Marine Department Environmental Report 2005

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Director's Message

The Marine Department is responsible for maritime and navigational safety matters within the waters of Hong Kong. The Department pledges its full support of marine pollution prevention as marine environmental protection is important not only in its own right but also in enhancing Hong Kong's role as one of the major ports in the world.

Being an Associate Member of the International Maritime Organization, Hong Kong is obliged to ensure that all ships within Hong Kong waters comply with international standards with regard to marine pollution prevention.

In 2005, the Department made continuous efforts to promote an environmentally responsible management and contribute to a greener environment by pursuing environmentally friendly operations. Specifically, we have imposed stringent measures to prevent marine pollution caused by sunken vessels with dangerous goods on board. We have reformed the contract management system for marine cleansing services with a view to improving its overall efficiency and effectiveness. Internally, we have set up a bilingual Green Bulletin Board in the Marine Department Intranet to promote green awareness amongst our staff and have launched the Energy Warden Scheme to monitor the implementation of green housekeeping initiatives within the department.

I am pleased to see many of our green initiatives have achieved good results and are well received by our staff and the marine industry. I take this opportunity to thank my staff members for their efforts in 2005. The Marine Department undertakes to continue working hand in hand with the community to support the clean-air initiatives and also a greener Hong Kong.

(Roger Tupper, JP)
Director of Marine

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Responsibilities and Organizational Structure

In this report, we will focus on the key areas we worked in 2005 to help improve the environment and the direct environmental impact of our day-to-day departmental activities.

This report is primarily intended for Hong Kong citizens, our various business partners, other government departments, our own staff and other local and international maritime organizations.

Overview of the Department

The Marine Department, headed by the Director of Marine, is responsible for all navigational matters in Hong Kong and the safety standards of all classes and types of vessels. Our mission is 'We are one in promoting excellence in marine services".

Staffed by well-qualified and experienced professional and technical officers, we provide a wide spectrum of services which can be broadly classified into five areas, each of which is headed by an Assistant Director:

- Government Fleet
- Multi-lateral Policy
- Planning and Services
- Port Control
- Shipping

The Administration Branch in the departmental headquarters provides administrative support services, human resource management, and finance and accounting support to the operational divisions.

Our headquarters are located at Harbour Building, 38 Pier Road, Central. Other major venues include the Government Dockyard at Stonecutters Island, the Macau Ferry Terminal at Sheung Wan, the China Ferry Terminal at Tsimshatsui and eight Public Cargo Working Areas in different locations.

Green Management Structure

To promote an environmentally responsible management and enhance green management practice in Marine Department, the Departmental Secretary and the Assistant Department Secretary/Committee and General have been appointed as the Green Manager and the Green Executive respectively.

For all environmental protection matters on a divisional level, the respective Assistant Directors formulate their own green objectives, targets and measures based on the nature of their business. Divisional Environmental Protection Representatives (DEPR) of senior professional level have been appointed to take up the role of coordinator in related matters. For example, the DEPRs will co-ordinate and prepare divisional inputs for compiling the annual departmental Environmental Report.

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Environmental Goal

In our mission to promote excellence in marine services, we are committed to ensuring that our services and operations are conducted in an environmentally friendly and responsible manner conducive to a cleaner Port of Hong Kong.

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Work Focuses

Our environmental work focuses on the following areas:

(a) tightening the management and control of the movement of dangerous goods in Hong Kong waters;

(b) improving our refuse collection and scavenging services;

(c) maintaining a world class maritime oil pollution contingency planning arrangement to combat oil spills;

(d) stepping up prosecutions against offences of marine littering and pollution;

(e) recommending environmentally friendly seawall designs with wave-absorbing capability in relevant development projects;

(f) implementing international conventions on marine pollution prevention and enforcing relevant environmental legislation on vessels;

(g) employing effective management systems to achieve energy savings for operations at Marine Department's ferry terminals, public cargo working areas and Government Dockyard;

(h) adopting environmentally friendly and efficient designs for facilities and work processes in the Government Dockyard;

(i) observing the Government's Green Management Policy in our own workplaces to ensure efficient use of natural resources and energy; and

(j) recommending a proper Marine Traffic Impact Assessment be conducted for every major development project to adequately address all potential marine impacts at each stage of the project implementation. This will not only ensure marine traffic safety in Hong Kong waters but also bring long-term benefit to the environment.

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Environmental Performance in 2005

The measures and performance relevant to environmental protection in 2005 are as follows:

(a) Proactive Port Control

Vessel Traffic Services

One of the objectives of the Hong Kong Vessel Traffic Services is to protect the fragile marine environment from oil or chemicals caused by marine accidents. The services are provided by our Vessel Traffic Centre (VTC), which monitors vessels' movements within Hong Kong waters round the clock through a series of radar system. It provides traffic information and warning to navigators so that they can take early actions to avoid collision or running aground.

The Vessel Traffic Centre located inside the Macau Ferry Terminal

In busy waterways, such as Ma Wan Channel and Kwai Chung Container Terminal Basin, vessel traffic is closely monitored by a marine traffic control station. An advance vessel traffic monitoring system is put into operation, which further enhances efficiency of marine traffic management.

Harbour Patrol

As an enforcement arm of the Marine Department, the Harbour Patrol Section (HPS) operates a fleet of 18 patrol launches to ensure that vessels are in compliance with marine regulations when navigating in Hong Kong waters. For marine pollution prevention, patrol officers regularly take prosecution actions against offenders found littering in Hong Kong waters. In 2005, we issued a total of 105 Fixed Penalty Notices to persons who had committed the offence of marine littering. In addition, one notice of intended prosecution was issued against marine littering in June 2005.

HPS officers frequently visit and examine tankers and local oil barges to ensure that they are anchored in designated anchorages and no illegal transfer or discharge of oil take place within these waters. Under the Shipping and Port Control Ordinance (Cap. 313), the owner and master of the vessel or any person who discharges oil from a vessel commits an offence.

HPS officers are required to look for any dilapidated vessels or wrecks during their normal patrol. The dilapidated vessels or wrecks may decompose and release harmful substances, which would damage the environment, and leakage of lubrication/fuel oil could also cause pollution. In 2005, 57 dilapidated vessels were removed for proper disposal.

In recent years, there has been a growing trend of wooden type Mainland cargo vessels (MCV) using forged ship trading documents entering Hong Kong. Over the past two years, about 40 of these vessels had either grounded or capsized in the north-eastern waters of Hong Kong on passage for adjacent ports on the Mainland. These vessels, which are normally fully loaded with cargoes of frozen meat

or vehicle engine spare parts, would not only pose a threat to navigational safety due to their unstable conditions but also bring about environmental consequences if they founder before departing Hong Kong waters. To address this issue, HPS launched a number of special operations in 2005 and seized a total of 13 wooden type MCV engaged in this activity.

Containers occasionally fall overboard, mainly from River Trade Vessels (RTVs) due to improper or inadequate lashing arrangement and stability problems. To rectify this situation, a series of special operations were conducted by HPS to ensure that all RTVs stowed with containers on deck were properly loaded and secured. This preventive measure has helped reduce the risk of containers stowed with dangerous goods or pollutant cargoes on deck from falling overboard and contaminating the waters of Hong Kong.

Smoke Emission Control

In 2005, HPS launched a series of operations against vessels emitting black smoke in the waters of Hong Kong. During these operations, HPS inspected a total of 132 vessels and two ferries suspected of emitting excessive black smoke were observed. An advisory letter was subsequently issued to the ferry company requiring improvement to be made.

Dangerous Goods Control

The carriage of dangerous goods at sea is governed by the Dangerous Goods (Shipping) Regulations (Cap. 295C) and the Merchant Shipping (Safety) (Dangerous Goods and Marine Pollutants) Regulation (Cap. 413H). The Dangerous Goods and Project Section continued to carry out random checks on vessels for conveying dangerous goods in the Hong Kong waters. In 2005, a total of 280 vessels were inspected by the Inspection Team of the Section.

In 2005, an explosion occurred on board a local vessel while conveying Category 1 dangerous goods (Pyrotechnic Special Effects Materials) resulting in the death of one person and injury of three persons. To avoid re-occurrence of similar accidents and to prevent marine pollution due to sunken vessels with dangerous goods on

board, the Marine Department has imposed more stringent measures including enhanced ship inspections and compulsory participation in Vessel Traffic Service for local vessels conveying Category 1 dangerous goods.

Monitoring the discharge of Class 1 Dangerous Goods (Fireworks) at Hong Kong Disneyland Service Pier

Monitoring the discharge of Class 1 Dangerous Goods (Fireworks) Freight Container at Hong Kong Disneyland Service Pier

(b) Efficient Marine Refuse Cleansing Services

Floating refuse, being the most visible evidence of pollution in the harbour, is difficult to clear because it drifts with current and wind. The Marine Department is determined to keep the harbour clean by engaging effective and efficient marine refuse cleansing services and setting up a special taskforce to clear coastal refuse.

Traditional Manual Marine Refuse Cleansing Method

As a result of our continued efforts, the total volume of marine refuse scavenged and collected in 2005 amounted to 14,984 tonnes. This represented an increase of 8% compared with that in the previous year.

Modified Marine Refuse Cleansing Method

Contracting out Marine Refuse Cleansing Services

As a continual effort to improve the overall efficiency and effectiveness of its marine cleansing services, the Marine Department has, on the basis of a comprehensive review on the overall system and arrangements for the service delivery, implemented a reformed contract management system and arrangements since July 2005. The reformed service delivery modes include:

- ✧ full adoption of the performance-based approach for service provision;
- ✧ a relatively long contract period of five years;
- ✧ inclusion of services previously carried out by government staff and vessels in the outsourcing arrangements;
- ✧ consolidation of all the fragmented marine cleansing services into three contracts;
- ✧ provision of Marine Department's stockpile of oil pollution cleansing equipment for the use of the marine oil pollution cleansing services contractor; and
- ✧ devolution of the responsibilities of manning, operating and maintaining the Marine Department's six purpose-built marine refuse scavenging vessels to the pollution cleansing service contractor.

Since the implementation of the new contracts, Marine Department has reorganized the overall cleansing arrangements and engaged a fleet of some 70 contractors' vessels to deliver the services.

We will closely monitor the reformed outsourcing arrangements, and continue to work with the contractors to explore ways and means to further improve operational efficiency and cost effectiveness.

In addition to routine cleansing activities, we contributed our efforts in the following areas:

- ✧ stepping up prosecutions;
- ✧ strengthening public education;
- ✧ enhancing publicity programme, and
- ✧ conducting intensive cleansing programme for identified areas.

Also in collaboration with private sector organizations, promotional activities were carried out with a view to improving cleanliness of Hong Kong waters. These included beach cleanups and trial use of modified cleanup vessels for sea surface cleansing in conjunction with contractor.

We also helped other departments to clean beaches and coastlines by participating in joint operations.

(c) Preparedness in Dealing with Oil Spills

Maritime Oil Spill Response Plan

Hong Kong waters cover a relatively small area with congested waterways. Oil spills can be exceptionally damaging. Any oil spills from ships can be easily washed ashore causing irreparable environmental damage. In this regard, we have developed an effective Maritime Oil Spill Response Plan to co-ordinate departmental actions to tackle oil pollution incidents in Hong Kong waters. The Pollution Control Unit of the Department is on 24-hour standby and its

target is to respond on site within two hours of reported oil spillage inside harbour limits. This pledge was 100% achieved in 2005.

In addition to providing regular anti-oil pollution training to our staff, we held a large-scale oil pollution combating exercise in November 2005 to test and practise the preparedness of government departments and the oil industry under the Marine Oil Spill Response Plan.

Annual Anti-Oil Pollution Exercise 2005

New Arrangement for Skimming Oil Spill devised by Contractor

Regional Maritime Oil Spill Response Plan

A Regional Maritime Oil Spill Response Plan for the Pearl River Estuary has been developed and jointly employed by the port officials of Guangdong, Shenzhen, Macau and Hong Kong. The Plan is to enhance regional cooperation in the provision of oil combating equipment and expertise for handling major oil spills in the Zhujiang Kou (Pearl River Delta) areas and Mirs Bay.

We have established an effective communication channel with the neighbouring port administrations to exchange views and experience in dealing with oil spill incidents.

(d) International Conventions and Local Legislation

Marine Department represents Hong Kong Special Administrative Region (HKSAR) at the International Maritime Organization, a United Nation specialized agency responsible for safety and security of international shipping as well as prevention of pollution of the environment from ships.

HKSAR is committed to implementing the MARPOL 73/78 (The International Convention on the Prevention of Pollution from Ships 1973 as modified by the Protocol of 1978 thereto), which is the principal international convention to prevent or minimize pollution to the environment due to ship operations. The Convention has six Annexes aiming to address pollution to the environment in respect of (i) oil; (ii) noxious liquid substances; (iii) packaged form harmful substances; (vi) sewage; (v) garbage and (vi) emissions into the atmosphere. With the exception of Annex IV and Annex VI, all have been extended and enforced in HKSAR. The required legislation to implement Annex IV (sewage) is in place and the International Maritime Organization (IMO) is being informed that the requirements are applicable to HKSAR.

Marine Department is working on the required legislation to extend the Annex VI (Regulations for the Prevention of Air pollution from Ships) to HKSAR. This Annex controls emission of ozone depleting substances, nitrogen oxides, sulphur oxides and volatile organic compounds from ships. It also regulates the establishment of SOx emission control areas, the use of shipboard incineration and the quality of fuel oil used on board ships. This Annex has already been in force internationally since 29 May 2005. Marine Department intends to apply fully the Annex VI requirements to vessels engaged in both international and local operations.

Besides the foregoing, Marine Department is also participating in the development work at IMO concerning management of ballast water, use of anti-fouling paints and ship recycling to minimize their impact to the environment.

Port State Control

The Port State Control (PSC) Section carried out inspections on about 15% of foreign ocean going ships entering the Hong Kong waters each year under our commitment with the Toyko Memorandum of Understanding.

PSC inspection helps avoid a sub-standard ship from proceeding to sea by securing her compliance with the relevant convention provisions in safeguarding the safety of crew, passengers and ships, and prevention of pollution.

In 2005, 500 foreign ships entering Hong Kong waters were inspected, out of which 237 deficiencies related to pollution prevention were found and 4 ships were detained due to serious contraventions with MARPOL requirements.

(e) Green Initiatives at Terminals and Public Cargo Working Areas

Terminals

Energy saving is the focus of the environmental initiatives being pursued at the Macau Ferry Terminal and the China Ferry Terminal. A structured energy saving plan has been introduced to cut down energy consumption in the two terminals by means of reducing unnecessary lighting and scheduling the operations of escalators and travelators on a need basis. Green measures taken in 2005 included replacement of deteriorated and inefficient components of the air-conditioning systems in the two terminals. In compliance with a service-wide green initiative of the Government, the indoor temperature of both terminals has been set at 25.5°C.

Public Cargo Working Areas (PCWAs)

In order to lower power consumption, floodlights at PCWAs were adjusted and reduced to suit actual needs after operating hours. E-communication was encouraged and enhanced by introducing the use of Lotus Notes in all PCWAs.

(f) Going Green at the Government Fleet

The Government Fleet Division (GFD) is responsible for the overall management of government vessels. The GFD's main activities include operating its crewed fleet, providing marine transport services to government departments and performing maintenance of government vessels. The Government Dockyard (GD) at Stonecutters Island is the GFD' s operational base for operation of its crewed fleet and maintenance of government vessels. In 2004-05, the Marine Department incurred an expenditure of $399 million on the management of the government fleet. As at November 2005, the government fleet was made up of 727 government vessels of different types and sizes.

Government Dockyard at Stonecutters Island

Going green is the long-term commitment of the GFD. Over the past years, many initiatives have germinated at all fronts in the operation of the government vessels. They appear in the yard, in the office, to its people, on new ships and in maintenance operations.

Green Shipyard

With a view to protecting the environment of the shipyard and preserving the ecological environment in the basin, GD reviews its facilities and upgrades them with environmentally friendly products every year. Special purpose equipment had been installed in GD for improving the environment, such as:

(a) an odour treatment and air disinfection system was installed in the fire extinguisher workshop to treat odorous gases emitted from chemicals;

(b) an exhaust gas extraction system was erected in the engines testing yard to remove exhaust gases emitted during engines testing operation;

(c) a drainage system is used to collect hull washing in the covered shed and to transfer the washings to sewage plant; and

(d) timber fenders alongside the seawall had been replaced with plastic fenders since 2004. The new plastic fenders are more durable and shock absorbent, more resistant to corrosions and less susceptible to wear and tear during berthing operations, thus attaining much longer life spans with less maintenance and replacement than the conventional timber fenders.

Government vessel under repair in covered shed

In 2005, energy saving measures were adopted to reduce electricity consumption by about 1%. These measures included reducing unnecessary lighting, improving the air conditioning system efficiency and selecting energy saving products for GD facilities.

The following improvement works were completed in 2005 for the purpose of environmental protection and workplace improvement:

(a) the walls of sailmaker workshop were installed with thermal insulation partitions to reduce the workshop room temperature during the summer time, so as to provide better working environment for staff;

(b) the steel trench covers at the cover sheds were modified to prevent the ingress of wasted and polluted particles into wastewater trenches during ship hull cleaning process;

(c) additional canvas curtains were installed in the cover sheds to confine the spread of painting mist during ship hull painting process;

(d) storage racks and compartments in fuel oil station were improved to prevent oil spillage;

(e) energy saving equipment was used in lighting system in the GD store;

(f) the exhaust gas extraction system of outboard engine testing tank was replaced and modified to provide a cleaner environment to GD staff and workers of contractor;

(g) the air extraction system of acid mixing plant for the battery workshop was modified to improve ventilation efficiency;

(h) two additional primary air handling units were installed and the ventilation system was modified in the fuel pump workshop to improve indoor air quality; and

(i) consumption of fresh water and compressed air was reduced by repairing the aged and deteriorated piping of those systems.

Green Education

Video tapes are played regularly in the public TV system to promote the awareness of staff members and contractors' workers in environmental protection.

Green New Vessels

When preparing the specification for new building vessel, we ensure that all applicable regulations relating to environmental protection and oil pollution are complied with.

When evaluating tender submissions, a marking scheme is used to check how best the submitted proposals comply with the requirements. Higher points are given to proposals that use environmentally friendly products.

Green Operation

Each government vessel is provided with a chart showing her fuel consumption and speed relationships. The most economical speed shown on the chart is recommended to the users. Using this speed, the vessel's fuel consumption and exhaust gas discharged to the atmosphere could be minimized. It is also the government's policy to use ultra low sulphur diesel fuel oil and TBT free antifouling paint for all its vessels.

(g) E-Communication with Customers

To cope with the fast growing e-commerce environment in the 21st century, Phase 1 of the Marine Department's Electronic Business System (MD eBS) was launched in December 2003 to provide an electronic submission channel for the handling of port formalities documents required by the department. The MD eBS will not only save the shipping community's resources and operating costs involved in preparing paper application and submitting port formalities in person, but also contribute to paper saving as well as a greener environment. Phase 2 of the MD eBS providing a total e-business

solution for port formalities documents and public services was being implemented in 2005. The provision of e-permit and e-payment would further reduce the use of paper in our work processes.

To address public demand for the provision of e-mode examination and efficiency in releasing examination results as well as paper saving, an Online Interactive Computer Assessment System is being developed. The new system will undoubtedly contribute to a greener working environment upon its launch in 2006.

(h) In-house Green Programmes

We are committed to the Government's Green Management Policy in our daily operations at the offices to ensure efficient use of natural resources and energy. We follow and advocate the principle of "Reduce, Reuse and Recycle" in the consumption of materials.

E-Notices and Circulars

By making use of the Wide Area Network enhanced in 2005, we have further promoted the use of electronic means of communication. Under the Accessibility Programme (AP), e-Services Terminals were installed at various offices so that our staff could gain access to all Government-to-Employee applications such as the e-Leave and e-Payroll & Benefits Systems, as well as departmental notices, circulars and circular memoranda that have been uploaded onto our intranet. The creation of email accounts for all staff under the AP also facilitates internal e-communication and eliminates traditional communication in paper mode.

Green Bulletin Board

In August 2005, a bilingual Green Bulletin Board was set up in the MD intranet. We aim to provide our staff with a platform to know more about the department's green issues and to share green information with each other, as well as to enhance their interests and participation in achieving a greener working environment

Energy Warden Scheme

The Energy Warden Scheme was launched in August 2005 to step up

efforts in reducing energy consumption. Energy wardens appointed under the Scheme are tasked to remind colleagues to comply with the department's energy saving measures and to oversee implementation of other green housekeeping initiatives (e.g. paper and waste reduction) in their offices. They conduct regular green inspections of all MD workplaces to ensure staff's compliance.

Setting of Indoor Room Temperature at 25.5°C in Summer Months

All office heads were required to ensure that the indoor room temperature of all the premises of the department should be set at 25.5°C in summer months to reduce energy consumption. Request for deviation from the recommended temperature would be considered on the basis of operational need.

Reduction of Hard Copies of MD Newsletters

The need for production of printed copies of our departmental newsletters, i.e. Hong Kong Maritime News and Scuttle Butt, had been reviewed. The printed copies of Hong Kong Maritime News were reduced by 410 copies starting from its Issue No. 23. E-version of the Scuttle Butt was published in MD intranet in October 2005 and production of hard copies had ceased at the same time. The new arrangement was well received by staff and helped save considerable amount of paper.

E-Conference Room Booking System

We have launched an e-Conference Room Booking System since September 2005, which is another new initiative to move towards a paperless working environment.

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Environmental Targets for 2006

To make our service and workplace environmentally friendly and responsible as well as to protect the natural resources of the world, we WILL:

- strive our best to prevent and fight against all forms of marine pollution, such as marine refuse, oil spill, smoke emission etc.;
- continue to review the designs and materials used for the existing facilities, e.g. seawall designs, paint/fuel for vessels, or electrical machines etc., so that more new environmentally friendly technologies, designs and products will be adopted for delivering our services;
- continue to encourage our staff and appeal for their greater support for adopting more green measures and participating more in green activities initiated by the department or the community;
- continue to explore new means and pay particular attention to a wider use of electronic measures to minimize the usage of paper and energy;
- provide in the environmental report the paper consumption and energy consumption figures, targets for future savings, and the special circumstances which affect our ability to make savings and closely monitor the department's performance;
- use more recycled paper instead of virgin paper;
- phase out paper pay statement to promote e-government and save paper;
- formulate departmental guidelines to ensure proper disposal of empty toner/inkjet cartridges for printers in an environmentally friendly manner;
- explore the feasibility of providing three-colour recycled bins to all out-station offices and the arrangements for collecting the recyclables; and

- promote energy saving tips in using computers, e.g. setting the computers on hibernation/standby mode, turning off the monitors when they are not in use etc.

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Information and Suggestions

If you have any enquiries or suggestions, please write to our Green Manager (Departmental Secretary) at Marine Department, 22/F, Harbour Building, 38 Pier Road, Hong Kong. You may also get in touch with us by e-mail at mdenquiry@mardep.gov.hk or by fax on 2541 7194.

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