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# Charging for Port Reception Facilities in North Sea Ports: Putting Theory into Practice

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**The aim of this paper is to evaluate the charging systems for the use of port reception facilities for waste oil, and to examine the potential impact of the charging elements of the new (late 2000) EU Directive on port reception facilities for ship-generated waste and cargo residues. Experience to date with alternative models for charging is considered. Conclusions are drawn about the effectiveness of the EU Directive as a means of controlling pollution in the North Sea and producing a 'level playing field' between ports.**

**Keywords: European Union, North Sea, port reception facilities, costs, waste discharge, oil pollution**

## Introduction

A new EU Directive (European Commission, 2000) has been developed with the aim of protecting "the marine environment from operational pollution by ships, regardless of flag, with a view to eliminating such pollution" (Commission of the European Communities, 1998). It focuses on the operation of ships in community ports, in particular by improving the provision and use of port reception facilities.

These facilities, already a requirement of the International Convention for the Prevention of Pollution from Ships (MARPOL 73/78) of the International Maritime Organization (IMO), are made available for the disposal of a wide range of ship-generated waste and cargo residues. However, their provision has long been considered inadequate, particularly for smaller vessels. This was highlighted in a report submitted to the IMO's Marine Environment Protection Committee (MEPC) in 1996 by the Independent Tanker Owners (INTERTANKO) which states that "It is a sorry fact that from the tens of thousands of ports world-wide, there are but a few hundred who are able to provide shore reception facilities" (IMO, 1996, summary sheet).

Data collected on availability of facilities is also problematic, with different countries providing information in different formats or, in some cases, failing to provide information at all to the MEPC which collates such data. Carpenter (2000) examines data collected by the MEPC in the form of a questionnaire between 1985 and 1998 on availability of facilities for the reception of six categories of oily waste under Annex 1 of MARPOL 73/78, indicating that there are "evidently some significant gaps in the data from this survey" and concluding that "a major stumbling block of MARPOL has been the lack of accurate data regarding the availability of facilities". As a result, it is also difficult to know whether or not there is a link between growth in availability of facilities and in the level of marine pollution, for example from illegal discharges at sea.

This paper will concentrate on one key element of the Directive which is the use of a common charging system under which ports will be required to establish cost recovery

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systems which should encourage the use of facilities, while at the same time placing the burden of costs on ships (in line with the polluter pays principle).

Although the specific examples of charging systems examined in this paper are concerned with reception facilities for waste oil, other categories of waste facilities will also be required including those for chemical and noxious wastes and garbage. It is noteworthy that MARPOL 73/78 Annex IV covers sewage wastes but has not yet been ratified, 27 years after it was adopted in November 1973. The Directive has suspended implementation as far as sewage is concerned until 12 months after Annex IV is ratified.

The detail of the charging system for facilities will be at the discretion of each Member State subject to certain general principles. However, a common fee system, coupled with monitoring provisions including inspections and documentation, is intended to discourage discharge of waste at sea and all vessels will be expected to contribute to the cost of facilities.

The European Commission has developed this legislation as a directive, rather than a regulation, which would be much more restrictive. Regulations are generally used only if the Community considers that Member States would not be able to achieve the results required by a particular action. The Protocol annexed to the Treaty of Amsterdam sets out clear rules on subsidiarity and the European Commission (1999a) outlines the “main aspects relating to subsidiarity:

- subsidiarity is a dynamic concept and the appropriate level for action may vary according to circumstances;
- all legislative proposals will be accompanied by a statement on the impact of the proposed measure on the application of the principle of subsidiarity;
- consistent with the proper achievement of the objective, the form of Community action should not be too restrictive (as far as possible, directives should be preferred to regulations);
- subsidiarity should not undermine the powers conferred on the European Community by the Treaty, as interpreted by the Court of Justice.”

In accordance with the third bullet point here, it is considered that Member States will be able to achieve the requirements of the Community in providing for port reception facilities to deal with ship-generated wastes.

### **Existing Charging Systems**

The IMO (2000) identify six systems for recouping the costs of port reception facilities (capital costs of equipment, including interest and depreciation; land acquisition; labour, including operation of the facilities, supervision, administration and training of personnel; maintenance and spare parts; costs for final disposal of wastes, etc.). They are:

1. the direct fee system (or Direct Cost Recovery System);
2. costs of disposal included in port dues (or Non-special fee system);
3. the free of charge system;
4. the contract system;
5. the fixed fee system; and
6. the combined system.

Each of these systems is reviewed in turn below. Practical experience in North Sea ports of the first three systems is discussed, followed by a brief examination of the theoretical implications of the final three systems.

#### Direct Cost Recovery Principle:

This is currently the most commonly used approach within North Sea ports. Facilities in ports can be fixed or brought in from external contractors. In this latter case, independent, certified contractors receive oily waste and invoice ships for the cost of disposal. The only cost to ports is that of licensing and inspection of contractors; these costs are often passed on to ships in the form of a small levy. Although this system involves an additional administrative burden in comparison with other systems, it can be argued that a system of certification, licensing and inspection of contractors will ensure the correct disposal of wastes once they have been removed from ports, and thus prevent illegal dumping elsewhere, with consequent environmental damage.

Unfortunately, the system may promote continued illegal dumping at sea as ship owners seek to avoid paying for disposal. Olsen (1994) notes that there have been cases “where the reception companies have included such a high profit [margin] that discharge fees have become prohibitive”. Alternatively, it may encourage the use of cheap, low technology methods for disposal and treatment, as there will be little reason to develop new technologies to reclaim waste. The latter may increase operating costs for contractors, which they may pass on to ship owners, giving ship owners an incentive to look elsewhere for disposal facilities.

#### Direct Cost Recovery in the United Kingdom

There are no Government owned UK ports and no Government subsidies for running ports. There is a range of port models including: Trust Ports, such as Dover and Belfast which are run by a Board of Trustees and not privately owned; Local Authority Ports (for example Sullom Voe); Public Corporation Ports (for example operated by London Transport); Local Authority Companies (for example Manchester Port); and Privatised Ports such as Associated British Ports (formerly British Rail Ports). All UK ports are governed by Statutory Instruments of the Government, which have been developed from the 1847 Harbours Act, as modified over time.

The key provisions of the Harbour Act are that Parliament gives Harbour Authorities powers to manage harbours in order to provide a public service. Harbour authorities can act only within the powers provided and, on the payment of dues or charges, harbours are open to anyone who wishes to use them. Dues are regulated and charges must be “reasonable”. As a result of the Harbour Act, Parliament will be able to place limits on the levels of charges which harbour authorities can put in place for the use of port reception facilities.

UK ports are run as businesses to make profit, with responsibility for the cost of waste disposal lying with ships’ masters and owners. Although there is little control over the level of technology used and little pressure on disposal companies to develop more efficient methods to treat waste, the Environment Agency indicates that it is responsible for protecting “controlled waters” from pollution and for preventing waste management from polluting the environment Environment Agency website, 2000). “Controlled waters” include coastal waters, and it is an offence to pollute such waters, either deliberately or accidentally. As a result the Environment Agency is able to place some restrictions on the actions of contractors for the disposal of ship-generated wastes and contractors are strictly regulated and their operations are monitored at regular intervals.

Vessels can obtain information on both fixed and mobile reception facilities, and on approved waste contractors from Port Waste Management Plans which are issued to shipping agents who are then able to arrange for the collection of oily waste, when requested by ships’ masters. Ships can then be charged directly for the amount of waste they offload.

Ships must normally use approved contractors but, if they choose another, that contractor must demonstrate its suitability to the port before use (Mellor, personal

communication<sup>1</sup>). The fact that contractors are required to hold a Waste Management License for the deposit, recovery or disposal of controlled waste offers some measure of control of a contractor's suitability.

The Landfill Tax of October 1996 had a significant impact on costs for contractors who disposed of waste in landfill sites. HM Customs and Excise (1998) reviewed the Landfill Tax which has "two main environmental objectives: to ensure that landfill waste disposal is properly priced so as to reflect its environmental cost; and to promote a more sustainable approach to waste management in which less waste is produced and more waste is either reused or has value recovered from it." The cost of the landfill tax, passed on by contractors in their charges to ships owners, meant that waste disposal costs in the UK rose significantly. In 1996, the Landfill Tax was set at £7.00 per tonne for active waste and £2.00 per tonne for inactive wastes. The higher rate has since risen to £11 per tonne, with proposed £1.00 increases annually to 2004, subject to Parliamentary approval (HM Customs & Excise, 2000).

One major problem with fixed facilities is the requirement for monitoring and sampling of waste from each ship. Drewitt (personal communication<sup>2</sup>) noted a case in Tees and Hartlepool where oily waste was contaminated by other chemicals, which then needed specialist disposal in Wales. Because the oily waste being disposed of had not been chemically analyzed before it was offloaded, the oil terminal operator was forced to bear the cost, as it was not possible to tell which ship had offloaded the contaminated waste.

Any chemical analysis of oily wastes would take time and could potentially result in undue delay to vessels seeking to discharge waste. Vessels might, therefore, seek to take their waste elsewhere or discharge illegally, rather than face delays, resulting in either a loss of business to the port or an increased risk of pollution at sea. Because of financial burdens imposed on the port in sending the waste to be disposed of elsewhere, the decision was taken to move to the use of contractors providing facilities upon request, so that the port did not have to meet such costs in future.

#### Direct Cost Recovery in the Netherlands

Direct Cost Recovery is also the most commonly used charging method in Dutch Ports, where reception facilities have been commonplace for many years, particularly for tanker operators. Van de Laar (personal communication<sup>3</sup>) highlights the problem that only around 6% of ships entering Dutch Ports make use of facilities, and currently only around 10% of port waste comes from ships, the other 90% coming from shore-based sources.

While there are very efficient systems available for separating out waste oil such as by centrifuge, biodegradable oils and the use of bacteria to "eat" oily waste, these methods are generally more expensive than standard filtration, and may require chemical analysis of wastes to ensure that there is no contamination which could have a negative impact on the separation process. Any contamination would, as in the example of Tees and Hartlepool in the UK, result in potentially high costs to deal with such contamination.

Van de Laar (1998) indicates that more basic methods are used, e.g. physical methods including filtration, when the price of oil is low but suggests that this situation may change if the price of oil were to increase significantly, making it more economically viable to use higher technology methods, and increasing the amount of income generated by selling reclaimed oil. In this case, ships could make a profit on waste oil and would be more likely to use facilities to dispose of it – as happened when oil prices were high in the 1970s.

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<sup>1</sup> Paul Mellor, Dock Master, Associated British Ports, Goole. Letter dated 12 January 1998

<sup>2</sup> Captain J L Drewitt, Harbour Master at Tees and Hartlepool Port Authority, Harbour Offices, Middlesbrough. Meeting held 27 February 1998

<sup>3</sup> Ferdi Van de Laar, Amsterdam Ports Facilities Manager, Amsterdam. Letter dated 12 January 1998

### Non-Special Fee Principle

Under this system, reception and treatment costs are included in harbour fees, in the belief that ships will make use of facilities they have already paid for. All vessels calling into such a port will make a contribution towards the cost of facilities via their harbour dues, whether they use the facilities or not. However, the International Maritime Organization (2000) indicates that although the “charge is unavoidable... (an) advantage of the charge being paid by all ships that call at the port, is that the charge can be relatively small” (pp 242-243).

A drawback of this system may, however, be that vessels retain waste on board until reaching that port, rather than disposing elsewhere. This may result in higher levels of waste being offloaded than might have occurred otherwise, and there is little incentive for waste reduction methods to be introduced on vessels, such as maintenance of oily water separators, as they are not paying the true cost of waste disposal, but rather a fixed sum in the harbour dues.

Under this system, there is a certain level of guaranteed funding for facilities, based on the number of vessels calling in at the port, and so it is possible for the port to use best available technology as a means of bringing down costs through efficiency and achieving the extraction of as much oil as possible, which can then be sold to recoup some costs, providing additional funding towards the cost of facilities. Although the system being described is for waste oil, it should also be possible to adapt the system for other types of waste, and also for cargo residues, if there is the potential for the port to make money by operating a recycling scheme.

Olsen (1994) indicates that ships should, in principle, be able to discharge waste during normal use of the port (although they are often required to give notice to the port in advance that they wish to use the facilities), that they should not be delayed at all, and that there should be little incentive for them to dump illegally. However, in practice, ships’ masters may consider that use of facilities will mean extra time spent in port, resulting in extra costs that they are unwilling to bear. In such circumstances, they may still choose to dump illegally rather than make use of reception facilities.

Some ports may choose to have only very limited or even no facilities, in the belief that ships will use other facilities en route. This could potentially result in a competitive advantage for such ports, as they would have to bear no costs in this scenario. Ports providing these facilities will, correspondingly, need either to increase port fees to cover the costs (which may persuade ships to seek alternative ports), or to absorb the cost of facilities themselves. The provisions of the Directive, with all ports of Member States being required to introduce a system including a fixed element in harbour dues to cover the cost of reception facilities, should overcome these problems.

### Non-Special Fee Charging in Sweden

Sweden operates its reception facilities based on the principle that no special fee is charged ships for the reception (and treatment) of oily wastes. In ports other than those associated with oil refineries, reception facilities are owned by waste disposal companies.

As a consequence of the ‘no-special-fee’ system, Åmark (personal communication<sup>4</sup>) suggests that the Göteborg AB loses money, and also proffers the view that if waste oil had not been removed from vessels, it would have been discharged to sea. As a result, Åmark suggests that there has been a noticeable reduction in pollution since facilities were introduced in Göteborg. He also indicates that waste oil removed by chemical companies in

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<sup>4</sup> Mats Åmark, Port of Göteborg AB, Sweden. Letter dated 24 February 1998

the treatment process is then used for heating cement furnaces. However, in the case of Borealis AB, Andersson (personal communication<sup>5</sup>) indicates that facilities are brought in on request, and even with only 5% of ships making use of such facilities, the port loses money with no noticeable reduction in oil pollution. This low take-up also indicates that there is still an unwillingness on the part of ships' masters to make use of facilities.

Other problems are that many ships keep their engine room wastes on board until they arrive in Sweden, and some have sought to discharge waste not produced on board. For example, a tanker belonging to a visiting navy "brought in a full shipload of oily wastes that had been collected" prior to the visit (Swedish Environment Protection Agency Report, undated, page 14).

As with the UK and Netherlands, Swedish ports operate on a commercial basis and must ensure that the costs of reception facilities are covered, while still remaining competitive with other ports. To dispose of abnormal levels of waste oil without charging the ships' owner would not be financially acceptable. If facilities were to be funded by the State, or by ports, then the Polluter Pays Principle would not apply and increasing amounts of waste would be brought to Swedish ports for disposal. Although this might lead to greater levels of trade in Swedish ports, it would also result in the "import" of waste into Sweden, with consequent disposal problems and environmental impacts. Restrictions put the onus on ships' owners to introduce best practice methods: disposing of waste at each port of call rather than saving it up, and ensuring that the waste is not contaminated prior to disposal.

Despite the availability of facilities, there is still evidence of illegal dumping of oil in Swedish waters: "In Swedish waters alone, 281 ships discharging oil were detected in 1993, and 415 in 1994" (Olsen, 1996). There is much, therefore, still to be done to persuade ships to make use of the facilities available.

#### Free of Charge Principle

This principle arises from the belief that ships will make use of facilities if they do not have to pay for them, the costs of such facilities being borne by the taxpayers in the country where they are operated. This method should directly impact on the level of illegal discharges since there will be no costs involved in offloading in port rather than dumping at sea, and there should also be no delays to ships that are in port anyway. There will also be no impact on the competitiveness of ports.

Such a method may remove the requirement for legislation on ships' owners and masters to force them to use port facilities since there is no cost to them. However, there would still be a requirement for laws and a system of fines which can be imposed on those vessels which still continue to pollute because it is more convenient than calling in at a port. As a result, a system of vessel inspections and the use of record books for cargo, wastes, garbage etc. will be introduced under the Directive, to ensure that vessels arrive in port with the amount of waste which should have been generated since their last port of call.

The Council (2000) Common Position (18) states that "Member States should ensure a proper administrative framework for the adequate functioning of the port reception facilities..." while at (19) it goes on to say that "An identification system for the identification of polluting or potentially polluting ships would facilitate the enforcement of this Directive and ... the system established under the Paris Memorandum of Understanding on port state control provides a large amount of additional information needed for that purpose". As a result, it would appear likely that the competent authority to conduct vessel inspections may be the same as for Paris MOU Inspections, for example, the Maritime and Coastguard Agency in the UK and the Danish Environment Agency.

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<sup>5</sup> Jonny Andersson, Borealis AB, Sweden. Letter dated 16 February 1998

Problems associated with the free of charge method include the lack of pressure on ships to reduce levels of waste generation, or on contractors or treatment plants to introduce best available technology. Ports are unlikely to use the best technology for reception and treatment since costs will be covered by the state. As a result, the level of pollution being generated may not be reduced.

It may be in the interests of contractors and treatment plants to use lowest cost methods since they will be receiving a guaranteed income from the port authorities, together with additional income from ships whose waste exceeds that allowed under the current restrictions. At the same time, ships which cannot meet the requirements for the free of charge service, or which do not wish to be delayed, may well continue to dump illegally rather than pay the costs of using facilities.

#### Free of Charge system in the Federal Republic of Germany

In May 1988, The Federal Republic of Germany introduced a three-year pilot project to examine the effectiveness of providing reception facilities for both oily and chemical wastes, free of charge. Noelke (1992) indicates that costs of the pilot project were divided equally between the Federal Government and Coastal states, with a total annual budget of DM13.50 million. The pilot project was intended to provide a body of experience from which to develop a "final disposal system at reasonable costs or without raising special environmental fees from vessels using the ports" (page 3).

The pilot project came to an end in May 1991, when "The Federal Government of Germany ... decided not to contribute any longer to the disposal of residues in the German seaports" ... "(and) The federal coastal states could not agree to carry on with a standardized common system, mainly for budgetary reasons" (page 12). However, the State Governments of Hamburg, Niedersachsen and Bremen/Bremerhaven decided to continue to offer free discharge facilities for oily residues only and, from January 1992, official harbour dues in Bremen/Bremerhaven were raised by 9%. In addition, a number of restrictions were introduced which limited those vessels able to take advantage of free of charge facilities. It is unclear whether the 9% increase in harbour dues was intended directly to subsidise this system, or whether it was to pay for the administration required under the free of charge system. If the former, then the pricing policy would more closely resemble the "No Special Fee" system.

The Bremen/Bremerhaven system resulted in a higher take-up by ships (12%) than is the case either in the Netherlands (6%) or in Sweden (5%), and the Wadden Sea Quality Status Report (1999) notes "declines in oil rates on the German North Sea coast in the years 1998 to 1991" (page 117), the period in which facilities were free of charge in all German harbours. However, the report also noted increases since 1991/92, and provides data (Figure 4.25 in that report) on the number of reported oil spills in the German North Sea between 1986 to 1997. The approximate number of spills between 1991 and 1994 are shown to be 140 in 1991; 150 in 1992; 160 in 1993; and 230 in 1994. Figure 4.24 in the same report gives the approximate number of oil spills in the Dutch continental shelf as: 600 in 1991; 700 in 1992; and 1000 in 1993.

#### The Contract System

Under this system, a contract is negotiated between the owner of a ship or ships and the operators of reception facilities in a specific port where the ship(s) regularly visits. Ships such as ferries and fishing boats, which have a specific home port, would find such a scheme particularly beneficial.

Various contractual terms including volume and type of waste, frequency of use of facilities and fee payment can be negotiated in advance, should ships owners choose to do



so. As a result, because ships have contractually agreed to dispose of waste in a specific port, and agreed costs in advance, administration is minimised, as is the need for monitoring of that particular ship. Illegal dumping will be minimised as payment for delivery of waste is fixed, whether facilities are used or not, so there is no financial incentive to dump waste.

In common with Direct Cost Recovery, there will be little incentive to introduce waste reduction methods, at least at the beginning of the contractual period. As contracts came up for renewal, however, such methods may become more economically attractive if reduced fee rates could be negotiated as a result, or if the vessel is likely to exceed the maximum amount of waste that it has contracted to dispose of in the period of the contract.

The main advantage of the contract system is that it enables the vessel's owner to budget disposal costs over a fixed period, while ports are guaranteed a certain yearly income over the same period. This is a significant difference from Direct Cost Recovery where vessels have to pay differing amounts at different ports of call, and also may dispose at a range of ports. Ports do not have a guaranteed amount of income since the number and type of vessels using facilities will fluctuate, and so will the amount of money received for use of facilities.

Costs can be calculated based on vessel type, age and levels of waste generated. Newer vessels with cleaner technology which generate less waste will pay lower fees than older, more polluting vessels, while reduced rates can also be set where vessels introduce waste reduction or waste management methods on board. Costs may also be lower than those where Direct Cost Recovery is used because administration is reduced as are enforcement and monitoring costs since vessels have already paid to use the facilities.

#### The Fixed Fee System

The IMO (2000) indicate that under this system "the costs of disposal ... are separated from the port dues as a surcharge, but still have to be paid together with the port dues" (page 261). As a result, all vessels would be required to pay the fee, whether disposing of waste or not, and would not take into account the actual cost of waste disposal when facilities were used.

Again, there is little incentive to introduce waste reduction measures and, at the same time, there is less incentive to dump illegally since the fee will have to be paid whether a ship used facilities or not. There is, however, an economic advantage of such a system for ships which do make use of facilities, however, in that the fee may be lower than in other ports since all vessels are making a contribution towards the costs of reception facilities.

Administrative costs should not be high under this system, since all vessels will have to pay the fee at the same time as their harbour dues. However, if ships calling into port on a frequent basis were able to pay a reduced fee based on the number of times they called into that port, then administrative costs could be increased slightly as a result of a greater need to monitor and catalogue the various ships calling into that port, and calculate reductions based on the increasing number of visits by a ship.

Accurate data for calculating these reductions should become available under the Directive, since it will be a requirement that vessels notify ports in advance of their need to use facilities and, where they do not use facilities, they have to provide proof that they can retain waste on board until their next port of call, and identify that port.

#### The Combined System

Under such a system, a fixed fee would be charged to all ships, as discussed above, but an additional charge would also be made on ships actually using facilities, to contribute to actual costs of facilities, depending on volume and type of waste. As an extra cost is involved, waste reduction methods may be encouraged so ships can reduce the additional

costs involved under this system. However, illegal dumping may also become a more attractive option as a result of those same additional costs.

Administrative costs are also likely to be higher under this system since not only will the fixed fee element have to be collected, with the possibility of reductions based on frequency of use of the port being taken into account, but the additional fee covering actual cost of disposal will also have to be calculated. Monitoring vessels is again an important element of such a system, and the vessel inspection system discussed previously, together with the use of vessel logbooks of cargo and waste generated, will be instrumental in this, as in all the other charging systems.

Using the IMO headings previously outlined, a summary of the advantages and disadvantages of the various charging systems is given in Table 1.



Charging System	Advantages	Disadvantages
Direct Fee (or Cost Recovery)	<ul style="list-style-type: none"> <li>Adheres to Polluter Pays Principle</li> <li>All costs are passed on to vessel</li> <li>Vessels charged directly for waste discharged</li> </ul>	<ul style="list-style-type: none"> <li>May prevent use of fixed facilities in ports</li> <li>Use of contractors can result in high administrative burden</li> <li>May promote illegal dumping</li> <li>May encourage “lowest level” technology</li> <li>No consistency in charges between ports – fee levels open to manipulation</li> </ul>
Non-Special Fee	<ul style="list-style-type: none"> <li>All vessels make a contribution therefore certain income level guaranteed to ports</li> <li>May promote introduction of fixed facilities</li> <li>Ports may introduce Best Available Technology to recover/recycle wastes and recoup some costs</li> </ul>	<ul style="list-style-type: none"> <li>Vessels pay whether they use or not – therefore not Polluter Pays</li> <li>Vessels may retain waste on board from elsewhere therefore “importing” waste from elsewhere</li> <li>Little incentive for waste reduction on board vessels</li> </ul>
Free of Charge	<ul style="list-style-type: none"> <li>Vessels only pay for waste above a certain fixed volume which is known in advance, or in exceptional circumstances</li> <li>Promotes disposal in port as no incentive to dump</li> </ul>	<ul style="list-style-type: none"> <li>Not Polluter Pays</li> <li>Requires taxpayers money to fund facilities</li> </ul>
Contract	<ul style="list-style-type: none"> <li>Vessels have contract with port for fixed level of waste – guaranteed income for port/proof for exemption of vessel in other ports</li> <li>Minimises administration/incentive to illegally dump for those vessels</li> <li>May promote better technology on board at end of contract</li> <li>“Cleaner” vessels charged less</li> </ul>	<ul style="list-style-type: none"> <li>Only for specific vessels/fleets therefore not applied to all vessels calling into port</li> <li>Still requires administration for other vessels</li> <li>Little incentive to introduce waste reduction technology at start of contract</li> </ul>
Fixed Fee	<ul style="list-style-type: none"> <li>Income to port guaranteed as all vessels pay, whether discharging waste or not</li> <li>Less incentive to dump if vessel already paying</li> <li>Fee may be lower overall for vessels discharging since all vessels are contributing</li> <li>Administration costs should not be high</li> </ul>	<ul style="list-style-type: none"> <li>Little incentive for waste reduction on board vessels</li> <li>Not polluter pays</li> <li>Administration costs may rise if vessels which call in frequently negotiate a reduced fee level</li> </ul>
Combined	<ul style="list-style-type: none"> <li>Guaranteed income from fixed fee to all vessels</li> <li>Additional (direct) fee to vessels discharging therefore partially Polluter Pays</li> <li>May promote waste reduction methods on board to reduce costs</li> </ul>	<ul style="list-style-type: none"> <li>Illegal discharge may be promoted to avoid the additional element of the fee</li> <li>Direct fee element of charges open to manipulation</li> </ul>

## Charging Elements of the new EU Directive

The proposed EU Directive makes clear that the burden of cost of provision of adequate reception facilities should be borne by ships visiting ports. One of the most significant amendments (Amendment 6) to the original draft Directive was that “all ships calling at a port of a Member State shall contribute significantly, i.e. at least 90% of the costs... of port reception facilities including treatment and disposal of waste”... “irrespective of actual use of the facilities” (European Parliament, 2000a).

On 28 June 2000, a press release was issued stating that agreement on the Directive on port reception facilities was reached between the European Parliament and the Council at the meeting of the Conciliation Committee. With regard to the fee element, it was noted that “The cost recovery system was the main issue in the conciliation between the Parliament and the Council” (European Parliament, 2000b). The Directive aims at providing no incentive for ships to discharge their waste into the sea, and so it was agreed that the following principles will apply to all vessels (excluding fishing vessels and recreational craft carrying 12 passengers or less):

- all ships calling at a port of a Member State shall contribute significantly to the costs of reception of waste from ships, irrespective of actual use;
- the fee may be differentiated with respect to the category, type and size of the ship, for example; and
- the balance of the waste reception costs, if any, shall be covered on the basis of types and quantities of waste actually delivered by the ship.”

Within three years of the entry into force of the Directive, it was agreed that the Commission would submit a report to the Parliament and the Council, evaluating the impact of the variety of cost recovery systems. As a result of this evaluation, the Commission may, if necessary, submit a proposal regarding the introduction of a fee system “involving a fixed component of at least one third of the waste recovery costs incurred to ports by ship-generated waste, or an alternative system with equivalent effects”.

No mention was made in the press release of a figure for the significant contribution, previously suggested as being 90%. However, the European Parliament (2000c) reports that “On the ‘key issue’ of fees, the Council finally accepted the principle of a percentage of the costs to be applied to all ships calling at a port, irrespective of actual use of the facilities. All institutions agreed on the Commission’s interpretation of 30% as a bottom line for this kind of costs” (page 8). In addition, the period within which the Commission should report back evaluating the impact of the Directive was reduced to three years.

In choosing a ‘no-special-fee’ system, whether it covers 90% or 30% of the cost of facilities, the intention is to remove any economic incentive to discharge illegally, to recover a sufficient level of cost to support progressive improvement in technology, and to achieve an equitable distribution of costs. With the systems of vessel inspection and record books to track levels of waste produced by vessels, the fact that all vessels are contributing to facilities in ports through their harbour dues, and the use of reduced fees for vessels using “cleaner technology” waste reduction methods on board, it should follow that the opportunities and incentives for vessels to discharge illegally are reduced. At the same time, a system of fines for vessels caught polluting or with falsified record books, for example, should provide a disincentive to discharge illegally.

While the EU has set out its commitment to the “Polluter Pays Principle” in Article 130(r) of the Single European Act, stating that “environmental damage should as a priority be rectified at source, and that the polluter should pay” (Commission of the European Communities, 1992), it was considered that direct application of “polluter pays”,

i.e. the use of the direct fee system under which only those vessels which deliver waste to ports would pay could result in an economic incentive for discharge of waste at sea. An indirect application of 'polluter pays', where all vessels make a contribution towards the costs of facilities while those discharging pay discharge costs at a reduced rate because of that contribution was accordingly preferred, and this system would also bring the North Sea into line with a similar scheme, implemented on a voluntary basis in the Baltic Sea, under the HELCOM Agreement (1974).

However, the subsequent Opinion of the Commission, in considering Amendment 6, indicates that more flexibility was needed because of the "wide range of situations in very different ports all over Europe", so that a rigid fee system would not be possible (Commission of the European Communities, 2000, page 5). This wide range of situations results from the fact that various Member States currently operate the different charging systems outlined earlier in the paper, while the types of ports range from Government owned and/or subsidized, ownership by local government, Trust Ports in the UK, and also wholly privatized ports. The size of ports to be covered by the Directive also ranges from the largest oil terminals such as Sullom Voe and cargo ports such as Zeebrugge, to small marinas for pleasure boats and fishing ports.

Additionally, the 'no-special-fee system' was seen as having two main problems: it would not encourage ship owners to introduce cleaner technologies; and ships making frequent, short journeys between ports may be faced with a higher cost burden. Short sea shipping, i.e. the transfer of goods between Member States using both maritime and inland waterways, has been promoted by the European Commission (1999b) for "three main reasons:

- to promote the general sustainability of transport. Short sea shipping should be emphasized in this context as an environmentally friendly and safe alternative, in particular, to congested road transport;
- to strengthen the cohesion of the Community, to facilitate connections between the Member States and between regions in Europe and to revitalize peripheral regions;
- to increase the efficiency of transport in order to meet current and future demands arising from economic growth."

Short sea shipping requires that vessels call in at ports on a very frequent basis. Vessels will accordingly pay a disproportionately high level of fees towards port reception facilities compared to the amount of waste generated during frequent short journeys. To overcome this problem, the contract system with fees paid for a fixed period and a fixed maximum amount of waste may be more appropriate for these vessels, or some form of exemption or rebate on harbour dues may have to be implemented for this category of vessels.

The cleaner technology problem was considered by the European Parliament (2000) under Amendment 2, which states that "ships producing reduced quantities of ship generated waste should be treated more favourably in the cost recovery systems". The use of rebates or repayment of a proportion of harbour dues to vessels using cleaner technology or waste reduction methods should encourage the use of such methods on board ships on cost grounds. Proof that waste reduction is taking place may, however, be required and the system of vessel log books for waste generated, required at the inspection stage, may help provide such proof.

As the Commission considered that there was insufficient information about a 'best' European-wide fee system, it advocated more flexibility than proposed by the Parliament. However, by monitoring the situation upon introduction of the Directive, any

changes considered necessary by the Commission could be implemented as revisions to the Directive.

## Conclusions

Although the details of the Directive were not finalized at the time of writing, certain conclusions can be drawn about its potential impact on the availability and use of port reception facilities in a much wider range of ports, both large and small, than is currently the case. All ports, whatever their size, will have to charge the fees set out in the Directive, once facilities have been made available.

A clear and transparent fee system based around “90% of the cost” would offer a strong basis for improving use of reception facilities, by minimising the scope for wide variation between different ports or member states. However, the reduction to 30% provides greater scope for manipulating the combined cost, (non-special fee element and direct element combined). The more flexibility and variation there is between ports and countries, the less likely it will be that a clear and transparent system will occur.

In arriving at this conclusion, it can be argued that a common charging system could, in principle, allow ships’ masters and owners to budget much better for waste disposal as the variation of cost between different ports would be minimised. As a result, ships’ masters would be less likely to try and retain waste on board – or if that is not feasible, to dump – in order to get to a port where disposal costs are much lower. Vessels would also be more likely to implement waste reduction technology and waste management, such as recycling, on board, in order to reduce the amounts of waste generated, as by doing so they may be able to achieve a reduction or rebate in the amount of harbour dues they have to pay.

A common charging system would also mean that ports would be less able to manipulate charges (as summarised in Table 1) in order to export waste to other ports and remove the need to provide reception facilities. Currently, it is possible for a port to charge extremely high prices to ships with waste and very low ones to those without. Those with waste will travel to cheaper ports while vessels without waste could bring in new business in return for very low charges. However, this may lead to a loss of business in such ports as vessels requiring facilities would take their trade elsewhere and not return to that port.

The position of ports bringing in private contractors is much less clear. If ports are to charge 30% of the total cost in their harbour dues, there is the question of what proportion they pass on to contractors who will need to cover the cost of the actual amount of waste disposed of. As a result of the Directive, ports may choose to take over these activities from contractors, retaining the 30% to invest in new infrastructure, and leading to an increase in fixed facilities. Licences for private contractors to operate in particular ports may become dependent on which company will accept the smallest amount of money from the port to carry out operations, which may lead them to use the lowest technology options to deal with waste in order to reduce their costs. Additionally, a company granted a licence may then be forced (or be allowed) to charge higher prices for actual disposal, because their share of the 30% is insufficient to cover costs, thus removing some of the evenness in pricing that is anticipated from the Directive.

The Directive is to be implemented by 28 December 2002. The introduction of a common charging system for oily waste, and other types of waste such as garbage and noxious chemicals, from vessels of all sizes has the potential to reduce oil and other types of pollution in the North Sea, if such a system makes it economically viable for vessels to use facilities. However, the greater the flexibility and the lower the level of consistency

across North Sea ports, then the greater the potential there is for ships to keep waste on board rather than use facilities, thus reducing the incentive for ports to develop new facilities. In addition, the more complex the situation, the more likely it is that vessels will still continue to dump waste oil and other wastes if it is in their economic interests to do so.

There is scope for a great deal of variation in charging between both ports and Member States under the terms of the Directive. Only by monitoring the situation as the Directive comes into effect – looking at growth in the number and location of reception facilities available, and also examining the charging systems used in different ports and comparing them with the proportion of vessels making use of facilities in those ports – will it be possible to show whether the Directive has any significant impact on availability of facilities, and whether different charging systems result in better or worse take-up rates.

Although facilities for waste oil, noxious liquids and chemicals, for example, have been available as a result of MARPOL 73/78 for many years, it should be noted that in the case of sewage wastes, the non-ratification of Annex IV has meant that facilities have never had to be provided for this category of waste. This has still not been made a requirement at the current time, thus perpetuating the lack of facilities in this category.

As was outlined in the introduction, inadequate data collection under MARPOL 73/78 means that it has not been possible to show any direct link between availability of facilities and any identified declines in marine pollution levels. The new Directive therefore provides an opportunity to show that such a link exists, if good data collection systems are put into place, examining current availability and take-up rates, and comparing them, on a regular basis, as the Directive is implemented with data on levels of marine pollution.

Carpenter, A. and Macgill, S. (2000). “The new EU Directive on port reception facilities for ship-generated waste and cargo residues: an evaluation”. in *Maritime Engineering and Ports II*, eds. C A Brebbia & J Olivella, WIT Press, Southampton, UK, 2000, pp173-183

Commission of the European Communities (1992). “European Community Environmental Legislation, Volume 1 - *General Policy*”. Commission of the European Communities, Directorate General XI, Environment, Nuclear Safety and Civil Protection, ECSC-EEC-EAEC, Brussels and Luxembourg

Commission of the European Communities (1998), “*Proposal for a Council Directive on Port Reception Facilities for Ship-Generated Waste and Cargo Residues*”, COM(1998) 452 final, Brussels, 17 September 1998

Commission of the European Communities (2000). “*Opinion of the Commission ... on the European Parliament’s amendments to the Council’s common position regarding the proposal for a Directive ... on port reception facilities etc.*”, COM(2000)236 final, Brussels, 19 April 2000

Environment Agency (2000), “General Guide to the Prevention of Water Pollution PPG1”, <http://www.environment-agency.gov.uk/epns/ppg1.html>, Environment Agency, UK

European Commission (1999a), “*The Amsterdam Treaty: A Comprehensive Guide*”, European Commission Directorate-General for Education and Culture, Brussels (pp75-76). Office for official publications of the European Communities, L2985 Luxembourg, 1999. (ISBN 92-828-7951-8)

European Commission (1999b), “*The Development of Short Sea Shipping in Europe: A Dynamic Alternative in a Sustainable Transport Chain*”. Communication from



the Commission to the European Parliament, The Council etc. COM(1999) 317 final, Brussels, 29.06.1999

European Commission (2000), “*Directive 2000/59/EC*”, published in the Official Journal of the European Communities, L332 Volume 43, of 28 December 2000, pp 81-89

Council (2000). “*Common Position (EC) No. 1/2000 adopted by the Council on 8 November 1999 with a view to adopting Directive 2000/.../EC ... on port reception facilities, etc.*”, in Official Journal of the European Communities, C10 Volume 43 of 12 January 2000 pp 10/14 – C10/30

European Parliament (2000a). “*Recommendation for a Second Reading on the Common Position established by the Council with a view to the adoption of a European Parliament and Council Directive on Port Reception Facilities etc...Amendment 6*”, Session Document A5-0043/2000, Committee on Regional Policy, Transport and Tourism, 29 February 2000

European Parliament (2000b). “Press Office Newsroom Press Release, 28 June 2000. Subject: Parliament-Council Conciliation Committee Agreement on Directive on ship-generated waste”. Press: 236 – NR: 9882/00. Brussels

European Parliament (2000c). “*Report on the joint text approved by the Conciliation Committee for a European Parliament and Council Directive on port reception facilities etc.*”, Report A5-0213/2000 Final, European Parliament delegation to the Conciliation Committee, 29 August 2000

Helsinki Convention on the Protection of the Marine Environment of the Baltic Sea Area, 1974

HM Customs & Excise (1998). “*Review of the Landfill Tax: Report March 1998*”. HM Customs & Excise website, UK. <http://hmce.gov.uk/bus/excise/iftcons.htm>

HM Customs & Excise (2000), “Notice LFT1 A general guide to landfill tax”, February 2000. HM Customs & Excise website: <http://www.hmce.gov.uk/notices/lft1.htm#2.1> Two rates of tax:

International Maritime Organization (1996). “*Provision of Reception Facilities: Reception Facilities for Tankers - Submitted by INTERTANKO*”, Reference MEPC38/INF.22, Marine Environment Protection Committee Agenda item 10, Summary Sheet, IMO, London, 3 May 1996

International Maritime Organization (2000). “*Comprehensive Manual on Port Reception Facilities (1999 Edition)*”, Chapter 11. IMO, London, 2000

Noelke, E (1992). “*The Federal Republic of Germany's Three Year Reception Facilities Pilot Project*”. Paper presented to the Fourth Congress of the European Harbour Masters Association, Bristol, 10-15 May 1992,

Olsen, P H (1994). “*Handling of Waste in Ports*”, in Marine Pollution Bulletin, **29**, 293-294

Olsen, P H (1996). “*Port Reception of ships' waste*” in BIMCO Bulletin **91**, The Baltic International Maritime Council, Denmark, 31-37.

Swedish Environment Protection Agency Report (undated). “*Mottagningsanordningar för fartygsavfall i hamn*”, Rapport 4050, English Summary. Swedish Environmental Protection Agency, Stockholm

Wadden Sea Quality Status Report (1999). “*Wadden Sea Ecosystem No. 9*”, Common Wadden Sea Secretariat, Trilateral Monitoring and Assessment Group, Quality Status Report Group, Wilhelmshaven, Germany