sharing of information on ship safety with industry. In the wake of the Erika disaster which occurred on 13 December 1999, a 37,283 deadweight Maltese-flag tanker has broken in two in heavy seas around 70 miles south of Brest, while en route from Dunkirk to Italy. The PSCC announced a concentrated inspection campaign on oil tankers from September to November 2000, which will target oil tankers over 15 years of age and over 3000 GT and focus on both structure and operational aspects. The PSCC unanimously accepted Iceland as the latest full member of the Paris MOU (effective from 1 July 2000), thereby bringing the membership to 19 maritime Administrations. Slovenia was accepted as a co-operating member. The Committee also ratified an agreement to supply information to EQUASIS from the SIRENAC database. EQUASIS is an information system collating existing safety related information on ships from both public and private sources and making it available on the internet. It is an international database covering the whole world fleet.

4.1.2 The EQUASIS

The role of the industry in promoting quality and safety in marine transport is at the heart of the Quality Shipping Campaign, launched by the European Commission and the UK Government in November 1997. The campaign's aim is to bring together all players involved in the various different fields of marine business in an effort to improve marine safety. It is based upon dialogue between all the marine industry and public authorities and its tools are primarily voluntary measures.

As this campaign has demonstrated, one of the greatest impediments to a genuine quality culture in shipping, is the lack of sufficient transparency in the information relating to the quality of ships and their operators.

While much relevant information is collected and available, it is scattered and often difficult to access. One of the main conclusions of the Quality Shipping Conference in Lisbon in June 1998, was a unanimous call from the participants, representing the whole range of industry professionals (including shipowners, cargo owners, insurers, brokers, classification societies, agents, ports and terminals), for making such information more accessible.

In response to this call, the European Commission and the French Maritime Administration decided to co-operate in developing a data system collating existing safety-related information on ships from both public and private sources and making it available on the Internet.

The main principles, in setting up, the Equasis information system are as follows :

- .1 Equasis should be a tool aiming at reducing substandard shipping, and it should be limited to safety-related information on ships.
- .2 Equasis has no commercial purpose; it addresses a public concern and should act accordingly.
- .3 Equasis should be an international database covering the whole world fleet.
- .4 Active co-operation with all players involved in the maritime industry is needed..
- .5 Equasis will be a tool used for a better selection of ships, but it will be used on a voluntary basis; there will be no legal pressure for industry to use Equasis.
- .6 The setting-up and effective operation of Equasis will promote the exchange of unbiased information and transparency in maritime transport and thus allow persons involved in maritime transport to be better informed about the performance of ships and maritime organisations with which they are dealing.

4.1.3 Paris MOU Secretariat

The Secretariat, functioning within the Netherlands' Ministry of Transport, Public Works and Water Management, is situated in Rijswijk, near Hague. The Secretariat acts under the guidance of the Port State Control Committee.

In November 1994 the European Union (EU) Transport Council reached a common position on the Port State Control Directive, which implies that the EU member states agree with its contents and further adoption in the following meeting in June 1995. The Directive 95/21/EC on Port State Control was fully implemented by the EU member states on 1 July 1996 [4-2].

The substance of the Port State Control Directive is more or less based on the technical contents of the Paris Memorandum and on common policies agreed within the Port State Control Committee. However, the consequences of the introduction of the Port State Control Directive in Europe will have a significant effect on the involvement and commitment of the EU member states in their capacity as a Port State. Since the Directive is a "legislative umbrella" over the Paris Memorandum, the Port State Control effort of the EU member states, which are currently based on voluntary commitment, will come under strict mandatory prescription of the Directive.

The relevant instruments for the purposes of the Paris MOU on PSC are:

- .1 The International Convention on Load Line, 1966;
- .2 The Protocol of 1988 relating to the International Convention on Load Line, 1966;
- .3 The International Convention for the Safety of Life at Sea, 1974 (SOLAS 74);

- .4 The Protocol of 1978 relating the International Convention for the Safety of Life at Sea, 1974;
- .5 The Protocol of 1988 relating the International Convention for the Safety of Life at Sea, 1974;
- .6 The International Convention for the Prevention of Pollution from Ships, 1973 as modified by the Protocol of 1978 relating thereto (MARPOL 73/78);
- .7 The International convention on Standards of Training, Certification and Watch-keeping for Seafarers, 1978 (STCW 78);
- .8 The Convention on the International Regulations for Preventing Collisions at Sea 1972 (COLREG 72);
- .9 The International Convention on Tonnage Measurement of Ships, 1969;
- .10 The Merchant Shipping (Minimum Standards) Convention, 1976 (ILO Convention No. 147)

During 2000, 18,559 inspections were carried out in the Paris MOU region on 11,358 foreign ships registered in 101 different Flag States. The number of inspections is slightly higher than the inspection figure for 1999 (18,399), and overall, the figures show a steady increase in 2000 [4-3].

The overall inspection rate in the region was 28.6% in 2000, compared with 27.6% in 1999, 26.5% in 1997.

4.1.4 Targeting System

Targeting system means a ship targeting scheme by which ships were marked in accordance to their performance record. A series of targeting factors such as age and type of vessel, its duration between PSC inspection and previous PSC inspection results are taken into account to determine the markings of the vessel. It aims to provide a list of priority of ship selection for the PSC officer to conduct the inspection in their ports. The “Black, Grey and White List” is based on performance over a 3-year rolling period but now indicate the full spectrum between quality flags and flags with a poor performance which are considered high or very high risk. The White List represents quality flags with a consistently low detention record. Next to the white list is the grey list where flag of ships are at a relatively low performance. Down at the bottom is the black list where rust bucket or poorly performed flag states would be listed. Ships in this category are targeted and boarded more frequently than the ships that are categorized on the other lists. This new normative listing of Flag States provides an independent categorization that has been prepared on the basis of the Paris MOU Port State inspection results. Compared to the calculation method of previous year, this system has the advantage of providing an excess percentage that is significant and also reviewing the number of inspections and detentions over a 3-year period.

4.1.5 Banning of Ships

At the end of 2000 a total of 16 ships were banned from the Paris MOU region, because they failed to call at an agreed repair yard, jumped detentions or were not certified in accordance with the ISM Code. During the year 8 ships were placed under the banning measures, the remaining ships were banned in previous. By the end of 2000 the ban had been lifted on 2 ships after verification that all deficiencies had been rectified.

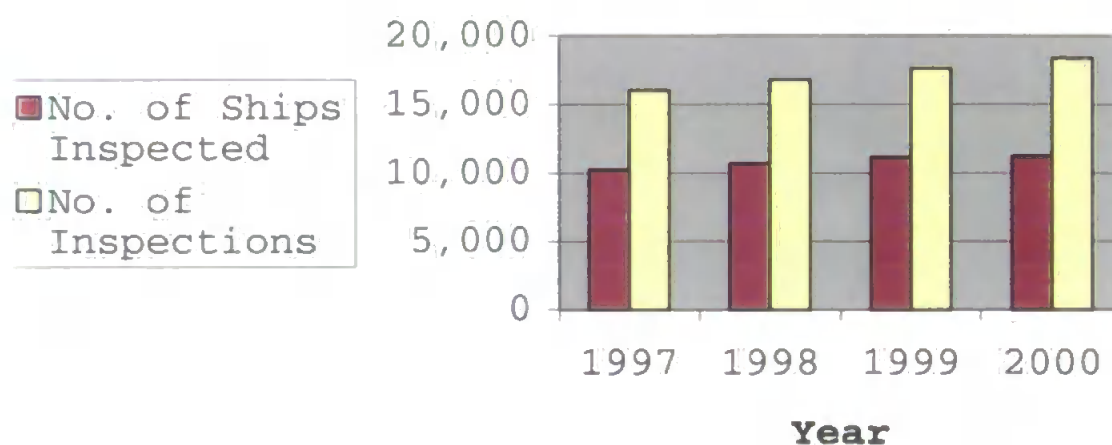
The Paris MOU Port State Control Committee met in St. Petersburg for its 13th meeting. During the meeting the Rules of Procedures for that Committee was adopted. Unlike the approach taken by Tokyo MOU the Paris MOU introduced directly provisions of the resolution into their Memorandum. Thus, the Paris MOU guideline includes annexes, self-contained and comprehensive procedures and guideline for Port State inspections. In addition, Paris MOU also adopted the provisional guidelines for the control on the ISM code and decided to conduct a concentrated inspection campaign on ISM Code during the period of July to September in 1998.

4.1.6 Inspection in the Paris MOU Region

An outline of inspections throughout the region follows:Table 4.1: Inspections Throughout the Region from 1997 to 2000

	1997	1998	1999	2000
No. of Ships Inspected	10,256	10,719	11,168	11,248
No. of Inspections	16,070	16,813	17,643	18,399

Paris MOU Inspection Throughout the Region

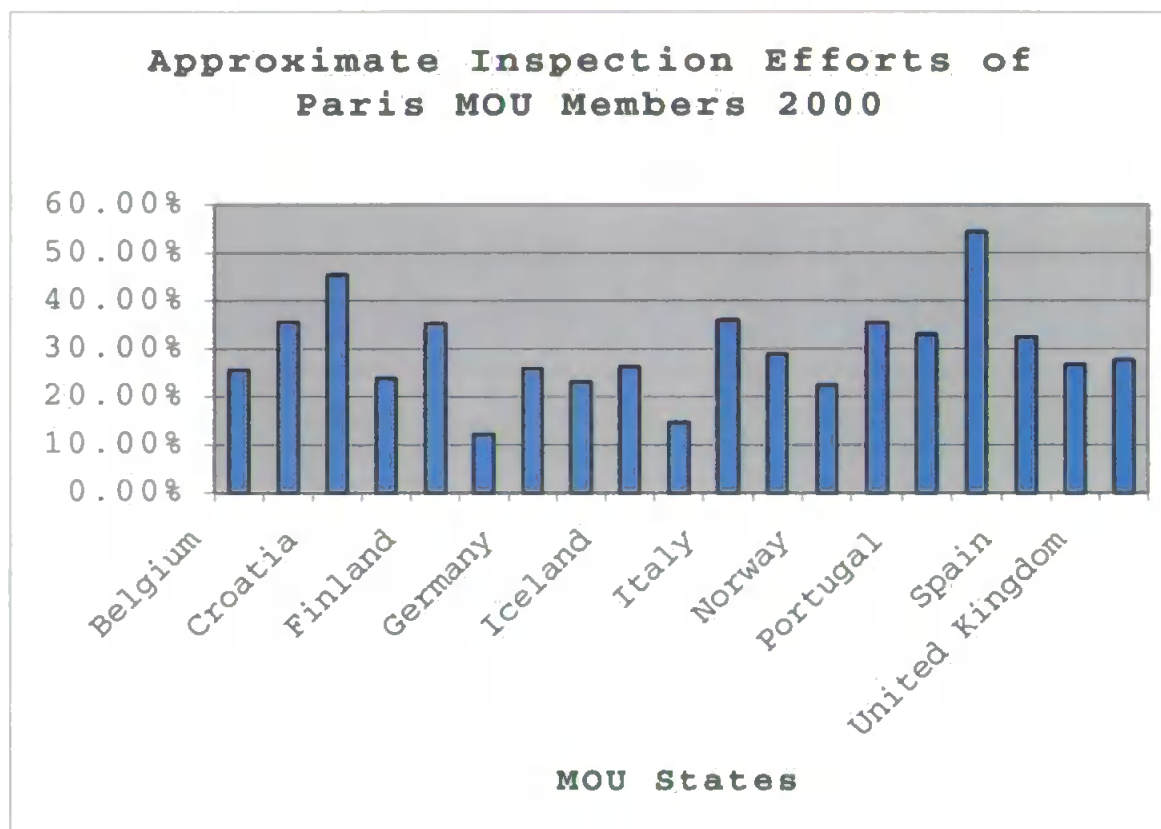


Source: Annual Report and accounts, the Paris MOU 2000

Table 4.2 Approximate Inspection Efforts By Individual Paris MOU Members (2000)

MOU states	% of Ships Calling Inspected
Belgium	25.6%
Canada	35.6%
Croatia	45.5%
Denmark	23.8%
Finland	35.3%
France	12.2%
Germany	25.9%
Greece	23.1%
Iceland	26.3%
Ireland	14.65%
Italy	36.0%
Netherlands	28.9%
Norway	22.4%
Poland	35.5%

Portugal	33.0%
Russian Federation	54.3%
Spain	32.4%
Sweden	26.7%
United Kingdom	27.7%



Source: Annual Report and Accounts, the Paris MOU 2000

Under the Paris MOU member states have agreed to inspect 25% of the estimated number of individual foreign merchant ships which enter their ports. Each authority will achieve, within a period of three years from the coming into effect of the Memorandum, an annual total of inspections corresponding to 25% of the estimated number of individual foreign merchant ships, which entered the its ports during a representative period of 12 months.

Table 4.3 Overall Number of Ships Detained in Paris MOU 1997 - 2000

	<u>1997</u>	<u>1998</u>	<u>1999</u>	<u>2000</u>
No. of Ships Inspected	10,256	10,719	11,168	18,559
Detention as a % of Ships Inspected	10.7%	9.66%	9.06%	9.5%

Source: Annual Report and accounts, the Paris MOU 2000

A hard core of Flag States appeared on the Black List. Most flags which were considered “high risk” in 1999 remain so in 2000. Newcomers in the category of very high risk and at the top of the list are Bolivia and Sao Tome and Principe.

Table 4.4 Paris MOU Black List 1998 – 2000

Flag States	No. Inspections 98-00	No. of detentions 98-00	Excess factor
Bolivia	50	28	13.16
Albania	129	79	12.23
Sao Tome & Principe	33	16	9.82
Honduras	344	128	9.63
Lebanon	225	72	7.64

..21 more states are within the Black List

The White List represents quality flags with a consistently low detention record. The Paris MOU flags of Finland, United Kingdom, Sweden, Germany and Ireland are placed highest in terms of performance. Flag States with an average performance are shown on the Grey List. Their appearance on this list may act as an incentive to improve and move to the White List. At the same time flags as the lower end of the Grey List should be careful not to neglect control over their ships and risk ending up on the Black List next year.

Table 4.5 Paris MOU Grey List 1998 – 2000

Portugal	606	53	0.99
Bulgaria	312	29	0.95
Azerbaidzhan	110	12	0.94
Cayman Islands	213	19	0.81
Hong Kong	305	14	0.03

.. 25 more states are within the Grey List

Table 4.6 White List 1998 – 2000

USA	172	6	-0.01
Korea, Republic of	118	3	-0.08
Barbados	279	11	-0.15
China, People's Rep.	412	18	-0.18
United Kingdom	562	8	-1.48

.. 17 more states are within the White List

Source: Annual Report and Accounts, the Paris MOU 2000

Table 4.7 Detention per Ship Type – Paris MOU 1999-2000

	1999	2000
General cargo	13.34%	12.85%
Bulk Carriers	8.78%	9.26%
Tankers	5.93%	8.09%
Gas Carriers	1.64%	2.66%
Chemical tankers	6.17%	7.28%
Passenger ships	5.09%	4.83%
Refrigerated ships	8.31%	7.17%
Ro-ro / containers	4.43%	4.40%
Other types	7.71%	4.32%
All types	9.15%	9.50%

Source: Annual Report and Accounts, the Paris MOU 2000

Table 4.8 Major Categories of Deficiencies in relation to Inspection / Ships

	1998	1999	2000
Life Saving Appliances	10,445	10,882	10,942
Fire Safety Measure	7,749	8,052	8,789
Safety in General	7,603	7,965	9,243
Safety of Navigation	6,426	6,643	8,055
Marine Pollution (Oil)	4,112	4,276	4,875
Ships Certificates	3,204	3,596	3,465
Load lines	3,161	3,308	3,816
Prop/Aux Machinery	3,128	2,966	3,671
Accommodation	1,931	1,889	1,963

Source: Annual Report and accounts, the Paris MOU 2000

4.2 Tokyo Memorandum of Understanding

Recalling the recommendation from the IMO's Resolution (A.682(17)) on regional co-operation in Port State Control, the maritime authorities in the Asia Pacific region had increased the awareness of the importance and necessity for co-operation on Port State Control. Learning the successful experience from the Paris MOU, a number of countries in the Asia Pacific regions started to work together in 1992 to explore ways to establish the regional co-operative system on Port State Control [4-4].

At the initiative of the Government of Japan, the first preparatory meeting was convened on 13 February 1992, in Tokyo. At the meeting, the maritime authorities agreed to co-operate with each other to promote Port State Control activities in the Asia-Pacific Region, but no decision was taken at that time whether a MOU should be drawn up in the Asia-Pacific region.

At the second meeting in Sydney, Australia on 4-6 November 1992, the authorities agreed to develop an MOU and also to set up an Interim Secretariat in Australia. As a result of deliberations at two further preparatory meetings, a third meeting in Vancouver, Canada in 1-3 June 1993 and a fourth meeting in Tokyo, Japan in 29 November - 2 December 1993, the Tokyo MOU in Asia Pacific Region was concluded and signed at the Tokyo meeting on 2 December 1993 [4-5].

The Tokyo MOU was signed by 18 maritime authorities in the Asia-Pacific region: Australia, Canada, China, Fiji, Hong Kong, Indonesia, Japan, Republic of Korea, Malaysia, New Zealand, Papua New Guinea, Philippines, Russian Federation, Singapore, Solomon Islands, Thailand, Vanuatu and Vietnam.

According to the provisions of the Memorandum, those authorities that have signed and formally accepted the Memorandum would become members of the Tokyo MOU. By the end of 1995, 12 authorities were full members of the Tokyo MOU: Australia, Canada, China, Hong Kong, Japan, Republic of Korea, Malaysia, New Zealand, Papua New Guinea, Russian Federation, Singapore and Vanuatu.

The Tokyo MOU came into effect from 1 April 1994. A permanent secretariat (the Tokyo MOU Secretariat), as an independent body to serve the Port State Control Committee, was established in Tokyo, Japan, and became operational in April 1994. The secretariat functions were transferred from the Interim to the Permanent Secretariat at the end of the first meeting of the Port State Control Committee.

4.2.1 Provision in Tokyo Memorandum

The Memorandum provides that each authority will establish and maintain an effective system of Port State Control.

The following instruments are relevant to the Port State Control inspections:

- .1 The International Convention on Load Line, 1966;
- .2 The International Convention for the Safety of Life at Sea, 1974 (SOLAS 74) as amended;
- .3 The Protocol of 1978 relating the International Convention for the Safety of Life at Sea, 1974;
- .4 The International Convention for the Prevention of Pollution from Ships, 1973 as modified by the Protocol of 1978 relating thereto (MARPOL 73/78);
- .5 The International convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978 (STCW 78);
- .6 The Convention on the International Regulations for Preventing Collisions at Sea 1972 (COLREG 72);
- .7 The Merchant Shipping (Minimum Standards) Convention, 1976 (ILO Convention No. 147)
- .8 STCW 95
- .9 ISM

4.2.2 Operation of Tokyo MOU

In selecting ships for inspection the authorities pay special attention to:

- .1 passenger ships, roll-on/roll-off ships and bulk carriers;
- .2 ships which may present a special hazard, including oil tankers, gas carriers, chemical tankers and ships carrying harmful substances in packaged form;

- .3 groups of ships appearing in the three-year rolling average table of above average delays and detentions in the annual report of the Memorandum;
- .4 ships that have had several recent deficiencies; and
- .5 ships that have not been inspected by any Authorities within a previous period of six months [4-6].

The authorities report on their inspections and results and exchange inspection information in accordance with the procedures set out in the Memorandum, (To serve this purpose, the Asia-Pacific Computerized Information System (APCIS) was established under the auspices of Russia Federation.)

The authorities will endeavor to establish training programmes and seminars for Port State Control officers. A Port State Control Committee is to be established, composed of a representative of each of the member authorities. A permanent secretariat is established in Tokyo, Japan responsible for the procedures and provisions for amendments and Administration.

As an executive body of the MOU, the Port State Control Committee was established, in accordance with the provisions of the Memorandum, to monitor and control the operation and effectiveness of the MOU and to take decisions on matters related to the operation of the Tokyo MOU. In addition to the member authorities, observers from non-member authorities such as the IMO, ILO, the Economic and Social Commission for Asia and the Pacific (ESCAP) and the Paris MOU also participate in the work of the Committee.

4.2.3 Tokyo MOU Secretariat

The Tokyo MOU Secretariat (TMS) was established in Tokyo, Japan, as an independent public foundation in conformity with the provisions of the Tokyo MOU. The TMS is

governed by and accountable to the Port State Control Committee. It serves the committee meetings and also organizes or assists to organize seminars and other training activities in the Asia Pacific Region.

4.2.4 Asia Pacific Computerized Information System (APCIS)

For storing Port State Inspection data and facilitating of exchange of information among authorities in the region, a computerised database system was established in Russia. On 18-19 February 2000, the 8th meeting of Regional Database Managers (DBM08) was held in Nadi, Fiji. The meeting discussed the status of establishment of the regional data exchange system and measures to be taken for enhancement of exchange of information. At present, only a limited number of Authorities transmit data to APCIS, but other authorities gradually establish their computerised database.

4.2.5 Inspections Throughout the Tokyo MOU Region

In 2000, 16,034 inspections were carried out on ships registered in 94 countries. During inspections, 10,628 ships were found with deficiencies. Since the total number of individual ships operating in the region was estimated at 24,537, the inspection rate in the region was approximately 65% in 2000. In 2000, 1,101 detentions were warranted to ship registered in 53 countries because of serious deficiencies found on board. The rate for detention compared to the inspections carried out was about 6.87%.

Table 4.9 Inspection rate of member states

Authorities	Total Inspection	Inspection Rate
Australia	2,926	18.25%
Canada	424	2.64%
China	1,576	9.83%

Fiji	56	0.35%
Hong Kong	885	5.52%
Japan	4,248	26.49%
Indonesia	685	4.27%
Republic of Korea	2,191	13.66%
Malaysia	235	1.47%
New Zealand	658	4.10%
Indonesia	685	4.27%
Russia Federation	495	3.09%
Singapore	1,023	6.38%
Thailand	227	1.42%
Vanuatu	5	0.03%
Vietnam	225	1.40%

Source: Annual Report, Tokyo MOU2000, published June 2001

Table 4.10 Types of Ships Inspected –Tokyo MOU

Ship type	No. of Ships Inspected	Percentage	Detention Percentage
Bulk Carrier	4,541	28.32 %	4.54%
General Dry Cargo	5261	32.81 %	11.88%
Ro-Ro Container	2,947	18.38 %	3.66%
Oil Tanker	1,092	6.81%	5.4%
Reefer Cargo	572	3.57 %	7.34%
Chemical Tanker	574	3.58 %	4.53%
Gas Carrier	315	1.96 %	3.81%
Passenger ferry	199	1.24 %	5.53%
Others	533	3.32 %	2.25%

Average detention percentage 1998- 2000 = 7.11%

Source : Annual Report of Tokyo MOU2000, published June 2001

Table 4.11 Detention Per Flag exceeding 3 year rolling average detention percentage – Tokyo MOU (Average detention percentage 1998 - 2000 = 7.11%)

Flag	No. of Detentions	Detention percentage(%)
Korea, Dem. Peoples' s Republic	43	39.45
Indonesia	47	38.21
Vietnam	22	27.85
Cambodia	112	21.25
Belize	85	18.81
Honduras	42	16.41
Malaysia	46	15.23
Russia	49	12.25
Taiwan, China	20	10.99
Thailand	21	10.99
St. Vincent & the Grenadines	28	9.66
India	7	8.97

Flags listed above are the top twelve flags which ships were involved in at least 20 Port State Inspections and detention percentage of which are the regional average detention percentage.

Source : Annual Report of Tokyo MOU2000, published June 2001

Table 4.12 Detention per ship type – Tokyo MOU

Ship type	Detention Percentage
Bulk Carrier	7.39 %
General Dry Cargo	7.55 %
Ro-ro Container	2.89 %
Oil Tanker	2.60 %

Reefer Cargo	3.08 %
Chemical Tanker	3.38 %
Gas Carrier	1.01 %
Passenger ferry	5.06 %
Others	3.90 %

Source : Annual Report of Tokyo MOU2000, published June 2001

Table 4.13 Comparison of number of Deficiencies by main categories

	<u>1998</u>	<u>1999</u>	<u>2000</u>
Life saving appliances	11025	10266	11774
Fire safety measures	8050	6407	8758
Stability, structure and related equipment	5816	5550	7331
Safety of navigation	5542	5813	7066
Load lines	4209	3844	4381
Radiocommunication	1275	2504	2573

Source : Annual Report of Tokyo MOU2000, published June 2001

4.3 Acuerdo de Vina del Mar (Latin American Agreement)

In November 1992, an agreement for co-operation on Port State Control was signed by 10 maritime authorities in Latin American region, subject to their acceptance of the agreement. A secretariat and an information centre network known as ROCRAM (Operative Network of Co-operation between maritime authorities of South America, Mexico and Panama) were established in Buenos Aires, Argentina.

In November 1994, the first committee meeting of the Latin American Port State Control Committee was held in Uruguay. The second meeting took place in Buenos Aires of Argentina in September 1995, following countries had registered their acceptance of the Acuerdo de Vina del Mar: Argentina, Brazil, Chile, Colombia, Cuba, Ecuador, Mexico,

Panama, Peru, Uruguay and Venezuela. Under the agreement each country will inspect 15% of foreign merchant ships visiting their ports to ensure that they comply with major IMO/ILO instruments. During the first Committee meeting, it was decided to monitor carefully the results of discussions within the Paris MOU framework and to consider their possible relevance for the Latin America region at a later stage [4-7].

The executive body of the Latin American Agreement on Port State Control is the Port State Control Committee. This is composed of representatives of the member states which meets once a year, or at shorter intervals if necessary. Administrative procedures, co-ordination and publication of statistics as well as the development of a regional database have been arranged under the auspices of the Argentinean Coast Guard based in Buenos Aires.

The Latin American Agreement emphasizes that the main responsibility for effective enforcement of International Conventions lies with the owners and the Flag States, but as with the other regional agreements it recognizes the “need for effective action for Port State in order to prevent the operation of deficient ships”.

The recitals also acknowledge the objectives of ROCRAM and other South American regional resolutions and herald a harmonization role for the Agreement when it stated “it is necessary to avoid differences in the treatment given to ships by the different courts and that said practices may distort competition between ports”. As with the other regional agreements it regards its primary role as one of “back up” to the roles of the Flag States and coordination, as it states in the recitals: “to implement an efficient harmonic control system by Port States and to strengthen cooperation and interchange of information.”

The Secretariat of the Vina del Mar Agreement held its 7th committee meeting in Panama City, Panama, from 16 to 18 August 2000. Important issues were discussed in connection with new procedures for vessel inspections in order to eradicate substandard vessel from the region. A representative of the International Labour Organization also attended the meeting and advised on the possibility of incorporating ILO Convention 147 as a relevant instrument. The agenda included new guidelines for Port State Control Officer (PSCO), fishing vessel control, procedures to detect fraudulent certificates on board, bulk carrier safety and verification of cargo stowage and securing procedures. Training of PSCO'S training was also a major item on the agenda.

4.3.1 Pertinent Instruments

For the purposes of the Agreement, the internationally accepted Conventions monitored by the Agreement are called "Pertinent Instruments" and are:

- .1 The International Convention on Load Line, 1966 (LOADLINES 1996);
- .2 The International Convention for the Safety of Life at Sea, 1974 (SOLAS 74);
- .3 The Protocol of 1978 relating the International Convention for the Safety of Life at Sea, 1974 (SOLAS Protocol);
- .4 The International Convention for the Prevention of Pollution from Ships, 1973 as modified by the Protocol of 1978 relating thereto (MARPOL 73/78);
- .5 The International convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978 (STCW 78);
- .6 The Convention on the International Regulations for Preventing Collisions at Sea 1972 (COLREG 72);

.7 The International Convention on Tonnage Measurement of Ships, 1969
(TONNAGE 1969);

4.3.2 Target Rate For Inspection

Each participating maritime authority is asked to make efforts to reach, within a maximum three year term as from the date of enforcement of this agreement, and survey minimum of 15% of foreign ships that may have entered the ports of its state during a recent representative period of 12 months. As with the other regional agreements, some individual countries are exceeding this target, others are falling below it.

Table 4.14 Inspections where deficiencies were found

Country	Inspections		No. of Inspections where deficiencies were found	
	1998	1999 (1 ST quarter)	1998	1999 (1 ST quarter)
Argentina	237	93	142	48
Brazil	733	564	315	205
Chile	79	53	55	27
Columbia	0	39	0	14
Cuba	117	58	106	56
Ecuador	1	24	1	1
Panama	35	14	12	8
Peru	0	34	0	2
Uruguay	37	14	19	8
Total	1,239	893	893	369

Source: Acuerdo Latin American Sobre Control de Burque pour el Estano Rector del Perto, Estadisticas
1998 and 1999

Table 4.15 Detentions – South America MOU

Country	No. of Detentions 1998	1999 (1ST quarter)
Argentina	1	0
Brazil	18	6
Chile	8	3
Colombia	Data not available	28
Cuba	54	Data not available
Ecuador	Data not available	4
Panama	3	Data not available
Peru	Data not available	Data not available
Uruguay	1	1
Venezuela	Data not available	Data not available
Total	85	42

Source: Acuerdo Latin American Sobre Control de Burque pour el Estano Rector del Perto, Estadisticas
1998 and 1999

Table 4.16 Comparison of Inspections, Deficiencies and Detentions 1997 - 1999 (First Quarter)

	1997	1998	1999 (1st quarter)
Inspection	504	1,239	893
Deficiencies	297	647	Data not available
Detentions	893	85	42

Source: Acuerdo Latin American Sobre Control de Burque pour el Estano Rector del Perto, Estadisticas
1998 and 1999

In assessing the inspection result in 2001, LATIN America 11-country Memorandum of Understanding on Port State Control had not attained its inspection target of 15 per cent of

all ships coming to the region. Under the 1992 Vina del Mar agreement, the target inspection rate was set at 15 per cent within three years. It will take some years to attain this percentage, said the agreement secretary and head of the Argentine coast guard Juan Jose Beltritti. However, member countries have increased their inspection targets, with a resulting decrease in sub-standard ships visiting the region. He declined to provide the current, overall inspection target rate. Beltritti said vessels arriving for the first time or calling six months after their last inspection are targeted. Countries infrastructure levels, resources, information systems and ships calling patterns all impacted on inspection target levels. The MOU noted the situation in Europe where they have been working on Port State control for more than 20 years and should take into account that some of the Latin American members only joined two years ago [4-8].

4.4 Port State Control in the USA

The USA is not a participating member of any of the regional agreements currently in force, but it does take a proactive unilateral stance on the subject of the monitoring and enforcement of International Conventions and regards it as an increasingly important component in the policing and enforcement of maritime regulations.

Until 1994, boarding to ensure compliance with US regulations for tank ships, passenger ships, navigational safety and pollution prevention constituted the US Coast Guard's main involvement with non-US ships and only in the most extreme or obvious cases did the Coast Guard intervene under the international Conventions (e.g. SOLAS, MARPOL, Loadline) to detain non-US ships.

However, in 1994, the US Congress recognized that there existed a number of

sub-standard ships amongst the 8,000 non-US ships arriving in the USA every year and directed the Coast Guard to develop a programme to eliminate them from the national waters, and to submit annual reports on the status of this mandated programme that has come to be called the Port State Control Programme.

The USA Government maintains that the prime responsibility for compliance with the requirements laid down in the international maritime conventions lies with the ship owner / operator. It also continues to maintain that the responsibility for ensuring such compliance lies with the Flag States, but the language contained in the various statement, papers etc. issued by the USCG indicates that while Port State Control is seen as a safety net, it is to be regarded as a proactive one and the USCG has recently begun to demonstrate, both by statements and by action, that it intends to enforce international standards stringently.

4.4.1 Jurisdiction of the Port State Control Programme

Foreign ships operating in US waters are subject to inspection under Title 46 United State Code (USC) Chapter 33. Reciprocity is accorded to ships of countries that are parties to the International Convention for the Safety of Life at Sea (SOLAS) (46USC 3303(a)). In addition, certain provisions of the pollution prevention and navigation safety regulations (33 Code of Federal Regulations (CFR) 154-156 and 164 respectively) apply to foreign ships operating in US waters.

As there is no agreement or memorandum specifically dedicated to Port State Control, there is no conclusive list of the conventions enforced by the USCG under their Port State Control regime. However it can be said that detentions and interventions may be

undertaken by the USCG under the authority of:

- .1 46 United States Code (USC) 5101 - 5116, Load line requirement for foreign ships.
- .2 46 United States Code (USC) 2101 (12) 3306(a)(5) and 49 USC 1801 -1812, Safety requirements for carriage of dangerous articles and substances aboard foreign ships.
- .3 46 United States Code (USC) 2101 (21) and (35), 3504 and 3505, Safety requirements for foreign ships carrying passengers from any US port to any other place and country.
- .4 46 United States Code (USC) 2101 (12), (21), (22) and (35) and Chapter 35, Inspection and certification requirements for all foreign passenger ships which embark passengers at and carry them from a US port.
- .5 46 United States Code (USC) 2101 (12) and (39), 3301 (10) and Chapter 37, Safety requirements that apply, with certain stipulations, to all foreign ships regardless of tonnage, size, or manner of propulsion, whether or not carrying freight or passengers for hire, that enter US navigable waters while carrying liquid bulk cargoes that are flammable or combustible; oil of any type or in any form, including petroleum, fuel oil, sludge, oil refuse and oil mixed with wastes, except dredge spoil; designated as a hazardous substance under Section 311(b) of the Federal Water Pollution Control Act (FWPCA)(33USC 1321); or designated as hazardous materials under Section 104 of the Hazardous Materials Transportation Act (HMTA) (49 USC 1803);
- .6 46 United States Code (USC) 2101 (21) and 3304, Permission for US ships transporting cargo to carry a limited number of individuals without being considered as a “passenger ship” for most inspection purposes, and extension of

- this privilege to cargo ships of those nations that accord reciprocal treatment;
- .7 46 United States Code (USC) 2101 (33) and 3301 (7), Directs that safety requirements of 46 USC Chapter 33 are applicable to seagoing motor ships of 300 or more gross tons;
 - .8 46 United States Code (USC) 2101 (35) and 3301(8), Safety requirements for foreign small passenger ships carrying more than six passengers from a US port;
 - .9 50 USC 191, Requirements for security of ships, harbours and waterfront facilities and provision for control of the movement of foreign ships in US waters by the local OCMI / COTP.
 - .10 33 USC 1221 -1232, Statutes for advance notice of arrival and navigation safety regulations.

4.4.2 Applicable International Conventions

- .1 The International Convention on Load Line, 1966 (LOADLINES 1996);
- .2 The International Convention for the Safety of Life at Sea, 1974 (SOLAS 74);
- .3 The Protocol of 1978 and 1988 relating the International Convention for the Safety of Life at Sea, 1974 (SOLAS Protocol);
- .4 The International Convention for the Prevention of Pollution from Ships, 1973 as modified by the Protocol of 1978 relating thereto (MARPOL 73/78);
- .5 The International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978 (STCW 78);
- .6 The Convention on the International Regulations for Preventing Collisions at Sea 1972 (COLREG 72);
- .7 The Merchant Shipping (Minimum Standards) Convention, 1976 (ILO Convention No. 147);

- .8 International Convention Relating to Intervention on the High Seas in Cases of Oil Pollution Casualties, 1975 and the Protocol relating to Intervention on the High Seas in Cases of Marine Pollution by Substances other than Oil, 1983.

4.4.3 Selecting a ship for inspection - The Boarding Priority Matrix

Until 1994, the USCG's ship boarding programme was largely ad hoc, but they now have developed a Boarding Priority Matrix as part of their effort to systematically determine the probable risk posed by non-US ships calling at US ports. This matrix is used to decide which ships Port State Control inspectors should board on any given day, in any given port. Ships are assessed in each category and then summed for a total point score. This numerical score, along with other performance based factors, determines a ship's boarding priority from Priority I through IV.

In developing this point system, the US Coast Guard has identified five features which directly influence a ship's operational condition and compliance with international safety and environmental protection standards. These are,

1. Flag States
2. Classification societies
3. Owner and Operators List
4. Ship Type, and
5. History

The first three are particularly significant and are dealt with as explained below:

Flag States

The flag list is composed of those Flag States whose detention ratios exceed the average detention ratios for all Flag States whose ships call at US ports.

A Flag State's detention ratio is ascertained by dividing the number of its ships which have been detained in the last three years by the total number of its ships which have called at US ports within the same period. For example, if a flag has had three of its ships detained during the last three years, and a total of 60 of its ships have had US port calls in the same period, the detention ratio would be: $3/60 \times 100\% = 5\%$. The average detention ratio is ascertained by dividing the total number of detentions by the total number of arrivals for all Flag States.

The flag list is updated annually on 1 April and remains in effect for twelve months and is sent to all Coast Guard Marine Safety Offices. A Flag State may be removed from the list when its detention average drops below the overall average Flag State detention average or when it is associated with less than two detentions within a twelve months period.

Classification societies

Beginning in 1998 this consists of a two-tier process whereby any classification societies with less than ten arrivals in the previous year are eliminated from the process. Then, classification societies with more than ten distinct arrivals in the previous year are evaluated on their performance over the previous two years. Their performance is based on their detention ratio (number of detentions divided by number of distinct arrivals). This ratio is then compared to the average detention ratio (total number of detentions divided by the total number of distinct arrivals). Classification societies are then assigned points according to where their detention ratios fall in relation to the average detention ratio.

Below the Average Detention Ratio	=	0 points
Between the average and 2 times the average	=	1 point
Between 2 times and 3 times the average	=	3 points
Between 3 times and 4 times the average	=	5 points
More than 4 times the average	=	Priority 1

Owner/Operator List

The US Coast Guard Headquarters Ship Compliance Division (G-MOC-21) compiles a list of owners and operators associated with ships that have had more than one ship detained by the Coast Guard under the authority of an international Convention within the last twelve month period. Any ship making a US port call that is owned or operated by a person or entity that has had that ship, or a different ship, subject to more than one intervention action within the last twelve months is accorded high priority status.

Point Score Summary

Owner	Listed owner (5 pts)
Flag	Listed Flag State (7 pts)
Class	Priority I (10 arrivals with detention ratio more than 4 times the average or <10 arrivals, but involved in a detention in the previous 2 years) 5 Points (10 Arrivals with ratio between 3 & 4 times the average) 3 Points (10 Arrivals with ratio between 2& 3 times the average) 1 Points (10 Arrivals with ratio between average and twice the average) 0 point (10 Arrivals with ratio below average or <10 arrivals, (0 detention in the previous 2 years).

History

Intervention within 12 months	8 Pts
Other Operation Control within 12 months	1 Pt
Casualty within 12 months	1 Pt
Not boarded within 6 months	1 Pt

Ship Type

Oil or Chemical Tanker	1 Pt
Gas Carrier	1 Pt
Bulk carrier > 10 years	2 Pts
Passenger ship	1Pt
Carrying low value commodities in Bulk	2 Pts

Boarding Priority Matrix - Priorities I-IV and Effects Thereof

The points are added up for a total point score and the ship's Boarding priority determined as follows:

Priority I Ships

17 or more points on the matrix, or ships involved in a marine casualty, or USCG Captain of the Port determines a ship to be a potential hazard or to the port or the environment, or ships whose classification society has ten or more arrivals the previous year and a detention ratio more than four times the average, or ships whose classification society has less than ten arrivals the previous year and have been associated with at least one detention.

Port entry may be restricted until ship is examined by the Coast Guard. Priority I ships are targeted for examination prior to entry to US ports. Where feasible, these ships are boarded prior to port entry to ensure deficiencies are corrected. Otherwise, they are boarded upon entry and prior to commencement of cargo transfer operations or passenger embarkation.

Priority II Ships

7 to 16 points on the Matrix, or outstanding requirements from a previous boarding in this or another US port, or the ship is overdue for an annual tank or passenger ship examination.

Cargo operations may be restricted until ship is examined by the Coast Guard. Priority II ships are targeted for boarding prior commencement of cargo transfer operations or passenger embarkation. An exemption to the requirement for boarding prior to

commencement of cargo transfer operations or passenger embarkation may be granted if there are clear indications that the ship is in substantial compliance with applicable standards.

Priority III Ships

4 to 6 points on the matrix, or alleged deficiencies reported, or the ship is overdue for an annual freight examination. Priority III ships may be targeted for boarding after entry into port, but no operational restrictions are imposed.

Priority IV Ships

3 or fewer points on the matrix

Priority IV ships are not targeted for boarding, but may be boarded and examined by the US Coast Guard at the discretion of the local Captain of the Port or the Officer in Charge, Marine Inspection.

4.4.4 2001 Classification Society Performance Statistics

Table 4.17 Class related detentions

		Distinct Vessel Arrivals				Class-Related Detentions				
Company	Class Abbr	1998	1999	2000	Total	1998	1999	2000	Total	Ratio
<u>Bulgarski Koraben Registrar</u>	<u>BKR</u>	17	14	10	41	0	0	0	0	0.00%
<u>Croatian Register of Shipping</u>	<u>CRS</u>	40	29	29	98	0	0	0	0	0.00%
<u>Indian Register of Shipping</u>	<u>IRS</u>	14	25	37	76	0	0	0	0	0.00%
<u>Germanischer Lloyd</u>	<u>GL</u>	685	714	742	2141	2	1	0	3	0.14%
<u>Det Norske Veritas</u>	<u>DNV</u>	1269	1239	1202	3710	2	1	0	3	0.16%
<u>American Bureau of Shipping</u>	<u>ABS</u>	968	937	941	2846	3	0	3	6	0.21%
<u>Bureau Veritas</u>	<u>BV</u>	622	620	618	1860	4	1	0	5	0.27%
<u>Nippon Kaiji Kyokai</u>	<u>NKK</u>	1704	1705	1671	5080	3	2	4	9	0.31%
<u>Lloyd's Register</u>	<u>LR</u>	1563	1439	1527	4529	6	5	5	16	0.35%
<u>Registro Italiano Navale</u>	<u>RINA</u>	182	167	158	507	1	0	1	2	0.39%
<u>China Classification Society</u>	<u>CCS</u>	136	124	125	385	2	2	0	4	1.04%
<u>Korean Register of Shipping</u>	<u>KRS</u>	165	167	164	496	1	3	3	7	1.41%
<u>China Corporation Register of Shipping</u>	<u>CR</u>	42	39	40	121	0	0	2	2	1.65%
<u>Polish Register of Shipping</u>	<u>PRS</u>	94	74	56	224	2	2	0	4	1.79%
<u>Russian Maritime Register of Shipping</u>	<u>RS</u>	241	166	180	587	4	7	4	15	2.56%
<u>Honduras International Naval Surveying & Inspection Bureau</u>	<u>HINSEB</u>	4	12	29	45	2	0	1	3	6.67%
<u>International Register of Shipping</u>	<u>BSS</u>	31	42	20	93	5	3	1	9	9.68%
<u>Panama Maritime Documentation Service</u>	<u>PMDS</u>	9	11	23	43	5	0	1	6	13.95%
<u>Panama Ship Register</u>	<u>PSR</u>	7	12	11	30	2	2	2	6	20.00%
				Total	22912			Total	110	0.48%

Source: USCG Web Site (July 2000)

Table 4.18 Target Flag States 2000

Flag States	Detention %
Antigua & Barbuda	5.56 %
Belize	38.2 %
Bolivia	100.00 %
Cambodia	42.86 %
Cyprus	5.42 %
Honduras	25.51 %
India	7.09 %
Malta	4.75 %
Panama	5.17 %
St. Vincent and the Grenadines	8.43 %
Philippines	3.59 %

Russia	5.17 %
Turkey	7.25 %
Average Detention percentage 2000 = 2.52 %	

Source: USCG Web Site (July 2000)

4.4.5 Qualship 21

On January 1, 2001, Qualship 21 (Quality Shipping for 21st Century) was implemented. Qualship 21 is an initiative to identify high quality non-U.S. flagged vessels, and then reward them with incentives. These vessels are managed by well-run companies, classed by organizations with a quality track record, have an outstanding PSC record in U.S. waters, and are registered with Flag States that have a superior PSC record. Nearly 800 ships were found eligible for the programme. And 379 vessels were awarded Qualship status in March 2001, the first month that incentives began. Incentives for Qualship 21 vessels include Qualship 21 Certificates, vessel names posted on the Coast Guard PSC web site, Qualship designation on EQUASIS files and less frequent PSC exams.

4.5 Caribbean Memorandum of Understanding (CMOU)

A memorandum of understanding on PSC in the Caribbean region has been signed by 22 maritime Administrations in the area in Barbados in February 1996 and adopted the final text of a Caribbean Memorandum of Understanding on Port State Control (CMOU). Fourteen of these Administrations signed the CMOU prior to the closure of the period of signature on 9 August 1996 and up to December 1998 ten Caribbean states had accepted the CMOU. They are Anguilla, Antigua and Barbuda, Aruba, Bahamas, Barbados, Bermuda, British Virgin Islands, Cayman Islands, Dominica, Grenada, Guyana, Jamaica, Montserrat, Netherlands Antilles, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Suriname, Trinidad and Tobago. A small secretariat was established in

Barbados while an information centre was established in Curacao.

Signatories to the MOU have given themselves three years to reach an annual target of inspecting at least 15% of all ships entering Caribbean ports. As a result of a survey in 1994, over 66% of the MOU signatories did not have properly developed maritime Administrations, nor are they in possession of any appropriate shipping legislation. An immediate programme for the creation of maritime Administrations were therefore to be set up together with the existence of modern shipping legislation. In addition it was found that only 41% of the countries involved had accepted the basic IMO safety conventions and 54% the main pollution conventions. Action to ratify relevant IMO conventions is therefore important to the signatory countries.

4.5.1 Upgrade of Maritime Safety Administration (MSA)

Since the adoption of the CMOU in 1996, there has been a flurry of activity in the Caribbean region with regards to the up grade of MSAs. The Regional Maritime Safety Adviser has undertaken initial mission visits to Antigua and Barbuda, the Bahamas, Barbados and other Caribbean states and made specific suggestions in relation to the up grade of these Administrations. In a number of cases, it was observed that the appropriate legislation was already in place for the operation of a MSA, but no action had been taken. Following the visits, Guyana, Jamaica and St. Lucia have taken action, including the enactment of new shipping legislation and the establishment of MSAs which is of sufficient capacity, logistically and substantially to comply in full with all provisions and activities specified in the CMOU in order to enhance its commitments, which include the employment of properly qualified Port State Control officers acting under the responsibility of its Administration.

4.5.2 Setting of Quality Standards

The present text of the CMOU does not contain specific provisions regarding quality standards. The third meeting of the Caribbean Port State Control Committee reviewed the CMOU and in particular the inspection and reporting requirements. The member Administrations reaffirmed their commitment to the provisions of the CMOU in the ratification of all relevant instruments of the CMOU.

The Caribbean Region is fully aware of the fact that ratification of the relevant instruments of the CMOU is a pre-requisite for implementation of Port State Control. This is one of areas on which the Regional Maritime Safety Adviser has focused on. There has been some success, particularly with respect to Guyana and Grenada. A number of states which have not yet accepted the CMOU have indicated that their intention is to first ratify these instruments before depositing the relevant Letter of Acceptance.

The 4th PSC Committee meeting of the CMOU took place in Port-of-Spain, Trinidad & Tobago, on 28 and 29 July 1999 with the participation of 21 countries of the region. During the meeting Cuba deposited a letter of acceptance with the Secretariat and thus became a full member of the Caribbean MOU. The Committee discussed a Caribbean Small Ship Database (CaribShip), developed by Lloyd's Register in co-operation with the Regional Maritime Safety Adviser and introduced during the meeting. Furthermore, a Caribbean Maritime Inspection Database (CMID), developed by the USCG for the Information Centre in Curacao and for use by member countries of the MOU, was introduced and discussed. The meeting also considered the creation of a Directory of Authorized ship surveyors and agreed that such directory should be established and maintained by the Secretariat (Report of the 4th PSC Committee meeting of the Caribbean

MOU).

4.6 Mediterranean Memorandum of Understanding

Eight Mediterranean countries signed a memorandum of understanding on PSC in July 1997 in Valetta. The maritime authorities of Algeria, Cyprus, Egypt, Israel, Malta, Morocco, Tunisia and Turkey have undertaken to meet certain criteria in harmonizing inspections, exchanging information and strengthening co-operation between. With a secretariat has been set up in Alexandria and its information centre in Casablanca, the signatory countries pledged to inspect 15% of the foreign merchant ships entering their ports. Technical assistance from both IMO and the European Commission are to be rendered in order to achieve a vested interest in harmony of high standards of merchant shipping going to North Europe and be connected with the Paris MOU.

4.6.1 Qualification and training requirements of PSCOs

The PSCO should be an experienced officer qualified as Flag State surveyor and should be able to communicate in English with the key crew. The Administration should provide training for PSCOs for the necessary knowledge of the provisions of the applicable conventions which are relevant to the conduct of Port State Control, taking into account the latest IMO Model Courses for Port State Control. Periodical seminars for PSCOs should be held in order to update their knowledge with respect to instruments related to Port State Control [4-9].

In specifying the qualifications and training requirements for PSCOs, the Administration should take into account, as appropriate, which of the internationally agreed instruments are relevant for the control by the Port State and the variety of types of ships which may

enter its ports.

PSCOs carrying out inspections of operational requirements should be qualified as: a master or chief engineer and have appropriate seagoing experience, or have qualifications from an institution recognized by the Administration in a maritime related field and have specialised training to ensure adequate competence and skill, or be a qualified officer of the Administration with an equivalent level of experience and training, for performing inspections of the relevant operational requirements.

The 3rd PSC Committee meeting of the Mediterranean MOU took place in Limassol, Cyprus, from 6 to 8 October 1999. As of July 1999, Jordan signed and accepted the MOU and thus became a full member. The Committee discussed general matters relating to the Secretariat and Information Centre and training programmes. Furthermore, the meeting dealt with the problem of transitional certificates of competence and decided not to accept them. Procedures and a framework for detentions were also discussed, in particular the question of charging for verification inspections. They will be communicating with IMO and other MOUs regarding appropriate action. The meeting also considered a proposal for the Secretariat to establish a website (Report of the 3rd PSC Committee meeting of the Mediterranean MOU).

4.6.2 Summary on Regional Memoranda of Understanding

As more and more countries have taken part in the Port State Control activities, it has become very important that different authorities – especially those that are within the same geographical region - should co-operate and co-ordinate with each other to achieve the best effect through these activities. These included sharing of information,

consolidating common standards, and monitoring rectification actions taken by owners.

Today, numbers of regional MOUs have been set up. They have covered the range of nearly all over the world, (except for some regions in Africa.) and have the following aspects in common:

Adoption of the main IMO and ILO conventions and regulations and standards;

Establishment of a central data base accessible to all member authorities;

agreement on inspection rates that all member authorities should achieve in order to ensure that an adequate number of ships have been inspected;

Development of priority lists for use in selection of ships for inspection.

Recent reports from different MOUs revealed that the inspection rates for vessel have been increasing in all regions, and also the developed countries have a higher inspection rates than others. Various MOUs including USA's separate system are all playing an important role on PSC.

4.7 Contextual Conclusions

Sub-standard ships have existed for a long time, and will continue to exist in the future. As technologies develop and the shipping industry advances, standards become higher. This will give rise to new kinds of sub-standard ships. To ensure maritime safety and protection of the environment, international organizations such as IMO and ILO have developed a number of conventions and regulations setting out standards of safety and

environment protection. These have been updated by working out revisions whenever needed. Such conventions and regulations are implemented by member states and class societies through registration and classification activities. However, some Flag States fail to detect and eradicate sub-standard ships. These ships usually endanger countries or regions they sail to, and compete unfairly with other standard ships.

Economies in crew numbers, rates of pay, low registry charges and taxes, reduced standards of maintenance, cheaper ship construction, lack of training expense and so on, in one word is cost saving always conflict with safety of life and environment protection. A functional system to fight against and control this trend within a relative balance level and further to gradually improve the operating standard of shipping is needed. PSC is an effective weapon in implementing all relevant conventions that international societies develop.

To protect themselves from these losses, Port States have to carry out ship inspections to eliminate sub-standard ships from their regions. Port State Control is a very effective method of enforcing International Conventions and regulations. It acts as an essential back up for the Flag States. As Port State Control is adopted by more and more authorities, regional co-operation and co-ordination must be considered. This has led to establishing of various regional MOUs around the world. The establishment of regional MOUs sets a new era for Port State Control. It enables Port State Control to be more standardized and organized, thus maximizes the final effects.

Reference

- [4-1] Paris MOU Annual Report 1996, p.23
- [4-2] Paris MOU2000 annual Report, p.14
- [4-3] Newbury, R.L. (1993), "Port State Control and the European MOU", Nautical Institute, p.51
- [4-4] Tokyo MOU Secretariat (1995), "Report of the Second Meeting of the PSC Committee in the Asia Pacific Region", Annex 8
- [4-5] IMO News 1994, "PSC Code of Conduct is planned" No.2, p.13
- [4-6] IMO News 1996, "Port State Control", No.4, p.14-15
- [4-7] Fairplay 5 Oct. 2001, "Latin America inspections fallshort", p.3
- [4-8] PSC Manual for Surveyors, Tokyo MOU
- [4-9] PSC Manual for Surveyors, Tokyo MOU

CHAPTER FIVE

CONDUCT OF PSC INSPECTIONS IN HONG KONG

5.1 Conduct of PSC Inspections

Hong Kong has a large number of sub-standard ships using its port facilities. Over the past few years major deficiencies, revealed through PSC inspection and resulting in detention, were found in a significant number of such vessels. The direct sources of authority for exercising Port State Control in Hong Kong waters are the laws of Hong Kong, and are based on relevant international IMO conventions. Hong Kong as an associate member of IMO has adopted these conventions, and incorporated them in its legislation. While Hong Kong Regulations apply specifically to Hong Kong registered ships, they apply also to foreign flag ships when they are in Hong Kong waters. In practice however, those provisions of the regulations which are in excess of the requirement of the international conventions are seldom used against foreign registered ships.

When detention is required, it would be normally for the PSCO to withhold port clearance of a vessel until the ship has rectified the immediate deficiencies and is considered safe to proceed to sea. This is done under Section 11 of the Shipping and Port Ordinance Chapter 313 – “Notwithstanding any other provision of this Ordinance, the Director (of Marine), if he is satisfied that there is reason for doing so, may refuse permission for a vessel, or class, type or description of vessel, to enter or leave the waters of Hong Kong”. All the existing

laws related to the marine operation of the ports of Hong Kong still remain valid after the sovereignty change on 1 July 1997.

5.1.1 Application of the Clause of 'no more favourable treatment'

Ships of a non-party or below convention size to a relevant instrument will be given no more favourable treatment, for example ships below 500 gross tonnage for application of SOLAS convention. As ships of non-Parties and ships below convention size are not provided with SOLAS, Load Line or MARPOL certificates, as applicable, or the crew members may not hold valid STCW certificates, the Port State Control Officer (PSCO) should be satisfied that the ship and crew do not present a danger to those on board or an unreasonable threat of harm to the marine environment.

If the ship or crew has some form of certification other than that required by a convention, the PSCO may take the form and content of this documentation into account in the evaluation of that ship. The conditions of and on such a ship and its equipment and the certification of the crew and the Flag State's minimum manning standard shall be compatible with the aims of the provisions of the conventions; the PSCO might use his professional judgment in accordance with the minimum safety standard as required by the International Convention to see if the ship is safe. In any event when a ship is found to be unsafe, it is not be permitted to depart from Hong Kong until the major deficiencies have been rectified. Such detention could last as little as a few hours, but on occasion have lasted as long as three to four days.

Hong Kong has been conducting PSC for many years. The earliest recorded inspection was in April 1986. At this time there were very few inspections conducted within the

Asia-Pacific region in accordance with PSC policy on board foreign flagged vessels. The growing concern of sub-standard shipping movements from one region to another to escape the 'safety net' lead to more concentrated and enhanced inspections being conducted, especially in Hong Kong where large volumes of shipping are trading daily.

5.1.2 Targets

The targeting of ships within the region varies from state to state; Hong Kong currently pursues a target of 15% of all ships entering Hong Kong. The target is based upon the number of ships entering the port, which have not been inspected within the last 6 months. Where 'clear grounds' exist the officer will conduct an extended inspection after the initial documentation checks.

The targeting system is still under development in the Tokyo MOU region. A working group has been set up and led by Australia during the 10th Port State Control Committee in October 2001 to study a targeting system for the region. In selecting ships for inspection, the PSC team will refer to the statistics published in the Tokyo MOU report. Ships that are above the rolling average detention rate will be given a high boarding priority.

5.1.3 Port State Control Officers (PSCOs)

Hong Kong maintains a section of dedicated and experienced PSC officers, all who are qualified ship surveyors from the main disciplines of Master Mariners, Engineers and Naval Architects.

Hong Kong PSCOs follow the principles and guidelines for conducting PSC inspections on foreign flagged vessels in accordance with the contents of IMO resolution A.787(19)

and the guidelines prepared by the TMOU PSC manual[5-1]. All PSCOs are qualified to carry out PSC inspections independently. Moreover, training courses are attended by PSCOs to gain further experience and to up date their knowledge and skill via various technical co-operation programmes.

5.1.4 Prior to boarding

The Port State Control Section of the Marine Department receives a copy of the daily movement of the ships in the port from the Vessel Traffic Control Centre. An initial selection of the vessels to be visited will be based on elements of priority as laid down in the Tokyo MOU, such selection may be undertaken on the basis of:

1. the types of ship selection;
2. the request of, or on the basis of, information regarding a ship provided by another state, or
3. information regarding a ship provided by a member of the crew, a professional body, an association, a trade union or any other individual with an interest in the safety of the ship, its crew and passengers, or the protection of the marine environment. In the case that an inspection is initiated based on a report or complaint, especially if it is from a crew member, the source of the information is not to be disclosed.

The PSCO is then issued with Port State Control Forms A & B and heads directly to the selected vessel for an unscheduled inspection.

Table 5.1 Report of Inspection on Port State Control Form A

FORM A

REPORT OF INSPECTION IN ACCORDANCE WITH THE MEMORANDUM OF UNDERSTANDING ON PORT STATE CONTROL IN THE ASIA-PACIFIC REGION*)

(reporting authority) Marine Department, Hong Kong, China
 (address) Harbour Building, 38 Pier Road, Central Hong Kong
 (telephone) (852) 2852 4366
 (facsimile) (852) 2345 0556

Copy to master
 Vessel Documentation
 PSCO
 If ship is detained copy to
 Flag State
 IMO
 Recognized organization, if applicable

(e-mail) hipsc@mardep.gov.hk

1 name of reporting authority: Marine Department Hong Kong, China 2 name of ship: CASE STUDY
 3 flag of ship: FLAG 4 type of ship: Gen Cargo 5 call sign: CALL
 6 IMO number: 1000001 7 gross tonnage: 7800 8 deadweight (where applicable)
 9 year of build: 1990 10 date of inspection: 20.06.2001 11 place of inspection: Hong Kong
 12 classification society: CL 13 date of release from detention:
 14 particulars of owner/operator/etc as appropriate: ABC Maritime Co. Ltd

15 name and signature of Master to certify that the information under 14 is correct:

name: signature:

16 relevant certificate(s)

Code	(1) relevant certificate	(2) issuing authority	(3) date of issue / expiry	
1	Load Line Certificate	CL	02.04.2001	01.04.2005
2	Cargo Ship Safety Construction Certificate	CL	02.04.2001	01.04.2005
3	Cargo Ship Safety Equipment Certificate	CL	02.04.2001	01.04.2005
4	Cargo Ship Safety Radio Certificate	CL	02.04.2001	01.04.2005
5	IOPP Certificate	CL	02.04.2001	01.04.2005
6	Minimum Safe Manning Document	Flag State	02.06.1998	
7	International Tonnage Certificate	CL	02.06.1991	
8	Document of Compliance (DOC)			
9	Safety Management Certificate (SMC)			
10	Passenger Ship Safety			
11	Harmonized System of Certification			

(4) The information below concerning the last survey shall be provided if the next survey is due or overdue (i.e. if ship is detained):

Date	Surveying authority	Place
07.03.2001	CL	Somewhere
07.03.2001	CL	
07.03.2001	CL	
07.03.2001	CL	
07.03.2001	CL	

17 document(s)
 18 ship document
 19 International Safety Certificate issued to Classification Society
 20 supporting documentation

yes (see attached PSCB Q)
 yes
 yes
 yes (see annex)

NAME: duly authorized surveyor of Marine Department, Hong Kong, China

telephone: (852) 2852

facsimile: (852) 2345 0556 signature:

This report is to be retained for a period of two years and must be available for consultation by Port State Control Officers in all times

*) This inspection report has been issued solely for the purpose of informing the master and other Port State authorities that an inspection by the Port State has taken place.

The inspection report cannot be considered as a substitute for certificates or evidence of the safety certificate as the ship is required to carry.

**) To be completed in the event of a detention.

**) Master, shipowner and/or operators of a vessel inspected at a port state may be subject to future publication.

Table 5.2 Report of Inspection on Port State Control Form B

FORM B

REPORT OF INSPECTION IN ACCORDANCE WITH THE MEMORANDUM OF UNDERSTANDING ON PORT STATE CONTROL IN THE ASIA-PACIFIC REGION

(reporting authority) Marine Department, Hong Kong, China
 (address) Harbour Building, 38 Pier Road, Central, Hong Kong.
 (telephone) (852) 2852 4506
 (telex) (852) 2545 0556

Copy to: master
 Marine Department
 PSCO
 if ship is detained, copy to:
 flag state
 IMO
 recognized organization, if applicable

(e-mail) filpsco@mardep.gov.hk

2 name of ship: CASE STUDY 6 IMO number: 1000001
 10 date of inspection: 20.06.2001 11 place of inspection: Hong Kong

21 code	nature of deficiency ^{*)}	reference ^{**)}	22 action taken ^{***)}
0135	The 3/a is short from the requirement of the minimum safe manning certificate	ST4-V/13	30
0938	One section (around 3m in length) of bulk plate inside #3 cargo hatch coaming (Port side) was deformed	ST4-I/11	18
0955	Ship's Jacob ladder used for boarding personnel was secured with rope hanging to ship's fixture, unsafe for boarding	ST4-V/17	17
1230	The bottom part of the starboard bulwark rail No. 2 (cargo hold deck) was cracked and broken	LL/25	30
0630	On the ship's lifeboat, seized block and dead end with yellowish shell particles in powder form were found along the lifeline. The crew were not able to launch the lifeboat in the specified time as required by SOLAS Convention	ST4-III/26	30
0720	Firebox located at port forward of poop deck, had mild rust on its	ST4-II/21	17
0688	Starboard lifeboat was lashed by yellow rope	ST4-III/29	17
0745	Wire for closing the fire damper at ship's funnel aft of wheelhouse. Lever found sheared	ST4-II/16	30

name: _____
 duly authorized surveyor

Master: _____
 name and signature

signature: _____

^{*)} The inspection was not a full survey and the surveyor found only the deficiencies listed in the report. It is understood that the surveyor is not responsible for the condition of the ship at the time of the inspection.

^{**)} To be entered in the report of a deficiency.

^{***)} To be entered in the report of a deficiency. The action taken should be entered in the report of a deficiency. The action taken should be entered in the report of a deficiency.

5.1.5 The Inspection

On arriving at the vessel the PSCO may gain much from its appearance in the water. An impression of its standard of maintenance can be gained, before boarding, from the condition of its paintwork, and the existence of corrosion or pitting or unrepaired damage. The year of build and size of the ship for the purpose of determining which provisions of the conventions are applicable should be ascertained at the earliest possible opportunity.

When boarding a ship, the PSCO should present to the master or to the representative of the owner, if requested to do so, the PSCO warrant card. This card should be accepted as documented evidence that the PSCO in question is duly authorized by the Marine Department to carry out Port State Control inspections. The PSCO then asks whether the vessel has been PSC inspected within the previous six months in other states. The signatory states of the Tokyo MOU have agreed not to spend further effort on any vessel which has been undergone a PSC inspection within the previous six month period.

Inspection commences with an examination of the vessel's relevant certificates and documents as follows:

For passenger ships, general cargo and bulk carriers:

- .1 International Tonnage Certificate (1969);
- .2 Passenger Ship Safety Certificate; Cargo Ship Safety Construction Certificate; Cargo Ship Safety Equipment Certificate; Cargo Ship Safety Radiotelegraphy Certificate; Cargo Ship Safety Radiotelephony Certificate; Cargo Ship Safety Radio Certificate; Exemption Certificate; Cargo Ship Safety Certificate;
- .3 International Oil Pollution Prevention Certificate;
- .4 International Load Line Certificate (1966); International Load Line Exemption

Certificate;

- .5 Oil Record Book parts I and II;
- .6 Cargo Record Book;
- .7 Minimum Safe Manning document; Certificates of Competency;
- .8 Stability information;
- .9 Shipboard Oil Pollution Emergency Plan;
- .10 Certificates as to the ship's hull strength and machinery installations issued by the classification society if the ship is classed (Class certificate);
- .11 Reports of previous Port State Control inspections;
- .12 Document of Compliance;
- .13 Safety Management Certificate.

For other specialised vessels (chemical carrier, oil tanker, vessels carrying dangerous goods):

- .14 International Certificate of Fitness for the Carriage of Dangerous Chemicals in Bulk; Certificate of Fitness for the Carriage of Dangerous Chemicals in Bulk, if applicable;
- .15 International Certificate of Fitness for the Carriage of Liquefied Gases in Bulk; Certificate of Fitness for the Carriage of Liquefied Gases in Bulk, if applicable.
- .16 International Pollution Prevention Certificate for the Carriage of Noxious Liquid Substances in Bulk, if applicable;

If the certificates are valid and the PSCO's general impression and visual observations on board confirm a good standard of maintenance, the PSCO will generally confine the inspection to reported or observed deficiencies, if any. Form A will then be issued by the

PSCO to indicate that nil or minor observed deficiencies have been found during the inspection [5-2].

It should be noted that any PSC inspection in Hong Kong are normally limited to verifying that there are, on board, valid certificates and other relevant documentation, and the PSCO forming an impression of the overall condition of the ship, its equipment and its crew, unless there are clear grounds for believing that the condition of the ship or its equipment does not correspond substantially with the particulars of the certificates.

If the PSCO, from general impressions or observations on board, has clear grounds for believing that the ship, its equipment or its crew does not substantially meet the requirements, the PSCO then proceeds to a more detailed inspection. The following would constitute clear grounds for PSCO to conduct a more detailed inspection:

- .17 the absence of principal equipment or arrangements required by the conventions;
- .18 evidence from a review of the ship's certificates that a certificate or certificates are clearly invalid;
- .19 evidence that the ship's logs, manuals or other required documentation are not on board, are not maintained, or are falsely maintained;
- .20 evidence from the PSCO's general impressions and observations that serious hull or structural deterioration or deficiencies exist that may place at risk the structural, watertight or weather tight integrity of the ship;
- .21 evidence from the PSCO's general impressions or observations that serious deficiencies exist in the safety, pollution prevention, or navigational equipment;
- .22 information or evidence that the master or crew is not familiar with essential

- shipboard operations relating to the safety of ships or the prevention of pollution, or that such operations have not been carried out;
- .23 indications that key crew members may not be able to communicate with each other or with other persons on board;
 - .24 absence of an up-to-date muster list, fire control plan, and for passenger ships, a damage control plan;
 - .25 the emission of false distress alerts not followed by proper cancellation procedures;
 - .26 receipt of a report or complaint containing information that a ship appears to be sub-standard.

5.1.6 More Detailed Inspection

If the ship does not carry valid certificates, or if the PSCO, from general impressions or observations on board, has clear grounds for believing that the condition of the ship or its equipment does not correspond substantially with the particulars of the certificates, or that the master or crew is not familiar with essential shipboard procedures, a more detailed inspection is carried out. Perhaps even more importantly, if the PSCO has clear grounds for believing that the ship might be sub-standard, he will then proceed to a more detailed inspection. The more common areas in which serious deficiencies have been found to exist are detailed below, photographs showing deficiencies revealed by inspection are given in figures 5.1 to 5.20.

5.1.6.1 Structure

The PSCO's impression of hull maintenance and the general state on deck, the condition of such items as ladderways, guard-rails, pipe coverings and areas of corrosion or pitting

will influence the PSCO's decision as to whether it is necessary to make the fullest possible examination of the structure with the ship afloat. Significant areas of damage or corrosion, or pitting of plating and associated stiffening in decks and hull affecting seaworthiness or strength to take local loads, may justify detention. It may be necessary for the underwater portion of the ship to be checked. In reaching a decision, the PSCO has regard to the seaworthiness and not the age of the ship, making an allowance for fair wear and tear over the minimum acceptable scantlings. Damage not affecting seaworthiness does not constitute grounds for judging that a ship should be detained, nor will damage that has been temporarily but effectively repaired for a voyage to a port for permanent repairs. However, in this assessment of the effect of damage, the PSCO has regard to the location of crew accommodation and whether the damage substantially affects its habitability.



Fig. 5.1 Corroded stanchion on deck



Fig. 5.2 A deformed longitudinal



Fig. 5.3 Cracked stiffener on deck

5.1.6.2 Machinery spaces

The PSCO assesses the condition of the machinery and of the electrical installations to confirm that they are capable of providing sufficient continuous power for propulsion and for auxiliary services.

During inspection of the machinery spaces, the PSCO forms an impression of the standard of maintenance. Frayed or disconnected quick-closing valve wires, disconnected or inoperative extended control rods or machinery trip mechanisms, missing valve hand wheels, evidence of chronic steam, water and oil leaks, dirty tank tops and bilges or extensive corrosion of machinery foundations are pointers to an unsatisfactory organization of the systems' maintenance. A large number of temporary repairs, including pipe clips or cement boxes, will indicate reluctance to make permanent repairs.

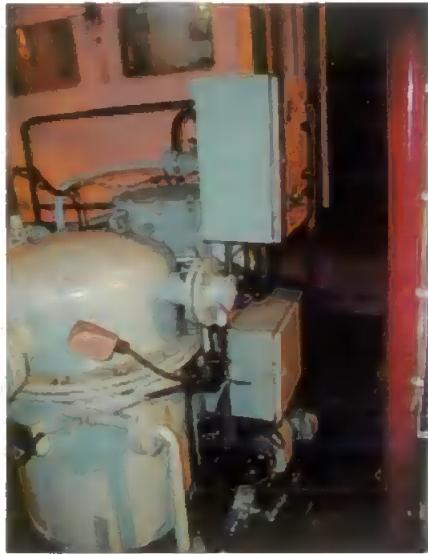


Fig. 5.4 An Oily Water Separator

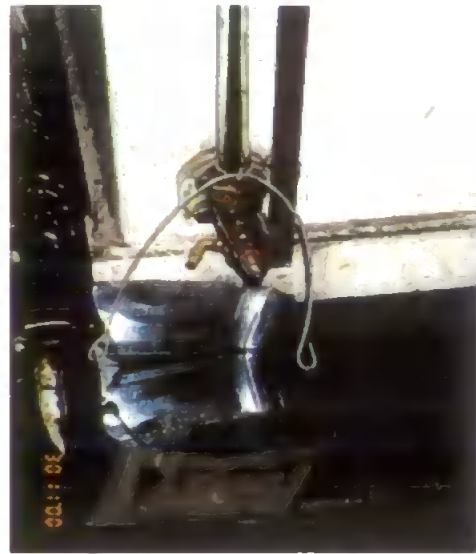


Fig. 5.5 Leaking sight-glass



Fig. 5.6 Direct overboard bilge connection

While it is not possible to determine the condition of the machinery without performance trials, general deficiencies, such as leaking pump glands, dirty water gauge glasses, inoperable pressure gauges, rusted relief valves, inoperative or disconnected safety or control devices, evidence of repeated operation of diesel engine scavenge belt or crankcase relief valves, malfunctioning or inoperative automatic equipment and alarm systems, and leaking boiler casings or uptakes, would warrant inspection of the engine room log book and investigation into the record of machinery failures and accidents and a request for running tests of machinery.

5.1.6.3 Conditions of Assignment of Load lines

It may be that the PSCO has concluded that a hull inspection is unnecessary but, if dissatisfied on the basis of observations on deck, with items such as defective hatch closing arrangements, corroded air pipes and vent coamings, the PSCO should then examine closely the conditions of assignment of load lines, paying particular attention to closing appliances, means of freeing water from the deck and arrangements concerned with the protection of the crew.



Fig. 5.7 Damaged weather tight door



Fig. 5.8 Broken closing wire for vent flap

5.1.6.4 Life-saving Appliances

The effectiveness of life-saving appliances depends heavily on good maintenance by the crew and their use in regular drills. The lapse of time since the last survey for a Safety Equipment Certificate can be a significant factor in the degree of deterioration of equipment if it has not been subject to regular inspection by the crew.



Fig. 5.9 An inverted lifebuoy light



Fig. 5.10 Improper securing of a boarding ladder

Apart from failure to carry equipment required by a convention or obvious defects such as holed lifeboats, the PSCO looks for signs of disuse of, or obstructions to, survival craft launching equipment which may include paint accumulation, seizing of pivot points, absence of greasing, condition of blocks and falls and improper lashing or stowing of deck cargo.



Fig. 5.11 Life raft without weaklink



Fig. 5.12 Broken life boat davit



Fig. 5.13 Blocking means of access to liferaft station

Should such signs be evident, the PSCO would be justified in making a detailed inspection of all life-saving appliances. Such an examination might include the lowering of survival craft, a check on the servicing of liferafts, the number and condition of lifejackets and lifebuoys and ensuring that the pyrotechnics are still within their period of validity. It would not normally be as detailed as that for a renewal of the Safety Equipment Certificate and would concentrate on essentials for safe abandonment of the ship, but in an extreme case could progress to a full Safety Equipment Certificate inspection. The provision and functioning of effective overside lighting, means of alerting the crew and passengers and provision of illuminated routes to assembly points and embarkation positions should be given importance in the inspection.

5.1.6.5 Fire Safety

Ships in general: The poor condition of fire and wash deck lines and hydrants and the possible absence of fire hoses and extinguishers in accommodation spaces might be a guide to a need for a close inspection of all fire safety equipment. In addition to compliance with convention requirements, the PSCO looks for evidence of a higher than normal fire risk; this might be brought about by a poor standard of cleanliness in the machinery space, which together with significant deficiencies of fixed or portable fire-extinguishing equipment could lead to a judgment of the ship being sub-standard.

Passenger ships: The PSCO should initially form an opinion of the need for inspection of the fire safety arrangements on the basis of consideration of the ship under the previous headings and, in particular, that dealing with fire safety equipment. If the PSCO considers that a more detailed inspection of fire safety arrangements is necessary, the PSCO should examine the fire control plan on board in order to obtain a general picture of the fire safety measures provided in the ship and consider their compliance with convention requirements for the year of build.

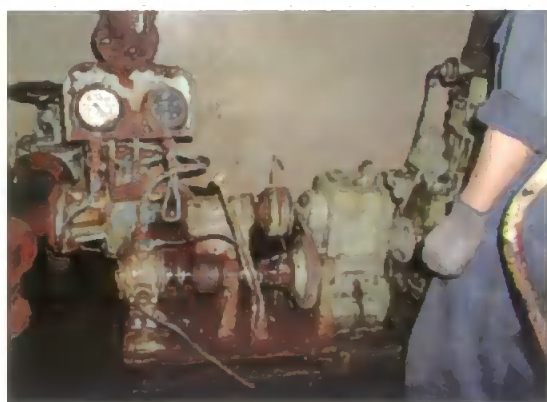


Fig. 5.14 Deficient emergency fire pump



Fig.5.15 Damaged portable fire extinguisher



Fig.5.16 Damaged fire hydrant

The spread of fire could be accelerated if fire doors are not readily operable. The PSCO should inspect for the operability and securing arrangements of those doors in the main zone bulkheads and stairway enclosures and in boundaries of high fire risk spaces, such as main machinery rooms and galleys, giving particular attention to those retained in the open position. Attention is also given to main vertical zones which may have been compromised through new construction. An additional hazard in the event of fire is the spread of smoke through ventilation systems. Spot checks might be made on dampers and smoke flaps to ascertain the standard of operability. The PSCO should also ensure that ventilation fans can be stopped from the master controls and that means are available for closing main inlets and outlets of ventilation systems.

Attention is given to the effectiveness of escape routes by ensuring that vital doors are not maintained locked and that alleyways and stairways are not obstructed.

5.1.6.6 Regulations for Preventing Collisions at Sea

A vital aspect of ensuring safety of life at sea is full compliance with the collision regulations. Based on observations on deck, the PSCO should consider the need for close inspection of lanterns and their screening and means of making sound and distress signals.



Fig. 5.17 “All round” stern light

5.1.6.7 Cargo Ship Safety Construction Certificate

The general condition of the ship may lead the PSCO to consider matters other than those concerned with safety equipment and assignment of load lines, but nevertheless associated with the safety of the vessel, such as the effectiveness of items associated with the Cargo Ship Safety Construction Certificate, which can include pumping arrangements, means for shutting off air and oil supplies in the event of fire, alarm systems and emergency power supplies.

5.1.6.8 Cargo Ship Safety Radio Certificates

The validity of the Cargo Ship Safety Radio Certificates and associated Record of Equipment (Form R) may be accepted as proof of the provision and effectiveness of its associated equipment, but the PSCO should ensure that appropriate certificated personnel are carried for its operation and for listening periods. Requirements for maintenance of radio equipment are contained in SOLAS regulation IV/15. The radio log or radio records should be examined. Where considered necessary, operational checks may be carried out.

5.1.6.9 Muster List

The PSCO may determine if the crew members are aware of their duties indicated in the muster list. He may ensure that muster lists are exhibited in conspicuous places throughout the ship, including the navigational bridge, the engine room and the crew accommodation spaces. When determining if the muster list is in accordance with the regulations, the PSCO may verify whether:

- .1 the muster list shows the duties assigned to the different members of the crew;
- .2 the muster list specifies which officers are assigned to ensure that

life-saving and fire appliances are maintained in good condition and are ready for immediate use;

- .3. the muster list specifies the substitutes for key persons who may become disabled, taking into account that different emergencies may call for different actions;
- .4 the muster list shows the duties assigned to crew members in relation to passengers in case of emergency;
- .5 the format of the muster list used on passenger ships is approved.



Fig. 5.18 Life boat station

In order to determine whether the muster list is up to date, the PSCO may require an up-to-date crew list, if available, to verify this. Other possible means, e.g. Safe Manning Document could be used.

The PSCO may determine whether the duties assigned to crew members manning the survival craft (lifeboats or liferafts) are in accordance with the regulations and verify that a deck officer or certificated person is placed in charge of each survival craft to be used. However, the Administration (of the Flag State), having due regard to the nature of the voyage, the number of persons on board and the characteristics of the ship, may permit

persons practised in the handling and operation of liferafts to be placed in charge of liferafts in lieu of persons qualified as above. A second-in-command shall also be nominated in the case of lifeboats.

5.1.6.10 Communication

The PSCO may determine if the key crew members are able to communicate with each other, and with passengers as appropriate, in such a way that the safe operation of the ship is not impaired, especially in emergency situations. He may ask the master which languages are used as the working languages and ensure that the key crew members are able to understand each other during the inspection or drills. The crew members assigned to assist passengers should be able to give the necessary information to the passengers in case of an emergency.

5.1.6.11 Fire and Abandon Ship Drills

The PSCO witnessing a fire and abandon ship drill should ensure that the crew members are familiar with their duties and the proper use of the ship's installations and equipment. He may witness a fire drill carried out by the crew assigned to these duties on the muster list. After consultation with the master of the vessel, one or more specific locations of the ship may be selected for a simulated fire. A crew member may be sent to the location(s) and activate a fire alarm system or use other means to give alarm. Those crew members assigned to other duties related to a fire drill, such as the manning of the emergency generators, the CO₂ room, the sprinkler and emergency fire pumps, should also be involved in the drill. The PSCO may ask these crew members to explain their duties and if possible to demonstrate their familiarity.



Fig. 5.19 Abandon ship drill



Fig. 5.20 Lowering of lifeboat

5.1.6.12 Damage Control Plan and Shipboard Oil Pollution Emergency Plan (SOPEP)

The PSCO could determine if a damage control plan is provided on a passenger ship and whether the crew members are familiar with their duties and the proper use of the ship's installations and equipment for damage control purposes. The same applies with regard to SOPEP on all ships. He may determine if the officers of the ship are aware of the contents of the damage control booklet which should be available to them, or of the damage control plan. The officers may be asked to explain the action to be taken in various damage conditions. They could be expected to have a sound knowledge of the effect of trim and stability of their ship in the event of damage to and consequent flooding of a compartment and counter-measures to be taken.

5.1.6.13 Fire Control Plan

The PSCO may determine if a fire control plan or booklet is provided and whether the crew members are familiar with the information given in the fire control plan or booklet and may verify that fire control plans are permanently exhibited for the guidance of the ship's officers. Alternatively, booklets containing the information of the fire control plan

may be supplied to each officer, and one copy should at all times be available on board in an accessible position. Plans and booklets should be kept up to date, any alterations being recorded thereon as soon as possible.

5.1.6.14 Bridge Operation

The PSCO may determine if officers in charge of a navigational watch are familiar with bridge control and navigational equipment, changing the steering mode from automatic to manual and vice versa, and the ship's manoeuvre characteristics. The officer in charge of a navigational watch should have knowledge of the location and operation of all safety and navigational equipment. Moreover, this officer should be familiar with procedures which apply to the navigation of the ship in all circumstances and should be aware of all information available.

He may also verify the familiarity of the officers on all the information available to them such as manoeuvre characteristics of the ship, life-saving signals, up-to-date nautical publications, checklists concerning bridge procedures, instructions, manuals, etc. and may verify the familiarity of the officers with procedures such as periodical tests and checks of equipment, preparations for arrival and departure, change over of steering modes, signaling, communications, maneuvering, emergencies and log book entries.

5.1.6.15 Cargo Operation

The PSCO may determine if ship's personnel assigned specific duties related to the cargo and cargo equipment are familiar with those duties, any dangers posed by the cargo and with the measures to be taken in such a context. With respect to the carriage of solid bulk cargoes, the PSCO should verify, as appropriate, that cargo loading is performed in

accordance with a ship's loading plan and unloading in accordance with a ship's unloading plan agreed by the ship and the terminal.

5.1.6.16 Certification of Seafarer

The PSCO should verify that all seafarers serving on board, who are required to be certificated, hold an appropriate certificate or a valid dispensation, or provide documentary proof that an application for an endorsement has been submitted to the Administration and to ensure that the numbers and certificates of the seafarers serving on board are in conformity with the applicable safe manning requirements of the Administration. The PSCO may assess the ability of the seafarers of the ship to maintain watchkeeping standards as required by the Convention if there are clear grounds for believing that such standards are not being maintained because any of the following have occurred:

- .1 The ship has been involved in a collision, grounding or stranding, or
- .2 There has been a discharge of substances from the ship when underway, at anchor or at berth which is illegal under any international convention, or
- .3 The ship has been maneuvered in an erratic or unsafe manner whereby routing measures adopted by the Organization or safe navigation practices and procedures have not been followed, or
- .4 The ship is otherwise being operated in such a manner as to pose a danger to persons, property or the environment.

5.1.6.17 Equipment in Excess of Convention or Flag State Requirements

Equipment on board which is expected to rely on in situations affecting safety or pollution prevention must be in operating condition. If such equipment is inoperative and is in excess of the equipment required by an appropriate convention and/or the Flag State, it should be repaired, removed or, if removal is not practicable, clearly marked as inoperative and secured.

5.1.6.18 Detention of Vessels

The lack of valid certificates as required by the relevant instruments may warrant the detention of ships. However, ships flying the flag of a state not party to a convention or not having implemented another relevant instrument, are not entitled to carry the certificates provided for by the convention or other relevant instrument. Therefore, absence of the required certificates should not by itself constitute a reason to detain these ships; however, in applying the “no more favourable treatment” clause, substantial compliance with the provisions and criteria specified in this document must be required before the ship sails.

It should be recognized that all equipment is subject to failure and spares or replacement parts may not be readily available. In such cases, undue delay should not be caused if, in the opinion of the PSCO, safe alternative arrangements have been made. Where a ship has suffered accidental damage and enters port for examination and repairs, the Port State may ascertain the remedial action that is being considered. If it is established that appropriate remedial action is being taken to render the vessel safe to proceed to sea, no detention order should be issued.

Since detention of a ship is a serious matter involving many issues, it may be in the best

interest of the PSCO to act with other interested parties. For example, the PSCO may request the owner's representatives to provide proposals for correcting the situation. The PSCO may also consider co-operating with the Flag State Administration's representatives or recognized organization responsible for issuing the relevant certificates, and consulting them regarding their acceptance of the owner's proposals and their possible additional requirements. Without limiting the PSCO's discretion in any way, the involvement of other parties could result in a safer ship, avoid subsequent arguments relating to the circumstances of the detention, and prove advantageous in the case of litigation involving undue delay.

Where deficiencies cannot be remedied at the port of inspection, the PSCO may allow the ship to proceed to another port, subject to any appropriate conditions determined. In such circumstances, the PSCO needs to ensure that the competent authority of the next port of call and the Flag State are notified.

When deciding whether the deficiencies found in a ship are sufficiently serious to merit detention the PSCO should assess whether:

- .1 the ship has relevant, valid documentation;
- .2 the ship has the crew required in the minimum Safe Manning Document.

During inspection the PSCO will further assess whether the ship and/or crew, throughout its forthcoming voyage, will be able to:

- .3 navigate safely;
- .4 safely handle, carry and monitor the condition of the cargo;
- .5 operate the engine-room safely;

- .6 maintain proper propulsion and steering;
- .7 fight fires effectively in any part of the ship if necessary;
- .8 abandon ship speedily and safely and effect rescue if necessary;
- .9 prevent pollution of the environment;
- .10 maintain adequate stability;
- .11 maintain adequate watertight integrity;
- .12 communicate in distress situations if necessary; and
- .13 provide safe and healthy conditions on board.

If the result of any of these assessments is negative, taking into account all deficiencies found, the ship should be strongly considered for detention. A combination of deficiencies of a less serious nature may also warrant the detention of the ship[5-6].

Hong Kong, in the opinion of one agent, is the strictest port in the region in regard of its rate of vessel detention during Port State Control inspections. One must wonder if the right line was drawn to the various deficiencies identified on board by the PSCO as to the justification of such detentions.

But the practice is to find in favour of the ship whenever possible. In the course of PSC inspection, it is the PSCO's duty to ensure all possible efforts are made to avoid a ship being unduly detained or delayed. If a ship is unduly detained or delayed, it shall be entitled to compensation for any loss or damage suffered. It should be borne in mind that the main purpose of Port State Control is to prevent a ship proceeding to sea if it is unsafe or presents an unreasonable threat of harm to the marine environment. The PSCO should exercise professional judgment to determine whether to detain a ship until the deficiencies

are corrected or to allow it to sail with certain deficiencies, having regard to the particular circumstances of the intended voyage.

Despite this approach, in 2000, the number of Port State Control inspections (excluding any follow up inspection) was 885, while the number of detentions was 85, indicating a detention rate of 9.6%. The detention for the year of 1999 was at 13.56% [5-3]. These are high detention rates and are indicative of the extent of sub-standard shipping found to be operating in Hong Kong waters.

5.1.6.19 Reporting of Port State Control Inspection

The PSCO has to ensure, on the conclusion of an inspection, that the master, or representative of the ship (ships' agent) is provided with Form A and Form B giving the results of the inspection, details of any action taken by the PSCO, a list of deficiencies identified by the PSCO and corrective action to be taken. In the case of a detention, notification shall be made to the Flag State Administration. The recognized organizations (classification societies) which have issued the relevant certificates on behalf of the Flag State should be notified, where appropriate.

If the ship has been allowed to sail with known deficiencies, the PSCO, after returning to the office will communicate all the facts to the maritime authorities of the next port of call.

If a vessel is detained in Hong Kong the Marine Department submits the deficiency reports of the detained vessel, in accordance with the control provisions contained in the relevant Conventions, to the IMO after the inspection. On the other hand upon receiving a report on detention regarding any Hong Kong registered vessels being detained in foreign

ports, the Marine Department should also inform the IMO as soon as possible of its remedial action taken in respect of such detention.

5.2 Inspection in Year 2000

Through the year 2000, Hong Kong conducted a total of 885 PSC inspections on foreign flagged ships. Against the number of ships visiting the port, 5,627 individual ships, it represents a 15.73% inspection rate.

The following tables show the information for year 2000:

<u>Table</u>	<u>Information</u>
1	Per ships' flag
2	Per classification society
3	Per ship types
4	Per deficiency nature

Table 5.3 - Inspection Data by Flag

Flag	No. of inspections	No. of ships with deficiencies	No. of deficiencies	No. of detentions	Detention percentage
Antigua and Barbuda	27	23	112	1	3.70%
Austria	1	1	2	0	0.00%
Bahamas	25	22	135	1	4.00%
Belize	25	25	285	8	32.00%
Myanmar	3	3	32	0	0.00%
China	47	36	142	2	4.26%
Cyprus	35	32	193	0	0.00%

Cambodia	10	10	143	9	90.00%
Denmark (DIS)	3	0	0	0	0.00%
Denmark	3	0	0	0	0.00%
France	2	1	3	0	0.00%
French Antarctic Territory	2	1	4	0	0.00%
Germany	23	17	41	0	0.00%
Greece	16	10	47	0	0.00%
Honduras	2	2	41	2	100.00%
India	3	3	24	0	0.00%
Indonesia	7	7	82	2	28.57%
Iran	3	3	9	0	0.00%
Israel	1	1	3	0	0.00%
Italy	3	3	9	0	0.00%
Japan	8	8	16	0	0.00%
Korea, Democratic People's Republic	6	6	104	5	83.33%
Korea, Republic of	31	31	209	4	12.90%
Kuwait	3	3	23	0	0.00%
Liberia	60	54	253	0	0.00%
Malaysia	14	14	105	0	0.00%
Malta	26	25	186	2	7.69%
Isle of Man	1	0	0	0	0.00%
Marshall Islands	12	11	47	0	0.00%
Mauritius	1	1	4	0	0.00%
Netherlands	5	2	5	0	0.00%
Nigeria	1	1	23	0	0.00%
Norway	3	2	7	0	0.00%
Norway (NIS)	6	5	21	0	0.00%
Pakistan	3	2	4	0	0.00%
Panama	284	256	1,962	29	10.21%
Philippines	9	9	78	1	11.11%

Qatar	1	1	2	0	0.00%
Russia	11	11	48	0	0.00%
Saint Vincent and the Grenadines	19	19	186	2	10.53%
Saudi Arabia	1	1	7	0	0.00%
Singapore	59	48	285	2	3.39%
Switzerland	1	1	1	0	0.00%
Taiwan, China	52	49	322	8	15.38%
Thailand	7	7	67	2	28.57%
Turkey	2	2	7	0	0.00%
United Kingdom	9	6	10	0	0.00%
USA	1	0	0	0	0.00%
Viet Nam	8	8	78	5	62.50%
Total	885	783	5,367	85	9.60%

Source: Marine Department Statistical Table 2000

Table 5.4 – Inspection Data by Classification Society

Classification society	No. Of inspec tions	No. of ships with deficiencies	No. of deficiencies	No. of detentions	Detention percentage
American Bureau of Shipping	99	73	297	1	1.01%
China Corporation Register of Shipping	65	62	558	14	21.54%
Bureau Veritas	32	30	283	4	12.50%
Biro Klasifikasi Indonesia	3	3	18	0	0.00%
Det Norske Veritas	50	42	200	1	2.00%
Germanischer Lloyd	124	105	478	2	1.61%
Vietnam Register of	9	9	83	6	66.67%

Shipping					
Korean Register of Shipping	70	65	421	6	8.57%
Lloyd's Register of Shipping	72	61	421	2	2.78%
Panama Bureau of Shipping	1	1	6	0	0.00%
Nippon Kaiji Kyokai	212	196	1,440	18	8.49%
Panama Register Corp	5	5	60	2	40.00%
Polski Rejestr Statkow	1	1	11	0	0.00%
Panama Maritime Surveyors Bureau Inc	2	2	20	1	50.00%
Registro Italiano Navale	9	9	34	0	0.00%
Russian Maritime Register of Shipping	13	13	60	0	0.00%
China Classification Society	80	68	459	7	8.75%
Indian Register of Shipping	1	1	11	0	0.00%
Croatian Register of Shipping	2	2	13	0	0.00%
Other	35	35	494	21	60.00%
Total	885	783	5,367	85	9.60%

Source: Marine Department Statistical Table 2000

Table 5.5 – Inspection Data by Ship Types

Ship type	No. of inspections	No. of ships with deficiencies	No. of deficiencies	No. of detentions	Detention percentage
Tanker, not otherwise specified	6	6	33	0	0.00%
Combination carrier	8	7	29	0	0.00%
Oil tanker	40	34	190	3	7.50%

Gas carrier	4	4	27	0	0.00%
Chemical tanker	10	10	63	1	10.00%
Bulk carrier	37	37	339	4	10.81%
Vehicle carrier	5	4	32	0	0.00%
Container ship	502	413	1,998	15	2.99%
Ro-ro cargo ship	6	6	62	1	16.67%
General cargo / multi-purpose ship	242	238	2,406	58	23.97%
Refrigerated cargo carrier	5	5	55	1	20.00%
Ro-ro passenger ship	1	1	7	0	0.00%
Passenger ship	11	11	54	0	0.00%
Offshore service vessel	1	1	16	1	100.00%
Special purpose ship	1	0	0	0	0.00%
Tugboat	1	1	27	1	100.00%
Other types of ship	5	5	29	0	0.00%
Total	885	783	5,367	85	9.60%

Source: Marine Department Statistical Table 2000

Table 5.6 Inspection Data by Deficiency Nature

Code	Nature of deficiencies	No. of deficiencies	percentage
0100	SHIP'S CERTIFICATES AND DOCUMENTS	199	3.71%
0200	CERTIFICATION AND WATCHKEEPING FOR SEAFARERS	80	1.49%
0300	CREW AND ACCOMMODATION (ILO 147)	48	0.89%
0400	FOOD AND CATERING (ILO 147)	129	2.40%
0500	WORKING SPACES (ILO 147)	4	0.07%
0600	LIFESAVING APPLIANCES	1,059	19.73%
0700	FIRE FIGHTING MEASURES	647	12.06%

0800	ACCIDENT PREVENTION (ILO 147)	64	1.19%
0900	STABILITY, STRUCTURE AND RELATED EQUIPMENT	775	14.44%
1000	ALARM SIGNALS	2	0.04%
1100	CARRIAGE OF CARGO AND DANGEROUS GOODS	100	1.86%
1200	LOAD LINES	426	7.94%
1300	MOORING ARRANGEMENTS (ILO 147)	32	0.60%
1400	PROPULSION AND AUXILIARY MACHINERY	63	1.17%
1500	SAFETY OF NAVIGATION	738	13.75%
1600	RADIOCOMMUNICATIONS	195	3.63%
1700	MARPOL – ANNEX I	248	4.62%
1800	OIL, CHEMICAL TANKERS AND GAS CARRIERS	1	0.02%
1900	MARPOL – ANNEX II	1	0.02%
2000	SOLAS RELATED OPERATIONAL DEFICIENCIES	342	6.37%
2100	MARPOL RELATED OPERATIONAL DEFICIENCIES	126	2.35%
2200	MARPOL – ANNEX III	5	0.09%
2500	ISM RELATED DEFICIENCIES	67	1.25%
9800	ALL OTHER DEFICIENCIES (CLEARLY HAZARDOUS TO SAFETY)	6	0.11%
9900	ALL OTHER DEFICIENCIES	10	0.19%
Total:		5,367	100.00%

Source: Marine Department Statistical Table 2000

Detentions

During 2000, 85 ships from 17 flags were detained. The detention percentage was 9.6%.

The table below outlines the PSC statistics since 1997. It is noted that the tendency of the detention percentage is decreasing. The reasons may be the increase of inspection number

and the effectiveness of the PSC regime [5-7].

Table 5.7 Inspection and detention figures between year of 1997 and 2000

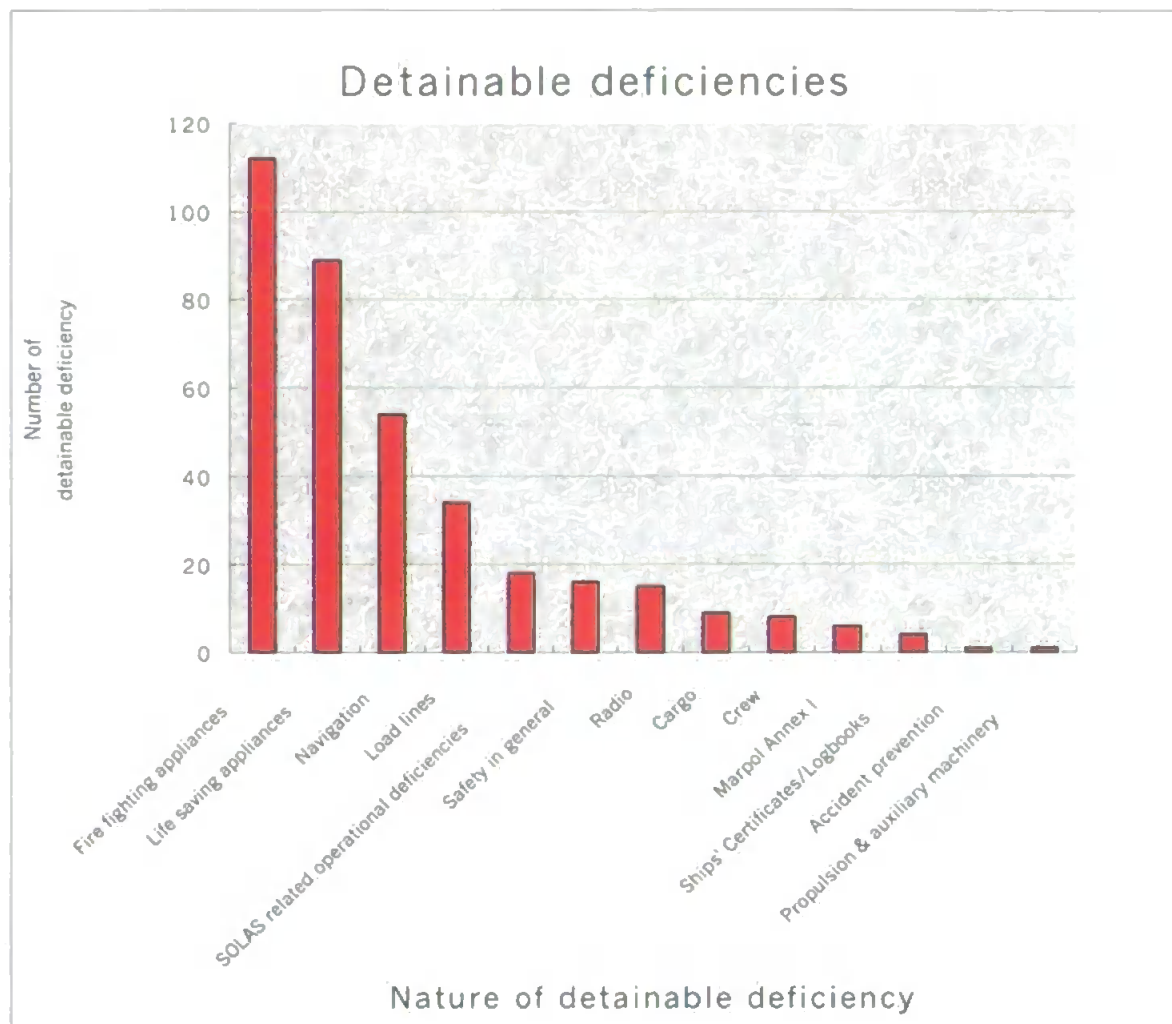
Year	No. Of inspections	No. of ships with deficiencies	No. Of deficiencies	No. of detentions	No. of individual ships	Inspection rate (%)	Detention percentage (%)
1997	501	448	4,701	192	6,097	8.22	38.32
1998	607	522	3,747	131	5,863	10.35	21.58
1999	900	745	5,696	122	5,580	16.13	13.56
2000	885	783	5,367	85	5,627	15.73	9.60

Source: Marine Department Statistical Table 2000

It can be seen that the number of detentions reduced significantly from 192 ships in year 1997 to 85 in year 2000. The author participated in PSC inspection in Hong Kong since year 1996 and felt that the number of sub-standard ship arrived to Hong Kong has largely reduced. Out of the detainable deficiencies from fire fighting appliances, life saving appliances, navigational equipment to load line items there is a great improvement today in the standard of operation, maintenance and alertness to safety on board in comparison with 5 years ago [5-8].

During the year 2000 a total of 368 detainable deficiencies were found on 85 ships. Such deficiencies are tabled as follow in terms of nature:

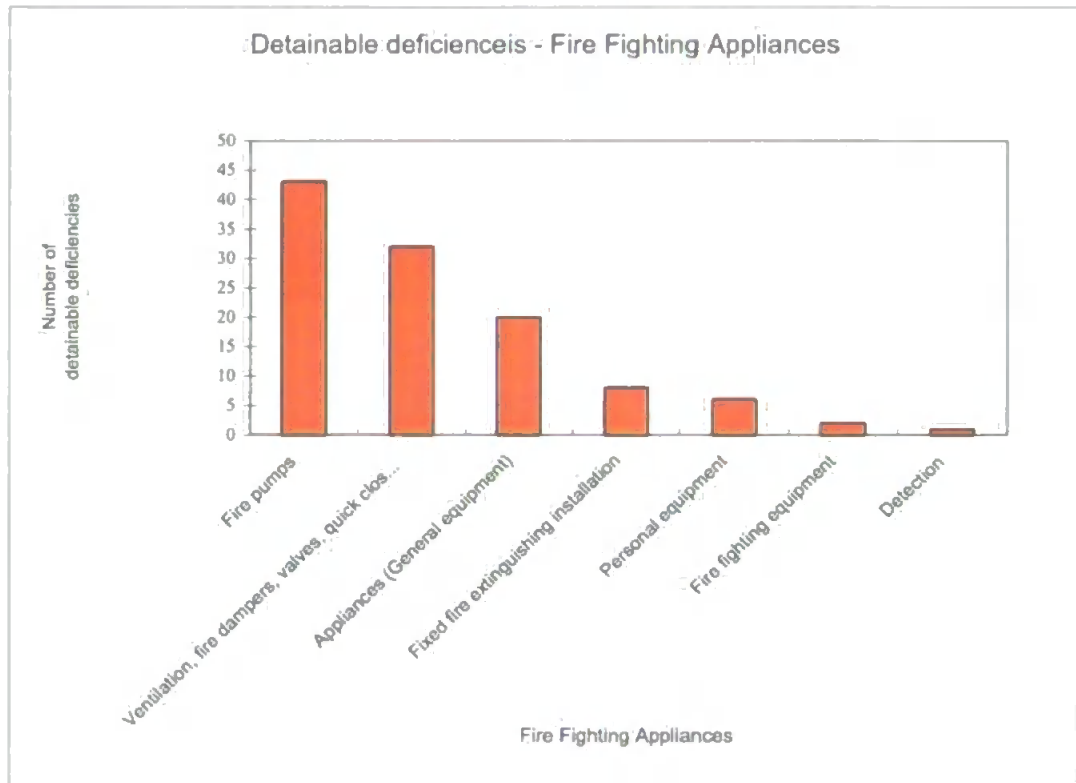
Table 5.8 Statistic on detainable deficiencies



Source: Marine Department Statistical Table 2000

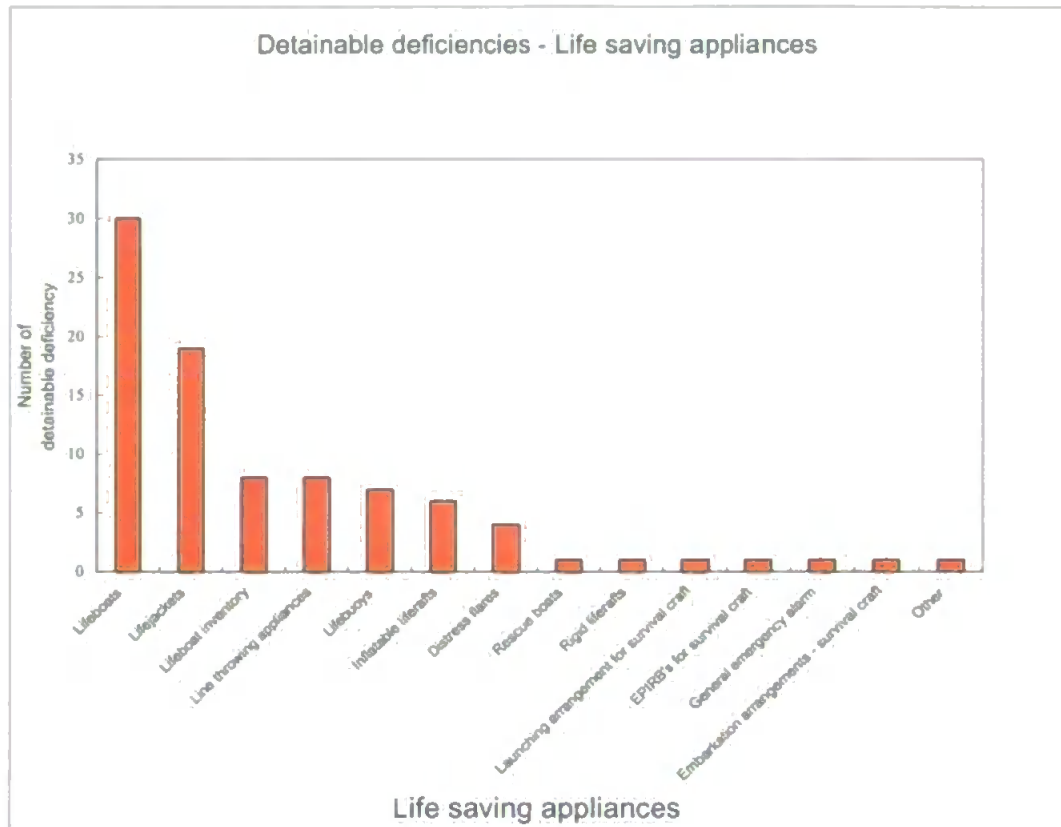
Four types of deficiencies are the major factors for the detainable items, i.e. Fire fighting appliances, Life saving appliances, Navigation and Load lines. The further break-down for such four types of deficiencies are shown as below:

Table 5.9 Statistic on fire fighting deficiencies



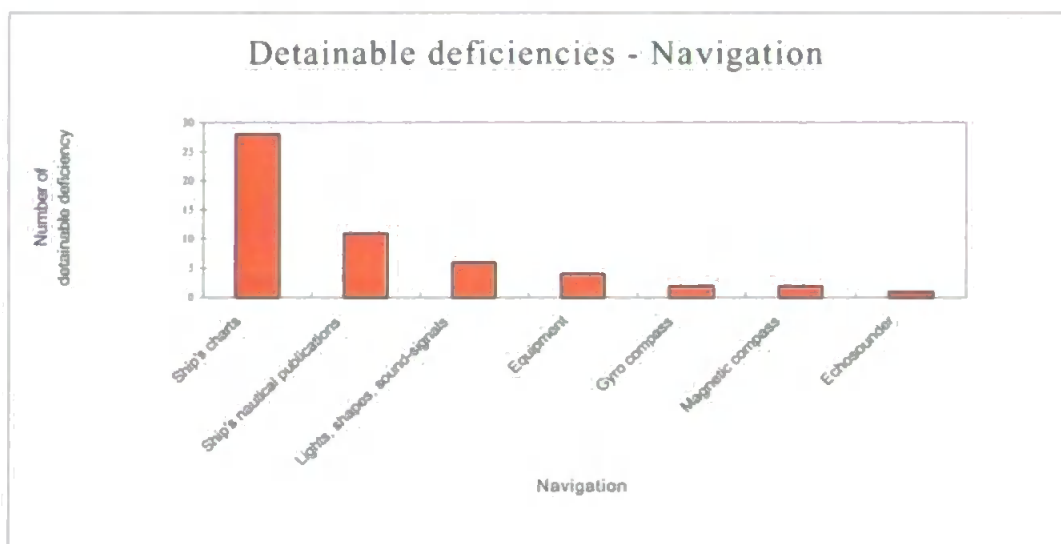
Source: Marine Department Statistical Table 2000

Table 5.10 Statistic on life saving appliances deficiencies



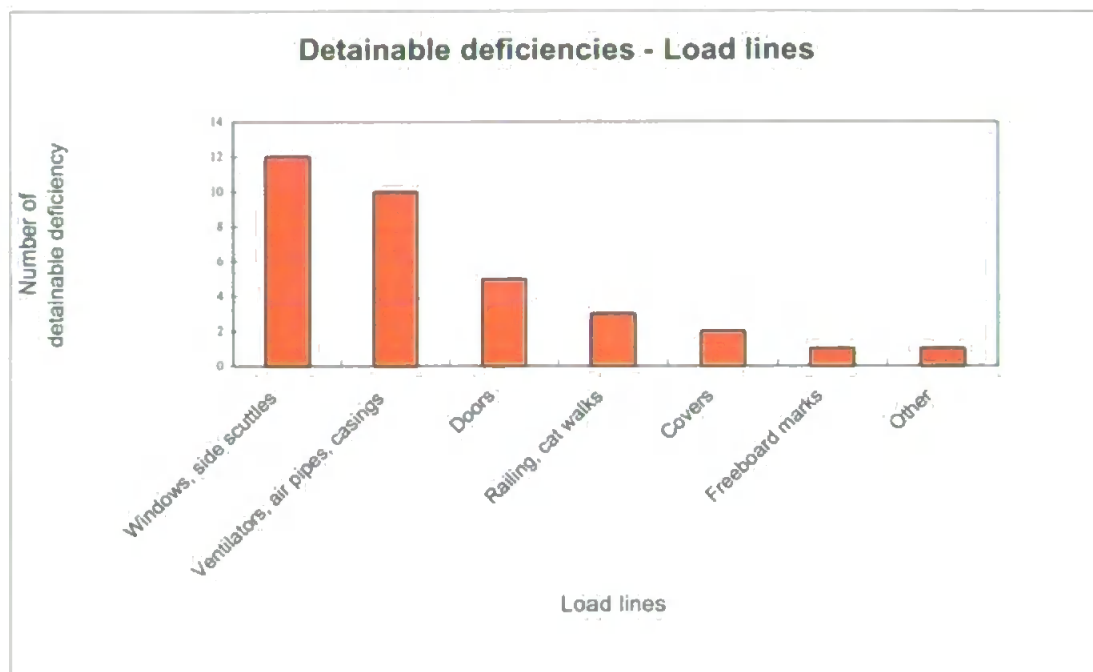
Source: Marine Department Statistical Table 2000

Table 5.11 Statistic on navigational equipment deficiencies



Source: Marine Department Statistical Table 2000

Table 5.12 Statistic on loadline item deficiencies



Source: Marine Department Statistical Table 2000

5.3 Relative Performance of Hong Kong Among Tokyo MOU Members [5-4]

Table 5.13 Performance of Tokyo MOU Members

Tokyo MOU Member	Number of PSCO (Dedicated & Non-Dedicated)	Number of Ships Inspected	Ship Inspected Per PSCO Per Year
Australia	52	2,753	53
Canada	250	360	1.44
China	203	1,510	7.4
Fiji	9	100	11.1
Hong Kong	6	885	148
Indonesia	21	853	40.6
Japan	277	3,579	12.9
Republic of Korea	30	1,846	61.5
Malaysia	23	338	14.7
New Zealand	17	743	43.7
Philippines	96	135	1.4
Russian Federation	20	428	21.4
Singapore	6	1,019	169.8
Thailand	31	83	2.7
Vanuatu	7	14	2
Vietnam	26	270	10.4
Total	1,074	14,916	13.9

Source: Tokyo MOU annual report 2000

As can be seen from the above, Hong Kong comes 2nd after Singapore in efficiency and productivity among Tokyo MOU members. The differences may be accounted for because Hong Kong has more detentions and re-inspections than Singapore. The majority of Singapore's PSC inspections are carried out on the berths. Some of the resources are also deployed to deal with the workload arising from such detentions and re-inspections

and the inspection of coastal vessels.

Unlike other regions in the area, PSCO in Hong Kong are all full time dedicated officers to the PSC section. Under the present establishment there should be six PSCO in the section responsible for all PSC inspections and its related activities in Hong Kong. As all PSCOs are already qualified Flag State surveyors, on joining the section each will receive only two weeks of familiarisation training before conducting the PSC inspection on his own.

The advantages of being a full time PSCO are full time dedication and more direct involvement to the job. This involvement largely affects the experience and skill of PSC inspection and their attentiveness which could be different to that of a multi-task surveyor responsible for various Flag State annual / renewal shipboard survey inspection and other mandatory duties.

In some states the PSC inspection is just part of the duties of a Marine Officer. They carry out the PSC inspection in conjunction with other tasks and the Marine Officer often has to wait until a readily available ship arrived at their port for inspection. The priority of PSC inspection in these states often comes very low in comparison with the other mandatory survey activities. Associating with this passive attitude of PSC inspection would be the inadequate standard of inspection and difficulty in meeting the obligation of the inspection target under the MOU due to inadequate opportunity to participate in the PSC inspection [5-9].

One of the reasons for such reluctance of commitment in some states could be the non-revenue generated nature of the PSC inspection. In maintaining a section of six

PSCOs in Hong Kong Marine Department the cost is very high. As the initial PSC inspection incurs no charge to the vessel, revenue can only be generated from follow up inspections, i.e. in the case when a ship is detained. The amount of revenue generated from PSC section falls far too short to the cost incurred for the maintenance of the section itself. From an isolated financial point of view running a PSC activity often operate at a loss with no revenue generated.

However if the safety of shipping is to be considered as a whole, the picture should be viewed quite differently. It is therefore, the degree of involvement to the MOU would actually depend much on the commitment of individual state as to the goal of reduction of sub-standard shipping in the region.

5.4 Summary

As one of the largest ports in the world, Hong Kong is visited by thousands of ships each year. In year 2000, 885 ships were inspected, with an inspection rate of 15.73% (A little higher than the target rate of 15% set by the Tokyo MOU). This was carried out by 6 PSCOs, and shows that the PSC section performs with high efficiency and productivity. The purpose of Port State Control is to prevent a ship proceeding to sea if it is unsafe or presents an unreasonable threat of harm to the marine environment. Under this principle, a PSCO not only looks for deficiencies, but also finds remedial measures.

Although Hong Kong has a higher detention rate than other Port States in the same region, statistic shows that this rate has been dropped largely in recent years, which indicates that generally the standards of ships visiting Hong Kong have been heightened. However, deficiencies in regard to fire fighting appliances, life saving appliances, navigation, and

load line are still major factors among detainable items.

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CHAPTER SIX

STATISTICAL ANALYSIS OF WORLD-WIDE SHIPPING CASUALTIES

6.1 The Scope of Statistics and Related Elements

The analysis in this chapter is based on an investigation into all the casualties, that occurred world wide in 2000, to sea going trading ships of 100 gross tonnage (GT) and above, and on an evaluation of all reliable international statistics for the period 1995 and 2000.

Even in our technologically advanced age, we are still dealing with enormous safety risks in all parts of the shipping environment. In spite of efforts to minimize risks, disasters still occur. Concerning marine traffic, it seems obvious that the more the substandard shipping increases in the shipping industry, the more likely to fail are efforts to improve safety. Having in mind some spectacular disasters involving tankers, combined carriers and sometimes general cargo ships, the public often gets the impression that in the marine field, as far as the commercial sector is concerned, safety is at a lower level than in air or rail traffic.

In this chapter it is acknowledged that general opinion accords marine casualties to human failure, negligence, carelessness and inaccuracy. On the other hand, failures might also be caused by malfunctioning of equipment, non-perfect technical systems, or

unsolved technical and operational problems. Sometimes a lack of safety might be due to poor manning or, if not necessarily bad then weak management, performing under the financial constraints of a policy that cheapest is best. On many occasions the dividing line between mechanical failure and human error may not be clear [6-1]. Malfunction of equipment is often caused by poor maintenance or its improper use. It can be said human failure in some form is the dominant factor in shipping casualties.

Even if it is recognized that safety activities in shipping operations should start as early as possible, what needs to be addressed has still to be decided. It is evident that the prerequisite for real improvement is an analysis in depth to identify critical points. To improve safety there are different strategies, in general we differ between two basic approaches: firstly, reducing the probability of an accident happening, secondly, limiting the consequences should an accident occur. What PSC inspection attempts to accomplish is basically the first strategy. However, this chapter will not pursue the ambitious goal of developing measures to reduce the number of accidents, but to present a broad statistical analysis of the world shipping and functional descriptions of the risks concerned, on which basis further measures like Port State Control inspections may be taken to improve safety.

Why do shipping accidents occur? Growth in the global economy and in sea trade over the past 50 years has seen the total capacity of the world fleet increase both in terms of both gross tonnage (GT) and the number of ships. On the other hand technological development of ships has progressed in tandem with technological innovation. Moreover, the development of various kinds of related equipment to aid the safe navigation of ships has led to enhancement in ship safety, and contributed towards reducing the number of

crew required to man the highly technological ships, while also contributing towards reducing the number of shipping casualties. In reality, however, the author considered that it is still very difficult to reduce drastically the number of shipping casualties, and the consequent loss of human life, through modern technology alone. In a number of situations, reduction of manning could cause the ship to be more prone to risk.

6.2 Environmental Factors and Causes of Shipping Casualties

When a ship navigates the sea, she carries her cargo and/or passengers and travels along the predetermined route. The administrative staff of the shipping company concerned and the captain who is responsible for the operation of the ship, as well as other crew member of the ship, should give the highest priority to the safety of the ship, its crew and cargo. They also determine the operating conditions of the ship, such as maintenance, the well being of the cargo, the route and service speed. These considerations take into account the safety and economic efficiency of the anticipated voyage. The conditions of the high seas are, however, not always as good as originally expected. A worse situation could be encountered resulting in unexpected damage to the ship.

Any delay in promptly and appropriately responding to such a sudden change in environmental factors may often lead to a serious marine disaster. Qualified and experienced ship's staffs are one of the important factors in enabling the ship to arrive safely at her destination.

Analyzing the nature of such environmental factors, there are four inter-relating conditions that could lead to a shipping accident:

.1 The Condition of Nature

The first environmental factor is the effect of the forces of nature which on the sea. The means are available of collecting up to date and reliable weather forecasts so that unexpected weather conditions are reduced to minimum. The avoidance of this cause of casualty largely depends on the experience and competency of the ship's master and his officers as well as the condition of the GMDSS equipment in receiving weather information

.2 The Conditions of the Route

The second factor affecting the operation of the ship is the nature of the route along which the ship navigates. This factor includes the geographical conditions, such as narrow channels, depth of the sea and currents, as well as the traffic density of ships in a particular sea lane.

.3 The Conditions of the Ship

The conditions of the ship that are essential in order for the ship to secure its safe navigation, consist of such factors as the state of the ship hull, normal working conditions of engines, navigational instruments and ship communication equipment. This refers particularly to the ageing of the ship which often generates the needs for greater attention to maintenance.

.4 The Competency of the Crew and other Human Factors

Shipping casualties could occur even when the ship condition is best suited to its navigation. e.g. under ideal natural conditions of the sea and route, coupled with the most favorable conditions of the ship. The competency problem for some

Flag States in having too young officers, who lack adequate sea service, skill and knowledge of maritime factors, is considered to contribute in some shipping casualties. The majority of shipping casualties are caused by the conditions of the operator which are essentially human-related factors, such as competency in ship operating skill, knowledge in the stowage of cargo and in dealing with various emergencies and problems relating to the working environment including ergonomic factors and the induction of fatigue[6-1].

6.3 Statistical Data of Merchant Ship Losses in 2000

The world fleet of propelled sea-going merchant ships of all types, of not less than 100 gross tonnage (GT) stood at 85, 494 ships of 522.2 million GT and an average age of 19 years. Completion during the year of 1997 amounted to 1,820 ships of 25.2 million gross tonnage. Ships out-going from the world fleet as losses or disposals totaled 666 ships of 8.1 million GT and average age of 26 years [6-2].

.1 Cargo Carrying Ships

In 1997, the world cargo carrying fleet was 45,830 ships of 757.8 million deadweight (Dwt) (496.5 million GT) and average age of 18 years. During the year, completion totaled 1,276 ships of 37.0 million Dwt (24.7 million GT). Outgoing from the world cargo carrying fleet as disposals or losses were 494 ships of 13.2 million Dwt (7.8 million GT) and average age of 26 years.

During the year of 2000, 167 ships of 0.89 million gross tonnage were reported as total losses. The number of total losses of cargo carrying ships was 123 ships of 0.87 million GT (1.36 million Dwt).

(Source: Seatrade Review Feb 2001)

.2 A survey of the world merchant ship losses 1995 - 2000

The following is an overall summary, for all ship-type categories, of reported losses (actual total losses (ATL) and constructive total losses (CTL)) for the years of 1995 to 2000.

ATL - Where the subject matter insured is destroyed, or so damaged as to cease to be a thing of the kind insured, or where the assured is irretrievably deprived thereof.

CTL - Where the subject matter insured is reasonably abandoned on account of its actual loss appearing to be unavoidable, or because it could not be preserved from actual loss without an expenditure, which would exceed its value, when the expenditure had been incurred.

Table 6.1 Losses of Merchant Shipping between 1995 and 2000

Year	ATL		CTL		Total losses	
	No.	m. GT	No.	m. GT	No.	m. GT
1995	195	0.6	57	0.4	252	1.0
1996	182	0.5	73	0.6	255	1.2
1997	146	0.4	64	0.8	210	1.3
1998	180	0.4	73	0.6	253	1.1
1999	153	0.5	46	0.6	199	1.1
2000	151	0.6	16	0.3	167	0.9

(Source: Seatrade Review Feb 2001)

The number of persons reported killed or missing (lives lost) as a result of total losses during the year of 2000 was 352.

In 2000, losses of merchant ships of over 100 GT reduced from 252, totaling 1.0 million GT, in 1995 to 167 ships, totaling 0.9 million GT. During the year of 2000 the world fleet of merchant ships grew by 2.8% to 522.2 million GT. Within this total there was considerable variety in the rate of growth, reflecting the different economic circumstances prevailing in different parts of the shipping business, and in different parts of the world.

Table 6.2 The reported total losses for the year of 2000

Total losses		
	No.	GT
Foundered	81	305,859
Missing	1	4,010
Fire/explosion	18	79,962
Collision	20	75,392
wrecked/stranded	34	248,472
Contact	4	16,658
Other	9	162,783
Totals	167	893,036

(Source: Seatrade Review Feb 2001)

Total Losses Cartridge

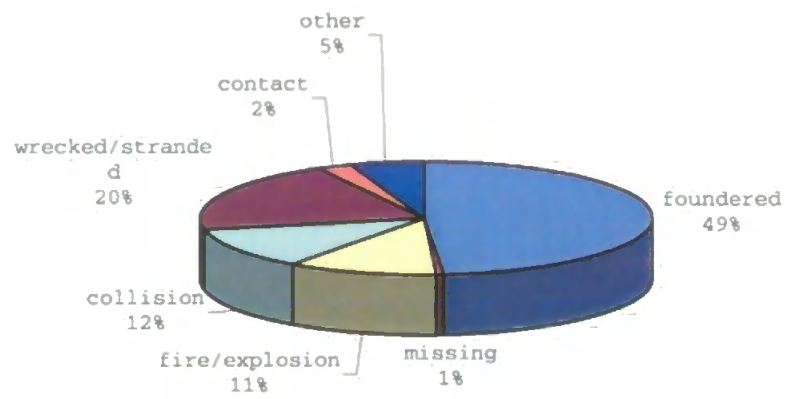


Table 6.3 Loss rates per 1000 ships for the year of 2000 and the previous 5 years for the ship-type categories:

Total losses						
	1995	1996	1997	1998	1999	2000
Oil	1.6	1.6	2.5	1.4	0.9	1.0
Bulk carrier	1.9	3.2	2.8	5.7	2.9	3.3
general cargo	5.6	6.1	5.2	6.1	5.5	4.3
All cargo-carrying	3.5	3.8	3.2	3.7	3.0	2.7
Fish catching	3.3	2.5	2.2	2.8	2.0	1.3
All ship-types	3.0	3.0	2.5	2.9	2.3	1.9

(Source: Seatrade Review Feb 2001)



6.4. Analysis of Data

6.4.1 Ship foundered

The number of total losses due to ships that foundered has remained the most notorious over the years. It is obvious that heavy weather often contributes to this category of loss. Other causes, such as the age of ships and poor maintenance, also contribute to the high loss rate. In about 20% of the cases heavy weather was the known cause, whereas in about one third of the cases cargo shifting led to the accident [6-3].

For thousands of years men who went to sea did so in awareness of the dangers. Despite the increase in size of ships, constructed of steel instead of wood and fitted with powerful engines, the perils remain. Ships are still subject to extremes of weather with all the adverse contingencies that arise. In 2000, 81 ships foundered in heavy weather. The problems that ships have to face in adverse weather are mainly connected to the stability and the structure of the ship. Very important in this respect is the kind of cargo transported and the way it is stowed. Certain kinds of cargoes are significantly more dangerous in this context, in particular:

- .1 grain and other cargoes in bulk which are likely to be shifted in sea voyage;
- .2 steel cargo with improper lashing often cause cargo shifting and result in severe structural damage;
- .3 wood or timber cargoes stowed on deck, if in excess volume they often cause the ship to become unstable and capsize.

Though the ship's master is responsible for the stowing of the cargo, it is questionable whether this is in accordance with reality. Often, during the stay in port, there is not

enough time to check this thoroughly because of the many other duties he has to do. On the other hand more and more cargo is brought to the ships in containers which, under normal circumstances, cannot be controlled by ship staff. In the case that a ship has to ride through a storm ship safety depends on the knowledge and experience of the ship's master. If he knows well how his ship behaves the risk of danger will be reduced [6-4].

6.4.2 Fire / Explosion

Fire and explosions on ships have increased considerably. The majority of such incidents involving tankers happen in port, and even one half of similar incidents to dry cargo ships also happen in port. The problem is that if the fire spreads from the berth, or occurred when the ship was in dry dock under repair, we have to consider some non-marine elements when dealing with safety aspects. Up to 2000 the incidence of fire in ports in general mainly affected smaller size tankers. For dry cargo ship fires there is no concentration in general, and losses show no pattern size ranges.

6.4.3 Collisions

It can be seen that the rate of losses for all sizes of dry cargo ships has been remarkably constant over the years. The same is true for tankers, although it has to be kept in mind that a tanker loss is not always put in this category as wholly due to the collision because such collisions are often followed by fires which cause the ships to be rendered a loss.

6.4.4 Ships Wrecked

Losses in tankers wrecked increased as did the tanker fleet itself. Compared with wrecked dry cargo ships, tanker losses in this category are comparatively low, possibly because of the greater ease in re-floating stranded tankers.

6.4.5 Losses to vessel - Summary

In general, it can be said that there is no overall pattern permitting the prediction of the number of losses, especially with regard to the financial risk connected with certain ships by type, size, flag, trade, etc.. The number of losses in a distinct category changes from year to year although we can observe certain trends. Another fact to consider in the analysis of total losses which includes small trading vessels and non-trading vessels is that for the respective period these ships accounted for more than 60% of the ships lost (100 GT and above).

Investigating the major trends in the total loss analysis over the period of the last 30 years, we come to the result that there is:

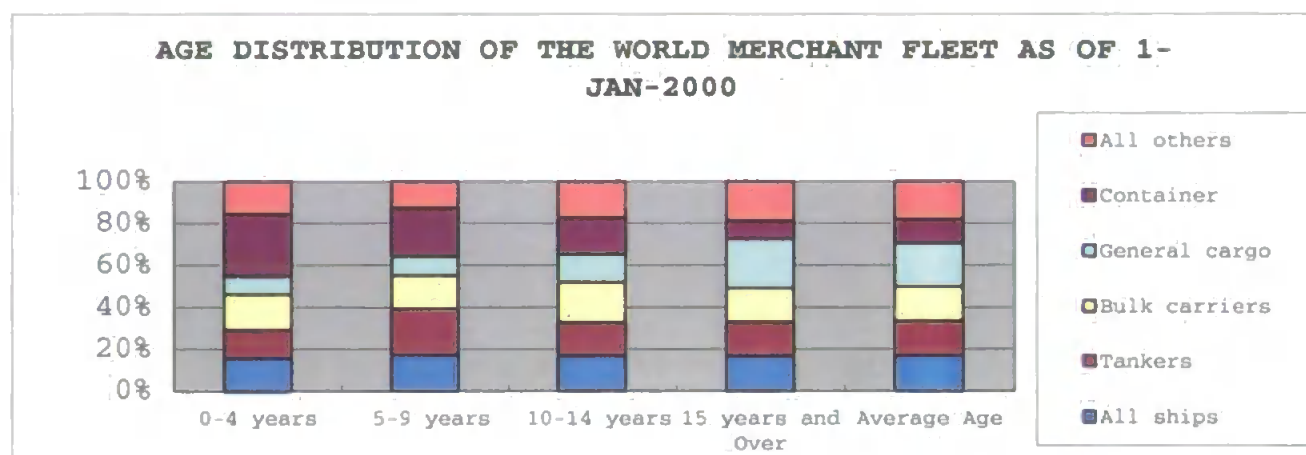
- .1 an increase of losses in number and tonnage caused by fire;
- .2 an increase of losses in number but not in tonnage due to grounding;
- .3 a constant quota by number and a decrease by tonnage concerning collisions;
- .4 a decrease in number and tonnage concerning stranding.

6.5 Age and Flag Distribution of Ship Losses in 2000

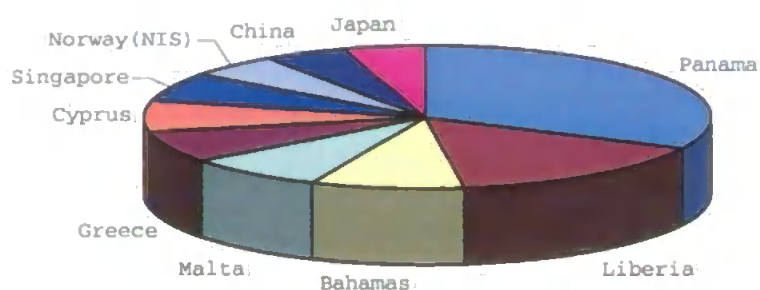
Table 6.4 Age distribution of the world merchant fleet by types of vessel,
as at 1 January 2000

Type	Total	0-4 Years	5-9 years	10-14 years	15 years and over	Average age
World total						
All ships	100	19.1	18.7	12.9	49.3	14.3
Tankers	100	16.6	23.6	12.1	47.6	13.91
Bulk carriers	100	20.8	17.0	14.6	47.6	13.83
General cargo	100	10.9	9.9	10.2	69.0	17.32
Container	100	36.1	24.9	13.3	25.7	9.72
All others	100	18.9	13.4	13.1	54.7	14.92

(Source: Seatrade Review Feb 2001)



WORLD TOP TEN MERCHANT FLEET FLAGS GROSS TONNAGE



Merchant fleets of the world top ten flags (in decending GT) as of June 30, 2000

WORLD'S TOP TEN MERCHANT FLEET AVERAGE AGE

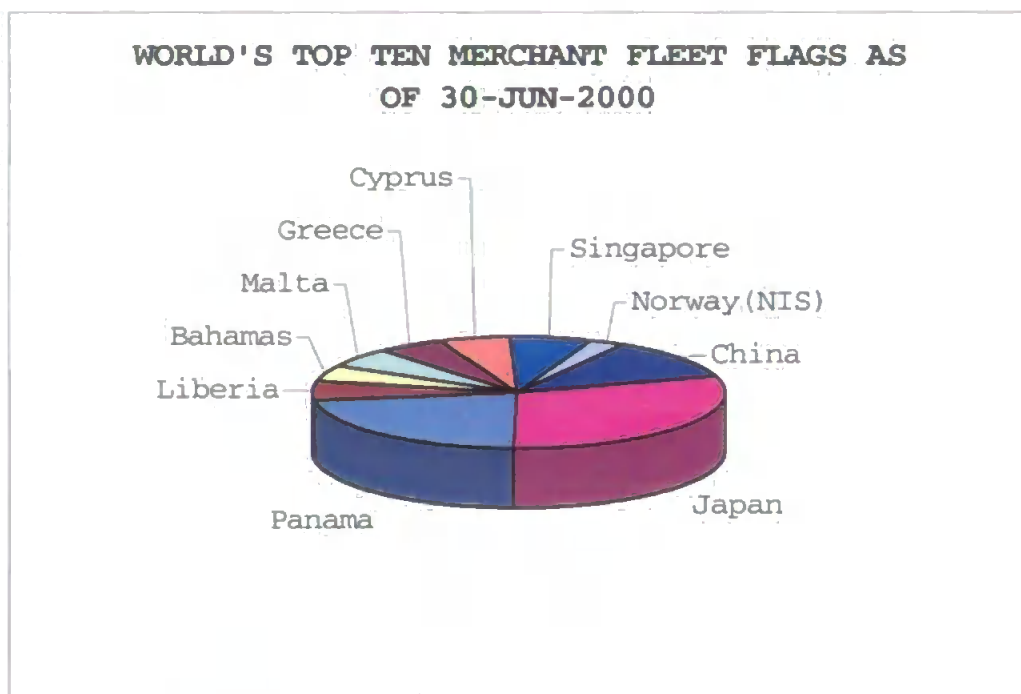


Table 6.5 Top 10 Registrations on Merchant Shipping and average age

Registration	No.	GT	Age
Panama	6,212	111,077,621	17

Liberia	1,582	54,415,951	12
Bahamas	1,295	30,969,685	17
Malta	1,534	27,734,643	19
Greece	1,516	25,292,089	25
Cyprus	1,524	23,421,486	17
Singapore	1,749	22,107,214	11
Norway(NIS)	751	18,705,173	16
China	3302	16,356,361	20
Japan	8308	16,101,324	12

(Source: Seatrade Review Feb 2001)



(Source: Seatrade Review Feb 2001)

The tonnage of 1970s built ships in service is now 171 million GT, compare with 166 million of 1980s built vessels and 164 million GT built in the 1990s. The 28 million GT of deliveries scheduled for 1998 exceeded the 27.8 million GT of 1976 built ships still in service, formally pushing the 1970s age bulge into second place.

If nothing else, this demonstrates that the world shipbuilding industry now has more than enough capacity to replace the remaining 1970s fleet, even if all of these vessels were to be scrapped promptly, which looks increasingly unlikely (at the end of 1999, 17,000 ships built before 1970 were still in service).

6.6 Age and Flag Analysis of Ship Losses

Commonly it is expected that the more modern and sophisticated a ship, the less it will be exposed to loss. Looking at the statistics a certain confirmation of this opinion appears to exist.

Table 6.6 Total losses by ship types

Total losses			
	less than 10 years	10-19 years	20 or more years
Oil	1	1	7
bulk dry	1	2	7
general cargo	5	12	43
all cargo carrying	8	22	66
Fish catching	4	7	19
All ship-types	12	29	91

(Source: Seatrade Review Feb 2001)

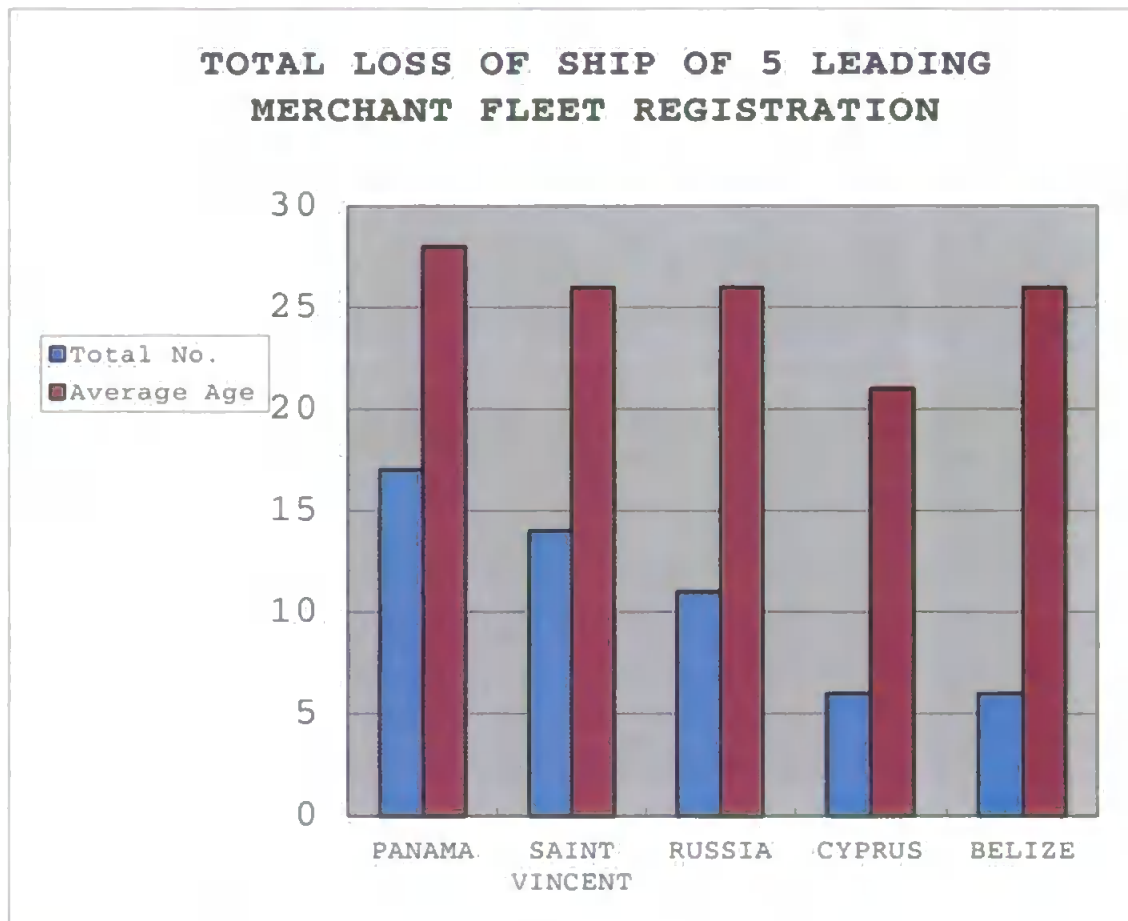
Total losses in descending order of number of ships by registration, the 5 leading merchant fleets are as follows:

Table 6.7 Total losses by registration

Registration	Total		Average Age
	No.	GT	
PANAMA	17	223,631	28
SAINT VINCENT	14	88,252	26
RUSSIA	11	23,852	26
CYPRUS	6	87,917	21

BELIZE	6	9,535	26
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(Source: Seatrade Review Feb 2001)



Ships of 20 years or more account for all total losses over the year of 2000. However, the fact that newer ships show up better than older ships cannot be attributed wholly to the fact that their safety standard is better.

Analyzing the total losses by ship type over a period of 5 years [6-5], we see that general cargo ships account for a higher number of total losses than we should have expected. This might be caused by the fact that the bulk of the old ships are dry bulk carrier.

Without wishing to discuss thoroughly whether there is a relationship between

sub-standard of ships and the country of registry we cannot neglect the figures showing us year by year that some countries like Saint Vincent, Cyprus and Panama are contributing the bulk of ships lost by number and tonnage in 2000. There seems to be a correlation with the age structure of the respective fleets.

6.7 Causes Of Shipping Casualty

What are the causes of shipping casualties? How can we prevent them from occurring?

There are various kinds of information or report that have been made public from time to time by ardent analysts and researchers. However it is difficult to find the causes of the losses from the reports. The ultimate event which led to the loss is often not possible to identify, or perhaps was a chain of events, like: collision / fire / foundered etc. Yet we are sure that every ship which because of age, lack of official control, or careless management not corresponding to the generally required safety standards, does not only run a potential risk for the ships staff, but also for other ships, for the environment and the underwriters [6-5]. There is also risk to the freedom of the shipping industry, because under pressure of the public opinion, International Maritime Organization and responsible governments will pass more stringent regulations for which all of us will ultimately have to pay.

Casualties and losses of ship are not always due to sub-standard shipping, for example, the Ro-Ro ferry “Herald of Free Enterprise” and the notorious accident of “Estonia” in 1994, they were not regarded as a sub-standard ship but a modern well-equipped passenger ferry, yet she capsized due to human error. On many ships it is necessary to improve the qualification of crew and officers. One of the reasons for failure may be the mixing of nationalities on some ships, when the use of non-mother tongue languages has created difficulties in communication and understanding orders.

Accidents sometimes are treated as if they cannot be avoided. So researchers who rely on mathematics try to forecast the number of casualties on the basis of some factors as type of ship, age, flag and traffic density. This approach, however is neither adequate nor logical for a problem which cannot be solved by mathematics, but by technicians and the safety

consciousness of the men engaged in the daily shipping business. For instance, we know from the air traffic system that safety ranks first in business policy, being a prerequisite for a profitable business, and the basis of success. To achieve the safety consciousness, the following criteria should be considered if safety is to become predominant:

- .1 moral obligation or pressure to give safety highest priority,
- .2□ excellent education and practical training programmes,
- .3 installation of modern, ergonomically designed, and well maintained technical equipment,
- .4 good communication and relations between ship crew.

6.8 Shipping Management Cultures

There are many differences between shipping and the air industry but the most significant is after an accident, when the air industry shows its cause culture whilst shipping has a blame culture. After an air accident the causes are identified following which remedial steps are taken to prevent a recurrence of another accident from that same cause. On the other hand, after a shipping accident most investigative activity is aimed at identifying who is to blame and, once this person or corporate body has been identified, the matter can be quietly put to rest.

The evasion culture - It can be seen that when the costs of complying with rules and regulations become so high, the profit margin of transport will no doubt be affected. Therefore it can be seen that the shipping industry is often trying to get away with minimum standards or in some cases, evading the rules altogether.

The compliance culture - some owners and operators may strive to comply with legislation in the cheapest possible way in order to get the certification need to operate their businesses. There is a danger when ship owners fail to maintain their ship, they may still fail the Port State Control inspection even when all of the certifications are valid. The lack of monitoring of standards of some flag of convenience authorities, can often cause their ships to be subject to detention by Port States[6-6]. However, the growth of flags of convenience in recent years has indicated a general acceptance of compliance culture by a number of ship owners and operators in running their business.

The safety culture – describes an attitude existing in the shipping industry, probably the smallest sector but growing with the advent of tougher Port State Control.

6.9 Preventive Measure against Shipping Casualty

No matter how far technological advancements are made in ship automation or electronic control, it would be more than difficult to completely eliminate the occurrence of accidents in this or any other type of transport. Though it is possible with the modern technology to navigate with auto-pilot, radar and ARPA, as well as other collision avoidance systems, it is not possible to control the operation of the other opponent ship.

Strengthening of inspection standards for the safety of the ship (including Port State and Flag State inspection) offers some solution. A series of occurrences of casualties, involving large sized tankers and bulkers in the early 1990s, led to the development of preventive measures against oil spills, and also strengthened inspection control over sub-standard shipping on a global basis. In addition, the shipping industry is now proceeding with various measures toward the enhancement of seamen's ship operating

skills and the safe operation of the ship such as STCW 95 and the ISM code [6-7]. To conclude this chapter, the followings are points of issue which can be regarded as some preventive measures against shipping casualties:

- .1 Reduction in sub-standard ship numbers through removal from the registry of old and outdated vessels not complying with the classification societies' recommendations for structural improvements of the ship for safety purposes.
- .2 Restrictions placed by major oil companies on the chartering of old tankers. Restriction on the chartering of tankers not complying with the standards established by major oil companies for safety requirement.
- .3 Ratings established by insurance companies based on their own inspection standards for the safety of the ship. Classification of ships by ratings based on the standards established by insurance companies for the purpose of inspection of ships.
- .4 Strengthening of Port State Controls in place in most regional area for safety purposes in order that a global net coverage to ensure that most of the trading ships are under monitoring with respect to their safety standard.
- .5 Familiarization among crew members of manuals on emergency and competency - under ISM and STCW 95 the ship managing company is to ensure that their crew on board should be provided with adequate training and means of access to the information needed to the various safe operations of their ship.

- .6 Acceleration of scrapping of old ships. Due to corrosion of steel metal, aged vessels tend to be weakened in its structural strength and often require more maintenance. As the world tonnage grows and the tonnage becomes excessive, scrapping of old ships is one of an alternative to balance the oversupply and in regulating the freight rates. Classification societies and IMO may take on board the consideration of the potential dangerous situation with some of the dangerous ship type and aged ships to formulate regulations to limit the life span of merchant trading vessels.

6.10 Summary

Tragically shipping casualties have always happened in the marine transportation industry. In these casualties not only loss of life and property has resulted, but often also great damage to the environment. Various actions have been taken by IMO, class, Flag States and Port State Control authorities to ensure the safety of shipping. Their ultimate goals are the same – to reduce the number of shipping casualties and the losses they cause.

The strategy that PSC inspection attempts to accomplish is to reduce the risk of accident occurring. By analyzing statistics of worldwide shipping casualties, the main causes could be identified. This enables more focused PSC inspections to be carried out.

Although a number of casualties take place under extreme weather conditions, the condition of nature may not be regarded as the main factor. By utilizing modern shipbuilding technologies and introducing various kinds of equipment to aid the safe navigation of ships, a well maintained and manned vessel should have either conquered or avoided the most critical conditions. So, human failure in one form or another is always the dominant factor in shipping casualties. At the same time, ship types and conditions

also contribute to the causes of marine casualty. For a high-risk, sub-standard vessel, even a minor failure could result in a fatal accident; while a modernized new building ship will, to some extent, be more tolerable. From the statistics, conclusions could be drawn that older ships are more likely to become victims of casualties.

These high risk ships do not only pose danger for the ships' staff, they also threaten other ships and the environment, thus they are targeted by PSC inspections. At the same time, PSC will continue strengthening its inspection standards for the safety of ships, and contributing more in reducing the number of world shipping casualties by discovering and rectifying ships' deficiencies before they leave port.

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CHAPTER SEVEN

SURVEY OF RELATED PARTIES

7.1 Introduction

In chapters 3 and 4 the contextual background to Port State Control was reviewed, whilst chapter 5 covered the application of Port State Control in Hong Kong. Given the number of years experience the author has as a PSCO in Hong Kong, and as a Flag State inspector in surveying Hong Kong registered ships in countries abroad, it is inevitable that the detail given and conclusions reached in those chapters largely reflects a personal Administration view. Indeed, over a twelve month period during 2000 and 2001 more than 100 PSC inspections were carried out by the author on a full range of cargo and passenger vessels while engaged with the Marine Department of Hong Kong as a government surveyor in the Port State Control Section.

Added to this was the background of shared experience with other PSCOs in Hong Kong, as well as with those from other states in the Tokyo MOU Region. This experience provides a great deal of insight to form views on the effectiveness of PSC inspections. Those views may not be shared by the wider maritime community, and it is necessary to test the 'Administration' views against those held by outside expert maritime opinion in Hong Kong, such as marine insurers, ship managers, ship owners, charterers and brokers. A questionnaire was therefore developed for the purpose of determining this wider view from the industry. The same questionnaire was used to form a broad assessment of the

“Administration” view from which comparison with the wider industry view could be made.

7.2 Questionnaire Framework and Construction

The new, and original, work detailed here took the form of interviewing potentially interested parties to establish issues of relevance in the Port State Control activities and to develop a questionnaire which would confirm or disprove these ideas and determine some correlation between respondents’ answers. The author initially sought consultations with 3 - 4 people in each field of shipping agency, ship master and classification society to help in the configuration of the questionnaire.

The interviews, which were unstructured to avoid bias, had two purposes. The first was to incorporate the views of relevant people in Hong Kong with the construction of the questionnaire. The second was to adopt a systematic approach of identifying further interviewees and potential respondents to the questionnaire. It was hoped that this would lead to obtaining a macroscopic view of Port State Control and its impact on ship safety.

7.3 The Interviews

The interviewees were selected in order to elicit views associated with many of the fields in the maritime industry and to ensure a broad spread of opinions. Some individuals were contacts known to the author, others were identified by the interviewees themselves. The interviews were unstructured and open-ended, allowing development of the interviewees’ own views. This interview method was chosen in order not to constrain the author’s investigation through any pre-conceptions acquired while working as government agent. The interviews permitted the development of an informed questionnaire [7-1].

Interviews were recorded by note taking and / or by tape recording with subsequent transcription. The former suited the author and provided a hard-copy backup. The latter permitted a review of the interview and a check on the limitations and errors in note taking.

The cross-section of marine related people contacted produced a first informal impression of feelings on the effectiveness on Port State Control Inspections from people working in the shipping field. The majority of interviews were held face-to-face, with five by telephone. The face-to-face interviews took place in the interviewees' offices. This gave the author a contextual background against which to understand the views being expressed by each interviewee. Telephone contact was necessary when there were time constraints on the interviewee.

After transcribing and précising, the interviews were assessed for common themes by condensation and categorization to determine priority issues. This enabled the themes to be identified and the questionnaire to be formulated. This framework analysis of the initial interviews identified common and unique topics, such as difficulties encountered by ship owner, and any perceived underlying problems.

Prior to commencing the interviews a study of interview and questionnaire techniques was undertaken which permitted the development of a rigorous approach to the next survey. Before any interview took place the aims and objectives of the research were explained to the subjects. They were advised they could break off the interview at anytime, and their identity would not be disclosed to any other party without their explicit permission in

writing [7-2].

7.4 The Questionnaire

Opinions on questionnaire design [7-3], the numbers within the trial sample, the number of questionnaires to be sent out, and the likely percentage of returns varied widely. Inherently, the larger the sample, the more likely that the answers will represent general opinion. There should be more than 30 returns to justify conventional statistical techniques unless an allowance is made for small groups [7-4]. These figures also apply to analyses of sub-sets of the returns. A questionnaire could expect a return from 10% of the population surveyed. If the interviews were adequately stratified through the relevant population and if the questionnaire returns were also representative of the population, then a large return would help to minimize missing and /or unreliable data and hence the analysis is more likely to be valid.

A postal questionnaire was chosen due to the geographical spread of the potential respondents [7-5]. The questionnaire also allowed contact with many more individuals than would otherwise have been possible due to time and location constraints. The questionnaire design followed the conventional refinement from the broad idea (i.e. the aim of the thesis and the interview framework analysis) to a set of sub-topics and thence to a specific set of questions. The questionnaire variously required yes/no answers, a choice between two to three options, or a selection from a list. Terminology is a major problem in questionnaire design, where brief phrases are often used, and some may be “jargon” terms to non-cognate members of the public. Therefore there may be some uncertainty in the responses [7-6].

The questionnaire was trialed to twenty persons (technically a content validity measure) and various corrections incorporated. Those involved in the trial included marine professionals and non-marine related people. To ensure the language used was correct and unambiguous versions of the questionnaire were produced in Chinese and English. The trialists, and those taking part in the wider study, were sent both versions as a measure to reduce risk of misinterpretation.

A four point questionnaire technique was adopted. This helps to ensure the respondent to take a position in responding the questions, rather than making a middle selection without much thinking about it. The final copy of the questionnaire is at Appendix B. Initially 300 questionnaires were sent with a return of 35%.

The questionnaire, as constructed, lends itself more to interpretation than to numerical analysis. For this reason a qualitative rather than quantitative approach has been taken in assessing the response received.

7.5 The Administration View Point

The following tables from 7.1.2 to 7.8.2 provide the results of the Administration survey. This was conducted by sending questionnaires through Lotus Mail, the Department's communication link, to 40 surveyor grade officers in the Marine Department of Hong Kong Special Administrative Region (SAR). This number represents over 90% of all the marine surveying professionals within the Administration of Hong Kong SAR. About half of the surveyors are base grade or front line professionals with duties including statutory surveys, PSC inspection, examination and ISM audit, while the remainder are senior professionals working in a range of posts across the Department, including the

policy section. Although the sampling size is only one sixth that of the survey of the wider marine community, 19 replies were received, equating to a 47.5% response rate. As respondents were given limited time to reply, some surveyors were engaged on duties overseas, and others were on leave, this is a very satisfactory return.

7.6 Response and Analysis – Purpose and Operation of Port State Control

7.6.1 PSC in General (Question 1A) - View from wider marine community

Table 7.1.1 Response to question 1A asking what are the purposes of Port State Control (View from wider marine community)

No	Statement	Strongly Agree	Agree	Neutral	Disagree
1	To get rid of sub-standard ships	3 – 3%	50 – 56%	12- 13%	25 – 28%
2	To persuade Flag States to maintain their ships	38 – 32%	60 – 50%	8 – 4%	14 – 12%
3	To assist in ensuring survival of National Flag	19 – 16%	43 – 36%	40 – 33%	18 – 15%
4	To make Flag of Convenience less attractive to ship owners	8 – 4%	38 – 32%	20 – 17%	54 – 45%
5	To discourage charterers from employing sub-standard ships	27 – 23%	20 – 17%	51 – 43%	22-18%

Table 7.1.2 Views from Administration

	Strongly Agree	Agree	Neutral	Disagree
1	9 – 47%	9 – 47%	1 – 5%	0
2	3 – 16%	12 – 63%	2 – 10%	2 – 10%
3	0	2 – 10%	11 – 58%	6 - 32%
4	1 – 5%	8 – 42%	7 – 37%	3 – 16%
5	2 – 10%	8 – 42 %	6 – 32%	3 – 16%

Table 7.1.3 Comparison of views

No	Administration	Wider marine community
1	Strongly agree / agree	Agree
2	Agree	Strongly agree / agree
3	<i>Neutral / disagree</i>	<i>Agree / neutral</i>
4	<i>Agree / neutral</i>	<i>Disagree</i>
5	Agree / neutral	Neutral

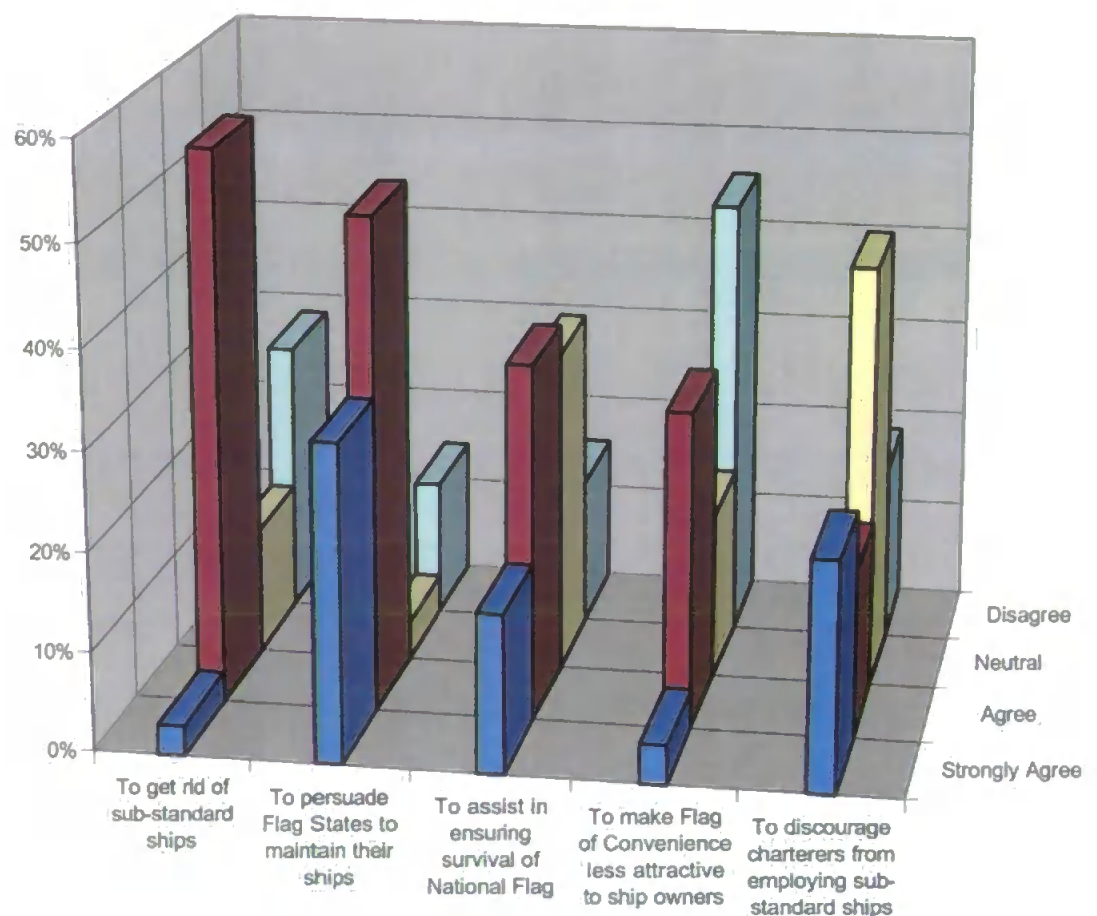
Differences of opinion arises with question No.1A3. While a number of the wider marine community indicated their agreement that assistance in ensuring survival of national flag was a purpose of PSC, the Administration view disagreed. The Administration strongly supports the view the PSC aims to get rid of sub-standard ships, or at least persuade Flag States to maintain their ships. Survival of national flag is not an issue of concern to the Administration. Comfort could be drawn from the Administration's rejection of the possibility of there being a hidden agenda.

Question 1A4 also revealed differences. It is possible that the Department sees making FOC less attractive as an outcome rather than a purpose. 45% of the wider marine community disagree. If this is so, then clear water exists between the official and industry view.

Similarly the Administration tends to accept the idea that PSC can discourage charterers from employing sub-standard ships while 43% of the wider marine community had a neutral opinion to the issue. One of the motivations behind PSC inspection was to keep the sub-standard ships out of business by publicizing their ships name if it had been

detained. This record can be obtained from government public site and can be accessed freely by the charterers. It may not be having the desired effect.

Chart 7.1 Chart Showing Response to Question 1A (View from wider marine community)



According to the section IA of the questionnaire, most of respondents strongly agree or agree that the purpose of PSC in general is to persuade Flag States to maintain the standard of their ships and to get rid of the sub-standard ships. The responses are ranked as follows (strongly agree + agree):

- | | |
|--|-----|
| 1. To persuade Flag States to maintain their ships | 82% |
| 2. To get rid of sub-standard ships | 59% |
| 3. To assist in ensuring survival of National flag | 52% |
| 4. To discourage charters form employing substandard ships | 40% |
| 5. To make FOC less attractive to ship owner | 36% |

Speaking in general terms, the respondents considered that the main purpose of PSC is to persuade Flag States to maintain their ships as 82% agree against only 12% disagreeing with the possibility. The finding of the responses matches closely with the Administration point of view. The next highest option was to get rid of sub-standard ships. Without curing the root problem of getting the attention of the Flag State, for them to rectify the sub-standard situation through imposing of pressure to the operator of the ships, the problem of substandard ships would continue.

In a situation when a Hong Kong ship is Port State detained, the Marine Department office would ask the operator to provide the PSC report as soon as possible. If justified to be a serious detention, that is a lot of serious deficiencies identified, a surveyor will fly from Hong Kong Office to the ship for conducting a Flag State Quality Control (FSQC) inspection on behalf of the Flag State. After returning to the Hong Kong office, the operators and owners would be invited to discuss the findings from the inspection and steps agreed for the future improvements to such ship.

Beside the fact that such ship was in a state of poor maintenance and the deficiency was identified “on the spot”, the experience revealed that many detentions were incorrectly issued. Take for example using incorrect version of SOLAS convention and improper

interpretation of convention. A Hong Kong registered ship was detained because there was no totally enclosed lifeboat on board. The keel of laid of this ship was however found to be in 1982, ships built before July 1986 are not required to have totally enclosed lifeboat.

The point of bringing this example is to highlight the importance of concern from the Flag State and the subsequent follow up actions in case of Port State detention. Unfortunately not many Flag States are doing this job well. Some Flag States even appear to have difficulty in achieving liaison with the owners of ships flying their flag. One of the objectives of PSC is to address concern regarding a sub-standard ship to the responsible Flag State and ask them to act on the ship themselves. Getting rid of sub-standard ships through measures imposed by Port States, no matter how severe those measures are, will not tackle the root problem while there are Flag States that respond passively to the PSC detention of their ships.

According to the records of the PSC section in Hong Kong there has been a great improvement to certain popular FOC, like Panama and Belize, in the response to their ships being detained in Hong Kong. Beyond showing their concern, some even informed the Port State of their own penalty measures when their ships were found seriously deficient, and had been detained by a Port State.

52% of the responses agreed that the purpose of PSC is to assist in ensuring survival of national flags. Between the years 1998 and 2001 the Hong Kong registry was actively promoted. In fact the tonnage of Hong Kong registry rose from 8 million to 11.3 million GT. One of the attractions of the Hong Kong registry is a reputation for quality shipping.

Hong Kong registered ships have recorded at the low detention rates over the past 3 years rolling average ratio in both Paris and Tokyo MOU regions. Most of the respondents would have been aware of the registry's promotion, which could have directed them to a conclusion that one of the aims of PSC is to assist in ensuring national flag survival.

On question 1A5, 'a purpose of PSC is to discourage charterers from employing sub-standard ships', 43% of the respondents selected the neutral option. Amongst those responding to the questionnaire were representatives of 'business runners' such as ship managers and marine insurance brokers, and 'non-business runners' such as class surveyors, pilots and port administrators. Further investigation revealed that the 'non-business runners' tended towards the agree options, while the 'runners' gave much greater weight to the neutral and disagree options.

This finding is interesting. Further elaboration has been sought through personal contact to respondents from each stream. The ship operators explained that there had been some tough times for them, a few years ago, when the PSC activities were carried out intensively on ships trading within the MOU regions, in particular Europe, Asia Pacific and United States. They found that some poorly maintained ships they were operating were often detained by the Port State. As a consequence the ship operators would face financial loss due to delays and added maintenance cost etc. However, the PSC activities have not discouraged the charterers from employing sub-standard ships.

It does not mean to say that PSC activity has slowed down. Most charterers now have a strategic ship deployment plan to cope with PSC inspection to their vessels. For areas with strict PSC like Australia, United States and Europe, the need to deploy their newer and

well maintained vessels are clear. However, on the other hand, for areas where PSC activities are still under development the need of maintenance to the ships is not so great, sub-standard situations are more likely to occur on board ships operating in these trades. In another words PSC activity has not discouraged them from employing sub-standard ships, instead it has modified the system of deployment of the fleet.

While 36% of respondents thought making FOC less attractive to ship owners was a purpose of PSC, 45% disagreed. Of the five options offered by question 1A, this was the only one not to draw a clearly polarized response. Respondents' opinions can be separated into two major areas. Traditionally FOC has been associated with low quality ships that are often targeted by PSC. Those respondents who had selected the affirmative answer to this question possibly considered that PSC was aimed mainly at FOC ships. Today's shipping circles may not fully agree with this assumption. In fact the standard of maintenance of the ships often depends on the management company rather than the Flag State. Experience in Hong Kong PSC in the past few years has revealed that many Panama and Liberian registered ships were, widely seen as being FOC, are often very well maintained. The chance of finding a sub-standard ships under some major FOC often varies widely. One just cannot equate the FOC alone as an indicator to sub-standard shipping.

On the other hand a lot of sub-standard shipping has been identified as being ships flying flags of developing nations. In recent years the trend of associating sub-standard shipping with developing nations has almost overtaken the previously held assumption that FOC equates to sub-standard shipping. According to the 2000 PSC inspection record in Hong Kong PSC, the detention rate of ships flying the Cambodian flag was 100%, while it was

85% for Vietnamese and 90% to North Korean ships [7-7]. Therefore to say that the purpose of PSC is to make FOC less attractive to ship owners may not truly reflect the full picture of sub-standard shipping.

7.6.2 Cost and Effectiveness of PSC (Question 1B)

Table 7.2.1 Response to question 1B, relating to statements referring to cost and effectiveness of PSC (Views from wider marine community)

No	Statement	Strongly Agree	Agree	Neutral	Disagree
1	The cost of PSC should be borne by all port users	29 – 26%	33 – 30%	10 – 9%	38 – 35%
2	The cost of PSC should be borne sub-standard ships	50 – 42%	42 – 35%	20 – 17%	8 – 7%
3	Government surveyors are more severe and impartial than Class surveyors	62 – 52%	38 – 32%	13 – 11%	7 – 6%
4	Classification Societies could be delegated to carry out PSC inspection on behalf of Port State	12 – 10%	26 – 22%	14 – 12%	68 – 57%
5	PSC has a positive effect in reducing marine accidents and protection of the environment	16 – 13%	42 – 35%	47 – 39%	15 – 13%

Table 7.2.2 Views from Administration

	Strongly Agree	Agree	Neutral	Disagree
1	5 – 26%	5 – 26 %	6 – 32%	3 – 16%
2	4 – 21%	8 – 42%	6 – 32%	1 – 5%
3	6 – 32%	9 – 47%	3 – 16%	1 – 5%
4	0	2 – 10%	4 – 21%	13 – 68%
5	8 – 42%	9 – 47%	2 – 10%	0

Table 7.2.3 Comparison of views

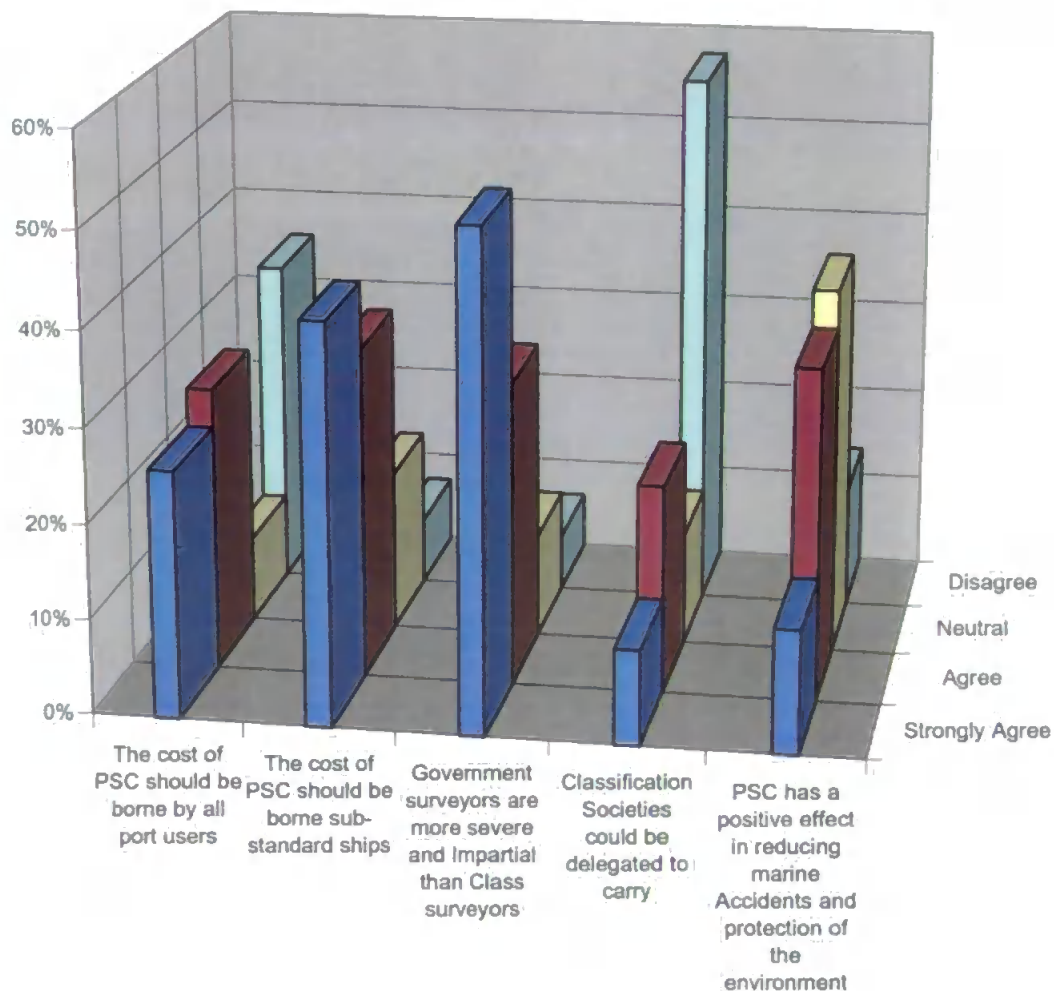
No	Administration	Wider marine community
1	Agree / neutral	Agree
2	Agree	Strongly agree / agree
3	Strongly agree / agree	Strongly agree / agree
4	Disagree	Disagree
5	<i>Strongly agree / agree</i>	<i>Agree / neutral</i>

In general the responses between the Administration and the wider marine community show broad agreement on the cost and effectiveness of PSC. The Administration, however, is very confident that PSC has a positive effect in reducing marine accidents and in protection of the environment. The wider marine community is less sure that this is so.

On balance, government surveyors have a closer contact with accidents and emergencies than the wider community who will only be fully aware when one of their own ships is involved. This could account for the difference in weighing

Chart 7.2 Chart Showing Response to Question 1B

(View from Wider marine community)



Based on section IB of the questionnaire, 56% of the respondents agreed that the cost of PSC should be borne by all port users, while 35% of the respondents disagreed with this suggestion. If the cost of PSC is borne by all port users then all the substandard ships are automatically included. On the other hand, 77% believed that sub-standard ships should bear the cost. The only conclusion the author can draw from this is, a significant number of those responding thought while all sub-standard ships should bear the cost of the PSC some other ships should not bear the cost. But what are those ships?

Under the existing arrangement in most of the Tokyo MOU member states the initial PSC inspection does not incur any charges to the ship. Charge will only be incurred if a re-inspection is required in case of a detention. The present cost for a PSC re-inspection in Hong Kong is about 500 sterling pounds for the first hour of re-inspection, another 100 sterling pounds is added for the work of every additional hour. Although this levy of re-inspection has been criticized by some the shipping companies, these charges are insufficient to recover the full operational costs of PSC inspections. Thus from a financial point of view, PSC inspection is at all times running at a loss and the Administration is required to subsidize the cost of PSC inspections.

In Hong Kong a bill relating to the cost of PSC re-inspection has been drafted and is now in the pipeline waiting to become law. This bill would increase largely the cost of PSC re-inspection with the aim of achieving an overall balance in PSC inspection costs. The finding from the questionnaire tends to agree with the Administration's intention to increase the re-inspection charges to sub-standard ships.

Under the Paris MOU ships are now categorized into white, grey and black lists. Ships with clean PSC records will be classed in the white list and ships with record of serious detention will be classed in the black list. The United States Coast Guard has also introduced a similar point system for ship targeting. They have also introduced a system called Quali Ship 21 for ships with a clean record. If the analysis of questions 1B1 and 1B2 led to a conclusion that some of the ships should not be paying to the cost of PSC, then logically it should be those ships in the white list and those classed as Quali Ships. On the other hand ships identified to be at the low side of the list, according to the findings of this survey, should bear most of the costs of PSC inspection.

The responsibility of PSC inspectors is to spot-check the standard of the ship following the instructions and the requirements of PSC. While in doing so they may use their own discretion in interpreting those requirements, their view remains impartial and should not be influenced by commercial considerations. Respondents overwhelmingly (84%) recognize the rigour and impartiality of government surveyors, i.e. PSC is working on behalf of the Port State authority and should not be subject to commercial pressures. Conversely classification societies are commercial orientated companies and although their integrity is not questioned, commercial considerations are likely to be an influencing factor, in this particular case, on a sensitive and often a conflict of interest issue. It is therefore not surprising that a majority of respondents (57%) do not agree that classification societies could be delegated to carry out PSC inspection on behalf of the Port State.

It has to be noted however that one third of respondents, constituting a significant minority, believe the task of PSC could be delegated to classification societies on behalf of the port Administration. However the debate on either Administration or classification society surveyor may not be conclusive if based only on the opinions of respondents from Hong Kong. Not all states share Hong Kong's ability to carry out PSC. For this reason some of the Port States conduct insufficient inspections to fulfill their obligation under the MOU quotas. In such cases delegating responsibility for PSC inspections to classification societies may be the best option available, however the author considers the argument of this issue would be beyond the scope of this study.

Statement IB5 – PSC has a positive effect in reducing marine accidents and protection of the environment – while 48%, less than half the respondents, considered PSC has a

positive effect on reducing marine accidents and protection of the environment, perhaps it is still early days for the industry in Hong Kong to know the effect of PSC. Some comfort can be drawn from the fact that only 13% disagreed with this assertion.

The fact that it is still early days for PSC in Hong Kong also brings into question the depth of understanding on the part of the maritime community at large, and perhaps, the amount and type of publicity PSC gets in Hong Kong. It is generally felt from the response that the impression given to the maritime community, at least in Hong Kong, is that PSC is nothing but another measure to penalize sub-standard shipping and the means to drive them away from our port, rather than seeing it as part of a continuous movement towards reduction of marine accidents and protection of environment.

7.6.3 Adverse Opinions on Port State Control (Question 1C)

Table 7.3.1 Response to question 1C relating to adverse opinions on PSC

(Views from wider marine community)

No	Statement	Strongly Agree	Agree	Neutral	Disagree
1	Professional standard of PSC inspectors is not Competent enough	9 – 8%	10 – 8%	38 – 32%	63 – 53%
2	Inconsistent inspection standards exist among PSC inspectors in different countries	20 – 17%	70 – 58%	16- 13%	14 – 12%
3	Too many and too frequent inspections especially When ships are on continental trade	10 – 8%	82 – 68%	13 – 11%	15 – 13%
4	PSC inspections often hamper the smooth Running of shipboard business	3 – 3%	22 – 18%	30 – 25%	65 – 54%
5	PSC activities have suffocated the already low Profit margin shipping business in some Developing countries	38 – 32%	44 – 37%	20 – 17%	18 – 15%

**Table 7.3.2 Views
from Administration**

	Strongly Agree	Agree	Neutral	Disagree
1	0	4 – 21%	5 – 26%	10 – 53%
2	7 – 37%	12 – 63%	0	0
3	3 – 16%	10 – 53%	6 – 31%	0
4	1 – 5%	9 – 47%	4 – 21%	5 – 26%
5	1 – 5%	5 – 26%	9 – 47%	4 – 21%

Table 7.3.3 Comparison of views

No	Administration	Wider marine community
1	Disagree	Disagree
2	Strongly agree / agree	Agree
3	Agree	Agree
4	<i>Agree / neutral</i>	<i>Neutral / disagree</i>
5	Neutral	Agree

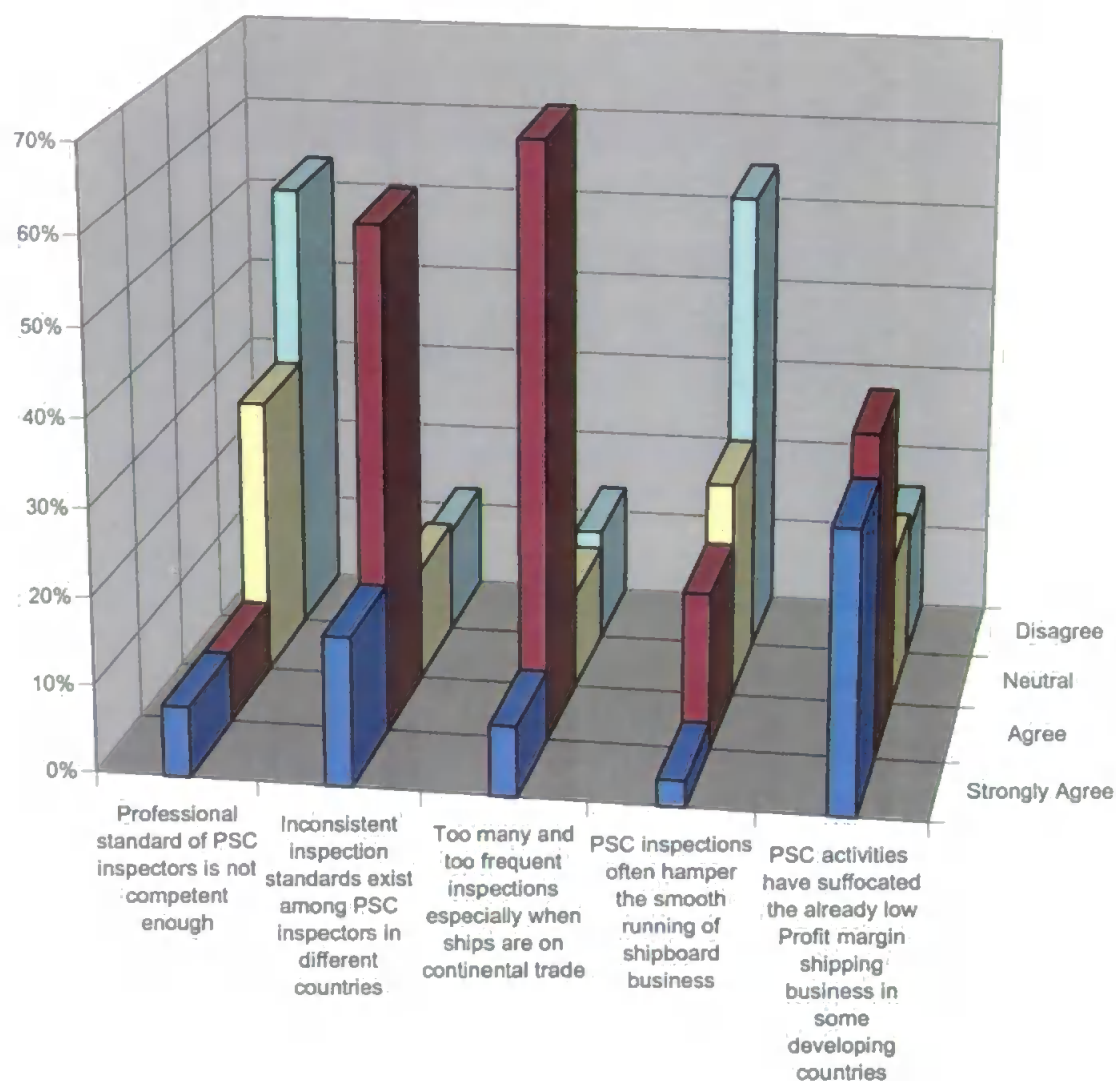
More surveyors than individuals in the wider marine community considered that there were inconsistencies in inspection standards among PSC inspectors in different countries. This finding is natural as government surveyors tends to be more technically involved in PSC than the marine community. They might be able to understand in detail with regard to inspection standard of the other countries.

The responses to question 1C4 are surprising. People in the marine community tend to disagree with the view that PSC often hampers the smooth running of the shipboard business. Conversely the Administration tends to believe that shipboard business was

hampered by PSC inspection. When PSC officers conduct the PSC inspection, they are conscious of a standing instruction under the Tokyo MOU guidelines that the ship being inspected must not be unduly delayed. The marine community might have considered that the PSC inspection has become higher in priority than the ship's schedule, in fact this is not the situation. If a PSC officer found that a ship would sail within two to three hours from the time of boarding, in accordance to the guideline of the MOU, he should not board this ship. It is really compliment to PSC officers that the wider marine community believes their actions do not hamper ship's business.

Those involved in ship operations have a closer connection with the realities of shipping economics than a government surveyors. This would account for the difference in responses to Question 1C5.

Chart 7.3 Chart Showing Response to Question 1C
(Views from wider marine community)



Referring to question IC1 of the questionnaire, only 16% of respondents thought the professional standards of PSC inspectors were inadequate, while more than half considered the inspectors are professionally competent. But when moving on to questions IC2 it is interesting to note that by over six to one respondents agreed inconsistent standards exist in different countries. This raises the question whether inconsistency is compatible with competence. From these findings it could be assumed that the general support shown for inspectors in question IC1 applies perhaps to Hong Kong, and does not

extend to respondents wider experience of PSC. Without deeper investigation there is no way of confirming this assumption, but the survey of opinion was taken mainly from local respondents and it is possible to assume that the response to question IC1 applies to Hong Kong PSC. It is generally known locally that the Marine Department of Hong Kong SAR has devoted a lot of resources and commitment to its participation in regional PSC activities. Unlike many other countries, particularly in the Asia Pacific region, all PSC officers in Hong Kong are dedicated full time to the task of PSC.

The response to question IC2 is perhaps unsurprising. Many of the respondents were from ship management circles where they should have some experiences of PSC inspections on their ships. In discussion with respondents from ship management companies the author was given examples of unjustified detention. These varied from incorrect application of the SOLAS Convention to misinterpretation of the Convention itself. A well known example was to demand installation of an hydrostatic release to the forward 6 men life raft (there is no such requirement in the SOLAS Convention). A similar misunderstanding was an inspector's false belief that there was a requirement for a fire detector in a manned machinery space.

Under the present system, the actions available to the management company of a detained vessel are limited, even if the ship is unreasonably detained. As given in Notice to Mariners a Hong Kong ship owner should inform the Flag State at the first instance when their ship has been detained, and provide Forms A & B to the Administration giving information on the detainable deficiencies that had been identified by the Port State. Experience has shown that some PSC detentions could be unreasonable, and if compliant is made in time by the Flag State the detention could be reverted.

From an Administration viewpoint there are identifiable reasons why inconsistent PSC inspection standards may exist in different countries. Not only is each inspector likely to have his personal view and judgment, each Port State tends to concentrate on different sections of the inspection requirement when establishing instructions for their inspectors. In some cases, due to tight working schedules, inspectors can only conduct spot checks on some incoming vessels, or even check only vessels in the target list.

Question IC3 sought to determine whether respondents thought there were too many and too frequent inspections, with particular reference to the coastal trade. 76% thought there were, while only 13% disagreed.. The response echoes a dilemma facing PSCOs. Many ships entering port have been inspected by other authorities within the preceding six months. The trend is getting worse as the MOU increases its target inspection rate. It has been agreed at a recent MOU Committee meeting that a ship should not be PSC inspected again if it had been inspected by other authority within the same MOU in the past 6 months, unless a clear ground is found. On the other hand there would be a target inspection rate for the PSCO and their authorities to meet, currently set at 15% of ships visiting their port(s) in Asia Pacific Region and 25% in Europe. Taking Hong Kong as an example a 15% target would mean 850 initial PSC inspections to be undertaken each year.

Identified during discussions with the respondents, and reflected in this survey, was that ship masters too frequently experience repeated inspections of their vessel during a six month period. Although in theory the master may raise the six months 'rule' to the PSCO, in the real situation little can be done by the master if the PSCO insists in carrying out the inspection. There have been complaints from the ship masters to the IMO on the issue of too frequent PSC inspections that could cause a lot of unnecessary interference to the

ship's operation. This is particularly true to some new buildings and to container ships that are constantly running on tight sailing schedules.

Question IC4 sought opinion on whether or not PSC inspections often hampered the smooth running of shipboard business. Intuitively one would think any additional in port activity would adversely impact on shipboard business, yet surprisingly more than half the respondents thought PSC did not. Perhaps 'often' was the key word in this question. That only one fifth of respondents thought such disruption did occur could indicate that, in general, good relationships exist between inspectors and ships' staff.

In asking whether PSC activities have suffocated the already low profit margin shipping business in some developing countries, Question IC5 was looking at wider implications, beyond the impact of the inspection itself. 69% thought such suffocation had taken place while only 15% disagreed.

In analyzing these findings it is understood that where ships are targeted they are inevitably subjected to what may seem 'frequent' inspection. This can lead to complaints from the ship's master that PSC inspections hamper the smooth running of shipboard business. But all non-Port State vessels are liable to be subject to Port State inspection whether targeted or not, while the vessels of the Port State are subject to inspection under their own Flag State requirements. The degree to which any inspection hampers the smooth running of the vessel is largely dependent on the condition of that vessel. Clearly well found and well-maintained vessels will be less hampered than vessels seen to be in poor condition. To this extent where ship masters, ship owners and ship managers have concerns they also have the solution in their own hands. It can often be seen that the

shipping companies in developing countries do have not sufficient capital to maintain quality shipping. They employ ships at low cost and run their business in marginal profit. In addition, the crew employed on board often possesses low professional standards further aggravating the situation.

Unconfirmed information from discussion with Tokyo MOU members revealed that a new targeting system is in the pipeline and is to be considered in the IMO Flag State Implementation (FSI) sub-committee under MSC. The new targeting system will use inspection scores to replace the physical number of ships inspected. The targeting percentage of each MOU would be based on inspection scores rather than the number of individual ships inspected. Scores would be allocated to each ship inspection on a basis of past PSC record, age, type and other relevant factors under a unified score allocation system. In future if the PSCO inspects a new built container ship which had no previous detention, such inspection may be allocated with a score less than one, say 0.5, whilst another PSCO inspecting an aged bulk carrier having a poor detention record may allocate the ship a score higher than one. This idea aims to encourage PSC authorities to concentrate their effort at the aged and ill maintained ships with a view to minimize any unnecessary interference to the new and well-maintained ships.

7.6.4 Strengths and Weaknesses of PSC Activities (Question ID)

Views from wider marine community

Table 7.4.1 is not reproduced as there were too few responses to this section of the questionnaire.

Fewer than ten responded to this section ID of the questionnaire. While no conclusions can be drawn from their comments, it is of interest that the following views were expressed:

The majority of the respondents to this section were from ship management sectors. Their responses indicated that the strengths of PSC directly relate to the capability to maintain the standard of shipping. They considered that the weaknesses of PSC fall on its inspectors, who may have inconsistent inspection standards and exercise individual discretion in detaining ships. There were also fears on the possibility of corruption.

In the area of commercial impact to the shipping of developing countries, although there was no direct evidence to prove the allegation, the respondents felt that PSC activities could cause suffocation of the already low profit margin shipping business in some developing countries. The future of PSC depends on relevant parties in regional MOUs and a need for a better co-ordination and harmonization (including IMO) were identified from this section along with that for a better appeal process.

Table 7.4.2 Views from the Administration

The following strengths and weaknesses were identified from the responses:

Strengths	No. of appearance
To get rid of substandard ships	10
Reduce marine accidents and to protect environment	2
Government surveyors are more severe and impartial	2
Improve the safety standard of ships	1
To provide a level playing field for those ports who believe in fair trade	1
PSC has a positive effect in reducing marine accident	1
Power of PSC to get rid of sub-standard	1
Persuade Flag State to maintain ship standard	1
Make sure Classification Society carry out their job properly	1
To persuade Flag States to maintain standard of their ships	1
To penalize the irresponsible shipowner/management	1

Weaknesses	No. of appearance
Inconsistent inspection standard exist among PSC inspectors in different countries	7
PSC inspection often hamper the smooth running of shipboard business	6
Impose costs to port	3
Suffocated the already low profit margin shipping business in developing countries	2
Professional standard of PSC inspectors is not competent enough	2
STCW 95	1
Carriage of dangerous goods	1
ISM Code	1
Key person may not be on board during inspection	1

Inspection not planned	1
To be used by none free trade countries to protect their own shipping industry such as local shipping companies and repair yards	1
Responsibility of Flag State dropped to Port State	1
Too many and too frequent PSC inspection especially when ships are engaged in continental trade	1
Possible to create corruption in some countries	1
Abuses PSC for some under-table reasons	1

Although there were fewer than ten responses from the wider marine community, there were indications that the strength on PSC was the maintaining of standard of ships. On the weakness side, inconsistency in standard of inspection and the possibility of corruption were the worries shared by the wider marine community.

At the Administration sector more than 50% of the respondents gave their opinions in this question. On the strength side, getting rid of substandard ships appeared to be a common opinion where most of the government surveyors considered. On the contrary inconsistency of inspection and the possibility of hampering the shipboard business during inspection were being identified as the weaknesses. The findings between the two sectors are found to be generally in line with each other.

7.6.5 Reasons for a Sub-Standard Ship (Question 1 E)

The questionnaire sought opinion on the reasons why a ship becomes sub-standard. The response is detailed in the tables below.

Table 7.5.1 Reasons for a Sub-Standard Ship (Question 1E)

(Views from wider marine community)

No	Reason	Agree	Disagree
1	The economic situation of the ship's Flag State	62 - 52%	58 - 48%
2	Severe competition in sea transport causing low freight rates	90 - 75%	30 - 25%
3	Poor market situation for sea transport as a whole	85 - 71%	35 - 29%
4	Poor performance of the ship management company	37 - 34%	73 - 66%
5	Ship type requiring extra attention and maintenance	75 - 63%	45 - 37%
6	The age of the ship causes vessel to become a "rust bucket"	73 - 61%	47 - 39%
7	The classification society used being disreputable	33 - 28%	87 - 72%

Table 7.5.2 Views from Administration

	Agree	Disagree
1	11 - 58%	8 - 42%
2	15 - 79%	4 - 21%
3	15 - 79%	4 - 21%
4	18 - 95%	1 - 5%
5	13 - 68%	6 - 32%
6	10 - 53%	9 - 47%
7	12 - 63%	7 - 37%

Table 7.5.3 Comparison of views

No	Administration	Wider marine community
1	Neutral	Neutral
2	Agree	Agree
3	Agree	Agree
4	<i>Agree</i>	<i>Disagree</i>
5	Agree	Agree
6	Neutral	Agree
7	<i>Agree</i>	<i>Disagree</i>

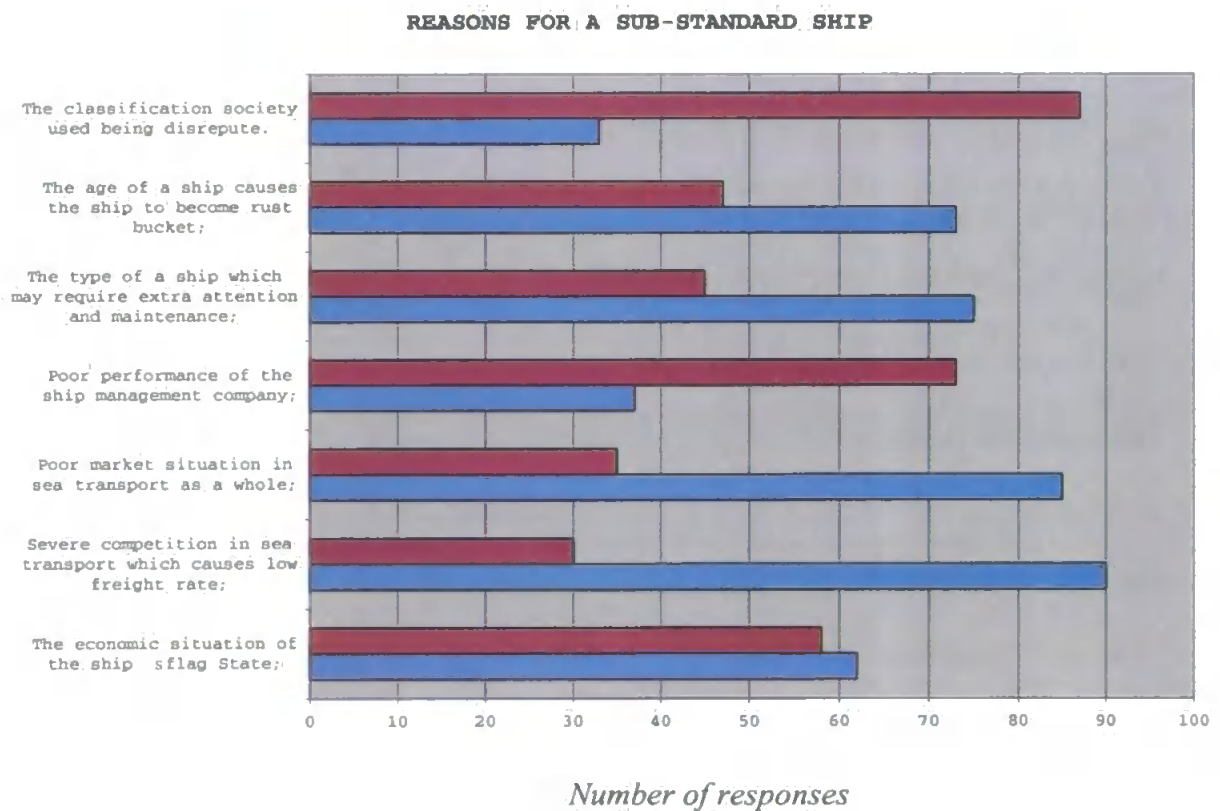
Strong difference in question 1E4 existed on whether the poor performance of the ship management company is one of the reasons for a sub-standard ship. Under the ISM system the ship management is directly responsible to the maintenance and operation of their ships. This is a general understanding among the Administration and naturally there is a 95% of respondent in this sector in favour of this view.

However the ship management staff might view differently. In discussing with some respondents in the marine community they opined that even the best support had been given to the ships, it might still become sub-standard if the ships crew did not operate correctly. It is not the intent of the author to comment whether such statement is correct or not, the survey, however does reflect there are difference of opinion in the two sectors with the performance of ship management companies - one might not seeing the mole in one's own eye.

In question 1E7 on choice of classification society was also an area of large difference of opinion identified in the survey. While the marine community does not consider that a

disreputable classification society would contribute to the forming of sub-standard ship, the Administration however considered it so. As discussed in earlier chapters that the role of classification society is important in maintaining the standard of a ship. However due to the commercial nature of the classification society it would not be surprise to see that the classification society would, in some occasions compromise on the standard with the business. In the real world classification societies are competing fiercely for customers. Since the Administration is closely in touch with the classification society, the respondents may be able to understand more than the wider marine community the in depth situation.

Chart 7.4 Bar Chart Showing Reasons for a Sub-Standard Ship (Views from wider marine community)



There are many reasons for a sub-standard ship to exist. Section IE tried to identify these reasons and divided them into hardware of the ships itself, software part on the shore management company and the Flag State and the various constraints in the macro economical shipping market.

There are many reasons for a sub-standard ship to exist. Section IE tried to identify these reasons and divided them into 'hardware', being the ships themselves, 'software', in the form of shore management and the Flag State, and the various constraints in the macro economic shipping market.

Responding to question IE4 on the poor performance of the ship management company, 66% disagreed with 34% agreed, and to question IE7 on the disreputable classification society being used, 72% disagreed with only 28% agreed that these were factors. It is worth mentioning that only one in three thought poor management ashore was a key factor. It gives rise to the question whether ships' staff would agree with that assessment, since the respondents of the questionnaire had not taken ship staff into account. The author opined that those ashore would naturally wish to throw responsibility onto factors like 'the world situation' such factors are seemingly beyond their control. They would be the last to follow the lead of OPEC and keep prices up by reducing supply. Over supply of shipping is an element in the existence of sub-standard ships, and who but owners and managers is responsible for that? It is of interest, and concern, that more than one in four thought disreputable classification societies are a contributing factor.

It appears that these opinions might not be in line with the general Administration view on sub-standard shipping with reference to management companies and classification

societies. Apart from traditional IMO Conventions in regulating the standard of shipping, the ISM, in force from 1 July 1998, was specifically aimed at the regulation of shore management companies. It would not be reasonable, when considering reasons for sub-standard shipping, not to include poor ship management staff. But the purpose of this study is to assess the effectiveness of PSC, not the root causes of sub-standard shipping, and apart from observing on this fact, it is not the subject of this study.

Questions IE2 and IE3 addressed as possible reasons for sub-standard shipping severe competition in sea transport and poor market situation for sea transport as a whole. An average of 3 to 1 agreed that these were factors. It could be argued that one of the reasons for a ship to become sub-standard was the general poor world economic situation, which had resulted severe competition in sea transport with low freight rate. The poor market situation in sea transport as a whole also encouraged the shipping companies to hire sub-standard ships with lower cost and run their business at low profit margin, which directly linked to the cause of a sub-standard shipping.

Regarding condition and type of vessel as in questions IE5 and IE6 - ship type requiring extra attention and maintenance and the age of the ship are reasons for sub-standard shipping, there was a 2 to 1 in agreement with these assumption. It is interest to see that there were still 39% of the respondents did not agree with the statements.

7.7 Response and Analysis – Port State Control and Its Implications on Safety

7.7.1 Sub-Standard Ships (Question IIA)

Section IIA of the questionnaire sought to determine respondents' views on the factors leading to a ship becoming sub-standard. The results are shown in table 7.9 below.

Table 7.6.1 Factors in determination of sub-standard shipping (question IIA)

	Factor	Very Important	Important	Neutral	Not Important
1	Condition of ship and equipment	61-51%	42 – 35%	10 – 8%	7 – 6%
2	Living & sanitation conditions on board	13 – 12%	22 – 18%	30 – 25%	55 – 46%
3	Demonstration of crew competence	32 – 27%	53 – 44%	28 – 23%	7 – 6%
4	Combination of multi-national crew	15 – 13%	20 – 17%	43 – 36%	42 – 35%
5	Flag of ship having high detention record	20 – 17%	22 – 18%	30 – 25%	48 – 40%

Table 7.6.2 Views from Administration

	Very Important	Important	Neutral	Not Important
1	15 – 79%	4 – 21%	0	0
2	4 – 21%	15 – 79%	0	0
3	11 – 58%	7 – 37%	1 – 5%	0
4	0	5 – 26%	9 – 47%	5 – 26%
5	4 – 21%	13 – 68%	2 – 10%	0

Table 7.6.3 Comparison of views

No	Administration	Wider marine community
1	Very important / important	Very important / important
2	<i>Very important / important</i>	<i>Neutral / not important</i>
3	Very important / important	Important
4	Neutral	Neutral
5	<i>Important</i>	<i>Neutral</i>

The views between the Administration and the wider marine community appeared to have diverged in question IIA2 in considering whether living and sanitation condition onboard should be an important factor of a sub-standard ship. A lot more views from the Administration opined that the sanitation condition onboard should be an important factor whilst 46% of the wider marine community considered it differently.

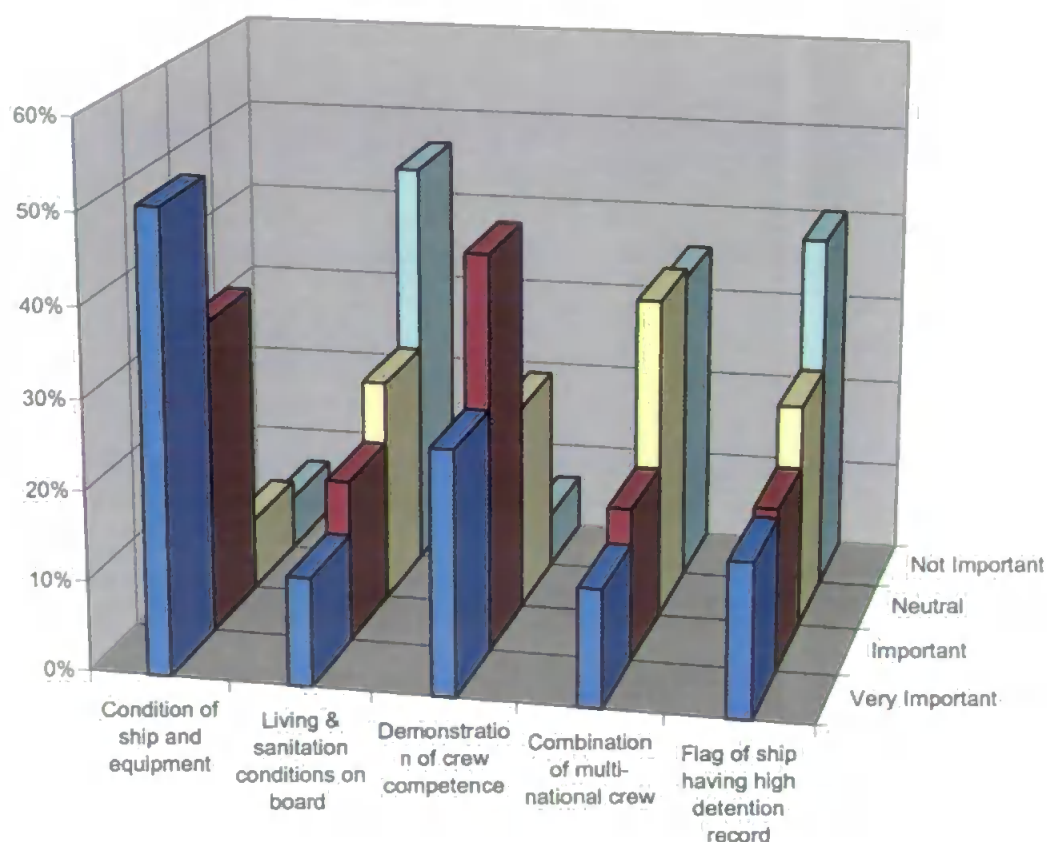
It can be understood that living and sanitation condition do not have a direct impact to the safety of ship. However the International Labour Organisation Conventions, which ships have to comply with, do require the living and sanitation standard of the ship should be brought up to an acceptable standard. Moreover the living and sanitation onboard could reflect on the comfort and hygiene condition which directly affects the crew's resting condition. Fitness and the fatigue issues might then follow. This could be the reason why there were a number of opinions from the Administration considered that this should be an important factor.

Question IIA5 has also indicated some difference of opinions between the two sectors. Opinions varied in the wider marine community as to whether the flag of ships with a poor record should be considered as an important factor. 35% of respondents confirmed this agreement while 40% thought that it should not. In the Administration side, however had an overwhelming agreement on the issue, 89% of government surveyors considered the flag of ships with poor record is an important factor in determining a sub-standard ships.

In actual experience, a PSC officer could learn some ideas about the condition of a ship he is about to inspect by referring to the flag record which the ship is flying. The chance of finding serious deficiencies on ship with poor flag record would be much higher than other ships. This on hand experiences of the PSC inspection perhaps, caused the overwhelming responses to this question by the respondents in the Administration sector.

Chart 7.5 Chart Showing Response to Question IIA

(View from Wider marine community)



Overwhelmingly respondents thought that the poor condition of a ship and her equipment may indicate a sub-standard vessel.

A sub-standard ship is usually a ship in sub-standard condition. Accidents could happen due to ships' poor condition and equipment failure. However, the relationship between conditions of the ship and accidents can be explained in the followings:

Firstly, under the same unfavourable conditions - such as extreme weather condition, human errors during operation, etc. – ships of poor condition are much more likely to run into accidents in adverse conditions than those when in favourite conditions.

Secondly, when an accident does happen to a ship, an ill maintained ship could result in greater losses of life and property, and cause greater damage to the environment than a ship which is in good condition.

As the purpose of identifying sub-standard shipping is to reduce marine accidents and to ensure safety and environmental protection, it would be reasonable to see that condition of the ship and her equipment should be considered with highest priority.

Other than condition of the ship itself, the majority of respondents viewed crew competence as an important factor. This conforms to the widely agreed opinion – which has been stated in Chapter 3, that most of maritime casualties are caused or aggravated by human error. Most human errors resulted from the ship's crew being not competent in their onboard duties. In recent years, modern technologies have been widely employed in shipbuilding and on board operation. Modern ships with advanced equipment had no doubt helped the industry in making ships safer and also brought a reduction in manpower. However if the crews are not properly trained they could make operational mistakes that could lead to an accident despite the vessel being in good condition and well equipped. The findings of the questionnaire regarding crew competence indicated that a substandard crew could lead to the ship becoming sub-standard.

That the living and sanitation conditions on board depend in part on the culture and life style of the ship's crew, could lead to the respondents being less certain that whether this should be a factor in determining a sub-standard vessel. Indeed most respondents thought this factor unimportant.

International regulations regarding living and sanitation conditions are mainly addressed in the ILO conventions. Compared with IMO, ILO concerns itself much more with factors relating to humanism and crew welfare. Although it is agreed by the industry that living conditions onboard do affect crew's standard of living thus could be one of the factors that lead to human error, these effects vary greatly from person to person, and have no readily identifiable connection with accidents.

However, nearly one third of the respondents opined that this factor is important in determining a sub-standard ship. The reason could be that living and sanitation conditions can reflect vessel's overall standard to a certain extent. It would be rare to find a ship which is in sub-standard condition maintaining a high standard of living and sanitation condition at the same time.

It is a surprise to see that feelings were fairly evenly divided on whether multi-nationalism amongst crew was also considered as a factor. Multi-nationals could also mean multi-lingual, and if this could lead to communication problems, ship and crew safety may be at risk in emergency situations. This is a common problem that has been identified among ships with multi-national crew. Many senior mariners will remember situations from their early experiences, when communication between officers and crew of different nationalities could only be relayed by petty officers as interpreters. This can explain why one third of the respondents regarded multi-nationalism as a factor when determine substandard ships.

In recent years the multi-national crew system has been widely adopted by more and more ship owners/operators with high management standards. Shipping companies from some

of the traditional marine countries such as Norway and Germany have also started to recruit crew members from other countries to work together with native officers. As a result, some of these multi-national crewmembers have had the opportunity of being trained to high international standards, gaining in the process good experience with colleagues from different countries. Nowadays, it would not be difficult to find a high standard ship that is manned by multi-national crew. From this point of view, multi-national crew does not necessarily mean sub-standard vessel, this suggestion is supported by another one third of the respondents.

7.7.2 Ship Targeting (Question II B)

To improve the effectiveness of Port State Control, targeting and points systems are often used by Port States when selecting ships for inspection. Section IIB of the questionnaire asked respondents to assess the importance of some of the attributes used in the targeting process. The responses are given in tables below.

Table 7.7.1 Attributes Used in PSC Targeting (Question IIB)

(Views from wider marine community)

No	Attribute	Very Important	Important	Neutral	Not Important
1	Age of ship	42 – 35%	38 – 32%	27 – 23%	13 – 11%
2	Flag of ship	27 – 23%	29 – 24%	44 – 37%	20 – 17%
3	Ship type (container, tanker, passenger etc)	28 – 23%	28 – 23%	46 – 38%	20 – 16%
4	Ship size	26 – 23%	30 – 27%	48 – 43%	8 – 7%
5	Nationality of crew	20 – 17%	50 – 42%	30 – 25%	20 – 17%
6	Classification society used	20 – 17%	28 – 23%	30 – 25%	42 – 35%

Table 7.7.2 Views from Administration

	Very Important	Important	Neutral	Not Important
1	9 – 47%	9 – 47%	1 – 5%	0
2	3 – 16%	15 – 79%	1 – 5%	0
3	2 – 10%	10 – 53%	6 – 32%	1 – 5%
4	0	3 – 16%	9 – 47%	7 – 37%
5	0	10 – 53%	7 – 37%	2 – 10%
6	0	13 – 68%	6 – 32%	0

Table 7.7.3 Comparison of views

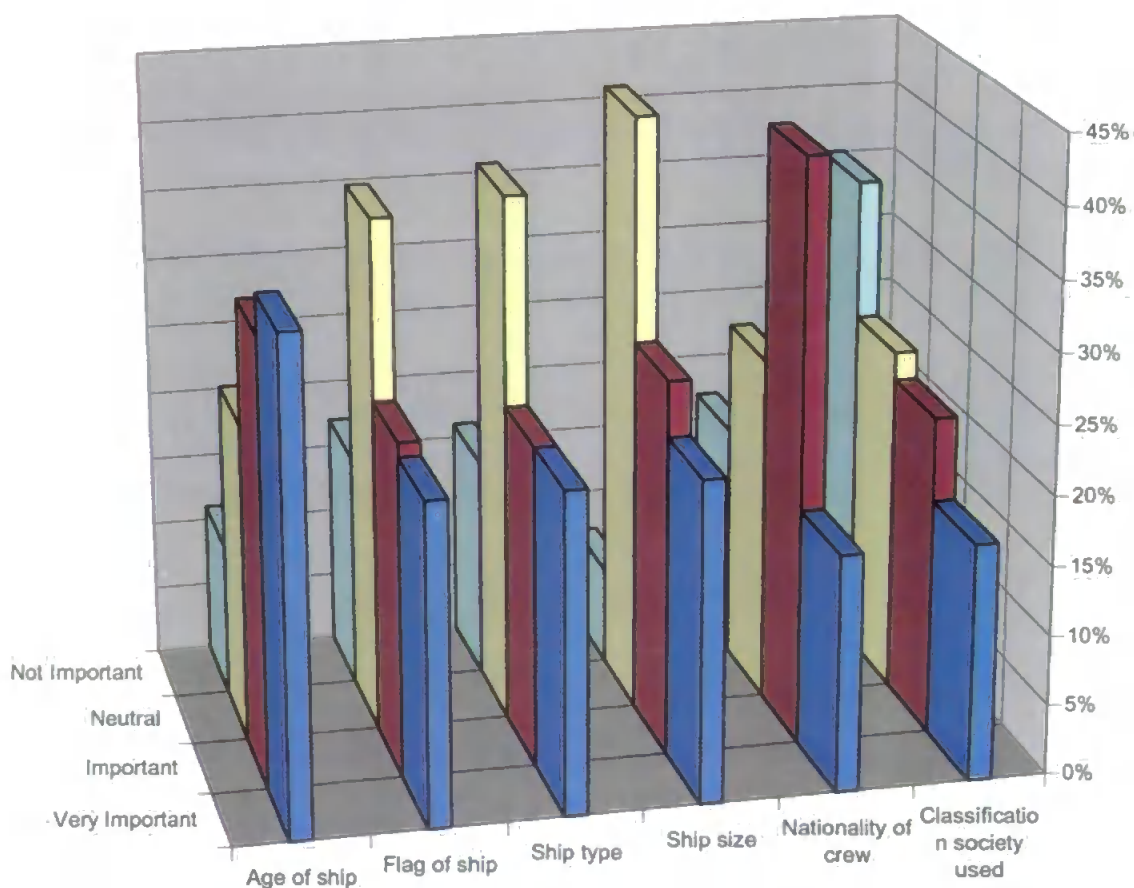
No	Administration	Wider marine community
1	Very important / important	Very important / important
2	Important	Important / neutral
3	Important / neutral	Important / neutral
4	<i>Neutral / not important</i>	<i>Important / neutral</i>
5	Important / neutral	Important / neutral
6	Important / neutral	Neutral

Responding to question IIB4 more people in the wider marine community considered the size of ship should be an attribute used in PSC targeting than respondents in the Administration sector, 47% of whom thought that the idea should be neutral. With automation and advances in marine technology, operating a large modern ship today does not always prove more difficult than operating a ship of conventional size. On the contrary PSC detention records reveal a large portion of ships being detained were of

conventional sizes.

In question IIB6, more views in the Administration sector considered that the classification society used should be a factor used in ship targeting. This agrees with the earlier discussion on question IE7, where a general difference of opinion on the level of significance of classification societies existed between the two sectors.

Chart 7.6 Chart Showing Response to Question IIB
(View from Wider marine community)



Respondents accepted the need for measures to target vessels for PSC inspection by a ratio of 3 to 1. The various targeting attributes suggested in the questionnaire were thought to be important.

The respondents considered the ship's age to be the most important indicator. Two third of the respondents shared this viewpoint.

These co-insides with the result of casualty analysis in Chapter 6, which showed that ships

20 years old or more accounted for 69% of all total losses over the year of 2000 (Chapter 6.6). Furthermore, various international regulations regarding safety and environmental protection have been implemented, all containing clauses of either exemption or longer transitional periods for older ships. As a result, while facing higher risk of causing accidents, older ships have been regulated under safety standard which are usually lower than those of newer ships.

The respondents seem well aware of this, and believed that aged ships should be targeted for PSC inspections with highest priority in order to ensure safety.

The second import attribute identified by the respondents turned out to be the nationality of crew. There were 59% of the respondents opined that it to be important when setting targets.

Crews carry out the daily operation and maintenance work onboard ships. Their abilities and attitudes are critical factors in ships' safety. It may be correct, in this case, to judge with prejudice whether crews of certain nationalities are better or worse than others, but different nationalities may mean different background and culture. For example: crews from traditional maritime nations may have more historic attachment about navigational safety & maritime culture, whilst crews from most of non-English speaking countries are often found to have reservation with external communication in languages.

As for ship owners/operators, crew from different nationalities would also mean different manning costs and expenses. In an industry where cutting cost is inevitable, the management of some sub-standard enterprises tends to choose crews in accordance to the

salary level as first priority instead of their competency. To a certain extent, the nationality of ship's crew may reflect on how much the owner/operator intends to invest in the standard of ship's safety.

It was felt that the respondents realized that ship's crews of developing nations might not have proper training, their knowledge and experience might not be adequate in ship board operation or to maintain the vessel in good condition, yet they are employed in manning an appreciable amount of shipping tonnage.

Ship size, ship's flag, and ship type, as targeting attributes, were all scored in similar fashion, they are being considered as important by about half the respondents.

Why is ship size important? Firstly, bigger ships are more difficult to manoeuvre and need more resources for maintenance. Secondly, in the event of marine casualty, bigger ships could bring more damage to property and the environment. It follows that most international maritime regulations in marine safety and environment protection have set different criteria for ships of different sizes. This common understanding may explain why the ship size was rated a slightly more important factor than flag or type.

The same applies to ship type. Ships of different kinds may pose different risks, and some ships are always considered to be more dangerous than the others. For example: oil carriers and chemical tankers may cause more pollution and severe consequence in case of an accident. Stricter regulations have been set up for these ship types.

As for the flag of ship, it would be the Flag States that carry out ship registrations. Under

the United Nation Law of the Sea they should be responsible for maintaining their ships to a proper standard. The performance of the Flag State has a direct affect on the standard of their ships. The respondents considered that the flag of a ship might reflect the standard of the ship, and should be regarded as an important factor for targeting.

There are many FOC ships in the merchant fleet today and the relationship between FOC Flag States and their vessels can be sometimes quite vague. However for today's FOC shipping it can be seen that the condition of the FOC ship often not depends on the flag Administration but depend on their operator. It is also noted that the condition of ships flying the same flag may vary to a large extent, their differences are dependent on their operators.

With regard to classification society only 40% of the respondents agreed that this should be an important factor for targeting, while 35% disagreed – the highest disagreement rating among the 6 attributes. As discussed in paragraph 6.5.4, classification society figured last in this order of precedence accords with the majority view, that the classification society being used was disreputable was not deemed to be a reason for a ship becoming sub-standard.

On the question of targeting, however, respondents were still marginally in favor of the classification society being used being a factor in targeting. It can be seen that most of the responses opined that all classification societies are almost equally qualified. If the elements on classification societies are to be targeted for PSC inspection, under such assumption it would be difficult to select one.

However, in the real world there might be some classification societies which lowered their standard in ship survey in order to compete for customers. Those respondents who agreed to target classification societies might believe that by such targeting it could motivate classification societies to maintain their standards.

7.7.3 Punitive Measures (Question IIC)

Section IIC of the questionnaire sought to determine, from a list provided, what measures should be taken against a vessel found by PSC inspection to have serious deficiencies. The results are given in Table 7.13 below.

Table 7.8.1 Punitive measures against ships having serious defects (Question IIC)
(Views from wider marine community)

No	Measure	Agree	Disagree
1	The Flag State of the ship should bear the entire cost of inspection	88- 73%	32 – 27%
2	Ships under the same management company should be banned from the port	42- 35%	78 – 65%
3	Allocate and publish demerits to classification society and Flag State	40- 33%	80 – 67%
4	Inform immediately ship owner's underwriters and P&I Club	83- 69%	37 – 31%
5	Ship owner should bear entire cost of inspection	90- 82%	20 – 18%

Table 7.8.2 Views from Administration

	Agree	Disagree
1	6 – 32%	13 – 68%
2	4 – 21%	15 – 79%
3	18 – 95%	1 – 5%
4	14 – 74%	5 – 26%
5	14 – 74%	5 – 26%

Table 7.8.3 Comparison of views

No	Administration	Wider marine community
1	<i>Disagree</i>	<i>Agree</i>
2	Disagree	Disagree
3	<i>Agree</i>	<i>Disagree</i>
4	Agree	Agree
5	Agree	Agree

Difference of views existed in question IIC1 between the two sectors as to whether the Flag State of the ship should bear the entire cost of the inspection. 73% of the wider marine community considered that the Flag State should bear the cost. In earlier discussion it has been highlighted that the Flag State of the ship should have the prime responsibility in the maintenance of standard to ships flying their flag. The wider marine community opined that if the ships flying a flag were found to be a problem in other port, naturally the Flag State should retain the most of the responsibility, including the cost incurred. In fact there are technical difficulties for this direct responsible concept because there are ship operators who should be more responsible to the maintenance of standard to their ships. However the author opined that the principle of charging the Flag State could

still be feasible subject to acceptance of agreement by the Flag States concerned, again this would be a difficult process to implement.

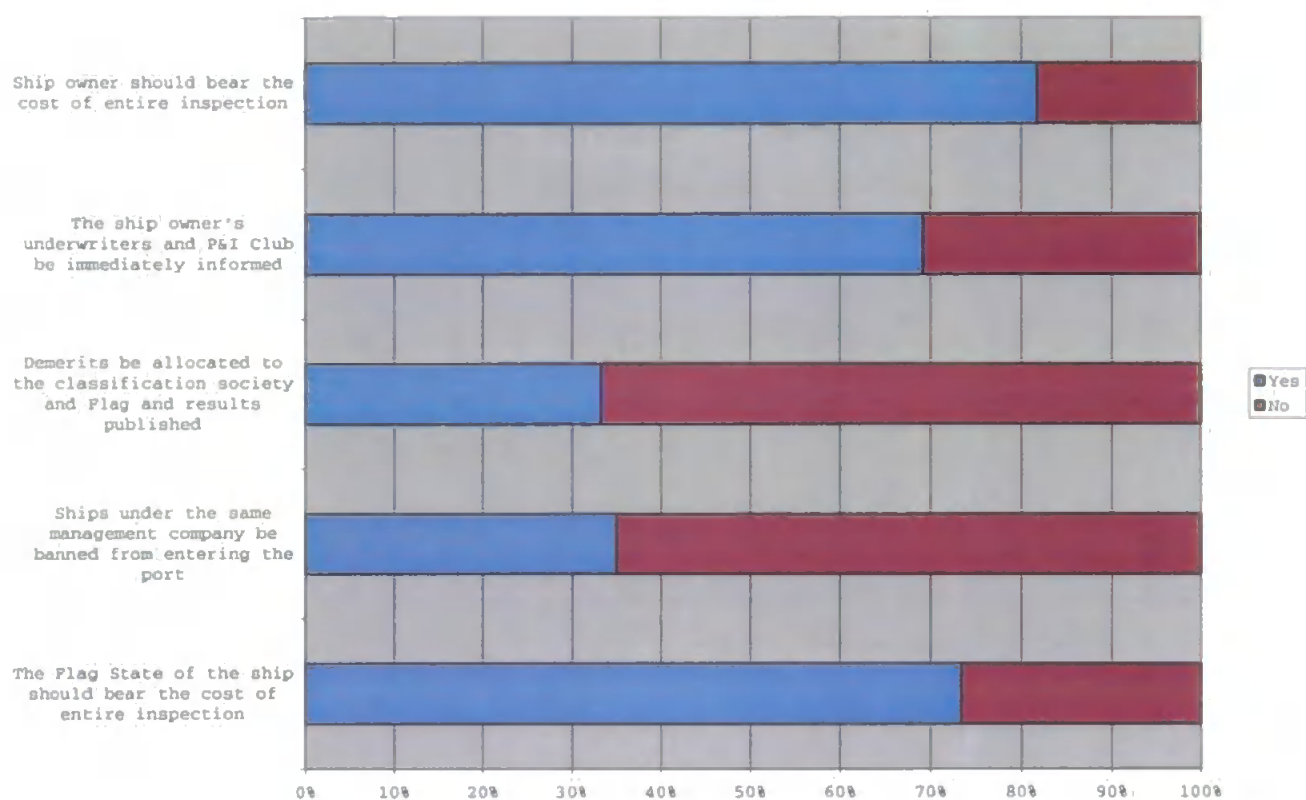
Difference of opinion once again arose in the area of classification society at question IIC3, where the Administration sector overwhelmingly supported the publishing of demerits to classification society and Flag State. On the contrary 67% of respondent from the wider marine community did not agree with this suggestion. It is understood from the administrative point of view such punitive measure would take a direct threat to the business reputation of the classification society and Flag State (particularly with FOC) concerned. In fact the punitive measure has been in force for over three years since it was introduced in the MOU regions. The author discussed with respondents in the marine community their reasons for not supporting this measure and replies varied. In general people in the marine community considered that it might not be a good practice to nail down a particular partner from a sense of business in the long run.

Chart 7.7 Bar Chart Showing Response to Question IIC

(View from wider marine community)

Percentage of Response

PUNITIVE MEASURES



These measures were identified as a result of the earlier unstructured interviews (para 7.2).

It is worth noting that the measures “The Flag State should bear the entire cost of inspection” and “Ship owner should bear the cost of entire inspection” were overwhelmingly endorsed by the respondents.

Most respondents considered that the Flag State should be responsible for the condition of ships flying its flag at all times. It is noted that 73% of respondents agreed with the first suggestion. How, if at all, this could be made to work in practice is beyond the scope of

this study, but the responses are indicative of the feelings of the Hong Kong maritime community towards the sub-standard shipping.

The objective of PSC is to improve vessel standards and thus enhance safety and environment protection. It is of the utmost importance that remedial measures should be taken once a ship is found to be sub-standard during PSC inspections. This should apply not only the to ship found question, but also to other ships possibly carrying similar defects. From the response of the questionnaire we can safely arrive at a consensus view that the best way to accomplish this goal is through actions taken by the Flag States. To ensure the Flag State takes serious actions, the respondents opined that to let them bear the cost of entire inspection of their ships in question would be much more effective then just informing them ship's name or by other existing means. Of course this cost would relate back to the shipowners or operator through a mechanism set up by the Flag State.

Similar responsibilities also lie on ship owners. Actually, they play the key role in maintaining ships in proper standard. It is also noted that 82% of respondents thought the ship owner should bear the full cost of inspection.

In Hong Kong, ship owners are required to pay the cost of re-inspection for a ship with serious deficiencies. From the general view obtained from interviews with the respondents, it appears this practice is widely accepted by the respondents. This assumption is further supported with a response of 82% in agreement that the ship owner should even bear the entire cost of inspection. Poor condition of ships is usually caused by ship owners not providing adequate resources and support for their ships. As a punitive measure, most respondents considered that they should also pay the full cost of PSC

inspections.

The respondents were 2 to 1 in favor of the ship's underwriters and P&I club being informed when serious deficiencies are found. The role played by underwriters and P&I club in relation to sub-standard ships is both proactive and passive. By setting stricter insurance clauses, they may put pressure onto ship owners to improve the ship's standard. On the other hand, underwriters and P&I clubs already carry some burden from sub-standard shipping by facing higher risks of accidents. The respondents definitely think that getting them involved in PSC inspections by providing negative information on ships they insure would be helpful in maintaining ship's standards and an incentive for them to increase the insurance premium.

Each of the above 3 measures is supported by more than two thirds of the respondents. It is obvious that if Flag States pay inspection costs for their ships, the costs could be transferred to ship owners in one way or another by the authorities. As for underwriters and P&I clubs, termination of contract or increasing of the premium would possibly be considered when negative PSC reports regarding their insured ships is received. As a result, Flag States, underwriters and P&I club would put pressure onto ship owners thereby increasing their running costs. This will in turn, drive the ship owners to improve their safety standard onboard.

With only 1 in 3 of the respondents favouring banning ships under the same management company from the port, the full implications of such action are not supported by most of the respondent. Banning ships would lead to certain consequent actions such as 'what would be the appeal process?' 'Would this proliferate the formation of single ship

management companies?’ These questions can be dragged on and on but again they are beyond the scope of this study.

Similarly, respondents were 2 to 1 against published demerits being attached to the classification society and Flag State. This may show a bias away from publicity towards a closed system. To most of the respondents, the responsibility of Flag State and classification society warranted indirect rather than overt action.

The questionnaire invited respondents to suggest any other measures they thought appropriate. No specific suggestions were received, which could indicate that the respondents considered the measures listed in the questionnaire were adequate.

7.7.4 Flags of Convenience (Question II D&E)

The questionnaire asked whether targeting should be confined to ships flying flags of convenience. Despite the obvious difficulties in reaching some common agreement on which flags would qualify as being of ‘convenience’, 57% of those respondents thought targeting should be so confined. The questionnaire then sought to determine reasons why the 57% equate flags of convenience to sub-standard shipping. The responses are recorded in Table 7.15 below.

With benefit of hindsight it is regretted that the 43% who were against such limited targeting were not asked why they rejected the suggestion. The need to do this was overlooked in the construction of the questionnaire, and not identified during the trialing, which was mainly aimed at avoiding ambiguity. Had the question been asked the arguments for and against, this issue would have been better understood. As stated in

previous chapters, ships from some of the developing nations flying their national flag also have a high detention rate. On the other hand, as increasing number of the ship operators have chosen to register their ships with FOC, today it would not be difficult to find high standard ships flying FOC flag. These findings could be the reasons suggesting not to limit ship targeting to FOC ships.

Table 7.9.1 Flag of Convenience = Sub-Standard Shipping

(View from Wider marine community)

No	Reason	Agree	Disagree
1	Ships flying FoC are more prone to marine accident	51 – 75%	12 – 25%
2	Administrations of FoC countries less capable of ‘policing’ their ships	33 – 49%	35 – 51%
3	FoC ships denote shipping of a lower quality	56 – 82%	12 – 18%
4	Crews of FoC ships are inadequately trained	62 – 91%	6 – 9%
5	Serious marine accidents usually involve FoC ships	45 – 66%	23 – 34%

Views from Administration

The questionnaire asked whether targeting should be confined to ships flying flags of convenience. 95%, representing 18 respondents opined that that flag targeting should not be confined to flag of convenience, only 1 respondent held different view. Due to the few minority, the view of this 5% has not been brought up.

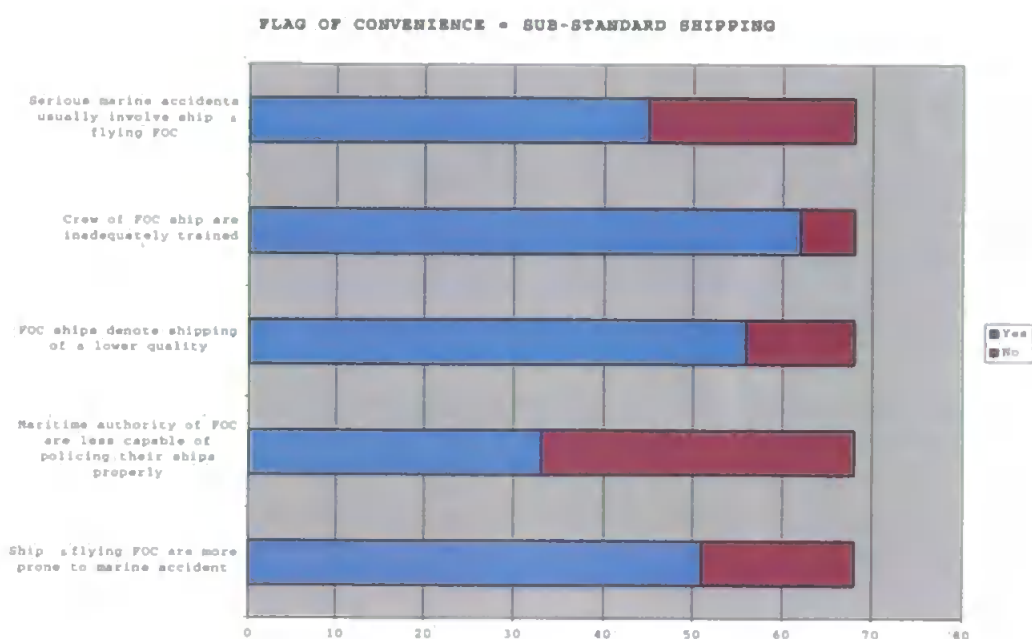
There is an overwhelming disagreement in the Administration sector in confining PSC target to FOC ships. In fact the statistic in chapter 6 indicated that the trend of substandard

shipping has changed from the notorious FOC flag ships to the ships of developing maritime nation. The performance of FOC flag ships could be seen in earlier discussion that it had been improved in the recent years, instead the quality of some FOC flag ships now vary upon on the record of the operators. This could be the reason of not suggesting target the FOC ship.

Slightly more than half of the wider marine community or 57% of its respondents considered the opposite. The reason could be because the traditional notorious nature of FOC ships still dominated most of the view of the marine community in relating sub-standard shipping to that of the FOC.

Chart 7.8 Bar Chart – Reasons Why FoC Equates to Sub-Standard Shipping

(View from Wider marine community) (Note: “Respondents” below means “Respondents who think targeting should be confined to ships flying flag of convenience”.)



An overwhelming number of respondents (91%), considered inadequate training of crews as a reason to support FOC targeting. Their concern is quite understandable. Training and certification are roles mainly undertaken by the respective national authorities of the crew. Since crews commonly come from nations other than the FOC state it is virtually impossible for FOC nations to arrange effectively the necessary training, and control the crews working onboard their ships. Although most FOC certificates are issued in accordance with the crew's national license, the processing procedures available to the FOC state to ensure the crew's competence are far from perfect. In this respect, most of the respondents accept that FOC ships should be targeted by PSC due to the possibility that there is a sub-standard crew onboard.

82% of the respondents thought FOC denoted shipping of a lower quality. Due to their relaxed registration requirements, FOC states have always been attractive 'homes' for ships in relatively sub-standard condition. Poor condition of ships, together with incompetent crews, is thought to equate to low quality shipping.

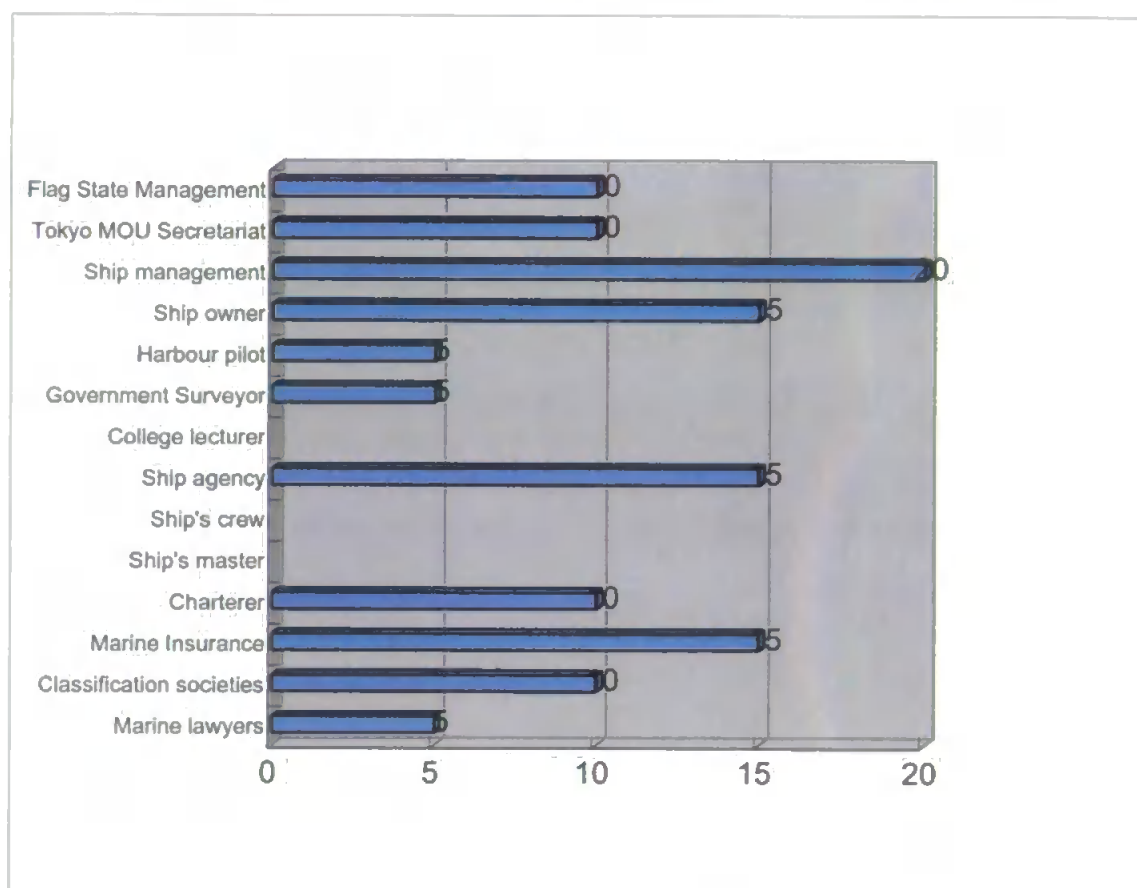
Around two thirds of the respondents agreed that ship's flying FOC are more prone to marine accident, and are usually involved in serious marine accidents. This is fully supported by the analysis in Chapter 6.6. The analysis shows that in the year 2000, Panama, Saint Vincent, and Cyprus were rated the first three of ships lost by tonnage.

Nearly half of the respondents agree to target FOC ships because FOC maritime authorities often lack the capability of policing their ships properly. When neither the ship owner/operator nor the ship's crew is from the FOC state, it is nearly impossible for the FOC authorities to take any administrative action towards the ships under their registration. However, in recent years, improvement in FOC State control has been observed. Some have increased their direct involvement with ships under their flag, by appointing representatives, and authorizing classification societies to act on their behalf, in countries across the world. Some now have proactive attitudes towards reports received from PSC. While these developments have more or less elevated the status of FOC as a whole, they have yet to fully meet the requirements and expectations of the industry.

7.8 Background information of respondents (wider marine community)

The analysis for the above questionnaires is based on the result of 120 respondents who have completed the questions. Their numbers and nature of business are listed in Chart 7.9.

Chart 7.9 Bar Chart – Numbers of Respondents and Their Nature of Business



Potential respondents across the maritime field were targeted, in order to obtain a wide range of views and opinion, representative, as far as possible, of the many local maritime interests. While it was impossible to effect any form of control on who would and who would not respond, in the event a reasonably fair representation was achieved.

Respondents from ship management, ship owners, ship charterers and shipping agencies comprised 50% of the sample. These respondents are directly involved in the operation of

shipping, rather than ancillary services, and would have encountered the most direct impact from PSC activities. 29% of the respondents were from the shipping services sector, including pilots, marine insurers, marine lawyers and classification societies. The remaining 21% were representative of Administrations, in the form of Port or Flag States, or the Tokyo MOU Secretariat.

It is with regret that the sample includes no representatives from ship masters and crews. While on many occasions the author has boarded ships as a PSC inspector, the relationship between inspector and ship's crew is essentially formal. The possibility of response being biased by the outcome of the inspection was recognized, and after discussion with peers in the industry it was decided to omit the shipboard sector from the questionnaire element of the study.

7.9 Background Information of Respondents (Administration)

All surveyors in the Marine Department of Hong Kong SAR were potential respondents irrespective of whether they were working as Port State Control inspectors or not. The reason was because periodical transferal policy in the Department had caused surveyors to work across different areas, changing every 2 to 3 years. A number of surveyors in the Department have dealt with PSC matters to some extents over the past ten years. However in the actual situation there are 7 surveyors now working in the Port State Control section including the head of section and they have most front line experience including the opportunity to participate in various activities held within the Tokyo MOU. Under normal circumstances one could expect some differences of opinion relating to the Port State Control inspection policy in the Department or within the Tokyo MOU. It has been noted that all 7 PSC surveyors responded to the questionnaire for this survey.

Like other marine surveying professionals, surveyors in Marine Department are a mix of three maritime professions. They are naval architects, marine engineers and master mariners. Out of the 19 returned questionnaires there were 5 master mariners, 11 engineers and 3 naval architects, among the respondents there were 4 principle surveyors 6 senior surveyors and 9 base grade surveyors. This represented a full coverage of various marine professionals within the Administration and this coverage is considered to have fulfilled the objective of this survey.

7.10 Summary

In order to elicit the overall views and opinions regarding various aspects of PSC activities, the author carried out a survey among marine industry experts. The survey was carried out by the respondents by completing a questionnaire designed by the author. The questionnaire covered a wide range of PSC activities, and generated different opinions from which the respondents could compare and choose. Respondents were targeted to represent non-biased opinion across as many fields of the industry as possible.

Questionnaires were returned from 120 respondents. A detailed analysis providing the wider views of the industry has been carried out. The analysis shows that the majority of respondents supported the goal of PSC in eliminating sub-standard ships, and agreed with most of the PSC activities presently being carried out. These views are highlighted as follows:

- .1 PSC has played an active thus important role in improving ships conditions and reducing marine casualties;

- .2 PSC should put more pressure to Flag States to ensure that they take effective actions to control their ships;
- .3 Notwithstanding the harsh market situations, ship owners/operators should take full responsible to improve the condition and maintain the standards of their ships;
- .4 To enhance the effectiveness of the port safety, PSC should set up a target and point system to select the ship's for inspection, concentrating on the age of the ship and the nationality of ship's crews;
- .5 Crew's competency has drawn greater attentions than expected, while prejudice against FOC has given way to more reasonable judgment.

Respondents from the Administration sector show a proactive attitude towards implementing PSC activities, while those from shipping business runners seem to have more concerns, especially in the aspects relating to their running costs. Classification societies and marine underwriters, who need both commercial support from business runners and proper standards to survive the competitions, also welcome most PSC activities.

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A final conclusion drawn from the analysis is that the concept of PSC has been widely accepted by the industry, and expectations are there that PSC will assist in achieving the goal of "Safer Ship, Cleaner Sea".

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CHAPTER EIGHT

COST AND EFFECTIVENESS OF PORT STATE CONTROL

8.1 Views Of The Industry

Views of the Industry were obtained through personal contact during normal office duty. Meetings with classification societies and shipping companies are routinely conducted after PSC inspections on board their ships. The author took such opportunity to exchange views with them, and took notes in formulating the content of this chapter. Articles from the maritime press in relation to the subjects were also extracted, other sources were made through attending conferences, both locally and overseas with other Administrations and people from overseas maritime industry. It is important to make clear that these are view of the industry and not of the author.

8.1.1 Classification Societies

As with Flag States, the classification societies also set safety standards. Classification societies create rules on how to build and outfit vessels, and oversee to ensure that such rules are complied with. Increasingly classification societies have also taken over control functions on behalf of some Flag States. They are then authorized to inspect and certify the vessels for compliance with international regulations, such as SOLAS, Load Line and the ISM Code.

Classification societies were established in order to safeguard life, property and the environment, with emphasis on operations representing a high potential risk to human life, property or the environment. New terms such as “Total Safety Class” have been introduced, which focus on the interdependence between the ship itself, management of operations, personnel and their education, and skills and attributes regarding safety. This is a great leap forward in overall safety at sea, providing assurance that all critical aspects of safety are taken care of.

However the control performed by some classification societies, on behalf of some Flag States, is considered inadequate and these situations are often identified during Port State Control inspection. The classification societies, general speaking, are commercial organizations which compete for tonnage and hence their revenue. There is a danger that such a competitive environment can lead to certain classification societies lowering their standards in order to attract tonnage. Today the International Association of Classification Societies (IACS) is to some extent regulating this, but there will always be an element of profit involved.

Classification societies are in a unique position to influence the safety of ships with their well-established sets of rules, networks of surveyors, and offices world-wide. But in many respects the classification societies only have as much power as the industry gives them. Surveyors are expected to keep their eyes open when attending a vessel and any obvious problems, even when outside the scope of the survey, should be acted upon - even to the extent of withdrawing the relevant certificates until necessary action has been taken to put things right. Though surveyors are not expected to be policemen, increasing responsibility is being put on them in order to see that every effort is made to ensure that a

vessel is always safe to go to sea under normal conditions that can be expected. Their work is in a way regulated by the shipping industry through the members of the Boards of Directors or Executive Committees whom are mainly selected from the industry itself, i.e. the ship owners and insurers. However, there is a strong element of commercialism involved that is not necessarily compatible with the ideal way of regulating the industry.

Traditionally, in the early days, classification societies gave vessels a class or a rating meant to reflect the level of confidence the underwriters could place in the unit. This enabled the underwriters to adjust the premium depending on the condition of the ship. For many years now this practice has been abandoned by the classification societies. All vessels are built to the highest class, and maintain that class until the vessel is scrapped. For all practical purposes for the underwriters today it is a question of having class or not, and being classed in IACS or not. In other words, it sets a minimum standard requirement.

For many years Flag States have recognised the qualities of the major classification societies and many states have also appointed the classification societies to carry out regulatory approvals and surveys on their behalf. The classification societies' world-wide coverage in offices, and their experienced surveyors, has reduced the burden on the Flag States.

Some Flag States that traditionally have not authorised classification societies to carry out surveys on their behalf are now beginning to do so, and to shift the focus on the number of vessels boarded at an ever increasing number of ports throughout the world.

8.1.2 Port State Detention

A Port State detention is reported to the respective classification society. The boarding officer's findings are analysed, together with the attending surveyor's report, in order to try and determine what went wrong. Sometimes it is necessary to go back to the survey office that issued the certificates concerned, in order to gain further insights into the problems. The results of the analysis will then dictate the immediate actions, including re-training of surveyors or re-writing of procedures, if it is felt that the surveys have been at fault.

Of course, when the statistics of boardings and detentions are put together, class is inevitably looked at, along with other factors and, depending on the circumstances, the society may be targeted by the Port State for more intensive auditing and additional boardings.

One must not lose sight of the fact though that, ultimately, the owner is responsible for the safe operation and maintenance of his vessel. The classification society will only certify that the vessel meets the necessary requirements once per year. A lot can happen, and does, in twelve months. However, in most cases of a Port State detention, class is notified and a list of deficiencies will be given to the relevant classification society. The Port State will only allow the vessel to leave after they are satisfied by the classification society that an all-clear rectifying report had been issued.

Depending on the conditions found and the rating of the classification society involved, the boarding officer may return to the vessel for further inspection prior to allowing the vessel to sail. It is true that in some areas, the Port State authorities only notify the

classification society after the vessel's deficiencies have been dealt with, re-inspected by those authorities and issued clearances. Unfortunately, as the classification society is not called in, this could lead to suspension or, possibly, cancellation of class of the vessel for not reporting to class as per the classification society rule requirements.

8.1.3 Charterers Views on Port State Control

A charterer's perception of Port State Control was revealed at the Port State Control Managing Safety & Quality in Shipping Conference in December 1998.

Most charterers have in place a pre-charter ship vetting system. However the degree of severity of the system often requires an actual vessel inspection. One of the easiest checks a charterer can make on a prospective vessel is to check the individual ships Port State Control detention history, together with the Port State Control detention history for all vessels under the same management and/or ownership. Such data can provide valuable information on maintenance standards and work practices of a vessel and her owner. It is important that such data is reviewed by an experienced technical person so that a good ship and owner are not unreasonably penalised for minor defects to a vessel.

Where a vessel and other vessels in a fleet are frequently seen to be seriously failing Port State Control inspections, they will find it harder to operate with charterers. In this respect charterers can support the work of Port State Control authorities and assist in forcing the rogue vessels / operators out of business.

At present when a charterer checks a prospective charter vessel's Port State Control detention record, they can do so by:

- .1 asking the owner;
- .2 accessing various MOU websites;
- .3 checking Port State Control data published in the shipping press;
- .4 other published data by MOUs

The shipowners will advise the charterer when the last Port State Control Inspection was carried out and they will often provide a copy of the report and other evidence to show that the marked deficiencies had been corrected. However this may not be always the case in reality. Some rogue shipowners will only advise part of the favourable information that the vessel had passed the Port State Control Inspection, or had not been inspected at all if the result was not too favourable. In this situation, further checking of record is often required.

To check the various MOU's databases could be time consuming. Unfortunately different MOUs have different criteria for publishing detention information. Some show all data on ships inspected, but others only provide detention data on vessels detained more than twice in the last two years. The best scenario for charterers would be an approach similar to that adopted by the USCG where data on all Port State Control inspections is shown. A vessel detained once with several serious defects could cause just as much reason for reporting as a vessel detained twice with minor defects. To this end if there is one web site which gives a ship's full Port State Control history would seem to be the answer. Such a site should show records of all inspections, including those passed clear of defects.

8.2 Consistency in Port State Control

The following was reported by an anonymous ship operator regarding an actual PSC

inspector on a ship under his management - PSC inspector boards a ship and identifies some 'sub-standard' item. And just coincidentally, the repairman is available immediately with the right parts. The PSC inspector and the repairman greet each other as old friends, which is not surprising, because they probably are. In some cases, some PSC inspectors even make outright demands for money, cigarettes or spirits in return for not giving a detention for an item that, with reasonable survey, would easily pass the test.

Incidents of extortion apart, there appear to be serious drawback in the way PSC inspections are carried out. Some of these were highlighted by the Asian Shipowners Forum (ASF), Safe Navigation and Environment Committee (SNEC) at its meeting in Kuala Lumpur. "PSCs are deviating from their original objective" the SNEC noted, while at the same time emphasising that it is supportive of the PSC objective of eliminating sub-standard shipping [8-1].

This so-called "deviation" appears to be a fall-out of the Tokyo MOU PSC Committee decision to raise the rate of ship inspection from 50 per cent to 75 per cent effective from 1 November 2000. SNEC fears that quality ships could end up as targets because inspections will be easier and faster. In other words, they ensure a smooth and swift voyage towards the 'quota' for inspectors only too keen to get the numbers on the board. At the same time, sub-standard ships – by their very nature more time-consuming and troublesome – could well go scot-free. The point has also been made that some PSC organisations, because of their small size, might not have the manpower resources to perform their tasks. This also leads to the question of competency – "PSC inspectors of some countries are quite incompetent as they have shown inconsistency in their inspections" [8-2].

Incompetence can be easily traced to lack of proper training. “Some PSC inspectors appear to be not even aware of how or what to inspect,” alleged by Mr. Arthur Bowring, Director of Hong Kong Ship Owners’ Association. While owners do not want to pick up the financial burden of training inspectors, they are not averse to chipping in by arranging for lectures and practical demonstrations. Identifying sub-standard ships would be less difficult if parameters for targeting such vessels were spelt out clearly – as the US Coast Guard has done – and there is free exchange of information on ship data between PSC States. Meanwhile, corruption, like weeds, flourishes where it is allowed to grow.

8.3 Cost of Port State Control

Port State Control is a cost that must be borne solely by the practising authority. Within the Regional States of Tokyo MOU member states contribute to the overall funding of the Secretariat, and pay a fee, computed on a “time used” basis for the usage of the information bank in Canada.

In Europe the Paris MOU in its 1992 annual Report, estimated that its first ten years of operation had cost its members almost 20 million ECU (US\$25 million). During the same period some 125,000 inspections were conducted, each with an estimated duration of approximately 2-3 hours. Based on a computed cost of about 60 ECU (US\$75) per man/hour, the average cost of a Port State Inspection works out at US\$150-225. Even if it is assumed that owners were required to pay for re-inspections conducted on the 4,000 vessels detained during this period, the reduction in total cost incurred by the Paris MOU is very small [8-3].

Generally, the states that are practising Port State Control are maritime nations with large fleets of their own, thus the cost of Port State Control joins an already long list of costs against which Flag State Control must compete for usually limited available national resources. However, this could become a great burden for some of the developing states within any regional MOU to bear. This raises some speculation as to whether Port State Control in some states, is being done at the expense of Flag State Control, thereby adding the inadequacy of the already low marginal resource. However the importance that has been attached to Port State Control by society in most of the traditional maritime states, belittles whatever costs are involved. According to an official of the Norwegian Maritime Directorate, cost is never an issue where Port State Control in Norway is concerned [8-4]. Yet, it would be unreasonable to assume that states would be prepared to continue committing funds towards Port State Control, if they are not convinced that its effectiveness, to date, in the battle against falling standards of safety in shipping is able to justify its continued practice.

8.4 Standard and Cost Impact on Developing States

A number of developing states have complained that the standards of safety of shipping which were set out by the International Maritime Organization are too excessive and often unnecessary. They accuse that Port State Control has been used by the most developed states as a weapon to suffocate the shipping industries in developing states. Quoting a government official from a developing state in the MOU conference:

"High safety standards would mean high operation costs, excessive training and requirements made to the ship's crew are just wastage of resources, these all turn out to be a bar going against the shipowners who are working at very low profit margin".

Is the standard of safety under SOLAS and other IMO Instruments a minimum safety standard? Whether this argument stands might be subject to long and tedious discussion, however statistics have shown that over 70% of the ships being detained during Port State Control inspection belong to states which were classified as developing nations. In September 1999 the Consulate of Panama officially addressed its concern to the IMO regarding vessels flying its flag being targeted by the Japanese Maritime Authorities for frequent inspection and detention [8-5].

The Port State Control record is often credited with a positive influence on maritime safety, although one would sometimes wish to see more facts to justify such praise. The high detention rate would draw attention immediately to the question of fairness and standard of the Port State Control inspection. It may not be fair to say that all Port State Control officers would be biased before boarding by the reputation and records of a particular Flag State, however most Port State Control officers, after boarding a targeted flagged vessel, would spend greater effort looking for deficiencies than when on other flags.

It may be yet too early to ascertain the full impact of Port State Control, on influencing standards of safety in shipping world-wide, since it has only recently become a popular phenomenon in some regional areas. However, both the Paris and Tokyo MOU have been practising Port State Control for more or less 10 years now and one is likely to assume that its effectiveness, which is evidenced by their achievements to date, would have some bearing on the new regional Port State Control initiatives elsewhere.

The following is a sample of few responses to discussions with some Tokyo MOU

signatory States during the 8th Seminar for Port State Control Officers in the Asia Pacific Region which was held between 20-22 June 2001 in Pusan Korea:

A reduction in the number of sub-standard ships visiting our ports. Port State Control is generally promoting a higher standard of ship in our waters.

A large number of vessels have been forced to carry out their business in a more serious they face the possibility of detention. Shipowners refrain from sending their sub-standard ships to our part of the world.

Hopefully a reduction in the number of ships not complying with international rules.

Some moderate improvements in standards.

Co-ordination between countries, increased readiness to use sanctions. Effects on classification societies.

Owners are aware that sub-standard ships are not acceptable in many parts of the world and crew safety is very important.

Taking into accounts the key motives behind Port State Control that were discussed in an earlier chapter, these achievements should be reflected in the following areas which may provide some measures as to the effectiveness of such control:

- .1 A reduction in the number of sub-standard ships trading, which is evidenced by fewer casualties and reduced coastal pollution; and
- .2 A noticeable improvement in Flag State Control.

However, it can be appreciated that for Port State Control to make any significant impact in these areas, a major portion of the world merchant fleet in the course of its trading must

be affected by the exercise of such control.

8.4.1 Removal of Sub-Standard Ships - Casualty Reduction

The author considers that despite all efforts and determination in the past years on the part of the Paris Memorandum partners, sub-standard ships still exist today. This observation does not imply that the operation of the Paris MOU is ineffective [8-6].

Losses of merchant ships of over 100 GT reduced from 199, totaling 1.1 million GT, in 1999 to 167 ships, totaling 0.9 million GT in 2000. During the year of 2000 the world fleet of merchant ships grew by 2.8% to 522.2 million GT. Within this total there was considerable variety in the rate of growth, reflecting the different economic circumstances prevailing in different parts of the shipping business, and in different parts of the world.

Together with the PSC activities in different regions which cover approximately 32 percent of the ship trading areas, evidence of some degree of effectiveness of Port State Control in minimizing losses through the elimination of sub-standard ships. Furthermore, by forcing shipowners to rectify deficiencies that are brought to light by Port State inspections, Port State Control may be in some way responsible for the reduction in total ship losses from 255 ships in 1996 to 167 ships in 2000.

8.5 Improvement of Flag State Control

The highlighting of the growing problem of falling standards of safety in shipping, was partly due to statistics on ship deficiencies and detentions, uncovered by Port State inspections, which are usually published on the internet by MOU member States such as Hong Kong and Australia as well as in its MOU annual report. This sparked an all out

attack on classification societies world-wide, which have been forced to take steps to put their standards in order. Lloyd's Register, in its attempt to ensure standards of safety on board by punitively de-classing ships that are found to be sub-standard, has disclosed that the flags most affected are in general those that also produce the worst Port State Control figures. This new development, in a way, could serve as an enhancement to the quality of Flag State control, particularly with regards to the open registers, which usually delegate most of their survey and certification responsibilities to classification societies.

A further achievement in this area that can be credited to the activities of Port State Control, was the establishing, in December 1992, of a new sub-committee on Flag State Implementation in the IMO. According to the IMO News, the main task of this sub-committee is to identify the measures necessary to ensure effective and consistent global implementation of IMO measures, paying particular attention to the needs of developing countries [8-7]. One of the sub-committee's planned areas of work was the development of guide-lines for delegating authority to bodies acting on behalf of Flag States; guide-lines for Flag States monitoring bodies acting on their behalf; and minimum standards for classification societies and other bodies acting on behalf of Flag States. All these measures raise some hope for improved Flag State Control, especially by the registers mentioned in Chapter 3.

Published on the Internet and annual reports of the MOUs on ship deficiencies and detentions, which identify delinquent Flag State, coupled with proposed flag targeting, have seen a few Flag States, particularly the major open registers, making some effort to establish better control in the area of maintaining operational standards of safety on board the ships flying their flags. Attempts by Liberia and Panama in an effort to counteract

international criticism concerning the quality standards of ships on its register, have embarked on upgrading their Departments of Merchant Shipping, along with amended ship registration conditions and the development of training programmes in order to reduce human error on board [8-8]. However, it will be interesting to see how these registers tackle the “genuine link” issue (establish a direct link, usually by setting up an office locally between ship owner and the flag Administration), which is so vital to any attempt at effective control and enforcement of international standards of safety on board.

Thus, Port State Control has so far achieved some success in the area of influencing improved Flag State control, and it is only after the sub-committee on Flag State Implementation begins its work and classification societies regain their lost ground, that the magnitude of this success will be known.

8.6 Port State Control – Exaggeration of Balance

The follows were extracted from discussion with Tokyo MOU members in the PSCC 10th committee meeting in Tokyo expressing concern over the tough inspection and harassment with the PSC inspections:

Port State Control is just another area where the illusion of uniformity of standards tends to be perpetuated. In fact well meaning people suggest that if we have uniform rules for shipping, and if they are all inspected to the same sort of standards through-out the world, sub-standard ships will go away.

But this apple pie notion of the world fails to recognize that there are vast areas and numerous nations where the option of high quality shipping remains light years away for their inhabitants. In a country where there is real, grinding poverty, the only shipping they can afford is seventh hand; vessels on their last legs that richer nations would have scrapped long ago.

One might kindly point out that the International Maritime Organization (IMO) offers technical assistance programmes and the World Bank finances

infrastructure projects, but in reality there is little comfort for the poor in such promises. IMO can help establish a competent Administration, but the means whereby local ship operators can obtain even slightly more modern tonnage just does not exist. We have to think about the shipowners in the third world countries who have to struggle for survive themselves.

While their poorly maintained old ships creep around their coastlines, and trade to equally poor neighbours, there is probably no problem that concerns the rich nations. But when they go into areas where Port State Control nets extend, they are detained with numerous deficiencies, for the Port State Control inspectors are concerned with the facts and not the cause of the problem.

Therefore their flags would be deplored by sober men in suits who consider detention statistics and make solemn pronouncements about ships and flags of shame. But the ships do not get any better because in these countries. There is no money to modernize their fleets, no more than there is money to modernize the roads, or the railway and the buses that are death traps.

The author considers that there is a need to confront the issue of poverty alongside that of marine safety. It is not something for the shipping industry, or even maritime Administrations, because neither holds the key. It ought to just sometimes make Port State Control inspectors think a little about the reasons for these substandard ships, which may seem unfair to judge the view from the point of developed industrialized nations, but to their operators are about as good as they can get.

It might also persuade the regulators that if they are to prevent ships they term sub-standard from operating, they have to persuade governments to address the problems of poverty and the growing differences between rich and poor in our living planet.

It is always easier to act freely when there are no restraining influences. The toughest Port State Control in the world is arguably in Australia, which has little or no shipping left of its

own. In that rich country 2,500 people each year are killed on the roads, and 18,000 more are seriously injured, mostly by trucks. Surprise to know, almost no lives are lost as a result of accidents involving merchant ships.

In the author's point of view it is all a matter of priority, really, but should not Port State Controllers re-structure their value on the merit and objective of the activity.

8.7 Other Positive Effects on the Shipping Industry

The Paris MOU, in its 1997 Annual Report, estimated that Port State detention within the MOU region, over the ten year period 1987 to 1997, had deprived shipowners of revenue amounting to some US\$180 million. As to whether the benefits derived from foregoing maintenance and repairs necessary to ensure compliance with safety regulations under the various conventions, outweigh the lost revenue resulting from detention. However, with industry moving towards the "just in time" concept, primarily to cut back on warehousing costs, it is almost inevitable that ships which run the risk of being delayed, following Port State Inspections, would find it more and more difficult to gain employment. Difficulties of employment for ships of doubtful standards, as jetty owners bid to preserve their fortunes, which are affected by ships being delayed or detained at river berths that usually have no "lay-by berths or anchorages" [8-9].

The spread of effectively executed Port State Control, therefore can further exacerbate employment problems for sub-standard operators and sub-standard ships. Shipowners will have to either comply with the internationally agreed standards of safety on board, or face an inevitable extinction, as trading regions for sub-standard operators disappear.

The author opined that shipowners do not view IMO regulatory equipment as an additional cost in the price of new buildings. However, the fact that these costs are recognised by the owner when calculating running costs, indicates that they will influence the level of negotiated freight rates. In US, the coastguard has predicted a 17 cents rise per barrel to the transport cost of imported oil, as a result of phasing in double hulls [8-10]. Therefore, as one manager pointed out, charterers will have to be prepared to pay more, for quality tonnage. Moreover, since the burden of price increases seems to always rest with the end user, the general public must also be prepared to pay more for commodities whose prices include a sea transport cost element: the price for safer ships and cleaner sea.

A further positive development that could result from forced compliance with international standards of safety, due to effective Port State Control, is the phasing out of very old tonnage which finds it extremely difficult and costly to observe these standards. Hence the possibility of improved freight rates due to a reduction in tonnage over-supply. This has always proven to be enough incentive to stimulate the placing of new order by shipowners. Since the age of the ship has been shown to be an extremely important criterion when ships are being selected for Port State Control inspections, it follows that, a younger world fleet could see a reduction in the number of Port State Control inspections and hence the resources allocated for these inspections.

8.8 Summary

Port State Control is an expensive event. The cost of PSC can be divided into two parts. One part is borne solely by the practising authorities, which is the operational cost for carrying out Port States Control activities. It comprises costs for Administration, information processing, training of PSCOs and so on. This could require the PSC authority to spend for example, up to several millions of US dollars each year. On the other hand, ship owners and operators have to spend a lot of expenditure to rectify the deficiencies found on their ships during PSC inspections, not to mention the demurrage and other profit losses caused by detentions. These costs, often higher than the operation cost mentioned earlier, are regarded by some of the ship owners and operators as an unnecessary extra, and for the sole purpose of satisfying PSC inspections. In fact, they are paying the maintenance costs in upgrading the ships' safety standards of their ships and avoidance of future accidents.

In comparison with its costs, the effects of Port State Control are far reaching. Monitored by PSC inspections, the classification societies will need to address the balance between competing for tonnage and maintaining proper safety standards. This effect also extends to Flag States. As a result, both classification and Flag State control have been improved by the influences of Port State Control.

To prevent their ships from being delayed or detained, ship owners and operators have to put more resources in maintaining their ships' standards. Deficiencies that once have been existing and taken for granted are now rectified. Port State Control has, to a certain extent, reduced the quantity of sub-standard shipping.

Though many positive effects on the shipping industry have been achieved, there will always be some shortcomings. By example consistency and fairness in Port State Control inspection were issues that were constantly questioned by the ship operators. It appears that there is a long way to go towards a harmonized global ship inspection system.

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CHAPTER NINE

CONCLUSION

9.1 Findings of the Study

The research reveals the different regional MOU agreements and their practices in different areas. The effectiveness of Port State Control was assessed through an evaluation of technical aspects of the inspection. Port State Control in general, is achieving its purpose in eliminating substandard ships from the regions. The study also recognizes that Port State Control should only be a “second line of defence” in combating sub-standard shipping and the first line remains Flag State enforcement of standards.

An analysis into the world’s marine casualty statistics has identified that there has been a positive result in the reduction of marine accidents since the implementation of Port State Control, which might be direct or indirectly, the result of such campaign. The causes of accident were analyzed and identified that these causes were addressed by the Port State Control objectives during its implementation. The opinion survey from both the official and wider marine communities in Hong Kong reveals that there is a general agreement on the aims and objectives of Port State Control and the wider marine communities was generally in support of the maintenance of standard through the Port State Control regime.

9.2 The Way Forward – Effective Port State Control and Development of Safety Culture Towards Total Quality Shipping

Those who are responsible for ensuring that the ships' compliance with the international standards shall include, in the order of importance: the ships crew, ship management company, classification society, Flag State and Port State. It is often suggested that economy is the main reason for any deterioration in the standard of ships. Sub-standard ships cannot be eliminated unless sub-standard operators are eliminated. It was hoped that the implemented of the ISM Code would result in significant improvements of the situation. In the real world, despite the continuing effort made by the Port State authorities, many sub-standard ships are still in operation. Nevertheless Port State Control should only be referred to as the "second line of defence" and the first line of defence being the Flag State enforcement. This does not, however, mean that Port State Control is not very effective in the elimination of sub-standard ships. On the contrary, Port State Control could be a most useful tool in stopping the operation of sub-standard ships. Effective Port State Control prevents ships from proceeding to the sea with a risk of danger to human life and to the marine environment, but this can only be achieved through Port State inspections by well qualified and trained Port State Control officers.

It is clear that the apparently simple option of IMO regulation, as implemented by governments may not be the whole story. How these regulations are implemented depends on a number of factors other than mere administrative measures imposed externally or from within. As in many things in life, it would need an appropriate balance between market forces and administrative measures; between external and self-regulation.

It follows that self-enforcement of standards, or the development of a safety culture as it is

more commonly known, should be at the heart of any success in producing high quality operators and seafarers. Such safety culture can be developed in a number of ways including the training of seafarers and a commitment from shore-based management. Focussing increased effort towards instilling a safety culture in the world's seafarers might be the route towards the achievement of the best possible results. It is worth mentioning here that the establishment of a safety culture and environmental conscience in all maritime activities is one of the objectives the IMO Assembly has adopted for the current decade.

The recent IMO developments of the ISM Code and the thorough revision of the STCW Convention have provided an "outcome based" regulatory framework for safety management and seafarer training. The ISM Code is necessarily broadly based but provides the framework for a measure of company self-regulation. The revised STCW Convention describes the competence required of seafarers to perform their tasks safely and efficiently. These IMO regulations are therefore already promoting a measure of self-regulation.

Shifting emphasis onto people is another of the objectives of the IMO in the 2000s, and the reason is clear: the safety of life, property and the environment depends on the standards of competence and professionalism of seafarers [9-1]. So, while any other form of self regulation introduced by the industry partners is welcome, it is, the author believes, to self regulation by seafarers that we should look to continue the trend of safety improvements for both industry leaders and followers alike.

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APPENDIX A

PUBLISHED PAPERS

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1. “Port State Control and it’s Implication on Ship Safety” - Paper presented on PACON 97 Proceedings, August 6-8, 1997, the Chinese University of Hong Kong.
 2. “Responsibility assessment on Recognized Organization”
Represented The Government of Hong Kong SAR for paper presentation on the 8th Seminar for Port State Control Officers in the Asia Pacific Region in Pusan, Republic of Korea 6.20 – 22.6.2001.

PUBLISHED PAPER 1

Port State Control and Its Implication on ship Safety

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ABSTRACT

The development of Port State Control (PSC) in Europe under the Paris Memorandum of Understanding 1982 has extended to the Asia Pacific Regions, Caribbean and South America. The aim of participating States to achieve an inspection rate of 25 per cent of non Flag State shipping calling in their ports, results in a significantly higher rate of ships trading being inspected between ports of participating States.

Whilst the prime responsibility rests with the flag States, the weaknesses or difficulties in maintaining standard of ship by flag State necessitate inspections by port States. Many flag States are unable to maintain a proper control on the standard of their ships on their

respective registers. This situation amplifies the role of the port State control in ensuring that ships continue to comply with acceptable standards of maritime safety, pollution prevention and on-board living and working conditions.

Recognising that single port State could not eliminate the operation of substandard ships singled handed, the lesson of 15 years of port State control in Europe demonstrates also that no one region can effectively eliminate the operation of sub-standard ships. However, substandard shipping persists as and where substandard owners take refuge for continued operations in exotic registers and areas of lower standards. Thus the Memorandum of Understanding (MOU) is being reinforced in the wake of spectacular disasters. More casualties and more incidents have supported the view that more attention must be paid to shipping management.

INTRODUCTION

The demand for ships is derived from the need to move large quantities of goods from one part of the world to another, in the cheapest and most reliable way possible. It is estimated that 85% to 95% of all international transport takes places by sea. It follows, therefore, that the demand for sea transport would be affected by the level of world economic activity and this in turn, would be expected to have a significant impact on the supply of ships and hence, the size of the world merchant fleet.

The effects of these developments on the world merchant fleet were two-fold. The first was a rapid increase in the supply of ships to meet the additional demand for the sea transport. The second was a marked change in the size distribution of ships within the

fleet, as economies of scale were being explored to the fullest, especially by Japanese, Greek and Norwegian shipowners who sought a competitive edge in the market.

THE OPEN REGISTRY

One of the principal means by which owners may seek to cut costs is to register their vessels under the flag of an open register or flag of convenience country.

Much is made of the fact that in excess of 50% of the world's tonnage is registered under flag of convenience. It is also a fact that vessels registered under certain of such flags appear in the casualties statistics and in the defect reports of port states on a much more regular basis than those registered under the flags of the traditional maritime states. That is not to say however, that all ships registered under flags of convenience are substandard nor that all vessels registered under traditional maritime flags are beyond reproach. Some flags of convenience operate with accident rates which are less than those achieved by certain of the established "national" flags.

An Open Register may be national or international. However, particular attention will be paid to the International Open Ship Registers (or Flag of Convenience) which have been set up for the purpose of earning revenue by offering shipowners internationally, attractive legal and commercial terms for the operation of their ships.

The economic benefits to a shipowner that may be had from using an Open Register seem to vary from one to another as follows :

- Non taxable operating profits or no fiscal control;
- Flexibility to negotiate wages with crews of virtually any nationality;
- Limited financial liability to single ship company;
- Freedom of trade without political restrictions;
- Simple and accredited mortgage formalities; and
- Safety regulations imposed by Flag State are limited to the minimum internationally agreed standards.

In articles of the Law of the Sea Convention 1982, whilst giving every state the right to set its own conditions for ship registration, further requires that there must exist a “genuine link” between the registered state and the ship. However, in the absence of a definition for what constituted a “genuine link” under the Convention, helped to preserve the ease with which a shipowner could gain access to an Open Register and transfer from it at his option, without restriction. Moreover, it became almost impossible for any concerted international action, questioning the legitimacy of Open Registers, to succeed.

The Competence Of Open Registry Administration

The enforcement of IMO and ILO Conventions requires that Flag States adopt or incorporate the rules embodied in these conventions, into their national legislative system.

This depends solely upon the desire and degree of commitment by Flag States to ensure and maintain internationally acceptable standards of quality within the maritime industry. The IMO and ILO generally have no powers in this area and hence, this has been regarded as the basic defect of these conventions.

With respect to Open Registries, UNCTAD [1981] has identified the following basic reasons why non-observance of standard is likely to be greater under these registries;

- Real owners are not readily identifiable and are therefore in a position to take more risks by comparison with owners in normal.
- Real owners can change their identities by manipulating brass-plate companies and consequently avoid being identified as repeated substandard operators or risk taker.
- Since the master and key shipboard personnel are not national of the Flag State, they have no need or incentive to visit the Flag State and can avoid legal action;
- Owners who reside outside the jurisdiction of the Flag State can defy the flag State by refusing to testify at an inquiry by the flag State and avoid prosecution.

The open registry seems to be all tied to very easy ship registration laws and manning requirements that have been identified as basic features of Open Registries. Furthermore, the very little import/export requirements of these registers results in most of the ships using Open Registers never having to call at the ports of their Flag States, thus adding problem of enforcement. Thus the whole question of there being a ‘genuine link’ between

the ship and the Flag State looms once more, and seems to be the root cause of some enforcement problems being faced by Open Registers.

Sub-standard ships

The following distinct characteristics of a typical sub-standard vessel are :

- It is frequently near the end of its operation life;
- It is inadequately manned in terms of both numbers and qualifications;
- It is poorly maintained;
- It is badly navigated, and/or
- suffers from equipment failure.

A sub-standard ship may have one or more of the above deficiencies. It is noteworthy that these characteristics amply emphasise both the technical and human aspects that are essential to the maintenance of standards of board the ship.

Standards are being introduced at a time when concern about shipping standards is growing. After a decade in which the number of serious casualties at sea steadily declined, the trend has recently begun to move in the opposite direction. The world fleet is getting older because owners are no longer renewing their ships as frequently as they used to. The fleets of the traditional maritime nations – which generally have good safety records –

have shrunk while the fleets of other countries, many with little or no shipping experience, have grown. The crews on ships have tended to become smaller over the years, while the technology of shipping has become more complex. Crews today are more international than they were, raising doubts about the ability of crew members to communicate with each other as well as with other people.

Therefore, despite favourable ratification of the relevant international conventions on safety, by Flag States, their implementation and enforcement have failed to live up with the expectations of the IMO, ILO and other Administrations within the maritime industry. These inadequacies, coupled with the IMO's lack of power in this area, have resulted in a deterioration of standards of safety in shipping, which poses a serious potential pollution threat to the marine environment and coastlines, as a result of ship casualties.

ENFORCEMENT OF STANDARDS

Following the 1978 disaster of the Amoco Cadiz in the English Channel, international agreement of the maritime authorities of 15 European States was made in Paris in 1982 as a Memorandum of Understanding (MOU) known as the Paris Memorandum, whereby inspection of ships would be undertaken by maritime authorities of the port States – or port State control. The Canadian Coast Guard became a 'co-operating authority' as did the US Coast Guard, and the maritime authorities of Croatia, Japan and Russia, with the IMO and ILO as observers. The Paris Memorandum was further acceded to by Poland in January 1992) and Canada (as full member) (May 1993).

Provisions for Port State Control and the standards and regulations are under international instruments developed through International Maritime Organisation (IMO) :

- 1954 International Convention on Prevention of Pollution of the Sea by Oil;
- 1966 International Convention on Load Lines;
- 1969 International Convention on Tonnage Measurement of Ships;
- 1972 International Convention for Safe Containers;
- 1973 International Convention for Prevention of Pollution from Ships, and the
1978 Protocol
- 1974 International Convention for Safety of Life at Sea (SOLAS), and the 1978
Protocol;
- 1978 International Convention on Standards of Training, Certification and
Watchkeeping for Seafarers;
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Certain IMO Conventions (e.g., SOLAS) require that the inspections and surveys be carried out by officers of the flag State or officers nominated by them for the purpose, or organizations recognized by them, such as classification societies. A Port State may, at the request of the flag State, cause a ship to be surveyed and certificates issued or renewed

if the ship passes inspection, but in such cases they would not take action against a failing ship – they would just refuse or renew a certificate. However, under the MOU; the port State has the authority to take enforcement action, as it does under MARPOL. In exercising their rights and performing their duties, States shall not discriminate in form or in fact against vessels of another State.

The aim of participating States to achieve an inspection rate of 25 per cent of shipping calling in their ports, results in a significantly higher rate of ships trading between port of participating States. Whilst the prime responsibility rests with the flag States, the weaknesses or difficulties in flag State control necessitate inspections by port States, whose inspectors have a difficult job by the fact that the ship has to come into port, and by the volume of ships.

Latin American Agreement (Acuerdo de Vina del Mar)

During a regional meeting which took place in Chile in early November 1992 an agreement for co-operation on port State control was signed by the maritime authorities of Argentina, Brazil, Colombia, Chile, Ecuador, Mexico, Panama, Peru, Uruguay and Venezuela. This agreement follows very closely the Paris Memorandum although it was adapted to the special characteristics and circumstances of the Latin American region.

Asia-Pacific Agreement (Tokyo MOU)

The Memorandum of Understanding on Port State Control in the Asia-Pacific Region was signed by the maritime authorities of Australia, Canada, China, Fiji, Indonesia, Japan,

Malaysia, New Zealand, Papua New Guinea, Philippines, Republic of Korea, Russian Federation, Singapore, Solomon Islands, Thailand, Vanuatu, Vietnam and Hong Kong. A Committee, to meet once a year, composed of a representative of each maritime Administration and observers from IMO, ILO and other organizations which the Committee may deem appropriate.

Caribbean Agreement

Maritime Authorities of twenty Caribbean States and Territories have agreed on a Memorandum of Understanding on Port State Control. The Memorandum was signed on 9 February 1996 at a final meeting held in Barbados, bringing to a conclusion a two-year period during which an ambitious set of measures to improve the maritime administrative infrastructure of region States and territories were prepared.

The Caribbean MOU is a practically identical to other MOUs on port State control which are in operation in other areas of the world, including the Paris MOU in Europe, the Tokyo MOU in the Asia Pacific region and the Vina del Mar Agreement in Latin America.

Port State Control in Practice

When directed to inspect a vessel in a specific area of the harbour the PSC officer selects the most neglected looking vessel. After some experience he will learn to recognize the flags and classification societies which are deserving of his attention. If a ship flies the flag of a state which is not party to one or more of the relevant conventions, "no favourable treatment" will be given to such a vessel.

In conducting PSC inspections, the PSC officer will first check all the relevant certificates and documents. If these are all in order then he must have “clear grounds” for believing that the condition of a ship or its equipment, or its crew does not substantially meet the requirements of one of the conventions between demanding to carry out a more detailed inspection.

By “clear grounds” is meant one of the followings :

1. a report or notification by another authority;
2. a report or complaint by the master, a crew, or any person or organization with a legitimate interest in the safe operation of the ship, shipboard living and working conditions or the prevention of pollution, unless the authority concerned deems the report or complaint to be manifestly unfounded.
3. other indications of serious deficiencies having regard to the various IMO resolutions and other relevant official guidelines.

If the ship is badly maintained, the PSC officer will normally carry out a more detailed inspection during the first visit. After noting a few deficiencies which renders the ship unsafe to sail, he will complete PSC Inspection Form A and Form B containing details about the vessels and identified deficiencies and provide copies of these forms to the master or other senior officer in charge of the vessel. The master, owner or the agent will be advised that the vessel will not be permitted to sail from the port until the deficiencies

are rectified and the ship is rendered safe.

When the deficiencies have been made good, the master or the agent will be required to arrange a re-inspection by the PSC officer. During the re-inspection, should additional deficiencies be detected by the officer, he will list out these additional and any outstanding deficiencies on PSC Inspection Form B-1. Depending upon the seriousness of these outstanding deficiencies, the officer may allow the vessel to sail but a period will be set for the vessel to rectify the deficiencies. In such a case, the officer may advise the vessel's next port of call to confirm rectification of those deficiencies, or he may place the vessel on the watch list for a further follow up inspection on its next return to this port. In some cases he may allow the vessel to proceed to a repair port subject to certain conditions.

If no deficiencies are found during the initial inspection, a 'NIL' Form B will be issued. In case of minor deficiencies, the Officer may allow up to 14 days for the owner to rectify the deficiencies without the need of detaining the vessel.

Difficulties With Port State Control Inspection

As matters presently stand the system of Port State Control remains the most effective weapon against substandard shipping. However it is not without its difficulties :

1. vessels exercising right of innocent passage through coastal waters but not calling in port are not subject to inspection;
2. theoretically, pursuant to SOLAS and various other conventions, an

inspector must accept a ship's certificates at face value. A more detailed inspection cannot be undertaken unless there are "clear ground" to suspect that the ship does not correspond with the certificates;

3. Port States lack the general right to turn away substandard ships prior to those vessels entering their ports;
4. Port State inspectors are generally in a position to make limited inspections only. Vessels remain in port for relatively short periods of time and full access to construction details and plans is often not available. It is also probable that access to parts of the ship will be obstructed by cargo or ballast or otherwise not open to ease of inspection;
5. assessment of a crew's competence and the operational efficiency of the vessel is difficult in the short time which is generally available;
6. Flag States may attempt to defeat the effectiveness of Port State control by issuing exemptions when defects or absence of equipment in the vessel are discovered;
7. vessels have the right to claim compensation if they are found to have been unduly detained;
8. limitations as to resources and differing standards of competence and

experience amongst Port State inspectors;

9. follow up action may be difficult where a vessel is permitted to sail to another port for repair, for example, this may be permitted if the repair facilities at the port of inspection are not adequate or when the cost of repair is comparatively cheaper in the other port.
10. Owners of good quality ships may be subjected to repeated and inconvenient inspections when their ships are calling ports of different MOU regions.

CONCLUSION

The spread of Port State control has shown the international recognition of the problem and the resolve to take direct action against it. The Paris Memorandum in Europe has shown that it is effective. The new memoranda and agreements in major world areas give recognition of PSC and the consensus of agreement to extend it to as wide an area of the world as possible. It is based on international standards, operates by commitments of national maritime authorities, but requires national and regional co-operation and information exchange with uniformity of standards and interpretation to be effective.

In commitment, it requires individual states to provide the resources for inspection, control and information sharing. It would be an unfair imposition of further charges to require a contribution from all shipowners and operators.

The consensus clearly shows that, while Port State control is not, and must not become, a substitute for Flag State control, it is an effective means of directly getting at substandard shipping. Reactions to the problem lead Port States to shoulder the additional cost, and to share the cost and efforts of regional co-operation. By regional and inter-regional co-operation significant steps have been taken to combat substandard shipping and enhance safety at sea. By eventual removal of substandard operations, it will put good shipowners and operators on an even field in respect to operational economics. Meanwhile the effect of the system can be maximized by targeting; sharing and circulation of information; more publication of results of inspections and records; emphasis on crew qualifications and standards as well as standards of condition of the ship and her equipment; and examination of ship management as well as ship operations.

The success of the Paris Memorandum has shown the greater regional success than the individual efforts of member states alone. Inter-regional Port State control develops the principle to potential world wide success given the consistency of efforts and co-operation in the areas of the new Memoranda of Understanding, but the teeth must bite into the economics of the substandard operators. Port State Control is the best way to enforce standards with quick results, subject to regional co-operation to close all areas to substandard ships.

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“Responsibility assessment on Recognized Organization”

Represented The Government of Hong Kong SAR for paper presentation on the 8th Seminar for Port State Control Officers in the Asia Pacific Region in Pusan, Republic of Korea 6.20 – 22.6.2001.

GUIDELINES FOR THE RESPONSIBILITY ASSESSMENT OF THE RECOGNIZED ORGANIZATION (RO¹)

1. Only those deficiencies which, alone or in combination, warrant detention will be evaluated to determine RO responsibility.
2. Equipment deficiencies will only be associated with a RO where equipment is covered by a RO survey or where RO has issued certification.
3. Accidental damage suffered on a ship's voyage to a port will not be RO-related².
4. Serious wastage or other structural deficiencies not caused by voyage damage will be listed as a RO responsibility.
5. Outdated equipment will not be associated with the RO unless outdated at the time of the last survey conducted by RO.
6. Absence of highly pilferable equipment will generally not be listed as a RO responsibility unless a large quantity is missing, and inspection is taking place within 90 days of the last survey conducted by RO.
7. Expired statutory certificates will not be associated with the RO unless the certificates were not endorsed or were improperly issued by the RO following a survey conducted on behalf of the flag State.
8. Manning issues, other than those referred to in point 10, whether conducted in accordance with SOLAS or STCW, will not be listed as RO responsibility.

9. Equipment deficiencies will be RO-related, if that equipment is covered by a survey conducted by that RO within the previous 90 days (unless the deficiency was apparently long standing).
 10. Failure of human factor issues related to operational drills and tests and other manning issues where required and undertaken will be associated with RO responsibility only when the RO issued the relevant certificate.
 11. Deficiencies in the ISM Safety Management System will be generally RO-related only when the RO has issued the DOC and/or SMC, whichever is relevant, and if there is clear evidence that the lack of effective and systematic implementation of a requirement of the ISM Code existed at the last audit conducted by the RO.
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1. RO means recognized organizations which include classification society or other private body carrying out safety assessment work on ships.
2. A RO-related deficiency means that the ship's RO that carried out the relevant survey or that issued certification had a responsibility in relation with the deficiencies that alone or in combination led to detention.

APPENDIX B

Questionnaire on Port State Control

To:

Y. K. Li
Examiner of Masters and Mates
Seafarer Certification Section
Marine Department
Room 305, Harbour Building
Central
Hong Kong

University of Plymouth
Institute of Marine Studies
Phone: 2852 4362
Fax: 2541 6754

Please fold along this line

Please fold along this line

Survey on Port State Control and It's Implication on Ship Safety

Your kind assistance is sought on this survey for the purpose of data collection on the research of the captioned subject. After completing this questionnaire please fold along the dotted lines, sealed with adhesive tape and return the questionnaire to the above address.

Thank you very much!

Confidentiality of the Survey Data

Please be assured that all the data obtained in this survey will be kept in the strictest confidence. Under no circumstance will your responses be released to outside parties. Individual data collected will be coded and reported only in aggregate form. The whole questionnaires will be properly disposed of after serving the purpose.

1. Survey on the Port State Control (PSC) Activities

Please assess the following statements in relation to your own evaluation of the PSC activities. Please indicate the appropriate box on a scale of 1 to 4 the extent to which you agree with each of the following statements by placing a "✓" in the relevant box using the following scale:

Key of the scale:

1	2	3	4
Strongly agree	Agree	Neutral	Disagree

1 A. PSC in general

The following statements refer to the purposes of PSC in general, please tick on a scale 1 to 4 the extent to which you agree with each of the following statements:

<i>General Statements</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>
1. To get rid of the sub-standard ships:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. To persuade Flag States to maintain standard of their ships:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. To assist in ensuring the survival of National Flag:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. To make Flag of Convenience less attractive to ship owners:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. To discourage charterers from employing sub-standard ships.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

1 B. Cost and effectiveness of PSC

The following statements refer to the cost and effectiveness of PSC, please tick on a scale 1 to 4 the extent to which you agree with each of the following statements:

1. The cost of PSC should be borne by all port users:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. The cost of PSC should be borne by sub-standard ships:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Government surveyors are more severe and impartial.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Classification Societies could be delegated to carry out PSC inspection on behalf of the Port State;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. PSC has a positive effect in reducing marine accidents and protection of environment.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

1 C. Adverse opinions on PSC

The following statements refer to some adverse opinions on PSC, please tick on a scale 1 to 4 the extent to which you agree with each of the following statements:

1. Professional standard of PSC inspectors is not competent enough;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Inconsistent inspection standard exists among PSC inspectors in different countries.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Too many and too frequent PSC inspections especially when ships are engaged in continental trade;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. PSC inspections often hamper the smooth running of shipboard business;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. PSC activities have suffocated the already low profit margin shipping business in some developing countries	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

1 D. Strengths and weaknesses of the PSC activities

Please identify the strengths and weaknesses of the PSC activities, you may opt the statements from 1A to 1C.

Strengths	Weaknesses

I E Reason(s) for a sub-standard ship

Do you agree that the following statements are reason(s) for a ship to become sub-standard (Please tick)?

	Yes	No
1. The economic situation of the ship's flag State;	<input type="checkbox"/>	<input type="checkbox"/>
2. Severe competition in sea transport which causes low freight rate;	<input type="checkbox"/>	<input type="checkbox"/>
3. Poor market situation in sea transport as a whole;	<input type="checkbox"/>	<input type="checkbox"/>
4. Poor performance of the ship management company;	<input type="checkbox"/>	<input type="checkbox"/>
5. The type of a ship which may require extra attention and maintenance;	<input type="checkbox"/>	<input type="checkbox"/>
6. The age of a ship causes the ship to become rust bucket.	<input type="checkbox"/>	<input type="checkbox"/>
7. The classification society used being disrepute.	<input type="checkbox"/>	<input type="checkbox"/>

II. Survey on the implication of ship safety

Please assess the relative importance of the following general attributes in relation to your own evaluation to the PSC activities on the implication of ship safety by placing a "✓" in the relevant box using the following scale:

Key of the scale:

1	2	3	4
Very Important	Important	Neutral	Not Important

II A Sub-standard ships

The following attributes refer to the determination if a ship is considered sub-standard. Please assess the relative importance of the following attributes:

General Attributes	1	2	3	4
1. The condition of the ships and her equipment.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. The living and sanitation condition on board.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. The demonstration of competence of ship's crew.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. The combination of multi-nationality of ship's crew	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Flag of a ship which has a high detention record.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

II B Ship Targeting

To enhance the effectiveness of PSC, targeting and point system are often used by Port States in selecting ships for inspection. Please assess the relative importance of the following attributes in the ship selection process:

1. The age of the ship;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. The flag of the ship;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. The type of ship (container, oil tanker etc.);	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. The size of the ship;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. The nationality of ship's crew;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. The classification society used.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

II C Punitive Measure

In your opinion what would be an effective approach to enhance the objective of PSC when a ship is found with serious deficiencies other than detention of the vessel (Please tick)?

	Yes	No
1. The Flag State of the ship should bear the cost of entire inspection.	<input type="checkbox"/>	<input type="checkbox"/>
2. Ships under the same management company be banned from entering the port;	<input type="checkbox"/>	<input type="checkbox"/>

3. Demerits be allocated to the classification society and Flag and results published: ☐ ☐
4. The ship owner's underwriters and P&I Club be immediately informed: ☐ ☐
5. Ship owner should bear the cost of entire inspection ☐ ☐

Other measures (Please state) _____

II D Flag of convenience (FOC)

Do you think that flag targeting should be confined to ships flying flag of convenience? Please tick "Y"

Yes ☐ (please go to IIE) No ☐ (please go to III)

II E Flag of convenience - Sub-standard shipping?

If your answer to question IID is yes, is it because:

- | | Yes | No |
|---|--------------------------|--------------------------|
| 1. Ship's flying FOC are more prone to marine accident: | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. Maritime authority of FOC are less capable of policing their ships properly: | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. FOC ships denote shipping of a lower quality: | <input type="checkbox"/> | <input type="checkbox"/> |
| 4. Crew of FOC ship are inadequately trained: | <input type="checkbox"/> | <input type="checkbox"/> |
| 5. Serious marine accidents usually involve ship's flying FOC: | <input type="checkbox"/> | <input type="checkbox"/> |
| 6. Other reason(s) (please state): | | |

III. Background Information

Please provide the following information:

1. Name of Company: _____
2. Job title of the respondent: _____
3. Nature of business of company (please tick a box).

- | | | |
|--|---|---|
| <input type="checkbox"/> Ship manager | <input type="checkbox"/> Classification Societies | <input type="checkbox"/> Maritime law firms |
| <input type="checkbox"/> Ship owners | <input type="checkbox"/> Port administrator | <input type="checkbox"/> Ship charterers |
| <input type="checkbox"/> Ship agencies | <input type="checkbox"/> Ship brokers | <input type="checkbox"/> Marine insurance firms |

Your comments and experiences on PSC inspection of ships are cordially invited:

Name of Respondent (optional): _____
 Contact Tel. No. (optional): _____ e-mail address (optional): _____

Date: _____

Thank you very much!