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COMPETITIVE ADVANTAGES OBTAINED BY SOME SHIPOWNERS AS A RESULT OF NON-OBSERVANCE OF APPLICABLE INTERNATIONAL RULES AND STANDARDS

ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT

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FOREWORD

In recent years, the shipping industry has been characterised by increasing concern over falling standards of vessel operations by a number of shipowners. This concern has been expressed by insurers, charterers, governments and other interested parties, and has given rise to increased efforts to "ensure" shipowner compliance with national and international maritime rules as evidenced by greater frequency of ship inspections by insurance, chartering and port state interests.

In spite of this tightening-up process, shipping is still a largely free market which allows considerable scope for shipowners *inter alia* to: i) determine vessel operating policy including the level of expenditure on safety-related maintenance cost items, and ii) avoid compliance with internationally agreed rules and regulations as regards safety and the protection of the marine environment.

This latter situation is allowed to occur because the different bodies in charge of ensuring and/or monitoring compliance (flag state and port state authorities, classification societies, chartering and marine insurance interests and the maritime labour unions) vary in the degree of diligence they apply when conducting such activities and when following-up any non-observance of international rules and standards so detected.

The net effect of this approach is that, while the world fleet is now subject to a greater number of inspections than perhaps at any time in the shipping industry's history, standards of vessel operation vary considerably from the highly professional shipowners, who take a long-term strategic view towards the crew and technical management of their fleets, to the unscrupulous owners who disregard even the basic requirements of safe and pollution free vessel operations.

The aim of this report is to assess the competitive cost advantages which can be enjoyed by those owners who do not observe the fundamental maritime rules and standards relating to shipboard safety and environmental protection. Furthermore, it examines the respective roles of the flag state and port state authorities, classification societies, chartering and marine insurance interests and the maritime labour unions in ensuring and monitoring international rules and standards, and identifies and discusses some of the possible solutions to the continuing problem of shipowner non-observance.

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COMPETITIVE ADVANTAGES OBTAINED BY SOME SHIPOWNERS AS A RESULT OF NON-OBSERVANCE OF APPLICABLE INTERNATIONAL RULES AND STANDARDS

Flag states are required to take measures necessary to ensure safety at sea including the manning of ships, labour conditions, training of crews, the construction, equipment and seaworthiness of ships, the use of signals, the maintenance of communication and the prevention of collisions. However, the ultimate responsibility for the safe and pollution free operation of a vessel rests with the shipowner.

In recent years, shipowners, experiencing overtonnaging in many shipping sectors and, therefore, unrewarding freight rates over sustained periods and increased competition, have sought ways in which to cut vessel operating costs. In many cases, such initiatives have involved cuts in expenditures on safety budgets and management; inefficient safety controls by regulatory authorities (flag states and classification societies acting on behalf of flag states, port states) have provided some shipowners the opportunity to operate substandard vessels. Substandard vessels deserve the qualification "substandard" on the basis of shipboard and shore based management, levels of training of the ship's crew and maintenance not in accordance with agreed international rules and standards.

I. FINANCIAL ADVANTAGES LINKED TO THE NON-OBSERVANCE OF AGREED INTERNATIONAL RULES AND STANDARDS CAN REACH A SUBSTANTIAL AMOUNT OF THE RUNNING COSTS OF A VESSEL

A. Safety aspects of shipowner non-observance

- Shipowners are largely free to determine the operating standards of their vessels. Increasing financial pressures exerted on shipowners in recent years, due to cost inflation and overtonnaging in many sectors, have forced more and more shipowners on to a survival footing, characterised by cost saving initiatives and expenditure cut-backs on the safety-related maintenance cost items, with the risk of violating international rules and standards.

No vessel is absolutely safe. Ship operations necessarily involve exposure to considerable risks even for modern, well-equipped vessels operated by thoroughly trained and highly motivated crews well aware of potential safety hazards.

Minimising risks is primarily the responsibility of the master and the crew. However, it is by no means his sole responsibility. Shore-based management by the shipowner (or by a company contracted to act on its behalf) has a vital role to play in ensuring that sufficient support is given to the master and his senior officers. This support is necessary in order to prevent safety problems, to rectify defects as and when they occur, and to ensure an effective response to emergency situations.

Safety costs money and shipowners or operators incur expenditure in four main safety-related areas:

i) in providing for the maintenance of the vessel in a technically sound and seaworthy condition, including the timely supply of necessary stores and supplies and regular overhauls/inspections of navigation, cargo handling, engine room and other machinery and equipment;

ii) in ensuring that life-saving appliances, fire-fighting equipment and other safety items are kept at a state of readiness;

iii) in providing appropriate training of seafarers and office staff, including regular drills and exercises;

iv) in establishing and maintaining a well-organised and disciplined safety management system (SMS), encompassing both ship and shore operations, including regular safety inspections, internal audits, management reviews and reporting/follow-up of accidents, incidents and deficiencies.

There are no hard and fast rules to determine how much an owner/operator should spend on vessel safety in order to conform with international rules and standards and, often, no separate budget for safety or training is maintained. Much depends on the age and type of vessel, its trading pattern and the experience of the crew. Therefore, it is difficult to establish, with any precision, during a shipboard inspection, whether too much or too little is being spent on safety and, in the latter case, how much is needed in order to rectify any observed deficiencies.

While the chances of a ship encountering a safety problem are greater if little or no money is spent on safety items, including staff training, it does not necessarily mean that such owners/ships will encounter serious problems.

Understanding Safety

The shipping industry in general is benefiting from an improved understanding of why safety problems occur and, therefore, what can be done to prevent recurrence. The two major findings in recent years which have influenced thinking are:

i) that approximately 80 per cent of all shipping accidents are attributable to human error (and that the "human factor" plays a role in virtually all accidents); and

ii) that safety problems invariably occur for a number, rather than a single, reason, i.e. a single problem alone does not necessarily increase a vessel's risk exposure significantly, but a combination of problems can greatly enhance the chances of an accident occurring.

Based on this improved understanding, there is a growing awareness among shipowners and operators of the importance of first establishing and then maintaining an effective safety culture by implementing a Safety Management System (SMS). Such systems should ensure that:

i) seafarers are aware of safety hazards and properly trained in safe working practices including the maintenance and deployment of safety equipment;

ii) office staff and seafarers work in unison to prevent safety problems from occurring and to respond effectively when problems are detected;

iii) office staff provide adequate back-up support including the conduct of regular shipboard inspections by properly qualified staff as an independent check of shipboard safety procedures.

A more organised, SMS-type approach to shipboard safety has been brought about in recent years by a number of factors including:

- A fundamental movement away from the shipping industry's preoccupation with "hardware" elements towards the "software" elements, i.e. a re-focusing of attention away from the effect that technical aspects, especially quality of build and vessel age, have on ship safety towards the human element. This has involved closer examination of the reasons why safety problems occur, including the question of crew competence as a major contributory cause.

- A growing awareness of the considerable structural problems facing the shipping industry, including unrewarding freight markets and financial pressures leading some owners to downgrade the safety standards of the vessels they operate, and the need for a more effective deployment of resources. These pressures have led to various cost-cutting initiatives and a reduction in vessel manning levels to the extent that regular equipment maintenance levels have been reduced and/or substituted by greater reliance on dry-dockings and that vessels are operated at substandard levels.

However, the movement towards an SMS-type approach is still in its early stages and, while more and more shipowning and shipoperating companies are committing greater resources to safety management, the dissemination of the SMS-approach throughout the industry is proving to be a slow one. A major reason for this is that safety management is not, as yet, a mandatory requirement.

The Current Situation

Despite growing evidence of a more conscientious and organised approach to ship safety, the published findings of the various bodies currently conducting regular shipboard inspections are giving rise to concern.

These findings reveal that a high percentage of vessels inspected are displaying fundamental deficiencies regarding safety items in all areas of shipboard operations and that they do not comply with internationally agreed rules and regulations. For example, an examination of reported port state inspections conducted during the first two months of 1995 reveals the following common problems:

i) defective/inoperable fire pumps and hoses;

ii) inadequate chart correction and insufficient marine publications;

iii) inoperable engine room ventilator dampers;

iv) badly wasted hold frames, stiffeners, ladders, hatch covers and bulkheads;

v) rotten and poorly equipped lifeboats, inoperable launching gear and insufficient lifebuoys;

vi) dirty engine room and steering flats.

In a similar vein, recently conducted oil company vettings of a fleet of small gas carriers revealed 73 findings including:

i) corroded forepeak tanks and small cracks along welds in aft void space;

ii) no trim, stability or stress data on board;

iii) leaking pipe work;

iv) faulty alarms;

v) faulty and missing fire extinguishers;

vi) damaged accommodation ladders.

Common to all the above-listed deficiencies is the fact that they are readily detectable through regular shipboard inspections by shore-based or shipboard seafarers. Moreover, while some deficiencies are more easily rectified than others, in most cases the cost of corrective action is negligible, particularly if taken at an early stage, and does not disrupt a vessel's freight earning capacity.

Case studies clearly demonstrate that significant efforts still have to be made to improve general standards of vessel operations. In spite of the increasing efforts being made to police the industry and, therefore, the greater probability of detection, recent evidence suggests that a number of shipowners/operators are still limiting expenditure on critical areas such as vessel maintenance.

Although there has been little research into the subject of vessel operating standards, a report by Intertanko[1] throws some light as far as the tanker market is concerned. The study shows that, in spite of the high average age of the fleet, the increasing number of vessels due for the comprehensive 4th periodic survey and stricter class requirements under recently introduced Enhanced Survey Programs, the amount of time spent by VLCCs in dry-dock is decreasing. The study shows that there was a 27.5 per cent reduction in dry-dockings between 1991 and 1994 and a decline in the average number of days spent in dry-dock from 24 in 1992 to 22 in 1994.

1. See “Intertanko for safe transport, cleaner seas and free competition”, 29 July 1994.

In explaining this phenomenon, the study cites a number of possible reasons including:

i) increased demolition;

ii) class waivers granted to owners to extend the normal 5-year interval between Special Periodical Surveys;

iii) better pre-dock planning;

iv) aggravated market conditions since 1991 causing liquidity problems which necessitate the deferment of repair and upgrading works;

v) more work performed by sea-going maintenance teams.

B. Financial advantages obtained by running vessels at different operating standards

- Considerable scope exists for shipowners to determine the operating standards of their vessels and to deliberately avoid compliance with international rules and standards which govern safety and pollution prevention in the shipping industry. By so doing, shipowners obtain financial benefits which can equate to a significant percentage of total vessel operating costs.

The different levels of safety maintenance

Vessel operating standards vary considerably from the "blue chip" shipowners who choose to maintain vessels at a very high standard, i.e. far in excess of the minimum required by the vessel's class, flag state and any additional requirements of insurers, charterers or financiers, to those owners who, for whatever reason, choose to maintain their vessel at the minimum standard acceptable to continue trading legally or deliberately below. The financial implications of the freedom enjoyed by shipowners in determining vessel operating policies is illustrated by the following diagram in terms of theoretical vessel operating levels. It depicts maximum (ceiling) and minimum (floor) levels of expenditure in relation to "good" and "common" (or average) practice within the shipping industry[2].

In addition, standard or minimum level of expenditure to ensure compliance with basic standards of safe and a pollution free operation is identified. Below this level a margin of substandard operation exists within which a shipowner is able to operate a vessel not subject to detection by one or a number of regulatory authorities (flag states and classification societies acting on their behalf, port states**)** or the imposition of penalties which effectively reduce the margin.

2. The data cited in this report, while based on actual figures obtained from industry sources, should be considered as purely indicative and reflect a given situation at a given time.

VESSEL OPERATING COST "LEVELS" AND FINANCIAL ADVANTAGES

(period of reference: end 1994)

(20 year old bulk carrier; 30 000 dwt) US$/Day		(1990 built product tanker; 40 000 dwt) US$/Day
7 500	Ceiling (1)	9 500
4 500	Good Practice (2)	4 850
3 750	Common Practice (3)	4 250
3 250	Standard (4)	3 750
	(6)	
2 750	Floor (5)	3 100

(1) Ceiling = level of maximum expenditure (influenced by financial revenue earning potential of the vessel in the freight market and financial costs of owner).

(2) Good Practice = high level of expenditure adopted by minority of shipowners.

(3) Common Practice = average level of expenditure adopted by majority of shipowners.

(4) Standard Practice = minimum level of expenditure to ensure owner's compliance with basic standards of safety.

(5) Floor = level of minimum expenditure (still keeping the vessel "operational").

(6) Shaded area = margin of substandard operation within which the shipowner is able to operate a vessel subject to non-detection by regulatory authorities (flag states and classification societies acting on behalf of flag states, port states, etc.).

When examining the diagram it is important to recognise that the difference between the ceiling and the floor levels, and the relationship between the various intermediate levels, will vary according to a number of factors. These factors include the age, flag and type of vessel in question, size and composition of the crew complement, the vessel's financial costs borne by the owner and the market within which the vessel is deployed.

To illustrate these different theoretical levels of vessel operating costs, two vessels types are examined:

Example I: A late 1970s built 30 000 dwt bulk carrier operating within the current handysize timecharter market, with crew of identical size and nationality. In such a case the following vessel operating levels are applicable:

Ceiling:	US$7 500/day
Good Practice:	US$4 500/day
Common Practice:	US$3 750/day
Standard Level:	US$3 250/day
Floor:	US$2 750/day

Important differences in operating costs exist. If the vessel is operated at the maximum level of safety, daily expenditure will amount to around US$7 500. If, however, the vessel is kept operational at a level just to ensure the owner's compliance with basic standards of safety, the daily expenditure will amount only to some US$3 250.

But what is more important in relation to the safety of navigation and prevention of pollution of the marine environment is the difference between the level which corresponds to the minimum level of expenditure to ensure owner's compliance with international standards, and the so-called "floor level", which corresponds to the minimum expenditure to keep the vessel operational. There exists a "shaded area" within which a shipowner can operate substandard vessels subject to non-detection by one or a number of regulatory authorities (flag states and classification societies acting on their behalf, port states, etc.). With the theoretical standard level of operation standing at some US$3 250/day, the margin of sub-standard operation can be seen to equate to some US$500/day or US$182 500/year. This, in turn, represents 13 per cent of the annual running cost for this vessel type at the common practice level.

Example II: A 40 000 dwt 1990 built products tanker working within the timecharter market with crew of identical size and nationality. In such a case the comparable operating cost data are as follows:

Ceiling:	US$9 500/day
Good Practice:	US$4 850/day
Common Practice:	US$4 250/day

Standard Level:	US$3 750/day
Floor:	US$3 100/day

The difference between the floor and the ceiling levels is US$6 400/day with the industry average (common practice) standing at US$4 250/day. With the theoretical standard level of operation standing at US$3 750/day, the margin of substandard operation equates to US$650/day or US$237 250/year. This margin equates to a 15 per cent saving on the annual running cost for this vessel type at the common practice level.

Simplified vessel operating budgets: illustration of the "common" and the "good" practice concepts

Based on the "common and good practice" concepts, simplified operating budgets can be elaborated for any kind of vessel. Annex I develops these for two vessel types: i) a Suezmax tanker 150 000 dwt/90 000 grt/built 1985/23 000 Brake Horse Power (BHP), insured value US$20m and ii) a containership of 800 TEU; 12 700 dwt/9 500 grt/built 1985/9 260 BHP, insured value US$10m in terms of variations in expenditure on:

i) Repair and Maintenance (R&M), spares and other technical activities;

ii) ships' stores and lubes;

iii) administration.

In the case of the Suezmax tanker, a 9.5 per cent saving on total cost is realised by operating the vessel on "common" instead of "good" practice:

i) a 26.5 per cent saving in total purchasing equating to US$118/day;

ii) a near 30 per cent saving in technical expenses equating to US$351/day;

iii) a US$33/day saving in administration costs.

In the case of the 800 TEU containership, the 12.0 per cent saving on total operating costs because of a "common" instead of "good" performance is due to:

i) a 13.3 per cent saving on total purchasing equating to US$33/day;

ii) a 31.4 per cent saving on lube oils (US$60/day);

iii) a 21.2 per cent saving on technical expenses (US$128/day);

iv) a 18.8 per cent saving on administration costs (US$58/day).

Other scenarios and different permutations can of course be used for these, and other vessel types, to illustrate the significant differences in daily running costs for identical vessels operated by different shipowners. Furthermore, it should be recalled that these cost differences result from the difference between "common" and "good" performance. They illustrate the financial investment

backed by those shipowners who are willing to apply a high level safety-standard policy, with the view either to protect their long term interests (considering that a poor maintenance could undermine the value of their fleet) or to enjoy more rewarding freight on the charter market. They do not specifically illustrate the short term financial advantages enjoyed by those shipowners who operate substandard vessels and do not directly illustrate the financial advantages. This feature is more precisely illustrated, and the competitive advantages are of course much more pronounced, if a comparison is established between standard practice (compliance with international rules and standards) and floor performance (substandard operation).

Examples of cost advantages in the "shaded area"

While deciding on the vessel operating policy, the main determinant of which is the annual vessel operating budget, i.e. the amount of money allocated to each of the main expenditure items - principally crew wages, repair and maintenance (R&M) activities, stores and spares - the shipowner's freedom to determine the vessel's standard of operation is influenced by a number of factors including:

i) Type of vessel, i.e. greater regulatory requirements are made for certain sensitive ship types including passenger vessels, tankers and chemical/gas carriers.

ii) How the vessel is deployed, i.e. timecharter vessels are subject to more demanding charterer requirements than voyage or spot chartered vessels.

iii) Where the vessel is deployed, i.e. greater regulatory requirements are made by ports in the industrialised countries, notably in Europe, the United States and Japan.

iv) Its flag, i.e. registration requirements.

v) Its insurers, i.e. demands made by Hull Machinery (H&M) underwriters (for example, structural surveys) and/or P&I Club (condition surveys as a prerequisite for entry).

vi) Its financiers, i.e. demands made by the providers of the debt finance.

In spite of these various restrictions, an owner still enjoys considerable scope to determine the standard to which the vessel is maintained.

Deteriorating freight rates and inflationary cost pressures have forced more and more shipowners to reduce expenditure on vessel operations in recent years to the point where safety margins and pollution prevention measures have become dangerously thin. This worrying trend has, in turn, put flag states and classification societies acting on their behalf under greater pressure to detect and then act upon instances of substandard operation which pose an unacceptably high threat to the safety of the ship and its crew and a risk of environmental damage.

To illustrate the cost advantages obtained by a shipowner for the operation of a vessel in the "shaded area" (i.e. the potential cost advantages/temporary expenditure savings which can be enjoyed, if not detected, by a shipowner through non-compliance with national and international rules and regulations) the following examples are provided. They illustrate the important short and long-term cost savings which can be enjoyed.

Example 1:

Scenario: the shipowner fails to provide valid ship's certification.

Corrective action: shipowner to supply valid certification.

Cost: minimal (US$200-500 estimated) in administration and communication expenses.

Example 2:

Scenario: the shipowner fails to provide sufficient charts and nautical publications.

Corrective action: shipowner to supply additional and/or up-to-date versions of existing charts/publications.

Cost: minimal (US$500-2 500 estimated as typical case).

Example 3:

Scenario: certain navigational equipment is defective or inoperative.

Corrective action: for example, a malfunctioning gyro compass requiring the shipowner to engage a service engineer and to supply replacement parts.

Cost: estimated in typical case as US$1 500 to 5 000.

Example 4:

Scenario: certain senior officers do not hold valid licences for the flag state in question.

Corrective action: the shipowner must apply for proper certification or, in a worse case, replace the officers in question immediately or within an agreed time scale, i.e. before end of contract.

Cost: variable.

Example 5:

Scenario: defective lights and batteries on life jackets and out-of-date lifeboat rations need replacing.

Corrective action: shipowner must supply replacement equipment and materials within agreed timescale.

Cost: US$4 000 (including delivery Singapore)

Example 6:

Scenario: items from required oil spill clean-up equipment are missing.

Corrective action: shipowner to arrange supply of additional items in pre-packed kit form.

Cost: US$1 500 (including delivery Rotterdam).

Example 7:

Scenario: worn hoses, spray nozzles and couplings as part of ship's firefighting equipment are in need of replacement.

Corrective action: shipowner must supply replacement equipment as an emergency item.

Cost: US$2 000 (basis delivery New York).

It is, of course, possible to cite numerous other examples of non-compliances and the financial implications they have for the shipowner in question.

C. Financial advantages obtained due to the non-detection of deficient vessels by flag/port state authorities as well as classification societies

- The extent to which financial benefits can be enjoyed by shipowners who deliberately choose not to comply with the various safety and pollution measures laid down in international maritime rules and standards can be demonstrated on the basis of the typical deficiencies detected during annual flag state inspections. While the majority are of a minor nature which involve only small cost savings, certain major deficiencies can involve substantial financial implications particularly if the deficiency directly results in an immediate disruption to a vessel's ability to trade.

Deficiencies not involving detention of the vessel[3]

In the case of an individual vessel, the above mentioned "shaded area" can include such items as: i) employment of seafarers not responding to the norms of international rules and standards, ii) shipowners failing to provide valid ship's certification and iii) faulty navigational equipment etc. The calculation of the financial advantages obtained due to the operation of a vessel at a safety level within this area is rather complex. However, as a general rule, it can be assumed that these are composed of the financial advantages due to temporary non-payment, which in certain circumstances can have significant effects on the cash-flow of individual shipowners, and, more importantly, the fact that the vessel continues trading.

An example of a deficiency not stopping the vessel from trading could be the detection of faulty firefighting and/or lifesaving equipment which necessitates the shipowner to incur significant repair expenditure but where the vessel is allowed to continue to trade for a specified period. Due to the postponement of repairs, significant short term cost savings accrue to the shipowner over a certain period of time.

Another example of this type of deficiency is the case of a vessel deficient in a junior 4th engineer and one AB (able-bodied seaman), which would involve the shipowner in incurring additional daily expenditure of say, approximately, US$100. While this figure, in itself, is not a particularly substantial one, it does, nevertheless, equate to a significant hidden financial benefit. For example, if

3. Deficiencies not involving detention can apply to all types of vessels and not necessarily only to substandard ships.

a saving of this magnitude is accrued over a 12 month period it equates to approximately US$37 000/year or nearly three per cent of the total annual vessel operating budget of a ship run at US$3 250/day (20 year old bulk carrier, 30 000 dwt).

Such, and other deficiencies, and their associated hidden financial benefits, can be depicted in terms of:

X x Y - Z

Whereby:

X = daily financial benefit
Y = length of period of non-compliance
Z = cost of corrective action

Therefore, the overall financial benefit to the shipowner through a non-compliance of this kind involves the subtraction of the true cost of corrective action. For example, in the deficiency cited above, the cost of the corrective action includes direct expenses such as the airfares (e.g.: US$800/person Bombay-Rotterdam) plus any associated travel expenditure (accommodation, visas, etc.) (say, US$500) and indirect costs such as the management time spent on implementing the corrective action (say US$200).

By following this approach, it is possible to calculate the net financial benefit to the shipowner due to non-compliance for a period of 90 days in the aforementioned example as:

X(US$100/day) x Y(90 days) - Z(US$1 500) = US$7 500

Deficiencies involving ship detention incidents

Examples of deficiencies disrupting vessel operation are commonly referred to as "ship stopping" incidents whereby, in addition to the direct cost of the corrective action, the shipowner is exposed to additional financial penalties if the vessel violates charter commitments. For example, if, in the opinion of the inspector, the senior officers cannot understand orders given to them in English (and there are no alternative arrangements in place for effective communications in another language), the Certificate of Registry may be suspended and the ship prevented from "going to sea" until the deficiency is rectified.

To illustrate the kind of financial consequences which may ensue from a major deficiency detected during a flag state/classification society inspection, a late 1970s built carrier (30 000 dwt) operating on the timecharter market at US$12 000/day could be used as an example. Due to the detection of a deficiency in safety equipment, which requires temporary repairs to be carried out before the vessel is allowed to continue trading, the vessel is detained in port for a period of 30 hours and 30 minutes. In this particular example the charterer declares the vessel off-hire and submits an off-hire statement for the owner's account [as a period as short as the one cited in this example is not typically covered by loss of earnings (loe) insurance]. The resulting off-hire statement (Annex II) shows a financial cost to the owner of US$16 133 to which is added, say, US$4 500 for the cost of the repairs (travel + attendance cost of repair company + spares/materials). In this example, the total direct cost to the owner is US$20 633. The above example merely illustrates the magnitude of direct cost penalties which may arise for an owner due to a major (ship stopping) deficiency detected during

a flag state inspection. Other examples based on different parameters (duration of off-hire period, cost of the corrective action and the charter/fuel costs) will, of course, provide different costing.

However, while the costs for corrective action might be rather significant for a shipowner not having maintained his vessel according to international rules and standards, it should not be forgotten that during the time of non-detection he enjoyed considerable financial advantages. He maintained the vessel trading during the time of non-detection of the substandard character of the vessel and benefited from temporary cost savings for the necessary corrective action. To evaluate these savings in general terms is almost impossible as all depends on the actual circumstances. Taking the above example, and assuming that through non-detection the owner avoids detention but has the deficiency repaired at the next normal stop-over of the vessel, the net benefit to the owner is at least equivalent to the off-hire costs of around US$17 000. The true direct and indirect benefits (avoidance of off-hire, temporary cost savings, improved cash flow etc.) are certainly significantly higher and could easily encourage substandard operations.

II. LACK OF POLICING OF THE SHIPPING INDUSTRY BY PRIMARY POLICING BODIES (FLAG STATES AND CLASSIFICATION SOCIETIES ACTING ON THEIR BEHALF) AND INSUFFICIENCY OF PENALTIES FOR NON-OBSERVANCE OF RULES AND STANDARDS

The growing awareness of vessels not observing international rules and standards and increasing concern over falling standards of vessel operations has given rise to increasing efforts to ensure shipowners' compliance with international rules and standards.

When examining the ensurance with international rules and standards it is useful to note that the various bodies:

i) follow separate initiatives which result in a fragmented process (and which lead to duplicated effort and wasteful use of resources);

ii) carry out shipboard and/or office inspections and that the bodies can be divided into those which play a primary role (flag state and classification societies acting on their behalf) and those which play a secondary one (port state, charterer, insurer and maritime unions);

iii) follow different approaches, while sharing a common objective, i.e. to weed out substandard vessels, owners/operators and practices;

iv) have made increased efforts to examine the human elements of vessel operation as opposed to merely technical aspects as was the case in the past.

A. The role of the flag state

- It is the responsibility of the flag state to identify instances of substandard operation which pose a serious risk to safety of life at sea and the protection of the marine environment. However, frequently, flag state administrations are not in a position to fulfil their responsibilities in implementing international rules and standards either directly or indirectly through classification societies. No attempt has yet been made to standardise the way in which flag state inspections should be conducted, although the examination of different ship registers reveals similarities in their approaches.

The 1958 Geneva High Sea Convention, as well as the United Nations Convention of the Law of the Sea, agreed in 1982, covers matters regarding the duties of the flag states. These are regarded as highly important by all maritime nations. The OECD and a number of non-Member countries fully subscribe to the concept of the genuine link between the state and the ships flying its flag, as elaborated in Article 5 of the 1958 Convention which states that:

> "...There must exist a genuine link between the state and the ship; in particular, the state must effectively exercise its jurisdiction and control in administrative, technical and social matters over ships flying its flag."

These principles are also taken up in the Convention of the Law of the Sea, Article 91.

To comply with existing internationally agreed rules and standards, as laid down in the Law of the Sea text, flag states have effectively to exercise jurisdiction and control in administrative, technical and social matters over ships flying their respective flags. In particular, flag states are required to take the necessary measures to ensure safety at sea, including the manning of ships, labour conditions and the training of crews, the construction, equipment and seaworthiness of ships. Flag states are furthermore also obliged to ensure that each ship is in charge of a master and officers who possess appropriate qualifications.

Despite mounting criticism, based on growing evidence which shows a strong correlation between marine casualties and certain flags of registration, there are still a number of flag state administrations not adhering to minimum standards of supervision. As a direct result, the relative importance of the annual inspection by flag state administrations has been downgraded in recent years as other interested parties - charterers and insurers included - who, in the past, had based their commercial considerations on the ability of flag states/registers, including certain low cost registers, to closely monitor operational standards of vessels under their jurisdiction, have, for commercial reasons, taken greater responsibility for checking shipowner compliance with basic safety and marine pollution conventions.

In noting the shortcomings of certain flag states, reference has to be made to the fact that in spite of enjoying unimpeded rights of access, these flag states' annual surveys and pre-registration inspections are not always conducted, and that any deficiencies once detected are not always followed up. This is largely due to the fact that ship registration remains for these flag states, primarily, a competitive business and that commercial considerations are often seen to override safety matters.

The existence of financial advantages is primarily due to these shortcomings in flag state control. One could consider that such advantages would not occur if flag state administrations were organised and equipped in such a way that they were able to comply with their responsibility in the implementation of international rules and standards. In the case of flag state competencies partly or totally transferred to classification societies, such a transfer should respond to minimum requirements for classification societies as is the case, for example, in the European Union.

Although no attempt has been made to standardise the way in which flag state inspections are conducted, examination of different ship registers reveals similarities in their approach. Basically, flag state inspections are conducted on an annual basis under the direction of the flag state's safety department or person(s) designated to look after safety matters. The inspections and the certification

of the conformity of ships to conventions and agreed international rules and standards are conducted either by the relevant governmental authorities or they delegate all or part of their powers to outside agencies, namely classification societies.

The report itself is normally 4 to 6 pages in length and focuses on major safety items. In a majority of cases, the reports are completed during a single visit of a few hours duration. Typically, the reports comprise the following parts:

Part 1: Basic details of the vessel in question.

Part 2: Certifications maintained on board (load line, radio, safety construction, oil pollution prevention, class, etc.).

Part 3: Availability and use made of documentation maintained on board (charts, nautical publications, oil record book, medical log, compass error book, etc.).

Part 4: Condition of navigation equipment [radar, automatic radar plotting aids (ARPA), magnetic compass, RFD (radio frequency devices), echo sounder, course recorder, rudder indicator, etc.].

Part 5: Validity of master and senior officer licenses (flag state and national certificates of competency).

Part 6: Compliance with minimum Safe Manning Requirement (number and rank of crew onboard compared with flag state requirement).

Part 7: Availability and condition of firefighting equipment (fire hoses, deck lines and hydrants, fire extinguishers, fire dampers, fire doors, fire alarms, etc.).

Part 8: Availability and condition of life-saving equipment (miscellaneous life saving appliances).

Part 9: Availability and condition of pollution prevention equipment.

Part 10: General safety matters, crew welfare living conditions (condition and cleanliness of accommodation, messrooms and galley).

While the format of the report is similar amongst the different flag states, the effectiveness of the inspections is variable dependent on a number of factors including:

i) the frequency at which the inspections are conducted;

ii) the qualifications and experience of the inspectors;

iii) the thoroughness of the inspection itself;

iv) whether any non-compliances are reported and, more importantly, followed up by the flag state administration by insisting that corrective action is implemented by the shipowner within a meaningful time scale.

B. The role of the classification societies

In the absence of flag state inspections, classification societies, acting on behalf of flag states, have an important role in monitoring maintenance of minimum standards of safety at sea. The societies can have the state's enforcement powers behind them, which could effectively mean much swifter penalties for non-compliance, for example the inability of ships to leave port when their certificates are not in order. They normally aim to achieve "optimum" standards; i.e., standards that are cost-effective in ensuring safety, to meet the demands of the owners, be they in basic design (for example, the steel thickness criteria for the hull) or in the operation of ships such as frequency and extent of surveys. They are contractually bound to the shipowner only in the implementation of their rules and regulations and are only required to survey those parts of the vessel that they are requested to look at. Classification societies cannot board a vessel without the owner's permission. The ultimate sanction for non-compliance with the classification rules is the loss of class, which is the basis for charter parties and insurance.

The formation of IACS (International Association of Classification Societies) by the leading societies can be seen as a major effort to raise standards and improve co-operation. For example in order to avoid shopping around by owners to keep their vessels in class despite the inability to meet the rules requirements of the "holding" classification society**,** efforts are also made by the individual IACS members, as well as certain classification societies not members of the IACS, to improve their image through such initiatives as the investigation of deficiencies detected by port state inspections which could be attributable to class. Following IACS' recently concluded Transfer of Class Agreement, it has been agreed that the gaining society accepts the vessels for its classification only after all overdue surveys, recommendations or conditions of class previously issued against the vessel have been completed as specified by the losing society.

The common perception at present is that a two-tier market in classification society services has been created and that the world's leading societies will strengthen their standing in the industry in the future to the detriment of their competitors who do not always have the technical expertise or regulations necessary to do traditional classification society work. The role of the classification societies as auditors of the ISM Code will play an important role in this process.

C. The insufficiency of penalties

- Given the present legal framework, penalties applied to substandard vessels are, if they exist at all, relatively low compared to the advantages obtained from non-observance of international rules and standards.

In the present legal framework, there is no provision to apply penalties when a vessel is detected with deficiencies, unless the deficiency represents a breach of conventions containing a repressive mechanism (Marpol, for instance). The only penalty applied is the detention of the vessel. However, the detention is not a strong deterrent. In the example cited above, the off-hire statement shows a financial cost of approximately US$16 000. Compared with the daily US$500 of financial benefit for owners who operate the vessel at the floor level, this represents only 32 days of operation.

There are at least two main reasons why administrative penalties should be applied. On the one hand, this would contribute to eliminating the cost advantages of running a substandard ship. On the other hand, this would transfer the cost of control from the port authorities to the shipowner. Considering that an average visit requires two inspectors for two hours, members of the Memorandum

of Understanding (MOU) estimated in 1992 that the average cost of a visit amounts to 240 ECUs[4]. As the port authorities of the MOU carried out 17 294 inspections during 1993[5], this means that, in 1993, port authorities invested at least 4 million ECUs for inspections, although it has to be noted that the overall cost of the inspections accrued to the port state are significantly higher.

However, when deficiencies are detected, certain states impose fees for the subsequent inspection of vessels. These fees are based on the assumed cost of the visit (60 ECUs per man per hour). This practice, nevertheless, remains an exception.

Typical deficiencies detected during annual flag state/classification society inspections demonstrate that, while the majority are of a minor nature involving only small cost savings, certain major deficiencies can involve substantial financial implications, particularly if they should have, but due to non-detection have not, resulted in an immediate disruption in the vessel's ability to trade. Existing penalties for substandard operations are no deterrent: on the contrary, if existent at all, their low level is almost an encouragement to operate substandard, as savings by operating below international norms and standards by far outweigh any penalty.

III. LASTING SOLUTIONS TO COMBAT NON-OBSERVANCE OF AGREED INTERNATIONAL RULES AND STANDARDS NECESSITATE CO-ORDINATED CO-OPERATION OF ALL PARTICIPANTS IN INTERNATIONAL SHIPPING OPERATIONS

A. *IMO initiatives to improve international rules and standards and their implementation*

- IMO being the prime body for the adoption and the implementation of international rules and standards, its work is of the utmost importance for the upgrading of flag state inspections;

- All IMO initiatives for a better monitoring of the implementation of international rules and standards, and an improved co-ordination of the actions against substandard vessels, should be welcomed;

- By providing owners and operators with a useful industry-wide organisational framework, the ISM Code represents the latest example of a policy towards the improvement of minimum standards of safety and the phasing out of substandard vessels.

There is a compelling case for all flag states to demonstrate that they are carrying out their supervisory responsibility effectively as non-compliance with international rules and standards leads to unfair and thus unacceptable competition. In accordance with decisions taken in the International Maritime Organisation, flag states have to live up to their obligations and make transparent the work

4. See The Memorandum of Understanding on Port State Control, Annual Report 1992, page 4.
5. See The Memorandum of Understanding on Port State Control, Annual Report 1993, page 29.

of their maritime administrations with regard to how they implement and comply with IMO conventions and rules on safety and pollution control.[6]

The monitoring and harmonisation of flag state implementation of IMO rules and conventions would contribute to a better co-ordination of flag states and classification societies acting on their behalf. In particular, the creation of a common database showing the safety status and record of the vessels (ISI - International Ship Information - database) will effectively enhance the efficiency of the fight against substandard operation.

Specifically, individual flag states should be pressured into fully clearing their responsibilities through greater transparency and increased publication of instances of substandard operation.

It is true to say that this is already happening to a certain extent. In particular, the results of port state inspections are receiving wider attention and influential parties such as the international oil majors are exchanging information on different vessels and their owners on a regular basis. Special mention should be made of initiatives taken in the recent months which has led to the establishment of a list of owners, operators and managers cited as being responsible for vessels calling at US ports with major deficiencies or retained in European ports. These lists have been criticised as including a number of "innocent" parties. Nevertheless, they are widely viewed as a significant step towards more effective policing as is the recent move towards inspectors conducting at sea inspections.

Safety requirements need permanent upgrading. In this field, the implementation of Resolution A.741 (18) -- the International Management Code for the Safe Operation of Ships and for Pollution Prevention (ISM Code) - is of the utmost importance as it represents the latest attempt to improve minimum standards of safety. Proper implementation of the ISM Code will undoubtedly lead to a phasing out of a number of substandard vessels and thus contribute to a “level playing field’’ among shipowning companies. Since the introduction of the ISM Code, an increasing number of shipowning and operating companies have committed greater resources to “upgrading” their existing management systems.

B. Port state inspections should be further strengthened and better co-ordinated

- Findings of vessel inspections, as conducted by flag states and classification societies acting on their behalf, demonstrate that there is still considerable room for improvement, both in terms of the technical condition of vessels and shipoperating practices;

- Shortcomings of the effectiveness of vessel inspections by certain flag states and classification societies acting on their behalf force OECD Member countries to call for improved and better co-ordinated port state inspections;

- Enforced port state inspections would eliminate substandard vessels and competitive advantages obtained by shipowners who do not observe international rules and standards.

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6. See Statement by OECD Member countries on the Enforcement of International Rules and Standards in Maritime Transport SG/PRESS(94)34 and SG/PRESS(94)53). In addition to OECD Member countries the following additional countries have subscribed to the statement: Bulgaria, the Czech Republic, Estonia, Hungary, Korea, Latvia, Lithuania, Poland, Romania, Russia and the Ukraine.

The concept of port state control as applied by the MOU (Paris Memorandum of Understanding) is based on seven international conventions; signatories to the MOU exercise their rights to control foreign ships within their ports on the basis of the provisions of these conventions. They either authorise or stipulate port state control measures for vessels flying the flag of non-contracting parties and procedures developed in IMO and ILO for control of ships in ports in order to ensure that vessels conform to the safety, technical, environmental and social standards for seafarers as laid down in the conventions. Similar co-operation arrangements cover Latin America and the Asia Pacific regions.

Given the ineffectiveness of certain flag state/classification society inspections, the Port State Inspectorates are now widely viewed as a very, if not the most, important policing mechanism for the shipping industry, which must continue to act as a "safety net" for the flag states. Port state inspectors, while not carrying the same responsibilities as those of the flag states, are able to investigate in detail the various safety aspects of vessels; they go much further than just a mere double checking of a ship's certificates by examining areas such as crew competence. They are also able to act on any deficiency noted, by preventing a vessel from proceeding on its voyage and by notifying the flag state and next port accordingly of any significant deficiencies.

The resources at the disposal of the port states are limited, however. Of necessity, therefore, resources are to be channelled into the inspection of vessels suspected to be of a substandard condition. Moreover, efforts by port states are to a great extent reliant on the flag states taking the necessary measures as and when deficiencies are reported.

Port states, as well as flag states, should adopt the necessary measures to make it more difficult to obtain the financial advantages enjoyed by those shipowners who do not observe international rules and standards. These measures should be sufficient to minimise, or ideally offset, the financial advantages resulting from the operation of substandard vessels.

The following measures might contribute to increase the effectiveness of port state control:

i) assessment of the role of the port state with regard to the human element, particularly in relation to control on compliance with on-board operational requirements;

ii) possible wider geographical coverage of the existing Paris Memorandum or the agreement of similar MOU for other parts of the world; a sharing of information between regions operating port state control systems would be greatly beneficial in identifying vessels operated at substandard levels and in ultimately removing them from international trade;

iii) an increase in the ad random checks from the current 25 per cent of the vessels inspected to a higher figure;

iv) tighter inspection rules reducing the extent of discretion at present granted to respective inspectors;

v) intensified training efforts for surveyors in order to further harmonise inspection procedures;

vi) elaboration of a common policy on harmonisation of detention criteria and detainable items;

vii) improved follow-up of corrective actions;

viii) a greater transparency and increased publication of instances of substandard operations (list of vessels);

ix) adapted numerical staff and intensified training efforts for port inspectors.

However, it is also true to say that the effect of this greater awareness, of who the "bad owners" and "bad ships" are, will be limited until the charterers and insurers of ships impose severe penalties on the owners operating substandard vessels. For the time being, however, and depending on the balance between the supply of and demand for shipping capacity, commercial considerations seem to continue to override safety and operational considerations in many instances.

C. The responsibility of the industry in combating non-observance of international rules and standards

- There is no simple solution to the problem of substandard ship operation. Greater policing alone will not prevent substandard vessel operations: it is necessary to combine preventive and curative measures;

- The industry has an important policing role to play in co-ordination with flag states and classification societies acting on their behalf. Effectiveness is dependent on good co-operation among the various participants in maritime transport including the harmonisation of how inspections are conducted and, importantly, how corrective actions are followed up;

- The industry has to commit greater resources to preventing problems occurring in the first place rather than on corrective action.

Shipowning and shipoperating companies

Certainly more effective and consistent efforts throughout the industry to ensure compliance with international rules and standards would be a valuable contribution.

There are encouraging signs that, since the late 1980s, more and more owners are taking steps to improve performance through the implementation of formal safety and quality management systems. Such systems are being based on various safety and quality standards which have been laid down by classification society bodies such as the International Standards Organisation (ISO) -- the latter by way of the ISO 9000 series of quality standards.

To date, most safety and quality initiatives have been pursued on an individual basis although the formation of the International Ship Managers Association (ISMA), in April 1991, was the first concerted attempt by individual, in this case third party ship management, companies to work together towards raising professional standards in one sector of the industry.

In 1993 this safety and quality management "movement" accelerated with the IMO's adoption of Resolution A.741 (18) -- the International Management Code for the Safe Operation of Ships and for Pollution Prevention (ISM Code). As a result of a new chapter (IX) of SOLAS, compliance with the ISM requirements will be mandatory for certain ship types from July 1998. This represents a milestone in the industry as it determines, for the first time, a minimum standard of safety management and pollution prevention encompassing shipboard and office operations.

Since the introduction of the ISM Code, an increasing number of shipowning and operating companies have committed greater resources to "upgrading" their existing management systems in order to meet the specific ISM requirements in such areas as deficiency, accident and incident reporting and follow-up, internal auditing and management review. In effect, the safety and quality movement has been given added momentum. However, it has to be noted that the ISM Code does not in itself address the root cause of the shipping industry's problems, particularly the lack of qualified, experienced and motivated seafarers.

Greater policing alone, however, cannot prevent substandard vessel operations as it is necessary to combine preventive and curative measures together. This has been the lesson learnt by other industries which have tried unsuccessfully to improve the quality of either the products or services they provide to customers by increasing the pre-delivery inspection effort.

The immediate concern is to improve the involvement of the industry in preventive actions. Based on this understanding, a more organised Safety Management System-type approach to shipboard safety has been brought about in recent years, together with the development of quality standard management systems. However, the movement towards an SMS-type approach is still in its early stages and while more and more shipowning and shipoperating companies are committing greater resources to safety management, the dissemination of the SMS-approach throughout the industry is proving to be a slow one. A major reason for this is that safety management is not, as yet, a mandatory requirement.

Insurance

The insurance sector, especially the leading P&I Clubs, due to an erosion of confidence in the primary bodies, in charge of ensuring compliance with international rules and standards, on which insurance companies based in the past their commercial considerations, are now playing an active role in the process in order to have a more reliable basis for their risk evaluations. The approach of P&I Club inspectors, however, is somewhat different given that the primary objective of shipboard inspections of member vessels is an educational one albeit with inspectors holding the right to notify the Club directors should the seriousness of any deficiencies found call into question membership status.

It is envisaged that the leading P&I Clubs as well as the Salvage Association, which undertakes inspections (condition surveys) on behalf of the hull underwriting community, will continue to serve an important function albeit within a competitive market situation.

Furthermore, marine insurers could, if they wish to do so, exercise pressure on operators not respecting international rules and standards by giving commercial recognition to those owners operating good quality ships via insurance premia reflecting the level of risk associated with the vessel and its cargo.

Chartering

Like marine insurers, charterers are rather sceptical vis-à-vis the role played by certain flag states and classification societies and have felt it necessary to increase their monitoring activities as a way of protecting their commercial interests.

Significant efforts by charterers, particularly, the major oil transportation companies, were made in recent years to refine shipboard inspection procedures, foster greater co-operation including the exchange of information and to extend the vetting process into the offices of the shipowning and operating companies.

Charterers are expected to continue to exert influence over the policing process. However, given that the interest of the major charterers is a relatively narrow one insofar as they concentrate their inspection activities on a relatively small number of owners and vessels, the overall impact on the shipping industry will continue to be limited.

Maritime Unions

The International Transport Workers' Federation (ITF) has been waging a campaign for a number of years based on its surveillance of shipboard working conditions of owners employing crew on non-ITF accepted terms and conditions. Shipboard inspections have become increasingly commonplace, particularly in certain parts of the world, with ITF inspectors focusing, primarily, on crew welfare conditions.

This campaign will continue in the future, although it is unlikely to be co-ordinated with the efforts of any other policing body.

IV. SUMMARY AND CONCLUSIONS

The main points made by this report and the conclusions to be drawn are:

a) Shipowners are largely free to determine the operating standards of their vessels. Increasing financial pressures exerted on shipowners in recent years, due to cost inflation and overtonnaging in many sectors, have forced more and more shipowners on to a survival footing characterised by cost saving initiatives and expenditure cut-backs on safety-related maintenance cost items with the risk of violating international rules and standards.

b) The freedom to determine operating standards exists because, in spite of more frequent and more rigorous ship inspections in recent years, considerable scope exists for shipowners to deliberately avoid compliance with international rules and standards which govern safety and pollution prevention in the shipping industry.

c) The extent to which financial benefits can be enjoyed by shipowners who deliberately choose not to comply with the various safety and pollution measures laid down in international maritime rules and standards can be demonstrated in two main ways:

    - The wide variations in annual vessel operating expenditure, evident in international shipping, illustrate significant margins of substandard operation. These margins can equate to daily running cost savings of several hundred dollars and, in turn, to a significant percentage of total vessel operating costs.

- Typical deficiencies detected during annual flag state inspections demonstrate that while the majority are of a minor nature which involve only small cost savings, certain major deficiencies can involve substantial financial implications particularly if the deficiency results directly in an immediate disruption to a vessel's ability to trade.

d) As the pressure on shipowners to reduce repair and maintenance expenditure has increased so has the responsibility of the flag states, and classification societies acting on their behalf, to identify instances of substandard operation which pose a serious risk to safety and the environment. However, frequently, flag state administrations are not in a position to fulfil their responsibilities in implementing international rules and standards either directly or indirectly through classification societies. No attempt has yet been made to standardise the way in which flag state inspections should be conducted although the examination of different ship registers reveals similarities in their approaches.

e) The findings of vessel inspections as conducted by various primary (flag states and classification societies acting on their behalf) and secondary (port states, charterers, insurers, maritime unions) bodies demonstrate, however, that there is still considerable room for improvement both in terms of the technical condition of vessels and shipoperating practice.

f) Given the present legal framework, penalties applied to substandard vessels are, if they exist at all, relatively low compared to the advantages obtained from non-observance of international rules and standards.

g) Lasting solutions to combat non-observance of agreed international rules and standards necessitate co-ordinated co-operation of all participants in international shipping operations. The industry has an important policing role to play in co-ordination with flag states, and classification societies acting on their behalf. Effectiveness is dependent on good co-operation among the various participants in maritime transport including the harmonisation of how inspections are conducted and, importantly, how corrective actions are followed up.

h) Significant improvements in vessel operating standards cannot, however, be achieved through more diligent policing alone:

- Shipowners and operators need to commit greater resources to preventing problems occurring in the first place rather than on corrective action.

- The ISM Code represents the latest attempt to improve minimum standards of safety. The ISM Code provides owners and operators with a useful industry-wide organisational framework to co-ordinate the improvement effort. At the same time the proper implementation of the ISM Code will undoubtedly lead to a phasing out of a number of substandard vessels which in turn could well result in improved freight rates. However, while it is expected to have a beneficial effect overall, it will not eradicate substandard practices as it does not address the root of the industry's problem, namely the lack of qualified, experienced and motivated seafarers.

i) For the foreseeable future, the shipping industry will be characterised by what is a two-tier market in shipoperating standards. The upper tier comprises those owners who take a responsible attitude to safe shipoperations and enjoy, as a result, access to most charterers and trade routes. The lower tier, by contrast, is made up of owners and operators who

continue to circumvent or ignore accepted rules and regulations and who will be targeted more and more in the future to undergo shipboard and office inspections and who will be afforded limited access to certain trades and charterers.

Annex I

SUEZMAX TANKER

Common practice			Good practice		
Component	**Quarter total**	**Annual total**	**Component**	**Quarter total**	**Annual total**
Deck stores	11 500	46 000	Deck stores	15 500	62 000
Engine stores	11 250	45 000	Engine stores	14 050	56 200
General stores	7 250	29 000	General stores	11 250	45 000
I. Total purchasing	**30 000**	**120 000**	**I. Total purchasing**	**40 800**	**163 200**
II. Lubricants	**34 275**	**137 100**	**II. Lubricants**	**41 700**	**166 800**
D/D reserve	24 475	97 900	D/D reserve	24 475	97 900
Survey	5 000	20 000	Survey	5 500	22 000
R&M	22 000	88 000	R&M	26 000	104 000
Spares	25 000	100 000	Spares	52 500	210 000
III. Total technical	**76 475**	**305 900**	**III. Total technical**	**108 475**	**433 900**
IV. Administration	**32 000**	**128 000**	**IV. Administration**	**35 000**	**140 000**
Σ I - IV.	**172 750**	**691 000**	**Σ I - IV.**	**225 975**	**903 900**
Crew wages	186 800	747 200	Crew wages	186 800	747 200
Crew travel/victualling	48 500	194 000	Crew travel/victualling	48 500	194 000
V. Total crew	**235 300**	**941 200**	**V. Total crew**	**235 300**	**941 200**
VI. Insurance	**106 125**	**424 500**	**VI. Insurance**	**106 125**	**424 500**
VII. Total	**514 175**	**2 0656 700**	**VII. Total**	**567 400**	**2 269 600**
Daily rate	US$5 635		**Daily rate**	US$6 218	

NB.	Crew complement:	28 (4 senior officers/ 7 junior officers/ 17 ratings)
	Crew nationality:	5 British senior officers + 23 Indian juniors/ratings

CONTAINER VESSEL

Common practice			Good practice		
Component	**Quarter total**	**Annual total**	**Component**	**Quarter total**	**Annual total**
Deck stores	6 500	26 000	Deck stores	7 250	29 000
Engine stores	6 650	26 600	Engine stores	7 500	30 000
General stores	6 250	25 000	General stores	7 625	30 500
I. Total purchasing	**19 400**	**77 600**	**I. Total purchasing**	**22 375**	**89 500**
II. Lubricants	**12 000**	**48 000**	**II. Lubricants**	**17 500**	**70 000**
D/D reserve	12 000	48 000	D/D reserve	18 000	72 000
Survey	3 000	12 000	Survey	4 000	16 000
R&M	10 000	40 000	R&M	13 200	52 800
Spares	18 500	74 000	Spares	20 000	80 000
III. Total technical	**43 500**	**174 000**	**III. Total technical**	**55 200**	**220 800**
IV. Administration	**22 750**	**91 000**	**IV. Administration**	**28 000**	**112 000**
Σ I - IV.	**97 650**	**390 600**	**Σ I - IV.**	**123 075**	**492 300**
Crew wages	118 200	472 800	Crew wages	118 200	472 800
Crew travel/victualling	32 100	128 400	Crew travel/victualling	32 100	128 400
V. Total crew	**150 300**	**601 200**	**V. Total crew**	**150 300**	**601 200**
VI. Insurance	**51 025**	**204 100**	**VI. Insurance**	**51 025**	**204 100**
VII. Total	**298 975**	**1 195 900**	**VII. Total**	**324 400**	**1 357 600**
Daily rate	US$3 276		**Daily rate**	US$3 719	

NB. Crew complement: 21 (4 senior officers/
7 junior officers/
10 ratings)

Crew nationality: All Indian

Annex II

TYPICAL OFF-HIRE STATEMENT

mb:_____ T/C Rate: US$12 000/day

Port:_____

Duration: From: 06/12/94 @ 07:20 Local
To: 07/12/94 @ 13:50 Local

Total off-hire: 30 hrs 30 minutes (1.271 days)

Fuel consumed during off-hire period

HFO (2.75 MT @ US$90/MT) + MDO (2.15 MT @ US$295/MT)

Compensation Due to Charterer:

Refund of hire:	US$12 000 x 1.271 days	= US$15 252.00
Fuel (HFO):	US$90 x 2.75	= US$ 247.50
(MDO):	US$295 x 2.15	= US$ 634.25
		US$16 133.75