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Guidelines for providing and improving port reception facilities and services for ship-generated marine litter in the Northwest Pacific region



NOWPAP MERRAC

Northwest Pacific Action Plan
Marine Environmental Emergency Preparedness and Response
Regional Activity Centre

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1. Background

Marine litter comes from multiple sources. Among them, the main sea-based sources of marine litter are fishery and shipping activities causing a wide range of ecological, environmental and socio-economic impacts (e.g., interference with navigation and threat to human life and safety). In order to address the problem of ship-generated marine litter, there is a strong need for the introduction of marine litter management policies and systems that should cover issues from marine litter management onboard and reception of litter via reception facilities in ports and marinas to its final treatment.

The main legal basis for the ship-generated marine litter is the International Convention for the Prevention of Pollution from Ships (MARPOL Convention), in particular its Annex V. The terminology of 'ship-generated marine litter' within the framework of MALITA would be the same with that of 'garbage from ships' defined at MARPOL Annex V. MARPOL Annex V is not only related to onboard activities such as garbage record books, placards, etc. but also to the disposal of marine litter generated from ships. Most importantly, the lack of adequate port reception facilities is regarded as the main bottleneck for effective implementation of the Annex V regulations.

All NOWPAP Members – People's Republic of China, Japan, Republic of Korea and Russian Federation – are the parties to the MARPOL Convention and have tried to provide adequate reception facilities at ports and marinas for ship-generated waste, including garbage, in compliance with the Convention. At present, however, at certain ports and marinas in the region, the port reception facilities seem partially insufficient to deal with ship-generated marine litter. Since the lack of adequate port reception facilities may result in solid waste being disposed at sea and then being transported by wind and currents to shore often in locations distant from the original sources of the material, the NOWPAP Members have to provide adequate port reception facilities for waste generated by fishery and shipping activities.

The objective of these guidelines is to help reduce the discharge of ship-generated marine litter (garbage) into the sea by the provision and improvement of the capacity and efficiency of port reception facilities and waste management practices onboard, thereby enhancing the protection of the marine and coastal environment. These guidelines were developed as part of the NOWPAP Marine Litter Activity (MALITA) which has been initiated since its approval at the Tenth NOWPAP Intergovernmental Meeting (Toyama, Japan, November 2005).

2. Establishing Port Reception Facilities and Services

Annex V of the MARPOL Convention provides an international framework for regulating marine litter generated from ships, including garbage and solid waste, in particular stressing the provision of port reception facilities for ship-generated waste and cargo residues. The NOWPAP Members have accepted MARPOL Annex V. According to Regulation 7 of MARPOL Annex V, each party needs to build adequate waste reception facilities at ports and terminals.

Regulation 7. Reception facilities

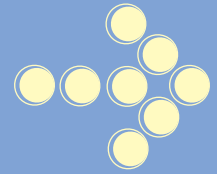
- (1) The Government of each Party to the Convention undertakes to ensure the provision of facilities at ports and terminals for the reception of garbage, without causing undue delay to ships, and according to the needs of the ships using them.
- (2) The Government of each Party shall notify the Organization for transmission to the Parties concerned of all cases where the facilities provided under this regulation are alleged to be inadequate.

(MARPOL Annex V. Regulation 7)

According to the *Comprehensive Manual on Port Reception Facilities* published by IMO in 1999, the scope of port reception facilities for ship-generated marine litter is generally defined as follows:

- Provision of receptacles for garbage. Segregation of various types of garbage may be useful or in some cases necessary (quarantined wastes).
- A regular collection service.
- Recycling and/or final disposal of garbage.

According to the initial review on the status of port reception facilities in the NOWPAP region, which was implemented by MERRAC during 2006-2007 as one of MERRAC specific projects related to marine litter, at several ports and marinas in the region there are partially insufficient port reception facilities to collect and treat all types of ship-generated marine litter. Therefore, the NOWPAP Members need to build and/or improve the port reception facilities to meet their scope as mentioned above. These guidelines cover only the collection of ship-generated marine litter in port reception facilities and do not include its treatment and/or final disposal.



2.1. Location of Port Reception Facilities

According to the *Comprehensive Manual on Port Reception Facilities* by IMO (1999), when the location of facilities is designed, the following issues should be considered:

- Other port operations should not be hindered.
- The risk for wastes to enter the water should be minimized.
- The site should be at a convenient place both for seafarers and for port personnel and vehicles.
- The site should have sufficient lighting to allow for and encourage garbage collection 24 hours a day.
- Garbage reception area must be secure to prevent abuse or misuse and to ensure the safety of seafarers and port personnel using them.
- The impact of the facilities on the surrounding community should be minimized, especially with respect to noise, odour and outer appearance.
- The facilities must comply with national, local and other applicable legislation on garbage collection and processing.

Port reception facilities could be placed in one place or at several areas depending on the size of the port and the types and volumes of waste to be collected (Figure 1). After determining the location of port reception facilities, receptacles should be placed in a compound or a shelter which can keep them safely. This would be effective to discourage non-port users using the receptacles and to prevent garbage from blowing away.



Figure 1. An example of the port reception facilities for ship-generated marine litter (ANZECC, 1997).

2.2. Capacity Requirements Based on Frequency of Use

Port reception facilities require adequate capacity for efficient collection of ship-generated marine litter including garbage (IMO, 1999).

- Facility shall be capable for receiving those residues and mixtures which are handled within that port and which must be discharged to reception facilities.
- All ports including marinas and fishing ports shall provide adequate facilities to receive Annex V wastes (garbage) and waste oil from engines.
- Receptacle capacity should meet demand in terms of size, the number of receptacles required, and space availability.
- Requirements for handling seasonal fluctuations in demand for waste disposal should be considered when determining receptacle capacity.
- Container size for receiving wastes will affect the servicing schedule which has implications for labour and collection vehicle requirements. More frequent collection reduces health and safety concerns and requires less storage space, but may increase costs through the use of more vehicles and labour.
- The receiving capacity shall be at least appropriate in time and availability to respond to the continuing needs of ships using the port.

In addition, receptacles for recycling need to be set up next to the other waste receptacles at port reception facilities. Different shapes of recycling bins are suggested to easily identify the receptacles for segregated waste (Figure 2).



Figure 2. Garbage and recyclable material bins (ANZECC, 1997).



2.3. Financing Port Reception Facilities

The MARPOL Convention regulates that the government of each party should undertake to ensure the provision of the facilities. The MARPOL Convention does not impose that the establishment of port reception facilities should be carried out with direct government involvement. It is left to the members to decide whether the waste reception services are provided by a public enterprise or by a private company. The public enterprise or a private company can be funded from central governments or other municipal authorities. Otherwise, facility users can be directly charged with service fees for using port reception facilities according to “polluter pay” principle. Nevertheless, it must be noted that such direct fee system may discourage users from bringing their wastes ashore. In any case, financial contributions from the NOWPAP Members will be required to provide adequate reception facilities in ports.

3. Good Waste Management Practices for Users of Port Reception Facilities

The shipping and fishing industries that utilize port reception facilities need to bear in mind the procedures of use. All vessels that use a harbour or a port need to discharge all types of ship-generated marine litter (garbage) on board to port reception facilities, so that unnecessary litter is not to travel around the ocean. All ships should discharge generated waste appropriately, and the master of the ship should keep and record the Garbage Record Book according to the MARPOL Convention (Annex V, regulation 9).

Users of port reception facilities can separate ship-generated marine litter into different groups onboard based on classification provided by the MARPOL Convention. Recyclable material should be discharged into relevant receptacles for recycling. The categories of the MARPOL Convention are as follows (IMO, 2006):

- Plastics.
- Floating dunnage, lining, or packing material.
- Ground-down paper products, rags, glass, metal, bottles, crockery, etc.
- Cargo residues, paper products, rags, glass, metal, bottles, crockery, etc.
- Food waste.
- Incinerator ash except from plastic products which may contain toxic or heavy metal residues.

The MARPOL Convention also regulates that entries in the Garbage Record Book shall be made on each of the following occasions, when garbage is discharged to reception facilities ashore or to other ships (see [Annex I](#)) as follows:

- Date and time of discharge;
- Port of facility, or name of ship;
- Category of garbage discharged;
- Estimated amount discharged for each category in m³;
- Signature of the officer in charge of the operation.

When using port reception facilities for discharge of garbage, the masters of ships should keep the receipts or certificates.

Receipts

The master should obtain from the operator of port reception facilities, or from the master of the ship receiving the garbage, a receipt or certificate specifying the estimated amount of garbage transferred. The receipts or certificates must be kept on board the ship with the Garbage Record Book for two years.

(Appendix of MARPOL Annex V)

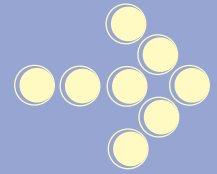
Amount of garbage should be recorded in the Garbage Record Book.

Amount of garbage

The amount of garbage onboard should be estimated in m³, if possible separately according to category. The Garbage Record Book contains many references to estimated amount of garbage. It is recognized that the accuracy of estimating amounts of garbage is left to interpretation. Volume estimates will differ before and after processing. Some processing procedures may not allow for a usable estimate of volume. e.g. the continuous processing of food waste. Such factors should be taken into consideration when making and interpreting entries made in a record.

(Appendix of MARPOL Annex V)





4. Good Management of Port Reception Facilities and Services

To ensure better port reception facilities and services, the NOWPAP Members should consider best port waste management procedures to promote and improve port reception facilities, in particular considering the following factors:

- status of national port reception facilities;
- appropriate location and scale for port reception facilities;
- requirements for ships and equipment to collect, store and discharge marine litter;
- possible types and quantities of marine litter;
- possibilities for processing and recycling of marine litter and/or its final disposal;
- marine litter management policy;
- funding mechanisms.

4.1. Assessment of Port Reception Facilities

According to the National Reports which have been prepared by MERRAC experts, all NOWPAP Members have tried to establish the port reception facilities. However, the reports show that, at certain ports and marinas in the region, there are insufficient port reception facilities for marine litter. In this regard, the well-organized assessment of the implementation of MARPOL Annex V and the status of reception facilities for ship-generated marine litter, in particular for solid waste and garbage, is necessary to improve port reception facilities and services in the NOWPAP region.

To provide optimum solutions, the assessments need to take into consideration specific features and availability of reception facilities in each Member with application of appropriate technologies. For this purpose, several matters should be checked out when the assessments are carried out:

- availability and efficiency of port reception facilities;
- conditions of port reception facilities;
- frequency of usage of the facilities;
- differences in procedures and/or costs of using facilities between the NOWPAP Members;
- extent of awareness of ship masters or crews.

4.2. Improvement of Port Reception Facilities

Detailed recommendations for the improvement of port reception facilities and services for the marine litter collection from ships are proposed as follows:

Providing Information to Users

- The user should be told where port reception facilities are located. Maps, placards, posters or notice boards for showing locations of facilities may be useful.
- Brochures introducing procedures and methods how to use port reception facilities can be distributed to the port users.
- In order to provide the relevant port reception facilities information to port users, IMO has developed and maintained the Global Integrated Shipping Information System (GISIS, <http://gisis.imo.org/Public/>). Therefore, as parties to MARPOL Convention, the relevant authorities of the NOWPAP Members are encouraged to register in the GISIS (if not registered) and to check that the Port Reception Facilities Database has all the relevant and up to date information on port reception facilities for their country, including contact point (see sample table shown in **Annex II**), so that the facility users can easily find the information on port reception facilities of the NOWPAP region in the GISIS website.

Garbage Disposal

- Garbage should be sorted out depending on the category for further treatment such as recycling.
- Hazardous material should not be mixed with other waste and should be sent to proper reception and treatment facilities.
- Collected marine litter should be sent to relevant treatment facilities regularly (if there is lots of garbage, it should be sent to relevant treatment facilities without delay even though it is not a regular period for disposal).
- Operators in port reception facilities need to estimate the amount of garbage (m³) and to give the receipt to ship owner.

Cost of Facilities

Basically, port reception facilities can directly charge the fee to port users based on the "polluter pays" principle. However, such system may sometimes discourage people bringing marine litter to the reception facilities. In order to overcome this matter, the countries in the Baltic Sea area have adopted the indirect fee system ("no special fee" system), which includes the relevant cost to discharge ship-generated marine litter (garbage) into a harbour fee, regardless of whether or not the vessels use reception facilities (SMA, 1999).



Management of Port Reception Facilities

- Accurately check capacity and amount of the collection equipment such as trucks, receptacles, compacting equipment, and navigable means (boat, barge).
- Regularly test and maintain good condition of the equipment.
- Replace too old equipment.
- Update the IMO's GISIS system on a regular basis to provide the latest information to port reception facility users.

5. Conclusions and Recommendations

Since ship-generated marine litter is the major source of marine litter worldwide, the provision and improvement of adequate port reception facilities and services, along with close cooperation between the NOWPAP Members, will contribute to reducing the generation of marine litter and eventually to protecting the coastal and marine environment in the NOWPAP region. In this regard, the NOWPAP Members should enforce their legislation and practices on the port reception facilities and services in compliance with relevant international conventions such as MARPOL convention.

In the near future, the NOWPAP Members need to (1) report their current status on port reception facilities on a regular basis through the GISIS system which has been developed by IMO; (2) manage port reception facilities to maintain the relevant equipment; (3) share and exchange relevant data and information on port reception facilities among the NOWPAP Members; and (4) educate port reception facility users, related companies and organizations in order to facilitate the use of port reception facilities. The NOWPAP Members should co-operate with one another involving port authorities, ship operators, port agents and waste collection service providers, in order to improve port reception facilities and services for ship-generated marine litter in the NOWPAP region. These activities may be facilitated by MERRAC under its mandate within the framework of NOWPAP.

Annex I.

Appendix of MARPOL 73/78 Annex V: RECORD OF GARBAGE DISCHARGES

Ship's Name: _____ Distinctive No., or letters: _____ IMO NO.: _____

Garbage Categories:

1. Plastic.
2. Floating dunnage, lining, or packing material.
3. Ground paper products, rags, glass, metal, bottles, crockery, etc.
4. Cargo residues, paper products, rags, glass, metal, bottles, crockery, etc.
5. Food waste.
6. Incinerator ash except from plastic products which may contain toxic or heavy metal residues.

NOTE: THE DISCHARGE OF ANY GARBAGE OTHER THAN FOOD WASTE IS PROHIBITED IN SPECIAL AREAS. ONLY GARGABE DISCHARGED INTO THE SEA MUST BE CATEGORIZED. GARBAGE OTHER THAN CATEGORY 1 DISCHARGED TO RECEPTION FACILITIES NEED ONLY BE LISTED AS A TOTAL ESTIMATED AMOUNT. DISCHARGES OF CARGO RESIDUES REQUIRE START AND STOP POSITIONS

Date/ time	Position of the ship	Estimated amount discharged into sea (m ³)					Estimated amount discharged to reception facilities or to other ship (m ³)		Estimated amount incinerated (m ³)	Certification/ Signature
		Cat.2	Cat.3	Cat.4	Cat.5	Cat.6	Cat.1	Other		

Master's Signature: _____ Date: _____



Annex II.

Information on Port Reception Facilities for Garbage (GISIS website)

(example)

Port Facility Details

Port	Busan, Republic of Korea
Waste category	Garbage (Annex V)

Port Facility Details

Service provider	Port of Busan Corporation	
Type of facility		
Discharge restriction/limitations	Minimum quantity (m ³)	
	Minimum quantity (m ³)	
	Minimum discharge rate (m ³)	
	Other	
Availability of the reception facilities	24 hours a day, 7 days per week	
Minimum prior notice required (hours)	24	
Charging system	Cost charged in addition to other services	
Additional information	Incinerator available (with additional charge)	
Last updated	mm/dd/yyyy	

Port Facility Details

Name	Port of Busan Corporation
Address	XXX, Busan, R.O.Korea
Telephone	+82-51-111-1111 (example)
Telex	-
Fax	-
Email	example@busan.co.kr (example)
Website	http://www.busanport.co.kr (example)

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