Proceedings of the National Workshop on the Implementation of MARPOL 73/78 in Indonesia: Cost-Effective Shore Reception Facilities

Jakarta, Indonesia

14-15 January 1998

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PROCEEDINGS OF THE NATIONAL WORKSHOP ON THE IMPLEMENTATION OF MARPOL 73/78 IN INDONESIA:

COST-EFFECTIVE SHORE RECEPTION FACILITIES

JAKARTA, INDONESIA
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WORKSHOP REPORT

INTRODUCTION

1. The International Maritime Organization (IMO) and the Directorate General Sea Communication (DGSC) of Indonesia jointly implemented a National Workshop on Implementation of MARPOL 73/78: Cost Effective Shore Reception Facilities from 14 to 15 January 1998. The workshop was held at the Millennium Sirih Hotel, Jakarta. Financial support for the workshop was provided by the Government of Norway. More than 70 participants from the public and private sectors of Indonesia attended. The workshop was co-chaired by Captain Henky Lumentah, DGSC, and Mr. Adrian Ross, IMO Manila.

2. A full list of participants and resource persons is included in Annex 2.

3. The agenda for the workshop is included in Annex 3.

Session 1: Opening Session

4. The Opening Session of the workshop was Chaired by Captain Henky Lumentah, DGSC. Captain Lumentah welcomed all participants to Jakarta on the occasion of the workshop and expressed his desire that their presence would be a rewarding and enjoyable experience. Captain Lumentah expressed his appreciation to the International Maritime Organization for co-financing the workshop, and to the resource persons and speakers from Singapore and Thailand for agreeing to share their knowledge and experience with the workshop participants. Captain Lumentah then introduced Mr. Henning Brathaug of the International Maritime Organization.

5. Mr. Brathaug greeted the workshop participants on behalf of the IMO Secretary-General, Mr. William A. O'Neil. He further expressed appreciation to DGSC for their co-operation and support in organizing and implementing the workshop. Mr. Brathaug explained that the lack of reception facilities for garbage, waste oil, dirty ballast water and wash water containing chemicals has proven to be a major problem worldwide for the shipping industry, and that this

represented a serious threat to the marine environment. He welcomed the opportunity provided by the workshop to look at different ways to finance the construction and operation of such facilities and wished the workshop participants success in their endeavour.

6. Captain Lumentah invited the Director-General of Sea Communications, Mr. Soentoro, to address the workshop. Mr. Soentoro thanked IMO and its Regional Programme Office in Manila for the technical assistance and support in organizing the workshop. The Director-General pointed out that the failure to establish adequate shore reception facilities in Indonesia increases the risk of illegal discharges from ships, thus increasing the threat of pollution to the tropical and coastal environment of Indonesia. He pointed out the great cultural and economic importance that the coastal and marine environment plays in the lives of the citizens of Indonesia, and just how sensitive and vulnerable the resource was to pollution. Mr. Soentoro indicated that he expected that with a government/private sector partnership approach, Indonesia could solve the problem of lack of shore reception facilities in its many ports, and encouraged such discussion during the two-day event.

7. The opening remarks of Mr. Brathaug and Mr. Soentoro are appended in Annex 4.

8. Mr. Adrian Ross, IMO Regional Programme Office, Manila, reviewed the objectives and format of the workshop. The objectives of the workshop were stated as follows:

.1 To develop a consensus on the problems and issues associated with planning, developing and implementing shore reception facilities in Indonesia;
.2 To review approaches and options used in other countries in the region;
.3 To identify steps to be taken for establishing cost-effective shore reception and treatment of MARPOL wastes in Indonesia.

9. The participants were reminded that the evolution of a country's capacity to implement MARPOL was a not just a short-term project, but required a continuous commitment through a series of transitional stages. The experiences within Indonesia, as well as those of Thailand and Singapore, as related by resource persons from those countries, would provide insight into the steps that Indonesia needed to take.

10. Mr. Ross then outlined the format of the workshop. It was pointed out that the workshop would consist of a series of technical sessions conducted by

resource persons, followed by four working group sessions dealing with:

.1 Strengthening legal and regulatory instruments;
.2 Enhancing enforcement capacity and effectiveness;
.3 Identification of public-private partnership opportunities; and
.4 Development and strengthening opportunities for private sector investment in shore reception facilities and related land-based waste management services.

The goal of the work group exercises was to develop a series of actions for overcoming identified barriers to the provision of shore reception facilities, to delineate roles and responsibilities of stakeholders who would be involved in implementing the action plan, and to develop a time table for achieving outputs and progressing toward cost-effective shore reception.

Session 2: Status of MARPOL 73/78 Implementation in Indonesia

11. Mr. Muhdin Salim, Head of Legal Division, DGSC, reviewed the obligations of Member States under the MARPOL 73/78 convention. He noted that Indonesia had ratified MARPOL in September 1986 by Presidential Decree No. 46. Chapter VIII of Act No. 24/1992 on Navigation is devoted specifically to prevention and response to pollution from ships. In general, the ship's captain, manager and all crew members are held responsible for preventing pollution from the ship and the ship's surroundings. Article 65 prohibits all ships from disposing of wastes or other substances except in accordance with requirements. Violation is punishable by a maximum prison rem of five years or a fine of 120 million rupiah. If any damage results, twice the prison term and/or fine shall be added.

12. In connection with oil pollution from ships, the Ministry of Communication has issued the Decree of the Directorate General of Sea Communication No. PY.69/1/11-86, which requires ships to have oily water separators and oil discharge monitoring according to the requirements of MARPOL. Decision No. KM 86, 1990, of the Ministry of Communications extended the requirement to both Indonesian and foreign ships of at least 100 GRT operating permanently in Indonesia, including tug boats with a main engine propulsion of 200 hp and above. Regulations implementing MARPOL certification requirements are contained in Decrees No. 167/HM.207/Phb-86 on the International Certificate for the Prevention of Pollution by Oil and the International Certificate for Prevention of Pollution from Poisonous Liquid Material.

13. Regarding port facilities, Minister of Communications Decree No. KM215/AL/506/PHB-87 on the Procurement of Shore Reception Facility instructs the four gateway ports (Tanjung Priok in Jakarta, Tanjung Perak in Surabaya, Belawan and Makasar) to establish shore reception facilities. Only Tanjung Priok and Tanjung Belawan have done so. There are also facilities in Ujung Pandang. However, use of these facilities is far from optimal.

14. A paper entitled, "Significance of MARPOL 73/78 Implementation to Marine Pollution Control Measures: Issiues Related to Shore Reception Facilities", was submitted to the workshop by Ir. Mohd. Gempur Adnan, Director for Water and Marine Pollution Control, the Environmental Impact Management Agency (BAPEDAL). The paper suggested a need to re-examine existing national implementing legislation for the MARPOL convention. The legislation should link MARPOL more closely with regional, national and local laws, especially waste management policies and regulations and the various administrative levels of government and their respective roles and responsibilities.

15. Mr. Soebagijo Soemodihardjo, Head of Research and Development Agency, Department of Communication presented a paper entitled Effective Utilization of Port Reception Facilities at Ports in Indonesia. Mr. Soemodihardjo indicated that in addition to the reception facilities at the two previously identified ports, eight terminals also employ oily waste reception facilities including: Blangcanang; Dumai; Plaju; Pulau Sambu; Sungai Gerong; Cilacap; Balikpapan; and Sorong.

16. Captain Juslih Jusuf, Directorate for Shipping, PERTAMINA, estimated that the quantity of dirty ballast water to be disposed of at shore reception facilities from oil tankers ranged from 4% to 8% of the tanker's DWT when tank washing has been completed at sea, to 30% of the DWT when circumstances did not allow washing at sea. He identified that PERTAMINA and its Production Sharing Contractors operate 13 off-shore crude terminals, where crude oil is loaded into export tankers, and 14 on-shore crude loading ports and terminals. In addition, PERTAMINA operates 8 petroleum product loading ports and 13 petroleum back loading ports. There are currently no reception facilities for arriving tankers at the off-shore terminals. All tankers arriving at off-shore terminals have segregated ballast tanks or double hulls. Bilge water and sludges are not off-loaded. Several of the onshore terminals and ports have storage facilities for oily waste. Oily waste treatment facilities are operated by PERTAMINA at locations where reception facilities are available. It was noted that although PERTAMINA has provided facilities at some sites, it has a responsibility to provide a service to all vessels visiting its ports and terminals.

17. Ir. Suprihat, Technical Director, Port Corporation II, outlined the extent and capacity of reception facilities that had been installed in Tanjung Priok in 1989. Oily waste is offloaded from vessels into a barge, which then moves to the reception facility. Floating oil is pumped to a tank truck and the oily water mixture is fed into an oil/water separator. Collected/recovered oil is used as fuel for limestone kilns. The service fees charged for use of the reception facility varies (e.g., Rp 13,200/ton for oil sludge; Rp 15,000/ton for oily waste) and includes charges for processing (RP 20,000/ton for oil/water separation).

18. Ir. Suprihat estimated that less than 2% of visiting ships actually used the reception facility service. The majority of vessels discharge illegally or sell the oil to illegal collectors who pay for the waste oil. It was pointed out that stronger sanctions are required on ships to prevent illegal practices, and that enforcement of regulations concerning prevention of pollution from ships is required. In addition, clearer lines of responsibility between Port Administrators and Port Corporations are required.

19. In the general discussion that followed the presentations, it was noted that:

.1 Illegal operations, such as unlicensed tank cleaners and oily waste collectors, should be brought into a permit system. Permits need to be monitored and enforced in order to put the bad operators out of business;

.2 Illegal operations are a disincentive to the development of public-private partnerships with legitimate business partners;

.3 In Singapore, ships selling their oily waste to collectors outside the port area, are not allowed to do business in the Port of Singapore. All operations must occur within the port area, under the jurisdiction of the Port Authority; and

.4 Garbage (Annex V) can be collected from ships and the cost of such service may be covered in the port dues. This is being implemented in the Port of Singapore.

Session 3: Lessons Learned Elsewhere

20. Mr. Henning Brathaug, Implementation Officer, IMO London, gave a talk on different ways to finance reception facilities. First, he explained the requirements of the MARPOL convention with regard to reception facilities. He then continued with an overview of the expected quantities of waste from different types of ships. For instance, a cruise ship with 3000 persons on board will generate about 7200 kg of garbage per day. Much of this waste is plastic

and therefore cannot be dumped into the sea; shore reception is a must. Mr. Brathaug then focused on financing options for shore reception facilities. He noted three options:

.1 direct charge (the ship pays for the waste delivered);
.2 no special fee system (the fees are included in the harbour dues); and
.3 free of charge (the taxpayer covers the cost).

21. Mr. Brathaug indicated that three options were under review by an IMO correspondence group, which would be reporting to MEPC 42 in November 1998. He explained that there is no ideal system. The direct charge system may encourage ships to discharge their wastes at sea to save money, and the no special fee system will penalize ships that visit ports every day and do not use the reception facilities they pay for. Finally, the free of charge system does not apply the "polluter pays" principle. It was suggested that a combination of the options may be a solution.

22. Mr. Zafrul Alam, 2nd Assistant Director (International), Police Division, Maritime and Port Authority (MPA) of Singapore presented a paper entitled, "Singapore Experience in Developing and Managing Shore Reception Facilities". Mr. Alam informed the group that Singapore's regulations give responsibility to MPA for management and control of all marine pollution in the territorial sea, whether originating from sea operations or from the land. The Ministry of the Environment has responsibility for controlling industrial and municipal effluent and emissions and the discharge of pollutants into river waters. They also have overall responsibility for protecting Singapore's environment, including the marine environment. The Prevention of Pollution from the Sea Act gave effect to Annexes I and II of MARPOL 73/78 in Singapore on 1 February 1991.

23. Mr. Alam reviewed the history of Singapore's preparation for MARPOL and the development of the implementing legiislation (i.e., the new Act) before accession to the convention. The process involved a series of consultations with stakeholders addressing various issues such as legislation requirements, competencies of various government departments and their administrative responsibilities, type of pollution to be covered, penalties, power of the MPA, etc. He went on to emphasize the importance of providing information and building awareness among the shipping community. These groups may be unfamiliar with the new legislation, the operation of equipment and the correct implementation procedures. MPA conducted numerous courses, seminars and conferences from 1991 to 1993 to make the maritime community aware of the provisions of the new Act and the regulations thereunder.

24. Mr. Alam explained the organizational structure of MPA. He described the role of MPA in implementation of MARPOL as follows:

.1 surveys and certification of vessels, including delegation of such responsibility to classification societies;
.2 provision of exemptions from requirements;
.3 port state control and the implementation of the Tokyo Memorandum of Understanding;
.4 investigation of incidents involving flag vessels;
.5 monitoring of IMO developments;
.6 appointment of MARPOL surveyors;
.7 appointment of laboratory analysts, for providing evidence in prosecutions;
.8 approval of equipment;
.9 monitoring and detection of marine pollution, in co-operation with the Police Coast Guard, Republic of Singapore Navy and civilian and government aircraft;
.10 controlling importation and exportation of non-categorized chemicals on ships;
.11 controlling the movement of vessels carrying dangerous substances in Singapore waters;
.12 ensuring the provision of shore reception facilities for ships at anchorages.

25. Mr. Alam stressed that implementing regulations for MARPOL must be practical and consider the technical and administrative requirements and capacities of the respective governments and ports.

26. Mr Alam noted the need for a regional approach in controlling sea-based marine pollution. An agreement has been reached between Singapore and Malaysia on regulation of tank cleaning operations. A similar agreement does not exist with Indonesia. Mr. Alam concluded that in order to be effective, a control program should address all activities impacting on the system, including tank cleaning, deballasting, ship repair, small vessels, etc.. Four points were listed for inclusion in a successful control program for vessel wastes:

.1 *the fear of getting caught*, which can be enhanced through the provision of severe penalties;
.2 *education and awareness*, which affects the conscience of seafarers, port operators, politicians, etc., to the benefit of the program's objectives;
.3 *the needs of the customer*, which are of paramount importance, otherwise the customer (e.g., the vessel's captain) will deal with

unlicensed contractors or possibly conduct illegal operations; and

.4 *integration of land-based and sea-based pollution control facilities and systems,* which provides both economic and environmental advantages.

27. A copy of Mr. Alam's paper is included in Annex 5.

Session 4: Delineation of Problems regarding Cost-Effective Shore Reception Facilities in Indonesia

28. Captain Lumentah introduced a paper by Mr. Fahmi Djamaris, Director of Guard and Rescue, DGSC, entitled, "Enforcement of Marine Pollution Regulation". In the paper, Mr. Djamaris highlighted that ships do and cannot comply with MARPOL 73/78 in Indonesia for the following reasons:

.1 lack of appropriate port reception facilities;
.2 high prices charged by existing reception facilities;
.3 undue delay of ships at reception facilities;
.4 malfunction of oil/water separators on board vessels;
.5 odour problems caused by storage of garbage on board; and
.6 lack of information.

29. Mr. Djamaris's recommendations included:

.1 provision of appropriate port reception facilities in all ports in Indonesia;
.2 strengthening of the implementing regulations nationally and locally, including enforcement of regulations covering the reception and treatment of ship wastes; and
.3 more training on the enforcement of MARPOL regulations.

30. Mr. Berens Th. Saragih, Secretary General of the Indonesian National Shipowners Association (INSA) presented a paper entitled, "Can the Shipping Industry Meet the Obligation?" Mr. Saragih pointed out that:

.1 although Indonesian vessels are equipped with pollution prevention equipment, illegal discharges occur because there are few ports with shore reception facilities to receive oily waste;
.2 Port Administrators need to ensure that reception facilities are available, that received wastes are properly treated and that service fees are fair and reasonable;

.3 integration of port reception and treatment facilities with other land-based waste treatment facilities is essential; and

.4 Indonesia should seek technical assistance from IMO's Technical Cooperation Committee to implement IMO regulations.

Session 5: Developing Public-Private Sector Partnerships

31. Mr. Neil Challis, Director of Strategic Planning and Development (Asia), International Response Corporation (IRC), presented a paper entitled, "The Establishment of a MARPOL Waste Oil Reception Facility for Bangkok and the Ports of the Eastern Seaboard of Thailand - Public Sector-Private Sector Partnership for Marine Pollution Prevention". Mr. Challis reviewed the history of the shore reception facility planning and development stages in Thailand, explaining that the government had opted for a public-private partnership approach. In 1995, after a competitive bidding process, IRC was awarded a contract to investigate the feasibility of developing a MARPOL waste oil reception and recycling facility, with 50% of the cost covered by a USAID grant and the balance by IRC. The Thai strategy was to cost-share the project with a company that had both the commitment and the resources to establish such a facility should the feasibility study prove to be positive.

32. The feasibility study was completed from April to December 1995. The results of the study indicated:

.1 the economic feasibility of setting up a centralized waste oil storage and treatment facility in Laem Chabang, with collection and barging of oily wastes from four other major ports (i.e., Bangkok; Tha Phut; Siracha, and Siam Seaport) and various anchorages along the eastern seaboard of the Gulf of Thailand.;

.2 the use of barges to collect waste oil from vessels offered greater flexibility and efficiency than vacuum trucks;

.3 the possibility of outfitting the waste oil collection barges with oil spill response equipment, to serve a dual purpose in high risk oil spill areas; and

.4 the viability of treating the waste oil to produce basic fuel oil, which could be used by local industry.

33. It was noted that difficulties were experienced in establishing the volume of waste oil being generated in the various ports. At the end, the facility design capacity was set at 25,000 tonnes per year, with a possible future expansion to 35,000 tonnes per year. Other concerns highlighted included:

.1 the inspection and enforcement capacity of national authorities, to ensure that vessels use the available facilities; and

.2 the type of fee system to be adopted and implemented, to provide sufficient revenue to sustain the waste oil reception and treatment system.

34. Mr. Challis informed the workshop that IRC has opted to continue the project, and is involved in preconstruction activities (e.g., EIA preparation; design; construction approvals; financing; and investment). The government is proceeding with the development of supporting regulations and the establishment of a fee system.

35. In conclusion, Mr. Challis emphasized a few points that are essential in getting the private sector to cooperate in a partnership with the public sector, namely:

.1 time is money - government must deal with the private sector in a more business-like fashion;

.2 development of regulations is not enough - government must ensure their capacity (and willingness) to enforce regulations;

.3 minimum levels of waste need to be established, and guaranteed as feedstock to the proposed facility;

.4 clear definition of the roles and responsibilities of the various government agencies and levels of government involved in the planning, approval and regulatory process; and

.5 implementation of incentive programs designed to reduce the risk of private sector investment, such as corporate tax benefits, reduction/ elimination of import duty on equipment; provision of land for siting facilities, etc..

36. Mr. Challis's paper is included in Annex 5.

37. Mr. Seah Khen Hee, Director and General Manager of Singaport Cleanseas Pte Ltd, Singapore, introduced a paper entitled, "Private Sector Investment in Shore Reception Facilities - Singapore's Approach", to the workshop. Mr. Seah described the maritime traffic which is handled in the Port of Singapore (> 120,000 vessels in 1996) and the various operations undertaken within the Port area (e.g., >300 tankers, greater than 10,000 DWT, repaired annually in Singapore's shipyards). He explained that two major types of oily residues are discharged to reception facilities, namely:

.1 slop, which is generated by washing of cargo tanks and comprises 1% suspended fine solids; and

.2 sludge, which consists of 1/3 each of oil, water and rust scales/sediments.

38. Mr. Seah listed several key considerations to be applied when attempting to attract private investors into a financing venture:

.1 a stable political, social and economic environment must be evident;

,2 an orderly, operating/administrative framework is required, identifying the roles and responsibilities of the various government agencies and authorities;

.3 a control system needs to be in place which governs and monitors the various companies and sectors involved in the collection, transportation and treatment of the unwanted materials; and

.4 standards are required and should specify the degree of treatment, effluent discharge levels and ultimate disposal requirements for waste materials.

39. Mr. Seah emphasized that all of these points are essential in creating a "level playing field" for investors, and competitors, wishing to establish shore reception and treatment facilities. He then reviewed the history of development of Singaport Cleanseas Pte Ltd, starting as a government owned facility in 1972 and becoming a joint venture in 1993. The concept of integrating "responsibility" for shore reception facilities with "economic viability" was explained. In Singapore's case that meant providing a centralized facility to serve the various terminals and anchorages, thereby achieving an economy of scale and lower unit costs of operation. Furthermore, he noted that reception facilities, when operated as a private sector enterprise, provide the necessary commercial responsiveness and flexibility that oftentimes is stifled in government-operated facilities.

40. Mr. Seah identified that Singaport Cleanseas Pte Ltd had developed a set of tariffs (service fees) that enable the company to strike a balance between recovering its capital expenditure and providing value-for-money for its services. The company has also introduced innovative service packages to vessels with discounts or payments for oily wastes which have higher concentrations of oil. These packages provide an incentive for improving onboard management of oily waste.

41. A copy of Mr. Seah's paper is included in Annex 5.

Work Group Sessions

42. Four work group sessions were held during the workshop, as noted in paragraph 10. The purpose of the sessions was to identify priority issues and to prepare an action plan which:

.1 leads to the development of appropriate regualory instruments, enforcement and supporting administrative infrastructures to achieve full implementation of MARPOL; and

.2 promotes the development of appropriate and sustainable shore reception facilities and services through public-private partnerships.

The results of the four work group sessions were reviewed in plenary, focusing on short-term, practical activities that could be implemented over the next 12-month period. The final action plan is included in Annex 1.

Session 6: Closing Ceremony

43. The workshop closed with statements from Captain Lumentah, Chairman of the Organizing Committee and Mr. Henning Brathaug, IMO London. They thanked respectively the participants and resource persons for their time and energy in preparing a workable action plan for Indonesia.

44. An official closing statement was made by Mr. Soentoro, Director General of Sea Communications. Mr. Soentoro stated that he hoped the recommendations of the workshop would be followed immediately, and that government-private sector partnerships will be developed for shore reception and treatment facilities. He thanked IMO and the resource persons from Thailand and Singapore for their contributions and support to the workshop. Mr. Soentoro noted that the workshop illustrated that regional cooperation is necessary in the planning and provision of cost-effective measures for marine pollution prevention and management region.

45. A copy of Mr. Soentoro's closing remarks are included in Annex 6.

46. The workshop was officially closed at 17:30 hrs, 15 January 1998.

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Annex 1

Proceedings of the National Workshop on the Implementation of MARPOL 73/78 in Indonesia: Cost-Effective Shore Reception Facilities

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National Action Plan for Cost-Effective Shore Reception Facilities in Indonesia

Action 1: STRENGTHENING LEGAL AND REGULATORY INSTRUMENTS

Current Situation:

Act No.21192, Regulation PP No.70196 and six new proposed regulations (under Ministerial review) encode the implementation of MARPOL 73/78 into national law. Regulations have also been issued by the Minister of Transportation concerning the development and operation of shore reception facilities for oily wastes. These existing legislation and regulations do not completely cover obligations under the MARPOL convention, do not include adequate fines and penalties for violations and do not provide a clear indication of power, authority and responsibility within and among the national agencies and levels of government involved in the implementation of MARPOL 73/78, waste management programs and marine pollution prevention and management initiatives.

Issue:

How does Indonesia proceed with the establishment of effective implementing legislation for MARPOL 73/78?

Lead Agency: Directorate General of Sea Communications

Stakeholders:

Department of Communication, Port Administrators, Port Corporations, BAPEDAL (Environmental Impact Management), Municipal Authorities, Pertamina, INSA, etc.

Strategy/approach:

1. Establish a consensus among key players on the need for strengthening national legislation, and for ensuring coordination, collaboration and awareness among national agencies, levels of government and the private sector in implementing such controls.

2. Build on the strengths of existing legislation by identifying existing gaps and overlaps and then amending implementing regulations to address any weaknesses or omissions.

Actions Required and Proposed Timetable:

1. Creation of a multi-sectoral legal team tasked with the responsibility of assessing the state of the current legislation and its adequacy regarding MARPOL obligations (February 1998).

2. Review of existing legislation, regulations, policies and directives concerning the implementation of MARPOL 73/78, as well as related land-based waste management activities at the national, provincial and local levels (April 1998).

3. Identification of gaps, overlaps and conflicts among the various legal instruments, uncertainties regarding the roles and responsibilities of government agencies and levels of government under such instruments, lack of coordinating mechanisms, and/or weaknesses in the legislation which have a negative impact on compliance (e.g., authority to prosecute; level of fines) (May 1998).

4. Preparation of a first draft of suggested amendments to existing legislation for review and agreement by the multi-sectoral legal team (July 1998).

5. Distribution of the proposed amendments to key stakeholders in Indonesia, in both the public and private sectors, for review and comment (September 1998).

6. Organization of a legal drafting workshop, comprised of concerned government authorities and private entities, to review comments received on the proposed amendments, to prepare final amendments to the legislation/regulations, as well as to delineate coordinating mechanisms in support of implementation (December 1998).

7. Submission of amended regulations as well as a plan for national coordination for Ministerial approval (March 1999).

8. Issuance of Ministerial decree (June 1999).

9. Promulgation of amended regulations (December 1999).

Action 2: ENHANCING ENFORCEMENT CAPACITY AND EFFECTIVENESS

Current Situation:

Enforcement of MARPOL-related regulations and controls is limited and inconsistent among the various national agencies and administrative regions of Indonesia. Clear definitions of roles and responsibilities of national agencies, provincial bodies and local government units for implementation of MARPOL 73/78 are lacking. In addition, there is a lack of awareness among concerned entities in the public and private sector regarding obligations under the MARPOL convention and related legislation and regulations. There appears to be limited coordination among the national agencies, Port Corporations and Port Administrations with respect to offloading, reception, processing and disposal of ship-generated wastes, including the licensing, monitoring and inspection of private operators who are collecting oily waste from ships. This is resulting in ad hoc enforcement of pollution control regulations, violations of existing environmental regulations and standards, pollution of marine and coastal waters, inefficient use of resources and a lack of willingness of private sector investment and cooperation in setting up and operating shore reception facilities and related land-based waste management services.

Issue:

How does Indonesia proceed with the establishment of an effective, integrated enforcement program for MARPOL 73/78 and related regulations and controls?

Lead Agency: Directorate General of Sea Communications

Stakeholders:

Department of Communication, Port Administrators, Port Corporations, BAPEDAL (Environmental Impact Management), Municipal Authorities, Pertamina, INSA, etc.

Strategy/approach:

1. Delineate overlaps, gaps and conflicts among agencies and levels of government, and assess the impact of the situation on the national enforcement and compliance program for MARPOL 73/78 and related regulations and controls.

2. Prepare a Standard Operating Practice (SOP) manual to provide technical guidance and direction to national, provincial and local stakeholders on the implementation of MARPOL-related regulations in Indonesia.

3. Develop a framework for an integrated, coordinated national enforcement program for MARPOL 73/78, identifying the specific roles and responsibilities of government agencies, levels of government and the

private sector, coordinating and integrating mechanisms for improving the effectiveness of enforcement programs among the various entities and outlining capacity-building and awareness-building programs to improve both knowledge and compliance with pollution prevention and management regulations and programs.

Actions Required and Proposed Timetable:

1. Creation of a muiti-sectoral working group, to work in conjunction with (and in support of) the multi-sectoral legal team, identifying the various national, provincial and/or local authorities who have legal responsibilities with respect to the implementation of MARPOL 73/78, waste management and pollution control programs in Indonesia (February 1998).

2. Definition of the respective roles and responsibilities of identified agencies and levels of government as prescribed in existing regulations, and detailing just how these obligations are currently being fulfilled (March 1998).

3. Determination through surveys/interviews, the level of awareness of entities in the public and private sector regarding their respective roles and responsibilities in off-loading, receiving, processing and disposal of ship-generated waste, as well as their existing capacities to comply with existing legal obligations (April 1998).

4. Definition of capacity building requirements within and among agencies and entities in the public and private sector who have direct responsibilities under MARPOL 73(78 and related pollution control regulations and programs (May 1998).

5. Preparation and circulation of the first draft of a Standard Operating Practice (SOP) manual to key stakeholders in Indonesia (July 1998).

6. Development and submission of a framework for an integrated, coordinated national enforcement program for MARPOL 73/78 to the multi-sectoral legal team for review and consideration in the drafting of amendments to legislation/regulations (July 1998).

7. Organization of a national workshop to review the proposed national enforcement program framework and the SOP manual, and to build consensus among key players for adopting the framework (September 1998).

Action 3: IDENTIFICATION OF PUBLIC-PRIVATE PARTNERSHIP OPPORTUNITIES

Current Situation:

There are limited data available on the types and quantities of wastes being offloaded/disposed in Indonesia from domestic and foreign vessels. One public port has shore reception facilities, but this facility services less than 2% of the vessels visiting the port and is operating at a loss. Another port is equipped with a shore reception facility which has never been used. Oil terminals in the country provide shore reception facilities and services, but limit the use of such facilities to designated vessels/vessel types. Private operators are collecting oily wastes from ships within and outside of ports areas, but there is little or no control over the collection, processing and disposal operations of these enterprises.

Issue:

How can Indonesia progress from a situation of little or no control over vessel waste disposal to a system that fully complies with MARPOL obligations as well as national, provincial and local waste management policies, objectives and controls.

Lead Agency: Directorate General of Sea Communications

Stakeholders:

Port Administrators, Port Corporations, BAPEDAL (Environmental Impact Management), Municipal Authorities, Pertamina, Indonesia National Shipowners Association, Navy

Strategy/approach:

1. Assess the adequacy of existing vessel waste management practices in industries with due consideration of obligations under MARPOL 73/78, its national implementing legislation, related environmental controls and available capacities and usage of existing shore reception facilities.

2. Identify and evaluate options for improving the situation, including bringing existing private operators into compliance with environmental regulations (for example: licensing of private waste collectors in the port area) and/or establishing new centralized shore reception, processing and disposal facilities.

3. Build consensus among stakeholders on preferred options for developing and implementing cost-effective shore reception facilities in Indonesia.

Actions Required and Proposed Timetable:

1. Creation of a multi-sectoral project development team, including stakeholders from the private sector, tasked with the responsibility of gathering and assessing current information on vessel waste generation and management practices and developing proposals for shore reception facility development through public-private partnerships (March 1998).

2. Gathering and collation of information on the types and quantities of vessel wastes being generated and the manner in which such wastes are currently handled and disposed of in DGSC-designated major ports (March/April 1998).

3. Assessment of the adequacy of existing vessel waste management practices with due consideration of obligations under MARPOL 73/78, its national implementing legislation, related environmental controls and available capacities, and current usage of existing shore reception facilities (May 1998).

4. Identification of options for improving the situation, including bringing existing private operators into compliance with environmental regulations (for example: licensing of private waste collectors in the port area) and/or establishing new centralized shore reception, processing and disposal facilities (June/July 1998).

5. Completion of financial and economic analyses of identified options, including the delineation of financial mechanisms for supporting the operation of shore reception facilities and related services in Indonesia (August 1998).

6. Organization of a national workshop to present the results of the review, proposed options and the financial and economic implications of preferred options, in order to build consensus among stakeholders, and resolve opportunities and actions required to implement public-private partnerships in shore reception and treatment facilities (September 1998).

Action 4: DEVELOPING AND STRENGTHENING OPPORTUNITIES FOR PRIVATE SECTOR INVESTMENT IN SHORE RECEPTION FACILITIES AND RELATED LAND-BASED WASTE MANAGEMENT SERVICES

Current Situation:

There is limited incentive for the private sector to invest in shore reception facilities and related land-based waste management services in Indonesia at the present time due to some uncertainties. Lack of interest by private investors is directly the result of an inconsistent national enforcement program and the "no or low-cost waste disposal options" currently available to ships operating within Indonesian waters and ports. (This issue will be addressed as a separate project activity.) In addition, there is a lack of government awareness and/or available programs which are attractive to private sector investors, including such initiatives as joint ventures, financial incentive programs and revenue-generating schemes.

Issue:

How can Indonesia enhance private sector investment in shore reception facilities and related land-based waste management services taking into consideration the number and variety of port and terminal operations in the country?

Lead Agency: Directorate General of Sea Communications

Stakeholders:

Department of Finance/Board of Investment, Port Administrators, Port Corporations, BAPEDAL (Environmental Impact Management), Municipal Authorities, Pertamina, Indonesia National Shipowners Association, Navy

Strategy/approach:

1. Establish an "investment incentive package" which outlines various means and routes by which government can attract private sector investment in shore reception facilities and related land-based waste management services.

2. Organize a roundtable meeting of investors, donors, lenders and regulators concerning the development of a national demonstration project on public-private partnership in the establishment and operation of a shore reception facility at a major port or group of ports in Indonesia.

Actions Required and Proposed Timetable:

1. Creation of a multi-sectoral working group tasked with the responsibility of determining existing policies, programs and sectors that currently engage private sector investment, both domestic and foreign, to develop and establish infrastructure projects within Indonesia (March 1998).

2. Assessment of the potential benefit, as well as administrative and eligibility obligations, under such programs as may be applied to shore reception facilities and related environmental management projects (April 1998).

3. Definition of administrative/eligibility procedures and routes by which private sector can access incentive programs (June 1998).

4. Preparation of an investment incentive package outlining the various investment incentives and routes by which private sector can invest in shore reception facilities and related land-based waste management services. In conjunction with the working group on vessel waste generation and management, identification of potential sites/situations for demonstrating the planning, development, construction and operation of shore reception facilities (August 1998).

5. Organization of a roundtable meeting with investors, lenders, donors and regulators to prepare an implementation plan (September 1998).

Annex 2

Proceedings of the National Workshop on the Implementation of MARPOL 73/78 in Indonesia: Cost-Effective Shore Reception Facilities

Jakarta, Indonesia
14 and 15 January 1998

List of Participants and Resource Persons

LIST OF PARTICIPANTS
NATIONAL WORKSHOP ON THE IMPLEMENTATION OF MARPOL : COST-EFFECTIVE RECEPTION FACILITIES
14-15 JANUARI 1998

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Annex 3

Proceedings of the National Workshop on the Implementation of MARPOL 73/78 in Indonesia: Cost-Effective Shore Reception Facilities

Jakarta, Indonesia
14 and 15 January 1998

Workshop Agenda

NATIONAL WORKSHOP ON THE IMPLEMENTATION OF MARPOL :

COST-EFFECTIVE SHORE RECEPTION FACILITIES

14 - 15 JANUARY 1998

Jakarta, Indonesia

Workshop Program

Day 1 : 14 January 1998

08.00 Registration of Participants

9.00 **Session 1 : Opening Ceremony**

Opening Remarks
- Chairman of Organizing Committee

Welcoming Addresses
- Mr. Henning Brathaug, IMO London
- Director General of Sea Communication

Objective and Format of the Workshop
- Mr. Adrian Ross, IMO Manila

09.30 **Session 2 : Status of MARPOL 73/78 Implementation in Indonesia**

09.30 Regulations and Legislation : The Existing Situation
- Head of Legal Division, Directorate General of Sea communication
- Deputy Chairman for Control of Environment Impact Management Agency (BAPEDAL)

10.30 Coffee Break

11.00 MARPOL Enforcement and Compliance : How Effective ?
- Head of R & D Agency, Department of Communications
- Director of Fleet, Port and Communication of Indonesian State Oil Company (PERTAMINA)
- Director of Guard and Rescue of Directorate General of Sea Communication

12. 30 Lunch

14.00 MARPOL Facilities and Services : What's Available ?
- President Director of Port Corporation II
- Director General of Regional Development of Department of Home Affairs
- Director of Port and Dredging of Directorate General of Sea Communication.

15.30 Tea Break

16.00 Session 3 : Lessons Learned Elsewhere

16.00 International Experience in Developing and Managing Shore Reception Facilities
- Mr. Henning Brathaug, IMO London
- Mr. Zafrul Alam, Singapore MPA

17.30 Closure of Day 1

Day 2 : 15 January 1998

08.30 **Session 4 : Delineation of Problems regarding Cost - Effective Shore Reception Facilities in Indonesia**

08.30 Current Port and Shipping Activities and Capacities in Indonesia
- Director of Traffic of Directorate General of Sea Communication

09.00 Complying with MARPOL : Can the Shipping Industry Meet the Obligations ?
- Secretary General of Indonesian Ship Owners Association

09.30 Instructions on Work Group Sessions
- Mr. Adrian Ross, IMO Manila

09.40 Work Group Session : Addressing Gaps and barriers to Cost-Effective Shore Reception Facilities

Work Group 1 : Strengthening legal and regulatory instruments

Work Group 2 : National and regional optimization of facilities and services

11.00 Coffee Break

11.30 Work Group Presentations

12.30 Lunch

14.00 Session 5 : Developing Public - Private Partnerships

14.00 Promoting Private Sector Investment in Shore Reception Facilities
- Mr. Neil Challis, International Response Corporation, Bangkok
- Mr. Seah Khen Hee, GM, Singaport Clean Seas Ltd., Singapore

15.00 Work Group Session : Progressing Toward Public-Private Partnerships in Shore Reception facilities.

Work Group 1 : Economic instruments / user pay schemes
Work Group 2 : Identification of investment opportunities/moving forward

16.30 Tea Break

16.30 Work Group Report Presentations

17.30 Session 6 : Closing Ceremony

- Chairman of Organizing Committee
- Mr. Henning Brathaug. IMO London
- Director General of Sea Communication

Annex 4

Proceedings of the National Workshop on the Implementation of MARPOL 73/78 in Indonesia: Cost-Effective Shore Reception Facilities

Jakarta, Indonesia
14 and 15 January 1998

Opening Statements

1. Soentoro
   Director-General
   Directorate General of Sea Communications
   Indonesia

2. Mr. Henning Brathaug
   Implementation Officer
   International Maritime Organization
   London

OPENING REMARKS OF
DIRECTOR GENERAL OF SEA COMMUNICATION
SOENTORO

Distinguished Representatives from the International Maritime Organization,
Distinguished Guest, Speakers and Participants,
Ladies and Gentlemen,

First of all let us thank and praise the Almighty God for His guidance and blessings that have enable us to get together here this morning, attending the opening ceremony of this very important National Workshop on the Implementation of MARPOL emphasizing on Cost Effective Reception Facilities.

In this respect, I especially would like to express my sincere thanks and appreciation to the International Maritime Organization, especially to the IMO Regional Programme for the Prevention and Management of Marine Pollution in the East Asian Seas for the technical assistance and support provided for this workshop.

I would also like to address my thanks and appreciation to the speakers from Thailand and Singapore and all the speakers from related government and shipping industries of Indonesia for your support to this workshop.

The tropical climate of Indonesia, the world's largest archipelagic country, makes its fast marine and coastal environment very sensitive to pollution. Therefore, the Government of Indonesia takes very serious attention to the protection of marine environment against pollution.

Indonesia has ratified the International Convention for Prevention of Pollution from Ships 1973, as modified by the Protocol of 1978 relating thereto, known as the MARPOL 73/78, the main Convention controlling vessel-source pollution.

Among the MARPOL 73/78 provisions require the government of each party to ensure the provision of adequate port reception facilities which can receive shipboard residues and mixtures containing oil, noxious liquids or garbage. Type and size of the facility depend on the

needs of the ships visiting a port where a simple garbage bin and a barrel for waste oil may suffice in a small port, another will need large storage tanks for the reception of residues and mixtures containing oil or noxious liquid.

Distinguished Participants,
Ladies and Gentlemen

Failure to establish adequate port reception facilities in the ports of Indonesia will increase the risk of illegal discharges from ships, and that will increase the threat of pollution to the tropical marine and coastal environment of Indonesia which are of great economic and cultural importance and as I have mentioned it is very sensitive and also very vulnerable to pollution.

There are still many ports in Indonesia which have not yet provided with port reception facilities. Of those which have already provided with reception facilities in fact are still need to be improved cost-effectively.

Therefore, I consider this workshop is very useful. It is my hope that the output of this workshop will contribute to the improvement of national capacity in implementing the MARPOL 73/78, especially on the adequate provision of port reception facilities in all ports of Indonesia.

I hope in this national workshop all the existing constraints and obstacles in establishing and managing port reception facilities in Indonesia could be discussed openly. It is expected that with government/private sector partnership approach on this matter and strengthening of implementation regulation will encourage participation of private sectors in providing port reception facility services.

Before I end I would like to express my appreciation to the Organizing Committee and the IMO Regional Programme for their hard work in preparing this workshop.

Ladies and Gentlemen,

I wish you enjoyable and productive workshop.

Thank you

OPENING REMARKS OF

THE IMO REPRESENTATIVE

MR. HENNING BRATHAUG

Participants and guests

Ladies and gentlemen

Good morning to you all.

First, let me say that it is my pleasure to extend the best wishes of Mr. O'neil, Secretary-General of the International Maritime Organization. IMO is, as you all know, a UN organization working for safe ships and cleaner oceans.

If we go back in history, and we do not have to go far, the priority of rules and regulations for ships was to protect man from the environment. Nowadays we must protect the environment from man and we have few conventions in this respect, one being the MARPOL 73/78 convention which will be discussed here today and tomorrow.

Every week we read in the newspapers of growing concern for the environment, and such problems as acid rain, the hole in the ozone layer, the greenhouse effect, illegal logging in rain forests, pollution of beaches by oil, garbage or dead fish, and other threats to our environment. These problems are very real and not simply the over-dramatic forecasts of a few professional prophets of doom. The evidence also indicates that so much damage has already been done that sustained recovery can only be made through international agreements and action.

We should listen carefully to public opinion during the last decade or so there has been growing concern about our environment and a definite growth in the power of public opinion. This was clearly demonstrated a few years ago when an multinational oil company indicated that it planned to dismantle and dispose of an oil platform in the North Atlantic. Public pressure to stop the dumping was so strong that, rightly or wrongly, the rig was not dumped. Discussions are continuing about what to do with it. If I look into my crystal ball I can see that in ten years time the newspaper heading that nowadays reads: "Ship grounded on coral reef, great damage to hull of ship", would read: "Ship grounded on coral reef, great damage to the reef''. The point is that the ship can easily be repaired - it is just a matter of money. The reef, however, cannot be repaired.

This reminds me of an incident involving a large cruise ship which grounded on a coral reef in the Red Sea near the Gulf of Aqaba two years ago. Two hundred meters of coral reef was damaged and the ship had to go to Malta for repair. The Egyptian authorities held the ship until payment had been guaranteed for the damage caused. How much? US $22 million. It was later reduced by the court to US $20 million.

MARPOL has had a very positive effect on the marine environment, and IMO is working very hard to achieve further ratification and implementation of the convention. In fact, that is why we are here to look for other ways to implement MARPOL. The ability to enforce IMO standards properly is especially important because there is no possibility of lowering those standards simply because they are difficult to achieve. Implementation of MARPOL means also the provision of reception facilities, and that has proven to be the main problem in many ports around the world because when it comes to MARPOL 73/78 requirements for the discharge of ship-generated waste such as garbage and waste oil, you will notice that the main problem does not lie with the ship itself but with the port. All the ship is required to do is discharge the waste to the port. The port is then faced with the problem of what to do with the waste. The lack of reception facilities for garbage, waste oil, dirty ballast water and wash water containing chemicals has proven to be a major problem worldwide for the shipping industry, and is a serious threat to the marine environment.

It will cost money to establish reception facilities but the "polluter pays" principle should be used, which means that ports can recover their costs. We will at this workshop look into different ways of minimizing the need for reception facilities, and try to find a solution to the problem of financing such facilities.

To protect the marine environment can be very costly but one thing is certain, not to protect it costs much more. For instance, if fish are polluted or simply die out because of pollution, the effect on fishermen and the economy is very serious. Likewise, if beaches are polluted, tourists will stay away and the tourist industry will suffer. We have to protect our environment, not only for ourselves but for the next generation as well they should not inherit our ignorance.

May I take this opportunity to thank the Directorate General of Sea Communication for hosting this workshop and Captain Lumentah for inviting me here. In conclusion, I should like to wish you every success with this important workshop and I hope that we can all push the ball in the same direction with the common goal of ratifying, implementing and enforcing MARPOL and other conventions, and providing reception facilities so that ship-generated waste is not thrown overboard but is disposed of in an environmentally sound manner.

Annex 5

Proceedings of the National Workshop on the Implementation of MARPOL 73/78 in Indonesia: Cost-Effective Shore Reception Facilities

Jakarta, Indonesia
14 and 15 January 1998

Papers presented by Workshop Resource Persons

1. Mr. Zafrul Alam
2. Mr. Neil Challis
3. Mr. Seah Khen Hee

NATIONAL WORKSHOP ON THE IMPLEMENTATION OF MARPOL:

COST-EFFECTIVE SHORE RECEPTION AFCILITIES, 14-15 JAN 1998, JAKARTA, INDONESIA

SINGAPORE EXPERIENCE IN DEVELOPING AND MANAGING SHORE RECEPTION FACILITIES

Zafrul Alam, 2nd Assistant Director (International), Policy Division, Maritime and Port Authority of Singapore

INTRODUCTION

The International Convention for the Prevention of Pollution from Ships, 1973 as modified by the Protocol of 1978 relating thereto (MARPOL 73/78), is the most important international treaty ever adopted in the struggle against pollution from ships. It came into force internationally on 2 Oct 1983.

Requirements relating to reception facilities are contained in Regulation 12 of Annex I (regulations for the prevention of pollution by oil), Regulation 7 of Annex II (regulations for the prevention of pollution by noxious liquid substances carried in bulk (NLS)), Regulation 10 of Annex IV (regulations for the prevention of pollution by sewage) and Regulation 7 of Annex V (regulations for the prevention of pollution by garbage) of MARPOL 73/78. There is no requirement relating to reception facilities in Annex III. Annex IV of MARPOL 73/78, the only Annex of MARPOL 73/78 which has not entered into force internationally is being revised by IMO with a view to encourage IMO Member States to accept the Annex.

Singapore is a party to Annexes I, II and III of MARPOL 73/78. Singapore's preparatory work for accession to Annex V is almost completed and it is expected to accede to this Annex this year. The Republic will start preparing groundwork for Singapore to accede to Annex IV as soon as IMO's revision exercise is completed. The aim of this paper is to share Singapore's experience in developing and managing shore reception facilities. Although Singapore has yet to accede to Annexes IV and V of MARPOL 73/78, discharge of sewage and garbage in Singapore waters is prohibited. Hence the paper will also describe how sewage and garbage are received. It is important for the reader to have an overview of the Republic's preparatory work which led to the acceptance of the Convention, its environmental legislation and the functions of the key enforcement agencies to appreciate how MARPOL requirements on reception facilities are implemented.

APPLICATIONS OF ENVIRONMENTAL LEGISLATION IN THE WORLD'S BUSIEST PORT

Singapore is strategically located at the crossroads for ships plying between the Asia/Pacific Region and the Middle East/European Region. Singapore maintained its lead as the busiest port of the world with 117, 723 vessels calling at Singapore in 1996. It also maintained its lead as top bunkering port with bunker sales of 16.9 million tonnes in 1996. Amount of oil imported to Singapore in bulk increased from 17 million tonnes in 1968 to 93 million tonnes in 1996. Singapore has the 10th largest merchant fleet in the world with an aggregate gross tonnage of 19 million. It is also a leading shiprepair centre and third largest refining centre in the world. A large number of laden VLCCs (very large crude carriers with carrying capacities above 150,000 tonnes of crude oil) transit the Singapore Strait, which is less than 0.75 miles from the port limit. As the maritime traffic and maritime activities in our waters increase, so too does the risk of a serious pollution incident. Oil spills pose a threat to our limited port waters, marine activities, recreational facilities and our other limited resources. Two recent incidents one intentional discharge of oil sludge in Aug 96 by a Singapore registered vessel "Song San" and the other, spillage of more than 28,000 tonnes of fuel oil by Cyprus tanker "Evoikos" when it collided with a Thai supertanker, Orapin Global in Oct 97 testify this fact.

The increasing demand for better health, shipping safety and clean environment in Singapore led to the formation of the Maritime and Port Authority of Singapore (MPA) in Feb 96. MPA is the main agency to control pollution of Singapore waters and pollution of the seas by Singapore ships anywhere in the world. Over and above continuing to discharge the functions of the various entities such as the former Marine Department, former National Maritime Board and regulatory functions of the Port of Singapore Authority (now PSA Corporation) that were merged to form the MPA, the MPA has an overarching mission to promote Singapore's maritime interests. Although MPA is the main agency for protecting the marine environment in Singapore waters, other government agencies have some responsibility over matters relating to the waterfront land and coastal waters. For example, the Ministry of the Environment which controls land-based pollution and operates waste disposal facilities is also responsible for controlling the design, construction, capacity and equipment for reception facilities for ships' oily and chemical residues and effluent discharge from such facilities.

MPA administers a comprehensive set of legislation covering all aspects of the environment such as prevention, preparedness and response to marine pollution emergencies and compensation for oil pollution damage resulting from spills of

persistent oil. As shipping is international, our legislation are in line with 1982 UN Convention on the Law of the Sea (UNCLOS 82) and international conventions developed by IMO. Singapore is a party to UNCLOS 82.

The Prevention of Pollution of the Sea Act gave effect to Annexes I and II of MARPOL 73/78 in Singapore on 1 Feb 91. The detailed provisions of the Annexes of the MARPOL 73/78 and some provisions needed to cater for the local situation are covered in the five sets of Regulations which came into force at the same time as the Act i.e. 1 Feb 91. High penalty such as a fine up to S$500, 000 or 2 years' imprisonment or both for discharging oil into Singapore waters by any ship and by Singapore ship anywhere in the world has been retained in the Act. The Republic is a party to CLC 69 and its Merchant Shipping (Oil Pollution) Act gives effect to this Convention. Singapore acceded to the 1992 Protocols to the 1969 Civil Liability and the 1971 Fund Conventions on 18 Sep and 31 Dec 97 respectively. The Merchant Shipping (Civil Liability and Compensation for Oil Pollution) Act 1998 is expected to be brought into force on 13 Sep 98 to give effect to these Protocols.

SINGAPORE'S PREPARATION FOR MARPOL RECEPTION FACILITIES BEFORE ACCESSSION

As the former Marine Department (now Shipping Division of MPA) was entrusted with the job of liasing with IMO in Singapore, the responsibility of co-ordinating the preparatory work to accede to MARPOL 73/78 fell on the Department. Since new marine legislation would have wider impacts on others non-marine legislation and as Singapore's coastal resources were used by many deferent parties and controlled by different government agencies, the Department initiated consultations, with all relevant parties to resolve various "multiple-use" conflicts and to avoid fragmentation of effect and interest as early as 1980.

A Committee comprising members from the former Marine Department, PSA and the Pollution Control Department (PCD) of the Ministry of the Environment was formed to establish an inter-departmental body for consultation with a view to co-ordinating the policy and procedures with regard to the new pollution laws. The Committee in consultation of the Attorney-General's Chambers inter alia decided the following:

a) Legislative intent i.e. what has to be legislated and how

A new Act to cater for MARPOL 73/78 and local situation will be prepared instead of two. This Act will replace the 1971 Act, which was based on the 1954 Oil Pollution Convention. This will facilitate reference by mariners and marine lawyers. The

Act will be modelled partly on the Australian and partly on the U.K. legislation. The language of MARPOL 73/78 will be followed as far as possible. The new Act will enable the Minister of Communications to make regulation to give effect to any provisions of the Convention and any of its Annexes and also to provide for any other treaty or international agreement which provides for the modification of the Convention or any its Annexes and prescribe measures as appear to the Minister to be necessary for the prevention of pollution of Singapore waters by harmful substances. The regulations will inter alia prescribe requirements relating to reception facilities for ships to deposit noxious liquid substances, refuse, garbage, plastics or sewage in addition to oil. It will also provide for the appointment, registration, duties and powers of MARPOL surveyors for controlling the tank cleaning activities at the chemical terminals and the approval of the organisation employing such surveyors for the purposes of giving effect to Annex II of MARPOL 73/78.

b) Competencies of various government agencies and their administrative responsibilities including the responsibilities of the enforcement of the new laws in respect of persons and activities within and outside the territorial jurisdiction of Singapore.

c) Type of Pollution to be covered

Besides tackling vessel source pollution, pollution from land and apparatus (pumps) which fall outside the ambit of MARPOL 73/78 will be controlled.

d) Applicability of legislation

No additional requirements, which go beyond the requirements of MARPOL 73/78 would be imposed on Singapore ships, harbour craft and foreign ships calling at Singapore. With the exception of very small ships, licensed harbour craft would be issued with Singapore Oil Pollution Prevention (SOPP) Certificate and Singapore Pollution Prevention Certificate for the Carriage of Noxious Liquid Substances in bulk (SNLS Certificate-for Cat D substances only) as appropriate. Harbour craft carrying Cat A, B or C substances must be surveyed and issued with Certificate of Fitness.

e) Kinds of pollutants

In addition to the pollutants covered by MARPOL 73/78, the Act will prohibit discharge of waste matter, carcass and trade effluent into Singapore waters.

Consultations with the parties such as shipping, marine and petroleum/petro-chemical industries who would be affected by the legislation started as far back as 1980.

Between 1984 and 1986 several meetings with the petroleum/petro-chemical terminal operators and shipyards were held, mainly covering the issue of reception facilities for oil and NLS and what their responsibilities would be under MARPOL 73/78 and potential benefits from requirements affecting ships. The Department also conducted two separate surveys to find out the type and capacity of existing reception facilities for NLS at petro-chemical terminals and the volume and type of NLS loaded and unloaded during 1982-84. A similar survey was conducted by the Pollution Control Department (PCD) of the Ministry of the Environment in 1987. A survey conducted by PSA in 1986 found most petroleum terminal operators had facilities to receive oily residues from ships. Among the shipyards, only the Sembawang Shipyard was found to have reception facilities for oily residues with a capacity of 10,000 cubic metres. In 1988, the PCD in a circular drew the attention of petroleum/petrochemical industries and shipyards to the Environmental Public Health (Toxic Industrial Waste) Regulations, which came into force in that year. These Regulations inter alia deal with reception and disposal of toxic wastes (including oily wastes) from ships. The PCD found that of the selected types of chemicals listed in MARPOL 73/78, mainly creosote, anti-knock compounds and phenols were unloaded in Singapore. Creosote and anti-knock compounds were carried in dedicated tankers. Industries at present recover and reuse phenol from tank cleaning water. This practice is acceptable to the PCD.

PROVISIONS OF NEW ACT AND REGULATIONS AND THEIR IMPLICATIONS

In accordance with Section 11 of the new Act and Regulations 3, 5, 6, 8, 9 and 10 of the Prevention of the Pollution of the Sea (Reception Facilities for Pollutants) Regulations and the Fourth Schedule of the Maritime and Port Authority of Singapore Act 1996 which give effect to Regulation 12 of Annex I and Regulation 7 of Annex II of MARPOL 73/78-

a) The Maritime and Port Authority of Singapore Authority in respect of the port (excluding terminals) is required to ensure that -

i) if the port has reception facilities, those facilities are adequate; or

ii) if the port has no reception facilities, such facilities are provided.

b) PSA, Jurong Port, Petroleum/petrochemical terminal operators and shipyards are required to provide adequate reception facilities for oily and NLS residues for ships calling at their terminals/wharves and shipyards respectively.

c) The Maritime and Port of Singapore Authority, PSA, Jurong port and terminals and shipyards need to provide information on their facilities to the Minister. They are allowed to impose reasonable conditions in respect of the use of the facilities.

d) The Port Master of MPA may deny a ship entry to a terminal or shipyard if the terminal or shipyard provides no reception facilities or provides inadequate facilities.

e) The Regulations require that the design, construction and effluent from the reception facilities must meet the requirements of the Ministry of the Environment (ENV).

f) It is the responsibility of the Master to arrange for service of reception facilities and notify the Port Master in advance of the details of the arrangements and the quality and content of the wastes to be discharged. The Port Master may deny a ship entry to a terminal/wharf or shipyard if these are not complied with.

g) Transfer of oily or chemical wastes from a ship to a reception facility or vice versa without the permission of the Port Master is prohibited.

All reception facility operators are allowed to impose reasonable conditions in respect of the use of the facilities. The Act gives power to the MPA to provide reception facilities for ships using the port or any terminal in Singapore. The power of the MPA to provide reception facilities include –

- Power to join with any person in providing them;
- Power to arrange for the provision of such facilities by any other person;
- Power to require every ship to use the facilities; and power to provide reception facilities outside and within the limits of the port.
- Power to make regulations with the approval of the Minister in respect of every matter relating to the provision of reception facilities and other facilities for ships to **deposit refuse, garbage, plastics or sewage and, in particular, those regulations may** provide-
- for fees to be levied for the use of facilities;
- for the conditions upon which ships may make use of the facilities; and
- that a contravention thereof shall be punishable by a fine not exceeding S$10,000 or with imprisonment for a term not exceeding 2 years or with both.

PENALTIES UNDER THE ACT AND THE REGULATIONS

The Act provides that any person who fails to comply with any direction given by the Minister to provide facilities or to make the facilities adequate within the period specified in the direction, or within any extended period allowed by the Minister shall be guilty of an offence and shall be liable on conviction to a fine not exceeding S$10,000 and, in the case of a continuing offence, to a further fine not exceeding $100 for every day during which the offence continues after conviction.

The Reception Facilities for Pollutants Regulations provide that-

- any person who fails to comply with any requirement of the Regulations shall be guilty of an offence and shall be liable on conviction to a fine not exceeding S$10,000 or to imprisonment for a term not exceeding 2 years or to both
- any master who provides information which he knows to be false in a material particular or recklessly provides such information which is false in material particular, shall be guilty of an offence and shall be liable on conviction to a fine not exceeding S$10,000 or to imprisonment for a term not exceeding 2 years or to both.

If any residues or mixtures containing oil or noxious liquid substances are transferred to and from a ship without the permission of the Port Master, and if the said residues and mixture are transferred to or from a reception facility, the reception facility operator shall be guilty of and offence and shall be on conviction to a fine not exceeding $10,000 or to imprisonment for a term not exceeding 2 years or to both.

FACILITIES AVAILABLE IN SINGAPORE

MPA is responsible for receiving oily wastes and sludge from ships at the anchorages. It arranged for the PSA and 4 major shipyards to provide a joint central reception and treatment facility for oily residues on an offshore island. The facility is operated by the Singaport Cleanseas Pte Ltd. In addition to the central facility provided by the Singaport Cleanseas, oily waste reception facilities are also available at 5 terminals operated by multi-national oil companies. The terminals receive oily ballast water, tank washings, oily bilge water and oil purifier sludges from tankers unloading at the refineries. Smaller individual operators, licensed by the Ministry of the Environment (ENV), collect oily wastes from smaller vessels, for transport to approved refining or processing facilities.

Chemical wastes are received at two terminals. A floating barge (20 cubic metres) and tank truck for category A, B and C wastes are employed by GATX Terminal Pte Ltd. A

fixed facility (20 cubic metres per day capacity) is at the Shell Pulau Bukom terminal for category B chemical wastes.

Garbage collection at the anchorages and for ships at the oil and chemical terminals are provided (contracted out) by the MPA. The fee is built into the port dues. Hence any amount of garbage can be given to the garbage collection vessels without any further charge. This is aimed at encouraging ships not to throw garbage into Singapore waters. The PSA, Jurong Port and shipyards have facilities to receive garbage from ships visiting their wharves. Private contractors can be employed to receive large volumes of garbage and sewage from cruise and war ships.

Chemical wastes are received only at the terminals where chemicals are unloaded or at the loading terminal if the terminal has an agreement with the unloading terminal to receive the wastes. Shipyards service chemical terminals only if they come to Singapore in "clean" condition. When they sign a contract with the shipowner to repair his chemical tanker in Singapore they ensure that a clause for sending the ship to Singapore in "clean" condition is entered in the contract.

Certain provision of the Prevention of Pollution of the Sea (Oil) Regulations has effect on the amount of oily residues to be discharged to reception facilities. For example, the Regulations exempt ships operating exclusively on voyages within set areas under specified conditions. Numerous oil tankers are engaged on either 30 mile-limit voyages or voyages from Singapore to Malaysia, Thailand and Indonesia. Most of these ships carry refined petroleum products and do not carry out tank cleaning operations or carry ballast water in cargo or fuel tanks under normal circumstances. They are mainly engaged on voyages of 72 hours or less in duration and within 50 miles from the nearest land. There is provision in the Oil Regulations to grant exemption to such tankers from fitting equipment such as oil discharge monitor and slop tanks. When such ships have to carry ballast water in cargo tanks, dirty ballast water or when cargo tanks are cleaned for repairs, tankwashings need to be discharged to reception facilities. Some ships operating within Singapore waters and the 30-mile limit, the requirement of an oily water separator has been waived as they have been fitted with holding tanks to retain oily bilge water. Such holding tanks need to be emptied to the reception facilities.

PROCEDURES TO CONTROL TANKER CLEANING AND DISPOSAL OF SLUDGE AND SLOP IN SINGAPORE WATERS

Cleansing of oil tankers in area outside the port limits of Singapore waters has been a source of serious pollution to the marine environment because of the indiscriminate disposal of the oily tanker sludge and oily waste water from the cleaning operation (see

attached newspaper reports in **Annex A**. This is environmentally unacceptable and the authorities in Singapore takes a serious view of the pollution problems caused by such activities.

To discourage tanker cleaning activities outside the port limits and to encourage tanker cleaning at designated areas within the port limits where the activities can be closely monitored to prevent causing pollution, the following measures were implemented on 4 Apr 93:

- Tanker cleaning contractors are registered by the Ministry of the Environment (ENV). To qualify for registration, they must undertake to dispose of all tanker sludge and slop oil at approved facilities.
- Only registered tanker cleaning contractors are allowed to carry out tanker cleaning in designated areas within Singapore and with permits issued by the MPA.
- Permit for tanker cleaning is issued by the MPA only if the tanker cleaning contractor can show satisfactory proof that sludge and slop oil will be disposed of at approved reception facilities.
- A ship entering Singapore in clean condition must furnish details to the MPA of the cleaning contractor who had completed the job.
- It must also show proof to the MPA that all of the tanker sludge and slop is disposed of at approved facilities.
- If a ship fails to satisfy the above conditions, the ship is refused entry for repair at any Singapore yard.

The MPA issues permits only to contractors in the list of registered contractors to carry out cleaning of tankers. Latest list with the contact numbers of the contractors can be obtained from the Pollution Control Department, Ministry of the Environment. The tanker-cleansing contractor is deregistered if he is found to be involved in tanker cleaning activities outside the port limits.

HOW THE PROCEDURES ARE IMPLEMENTED

Tankers coming into Singapore are required to submit Notification of Arrival (NOA) to the Port Master of MPA at least 12 hours in advance prior to the tanker's arrival. For tankers with steaming time of less than 12 hours, the NOA must be submitted on departure of the tankers from the last port.

Tankers are required to provide the following information in the MPA's Notification of Arrival (NOA):

- Quantity of oily residues
- Name of the receiving vessel
- Location of discharge of the oily residues
- Name and location of reception facilities
- Name and address of contractors involved in the deslopping/desludging activities.

The MPA checks the NOA of tankers if the tankers are coming in clean condition and intending to proceed to shipyards. NOA is checked by the Enforcement Section of MPA. Meanwhile, the tanker is not allowed to enter Singapore waters for anchorage, but not the shipyard. The Enforcement Section checks if the required information has been furnished in the NOA. In addition, the Port Chemist of MPA checks if the required information has been provided to MPA by the tankers, when he conducts gas-free inspection on board the tanker.

The "clean" tanker is allowed to proceed to the shipyard if the tanker has provided the required information and no Singapore company is found to be involved in the tanker cleaning activities. The tanker is allowed to engage a pilot to enter the shipyard. If a Singapore contractor is found to have been involved but the sludge had been properly disposed of at approved reception facility, the tanker is also allowed to proceed to the shipyard.

The Enforcement Section does not allow the tanker to enter into shipyard under the following conditions:

- The tanker refuses to provide the required information; and
- Singapore contractor is found to have been involved in tank cleaning activities and there is no proper record to show the proper disposal of sludge at approved facilities.

The Industries and their trade associations have been given clear guidelines and the conditions under which the tankers are not allowed to proceed to the shipyard despite the tanker having been gas freed. To avoid undue delay to the tanker, they have been advised to ensure compliance with the requirements fully and provide required information early.

Tanker cleaning and ship-repair are two different and separate activities. The master of a tanker can arrange to have the tanker cleaned in one place and repaired in another. Since tanker-cleaning contractors may operate from Malaysia and Indonesia, Singapore has discussed the matter with them to explore the implementation of similar schemes in their countries (see newspaper report and joint press statement of the Environment ministers

of Singapore and Malaysia in **Annex B**). This is to ensure that controls over tanker cleaning and disposal of sludge and slop are comprehensive.

The Ministry of the Environment started registering tank-cleaning contractors in 1994. The registration exercise was completed by 31 Mar 94. A copy of the application form for registration is attached at **Annex C**. A sample list of 39 companies registered with the Ministry of the Environment as tanker-cleaning contractors is at **Annex D**. It is made available to the shipping and ship repairing industry.

PRE-WASHING OF CARGO TANKS CONTAINING NLS RESIDUES

The essential difference between Annex I and Annex II are:

Annex I: The oil discharged into the sea remains as an insoluble pollutant and the primary measure of control is to limit and monitor discharge quantities.

Annex II: NLS will be dissipated by the wake of the ship provided arrangements for discharge quantities are suitable.

The tanks of ships carrying certain chemicals need to be washed before the ship leaves the port of unloading. These washings must be discharged to a reception facility and the cargo record book endorsed by a MARPOL surveyor. Chemical terminal operators in Singapore provide this service.

The Prevention of the Pollution of the Sea (Noxious Liquid Substances Carried in Bulk) Regulations (NLS Regulations) permit the master of a ship to carry out the duties of the MARPOL surveyor. Regulation 6(3), 6(6) and (7) of the NLS Regulations and Regulation 8 of Annex II of MARPOL 73/78 prescribe control measures for tank cleaning after discharge of NLS. Generally, only Cat A cargoes are subject to the requirement to discharge tank washings to a reception facility after unloading. This will only be required when the tank is to be reloaded with another substance, and will not be required in the case of tanks dedicated to the carriage of one substance. These control measures are enforced by the master of the vessel pending registration of the MARPOL surveyors by the MPA.

RECEPTION OF OILY WASTES FROM SMALL SHIPS

A survey conducted in 1992 found out that the average quantity of oily bilge water per harbour craft amounted to 15 litres over a three-day operation. Port limit tankers usually use the reception facilities of oil terminals where they obtain their bunker

supplies. Mechanically propelled pleasure craft population discharge at marina/boatels. In 1992, the authorities met Singapore Motor Launch Owners Association and the Motor Sampan Association on the rationale and implementation details of a pilot scheme for the collection of oily bilge water from harbour craft. The main aim was to ensure the cleanliness of the waters in Marina Bay. There were occasional complaints from occupiers of high-rise buildings on the pollution of the waters by harbour craft in Marina Bay. The pilot scheme of drawing oily bilge water from mechanically propelled harbour craft moored at Marina Bay was explained to the Associations. The pilot scheme was to enable the authorities to gauge the extent and level of assistance that need to be provided for the small harbour craft. A purpose built oil skimmer with two 25 tonne tanks on board was equipped with suction pumps for the collection of oily bilge water from harbour craft. The craft could service two craft simultaneously. When the tanks were full, the oily bilge water collected was discharged at Sebarok Central Reception Facility. It commenced operation on 1 Oct 92 and operated from 0800 to 1130 hours every Tuesday and Friday for 2 months. No charge was imposed for the collection of the oily bilge water. Time required serving each craft varied between 5 and 15 minutes depending on the readiness of the harbour craft. It was discontinued as not many vessels used the facility. The MPA is reviewing the matter with a view to implement the project. The MPA is having a fresh look at such collection service with a view to introduce it in future. Currently harbour craft of 100 GRT are encouraged to fit oily-water separating and filtering equipment. Vessels of less than 100 GRT are encouraged to fit either a holding tank or oily-water separating system combined with bilge-water settling container recommended in item 9 of the IMO Publication "MARPOL-How to do it". Singapore flag vessels of 100 GRT and above operating in Indonesian waters are fitted with oily water separating and filtering equipment to comply with the local Indonesian requirement.

CONCLUSIONS

The provision of facilities to receive wastes from ships is a vitally important element of the philosophy underlying the MARPOL Convention. If facilities for receiving wastes are inadequate, the very foundation on which the Convention has been built will be undermined. For several decades now shipowners have been complaining about the lack of facilities in ports for the reception of ship-generated wastes. The facilities are required by MARPOL 73/78, a convention that has been ratified by 100 countries whose combined merchant fleets represent more than 93% of world tonnage. Parties, which do not provide reception facilities, are therefore breaking a treaty obligation. But despite this very few of the 100 parties have so far managed to comply with this aspect of MARPOL. Their failure to do so shows, if not a disregard for MARPOL, then at bests a diminished sense of urgency to its implementation. At the MEPC 40 (Sep 97),

INTERTANKO in a written submission pointed out the lack of facilities in several European ports. Although several delegations pointed out several inaccuracies in the INTERTANKO paper, it appears from the paper that several developed countries, which acceded to the MARPOL Convention even before the Convention came into force in 1983, have been unable to provide service to the full satisfaction of the shipowners.

Singapore's new Act and the regulations made thereunder are aimed at enhancing Singapore's efforts to preserve not only our own marine environment but also contributing towards the protection of the global marine environment, by specifying measures for the reception and disposal of wastes from ships. Singapore's efforts at prescribing different measures for different ships, different reception facility operators and different wastes are aimed at catering for the local situation and fulfilling its obligation under MARPOL 73/78. The aim can only be fulfilled if those parties, on whom the responsibilities for compliance lie, play their part. A thorough understanding of the practical requirements of the Convention by all of the authorities and enterprises concerned and the operational side of shipping, and effective exchange of information among the authorities, port, terminals, shipyards, shore and maritime personnel on these requirements is necessary.

From the various enquiries received by the authorities, it appears that shore personnel of shipping companies/charterers/agents/ship management companies initially were unfamiliar with the new legislation. Masters and crews, particularly of ships employed on port limit and coastal ships were unsure how to operate the anti-pollution equipment on board and follow the correct procedures. As the ship's crew plays the most direct part, it was felt that they should be fully conversant with the correct procedures and apply them conscientiously. The owners/charterers/agents must ensure that their ships are properly constructed and equipped and surveyed to obtain the relevant certificates and operated in accordance with the Act and the Regulations.

From 1991 to 1993 i.e. three years from our date of accession to MARPOL 73/78, numerous courses, workshops, seminars and conferences were organised in Singapore to make the maritime community aware of the provisions of the Act and the regulations made thereunder.

This produced excellent results. For example through these training programmes, the authorities managed to convince the reception facility operators that they need to play their part and receive tank cleaning slops and contaminated ballast and bilge water, sludge and residues at reasonable cost without causing undue delay to the ships. This is to minimise the temptation of ships to dispose of wastes into the sea. As a result, the

MPA receives few complaints these days against reception facility operators on the service provided by them.

The Establishment of a MARPOL Waste Oil Reception Facility for Bangkok and the Ports of the Eastern Seaboard of Thailand - Public Sector-Private Sector Partnership for Marine Pollution Prevention

by Neil Challis. Director of Strategic Planning & Development (Asia), International Response Corporation

Introduction

Oil wastes from ships arise from cargo residues and from the operation of machinery. Historically such wastes were disposed of at sea in a largely uncontrolled manner, giving rise to various environmental impacts. However, the growth in shipping movements and particularly those involving the transport of large volumes of crude oils and petroleum hydrocarbon products resulted in the early 1970's in international concern over the potential for pollution of the marine environment by ships.

This concern was reflected in the introduction of the International Convention for the Prevention of Marine Pollution from Ships[1] which was adopted by the International Maritime Organisation (IMO) in 1973, and subsequently amended by the Protocol of 1978. The convention is now commonly referred to as MARPOL 73/78. The Convention consists of five Annexes which define regulations for the control of ship generated pollution, as presented in *Table 1*. This paper concentrates on the issues relating to the provision of Annex I waste oil reception facilities.

Table 1 Annexes to the Convention

Annex Number	Title
I	Prevention of Pollution by Oil
II	Control of Pollution by Noxious Liquid Substances
III	Control of Pollution by Harmful Substances in Packaged Form
IV	Prevention of Pollution by Sewage
V	Prevention of Pollution by Garbage

Adoption of Annexes I & II are compulsory for ratification of the convention. Regulation 9 of the convention addresses the control of oil discharges from ships and severely restricts or bans the discharge of oily wastes under various circumstances. Regulation 12 defines the requirements for reception facilities to accept waste oil from ships and states:

"... the Government of each Party undertakes to ensure the provision at oil loading terminals, repair ports, and in other ports in which ships have oily residues to discharge, of facilities for the reception of such residues and oily mixtures as remain from tankers and other ships, adequate to meet the needs of the ships using them without causing undue delay to ships."

As of June of this year, some 97 countries, representing around 93% of the world's fleet had ratified Annexes I & II of the convention. However, while MARPOL 73/78 has been successful in many areas of marine pollution prevention and shipowners have been responsive to implementing the requirements placed upon them by the convention, there remains a recognised world-wide lack of port-based oily waste reception facilities. Although it is true that improvements in shipboard technology and ship design could significantly reduce the amounts

[1] MARPOL 73/78 (Consolidated Edition, 1991). International Maritime Organisation.

of waste that will be produced, port based reception facilities will continue to be an essential element in the reduction and management of marine pollution for many years to come.

Why are Reception Facilities Still Absent from many of the World's Ports?

While the convention states that signatory countries should "ensure" the provision of such facilities, it does not say how this should be done. In most cases, the problem of the provision of facilities is one of financing and regulatory enforcement.

Although in some cases such as Sweden, the tax payer bears the cost of oily waste reception facilities, most countries are understandably reluctant to incur the cost of the construction and operation of MARPOL facilities and prefer such activities to be performed by the private sector. The question then becomes how to make the establishment and operation of reception facilities commercially viable in the eyes of the private sector.

One of the fundamental problems with respect to the commercial viability of reception facilities is the relative ease with which ships can discharge wastes illegally at sea. Although many shipowners are now increasingly aware of environmental issues and are responsible in the way they handle their wastes, there will always be some who will take the easy and cheaper option of dumping at sea. As such, ports can often get a distorted view of the need for reception facilities. The fact that ships do not request the use of reception facilities every time they call at a port does not mean that they are not needed - although it could mean the vessel has recently discharged to a facility in another port, it could also mean that they have discharged illegally at sea.

Generally speaking, the environmental business is driven by the introduction and enforcement of regulations. Unlike on land where illegal dumping of waste is fairly visible and the source fairly easily traceable, the enforcement of anti-dumping regulations for ships is immensely difficult. The level of monitoring of shipping lanes that would be required to provide the necessary enforcement is in most cases exorbitantly expensive and impractical. Ultimately, a regional Port State Control (PSC) approach such as that in Europe should assist in the enforcement of anti-dumping regulations, although this is likely to take many years to establish in Asia and requires effective information handling practices and a high level of coordination between governments.

Financing Mechanisms for Waste Oil Reception Facilities.

Given the problems associated with enforcement of ship-source pollution regulations described above, emphasis needs to be placed upon the development of innovative financing mechanisms. The following are some of the main criteria that should be considered when examining such mechanisms:

1. will the mechanism itself contribute to the reduction of marine pollution by stimulating delivery of waste to ports;
2. will the mechanism stimulate waste-reduction on board;
3. will the mechanism interfere with inter-port competition;
4. does the mechanism apply the internationally accepted doctrine of the "polluter-pays-principle"

Most existing reception facilities charge the discharging vessel on the basis of per tonne of waste delivered (often referred to as the "fee system"). The level of charges vary enormously around the world, and in some cases such as the US the cost of discharge can be extremely

high. Such an approach will always act as a disincentive to ships, and may even encourage illegal discharges. Although the fee system provides commercial viability in some ports and countries where enforcement of environmental regulations is strict and shipping numbers high, in many areas of the world it does not provide a sound basis for the establishment of reception facilities.

Oily wastes from ships have an intrinsic value that could be realised by recycling. However, the ease of dumping at sea and the uncertainty over the levels of waste oil associated with the fee system introduce an unacceptably high level of commercial risk in most ports. Unlike with the terrestrial waste business, the problem of predicting the level of ship-board waste is exacerbated by the ease with which ships can move the waste from country to country and dispose of it where they wish.

One possible way to limit the effect of the uncertainty over waste volumes which arises with the fee system and provide the stable income necessary for commercial viable reception facilities, is the creation of a compulsory fee on ships when they call at ports. This is fundamentally the approach being developed in Norway. Under such a system, a ship is charged a small fee (in most cases considerably less than the sum the ship would pay if it actually discharged at a facility operating a fee system) when it calls at a port whether it discharges waste or not. Knowing that he is going to be charged anyway, the ship is encouraged to discharge rather than run the risk, albeit relatively slight, of being caught dumping at sea. Of course, the collection of any wastes should be quick and efficient so as not to delay the vessel and in so doing act as a disincentive to discharging. By reducing the level of charges on regularly calling vessels and vessels which have on board waste reduction technology, this mechanism is unlikely to interfere with interport competition and should encourage onboard waste reduction measures. Importantly, the mechanism also conforms to the polluter-pays-principle.

The structure and application of such mechanism's is presently being discussed at the Ship-Port Interface Group[2] of the International Maritime Organisation which was tasked with finding solutions for the financial problems in the provision of reception facilities. Although earlier discussions in the group considered the inclusion in MARPOL of a mandatory financing mechanism similar to that being introduced in Norway, the group has sensibly moved away from this, recognising the huge variation in existing mechanisms and maritime administrative structures around the world. This being the case, the last Marine Environmental Protection Committee noted that whatever system was used, it was the responsibility of the parties to the convention, i.e. governments, to ensure that ports provide such facilities.

The European Commission is also considering the lack of reception facilities in its ports. Here the focus at present seems to be on the compulsory discharge of wastes when a vessel enters a European port. Although this will reduce the uncertainty associated with the volumes of waste, such a system is unlikely to stimulate the discharge of wastes in port on its own, and will need to be associated with an effective regulatory enforcement mechanism. Although this would be difficult in Asia at present, the improvement in Port State Control within Europe may well make this a feasible approach for European waters.

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[2] International Maritime Organisation, Report of the Marine Environmental Committee, 38th Session, 9th July, 1996.

A MARPOL Waste Oil Facility for Thailand

The Thai Government has taken a Policy Decision to ratify MARPOL 73/78. This followed a number of pollution incidents in the vicinity of the ports in the Bangkok area and on the Eastern Seaboard of Thailand. Many of these incidents are believed to have arisen as a result of the illegal dumping of waste from ships using the various ports and anchorage's in the area. The eastern seaboard is an important international tourist destination and relies heavily on the reputation of its beaches. The Thai government hopes that the establishment of reception facilities and the ratification of the Convention will restrict the discharge of such wastes into the marine environment and reduce the number and severity of reported incidents.

In April 1995, International Response Corporation (IRC), a company specialising in environmental solutions for the maritime industry, was awarded a contract by the Industrial and Environmental Management Program (IEM) of the Federation of Thai Industries to investigate the feasibility of the development of MARPOL waste oil reception and recycling facilities in Bangkok Port and along the Eastern Seaboard of Thailand. Under this contract, 50% of the cost of the feasibility study was provided by US-AID, whilst the other 50% was covered by IRC. The intention of this cost-sharing exercise was to bring in a company that had both the commitment and the resources to establish such a facility should the feasibility study prove to be positive.

With the initiation of the feasibility study, an official committee was established to oversee and assist in the projects development. This was chaired by the Ministry of Transport and Communication (MOTC) which has overall responsibility for shipping in Thai waters, and consisted of representatives from the Harbour Department, Port Authority of Thailand and many other relevant agency's. Through this committee, IRC had excellent access to data and information necessary for the feasibility study.

Although the MARPOL convention requires "reception" facilities, it does not specify "treatment". Although in many countries, such facilities for the treatment of oily waste already exist as a consequence of waste oil collection from land-based sources, Thailand and a number of other Asian countries still lack the required treatment capability. As such, it is was not possible to separate collection and treatment and the proposed facility will be capable providing a complete service. The viability of this and other such facilities could be improved by including where possible the collection of land-based waste oils to supplement the volumes received from calling ships.

With regard to the financing of the facility, the feasibility study concluded that:

- the facility could not rely solely on revenue from the recycling and sale of waste oil due to the difficulties in predicted the volumes of waste that could be collected from vessels calling at Thai ports
- a sustainable financing mechanism would need to be developed through discussions between the private sector, the government and other interested parties in order to make the proposed facility commercially viable.

Following the completion of the feasibility study and IRC's subsequent decision to continue with the pre-construction phase of the project, a smaller working-group was established under the direction of the MOTC to continue the public-private sector liaison and development of the project.

IRC is now nearing completion of the necessary pre-construction work and aims to be in a position to initiate construction early in 1997. The environmental impact assessment and site investigation work are finished, and the detailed design is nearing completion. The precise nature of the proposed financial mechanism is still being developed by the relevant Thai authorities , but the intention is to create a situation which will provide the desired level of security to enable private sector investment whilst at the same time providing a cost effective and efficient service to the shipping community. Agreement on the structure of the mechanism will be timed to coincide with the start of construction of IRC's facility, and the introduction of the mechanism with the initiation of operations of the facility.

Although the proposed storage and treatment facility will be in Laem Chabang, the new deepwater port on the eastern seaboard, barges will be used to collect wastes from ships calling at Bangkok, Map Tha Phut, Siracha, Siam Seaport and other ports and anchorage's along the eastern seaboard. As stated in Regulation 12 of MARPOL, the collection of wastes should not "unduly" delay the ship. From a shipowners perspective, a delay can be far more costly than the waste collection charge. Although common, the use of vacuum trucks is often not attractive for internationally trading vessels due to the need for a quick turn-around and the limited time during which the truck can service the vessel. In this respect, barges offer much greater flexibility and IRC intends to use a number of such vessels at strategic locations along the coast. The intention is to examine the possibility of these barges being outfitted for oil spill response. Operating 24 hours per day in potential high risk spill areas, these vessels would provide an ideal first line of response for oil spills in coastal areas.

Waste collected from the various ports and anchorage's will be transported to the facility at Laem Chabang where it will be pumped ashore and treated to produce a basic fuel which will be sold to industry. In the initial phase of operation, the facility has a design capacity to accept and treat some 25,000 tonnes of waste per annum. This will be increased to 35,000 tonnes per year in the second phase when more waste oil is expected with the expansion of operations at a nearby shipyard in Laem Chabang.

Conclusions

The approach adopted by the Thai authorities provides an excellent example of how the public and private sectors can work together to solve marine environmental problems. Public sector support from the initiation of the feasibility study, through to the introduction of a sustainable financing mechanism has provided the commercial confidence for IRC to tackle a marine environmental problem that has remained unsolved for many years in Thailand. At the same time, the projects gives the government the necessary infrastructure to both ratify and fulfill its obligations under the MARPOL convention. The shipowning community get the service that is so often lacking, enabling them to conform to the increasing stringent environmental standards being set by governments and the industry itself.

Thailand is far from unique in the region with respect to the lack of adequate MARPOL reception facilities. Although many Asian countries have ratified the convention, reception facilities are conspicuous by their absence and the more widespread use of approaches such as that described in this paper could go a long way to improving the handling of ship-board wastes and the general marine environment of the region.

NATIONAL WORKSHOP
ON THE IMPLEMENTATION OF MARPOL : COST-EFFECTIVE SHORE RECEPTION FACILITIES
14-15 JANUARY 1998 * JAKARTA, INDONESIA

PRIVATE SECTOR INVESTMENT IN SHORE RECEPTION FACILITIES - SINGAPORE'S APPROACH

BY

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1. NEED FOR RECEPTION FACILITIES

(a) Introduction

The first international convention to control oil pollution from ships was the International Convention for the Prevention of Pollution of the Sea by Oil, 1954 (OILPOL 54). OILPOL 54 required contracting Nations to take all appropriate steps to promote the provision of adequate reception facilities. However, the provision of reception facilities was not a condition for compliance to OILPOL 54. This shortcoming resulted in the lack of reception facilities, which did little to achieve the complete elimination of intentional pollution of the marine environment by oil residues and wastes.

IMO corrected this shortcoming and developed the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 (commonly known as MARPOL 73/78) to replace OILPOL 54. Specifically, MARPOL 73/78 states clearly that the government of each party to the convention "undertakes to ensure the provision at oil loading terminals, repair ports, and in other ports in which ships have oily residues to discharge, of facilities for the reception of such residues and oily mixtures as remain from oil tankers and other ships adequate to meet the needs of the ships using them without causing undue delay to ships."

MARPOL 73/78 also specifies the type of ports and terminals where reception facilities are required and the capacities of the facilities.

(b) **The Prevention Of Pollution Of The Sea Act 1990**

The Prevention of Pollution of the Sea Act 1990 has been in force after Singapore signed as a party to MARPOL 73/78. The Act has incorporated all the detailed requirements stipulated in MARPOL 73/78, which includes specific regulations with respect to the provision of reception facilities.

(c) **The Busy Port**

The Port of Singapore is the busiest port in the world in terms of shipping tonnage, with over 120,000 vessels calling in 1996. Being a major centre for oil refining as well as oil teminalling and trading, a large number of tankers uses the port for loading and discharging cargoes. Singapore is also the leading ship repair centre for oil tankers, from product tankers to very large crude carriers (VLCC). These tankers have to remove the oily residues from their tanks before they are gas-freed and allowed to enter the shipyard safely. Every year, more than 300 tankers (> 10,000 DWT) are repaired in Singapore's shipyards.

(d) **Nature of Oil Residues**

There are two major types of oily residues discharged at the reception facilities, i.e. slop which is generated by water washing of cargo tanks of tankers, and sludge, which is the sediment removed from bottom of oil cargo tanks by scrapping.

Slop is mainly a mixture of oil and water, with about 1% of suspended fine solids, while sludge is about 1/3 each of oil, water and rust scales/sediments. The composition of each batch of oily residues varies widely, and especially for sludge, poses severe technical and operational challenges.

(e) **Collection/Treatment/Disposal**

The provision of reception facilities is not only about collecting and receiving the oil residues, but also about their treatment and disposal. Therefore, treatment plants are usually an integral part of the reception facilities. The disposal of treated residues also has to be integrated with the country's waste management strategy.

2. COMMERCIAL APPROACH TO RECEPTION FACILTIES

(a) Original Set-Up – By PSA

In Singapore, the reception facilities were first set up in 1972 by the Port of Singapore Authority (PSA). At that time, the PSA was in the best position to provide the facilities rather than the private sector. The PSA set up and operated the first reception facilities on the island of Sebarok to cater for the oily wastes for vessels calling the port and the local shipyards.

(b) Current Arrangement

In July 1993, a new joint venture company, Singaport CleanSeas Pte Ltd was formed, with 50% equity by PSA and the balance shared equally by the four major shipyards in Singapore - Hitachi, Jurong, Keppel and Sembawang. The new company took over the facilities on Pulau Sebarok from PSA to operate from 1 September 1993.

This is a unique set-up, reflecting the interests and responsibility shared by the port and the shipyards. It allows the planning, provision and operation of the facilities to be more focused to support the needs of the oil and ship repair industries.

(c) Responsibility Vs Economic Viability

In the context of Singapore, the discharge of the obligation to provide adequate reception facilities is best served, not by having each terminal or shipyard to operate its own facility but by providing a centralised facility to achieve economy of scale and hence lower unit cost of operations. This would translate to reasonable prices for the services rendered.

Another consideration is that as the reception facilities are quite elaborate to design, build, operate and maintain and do take up space which are in limited supply, it would not be in the interest of each party to provide its own facilities.

(d) Responsive and Flexible Services

The reception facilities are operated as a private sector enterprise, giving it the necessary commercial responsiveness and flexibility to provide the best services, to respond quickly to market situation and changes to be a viable commercial entity that strives to upgrade its processes through research and development and to improve its procedures.

3. OPERATIONS TO MEET USERS REQUIREMENTS

(a) Adequacy of Reception Facilities

To reduce and eliminate intentional pollution from ships, the provision of adequate reception facilities is crucial. Adequacy is determined by the ability to receive the different types of wastes, the treatment process, the time and availability for the waste reception, the existence of clearly laid down procedures concerning operations within port, and the cost of services provided should not act as a disincentive to the use of the facilities.

(b) Collection Without Undue Delay

Time is money, and demurrage to a big vessel is very costly. Collection of wastes from vessels therefore requires careful planning and management control. As managed by Singaport CleanSeas, oily residues are promptly collected from the tanker at the designated anchorages upon arrival or upon completion of sludge cleaning, allowing the tanker to proceed to its terminal or shipyard at the appointed time. This is achieved by the provision of multiple barges to shuttle between the anchorages and the treatment facilities at Pulau Sebarok such that several tankers could be serviced simultaneously without waiting for one another.

(c) Treatment Capacity To Meet CleanSeas' Requirements

Singaport CleanSeas has planned its facilities so that its facilities will be adequate at all times. CleanSeas' assets include:

- sludge treatment plants with a capacity of 50,000 tonne/year
- slop treatment system with a capacity of 500,000 cu.m/year
- oily water treatment plant with a capacity of 200 cu.m/hour
- specialised oil distillation unit capable of processing a wide range of non-standard and off-spec oil products
- specialised mechanical equipment like centrifuges, disk stacks, and hydrocyclones
- thermal process equipment like thermal desorption unit and incinerator
- mobile sludge treatment unit
- steam, electricity, desalination and other utility support
- two dedicated jetties (2,000 DWT and 30,000 DWT)
- two specialised oil tankers.

(d) Services At Reasonable Tariff

The provision and operation of reception facilities for collection, treatment and disposal of wastes from vessels require heavy capacity commitment. Although operating as a company without any subsidy from anyone, Singaport CleanSeas has been successful in devising a set of tariffs that enable the company to strike a balance between recovering its capital expenditure and providing value-for-money for its services. It achieves this through its constant efforts to improve efficiency and productivity by engaging in R & D activities.

(e) Customised Service

To encourage ship owners to use the reception facilities and prevent illegal discharges, Singaport CleanSeas has also introduced service packages with attractive discount or payment for dry oil present in the slop for ship owners who make use of the reception facilities.

4. DESIGN TO HIGH ENVIRONMENTAL STANDARDS

(a) Collection With Spillage Control

Oily residues are discharged from tankers to company-owned collecting tankers at designated anchorages, with anti-pollution tug standing–by where appropriate. This will ensure that any accidental spillage would be confined to controlled areas and quickly dealt with to prevent any spreading.

The collecting tankers are specially designed to prevent any accidental spillage, and are fitted with anti-pollution equipment in addition to fire fighting equipment. They are regularly inspected and maintained to ensure high standards of operation and safety.

(b) Treatment To Meet Stringent Environmental Standards

Conscious efforts are made to employ the latest technology that will be cost effective, safe and efficient, and most of all environment friendly, in the planning and provision for reception and treatment facilities. As oily residues in large quantity would contain a substantial amount of recoverable hydrocarbon, new sludge treatment processes with total recovery of the oil have been employed to replace the old processes using destruction technology. For example, the new sludge treatment plant is using a thermal desorption process to separate and recover all the oil present in the sludge, instead of by incineration as in the existing old plant.

The residue that comes out from the new treatment process will meet the environmental standard of less than 1% oil and grease content. The treatment process chosen for the new sludge treatment plant met the following criteria :

i) Technically suited and capable of meeting the environmental standards
ii) Cost effective to prepare
iii) Use minimal land

In applying the criteria, Singaport CleanSeas has to rule out several competing processes, including mechanical separation, chemical treatment and biological treatment.

The new oily water treatment plant of 200m^3/hour will give an effluent quality well within the stringent standards set by Singapore Ministry of The Environment, with compact layout that required minimum land area and with design features that facilitate easy operation and maintenance. The oil content in water after treatment will be within 10 ppm.

It should be noted that tanker operators have been advised not to employ chemicals for their tank cleaning, so that the design of the oily water treatment plant could be made simple and hence less costly to operate, thus resulting in lower tariff to the users.

5. REGULATIONS FOR CONTROL

(a) The Prevention of Pollution of the Sea Act 1990

The Act has been put into force to support MARPOL 73/78. The Act covers not only control measures for tanker operations, but also detailed guidelines for the provision of reception facilities by terminals, including shipyards to comply.

(b) Toxic Industrial Wastes Regulations 1988

The Toxic Industrial Wastes Regulations 1988 made by the Ministry of The Environment, provides detailed guidelines with respect to generation, transportation and collection of toxic industrial wastes, which included oil slop and sludge. All three parties i.e. generator, transporter and collector would have to follow controlled procedures and report wastes status.

(c) Operations Within Port Limit

To ensure safe navigation and prevent inadvertent pollution of the sea, the Port Master will only permit collection operation to be carried out within port limit, where navigation aids and communication are provided, and where anti-pollution tugs can be supplied whenever needed. Tank cleaning permit would have to be obtained from the Port Master before any tank cleaning work can be carried out.

(d) Licensing of Collecting Vessels

To ensure that collection vessels are properly designed and fitted with appropriate fire fighting and pollution control equipment, all collection vessels are required to be licensed by the Port Master and subject to regular inspection to ensure compliance.

(e) Licensing of Treatment Facilities

To ensure the collectors of toxic industrial wastes are equipped with proper treatment facilities and following proper procedures, the Ministry of The Environment requires all waste collectors to be licensed and the design of their treatment plant and process approved prior to their installation.

(f) Registering of Tank Cleaning Contractors

To ensure tank cleaning of tankers are properly executed and the oil sludge removed from the tankers are properly disposed, the Ministry of The Environment requires all tank cleaning contractors to be registered to ensure compliance.

(g) Disposal of Treated Effluent/Residues

Not only water effluent after treatment has to comply with the stringent environmental standards, but also solid residue after treatment has to comply with the stringent environmental standard (1% oil and grease by extraction) before the solids can be disposed of landfill.

6. ENFORCEMENT ACTIONS

Vessels calling Singapore can be inspected by the Maritime & Port Authority of Singapore when necessary in order to ensure compliance with MARPOL 73/78. Tankers that call at Singapore or local yards would have to make arrangement to dispose off their oily wastes to approved facilities in order to gain permission for entry. Any tanker that comes into port in clean condition must show proof that its oily residues have been properly disposed to approved facilities before it is permitted to enter any shipyard in Singapore.

7. CONCLUSION

Singapore has taken an approach to the development and operation of reception facilities relevant to its circumstances. The approach has taken into consideration technological issues, commercial realities and local conditions and the need to strike an optimal balance among these.

Annex 6

Proceedings of the National Workshop on the Implementation of MARPOL 73/78 in Indonesia: Cost-Effective Shore Reception Facilities

Jakarta, Indonesia
14 and 15 January 1998

CLOSING REMARKS OF

DIRECTOR GENERAL OF SEA COMMUNICATION

SOENTORO

Distinguished Representatives from the International Maritime Organization,

Distinguished Guest, Speakers and Participants,

Ladies and Gentlemen.

After two days of intensive discussions you all now approaching the final stage of this workshop.

As reported by the Organizing Committee, although most of the participants are in fasting, the discussions were very dynamic and productive. I thank you all for your high spirit of participation that have made this workshop a fruitful one.

The output of this workshop will be very valuable contribution to improve national capacity of Indonesia in the implementation of MARPOL 73/78, especially in establishing adequate port reception facilities.

I believe that during the workshop all of you have the opportunities to discuss and learn many things on how to establish port reception facilities cost-effectively. You must have found out that to establish a port reception facility is not necessarily expensive, especially for small ports. For large ports, of course coordination between all responsible agencies is necessary for ensuring good planning, management and

operation of a reception facility.

In depth discussion on government/private sector partnership approach during the workshop should have encouraged private sectors to participate in port reception facility services.

I hope the recommendations on legal, technical and institutional aspects formulated in this workshop can be followed up immediately after this workshop by all parties concerned.

Before I end, again I would like to thank the International Maritime Organization, especially its Regional Programme Office for choosing to conduct this very useful and important workshop in Indonesia.

I would also like to address my thanks and appreciation to the speakers from International Response Corporation, Thailand, the Maritime and Port Authority of Singapore, Singaport Clearnseas Pte Ltd, Singapore, and all the speakers from related government and industries of Indonesia, for your contributions that have made this workshop very successful.

This workshop, with the participation of speakers from this region has showed that a regional cooperation in the provision of shore reception facilities is necessary and beneficial to the region.

To the Organizing Committee and all parties that have been working hard for the conduction of this workshop, including the interpreters and the Management of the Millennium Hotel, I thank you all for the job well done.

Lastly, for those who will be leaving Jakarta after this workshop I wish you all a pleasant trip back home.

Thank you