Port waste reception facilities in UK ports

Iwan Ball

Introduction

The public perception of marine pollution from ships is usually of large catastrophic disasters involving tanker accidents such as the Torrey Canyon, the Braer, and more recently the Sea Empress. Although major oil spills make for dramatic television coverage and have done nothing to promote the public image of the shipping industry, in terms of tonnage it is operational discharges (as opposed to accidental discharges) from shipping which form the largest source of oil pollution in the oceans [1]. Some estimates indicate that normal shipping operations are responsible for over 70% of the oil entering the sea from marine transportation [2], but as the oil is often spread over a large number of locations, the effects of operational discharges may appear less dramatic than the often catastrophic localised effects of accidental oil spills. They do, however, give rise to a number of chronic pollution problems, particularly in low energy environments such as ports and harbours. Statistics show that 80% of oil spills occur in harbour waters [3]. Clearly, these are not the only wastes discharged by ships. Other vessel discharges may be equally hazardous but to date have generally received less public attention because they are subtler and less visible, e.g. chemical discharges. Furthermore, there are arguably less hazardous but highly visible discharges in the form of garbage.

Despite considerable efforts by the shipping industry over the past few decades which have resulted in substantial reductions in marine pollution, there is still much room for improvement, particularly with regard to both the legal and illegal operational discharges of oil and garbage from ships [4]. Arguably there are five main reasons why ships continue to pollute illegally:

- the inadequacy of port reception facilities for many types of waste, i.e. facilities may be absent or unsuitable, difficult to use, hard to find, or inconveniently located;
- many types of vessel often operate to very tight schedules which allow only a very limited amount of time in port to dispose of operational waste;

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low probability that illegal dumping activities will be detected and sufficient evidence collated to prosecute;

- the high cost incurred by the shipowner for the handling and disposal of waste by some port authorities/waste contractors;

- mariners have become accustomed over many years to discharging waste into the sea and are unaware of the effect of their actions on the marine environment.

This paper focuses primarily upon the first issue, although the issues outlined above are interlinked, and should therefore feature in any integrated solution for reducing the amount of waste discharged at sea. The paper initially considers the problem from an international viewpoint, but goes on to describe the approach taken by the UK in meeting its obligations to ensure that adequate facilities are provided in ports for the reception of ship-generated waste. Reference is also made to the steps taken to raise awareness of potential users to the facilities available, and to discourage the illegal dumping of waste at sea.

**Major elements of the present policy framework at international level**

The present framework of international agreement to control marine pollution is provided by the International Convention for the Prevention of Pollution from Ships 1973, as amended by The Protocol, 1978 (MARPOL). The 1973 Convention as amended by the 1978 Protocol (MARPOL) entered into force internationally, and for the UK, in October 1983, and are treated as a single instrument which is generally referred to as MARPOL 73/78.

The objective of the measures introduced by MARPOL is to achieve the complete elimination of intentional pollution of the marine environment by oil and other harmful substances as well as the minimisation of accidental discharges of such substances. The main provisions of MARPOL take the form of regulations set out in five annexes, each covering a different category of substance which could cause pollution of the sea:

- **Annex I**: Regulations for the Prevention of Pollution by Oil;
- **Annex II**: Regulations for the Control of Pollution by Noxious Liquid Substances in Bulk;
- **Annex III**: Regulations for the Prevention of Pollution by Harmful Substances Carried by Sea in Packaged Forms, or in Freight Containers, Portable Tankers or Road and Rail Tank Wagons;
- **Annex IV**: Regulations for the Prevention of Pollution by Sewage from Ships;
- **Annex V**: Regulations for the Prevention of Pollution by Garbage from Ships.

Annexes I and II are mandatory, and States ratifying or acceding to MARPOL 73/78 must apply the provisions of these Annexes to all ships in their waters and to all ships flying their flag wherever they may be. The other Annexes are optional, but to date all are in force except Annex IV. Even so, some parties already apply Annex IV on a regional basis. For example, ships flying the Flag of Parties to the Helsinki Convention are
already required to apply the provisions of Annex IV in the Baltic Sea area while States not party to the Helsinki Convention are also invited to urge ships flying their flag to apply the provisions of Annex IV in this area [5].

The ability to comply fully with the discharge requirements set out in the MARPOL 73/78 Convention depends upon the availability of adequate reception facilities. Therefore, in addition to establishing the criteria relating to the type and quantities of waste ships may legally discharge, MARPOL 73/78 places responsibility upon States who are signatories to the Convention to ensure that such facilities are provided at their ports. It is the responsibility of the respective government of the Contracting State to implement the requirements of MARPOL 73/78 once ratified, and the way in which this obligation is met varies from country to country. Some wastes, particularly garbage and sewage, are similar to domestic waste and as such may be handled by municipal disposal systems. Other wastes, generally Annex I and II wastes, are typically categorised as hazardous waste due to their toxicity, flammability, or other physical or chemical properties, and require more sophisticated arrangements for disposal. MARPOL Annex III regulations which deal with the prevention of pollution by harmful substances carried by sea in packaged forms, in freight containers, portable tanks or road and rail tank wagons, do not require the provision of reception facilities for waste from these sources as this type of cargo does not generally generate any waste which needs to be disposed of in port. However, if the packaging is damaged and the content is spilt, reception facilities are required as regulated under Annex V. It should be noted that these residues and broken packaging containing such residues require adequate precautions to prevent pollution. It has been widely disputed whether such cargo residues should be regarded as garbage. According to MARPOL 73/78, cargo residues are to be treated as garbage under Annex V except when those residues are substances defined or listed under other Annexes to the Convention. However, there is also the inherent assumption that cargo residues will not be received in large quantities [6]. Since Annex IV is not yet in force, there is currently no legal obligation upon port and harbour authorities and terminal operators in the UK to provide reception facilities for sewage [7], although it is expected that Annex IV will become mandatory in the next few years [8].

Arrangements for the development and implementation of MARPOL 73/78

The development and updating of MARPOL 73/78 is the responsibility of the Marine Environment Protection Committee (MEPC) of the International Maritime Organisation (IMO). Amendments to the Convention are incorporated by a procedure of tacit acceptance; each amendment enters into force at a particular date unless objections are received from a specified number of Contracting Parties prior to the entry date. This procedure greatly facilitates the amendment process, which previously required a certain number of Parties to accept the changes before they could enter into force. However, the IMO has no powers in the enforcement of the MARPOL Convention, which is the responsibility of Governments of Contracting States. Contracting Governments enforce MARPOL provisions as far as their own ships are concerned, and as previously indicated, may also have certain limited powers in respect of the
A draft manual, entitled ‘MARPOL — how to enforce it’, outlining a strategy for the effective enforcement of the Convention was submitted in document MEPC 41/12 to the 41st session of IMO’s Marine Environment Protection Committee (MEPC). It is envisaged that the manual, which was prepared by a Correspondence Group consisting of several Member States and non-governmental organisations (NGOs), will ultimately be incorporated in the new edition of ‘MARPOL — how to do it’, in order to avoid duplication of the current publication.

Eight European States are party to the 1983 Bonn Agreement (Belgium, Denmark, France, Germany, the Netherlands, Norway, Sweden, and the United Kingdom). The Lisbon Agreement (between France, Morocco, Portugal, and Spain, within the European Community) provides similar cover further south. Similar bilateral agreements also exist between the Republic of Ireland and the United Kingdom.

Membership of the North Sea Conference (NSC) consists of the eight Bonn Agreement States, together with Luxembourg and Switzerland. A wide range of issues are considered including various aspects of shipping, such as the provision of port reception facilities and jurisdiction to enforce anti-pollution regulations. To date, four North Sea Conferences have been convened at Ministerial level, along with two Intermediate Ministerial meetings.

The adoption of the International Convention for the Prevention of Pollution of the Sea by Oil (OILPOL) in 1954 was one of the first steps in the effort to limit marine oil pollution. The Convention entered into force on 26 July 1958 and various Amendments were added in 1962 and 1969, which came into force on 26 June 1967 and 20 January 1978 respectively.

During the discussion on the inadequacy of reception facilities (Agenda item 11) at the 41st session of the MEPC, it was noted that the definition of the term ‘adequacy’ needs to be clarified. See MEPC 41/WP.8 Draft report of the Marine Environment Protection Committee on its forty-first session. International Maritime Organisation, London, 1998, p 21.

Port waste reception facilities in UK Ports: I Ball

Provision of adequate facilities

The MARPOL Convention uses stronger and more positive wording on the provision of reception facilities than earlier conventions. The first international convention aimed at the prevention of oil pollution from ships was the International Convention for the Prevention of Pollution of the Sea by Oil, 1954 (OILPOL 54) which required all Contracting States to take all appropriate steps to promote the provision of adequate reception facilities. However, the provision of reception facilities was left to the discretion of port states and was, therefore, not a requisite condition for compliance with OILPOL 54. Arguably, this is one of the main reasons why the installation of reception facilities did not progress satisfactorily. The MARPOL Convention places responsibility upon States who are signatories to the Convention to ensure that adequate reception facilities are provided at their ports. The obligations of Contracting Parties have been defined by MEPC, and the IMO has published a comprehensive manual on the provision of port reception facilities [5] which devotes several pages to defining adequacy. However, even though detailed guidelines exist on the provision of reception facilities, there is often disagreement between ports and shipowners as to whether or not the facilities provided are indeed adequate. Arguably, this is because there are a number of different definitions of ‘adequacy’ in common usage. 9
Capacity

As a minimum, reception facilities should have sufficient capacity to receive those residues and mixtures which are handled within that port and which must be discharged to reception facilities. In qualitative terms, the capacity required is that which will allow the port to receive all the waste that vessels are required to retain on-board and return to shore-based waste facilities under the current legislative regime. In this respect all ports, including fishing ports and marinas, regardless of size, are required to provide facilities to receive garbage (Annex V waste) and waste oil from engines (Annex I waste). The type and capacity of the facilities provided will vary depending upon the size and characteristics of the port. For example, a skip for garbage may be sufficient in a marina if it is regularly emptied and replaced. However, hazardous substances and oil may require a more sophisticated arrangement for disposal. It should be noted that garbage and waste oil are likely to be discharged at every port if ships pay heed to their obligations not to dump at sea, and it is on these wastes perhaps that ports should concentrate.

Undue delay

A further aspect of adequacy is that facilities should not cause undue delay to ships using them. In this respect, the receiving capacity should be at least appropriate in time and availability to deal with the continuing needs of ships using the port. Ships often operate to tight schedules when in port, and delay or deviation to unload waste is unacceptable. Therefore, reception facilities, even if free at the point of use, will not be used if they are in a remote or inaccessible part of a port. This could be a simple matter of positioning skips or other waste receptacles on the quayside in close proximity to the areas where waste is landed ashore. It is important therefore to consider the already established movement of people and equipment within the port and to adapt the waste management programme to existing circumstances rather than impose further requirements upon port users. The obligation to make facilities convenient to port users must also be balanced by the need to choose a site that is accessible to the waste contractor for collection services. Furthermore, the availability of reception facilities should be consistent with port operations (i.e. available 24 h a day, seven days a week if that is the way the port is operated). Ships cannot be expected to delay their departure until the provision of waste facilities is made available.

Associated with the issue of undue delay is the requirement for advance notice to be given of a wish to discharge particular substances, or a demand for specialist equipment. Advance notification of vessels’ discharge requirements is incorporated into the Helsinki Commission’s Baltic Strategy for Port Reception Facilities for Ship-generated Wastes and Associated Issues and is also likely to feature in the European Commission’s Directive on Port Facilities for Waste and Residues from Ships (discussed later in this paper). However, whilst there is undoubtedly considerable merit in providing such information for logistical purposes in order to avoid undue delay to vessels, it should be acknowledged that, as a consequence of the practicalities of seafaring, advance notice cannot always be provided with respect to substances and quantities expected for discharge, expected time of arrival and expected time of discharge, and berth. Furthermore, the requirement to receive a large volume of such detailed information may cause severe difficulties, particularly for the larger commercial ports.
Many small ports may also find it difficult to receive such notification on a 24 h basis.

The question of undue delay therefore is subject to interpretation, and has not been satisfactorily resolved. It can be argued that undue delay may arise when the time spent in port for the disposal of wastes goes beyond the normal turn-around time of the ship in that port, although for reasons previously discussed, this perspective may be somewhat naive. Nevertheless, it is the port’s responsibility to ensure that the formalities for the use of reception facilities, particularly customs, health and environmental formalities, should be as simple and expeditious as possible in order to avoid undue delay to the ship or any disincentive towards the use of reception facilities.

**Provision of information**

A third aspect of adequacy is the *provision of information* on facilities available in ports. The provision of reception facilities is not sufficient on its own to reduce the amount of waste being discharged illegally at sea. Waste facilities will not be fully utilised if not enough is being done to ensure that ships or ships’ agents are aware of the facilities provided and are being encouraged to use them. Ports have adopted various approaches to the distribution of appropriate information to seafarers and ships’ agents, ranging from brochures or manuals on the availability of facilities and procedures for their use in port, to the electronic delivery of relevant documentation to vessels entering the port.

The MARPOL requirement for the adequacy of facilities is often judged by the number of complaints made by ship owners relating to individual facilities. If no complaints are received, it is generally assumed that the facilities provided are adequate. In practice, very few complaints have been received within the UK, yet it is a commonly voiced view among shipowners and mariners that facilities need improvement to encourage the responsible disposal of waste [11]. Arguably, this may be attributed to the inadequacies of the existing reporting system. The passive approach adopted suggests that some inadequate facilities, or inconsistencies between posted services and those available when a ship reaches port, may remain unreported for a variety of reasons. These include reluctance on behalf of some ship’s masters to report deficiencies for fear of repercussions (ship operators who are choosing to discharge waste into the sea are not likely to draw attention to themselves by complaining about reception facilities); limited time for dealing with cumbersome bureaucratic procedures; and in some cases, lack of awareness of the complaints procedure and no clear point of contact. Furthermore, complaints are unlikely to be received unless the Master is a regular user of the port. The Maritime and Coastguard Agency (MCA) (before 1 April 1998, the Marine Safety Agency — MSA) has acknowledged that complaints are not a reliable indicator of the quality of facilities for commercial shipping, and is now considering the case for updating the complaints procedure in the context of port waste management planning procedures which are discussed later in this paper. One approach, advocated by the Port of London Authority, (which also informs mariners of the facilities provided), is through issuing cards inviting comments from ship’s masters on the adequacy of the port waste reception facilities.

**Adequacy at a regional level**

Thus far, the discussion on the provision of adequate facilities has been limited to adequacy at a port level. In the UK Port State Control
inspections assess compliance with the MARPOL regulations. However, it may be argued that higher priority should be given to assessing the provision and use of waste reception facilities by checking whether ships’ Masters are aware of the location of a port’s facilities, whether the port’s publicity was successful, and whether the facility was sufficiently easy to use.

In addition to the above, the term *adequacy* may also apply at a regional level to co-operation among Contracting Parties as well as among ports within a country. In this context, this paper has already made reference to some elements of the international framework of co-operation, particularly with regard to the wider exchange of information and co-operation on enforcement action. The ability for ships to comply with MARPOL 73/78 depends largely upon the availability of adequate reception facilities, especially within Special Areas as defined under the Convention. If a particular sea area is designated as a Special Area, the provision of adequate reception facilities has even greater implications, as ships are virtually prohibited from disposing of their wastes at sea. Nine such areas have already been designated under one or more Annexes to the Convention due to specific oceanographic, ecological and shipping characteristics, and generally they may be categorised by the fact that they are all semi-enclosed waters. The relatively limited number of Special Areas may be largely attributed to the lack of adequate reception facilities, as Special Area status cannot come into effect until there are sufficient numbers of reception facilities available in that area. The proposal to grant Special Area status for NW European waters with respect to Annex I wastes has been agreed by the IMO in principle, with full status to be granted from 1 August 1999 [12], despite continuing concerns of alleged shortcomings in the provision of waste reception facilities in some NW European ports. The Special Area status will prohibit virtually all discharges of oily waste, therefore Contracting States with coastlines bordering the proposed Special Area have a special obligation to ensure the provision of adequate reception facilities in all ports that receive such wastes.

The North Sea and most of the English Channel have already been designated as a Special Area for the discharge of garbage [13]. This prohibits the discharge of all garbage except biodegradable galley waste and then only when at least 12 nautical miles offshore. The UK Government is seeking to extend this Special Area status to cover all UK waters and has initiated research into the sources of litter in the marine environment to justify the extension of the Annex V Special Area. Arguably, the main issue to be addressed is the disposal of non-plastic waste items in the marine environment, as the over-board disposal of plastics is already prohibited. Discharges of non-plastic items which sink from view are difficult to detect in the absence of on-board monitoring and recording programmes. Inevitably, a strengthening of the enforcement regime must occur in line with the extension of the Annex V Special Area if the measure is to achieve its purpose. It would appear sensible to attempt to procure the same geographical boundaries for the Special Areas for both garbage and oil, as this would facilitate the task of policing the Special Area and would help to ensure that seafarers comprehend the requirements [14]. Clearly, for the designation of NW European waters as a Special Area under Annex I or V of MARPOL 73/78 to come into effect, a concerted effort is required by all Governments of States bordering the area to ensure that their ports provide adequate reception facilities.

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13 At MEPC 41, the International Chamber of Shipping (ICS) drew the attention of the Committee to the different perceptions of available facilities for reception of oily wastes from ships, and the difference in understanding of the word ‘adequate’ by ships’ masters and port managers, and that reception facilities in some ports may not be adequate for ships’ needs (MEPC 41/7/6).
Ultimate disposal

The ultimate disposal of ships’ waste once landed is not strictly a matter for MARPOL, as this activity is generally regulated through separate national legislation. However, in assessing the adequacy of reception facilities, the IMO recommends that Governments should consider the technological problems associated with the treatment of wastes received from ships and the ultimate disposal of garbage and the residues and effluent from the reception facility. Governments should also consider the establishment of waste management and effluent standards within their national programmes.

Reception facilities in UK ports

Background

There are over 600 ports and harbours within the UK, handling a total of over half a billion tons of cargo every year, representing around 95% of UK trade by volume, 80% by value and employing some 30000 people [15]. About 20 ports handle over 5000000 t a year. A total of 60 handle over 1000000 t a year, who between them deal with over 90% of the 500000000 t or so of goods passing through UK ports [3]. Each port has its own unique pattern of vessel traffic and usage. However, most ports have adopted a similar approach to meet their waste management obligations under MARPOL 73/78 by ensuring that licensed waste disposal contractors provide a service to the shipping community [16]. These services are generally arranged through ships’ agents on a regular or sporadic basis. Alternatively, a contract for removal of common user waste may exist between the port or terminals, and the contractor, where the contractor is paid by the authority for some or all of the services provided. Regardless of the contractual arrangement, the responsibility for the ultimate disposal of waste in accordance with national legislation and local authority specifications lies with the waste contractor. Once landed, wastes controlled under Annexes I, II and V of MARPOL 73/78 are classified as industrial waste [14] and as such are subject to the Duty of Care regulations [15] for controlled waste under section 34 of the Environmental Protection Act 1990, and the waste management licensing provisions of Part II of the Act [16].

General UK strategy

New legislation [17] recently introduced by the UK Government requires operators of ports, harbours, marinas or other docking facilities to provide adequate waste reception facilities for vessel-generated waste and to prepare a waste management plan with respect to the provision and use of waste reception facilities. This obligation for port and harbour authorities forms part of a major initiative to cut pollution from all commercial and leisure craft of all sizes using UK ports. Central to the planning process is the requirement for port and harbour authorities to consult with their customers in order that facilities can be tailored to the needs of port users thus removing any incentives for wastes to be discharged illegally at sea.

Following a wide ranging inquiry into all aspects relating to the prevention of marine pollution from merchant shipping conducted by Lord Donaldson in 1993 [17], the UK Government initiated a comprehensive consultation exercise which was conducted throughout 1995. The outcome of the consultation exercise was the announcement of 18 measures
designed to combat the effects of pollution from this source. It was acknowledged that there was no single solution, as waste is not only discharged by commercial shipping activities, but arises from all types of maritime activity, each with its own operational needs and economic circumstances [18]. The UK Government, therefore, adopted an integrated approach consisting of three major elements:

- making controls more effective through improving regulations and their enforcement;¹⁸
- improving the facilities for the legal disposal of waste in ports;
- increasing the penalties for illegal discharge.¹⁹

The requirement for ports and harbours to prepare port waste management plans is pursuant to the second initiative, and is arguably the most significant of the measures announced. The process is made mandatory by the Merchant Shipping (Port Waste Reception Facilities) Regulations 1997. These Regulations also revoke and replace earlier legislation on port waste reception facilities, re-installing the existing requirement for port and harbour authorities to ensure the provision of adequate reception facilities for ships’ waste as directed in MARPOL 73/78. However, port waste management planning goes beyond the requirements of the MARPOL Convention. Fundamental to the concept of port waste management planning is the premise that the facilities should meet the needs of their users and of the environment, thus removing as far as practicable any disincentives towards their use.

**Guidance on the preparation of plans**

Since 1996, many port and harbour authorities in the UK have been introducing port waste management planning on a voluntary basis following preliminary guidance issued by the Department of Transport, Environment and the Regions (DETR) in the form of a Merchant Shipping Notice (No. M1659) [19]. However, powers have been taken in the Merchant Shipping and Maritime Security Act 1997 to make this process mandatory through regulation since January this year. Subsequently, further guidance to supplement the Merchant Shipping (Port Waste Reception Facilities) Regulations 1997 is provided in an additional Merchant Shipping Notice (No. M1709) [20] and in a booklet of guidelines entitled Port Waste Management Planning — how to do it [21], published in January 1998. The guidelines have been drawn up by the DETR, with input from its Marine Pollution Advisory Group (MPAG), based upon best practice developed during the voluntary period.

**Marine Pollution Advisory Group (MPAG)**

The consultation exercise brought together the views of the many different organisations who were involved, or had an interest in the operation of ships and their impact upon the marine environment. Remarkably, some of these organisations had not consulted with each other prior to the exercise. In order to promulgate and ensure the continuation of useful dialogue between these bodies following the consultation period, the MPAG was formed to consider maritime pollution issues, chaired by officials of the DETR. The group consists of representatives from Government Departments and Agencies; maritime and ports associations; local authority associations; environmental organisations, and representatives of seafarers and fishermen, although membership of the forum extends to

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¹⁸ Measures include better targeting of port state control inspections on MARPOL offences, including the checking of oil and garbage record books; increased use of notification of a vessel’s next port of call if there is reason to suspect that an offence may be committed during the voyage; and better targeting of aerial surveillance flights.

¹⁹ The maximum fine which may be imposed by magistrates (and their equivalents in Scotland and Northern Ireland) for illegal oil pollution from a ship was increased from £50 000 to £250 000 by the Merchant Shipping (Prevention of Oil Pollution) (Amendment) Regulations 1997, in September 1997. Other measures include the provision of better information to magistrates, both generally and in respect of individual cases, on the seriousness of marine pollution offences, and improved liaison within Government as part of a strategy to increase the number of prosecutions.


²¹ On 16 June 1997 the former Departments of Environment and Transport were merged to become the Department of the Environment, Transport and the Regions (DETR). The main reason for the merger is to ensure greater coherence and a more integrated approach to policy on the environment, transport and regional affairs.
a larger pool of expertise, upon which the DETR may call as appropriate to the issues under discussion. Meetings are convened at approximately nine month intervals, and where appropriate, in sufficient time to influence the submission of papers to the IMO’s MEPC.

Generally, the remit of the MPAG is to advise the Government on matters relating to

- the prevention of operational pollution from ships and all other sea-going vessels;
- the provision and use of port waste reception facilities;
- any other aspects of maritime pollution which may be referred to the forum.

So far, meetings have focused on how to improve the provision and use of port waste reception facilities, facilitating the enforcement of the discharge regulations at sea and on raising awareness among the maritime community of the need for compliance with discharge regulations. Arguably, for reasons discussed later in this paper, priorities should now be directed towards attaining the latter in order to consolidate and build upon the recent proliferation of legislation directed at both the ports and shipping industries.

Requirements of port waste management planning

As each port is different, the only way that port authorities can determine whether or not the facilities provided are adequate to meet the needs and demands of port users is through direct discussions with their customers. Ship operators have various requirements and different opinions on what facilities should be provided. For example, someone using a boat for leisure purposes may place a very high importance on the costs of using facilities rather than the time taken to use them. Conversely, time is often of greater consequence to a commercial mariner who may be prepared to pay more for facilities that are tailored to meet the operational needs of the vessel. Similarly, it is not reasonable to require marinas that are used exclusively by pleasure craft to offer a 24 h waste reception service, and the same may apply to other small ports.

In this context, port waste management planning does not attempt to force common solutions on all ports. Clearly, the effort required by the responsible authority in the development of their plan should be proportional to the scale of the port, and the nature of its business. However, regardless of the physical differences in the size of ports or variations in the size and types of vessels catered for, port waste management planning aims to ensure that the responsible authorities adopt a common approach to the provision of waste reception facilities. The DETR recommends that all port and harbour authorities should undertake eight steps when preparing port waste management plans.

Consultation as previously indicated, is the main thrust of the planning process and ensures that the needs of potential users and waste regulators are taken into account when planning and operating facilities. The involvement of waste disposal contractors and waste licensing authorities in the consultation process should ensure that all wastes are dealt with in the most appropriate environmental method. It is the responsibility of each port to identify who should be consulted and to ensure that the feedback is representative of the views of all port users. Consultation may take a variety of forms, depending on the size and nature of the port. However,
to provide any kind of benefit, consultation needs to be an ongoing process in order to allow revisions to the plan based on new waste management policies, new waste reception and pre-treatment facilities or services, and changes in the type and volume of traffic using the port.

Analysing the need for waste reception facilities. It is appropriate to determine the adequacy of the existing port waste reception system before initiating any expansion or changes. In this respect ports are required to collate information relating to

- the amounts of each type of waste actually received in the port;
- the amounts of each type of waste which should be received in the port;
- the amounts of each type of wastes stored by ships for reception in other ports.

Comparison of the amounts actually received and amounts which should be received should, in theory, provide an indication of the extent to which vessels are practising illegal discharge of waste at sea. Waste management is an iterative process, requiring frequent re-assessment as new information becomes available. It is recognised that it may take some time for a port to gain an accurate assessment of the waste situation, however, it is anticipated that, as port waste management planning becomes established, information on the need for waste reception facilities will develop through the consultation process.

Considering the type and capacity of waste reception facilities. As there may be significant discrepancies between the amount and type of waste which should be landed, and that which is actually landed, it is also necessary to review the frequency of waste types deposited in the reception facilities. The capacity of the reception facilities is determined by the total volume of the waste receptacles and the frequency with which they are emptied. Increasing the number or size of waste receptacles or reducing the period between subsequent collection and emptying of receptacles will increase capacity. However, it may be considered uneconomical to provide waste facilities which are not likely to be used to a reasonable extent. In such circumstances, the port authority, following consultation with port users, would be expected to reach a formal agreement with the MCA on the provision of adequate capacity, and also would allow for investigation of potentially illegal discharges by ships using the port.

Considering location and ease of use. Ship owners may be discouraged from using facilities if they are inconveniently located or difficult to use. As part of the planning process, each port is responsible for considering how best to reduce such disincentives towards use. It is recognised that it is difficult to provide objective criteria to define and measure ‘ease of use’. It is possible to argue that this is already a necessary part of ensuring adequacy, however, port authorities should ensure as far as practicable that the siting and operation of reception facilities do not discourage their use. Typically, the location of waste reception facilities will be influenced by [22]:

- the types and volumes of waste being received;
- the frequency of use and emptying requirements;
- the disposal methods to be used;
- the environmental and amenity values of the area;
the access and security arrangements;
- the types and operational demands of the vessels to be serviced.

It is in the interest of port authorities to ensure that facilities are as good as they can be within the operational restrictions of the port. Under port waste management planning, port authorities are expected to consider the advantages and disadvantages of different locations for fixed facilities, plus the use of mobile facilities such as barges, road tankers and wheelie-bins. In larger ports, mobile facilities may allow greater flexibility for loading and unloading of cargo than fixed waste reception facilities, as they negate the need to relocate the vessel to discharge wastes or each berth having waste reception facilities. In smaller ports, there may be a need to store ship waste for longer in order to provide a cost-efficient load for the waste contractor. The final decision on the location of facilities and their ease of use remains with the port authority, however, due consideration should be given to:

- balancing the operational requirements of easy access for use and for emptying facilities with the need to preserve environmental and amenity values of the area;
- avoiding or reducing any adverse environmental effects of providing and operating waste reception facilities (e.g. aesthetic, noise, odour, vermin, cleaning discharges, etc.) through proper design, location and operation;
- monitoring of any adverse environmental effects associated with the location of ship waste reception facilities.

Cost of facilities. The cost of waste reception facilities can be a disincentive towards use, particularly for operators of small vessels, including pleasure craft. Port and harbour authorities are therefore required to balance the quality of facilities and their cost. Consultation should focus on whether port users would prefer to use inexpensive basic facilities, or those of a higher standard which may be more expensive to provide and use. In this respect, port waste management planning adopts a relatively flexible approach to the issue of charging for facilities by leaving to the port’s discretion the means by which costs for the provision of facilities are recovered. There are several different charging mechanisms open to the ports, the merits and demerits of which are discussed later in this paper. Above all, port authorities should ensure that the cost of using waste reception facilities does not encourage illegal disposal of waste.

Providing information to users. Evidence suggests that not enough is being done to ensure that ship operators or their agents know of the facilities provided by ports, or are being encouraged to use them [23]. Whilst some port authorities have been proactive in providing such information, often in addition to their statutory obligations, the concept of port waste management planning recognises that more can be done to publicise the resources available and to improve communication and liaison between port authorities and port users. Facilities may not be fully utilised if port users are not aware of their location and how they should be used. There are a variety of options by which port authorities can publicise the location, cost and procedures for using waste reception facilities including notice-boards, leaflets and posters; the provision of adequate signage; by circular to ship’s agents or by fax to ship’s masters; through public
meetings and presentations; and through consultation with regular users. A greater degree of pictorial representation of information may also help to overcome language barriers in some ports. However, any publicity or information campaign should also be backed up by an appropriate educational programme for regular port users to help them comprehend port regulations and to be familiar with correct waste management procedures.

**Review.** Waste management planning should be viewed as a continuous and often iterative process. The waste management plan is therefore a dynamic document which will need constant review to ensure that waste management facilities and services are relevant and up to date, and that plans are implemented effectively. This process will be facilitated if regular communication is maintained between port authorities and users. Additionally, port authorities should undertake a formal re-assessment of the waste management plan on a regular basis. The frequency of the formal assessment will depend on the size and nature of the port, although it is anticipated that circumstances will generally change sufficiently to require plans to be modified at least every two years. For example, designation of NW European waters as a Special Area under MARPOL Annex I may result in a significant increase in the volume of oily wastes that need to be discharged to ports in the region in the near future. The review should address as a minimum:

- the overall operation of the plan;
- progress towards stated waste management objectives;
- the adequacy of the facilities being provided with regard to size, type and convenience;
- changes in the plan required by variation in port operations or the requirements of the MCA.

**The report to Government.** All port waste management plans must be submitted for approval to the local offices of the MCA by 30 September 1998, and should also be made available to port users for inspection and comment. Failure to produce a plan, or failures in respect to any other requirements relating to the provision and use of waste reception facilities, may result in a fine, upon summary conviction, not exceeding £5000. The report provides evidence to the Government that the waste management planning process has been completed and provides a document which can be utilised by the port users. Furthermore, any significant reviews of the plan, as part of the formal assessment procedure or otherwise, should also be reported to Government.

The port authority assumes overall responsibility in ensuring that the plan covers all waste reception facilities within port boundaries. In larger ports, separate plans may be prepared by individual terminal operators with regard to waste reception arrangements. However, this information should be subsumed within the overall report or presented as annexes to the plan. In such circumstances, ports should be encouraged to submit a co-ordinating document which consolidates the disparate plans, which should either be subsumed within the overall report or presented as annexes to the document. The amount of detail provided in the plan will, of course, vary depending on the size of the port and the nature of its business. However, the DETR has provided guidance in the form of a checklist detailing the minimum information which all reports should
contain. If information is not available, or a part of the process is not applicable, then the report should explain why.

For practical purposes, or occasionally for reasons of commercial sensitivity, a port may decide to produce several versions of its waste management plan. For example, a full copy may be held by the port authority and the MCA, whilst shorter extracts may be produced for consultation purposes. The Regulations provide for the MCA to charge a fee of £60 per hour for approving a waste management plan, without which a plan cannot be considered for approval. It is anticipated that the time taken to review a plan will range from about four hours for a medium scale commercial port to about eight hours for the larger ports. At the time of writing, it is not clear whether or not the MCA will take a proactive role in pursuing cases of non-compliance or infringement, as the current emphasis of waste management planning is very much upon a change of culture rather than legislative compliance. Regardless of this, it is likely to be several months before the task of approving plans is completed by the MCA.

**Future developments**

At the 39th session of the MEPC, the United Kingdom introduced its strategy for reducing the amount of waste discharged by ships into the sea.\(^{22}\) At that meeting the UK was asked to present in detail its proposals for improving port waste reception facilities, in particular the concept of port waste management planning. Earlier this year (March 1998), at MEPC 41, the UK submitted the information requested in the form of a summary of the guidelines given to UK port and harbour authorities on the preparation of port waste management plans \(^{24}\). Several delegations supported the approach adopted by the UK and expressed the view that this may form the basis of an internationally accepted standard \(^{12, p. 22}\). Further consideration of the work is likely to occur under the aegis of a working group which the Committee have agreed to set up at MEPC 42 in order to facilitate means of improving the availability and use of port waste reception facilities for shipping on a global basis.

The concept of port waste management planning also features in the European Commission’s draft *Directive on Port Reception Facilities for Waste and Residues from Ships*,\(^ {23}\) which is currently in the consultation stages. The aim of the Directive is to reduce the discharges of ship-generated waste and cargo residues into the sea, especially illegal discharges, from ships using ports in the European Community by improving the availability and use of port waste reception facilities. In many respects the Directive repeats and consolidates the basic requirements of MARPOL by requiring Member States to ensure the provision of port reception facilities adequate to meet the needs of the ships using these facilities, without causing undue delay to them. However, the current draft of the Directive has moved the concept of waste management planning to the fore by requiring each port authority of a Member State to develop and implement an appropriate waste management plan. Based on UK experience, waste management plans are seen as an important tool for the improvement of the provision of facilities. The approach seeks to ensure that there is a full and constructive dialogue between the port, harbour authority or marina and the regular users about which facilities should be provided in order to meet their needs. Plans are to be based on guidelines provided in an Annex to the Convention, which are similar to those compiled by the UK DETR’s MPAG.

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\(^{22}\)The reader is referred to documents MEPC 38/10, MEPC 39/12/6, and MEPC 39/13.

\(^{23}\)At the time of writing (May 1998), the draft Directive has recently been the subject of a consultation exercise. It is understood that the Directive will be adopted on the 1 July 1998.
Charging for the use of reception facilities

The provision of waste reception facilities is expensive, and there has been much debate, within the UK and elsewhere, over who pays and how charges are levied for this service. As a complication, the issue of financing of reception facilities underlies many of the arguments over what constitute incentives or disincentives towards the use of port facilities. Although the port associations disagree, it seems clear that the cost of facilities does constitute a disincentive for some port users. However, for larger vessels, costs may be secondary to other disincentives such as the time and effort taken to use facilities and the perceived risk of enforcement action [13, p. 4].

The costs of waste reception facilities can be collected in a variety of ways. The first approach recognises that port authorities have limited expertise in waste handling matters and that this service is best contracted to professional waste hauliers. The port therefore plays no direct role in waste handling, and merely ensures that licensed waste disposal contractors provide a service to the shipping community. The ship's agent can then arrange to dispose of the waste via any one of the approved contractors. One of the main benefits of this approach is that ship operators are in control of all aspects of waste disposal, including final destination. The costs of such an arrangement however are likely to vary from contractor to contractor and according to the location of the port, depending on the volume and nature of the waste and the distance it has to travel to an approved disposal site. Competition between contractors should ensure that there is no excessive profit, although evidence suggests that a better service can often be obtained for waste disposal if the greater proportion of business is channelled through one contractor [23, p. 24]. It is likely that the more business a contractor undertakes at a given port, the more flexible he will be in meeting the full needs of the customer. For these reasons, many UK ports strongly support the principle of a regime based on payment for the service given, with the user (the ship's agent in most cases) in a direct relationship with the contractor [16].

The second approach to financing waste reception facilities is requiring ships to pay a direct fee for each bag or consignment of waste they want to dispose of. This approach is based upon the commercial rule that the user of the facility should meet the cost. This may be a specific charge or it may be included in port dues when, for example, a port decides upon commercial grounds (and not through a legal obligation) to provide a common user skip for garbage which is free at the point of use.24

The requirement in many ports for shipowners to pay for the use of optional waste reception facilities was criticised in the Report of Lord Donaldson's Inquiry, which recommended that reception facilities should be free at the point of use, with their overall costs subsumed within inclusive port dues [21]. In this way, shipowners are not required to pay any direct or additional charges to use port waste reception facilities, as costs are recovered through an indirect means which cannot be evaded. It can be argued that this approach, as with the direct fee mechanism, is in line with the 'potential polluter pays principle'. The argument being that since one is paying, one might as well use the facilities, thus removing the incentive for ships to illegally discharge waste at sea. This argument is of course based on the provision that the service provided at the port does not cause undue delay to the vessel. Furthermore, because the charge is being paid by all ships that call at the port, the charge can be relatively small.

24A distinction should be made between a commercial decision to provide a free facility and a legal obligation to do so.
Closely allied is the fixed fee system which can be considered as a derivative of the inclusive port dues charging mechanism. The disposal costs in this instance are levied as a separate surcharge, but still have to be paid together with the port dues. Therefore, as with the inclusive port dues mechanism, the fixed fee system does not directly charge for the delivered waste. It may be argued that neither approach provide an incentive for waste minimisation practices on-board vessels, unlike the direct fee method which should in theory have a positive influence on good housekeeping.

Charging as part of port dues or as a flat charge, whether the facilities are used or not, is generally opposed by the UK ports industry and indeed by the European Sea Ports Organisation (ESPO), which represents the ports in 16 European Countries, on the basis of several arguments. Firstly, charging for the use of optional waste facilities in some ports and not in others may distort the often fierce competition that exists between ports in a given region. However, it is debatable whether differences in charging regimes has a significant impact upon competition between ports, since there are other associated factors that should be considered which may be of equal or greater importance to commercial shipping such as the convenience and accessibility of the facilities. Furthermore, exemptions would need to be declared for certain types of vessels. For example, ferries or vessels trading in short-sea shipping which make frequent port calls, would not expect to make the same payments as those vessels which are at sea for extended periods and make relatively infrequent port calls.

Secondly, following on from this argument, the scenario presents the undesirable risk of ‘tourism of waste’, with vessels carrying waste to the port which offered the cheapest or most convenient facilities. This problem could be addressed by introducing surcharges for vessels discharging excessive amounts of waste [8], however, enforcement of such a measure could give rise to large overheads from the bureaucracy it would inevitably create.

Thirdly, the ports industry has argued that the ‘free at the point of use’ regime would not necessarily lead to significantly higher levels of use. This argument is based upon a pilot scheme offering free reception facilities conducted by the German authorities at the ports of Bremen and Hamburg between June 1988 and May 1991. During this period around 3.95 million Deutschmarks were invested in improvements to reception and disposal facilities [25]. Although significant increases were observed in the amounts of waste discharged, this may not be directly attributable to the removal of the financial disincentive, and may be related to the improvements in the facilities which were made during the course of the experiment and the additional information and advice made available to port users. The scheme was eventually abandoned when the Federal Ministry of the Environment withdrew its funding. Furthermore, if waste facilities are provided free-of-charge, it may be argued that there remains little incentive for vessels to segregate their wastes or employ waste minimisation practices [26]. This consideration may be of greater significance in regions such as the Caribbean, where there are limited landfill sites for the disposal of waste.

The UK Government, together with a number of other European States have expressed an interest in working towards a consistent regime for funding waste reception facilities on a regional or international basis to reduce or eliminate some of the problems discussed above. Consequently, the draft European Directive on Port Reception Facilities for Waste and Residues from Ships states that the costs of the infrastructure and of operating port reception facilities should be recovered through the collection of

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25Between 1988 and 1990 annual discharges in West German ports of oily residues from ships' machinery spaces increased by more than half (from about 52,000 to 80,000 m³). Discharge of cargo waste increased by about one quarter over the same period (from about 61,000 to 75,000 m³).
a fee, payable by all ships calling at a port of a Member State. The fees may be differentiated with respect to, *inter alia*, the category and size of the ship, and may be incorporated into the port dues, or may be a flat charge irrespective of the amount of waste actually disposed or contractual arrangements with the provider of reception facilities. Furthermore, additional charges may be imposed with respect to quantities and type of waste actually disposed by the ship. It is also interesting to note that a reduction in the fee may be granted if the ship’s environmental management, design, equipment and operation is such that the Master of the ship can prove that it produces reduced quantities of ship-generated waste. However, the Directive recognises the possibility that the disparity between fee systems in different Member States or Community ports may have adverse effects upon competition, and makes provision for Member States to take appropriate action for eliminating such effects.

Port waste management planning adopts a flexible approach to charging for waste reception facilities by allowing ports to decide on the most appropriate method, taking account of local circumstances. However, the guidance issued to the ports by the DETR further recommends that where it is practicable and likely to influence the decisions of ship operators, the cost of facilities should be recovered through indirect charges. Ports are entitled by statute to charge dues to pay for the discharge of their statutory functions, therefore it is not without precedent to include the cost of providing waste reception facilities in general port dues. Indeed, many small ports already offer free garbage facilities because it is not cost-effective to collect a levy. However, it would be misleading to suggest that the inclusive fee system is applicable to all types of waste. For example, facilities for oily wastes or noxious liquid chemicals may be more suited to a direct charging mechanism because they tend to be more specialised and therefore more expensive than facilities for wastes such as garbage.

Evidently, there are practical difficulties in requiring all facilities in all ports to be free at the point of use. Whichever approach is advocated, and there are strong reasons for supporting the Government’s view that the decision should be left to the ports, the question remains how to ensure that ships are aware of the facilities and use them.

**Mandatory discharge of waste**

The UK Government has considered whether legislative measures to make it a mandatory requirement for ships to discharge all waste before leaving port would encourage ship operators to make full use of waste reception facilities. However, whilst at first appearing to be an attractive solution, there are significant difficulties in requiring all ships to dispose all wastes every time they are in a port. For example, the ports would have to ensure that facilities are available for each and every type of waste likely to be transferred ashore. This could require small ports to provide inappropriately sophisticated or expensive facilities which would be rarely used. A further problem is the additional cost that this requirement would impose upon ship owners and port authorities. If depositing waste in port on each visit was mandatory, the ports would demand whatever fee a captive market would bear, whether extracted openly or as part of port charges [8]. Certain vessels such as ferries and other ships making frequent short journeys would demand exemptions. Cross-channel ferries in particular often have very short turn-around times in port and typically store their wastes over several voyages, rather than discharging after each
crossing. Also, some shipowners may choose to dispose of their wastes in one particular port where they have a commercial contract for the provision of specialised waste handling facilities.

An obligation without exception therefore would be clearly unreasonable for international shipping. Ships would no longer have an option to discharge their waste in the most economical and efficient port or terminal on their route. Shipping within the waters of those States requiring mandatory discharge of waste would therefore suffer economic disadvantages. Moreover, the great number of discharging ships could create organisational problems in many ports, and contrary to the requirements of the MARPOL Convention, the situation would be susceptible to cause undue delay to ships.

It is debatable therefore, as to how effective mandatory discharge requirements would be in reducing illegal discharges of waste. Without adequate enforcement measures, it could even present a disincentive towards the use of port waste reception facilities. For example, if a ship operator knew that all wastes had to be discharged upon reaching port, he might be tempted to discharge it into the sea to avoid the inconvenience, delay and cost of being forced to use port waste facilities. Conceivably, the only way of enforcing such a measure would be to integrate the concept into port state control inspections, although this would require considerably more resources devoted to this activity than at present.

Perhaps the most contentious issue relating to mandatory discharge is that of financing schemes (and who should bear the costs). The costs accrued through discharging operations in each port would inevitably have to be borne by the ships in one form or another, therefore certain financing schemes are not compatible with the mandatory discharge concept. Arguably, the most appropriate means of financing such a scheme would be to charge an indirect disposal fee generally levied with port dues. As described previously in this paper, the charge can either form an integral part of the port fees or it can be collected together with them as an additional discharge fee. Each port would need to determine the fee in accordance with its own economic circumstances, as a uniform fee may distort the competition between the ports with respect to waste disposal, thereby leaving little incentive for them to improve their system of reception and treatment of the waste [27].

Despite some other North Sea States promoting compulsory discharge, the UK remains uncommitted to the concept. The DETR has reservations that the immense increase in resources required for effective policing of such a scheme in the UK would, perceivably, divert resources from safety inspections or other appropriate means of reducing marine pollution. Furthermore, it is argued that the application of this approach to commercial ports alone would not address the large amount of pollution generated by other types of marine activity [4, p. 3]. For these reasons, the UK does not support the requirement for all ships to use facilities all of the time, and advocates the precise targeting of requirements for ships to use port facilities through port state control inspections. Similarly, the EC Directive on Port Reception Facilities for Waste and Residues from Ships also empowers port state control authorities to direct ships\textsuperscript{26} to dispose of all ship-generated waste to port reception facilities unless:

\begin{itemize}
  \item[(a)] there is evidence that the ship has an agreement with a port reception facility to dispose of the waste in another port along the ship’s route;
\end{itemize}

\textsuperscript{26}Fishing vessels and recreational craft are likely to be exempt from this requirement of the Directive.
(b) there is sufficient storage capacity for all ship-generated waste that will accumulate during the voyage; or
(c) the quantities of waste are very small and would therefore be unreasonable to dispose of.

The crux of the mandatory discharge principle is that whenever a ship does not deliver all its ship-generated waste to a port reception facility, the responsibility of demonstrating the legitimacy of non-delivery lies with the master.

**Conclusion**

Having adequate port waste reception facilities is clearly essential if reducing or eliminating pollution of the sea is to be achieved. The legal framework is in place in the form of the MARPOL Convention which has been widely adopted by maritime states. This Convention requires ports to provide waste reception facilities which are ‘adequate’ and which do not cause undue delay to the ships using them. All reception facilities, regardless of size should be able to receive MARPOL 73/78 Annex V wastes (garbage) and Annex I wastes (waste oils and oily mixtures), as well as be capable of handling any other wastes in the quantities that would normally be handled or discharged within that port.

In the UK’s view, adequacy should not be assumed simply because there is spare capacity in the reception facility already provided, or due to the lack of complaints from port users regarding individual facilities. Adequate facilities are those which have been carefully tailored to local needs and meet the operational requirements of the vessels using the port. Port and harbour authorities should therefore attempt to remove as far as practicable any disincentives towards their use by providing facilities that:

- cater for all types of waste which are landed at the port;
- are conveniently located and easy to find;
- are easy to use;
- do not present a cost disincentive;
- are periodically reviewed to ensure that they remain adequate.

However, it is proposed that this is not a comprehensive definition, and other issues highlighted in this paper may also contribute to the provision of adequate facilities. These include the provision of appropriate information to port users on the location of facilities, their method of use and health and environmental formalities. Furthermore, waste facilities should promote waste minimisation initiatives by facilitating, where appropriate, waste re-use or recycling schemes. Agreeing on a standard definition for the term ‘adequate’ is important because no meaningful criteria for the identification of inadequacies can be developed without first deciding upon this issue.

Following an extensive consultation exercise, the UK concluded that there was no simple solution which would ensure both better provision and use of port waste reception facilities. Pollution at sea arises from all types of maritime activity, not only commercial shipping. The UK has therefore developed an integrated approach to tackling this problem, based on a package of measures aimed at all types of port and harbour authorities and all types of vessels.
Arguably, the most significant of these measures is the requirement for all ports, including harbours and marinas, throughout the UK to prepare port waste management plans. Since 1996, many port and harbour authorities have been introducing port waste management plans as best practice initiatives on a voluntary basis, however, waste management planning has become mandatory for all ports since January this year (1998). Port waste management planning is based on the concept that port authorities can only be sure that they are providing adequate facilities when they are fully aware of the waste requirements of vessels regularly using the port. Only by consulting these regular users can they plan to provide waste reception facilities which will encourage the disposal of ships’ waste to shore. Clearly, the effort required by the responsible authority in the development of their plan should be proportional to the scale of the port and the nature of its business. However, regardless of the physical differences in the size of ports or variations in the size and types of vessels catered for, waste management planning aims to ensure that the responsible authorities adopt a similar approach to the provision of waste reception facilities. Rather than attempting to impose common solutions upon all ports, port waste management planning aims to establish the thought processes which port authorities should follow when deciding what facilities should be provided.

Hopefully, the effectiveness of port waste management planning will not be limited by preconceptions as to its purpose. In this context, it means planning in a broader sense — assessing the consequences of different options, determining the most appropriate, and setting out the actions required to secure this objective. It is evident therefore that port waste management planning (like all types of planning) encompasses more than simply producing a plan, and the process should not be driven solely by the need to publish a document. The plan itself is only one of the tangible outputs of a constant, iterative process that provides the underlying foundation for sound decision-making in waste management, based on a framework of best practice and common elements that ports can tailor to their individual needs. Waste management planning is no longer an option for UK ports. It is an essential part of waste regulation and marks a significant change in the way in which port and harbour authorities have to address the provision and use of waste reception facilities.

This paper has also considered other approaches to improving the use of reception facilities with the aim of reducing pollution of the sea, namely compulsory discharge of ship-generated waste in port and the benefits and disincentives of various financing mechanisms. However, evidence suggests that it is not differences in charge, or even free provision, which will bring about the required decrease in the amount of waste being dumped at sea [16]. Arguably, what is needed is improved education, and greater awareness on the part of shipowners and port authorities of the impact of their actions upon the marine environment. Regulations are only effective if they are properly observed. In this regard, enforcement and threat of prosecution, are only a part of the solution. The message must get across to the few irresponsible seafarers who neglect their responsibilities whether through ignorance, carelessness, or in an attempt to save money that it is ethically unacceptable to dump waste at sea. Port waste management planning makes a significant contribution to this effort, by facilitating consultation between the providers and users of port waste facilities, and the waste disposal industry, thereby ensuring that the facilities available in ports, and the procedures for their use, are brought to the attention of potential users.
Port waste reception facilities in UK Ports: I Ball

References


