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and the Coastal Region of the Mediterranean and its Protocols

Naples, Italy, 2-5 December 2019

Agenda Item 3: Thematic Decisions

Draft Decision IG.24/11: Guidelines: Adopt-a-Beach; Phase-out of Single Use Plastic Bags; Provision of Reception Facilities in Ports and the Delivery of Ship-Generated Wastes; Application of Charges at Reasonable Costs for the Use of Port Reception Facilities

UNEP/MAP
Athens, 2019

Note by the Secretariat

In the Framework of Article 15 of the Protocol for the Protection of the Mediterranean Sea against Pollution from Land-based Sources and Activities (LBS Protocol), the Regional Plan on Marine Litter Management in the Mediterranean was adopted by the 18th Meeting of the Contracting Parties to the Barcelona Convention (COP 18) (Istanbul, Turkey, 3-6 December 2013) (Decision IG.21/7). The following provisions in the Regional Plan provide for implementation of key reduction and prevention measures in a coherent and coordinated manner:

- Article 10(d) calls for applying as appropriate Adopt-a-Beach of similar practices and enhancement of public participation role with regard to marine litter management.
- Article 9(2) calls for implementation of adequate waste reducing/reusing/recycling measures in order to reduce the fraction of plastic packaging waste that goes to landfill or incineration without energy recovery.
- Article 9(3) provide for implementation of prevention measures related to Extended Producer Responsibility (EPR), sustainable procurement policies, voluntary agreements with retailers and supermarkets, fiscal and economic instruments to reduce consumption of single-use plastic bags and establishment of deposit, return and restoration systems for a series of priority marine litter items.
- Article 10(f) provides for charging reasonable costs for the use of port reception facilities or, when applicable apply No-Special-Fee system, in consultation with competent international and regional organisations, when using port reception facilities.
- Article 14 requests the Secretariat, in cooperation with relevant international and regional organisations, to prepare specific guidelines to support and facilitate the implementation of measures provided for in articles 9 and 10 thereof.

In the framework of the 2018-2019 Programme of Work, the Mediterranean Action Plan (MAP) Components (i.e. MED POL, REMPEC and SCP/RAC) have developed drafts of the following guidelines:

i. Guidelines for the implementation of "Adopt-a-beach" measures in the Mediterranean;
ii. Guidelines to Phase out Single-Use Plastic Bags in the Mediterranean;
iii. Operational Guidelines on the Provision of Reception Facilities in Ports and the Delivery of Ship-Generated Wastes in the Mediterranean; and
iv. Guidance Document to Determine the Application of Charges at Reasonable Costs for the Use of Port Reception Facilities or, when Applicable, Application of the No-Special-Fee System, in the Mediterranean.

All four sets of guidelines were reviewed during two Regional Meetings on Marine Litter Best Practices, in October 2018 and April 2019 respectively. Subsequently, they were submitted for review and approval to the respective MAP Components Focal Points Meetings held in May and June 2019. The respective MAP Components Focal Points Meetings approved the final drafts of the Guidelines annexed to the present Draft Decision and requested the Secretariat to submit them to the MAP Focal Points Meeting for consideration and further submission to the 21st Meeting of the Contracting Parties (COP 21) (Naples, Italy, 2-5 December 2019).

The set of aforementioned guidelines will offer the opportunity to the Mediterranean Countries, Contracting Parties to the Barcelona Convention, to scale up the geographical scale of implementation and relevant impact of key reduction and prevention measures as identified through their National Action Plans (NAPs), in a coherent and consistent manner throughout the region. This will facilitate and further contribute to the implementation of the measures foreseen in the United Nations Environment Programme (UNEP)/MAP's 2020-2021 Programme of Work with regards to Output 2.1.1 "Targeted measures of the regional plans/strategies facilitated and implemented" and in Output 2.5.2 "Pilot projects implemented on marine litter […] and the reduction of upstream sources of marine litter for business, entrepreneurs, financial institutions and civil society."

The proposed Draft Decision and its Annexes have been reviewed by the MAP Focal Points Meeting (Athens, Greece, 10-13 September 2019) and have been revised accordingly and endorsed for submission to and consideration by COP 21 as contained in the present document.

Draft Decision IG.24/11

Guidelines: Adopt-a-Beach; Phase-out of Single Use Plastic Bags; Provision of Reception Facilities in Ports and the Delivery of Ship-Generated Wastes; Application of Charges at Reasonable Costs for the Use of Port Reception Facilities

The Contracting Parties to the Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean and its Protocols at their 21st Meeting

Recalling the United Nations General Assembly resolution 70/1 of 25 September 2015, entitled "Transforming our world: the 2030 Agenda for Sustainable Development",

Recalling the United Nations Environment Assembly resolutions of 15 March 2019, UNEP/EA.4/Res.6 entitled "Marine plastic litter and microplastics", UNEP/EA.4/Res. 7 entitled "Environmental sound management of waste", UNEP/EA.4/RES.9 entitled "Addressing Single-use Plastic Products Pollution", and UNEP/EA.4/Res. 21, entitled "Towards a pollution-free planet",

Inspired by the international community's commitment expressed in the Ministerial Declaration of the United Nations Environment Assembly at its fourth session to address the damage to our ecosystems caused by the unsustainable use and disposal of plastic products, including by significantly reducing the manufacturing and use of single-use plastic products by 2030, and to work with the private sector to find affordable and environmentally friendly alternatives,

Having regard also to Decision BC-14/3 adopted by the Conference of the Parties to the Basel Convention at its 14th Meeting (Geneva, Switzerland, 29 April-10 May 2019), whereby it called upon the Parties to implement measures for preventing and minimizing the generation of plastic waste, improving its environmentally sound management, and controlling its transboundary movement; and for reducing the risk from hazardous constituents in plastic waste,

Noting the work of the Stockholm Convention on Persistent Organic Pollutants to eliminate or control the production or use of persistent organic pollutants in plastic products,

Recalling Decision IG.21/7, adopted by the Contracting Parties at their 18th Meeting (COP 18) (Istanbul, Turkey, 3-6 December 2013) on the Regional Plan on Marine Litter Management in the Mediterranean in the Framework of article 15 of the Land-based Sources Protocol,

Having regard also to the Protocol concerning Cooperation in Preventing Pollution from Ships and, in Cases of Emergency, Combating Pollution of the Mediterranean Sea (2002), in particular article 14 thereof on port reception facilities,

Recalling also Decision IG.22/4, adopted by the Contracting Parties at their 19th Meeting (COP 19) (Athens, Greece, 9-12 February 2016) on the Regional Strategy for Prevention of and Response to Marine Pollution from Ships (2016-2021),

Recalling the mandates of MED POL, REMPEC and SCP/RAC within the MAP-Barcelona Convention System and their relevance to the implementation of this Decision,

Noting with concern that the high and rapidly increasing levels of marine litter, including plastic litter and microplastics, represents a serious environmental problem at both global and regional scale, negatively affecting marine biodiversity, ecosystems, animal well-being, societies, livelihoods, fisheries, maritime transport, recreation, tourism and economies,

Noting that plastic items may contain potentially hazardous substances, including additives such as plasticizers and flame retardants, and as such, may pose a risk to human health and the environment when discharged into marine ecosystems or when they become marine litter,

Acknowledging the adoption of the International Maritime Organization Resolution MEPC.310(73) of 26 October 2018, on the Action Plan to address marine plastic litter from ships, supported by the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter (1972) and the Protocol thereto,

Emphasising that it is essential to continue the regional efforts to prevent marine litter entering the Mediterranean Sea through land-based and sea-based activities, and that, in so doing, it is of key importance to increase coherence, coordination and synergies between existing mechanisms to enhance cooperation and governance with a view to better addressing the challenges posed by marine litter,

Having considered the conclusions of the 12th Meeting of the Focal Points of the Regional Activity Centre on Sustainable Consumption and Production held on 14-15 May 2019, the report of the Meeting of the Focal Points for the Programme for the Assessment and Control of Marine Pollution in the Mediterranean held on 29-31 May 2019, as well as the report of the 13th Meeting of the Focal Points of the Regional Marine Pollution Emergency Response Centre for the Mediterranean Sea (REMPEC) held on 11-13 June 2019,

1. *Adopt* the "Guidelines for the Implementation of the Adopt-a-Beach Measures in the Mediterranean" in accordance with Article 10(d) of the Regional Plan on Marine Litter Management in the Mediterranean, set out in Annex I to the present Decision;

2. *Adopt* the "Guidelines to Phase out Single Use Plastic Bags in the Mediterranean" in accordance with Article 9(2) of the Regional Plan on Marine Litter Management in the Mediterranean, set out in Annex II to the present Decision;

3. *Adopt* the "Operational Guidelines on the Provision of Reception Facilities in Ports and the Delivery of Ship-Generated Wastes in the Mediterranean" in accordance with Articles 9(5) and 10(f) of the Regional Plan on Marine Litter Management in the Mediterranean, set out in Annex III to the present Decision;

4. *Adopt* the "Guidance Document to Determine the Application of Charges at Reasonable Costs for the Use of Port Reception Facilities or, when Applicable, Application of the No-Special-Fee System, in the Mediterranean" in accordance with Articles 9(5) and 10(f) of the Regional Plan on Marine Litter Management in the Mediterranean, set out in Annex IV to the present Decision;

5. *Urge* the Contracting Parties to take the necessary actions to implement the relevant measures provided for in the Regional Plan on Marine Litter Management in the Mediterranean in line with the timetables, using the above-mentioned guidelines, and sharing best practices and lessons learned in this process;

6. *Invite* all Contacting Parties to the Barcelona Convention to join and contribute to the Global Partnerships on Marine Litter led by the United Nations Environment Programme, the Basel Convention Partnership on Plastic Wastes and the relevant global initiatives to address marine litter;

7. *Request* the Secretariat to facilitate the work of the Contracting Parties for the implementation of the Regional Plan on Marine Litter Management in the Mediterranean and its associated Guidelines and ensure, for this purpose, synergies and regular coordination with other regional organisations working on plastic waste and marine litter in the Mediterranean, with special emphasis on regional processes of adjacent marine regions such as the Black Sea Commission and OSPAR; and,

8. *Request* the Secretariat to explore with the International Maritime Organization steps that could be taken within their respective mandates to establish synergies with a view to enhancing cooperation and coordination in implementing their respective plans or strategies on marine plastic litter from ships as well as other relevant plans or initiatives.

ANNEXES
Regional Marine Litter Guidelines

Annex I

Guidelines for the Implementation of the Adopt-a-Beach Measures in the Mediterranean

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Annex II: MED POL Beach ID Form
Annex III: MED POL Beach Survey Form

List of Abbreviations / Acronyms

COP	Conference of the Parties
EU	European Union
IMAP	Integrated Monitoring and Assessment Programme of the Mediterranean Sea and Coast and Related Assessment Criteria
MAP	Mediterranean Action Plan
MED POL	Mediterranean Pollution Assessment and Control Programme
NGO	Non-Governmental Organizations
PET	Polyethylene Terephthalate
PoW	Programme of Work
UN	United Nations

1 INTRODUCTION

1. The Adopt-a-Beach measures comprise of actions related to beach clean-up, coupled with beach marine litter monitoring surveys implemented at national level. The overall scope of the Adopt-a-Beach measures is to help Mediterranean public communities to increase their stewardship concept on the Mediterranean coastline to keep it clean; to raise public awareness on the threat posed by marine litter; as well as to support the Mediterranean Countries to prepare and develop their national monitoring programmes for beach marine litter.

2 SCOPE OF THE ADOPT-A-BEACH MEASURES

2. The scope of the "Adopt-a-Beach" measures is to:

i. Keep beaches clean and marine litter-free in the Mediterranean;
ii. Raise public awareness on the problem of marine litter;
iii. Inform citizens about marine litter sources, how they are produced and propose ways to minimize them;
iv. Enhance public participation at country level, to national and international clean-up actions for the coastal environment around the Mediterranean;
v. Support the preparation and development of the national monitoring programmes for beach marine litter in the Mediterranean; and
vi. Collect valuable data and information to assess the quantities and stranding fluxes of marine litter found along the Mediterranean coastlines and contribute to achieve the region-wide reduction target of 20% on beach marine litter by 2024.[1]

3 IMPLEMENTATION PHASES OF THE ADOPT-A-BEACH MEASURES

3. Adopt-a-Beach measures can be divided into four implementation phases:
   a. Preparatory activities;
   b. Implementation activities;
   c. Reporting activities;
   d. Possible integration with current IMAP-based national monitoring programmes.[2]

3.1 Preparatory activities

4. Preparatory activities entail the following tasks:

a. Appointment of a "Beach Coordinator";
b. Selection of candidate beaches;
c. Defining beach marine litter units;
d. Engagement of local communities;
e. Organizing teams of collection volunteers;
f. Development of the awareness raising campaigns and training materials needed for the organization of outreach activities targeted to the local communities; and
g. Securing necessary material and equipment needed for the cleaning/ disposal activities.

[1] Decision IG.22/10: Implementing the Marine Litter Regional Plan in the Mediterranean, Annex III: Marine Litter Environmental Targets (Available in: English, French, Arabic, Spanish).

[2] Integrated Monitoring and Assessment Programme of the Mediterranean Sea and Coast and Related Assessment Criteria.

3.1.1 Tasks of the "Beach Coordinator"

5. The Beach Coordinator should be in charge of the execution of the different Adopt-a-Beach measures at local/ national level in a coordinated and consistent manner, and in synergy with the national monitoring programmes for beach marine litter. The Beach Coordinator should be responsible to report to national competent authorities and the timely execution of the required tasks. The Beach Coordinator may be a member of the community, being in charge of and responsible for, and having previous experience in the implementation of Adopt-a-Beach measures at local/national level. The Beach Coordinator may be appointed by the national authorities, or by the authorities being in charge for the implementation of the Adopt-a-Beach measures at local/national level.

6. The main tasks of the Beach Coordinator are to:

a. Engage, support, and coordinate the participation of the local communities, local authorities, NGOs, primary and secondary schools, civil society, volunteers etc.;
b. Assist in selecting the appropriate beaches for the implementation of the Adopt-a-beach measures based on the MED POL beach selection criteria;
c. Implement the adopt-a-beach methodology, proposed by MED POL under the present guidelines, in consultation with the national authorities;
d. Control the timely implementation of the Adopt-a-Beach measures based on the previously agreed work plan with the national authorities;
e. Train the volunteers, and corresponding teams, participating in the Adopt-a-Beach measures;
f. Ensure that all safety precautions are followed;
g. Develop a national photo guide for beach marine litter including the marine litter items most commonly found on beaches at national level (i.e. inclusion of a photograph and a brief description);
h. Oversee the awareness raising campaign, including the preparation and development of the campaigns' main messages and material in consultation with the national authorities;
i. Consider whether it is appropriate (e.g. for beaches of particular concern or importance) to implement additional steps as detailed below:
   - Identification of beach needs and priorities;
   - Prepare and coordinate the development of information material about the conservation of the beach.
j. Develop an inventory of Adopt-a-Beach measures implemented at national level and ensure synergies and cooperation;
k. Submit progress reports and data (e.g. number of volunteers, amounts, types and composition of the collected marine litter, etc.) to national authorities; and
l. Monitor and evaluate the costs, benefits and governance of the Adopt-a-Beach measures in order to assess the success of each measure and share lessons learnt.

3.1.2 Selection of candidate beaches

7. Information on beach environmental conditions is required to identify needs and priorities of the beach to be selected for the Adopt-a-Beach measures. This includes weather and sea prevailing conditions; proximity to local rivers, discharges of waste water, harbours, fishing grounds, shipping lanes or any other source of beach marine litter.

8. Environmental conditions of the beach should be established through an assessment checklist that considers aspects such as existing waste disposal bins and containers, type of bins

and containers (with or without lids), existing recycling containers, information signs on permitted and prohibited uses, etc.

9. A typical assessment checklist is presented below:

ASSESSMENT CHECKLIST ON BEACH CONDITIONS	
Name of the beach	
Date	
Are there waste disposal bins and containers on the beach? (Y/N)	
What type of bins and containers? (with or without lids)	
Are there recycling containers on the beach? (Y/N)	
What waste fractions they collect?	
Are there information signs on permitted uses of the beach? (Y/N)	
Are there information signs that prohibit something? (Y/N)	
What is prohibited?	
Are you missing something on the beach (signs, toilets, etc.)? (Y/N)	
What are you missing?	

10. Different types of beaches should be considered for selection for the implementation of the Adopt-a-Beach measures (urban beaches, rural beaches, remote beaches, beaches close to riverine areas, river mouths, harbours, etc.). This would allow to have a comprehensive overview on the exposure of the beaches to marine litter sources. Special attention should be drawn to the contribution of local river streams on beach marine litter generation. The diversity of the beach selection criteria, during the selection process is highly desirable to ensure that all possible different sources for beach marine litter, are well addressed in the collected data and information. The more diverse criteria are applied during the selection process of the beaches, as the higher is the number of selected beaches, the less is the discrepancy that will be observed in the generated data.

11. The Adopt-a-beach measures have a very good potential for integration with the national bathing waters monitoring programmes and Blue Flag Programmes. The implementation of relevant measures can be included as part of the relevant criteria for certification. To this extent, selection of the same beaches for the implementation of the Adopt-a-beach measures, with those beaches that have received certification; and thus, are monitored in the framework of the Blue Flag Programmes, provide a very good potential for integration.

12. Further to the selection of beach, the Beach Coordinator should complete the MED POL Beach ID Form included in Annex II of this Guideline. This form should be filled for each beach respectively. The MED POL Beach ID Form should be updated once a year or earlier if the team of volunteers notice important changes in the surrounding environment (e.g. new developments or new types of uses, etc.).

13. Adopt-a-Beach measures should be implemented in conjunction with the current IMAP-based national monitoring programme for beach marine litter. Accordingly, it should be ensured that beaches are selected under common criteria. These include:

- Year-round accessibility to volunteer teams and the local communities;
- Accessibility for ease marine litter removal; and

- Posing no threat to endangered or protected species and their habitats, such as sea turtles, sea birds or shore birds, marine mammals or sensitive beach vegetation. Hence, this would exclude protected areas depending on local management arrangements.

14. It is recommended that two (2) to four (4) beaches are selected at national level for each country when implementing Adopt-a-beach measures. Selection should be based on national coastal characteristics (e.g. length of the coastline, level of engagement of public communities, etc.). The beaches should be selected in synergy, and in coordination with those beaches identified for the official monitoring programmes for beach marine litter. If no official monitoring programme for beach marine litter is already in place at national level, then the beaches selected for the implementation of the Adopt-a-beach measures, based on the MED POL selection criteria, could be used at a later stage as the basis for development of the national monitoring programme for beach marine litter.

3.1.3 Defining beach units

15. For Adopt-a-beach, a beach marine litter unit consists of the whole beach. In case of long beaches, and depending on capacity of volunteer teams, the beach can be divided into several units or stretches for reporting purposes.

16. Within each selected beach, a 100-m stretch should be defined where the marine litter items will be recorded by dedicated teams of volunteers, based on the specific methodology presented hereunder. The selection of the 100-m stretch should be done in synergy, and in cooperation with the 100-m stretch selected for the needs of the national monitoring programme for beach marine litter, if already in place, to ensure that no duplication occurs.

3.1.4 Defining beach marine litter units

17. The unit to be used to assess the beach marine litter density is ‘number of items’ and should be expressed as counts of marine litter items per 100-m stretch (i.e. items/100 m stretch). National teams may wish to also express beach marine litter density in ‘number of items’ per surface area[3] (i.e. marine litter items/m^2); but this should only be done in addition to the counts of marine litter items per 100-m stretch. In addition, the main category types of litter items should be weighed.

18. For the whole beach, where the volunteers are active, more aggregated results (e.g. total weight (kg) per different categories (e.g. plastic, metal, etc.), total number of items, items per main categories) could supplement the data deriving from the 100-m stretch of the beach.

3.1.5 Engagement of local communities

19. Engagement of local communities should aim to sensibilize and engage to various kinds of civil society groups (e.g. local communities, local authorities, NGOs, schools etc.[4]) to participate in the Adopt-a-Beach measures, to inform general public about the positive impacts of the measure in minimizing the stranded marine litter items along the coastlines. To this extent, no team should be excluded, having ensured in prior that a proper training of all the related communities and team members can be delivered.

[3] Based on the international experience, European (i.e. EU MSFD) and the experience from the other Regional Seas (e.g. OSPAR), the counts of marine litter items found on beaches, in items/100m stretch has proven to work quite well. The quantification of marine litter items found on beaches in items per surface areas may arise problems, especially for areas where low and high tides are present.

[4] The list is non-exhaustive. Various kinds of civil society groups are welcome to participate in the implementation of the Adopt-a-beach measures, further to obtaining the proper training.

3.1.6 Organizing teams of collection volunteers

20. Volunteers should be organized in teams to collect marine litter along the selected beach(es). Well-trained teams should be also assigned on the specific beach stretch (100 m), after having received special instructions from the Beach Coordinator. Volunteers should be organized in small teams, comprising of 5 to 6 persons each. According to the total number of volunteers and the corresponding number of teams, a beach grid should be established. Each team should be in charge for the collection of marine litter items on a specific cell of the beach grid.

21. Each team of volunteers should have a team leader who oversees marine litter collection, and to be in charge for the proper recording of the different marine litter items. The Beach Coordinator should control, coordinate and supervise the whole process.

3.1.7 Development of the awareness raising campaigns and training materials

22. When designing the awareness raising campaign, the campaign slogan could be "Adopt your Beach" in order to enhance ownership of the beach among the volunteers. The following key messages of the awareness raising campaign can be disseminated:

- Marine litter is a global environmental problem that can be solved if we act in a coordinated way;
- Marine litter is a problem that can be solved if everyone takes responsibility for their actions;
- Marine litter harms the environment, and it is in everyone's interest to solve the problem;
- Marine litter harms marine organisms (with a particular focus on sea turtles);
- Importance of recycling and reducing the use of single-use plastic items (e.g. plastic bags, PET bottles, etc.) and the need to replace these items with reusable items.

23. The following awareness raising materials are recommended:

- Logo of Adopt-a-Beach measures to enhance their corporate image;
- Poster for exhibitions and dissemination activities;
- Leaflets including information about the Adopt-a-Beach measures and national/local facts and figures on marine litter, including the marine litter definition; and
- Flags of the Adopt-a-Beach measures to be used as an identifier for the selected beaches.

24. The official launch of the Adopt-a-Beach measures should be covered by the press (e.g. local journals and other mass media). Press releases should be pre-drafted to inform the general public about the implementation of the activities and related outcomes.

25. Enhanced communication and coordination of relevant activities and initiatives under implementation at national level are highly desirable. It is of great importance to have all relevant communities and stakeholders implementing Adopt-a-beach measures, sitting around the same table, discussing elements related to the approach and methodology for implementation of required activities (e.g. different types and lists of marine litter items, selected beaches, collecting and gathering all relevant information and data, etc.). The establishment of National Coordination Platforms and/or Networks has been proven to work quite well (e.g. in France and Greece) to ensure enhanced communication and coordination at national level. The proposed Platforms and/or Networks are open-ended groups, established on a voluntary basis, aiming to include all relevant communities and stakeholders. Periodic

meetings (e.g. two to four times per year), depending on available resources, participation and interest, are recommended.

3.1.8 Securing necessary material and equipment

26. Specific materials and equipment are necessary to conduct beach collections. This includes:

- Digital camera;
- Hand-held GPS unit;
- Extra batteries (ideally rechargeable batteries);
- 100-metre tape measure (fiberglass preferred);
- Flag markers/stakes;
- First aid kit (to include sunscreen, bug spray, drinking water);
- Protective gloves;
- Scissors/knife;
- Clipboard for each surveyor;
- Recording forms (printed on waterproof paper);
- Pencils;
- Rubbish bags;
- Rigid container and sealable lid to collect sharp items such as needles, etc.;
- Appropriate clothing;
- Scales (if possible to weigh your bags of collected litter);
- National photo guide to assist the volunteers with the identification and categorization of marine litter items. The photo guide should include the items commonly found on national beaches and their corresponding pictures and should be developed by the coordinator;
- Paint spray for large and/or heavy items.

3.2 Implementation activities

27. Implementation activities include three tasks:

a. Monitoring of marine litter;
b. Collection, recording and disposal of beach litter;
c. Safety and security precautions.

3.2.1 Monitoring of marine litter

28. Beach litter collection activity should be carried out on a regular basis preferably from the same groups of volunteers, on the same beaches and 100-m stretch, under the same standardized methodology which will give the opportunity to the national authority and to policy makers to compile, analyze and compare the obtained results.

29. Every effort should be made to implement monitoring procedures similar to those used for collection of data for IMAP-based national marine litter monitoring indicators. Accordingly, it is recommended that the Adopt-a-Beach measures are conducted on the selected beaches at least twice a year in spring and autumn and ideally four times in spring, summer, autumn and winter. Relevant local/national authorities should be notified for the schedule of these measures for proper coordination, if necessary.

3.2.2 Collection, recording and disposal of beach litter

30. Beach litter collection consists of collecting of all marine litter items found along the selected beaches and their disposal in beach waste bins or by means of the municipal waste collection containers, in an environmentally sound manner. The grouping of marine litter items, under same categories, while collecting marine litter items from the beaches may facilitate significantly the collection process, especially for the cases where recycling waste management schemes are in place from local or national authorities. The role of the local authorities during the collection and disposal process of the marine litter items is instrumental, and the Beach Coordinator should have made relevant arrangements in advance.

31. All marine litter items, of different sizes and types, found on the beaches should be collected and then removed from the beach by the assigned teams of volunteers. There is no upper size-limit for the collection of marine litter items found on the beaches. Special arrangements should be in place with the local authorities for the identified days during which the teams of volunteers are in the field in order to ensure the proper disposal of the collected marine litter. During these days, implementation of awareness raising campaigns from the local/national authorities, focusing on the total number and weight of collected marine litter, as well as on the main marine litter types and items, is strongly encouraged.

32. For big and heavy items, special arrangements with local waste management authorities should be made. For the selected beaches, and in particular for the 100-m stretch, items bigger than 0.5 cm should be sorted out by category type (plastic, paper, metal, glass, etc.), weighed and recorded in terms of total number of items, and total weight per each category. Items found in the 100 m stretch should be recorded on the MED POL Beach Survey Form[5], included under Annex III to the present report. Unknown marine litter items or items that are not included in the MED POL Beach Survey Form should be noted in the appropriate "other item" box. A short description of the item should then be included on the MED POL Beach Survey Form. If possible, digital photos of unknown items should be taken.

33. Larger items that cannot be removed safely by the volunteers should be left on the beach after having them marked (e.g. with a paint spray which meets environmentally friendly standards), so that they are not counted again in the next marine litter survey. Local authorities should be informed and should be responsible for their removal.

34. The collected marine litter items should be properly disposed following sound environmental disposal practices. Ideally, Adopt-a-Beach measures should use municipal waste management schemes, and therefore the collected marine litter should be disposed using municipal waste collection containers. If these do not exist, local municipalities should be informed for appropriate action, and alternatives should be explored.

35. Useful information can be also obtained with regards to beach marine litter typology, quantity, weight, seasonal variation, etc. This information should be recorded during the collection activities. This information can be used to propose ways and measures to prevent and minimize the generation and accumulation of marine litter on beaches in the future.

36. There are several examples in the Mediterranean where Adopt-a-Beach measures are combined with pilots implemented by scuba divers in shallow waters (i.e. up to approx. 20-meter depth). This approach should provide a good and integrated correlation between recorded

[5] The list of beach marine litter items has been updated based on the discussions and recommendations received during the Joint Meeting of the Ecosystem Approach Correspondence Group on Marine Litter Monitoring and ENI SEIS II Assessment of Horizon 2020/National Action Plans of Waste Indicators (Podgorica, Montenegro, 4-5 April 2019).

marine litter items found on beaches and those observed in shallow waters. Such a correlation provides additional data and information on the sources (i.e. land-based and sea-based sources); the interlinkages between land and sea; as well as further strengthening and enhancing the participation of additional groups of civil society.

3.2.3 Safety and security precautions

37. Safety of volunteers should be always ensured. Any circumstances that may lead to unsafe situations for the volunteers (e.g. heavy wastes, strong winds, etc.) should be avoided. Since the Adopt-a-Beach measures are carried out in the field, there are a few inherent hazards. Caution should be used, and the general safety precautions presented below should be respected:

- Wear appropriate clothing. Be sure to wear close-toed shoes and gloves when handling marine litter as there may be sharp edges;
- If you come across a potentially hazardous material (e.g. oil or chemical drums, gas cans, propane tanks), contact competent authorities to report the item, providing as much information as possible. Do not touch the material or attempt to move it;
- Large, heavy objects should be left in place. Do not attempt to lift heavy marine litter items as they may have additional water weight and lifting them could result in injury. Inform local authorities;
- When in doubt, don't pick it up! If unsure of an item, do not touch it. If the item is potentially hazardous, report it to the appropriate authorities;
- Do not conduct field operations in severe weather conditions;
- Be aware of your surroundings and be mindful of 'trip and fall' hazards;
- Carry a means of communication for emergencies, for example a cell phone.
- Always carry a first aid kit. The kit should include an emergency water supply and sunscreen, as well as bug spray;
- Understand the symptoms of heat stress and actions to treat it;
- Make sure to carry enough water;
- Let someone know where you are and when you expect to return;
- The volunteer team should be composed of at least two people.

3.3 Reporting activities

38. Reporting activities include two key tasks:

a. Developing a national database on Adopt-a-Beach measures;
b. Posters and publicity information materials on items found on the beach.

3.3.1 Developing a national database on Adopt-a-Beach measures

39. It is recommended to develop a national database on Adopt-a-Beach measures updated and hosted by the national competent authority for the protection of the marine and coastal environment, where all relevant data and information are collected. This is a task that should be coordinated at the national level, and the Beach Coordinator should encourage national authorities to develop and maintain this database.

40. Quality Assurance (QA) and Quality Control (QC) for the generated data, streamlined into relevant national databases, should be further strengthened. This is particularly important in order to meet the requirement for integrating the Adopt-a-Beach measures at a later stage when implementation of the measure is mature enough with the national IMAP-based monitoring programmes for beach marine litter. Well trained teams of volunteers, possessing good level of knowledge on the applied methodology, reporting templates, list of marine litter items, related

units, etc., are essential to meet the standards for QA and QC. Proper training of teams of volunteers and of relevant groups of civil society is one of the responsibilities of the "Beach Coordinator" and national competent authorities.

3.3.2 Posters and publicity information

41. Informative material about the conservation of the beach such us posters, panels or signs should be produced and placed at the beaches participating to the Adopt-a-Beach measures to inform the general public and also to disseminate the activities developed within these measures. These posters should be produced and developed in harmony with the surrounding environment.

42. Publicity material could also contain recommendations and advice to create a responsible behavior to beach users. Therefore, information material should be drafted according to the results of the beach needs and priorities identified and the data obtained during the beach litter collection activities, to draw attention to some frequent and abundant item for instance.

43. Main elements of the information materials may address:

- Explanation of the problem of marine litter (quantity, composition and effects) with the indication of some local and national data;
- Clarification of misinterpretations about what marine litter and relevant issues (e.g. cigarette butts are not made of paper, biodegradability and application of single-use plastics, etc.). Messages should be clear;
- Using trash bins; avoiding throwing away marine litter on beaches which adversely impact fish and other marine organisms;
- Avoid throwing away cigarette butts on beaches. Clarifying that cigarette butts are not made of paper; are not biodegradable; and persist in the marine and coastal environment for years to come, even if they are fragmented into smaller items;
- Avoiding abandoning glass bottles as they can break and cause injuries to other beach goers; and
- Picking up leftovers when consuming food items on the beach.

44. The participation of the volunteers in this process is key to enhance ownership. Editing and layout of the publicity material should be managed by the Beach Coordinator of the Adopt-a-Beach measures.

45. The Beach Coordinator should produce an assessment report containing data and results obtained above to inform local authorities about the abundance of marine litter on the selected beaches, its possible effect, as well as to provide recommendations on how to improve beach state in the future. In this sense, it is very important to include what are the most abundant items and when they are found to identify potential sources and to tackle appropriate prevention measures.

3.4 Possible integration of "Adopt-a-Beach" measures with the National Monitoring Programmes for Beach Marine Litter

46. When Adopt-a-Beach measures implementation has matured, and monitoring, collection and reporting is undertaken regularly and generating reliable data and information, national authorities may consider incorporating the selected beach(es) into the IMAP-based national monitoring system, as appropriate. Monitoring procedures recommended under IMAP are included in Annex I to this guideline.

4 References

DeFishGear Project. Methodology for Monitoring Marine Litter on Beaches-Macro-Debris (>2.5cm).

OSPAR Commission (2010). Guideline for Monitoring Marine Litter on the Beaches in the OSPAR Maritime Area.

Submon (2017). Proyecto Un mar sin desperdicio-¡Apadrinad la playa!-. https://www.estrategiasmarinas.info/un-mar-sin-desperdicio-apadrina. Available only in Spanish.

UN Environment/MAP (2016). Integrated Monitoring and Assessment Guidance (UNEP(DEPI)/MED IG.22/Inf.7).

Appendix 1

Integration of "Adopt-a-Beach" measures with the National Beach Management and IMAP related to Beach Marine Litter

Integration of "Adopt-a-Beach" measures with the National Monitoring Programmes for Beach Marine Litter

1. When Adopt-a-Beach measures are undertaken on a regular basis (2 times a year or even seasonally) in the selected beaches, a 100-m stretch of beach should be isolated to implement the official monitoring programme on beach marine litter. Such an arrangement should be priory agreed with the corresponding national authorities, being in charge and responsible for the implementation of the marine litter monitoring programme on beaches.

A. Selection of beaches to implement the national monitoring programmes

2. In the selected beaches, according to criteria stated in Section 2.2.1 with regards to typology of beaches to have a comprehensive view on exposure of the beaches to marine litter sources, the sites to be monitored should be selected randomly but taking into consideration following criteria:

- A minimum length of 100 m;
- Low to moderate slope (~1.5-4.5 º), which excludes very shallow tidal mudflat areas;
- Clear access to sea (not blocked by breakwaters or jetties);
- Accessible to survey teams all year round;
- Accessible for ease marine litter removal;
- Ideally not be subject to cleaning activities and corresponding communication should be done with the local authorities/local municipality. In case that they are subjected to marine litter collection activities the timing of non-survey related beach cleaning must be known such that marine litter flux rates (the amount of litter accumulation per unit time) can be determined.
- Posing no threat to endangered or protected species and their habitats, such as sea turtles, sea birds or shore birds, marine mammals or sensitive beach vegetation; in many cases this would exclude protected areas, but it depends on local management arrangements.

3. In each site selection, these criteria should be followed as closely as possible. However, when making the final selection of the beaches to be monitored the surveyors can use their expert judgment and experience related to the coastal area and marine litter situation in their respective country.

B. Sampling unit

4. A sampling unit is defined as a fixed section of a beach covering the whole area from the strandline to the back of the beach. The sampling unit should be one 100-metre stretch of beach, along the strandline and reaching to the back of the beach. For beaches having length of several kilometers, two stretches of 100 m, may be considered. The back of the beach needs to be explicitly identified using coastal features such as the presence of vegetation, dunes, cliff base, road, fence or other anthropogenic structures such as seawalls (either piled boulders or concrete structures).

5. The same sampling units should be monitored for all repeat surveys. In order to define the boundaries of each sampling unit, permanent reference points can be used, and coordinates should be obtained by GPS. In case of heavily littered beaches, 100-metre stretches may be too difficult to survey and therefore two (2) 50-metre stretches separated at least by a 50-metre stretch should be surveyed instead.

C. Frequency and timing of surveys

6. It is recommended that the Adopt-a-Beach measures are conducted in the selected beaches at least 2 times a year in spring and autumn and ideally 4 times in: Spring, Summer, Autumn and Winter. The proposed surveys periods are as follows:

- Winter: Mid-December–mid-January
- Spring: April
- Summer: Mid-June–mid-July
- Autumn: Mid-September–mid-October

7. Any circumstances that may lead to unsafe situations for the surveyors such as heavy winds, etc. should be avoided. The safety of the surveyors must always come first.

D. Pre-survey characterization of sites

8. Before any sampling begins, shoreline characterization should be completed for each 100 m site. The GPS coordinates of the sampling unit should be recorded. A site ID name should be created. The site's special features, including characterization of the type of substrate (sand, pebbles, etc.), beach topography, beach usage, distances from urban settlements, shipping lanes, river mouths, etc. should be recorded using the MED POL Beach ID Form, included under Annex II to the present report. Digital photographs should be taken to document the physical characteristics of the monitoring site.

E. Size limits and classes to be surveyed

9. There are no upper size-limits for marine litter items found on beaches. The lower size-limit is proposed at 0.5 cm. Smaller sized items like the caps, lids, cigarette butts and other similar items should be included in the quantification of beach marine litter. Such big items should only be noted in the monitoring sheets. It is recommended to check the entire beach for big or heavy items (or some major part if the length of the beach is very lengthy) and list all large items. Special arrangements with the local waste management authorities should be in place in order to remove those big items from the beaches in an environmentally sound way.

F. Collection and identification of litter

10. Items found in the sample unit should be classified by type and accordingly entered on the MED POL Beach Survey Form, included under Annex III to the present report. Data should be entered on the form while picking up the litter item.

1. Unknown litter or items that are not on the MED POL Beach Survey Form should be noted in the appropriate "other item box". A short description of the item should then be included on the MED POL Beach Survey Form. If possible, digital photos should be taken of unknown items.

11. For interpreting small pieces of litter in a harmonized way, this guidance should be followed:

- Pieces/fragments of marine litter items that are recognizable with a high level of confidence that are part of the same marine litter item (e.g. G3: shopping bags) should be registered as one item under the corresponding category (i.e. G3).
- Pieces of marine litter items that are not recognizable as a single marine litter item should be counted according to their material type (e.g. plastic, polystyrene pieces) and size (e.g. G75-G77).

12. During the survey, all litter items should be sorted by category type, weighed and then removed from the beach. Larger items that cannot be removed (safely) by the surveyors should be marked, for example with paint spray (which meets environmentally friendly standards) so that they are not counted again at the next survey.

13. The litter collected should be disposed of properly. Ideally, monitoring activities should use municipal waste management; therefore, marine litter collected should be disposed in the municipal selective collection containers. If these do not exist local municipalities should be informed for appropriate action.

G. Quantification of litter

14. The unit to be used to assess the marine litter density is 'number of items' and should be expressed as counts of marine litter items per 100 m (i.e. items / 100m). National teams may wish to also express counts of marine litter items per surface area[6] (i.e. marine litter items / m^2), but this should only be done in addition to the counts of marine litter items per 100 m stretch. In addition, the main category types of litter items should be weighed.

H. Materials and equipment

15. The following materials and equipment are necessary to run the beach surveys:

i. Digital camera;
ii. Hand-held GPS unit;
iii. Extra batteries (ideally rechargeable batteries);
iv. 100-metre tape measure (fiberglass preferred);
v. Flag markers/stakes;
vi. First aid kit (to include sunscreen, bug spray, drinking water);
vii. Protective gloves;
viii. Scissors/knife;
ix. Clipboard for each surveyor;
x. Recording forms (printed on waterproof paper);
xi. Pencils;
xii. Rubbish bags;
xiii. Rigid container and sealable lid to collect sharp items such as needles, etc.;
xiv. Appropriate clothing;
xv. Scales (if possible to weigh your bags of collected litter);
xvi. National photo guide to assist the volunteers with the identification and categorization of marine litter items. The photo guide should include the items commonly found on national beaches and their corresponding pictures and should be developed by the coordinator,
xvii. Paint spray for large and/or heavy items.

I. Safety and security precautions

16. Safety of surveyors should be ensured at all times. Since this work is carried out in the field, there are a few inherent hazards. Caution should be used, and the general safety guidelines presented below should be followed:

- Surveyors should wear appropriate clothing. Be sure to wear close-toed shoes and gloves when handling marine litter as there may be sharp edges.

[6] Based on the international experience, European (i.e. EU MSFD) and the experience from the other Regional Seas (e.g. OSPAR), the counts of marine litter items found on beaches, in items/100m stretch has proven to work quite well. The quantification of marine litter items found on beaches in items per surface areas may arise problems, especially for areas where low and high tides are present.

- If surveyors come across to potentially hazardous materials and/or items (e.g. oil or chemical drums, gas cans, propane tanks), the local authorities should be contacted by the Beach Coordinator in order to report the corresponding item/s. The hazardous materials and/or items should not be touched by the surveyors and no attempt to re/move it should be done.
- Large, heavy objects should be left in place. Do not attempt to lift heavy marine litter items as they may have additional water weight and lifting them could result in injury. Local authorities should be informed by the Beach Coordinator in the case of existence of such items.
- When in doubt, don't pick it up! If unsure of an item, do not touch it. If the item is potentially hazardous, the Beach Coordinator should report it to the appropriate authorities.
- Do not conduct field operations in severe weather conditions.
- Be aware of your surroundings and be mindful of 'trip and fall' hazards.
- Carry a means of communication for emergencies, for example a cell phone.
- Always carry a first aid kit. The kit should include an emergency water supply and sunscreen, as well as bug spray.
- Understand the symptoms of heat stress and actions to treat it.
- Make sure to carry enough water.
- Let someone know where you are and when you expect to return.
- The surveyor team should be composed of at least two people.

J. Additional considerations

17. The amount and type of litter found on beaches can be influenced by different circumstances. To ensure that data will be analyzed and interpreted properly these circumstances must be recorded. Indicative examples of such circumstances include: events that may lead to unusual types and/or amounts of litter (e.g. shipping container losses, overflows of sewage treatment systems, etc.); difficult weather conditions (e.g. heavy winds or rain, etc.); replenishment/nourishment of the beach; etc.

Appendix 2

MED POL Beach ID Form

MED POL Beach ID Form			
Country Name:			
Region:			
Municipality:			
Beach Name:			
Beach National ID:			
① Average beach width (m)		② Beach width (m) at mean low spring tide:	
③ Beach width (m) at mean high spring tide (m):		④ Total length of beach (m):	
⑤ Back of the beach: (e.g sand dunes)			
⑥ Latitude Start 100 m: *(wgs84 – dd mm ss.ss)*		⑦ Latitude End 100 m: *(wgs84 – dd mm ss.ss)*	
⑥ Longitude Start 100 m: *(wgs84 – dd mm ss.ss)*		⑦ Longitude End 100 m: *(wgs84 – dd mm ss.ss)*	
Prevailing currents off the beach:	N – S – E – W	Prevailing winds:	N – S – E – W
Beach Orientation?: (i.e. towards which direction is the beach facing?)			N – S – E – W
Type of beach material (e.g. sand, pebbles, rocky), including % of coverage: *(e.g. sand 60%, pebbles 40%)*	*Material 1 and %:*		
	Material 2 and %:		
	Material 3 and %:		
Slope of the Beach: *(e.g. slope 20%)*			
Are there any objects in the sea (e.g. a pier) that influence the currents?			Yes ☐ No ☐
If YES, specify: _____			
Major beach usage (local people, swimming and sunbathing, fishing, surfing, sailing, other etc.): 1. _____ , seasonal or whole year round: _____ 2. _____ , seasonal or whole year round: _____			

3. _____ , seasonal or whole year round: _____

Access to the beach:

Pedestrian: ☐ Vehicle: ☐ Boats: ☐

Is the beach adjacent (<5km) to urban areas? : Yes ☐ No ☐

Name of the nearest town or village: _____

Location: N – S – E – W Distance to the beach: _____ km

Population of the nearest urban areas: _____

Is the beach adjacent (<5km) to an Aquaculture site?: Yes ☐ No ☐

Location: N – S – E – W Distance to the beach: _____ km

Is there any development behind the beach?: Yes ☐ No ☐

Specify: _____

Are there food and/or drink outlets on the beach?: Yes ☐ No ☐

Distance from the survey area (m): _____

Present all year round: Yes ☐ Specify number of month: _____ No ☐

Position of food and/or drink outlet in relation to the survey area: N – S – E – W

Distance of the beach to the nearest shipping lane (km):

What is the estimated traffic density *(number of ships/ year)*: _____

It is mainly used for which type of vessels?:
(e.g. merchant ships, fishing vessels, all kinds, other) _____

Position of the shipping lane in relation to survey area: N – S – E – W

Is the beach located near a harbour, port or marina?: Yes ☐ No ☐

Specify: _____

Distance from the beach to the nearest harbour, port or marina (km): _____

Name of the harbour, port or marina: _____

Is the harbour entrance facing the survey area?: Yes ☐ No ☐

Position of harbour in relation to survey area: N – S – E – W

What is the main type of vessels using the harbour, port or marina?: _____

(e.g. passenger ships, merchant/cargo ships, fishing vessels) _____

Size of harbour (number of ships and vessels using the harbour every day): _____

Beach adjacent to river mouths or drains of water?: Yes ☐ No ☐ N/A ☐

Name of the nearest river mouth or drain of water: _____

Distance between sampling area and nearest river mouth/water drain (km): _____

What is the position of the nearest river mouth in relation to survey area: N – S – E – W

Distance of the beach from the nearest discharge/ waste water (km): _____

Position of discharge points in relation to survey area: N – S – E – W

Clean-up frequency of the beach?:

All year round: Daily ☐ Weekly ☐ Monthly ☐ Other: _____

Seasonal: Daily ☐ Weekly ☐ Monthly ☐ Other: _____

(please specify in months)

Method used for the clean-up: Manual ☐ Mechanical ☐

Who is responsible for the cleaning?

_____

Additional comments and observations about this beach:

_____

_____

_____

_____

_____

_____

Please include:

1. A map of the beach
2. A map of the beach and of the local surroundings. When relevant please mark on this map the following:
   - i) Nearest town
   - ii) Food/drink outlets
   - iii) Nearest shipping lane
   - iv) Nearest harbour
   - v) Nearest river mouth
   - vi) Discharge or discharges of waste water
3. A regional map

Is this an amendment to an existing questionnaire: Yes ☐ No ☐

Date questionnaire is filled in: _____ / _____ / _____ (dd/mm/yyyy)
Name:
Phone number:
E-mail:

Appendix 3

MED POL Beach Survey Form

MED POL Beach Survey Form			
Country:			
Beach Name:			
Beach National ID:			
ID Survey:			
Date of survey *(dd/mm/yyyy)*:			
Previous conducted survey *(dd/mm/yyyy)*:			
Time of the sampling *(HH:MM:SS)*:			
Number of surveyors:			
Survey contact details:		Name: _____ Phone number: _____ Email address: _____	
Latitude Start 100m: *(wgs84 – dd mm ss.ss)*		Latitude End 100m: *(wgs84 – dd mm ss.ss)*	
Longitude Start100 m: *(wgs84 – dd mm ss.ss)*		Longitude End 100m: *(wgs84 – dd mm ss.ss)*	

Additional Information

Did you divert from the predetermined 100 m?

No ☐ Yes ☐

If YES, please specify new GPS coordinates:

_____

Did any of the following weather conditions affect the data of the survey?

Wind ☐ Rain ☐ Sand storm ☐ Fog ☐ Snow ☐ Exceptionally high tide ☐

Exceptionally low tide ☐ Storm surge ☐

Did you find stranded or dead animals?

Yes ☐ No ☐ If YES how many: _____

Describe the animals, or note the species name if known:

_____

Stranded animals:	Dead ☐	Alive ☐
Is the animal entangled in litter?	Yes ☐ No ☐	If YES,

specify marine litter item code: _____

Were there any circumstances that influenced the survey?

For example, tracks on the beach (cleaning or other), recent replenishment of the beach or other? Please specify:

_____
_____
_____
_____

Were there any unusual marine litter items and/or marine litter loads?

Please specify:

_____
___

ID[1]	PLASTIC/POLYSTYRENE	N° Items	Weight
G1	4/6-pack yokes, six-pack rings		
G3	Shopping bags incl. pieces		
G4	Small plastic bags, e.g. freezer bags incl. pieces		
G5	The part that remains from rip-off plastic bags		
G7/G8	Drink bottles		
G9	Cleaner bottles & containers		
G10	Food containers incl. fast food containers		
G11	Beach use related cosmetic bottles and containers, e.g. sunblock		
G13	Other bottles, drums and containers		
G14	Engine oil bottles & containers <50 cm		
G15	Engine oil bottles & containers >50 cm		
G16	Jerry cans (square plastic containers with handle)		
G17	Injection gun containers (incl. nozzles)		
G18	Crates and containers/ baskets (excluding fish boxes)		
G19	Vehicle parts (e.g. made of artificial polymer or fibre glass)		
G21/24	Plastic caps and lids (incl. rings from bottle caps/lids)		
G26	Cigarette lighters		
G27	Cigarette butts and filters		
G28	Pens and pen lids		
G29	Combs/hair brushes/sunglasses		
G30/31	Crisps packets/sweets wrappers/ lolly sticks		
G32	Toys and party poppers		
G33	Cups and cup lids		

[1] The allocated codes may be revised in the near future.

G34	Cutlery, plates and trays		
G35	Straws and stirrers		
G36	Heavy duty sacks (e.g. fertiliser or animal feed sacks)		
G37	Mesh bags (e.g. vegetables, fruits and other products) excluding aquaculture mesh bags		
G40	Gloves (i.e. washing up)		
G41	Gloves (i.e. industrial/ professional rubber gloves)		
G42	Crab/lobster pots and tops		
G43	Tags (i.e. fishing and industry)		
G44	Octopus pots		
G45	Mesh bags (e.g. mussels nets, net sacks, oyster nets including pieces) and plastic stoppers from mussel lines		
G46	Oyster trays (e.g. round from oyster cultures)		
G47	Plastic sheeting from mussel culture (e.g. Tahitians)		
G49	Rope (i.e. diameter more than 1cm)		
G50	String and cord (i.e. diameter less than 1 cm)		
G53	Nets and pieces of net < 50 cm		
G54	Nets and pieces of net > 50 cm		
G56	Tangled nets/cord		
G57/58	Fish boxes		
G59	Fishing line (i.e. tangled and not tangled)		
G60	Light sticks (tubes with fluid) incl. packaging		
G62/63	Buoys (e.g. marking fishing gear, shipping routes, mooring boats etc.)		
G65	Buckets		
G66	Strapping bands		
G67	Sheets, industrial packaging, plastic sheeting (i.e. non-food packaging/transport packaging) excluding agriculture and greenhouse sheeting[2]		
G68	Fibre glass, items and fragments		
G69	Hard hats/ Helmets		
G70	Shotgun cartridges		
G71	Shoes and sandals made of artificial polymeric material		
G73	Foam sponge items (i.e. matrices, sponge, etc.)		
G75	Plastic/polystyrene pieces 0 - 2.5 cm		
G76	Plastic/polystyrene pieces 2.5 cm > < 50 cm		

[2] The 7th Meeting of EcAp Coordination Group agreed to define separate categories for agriculture (i.e. greenhouse sheeting; expanded polystyrene trays/seedlings; and irrigation pipes), which will be brought as a proposal to the next Meeting of CORMON on Marine Litter.

G77	Plastic/polystyrene pieces > 50 cm		
G91	Biomass holder from sewage treatment plants		
G124	Other plastic/ polystyrene items (identifiable) including fragments		
	Please specify the items included in G124:		
		Total N° Items	**Total Weight**

ID	RUBBER	N° Items	Weight
G125	Balloons, balloon ribbons, strings, plastic valves and balloon sticks		
G127	Rubber boots		
G128	Tyres and belts		
G134	Other rubber pieces		
	Please specify the items included in G134		
		Total N° Items	**Total Weight**

ID	CLOTH	N° Items	Weight
G137	Clothing/ rags (e.g. clothing, hats, towels)		
G138	Shoes and sandals (e.g. leather, cloth)		
G141	Carpet & furnishing		
G140	Sacking (hessian)		
G145	Other textiles (incl. pieces of cloths, rags, etc.)		
	Please specify the items included in G145		
		Total N° Items	**Total Weight**

ID	PAPER / CARDBOARD	N° Items	Weight
G147	Paper bags		
G148	Cardboard (boxes & fragments)		
G150	Cartons/ Tetrapack Milk		
G151	Cartons/ Tetrapack (non-milk)		
G152	Cigarette packets (incl. transparent covering of the cigarette packet)		
G153	Cups, food trays, food wrappers, drink containers		
G154	Newspapers & magazines		
G158	Other paper items (incl. non-recognizable fragments)		
	Please specify the items included in G158		
		Total N° Items	**Total Weight**

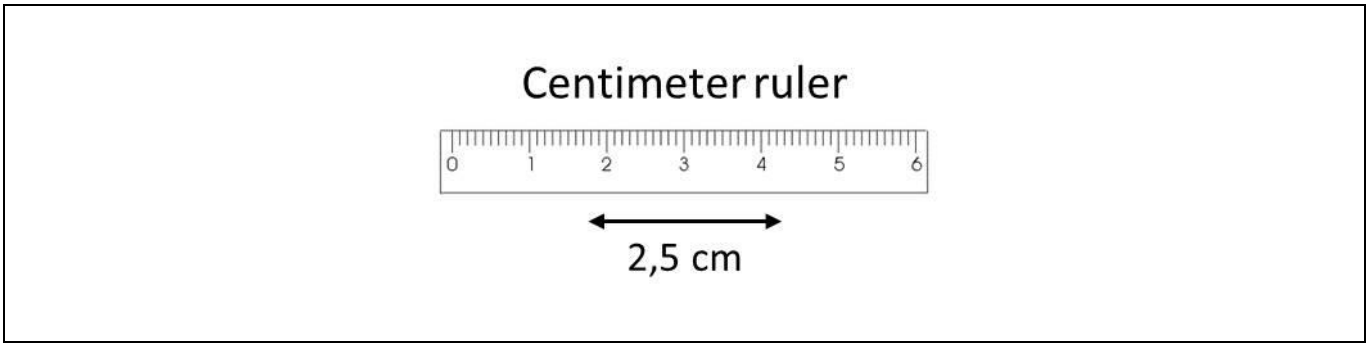
ID	PROCESSED / WORKED WOOD	N° Items	Weight
G159	Corks		
G160/161	Pallets/ Processed timber		
G162	Crates and containers/ baskets (not fish boxes)		
G163	Crab/lobster pots		
G164	Fish boxes		
G165	Ice-cream sticks, chip forks, chopsticks, toothpicks		
G166	Paint brushes		
G171	Other wood < 50 cm		
	Please specify the items included in G171		
G172	Other wood > 50 cm		
	Please specify the items included in G172		
		Total N° Items	**Total Weight**

ID	METAL	N° Items	Weight
G174	Aerosol/ Spray cans industry		
G175	Cans (beverage)		
G176	Cans (food)		
G177	Foil wrappers, aluminium foil		
G178	Bottle caps, lids & pull tabs		
G179	Disposable BBQ's		
G180	Appliances (e.g. refrigerators, washers, etc.)		
G182	Fishing related (e.g. weights, sinkers, lures, hooks)		
G184	Lobster/ crab pots		
G186	Industrial scrap		
G187	Drums and barrels (e.g. oil, chemicals)		
G190	Paint tins		
G191	Wire, wire mesh, barbed wire		
G198	Other metal pieces < 50 cm		
	Please specify the items included in G198		
G199	Other metal pieces > 50 cm		
	Please specify the items included in G199		
		Total N° Items	**Total Weight**

ID	GLASS	N° Items	Weight
G200	Bottles (incl. identifiable fragments)		
G202	Light bulbs		
G208a	Glass fragments >2.5cm		
G210a	Other glass items		
	Please specify the items included in G210a		
		Total N° Items	**Total Weight**

ID	CERAMICS	N° Items	Weight
G204	Construction material (e.g. brick, cement, pipes)		
G207	Octopus pots		
G208b	Ceramic fragments >2.5cm		
G210b	Other ceramics/pottery items		
	Please specify the items included in G210b		
		Total N° Items	**Total Weight**

ID	SANITARY WASTE	N° Items	Weight
G95	Cotton bud sticks		
G96	Sanitary towels/ panty liners/ backing strips		
G97	Toilet fresheners		
G98	Diapers/nappies		
G133	Condoms (incl. packaging)		
G144	Tampons and tampon applicators		
	Other sanitary waste		
	Please specify the other sanitary items		
		Total N° Items	**Total Weight**



ID	MEDICAL WASTE	Nº Items	Weight
G99	Syringes/ needles		
G100	Medical/ Pharmaceuticals containers/ tubes		
G211	Other medical items (e.g. swabs, bandaging, adhesive plaster etc.)		
	Please specify the items included in G211		
		Total Nº Items	**Total Weight**

ID	PARAFFIN/WAX PIECES	Nº Items	Weight
G213	Paraffin/ Wax		
		Total Nº Items	**Total Weight**

Presence of industrial pellets?

YES ☐ NO ☐

Presence of oil tars?

YES ☐ NO ☐

Additional Comments:

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Annex II

Guidelines to Phase out Single-Use Plastic Bags in the Mediterranean

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Bag-Use Profile	Proportion of bag types used at retail venues
EPR	Extended Producer responsibility
GES	Good Ecological Status
GHG	Green-house emissions
HDPE	High-density polyethylene
LCA	Life-cycle assessment
LDPE	Low-density polyethylene
PP	Polypropylene
SCP/RAC	Regional Activity Centre for Sustainable Consumption and Production
SUPB	Single-use plastic bags: high-density polyethylene (HDPE) bags designed to be used once. This is usually determined by the width or grammage. For the purpose of this report, the focus is on those that have handles, generally used as shopping carrier bags.

GUIDELINES TO PHASE OUT SINGLE-USE PLASTIC BAGS IN THE MEDITERRANEAN

1. INTRODUCTION

1.1. The scope

1. Single-use plastic bags (SUPB) rank among the most commonly found marine litter items in the Mediterranean Sea and coast.[7] The leakage of bags into the environment poses threats not only to biodiversity but also to society, with adverse impacts on economic development and public health. Single-use plastic bags have become an icon of plastic pollution and the fight against it; and thus around 60 countries have introduced policies to tackle them.[8]

2. The Regional Plan on Marine Litter Management in the Mediterranean,[9] adopted by the Contracting Parties to the Barcelona Convention in 2013, urges national authorities according to Article 9, among others, to take action to reduce SUPB through the "*Establishment of voluntary agreements with retailers and supermarkets to set an objective of reduction of plastic bags consumption as well as selling dry food or cleaning products in bulk and refill special and reusable containers*" and "*Fiscal and economic instruments to promote the reduction of plastic bag consumption.*" Action has already been taken in most of the countries of the Mediterranean (e.g. France, Spain, Italy, Greece, Croatia, Slovenia, Albania, Bosnia and Herzegovina, Morocco, Tunisia etc.), including the total ban of certain types of SUPB or certain applications of them.

3. With the ultimate objective of achieving the Good Ecological Status[10] (GES) of the Mediterranean Sea, the EU-funded Marine Litter MED Project[11] addresses the reduction of single-use plastic bags in Algeria, Egypt, Israel, Lebanon, Libya, Morocco and Tunisia, as one of the key common measures provided for in the Regional Plan on Marine Litter Management in the Mediterranean. Within this project, technical assistance has been provided to three countries (i.e. Tunisia, Egypt and Lebanon) to develop, where appropriate, the required legal and regulatory framework to halt marine litter from single-use plastic carrier bags by phasing out their consumption and production. The project also provided technical assistance to Morocco and Algeria regarding the introduction of Extended Producers Responsibility in the food and beverage packaging sector. Through the bilateral cooperation agreement between UN Environment/MAP and the Italian Ministry for Environment, Land and Sea Protection (IMELS), similar support is provided to Albania, Bosnia and Herzegovina and Montenegro.

4. These guidelines intend to provide a common understanding of the measures that can be considered in developing the most appropriate legal and regulatory framework to reduce the production and consumption of SUPB in the signatory countries of the Barcelona Convention. Notwithstanding, it is important to acknowledge the different baseline in each of the countries. The EU Member States have already taken action driven by the Directive 2015/720 on the reduction of the consumption of lightweight plastic carrier bags. Non-EU countries such as Bosnia and Herzegovina, Israel, Morocco, Tunisia and Turkey have enacted important regulatory, fiscal or voluntary measures, or are in the process of drafting. Other countries have not started the process yet but have expressed their intention and commitment to do so.

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[7] UNEP/MAP (2015). Marine Litter Assessment in the Mediterranean 2015. United Nations Environment Programme / Mediterranean Action Plan. ISBN No: 978-92-807-3564-2

[8] UN Environment (2018). The state of plastics. World Environment Day Outlook 2018. http://wedocs.unep.org/bitstream/handle/20.500.11822/25513/state_plastics_WED.pdf

[9] UNEP/MAP (2013). Regional Plan for the Marine Litter Management in the Mediterranean https://wedocs.unep.org/rest/bitstreams/8222/retrieve

[10] UN Environment/ Mediterranean Action Plan (2018). Ecosystem Approach. http://web.unep.org/unepmap/who-we-are/ecosystem-approach

[11] http://web.unep.org/unepmap/what-we-do/projects

5. The guidelines target policy-makers and provide them with a step-by-step approach for developing the most appropriate legal/policy/regulatory framework to halt marine litter from single-use plastic carrier bags by phasing out their consumption and production. They build and focus on three broad categories of policies that have been already put in place in different parts of the world,12 including:

- Voluntary agreements;
- Regulatory economic instruments; and
- Command and control instruments: bans.

6. While these guidelines focus on the full process of decision making, from absence of actions to reduce SUPB to a comprehensive programme to tackle them, they can also be used to complement and strengthen actions in countries where the process is on-going. In fact, experiences show loopholes and obstacles in different countries, and these guidelines intend to contribute in overcoming them.

1.2. The issue

7. Plastics are one of the main materials of the modern economy due to their multiple properties, applications and low cost. Their use has been growing exponentially since the 1950s, and is expected to double in the next 20 years.[13]

8. Plastic packaging, which includes plastic carrier bags, is the plastic's largest application, representing 26% of the total volume at global level.[7] It is estimated that roughly 5 trillion plastic carrier bags are consumed worldwide each year. That is almost 10 million plastic carrier bags per minute.[14] The main issue is that 95% of worldwide plastic packaging (including plastic bags) value is lost to the economy after a short first use. This poses adverse negative effects for people and nature.[7] Waste disposed in landfill or incinerated involves economic costs which burden tax payers. When plastic leaks into the environment, the main problem might be regarded as its main feature: durability; the long process to mineralize involves impact not only in the environment, but also socioeconomic effects such as the loss of aesthetic values which may be linked to economic activities. When it comes to the marine environment, the process to degrade is even longer. Plastics have been reported to negatively impact between 180 and 660 species of animals, including birds, fish, turtles, and marine mammals, with a portion of these plastics presumably comprised of plastic bags.[15] Marine animals may confuse bags for food leading to ingestion, blocked digestive tracts and eventual death. Plastic breaks down in smaller pieces in the oceans, down to micro- and nano-plastics. There is evidence that these particles are being consumed by marine organisms, with effects in terms of toxicology poorly known, especially with regards to impacts on human health.[16]

9. SUPBs are defined in the literature as high-density polyethylene (HDPE) bags designed to be used once. SUPBs rose to popularity for use in retail venues in the 1970s and

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[12] The main features and effectiveness of worldwide cases are discussed in detail in the document UNEP/MED WG.466 Inf.5 Background elements for the guidelines on phasing out single-use plastic bags: review of international experiences and alternative options.

[13] World Economic Forum, Ellen MacArthur Foundation and McKinsey & Company (2016). The New Plastics Economy — Rethinking the future of plastics. http://www.ellenmacarthurfoundation.org/publications

[14] UN Environment (2018). The state of plastics. World Environment Day Outlook 2018. http://wedocs.unep.org/bitstream/handle/20.500.11822/25513/state_plastics_WED.pdf

[15] UNEP (2014). Plastic Debris in the World's Oceans. http://www.unep.org/regionalseas/marinelitter/publications/docs/plastic_ocean_report.pdf

[16] Gallo F. et al (2018). Marine litter plastics and microplastics and their toxic chemicals components: the need for urgent preventive measures. Environ Sci Eur. 2018; 30(1): 13. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5918521/

remain the most popular grocery bag choice around the world in the absence of regulatory measures to control them.[17]

10. Their product-to-waste flow, represented in the figure below, begins with the conversion of fossil fuels (but also a very low fraction from organic sources) into polymers used to manufacture all plastic. This follows a strictly linear economic model. The window of consumer use for SUPBs averages only 20 minutes[18] after which it can follow several paths. Once used, plastic bags may be collected as household waste and end up in landfill or incinerator. A proportion of SUPB are indeed recycled, but this fraction is very low due to low profitability (from 1% to 5%, according to various sources.[19, 20]). Often these bags are later reused as linen bags, and ultimately become household waste. When disposed in the environment, they can take between 400 and 1000 years to break down. Waste collection and management is particularly poorly organized in the beneficiary countries to the Marine Litter MED Project making plastic leakages even more important.

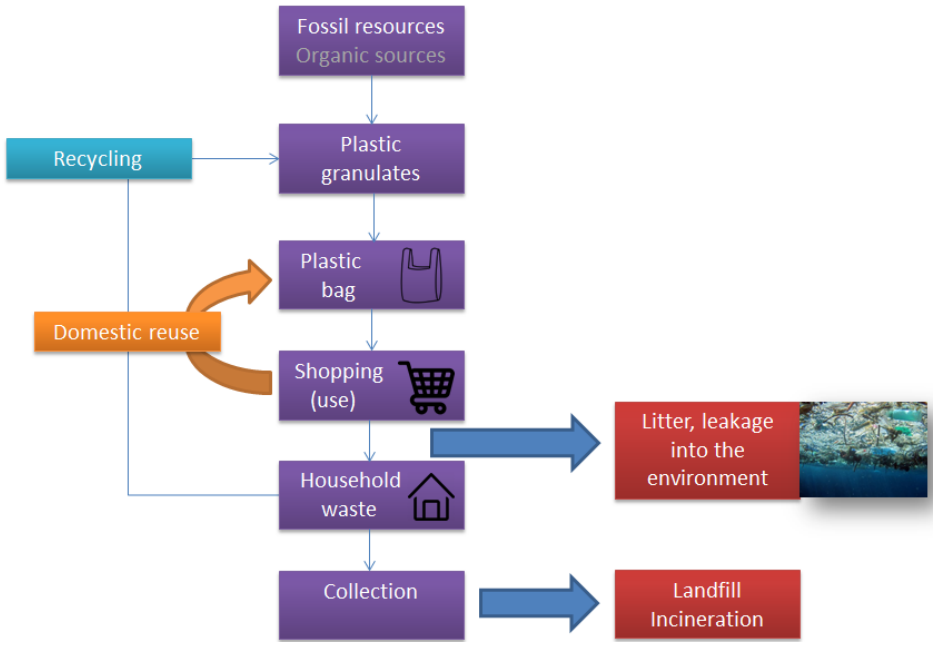

Figure 1. SUPB product-to-waste flow in MENA countries. Source: Own elaboration

2. OPTIONS FOR PHASING OUT THE USE AND PRODUCTION OF SINGLE-USE PLASTIC BAGS

11. This section briefly explains the main policy options to tackle SUPB, based on the review of international experience.[21] It is important to note that often policy options are implemented as a policy mix, or gradually implemented. A summary table is included at the end of this section to compare pros and cons of the different options.

[17] Green Cities California (2010). Master Environmental Assessment on Single-Use and Reusable Bags. ICF International. https://www.smgov.net/uploadedFiles/Departments/OSE/Task_Force_on_the_Environment/TFE_2010/03%2015%2010_Attachment%205_MEA.Single%20Use%20Bags.Ex.Summary.pdf

[18] Equinox Center (2013). Plastic Bag Bans: Analysis of Economic and Environmental Impacts. https://energycenter.org/sites/default/files/Plastic-Bag-Ban-Web-Version-10-22-13-CK.pdf

[19] Wate Management (n.d.). Bags by the Numbers http://www.wmnorthwest.com/guidelines/plasticvspaper.htm

[20] USEPA (2006). Municipal solid waste in the United States: facts and figures. http://www.epa.gov/epaoswer/non-hw/muncpl/pubs/mswchar05.pdf

[21] The main features and effectiveness of worldwide cases are discussed in detail in the document UNEP/MED WG.466 Inf.5.

2.1 Voluntary agreements

12. In some cases, retailers have the lead in such initiatives, driven by internal factors (e.g., Corporate Social Responsibility (CRS) and branding purposes) and as a response to the threat by public authorities to introduce binding, i.e. non-voluntary, regulation. However, public bodies often promote such agreements or commitments through e.g. memorandums of understanding.

13. There are two main types of agreements to tackle SUPB:

a. Non-distribution of SUPB, and therefore other alternatives are made available (e.g. paper bags, multi-use bags), normally at a cost for the consumer.
b. Paying for distribution of SUPB, often along the possibility to purchase multi-use bags.

14. In both cases, the voluntary agreement acts as an economic disincentive on the consumer, resulting in a decrease of SUPB consumption.

2.2 Regulatory economic instruments

15. Government can enact legal instruments to put charges on SUPB at the distribution stage. Even small charges can have a strong signaling effect on consumers, creating incentives to switch towards other options. There are two main modalities of regulatory charges:

a. Those which become revenue for the supermarket. In this case, it is often up to the retailer to decide the amount levied on SUPB.
b. Those which become revenue for the public administration to reduce the negative externalities of SUPB. In this case, the charge is often called "tax" or "eco-tax". Retailers must report periodically the revenues raised and pay to the tax administration.

16. Another type of economic instrument that can be applied to SUPB is subsidies. In this case, the government may opt for subsidizing e.g. multi-use bags, to support phasing out SUPB.

2.3 Command and control instruments: bans

17. Command-and-control or regulatory instruments have a direct influence on the behaviour of actors by imposing rules that limit or prescribe the actions of the target group. These instruments have a legal basis. Enforcement and control is a key element in the success of the instrument. Different bans are being used to tackle SUPB, including bans on certain types, applications and conditions. The legal instrument defines the concept of SUPB, often in terms of material, width and volume, and determines the provisions under which other plastic bags can be used. In some cases, it also levies the distribution of alternatives to SUPB.

2.4 Comparison of policy options

18. The following table, based on BIO Intelligence Service (2011),[22] summarizes the pros and cons of the different policy options.

Policy option	Pros	Cons
"Business as usual"	• No legal or administrative changes or costs	• Environmental, economic and social impacts associated with

[22] BIO Intelligence Service (2011). Assessment of impacts of options to reduce the use of single-use plastic carrier bags. Final report prepared for the European Commission – DG Environment http://ec.europa.eu/environment/waste/packaging/pdf/report_options.pdf

	associated with revising current legislation.	plastic carrier bag use would persist and/or worsen (e.g. accumulation of litter in the environment).
Voluntary commitment of a significant share of the retail sector not to provide SUPB or for free	• Some reduction in plastic carrier bag use at participating shops. • Minimal disruption for manufacturers and retailers. • More 'buy-in' from retailers. • Less administrative burden for governments as they would be less involved than for mandatory measures. • Progressive introduction of durable bags	• Not all shops would participate. • Under a voluntary agreement, it is unlikely that there would be a dedicated monitoring and enforcement body, nor sanctions to ensure participating retailers stick to the targets and commitments set out. • Consumers would need to pay SUPB or multi-use bags, which may result in certain opposition at early stage
Economic disincentive by charging consumers for the distribution of SUPB	• It has been proven a clear reduction in SUPB use when the charge is high enough, resulting in a behavioural change. • No major disruption for SUPB manufacturers • Public fund raising opportunity when the instrument is designed to channel the funds to public administrations (tax).	• In terms of consumer behaviour, mandatory consumer charges are a more direct lever than a voluntary agreement. • Consumers would need to pay SUPB or multi-use bags, which may result in certain opposition at early stage • When it's conceived as a tax, administrative burden on retail sector and public tax administration • Monitoring and enforcement required by public administration
Ban on single-use plastic carrier bags	• Provides high level of certainty in the mitigation of environmental impacts, especially litter. • Possible increase in revenue and jobs for some countries producers of alternative carrier bags.	• Monitoring and enforcement required by public administration • Loss of revenue and jobs connected with single use plastic carrier bags. • Loss of consumer choice. • Inconvenience for customers when alternatives are not sufficiently mature

3. ROADMAP FOR THE REDUCTION OF SINGLE-USE PLASTIC BAGS IN THE MEDITERRANEAN REGION: AN 8 STEP-BY-STEP APPROACH

19. Considering experiences in the Mediterranean region and beyond, sound solutions should be designed in a long-term time frame. A progressive, step-by-step approach should be adopted in order to ensure that:

a. Governmental mechanisms are in place to monitor the production and consumption of SUPB, in order to review and adapt if the targets are not met.
b. Economically/environmentally/technically sound alternatives are available, and the relevant standards and norms are in place to ensure the use and production of safer alternatives.
c. Relevant industry has time/incentives/access to technology to reconvert, without major jobs/revenues loss.
d. Incentives for the development of new technologies are in place for green entrepreneurs and businesses willing to put new alternatives on the market.
e. Consumers are aware of the impacts of their behaviour and are incentivized to modify their consumption patterns.
f. The waste management system in the countries is adapted to accompanying the phase out process. First, it is important that collection/recycling rates improve, and unsound disposal is avoided. Later, the waste management system may need to adapt to the new alternatives introduced in the market, such as compostable bags (or other disposable and compostable items).

20. Different policy options may attain similar drastic reductions as proven by the experience of a great number of countries analyzed before the preparation of these guidelines. It is important to note that economic impact of reducing/banning SUPB does not seem to be crucial for any of the cases reviewed. On the contrary, some of them consider this as an opportunity to develop internal economic activity.

21. The approach to phase out SUPB in the Mediterranean region consists of the following 8 steps listed below. Countries that already implemented measures in this regard may find complementary and supportive actions:

a. Step 1: Assess the current situation of SUPB and raise awareness.
b. Step 2: Assess different policy options, namely voluntary agreements, economic. instruments and bans, given the national contexts.
c. Step 3: Promote and develop alternatives.
d. Step 4: Adoption and implementation of a policy option
e. Step 5: Incentives to industry
f. Step 6: Upgrade the waste management system
g. Step 7: Communication and participation
h. Step 8: Review and adapt

22. Details for each of the above-mentioned steps are hereunder presented.

3.1. Preliminary measures (Steps 1, 2 and 3)

23. Step 1: Assess the current situation of SUPB and raise awareness: The starting point should be a clear view of the SUPB product-to-waste chain in the country, particularly in terms of production, imports and consumption. In the absence of national data about the production of SUPB, a survey should be conducted through the chamber of industry and commerce, the association of plastic producers, or similar. Or, plastic producers should be approached directly, in case they are not too many. This survey will allow not only knowing the number and characteristics of SUPB being produced in the country, but also related revenues and jobs. At this point, it is very important to consider that in many countries the informal economy in plastic bags production may be high and this should be addressed in terms of impact of any adopted policy option. For example, an eventual ban may drive the sector to increased informality. Regarding imported SUPB, the customs administration should hold this data. Moreover, gaining knowledge on how plastic bags are used by the population is

important, as well as their perception on the issue and the available alternatives. This type of research could be coupled with awareness raising campaigns, which are a common element for all policy options to be thoroughly and extensively applied before and after the adoption of the measure. These elements may lead to set prevention quantitative targets and provide a baseline to monitor progress.

24. Step 2: Assess different policy options, namely voluntary agreements, economic instruments and bans, given the national contexts: In addition to economic and environmental aspects, the assessment should pay attention to the national capacity to enforce instruments such as bans and/or levies as well as on the impact on the low-income populations. Thus, socioeconomic and policy/institutional aspects should be analysed in order to know how an eventual measure would be implemented, and potential effects it may have on the administration, industry, retailers and population. Evidence-based studies, namely socio-economic assessments on the effect of the selected policy option in the national context, are also necessary to defeat opposition from the plastics industry. Further to the general comparison shown in section 2.4, a more accurate assessment is advised in terms of potential environmental and socioeconomic effects of the policy options according to the national contexts. To conduct this assessment, the first step consists in estimating the reduction of SUPB as a result of the implementation of a particular option (e.g. the EU set a reduction target of 80% of SUPB in five years). This may be estimated through international experiences review.[23] Secondly, the socioeconomic and environmental effects can be reviewed and compared through a series of indicators. The values of these indicators will depend on the particular context (e.g. baseline SUPB consumption and production, collection costs, etc.). The following indicators are suggested:[24]

- Environmental impact:
  - Weight/quantity of total plastic carrier bags (% reduction);
  - Weight/quantity of single-use plastic carrier bags (% reduction);
  - Oil (kt saved);
  - Emissions ($MtCO_{2eq}$ avoided).

- Economic indicators:
  - Costs reduction to retailers;
  - Revenues generated by a charge;
  - Net change to bag manufacturers;
  - Cost reduction for litter collection;
  - Cost reduction for waste management.

- Social indicators:
  - Net change in employment in bag manufacture sector;
  - Households expenditure in alternatives to SUPB.

Thus, the assessment would provide information on the potential effect of the reduction of SUPB for different stakeholders, including plastic manufacturers, retailers, citizens and administration. The calculation and comparison of these indicators may robustly inform policy makers for sound decisions.

25. Step 3: Promote and develop alternatives: Before any instrument is put in practice, there should be an assessment of the alternatives for SUPBs applications, in terms of national production capacity and needs, i.e. offer and demand. Indeed, these two aspects must go hand

[23] See UNEP/MED WG.466 Inf.5 for more information

[24] In UNEP/MED WG.466 Inf.5there is an example of the values for the EU context.

in hand and should be boosted equally for effective switch to alternatives. Furthermore, this may represent an economic opportunity for the countries since often an important share of plastic bags is imported. A controversial issue may be the type of alternatives that should be promoted in response to the reduction/ban of SUPB.[25] There is not a one-fits-all solution. A good approach may be to use a Life Cycle Analysis (LCA) approach to compare the different options. A general conclusion for LCA of alternatives to SUPB, including paper, woven polypropylene, compostable bags, is that it strongly depends on how many times the bags are reused. Furthermore, a limitation of LCA is to account for the economic cost of the leakage of plastic bags into the environment due to the difficulty to establish such costs. Bearing this in mind, the more potential for reuse of a particular option, the least impact it may have. Hence, the notion of reusability must be key when putting forward alternatives to SUPB. Furthermore, it should be considered that different options will respond to particular uses of SUPB, in a way that a certain alternative does not exclude any other.

26. Citizens may be reluctant to switch to alternatives for different reasons, mainly due to habits and higher prices. For this, it is needed a continuous communication on the benefits of using alternatives to SUPB and negative effects of the latter. At the start of implementing policy measures, alternatives may be subsidised with funds originated by ecotaxes to boost change.

27. Plastic bags with a minimum thickness (e.g. 50 microns) may be considered reusable bags, and thus alternatives to SUPB. In order to avoid legal bypass or promote options that are not safer for the environment, it is of utmost importance to set norms and labels for these alternatives, which guarantee minimum requirements for such bags.

28. Finally, the promotion of a particular alternative should consider the end-of-life phase in order to prevent harmful options to develop. This is particularly important for compostable bags, which are often referred as biodegradable bags and considered as one of the main alternatives to SUPB. However, important considerations should be made. On the one hand, irrespective of the material, these bags are single-use which implies impacts in terms of production.

29. As for final disposal, these bags are designed to biodegrade under industrial composting conditions, and thus a waste management system where organic waste is separated and treated is needed. In the absence of this system, compostable bags will have the same fate as conventional bags, therefore they will not solve the problem of plastic leakage into the marine environment nor in land. Currently, there is not any plastic material, whether it is made from fossil resources or bio-based, that allows for biodegradation in the natural environment within a reasonable period of time. In addition, due to their low thickness, these bags have a short life span, meaning that they easily fragment in smaller pieces, which in turn may exacerbate the problem of removal and contribute to the generation of microplastics.

30. In case the bio-waste management system is in place, the legal framework should require that these bags to be in conformity with biodegradable standards (e.g. EN 13432) to avoid false claims on biodegradability. In order to check the compliance with standards and norms, countries should ensure that appropriate human and technical resources are available to test biodegradable plastics. Capacity building and exchange could be promoted across countries.

31. In any case, it seems necessary to build governmental and citizens' capacity and understanding in relation to the notions of biodegradability, since there are clear misconception and misunderstandings in many of the countries. Annex V includes clear explanation of the most relevant concepts.

[25] See UNEP/MED WG.466 Inf.5 for more information

32. Finally, clear information for the population on the final disposal of these bags is needed since compostable bags might be perceived as an environmental harmless option; thus misleading behaviour and resulting in increased littering. In addition, the mix of compostable with conventional plastic may lead to problems in mechanical plastics recycling.

3.2. Adoption and implementation of a policy option (step 4)

33. After these preliminary steps, the policy option could be adopted and implemented, in consultation with the main concerned stakeholders. It should be noted that initiatives at a national level play an important role, including pilot projects which later on could be scaled up. As explained in Chapter 2, there are three main categories of options but the selected one may be a combination of them or a progression from "soft" to "hard" policy.

34. **Promote voluntary agreements with retailers:** There are two main options within these agreements: (i) to stop free distribution of bags (regardless of their thickness or even the material) and (ii) to stop distributing SUPB. For this, the government authority can take the lead and count on associations of retailers as main counterparts. Other stakeholders should be invited to negotiation meetings such as plastic bag producers and consumers' organizations. The voluntary agreement should include additional actions such as awareness raising campaigns targeting customers or adaptation of the retail premises to accommodate alternatives to SUPBs (e.g. making available a safe space for shopping trolleys or letting customers shop with their own bags and other containers). A master template for such agreements is provided in Annex I.

35. Voluntary agreement may be applied to ultra-thin plastic bags, which are often out of the scope of compulsory charges, so the supermarkets can commit to take action against them, either by charging them or promoting alternatives.

36. However, in countries where the vast majority of the groceries sector is concentrated in small shops, additional measures are advised to reach that consumption model. In any case, voluntary agreements seem to be a convenient way to start reducing consumption, raising consumers' awareness to persuade them to start switching to SUPBs alternatives and without major disruption for businesses.

37. **Implement regulatory economic instruments:** There are two main approaches for adopting legally backed economic instruments.

38. The first option consists of imposing compulsory charges to SUPB. It represents a legal enforcement of the voluntary agreement, meaning that the funds raised by this charge are kept by the retail sector. The government authority may decide on setting certain requirements for the retail sector, including:

- The types of plastic which are charged, generally defined by material and thickness;
- The bags that are exempted of the scope of the charge, e.g. ultralight plastic bags for weighting bulk products;
- Whether the retailers have flexibility in terms of price per plastic bag, or a minimum or fixed price is set for all retailers;
- To clearly indicate the price of the bag in the customers' bill; and
- To report on the amounts of bags being sold.

39. A master template for this kind of regulatory economic instrument is included in Annex II to the present document.

40. The second option, referred as a tax or ecotax, entails setting-up a tax recovery system where retailers are obliged to report on the number of plastic bags being sold and the associated revenues raised. These revenues may be allocated to the general budget of the government or to a new or existing environmental fund, which could fund waste prevention, collection and recycling, which in turn would create jobs. The funds could be also allocated to the adaptation of SUPB industry. For this, collaboration with the administration in charge of finance is essential to assess the feasibility of such instrument and agree on an implementation roadmap. The whole process should be transparent to both retailers and consumers, conveying the "polluter pays" principle and message.

41. When implementing this tax, the government may consider the following elements:

- The physical or legal person that is subject to report and pay the fee;
- The types of plastic bags which are charged, generally defined by material and thickness;
- The amount to be levied per plastic bag;
- To clearly indicate the price of the bag in the customers' bill;
- The tax collector entity;
- How to proceed with the report and payment, including templates and calendar;
- The inspection procedure; and
- The sanctions resulting from non-compliance.

42. In both cases, it is important to find out how much consumers are willing to pay, so the charge is big enough to change behaviour while considering the community's buyer power. Another positive aspect of these instruments is that industry can progressively adapt, even get support through collected tax, and may not be so reluctant to this policy option being taken.

43. Another important element is to properly target all plastic bags considered as single-use, including those used for delivery service, in order to overcome possible by-passes. An option may be to charge all type of (plastic) bags to avoid overconsumption of non-charged ones.

44. However, a limitation of this option may be the application of the charge in contexts where small shops and even informal sector are notable, in a way that it may jeopardize implementation in larger commerce establishments.

45. A master template for this kind of regulatory economic instrument is included in Annex III.

46. Adopt a ban: There are several types of bans on the production and consumption of SUPB. When deciding on the specific approach, a key aspect to bear in mind is the type of alternatives being put forward (see Step 3). A wise approach, taken by many countries, is to promote reusable bags, regardless of the material, as well as permitting plastic bags for specific uses (e.g. waste collection, agriculture, industry, etc.). In the context where there is a bio-waste management system in place, compostable bags may be permitted as well.

47. In order to clearly determine which bags are permitted or not, the legal instrument must include the following information:

- Definition of single-use plastic bag, in terms of material, and minimum thickness/grammage and volume. This type of bag is then the target of the ban. Plastic bags that are above a certain

thickness/grammage threshold will be considered as multi-use or reusable bags and thus permitted.

- Exceptions to the ban, which may include:
  - certain applications such as industrial bags;
  - ultra-thin bags used to weight products in bulk; and
  - compostable bags.
- Labelling of the bags that are permitted in the country, often referred to adopted norms.
- System of penalties.

48. In addition, the legal texts often include the following information:

- The need to inform public authorities on the number of bags being sold. In some cases, registries of producers are established.
- Need to include bio-source content for permitted compostable bags.

49. The legal text might consider addressing the exceptions in the longer term, thus having different implementation periods. This might be the case for ultra-thin bags, which may be required to be compostable in the long term or just phased-out. In order to monitor and check the conformity with the law, the legal instrument may require the exceptions to the ban to have specific labelling, often according to standard and norms. This is particularly important for compostable bags, often required to be in conformity with EN 13432 or equivalent. For the other permitted bags, it may be needed to develop norms in case they do not exist yet. This allows for setting a clear a state of play and avoiding false claims. In any case, inspection authorities will need the means for verification.

50. In addition, there is the possibility to combine the ban with an economic disincentive to avoid overconsumption of some alternatives (e.g. paper and compostable bags). In terms of enforcement, it is necessary to adopt inter-institutional arrangements for the control and surveillance of ban implementation. A key aspect is to control the illegal production and import of plastic bags, which may represent an important burden on the public administration. In some cases, the control of the import of the raw material by a special procedure may be needed to fight against illegal manufacturing within the country.

48. A master template to develop a tailored made ban according to national context is included in Annex IV to the present document.

3.3. Accompanying measures (steps 5, 6, 7 and 8)

49. Step 5: Incentives to industry**:** This is especially important in the case of ban, but also in the case of charges, in order to bring the industry on-board. Eco-taxes could provide the funds for these incentives. Opportunities and guidance should be given to switch SUPBs producers to durable plastic applications or other product materials. Once the priorities have been set to promote certain alternatives to SUPB, options for upgrading their production capacity include: tax rebates, research and development funds, technology incubation, public-private partnerships, support to projects that recycle disposable items and turn waste into an alternative to SUPB, and reduction/abolishment of taxes on the import of material used to make alternatives.

50. In the case of bans, it might be needed to financially support the adaptation of SUPB producers to other options or businesses. For this, a plan should be elaborated, identifying the type of businesses that could benefit from public funds. The potential public grant to a specific company may be based on the contribution of SUPB to its annual turnover. Once the

businesses are identified, they could be invited to request funds by submitting an adaptation plan, which may be evaluated by experts. Alternatively, public aid could provide expertise for these companies so they are advised on best ways to adapt.

51. In the case of important presence of informal economy in the plastic bags industry, this informal sector should also be supported in phasing-out SUPB. A public funded programme could be established to offer other income sources such as grouping in cooperatives and training on the production of alternatives.

52. Step 6: Upgrade the waste management system**:** Eco-taxes are of great support in raising funds to enhance collection, recycling and final waste treatment, which are key to avoid plastic bags ending up as marine litter. Even if SUPB are eradicated, it should be considered that reusable bags are often made out of plastic (polypropylene, nylon, etc.), and thus their collection and recycling should be promoted to avoid improper disposal. In any case, further collaboration between producers and recyclers should be boosted to ensure higher recycling rates. This might be supported by including these bags within packaging EPR scheme in the country, if they exist, or to promote the adoption of such EPR schemes.

53. At a later stage, if compostable bags are regarded as a preferred alternative, the system should evolve to collect and treat bio-waste separately. Given the high organic waste proportion in many countries in the region, pilot projects on domestic and industrial composting could be implemented to assess the feasibility to extend the system to the entire country. This should be regarded as a necessary condition before legally promoting composting bags.

54. Step 7: Communication and participation**:** The policies to phase out the production and use of SUPB have proven to be a very sensitive issue. In fact, they play an important role in our daily life. For this reason, it is important to actively communicate and engage citizens and stakeholders in any policy being made at this regard. This communication could be based in the positive effects of switching towards reusable bags in terms of money savings on a short-term, compared to continuous SUPB purchase, rather than on general messages on the negative effects of plastic bags.

55. Step 8: Review and adapt**:** All policy measures should include a monitoring system to know how the production and consumption of bags and other options evolve over time. For example, plastic bags producers may be required to report in a given time period about the production and destination of their products. These provisions are often part of the policy instruments and are described above. Based on this, if the objectives are not met, a review should be made to improve implementation or adopt additional measures.

Appendix 1
Master template for
voluntary agreements in the retail sector

Note:
This Annex presents a master template to elaborate a voluntary agreement for the reduction of single-use plastic bags in the retail sector. Each chapter of the text of the agreement is explained in italics, and some specific wording is proposed. Text in brackets may be customized according to parties' needs.
Two real examples, corresponding to Tunisia and Spain (region of Catalonia) can be consulted here: *https://arc.fastfolder.net/index.php/s/FPV2NyNauHC9J3x*

Voluntary agreement for the reduction of plastic bags [in the retail sector]

The agreement might be with parties other than the retail sector, such as producers and civil society organizations

[Date]

It might be placed at the end, as appropriate

BETWEEN

Identification of each of the signatory parties, as well as the legal representative, and including information such as address, identification number, and other details as appropriate. Often, the first party is a public authority as a promoter of the agreement. The other parties may be associations of private entities (e.g. retail associations, commerce associations, etc.)

[Party 1]
[Party 2]
[…]
Whereas:

Ascertainment on the issue of plastic bags according to the national context and roles of the signatories. It should particularly contain information on the production and use of plastic bags in the country, as well as any relevant initiative that have addressed this issue and consultation meetings prior to the agreement. A number of statements are provided herewith as examples.

- Plastics are one of the main materials of the modern economy due to their multiple properties, applications and low cost. Their use has been growing exponentially since the 50s and it is expected to double in the next 20 years.
- Single-use plastic bags have become an icon of plastic pollution and linear economy approach. The leakage of bags into the environment poses threats not only to biodiversity but also to the society, by hampering economic development and affecting public health.
- Single-use plastic bags rank among the most commonly found marine litter items in the Mediterranean Sea. The Regional Plan on Marine Litter Management in the Mediterranean, adopted by all the Contracting Parties to the Barcelona Convention in 2013, urges national authorities, among others, to take action to reduce single-use plastic bags.
- According to the study [xxx] the consumption in [xxx] is estimated in [xxx] bags/person/year.
- [Party 1] implements the [name of a policy framework/instrument that may address plastic bags waste, such as national waste plans].
- […]

Have adopted the following

AGREEMENT:

Chapter 1. Subject matter

The target of the agreement should be clearly identified. It should include the objectives of the agreement, reduction target and timing. The following wording is proposed as a basis. In the case that the agreement seeks to remove all single-use plastic bags from the supermarkets, an alternative wording is proposed

The following Agreement aims at establishing a cooperation framework among the signatories with the ultimate goal of correcting the excessive and unnecessary use of single-use plastic bags, defined as those which wall thickness is below [50-40] microns. The focus is on those that have handles, generally used as shopping carrier bags.
[The Agreement seeks to achieve a reduction of single-use plastic bags of [xx]% by 20[xx], respect to baseline situation in the year 20[xx].]
[The Agreement seeks to achieve the eradicate the distribution of single-use plastic bags in supermarkets as for [date].]

Chapter 2. Commitments by the signatories

This section identifies specific tasks for each of the signatories. It can reflect the commitments by the promoter (public authority) and the other signatories (often private organisations). A number of commitments are suggested as example.

The [name of the public authority] commits to:

- Prepare and implement a communication plan to disseminate the objectives and actions of the Agreement.
- Provide technical, institutional and communication support to the actions taken by the signatories of the agreement for the reduction of single-use plastic bags.
- To authorize the businesses/associations signatories of the agreement to use the logo of the [name of the public authority] to implement a campaign on the reduction of single-use plastic bags.
- Participate in the Steering Committee of the Agreement to follow up the results and propose new actions.

The signatory parties commit to:

- Promoting their associates to become members of the Agreement.
- Actively participate at the Steering Committee of the Agreement, informing the public authorities on the results achieved by the member entities.
- Participate in the design of measures and the indicators to implement them.
- Promote that their associates study the opportunities to reduce the number of single-use plastic bags and assess the feasibility of alternative measures.
- Member associates select a programme of measures to reduce the use of single-use plastic bags according to the characteristics of the commerce. The Appendix I provides examples of possible actions that might the taken by the associate members.
- Use the logo of the [name of the public authority] in the campaign to reduce single-use plastic bags, with prior conformity of the [name of the public authority] of the communication materials.

Chapter 3. Mechanisms to become member of the Agreement

The Agreement may be open to other stakeholders to become members, thus engaging more parties than the signatories.

The companies, individually or collectively under an association, may join the Agreement during its validity.
They will have to address the form presented in Appendix II to the [name of the public authority], including information on concrete actions to reduce single-use plastic bags.
The [name of the public authority] will inform the Steering Committee of the Agreement on the new members and the proposed measures will be evaluated within this committee.

Chapter 4. Validity

It may be stated a time horizon to achieve the expected result, or it might be left open until the achievement of the results. Both wordings are included as example.

[The validity of this Agreement will be of [x] years after the date of signature, and it is extendable by agreement of the signatories.]

[The agreement is valid until the achievement of the expected results or until the signatories decide otherwise.]

Chapter 5. Follow up and assessment

The means to follow up the implementation and results of the agreement may be established in this chapter, including the intervening parties and calendar. A steering committee may be established for this purpose. The following wording is suggested as example.

A Steering Committee is established to follow up and assess the achievements of the Agreement. It is composed of [one or more representatives] [the delegates] of the signatory parties.
The Steering Committee will meet at least [x] times per year with the following objectives:

- Proposal and follow up of the actions and measures to achieve the objectives of the Agreement.
- Definition of the indicators that allow for determining the achievement of the results of the Agreement.
- Evaluation and communication of the results obtained by the measures, safeguarding confidentiality of the businesses members.
- Inform on the new members joining the Agreement.

Final provisions for the adoption of the Agreement. The following wording is proposed.

And as proof of conformity, all parties formalize the Agreement in the place and date aforementioned.

[signature and identification of Party 1] [signature and identification of Party 2]

[signature and identification of Party x] […]

Appendix I. Examples of actions to implement to achieve the objectives of the Agreement

The appendix may stablish the rationale of the different measures that could be implemented as well as specific actions that may facilitate the adoption by the members of the agreement. Wording is proposed as it follows.

The following measures have the following rationale:

- Orientation of the choices towards more sound systems from the environmental, economic and social perspective.
- The respect to consumers' choice, regardless of the promotion of environmental public awareness.
- Incentivize the economic sector that offers bags or other means to adjust its offer to a new social demand, avoiding unique options that reduce the choice and the research of other solutions.
- Each of the measure should have associated indicators in terms of prevention and reuse that allow for assessing the achieved results.

Proposal of measures:

- Awareness campaigns for the reuse and recycling of plastic bags.
- Making space available to promote the use of shopping trolleys.
- Mechanisms to control and limit distributed bags.
- Include in the offer reusable freezer bags.
- Stop the delivery of single-use plastic bags
- Include in the offer reusable bags of different materials (tissue, paper or plastic) and capacity.
- Include in the offer reusable cardboard boxes
- Allow customers to enter the establishment with their own bags and other means.
- Use economic instruments by charging a fee on single-use plastic bags or offering discounts to customers that opt for reusable options.

Appendix II. Commitment to become a member of the Plastic Bag Agreement

The following form is proposed to invite stakeholders to become members of the Agreement and implement specific actions. The following wording is proposed.

[place] [date]
Mr/Mrs _____, acting as representative of the company/association _____ with address _____ in _____.

STATES:

- The voluntary commitment of the company/association _____ to become member of the Agreement established by [Party 1], Party [2], […] and […] to reduce single-use plastic bags.
- To be aware and acceptance of the objectives, rights and duties resulting from the aforementioned agreement.
- In order to attain the objectives of the Agreement, the company/association _____ commits to implement in the commercial premises the following actions[26]:
    - […]
    - […]
    - […]

And as proof of commitment, this document is signed in the place and date aforementioned.

[Signature of the representative]

[26] See examples in Appendix I

Appendix 2
Master template
for Regulatory economic instrument:
compulsory charges on plastic bags

ANNEX II. MASTER TEMPLATE FOR REGULATORY ECONOMIC INSTRUMENT: COMPULSORY CHARGES ON PLASTIC BAGS

Note:
This Annex presents a master template to elaborate a regulatory economic instrument to impose compulsory charges on the distribution of single-use plastic bags. There might be two approaches to pass this economic instrument:

- *to embed/add this provision within a larger or existing legal instrument, such as a framework waste law; or*
- *to enact a specific legal instrument*

Each chapter of the text of the legal instrument is explained in italics, and some specific wording is proposed. Text in brackets may be customized according to instrument promoter's needs.
Two real examples, corresponding to Spain (State scope) and Spain (region of Catalonia scope) can be consulted here: https://arc.fastfolder.net/index.php/s/FPV2NyNauHC9J3x

FOREWORD

This section may contain information regarding the motivation and background for enacting/adding the provisions detailed hereinafter, as well as the process of consultation and approval. This will fully depend on each national context.

Article 1. Objective

This article may state the aim of the legal instrument. Generally, the objective of reducing the consumption of plastic bags should be addressed. The following wording is provided as example.

This [name of the legal instrument] aims at adopting measures to reduce the consumption of plastic bags in order to prevent and reduce the negative impacts that related plastic waste pose on the environment, economy and society.

Article 2. Scope of application

This article may determine the geographical and administration area where the provisions are applied. The following wording is proposed.

This [name of the legal instrument] concerns all plastic bags being put in the market in the territory of [name of the country].

Article 3. Definitions

Further to other definitions contained in previous legal instruments, this article may clearly identify the bags that are subject to the provisions of the legal instrument, as well as those that are exempted. Definitions are provided for the main types of bags, others should be included as appropriate. As for the definition of single-use and ultra-light plastic bags, based on international experience, it is recommended to use a threshold of 40-50 microns and 15-20 microns respectively.

[Reference to any existing legal instruments containing relevant definitions for the scope of this legal instrument]

a) "plastic": generic term used in the case of polymeric material that may contain other substances to improve performance or reduce costs;
b) "plastic bags": bags, with or without handles, made out of plastic, that are provided to consumers in goods and products selling points;
c) "single-use plastic bags": light plastic bags, considered as those having a wall thickness below [xx] microns;
d) "cashier bags": bags that are provided, paid or free of charge, at the cashier selling points as means to carryout grocery products;
e) "ultra-light plastic bags": plastic bags which wall thickness is below [xx] microns, which are necessary for hygiene reasons, or which are provided as primary packaging for bulk products such as fruits, vegetables, meat, poultry or fish, among others, when the use supports the prevention of food waste;
f) "oxo-degradable plastic bags": bags made out of conventional plastic materials with artificial additives that fragment into small pieces.
g) "compostable plastic bags": bags made out of plastic capable to decompose in aerobic environments that are maintained under specific controlled temperature and humidity conditions.

Article 4. Measures to reduce plastic bags

This section may include the specific measures to avoid free distribution of plastic bags as well as the starting implementation date. Different phases and different actions (e.g. bans, which are not addressed in this template) may be considered to target the aforementioned types of plastic bags, as well as the exceptions. An example is provided which should be adapted to the national policy strategy.

As from [date]:

a. It is forbidden the free distribution of plastic bags at the selling points of goods and products, [with the exception of ultra-light plastic bags] [with the exception of compostable bags] […].
b. [The merchants must charge [xx national currency] for each plastic bag provided to customers.] [The merchants must charge a fee for each plastic bag provided to customers of at least [xx national currency].] [The merchants must charge a fee for each plastic bag provided to customers]
c. Merchants will inform the consumers on the price of the plastic bags, exposing it in a visible place.
d. Merchants will include the plastic bag and price in the bill as a separate grocery product.

Article 5. Labeling of plastic bags

In the event compostable bags are exempted from the fee, a specific labelling should be needed for those bags, often referring to a national or international norm. For other bags, whether they are paid or free of charge, additional labelling conditions may be set. The following wording provides examples.

1. Compostable bags must include the label that indicates that it can be composted according to the norm [xxxxx] and that they can be disposed in specific bio-waste containers.
2. Plastic bags must include the label that indicates that they can be recycled and that they can be disposed in specific containers.

Article 6. Sanctions

The type of incompliance and related sanction may be specified or referred to an existing legal document.

Appendix 3
Master template for
Regulatory economic instrument: tax

Note:
This Annex presents a master template to elaborate a regulatory economic instrument to enact a tax (often referred as eco-tax) on the distribution of plastic bags at the point of sale.
Each chapter of the text of the legal instrument is explained in italics, and some specific wording is proposed. Text in brackets may be customized according to instrument promoter's needs.
Two real examples, corresponding to Ireland and Bosnia and Herzegovina:
https://arc.fastfolder.net/index.php/s/FPV2NyNauHC9J3x

FOREWORD

This section may contain information regarding the motivation and background for enacting/adding the provisions detailed hereinafter, as well as the process of consultation and approval. This will fully depend on each national context.

Article 1. Objective

This article may state the aim of the legal instrument. Generally, the objective of reducing the consumption of plastic bags should be addressed. The following wording is provided as example.

This [name of the legal instrument] aims at adopting measures to reduce the consumption of plastic bags in order to prevent and reduce the negative impacts that related plastic waste pose on the environment, economy and society.

Article 2. Definitions

Further to other definitions contained in previous legal instruments, this article may clearly identify the bags that are subject to the tax, as well as those that are exempted. Definitions are provided for the main types of bags, others should be included as appropriate. Wording may be slightly changed to accommodate the specificities on which the tax will apply. As for the definition of single-use and ultra-light plastic bags, based on international experience, it is recommended to use a threshold of 40-50 microns and 15-20 microns respectively.

[Reference to any existing legal instruments containing relevant definitions for the scope of this legal instrument]

a) "plastic": generic term used in the case of polymeric material that may contain other substances to improve performance or reduce costs;
b) "plastic bags": bags, with or without handles, made out of plastic, that are provided to consumers in goods and products at points of sale;
c) "single-use plastic bags": light plastic bags, considered as those having a wall thickness below [xx] microns;
d) "reusable plastic bags": plastic bags made to be used more than once, considered as those have a wall thickness above [xx] microns;
e) "cashier bags": bags that are provided, paid or free of charge, at the cashier selling points as means to carryout grocery products;
f) "ultra-light plastic bags": plastic bags which wall thickness is below [xx] microns, which are necessary for hygiene reasons, or which are provided as primary packaging for bulk products such as fruits, vegetables, meat, poultry or fish, among others, when the use supports the prevention of food waste;
g) "oxo-degradable bags": bags made out of conventional plastic materials with artificial additives that fragment into small pieces.

h) "compostable plastic bags": bags made out of plastic capable to decompose in aerobic environments that are maintained under specific controlled temperature and humidity conditions.

Article 3. Scope of application

This article may determine the geographical and administration area where the provisions are applied. It may establish the starting date to implement the tax, as well as on which items and who is liable for paying it. As for reusable bags, even if they are not levied, they might be charged to avoid overconsumption. The following wording is proposed.

1. This [name of the legal instrument] concerns single-use plastic bags distributed at points of sale in the territory of [name of the country].
2. As for [date] there shall be charged in respect of the supply to customers, at the point of sale to them of goods or products to be placed in single-use plastic bags in or at any shop, supermarket, service station or other sales outlet.
3. An accountable person shall be accountable for and liable to pay the levy.
4. The amount of the charge shall be [xx national currency] for each plastic bag.
5. The following classes of plastic bags are excepted from the tax:
    a. [Ultra-light plastic bags]
    b. [Reusable plastic bags sold to customers for a sum of not less than [xx national currency].
6. Where single-use plastic bags are charged by an accountable person, it should be itemised on any invoice, receipt or docket issued to the customer.

Article 3. Collection of the tax

This article may determine who and to whom the tax should be paid, including the time period and reporting format.

1. The [administration of finance] […] shall be the collection authority to whom the tax shall be payable.
2. The tax should be paid [time period] per year, according to the number of plastic bags commercialised by the accountable person.
3. The tax payer should submit a proof of payment along with the report as per Article 4, [number] days following the end of an accounting period.

Article 4. Registry and reports

This section may include how the entities subject to the tax should keep record of the plastic bags being sold and how this should be reported to the tax collection authority.

1. The accountable person shall keep record for the quantities of plastic bags purchased, the consumption of plastic bags and the state of the stock for those subject to the tax, as well as submitted reports and proofs of payments.
2. The accountable person shall keep record of those plastic bags being used that are not subject to the tax.
3. The accountable person will submit to the [collection authority] a report detailing the number of commercialised plastic bags, by using the form in Appendix I, and proof of payment.

Article 5. Inspection and sanctions

The type of incompliance and related sanction may be specified, or referred to an existing legal document. The non-submission of reports and proofs of payments shall be considered as non-compliance and shall imply monetary sanctions.

1. The supervision for the implementation of the [name of the legal instrument] is [name of the inspection authority].
2. The non-compliance by the accountable person of the reporting and payment provisions shall be sanctioned with [national currency].

Appendix I. Report of commercialised bags

Time period	Number of bags purchased subject to the tax	Number of bags commercialised subject to the tax	Tax levied per unit	Total tax revenue	Number of bags purchased not subject to the tax	Number of bags commercialised not subject to the tax
1st semester 20xx	xxxx	xxxxxx	xx	xxxxxx	xxxx	xxxxxx
2nd semester 20xx	xxxx	xxxxxx	xx	xxxxxx	xxxx	xxxxxx
…		…	…	…		…

Appendix 4
Master Template for Command and Control Instruments: BAN

Note:

This Annex presents a master template to elaborate a legal instrument to ban single-use plastic bags. Despite existing different approaches, for this template the ban includes manufacturing, import, distribution and use.

Each chapter of the text of the legal instrument is explained in italics, and some specific wording is proposed. Text in brackets may be customized according to instrument promoter's needs.
Four real examples, corresponding to Spain, France, Morocco and USA (State of California) can be consulted here: https://arc.fastfolder.net/index.php/s/FPV2NyNauHC9J3x

FOREWORD

This section may contain information regarding the motivation and background for enacting/adding the provisions detailed hereinafter, as well as the process of consultation and approval. This will fully depend on each national context.

Article 1. Objective

This article may state the aim of the legal instrument.

This [name of the legal instrument] determines de types of plastic bags that are permitted in the territory of [name of the country], including the [manufacturing], [import], [distribution] and [use].

Article 2. Definitions

Further to other definitions contained in previous legal instruments, this article may clearly identify the bags that are subject to the provisions of the legal instrument, as well as those that are exempted. Definitions are provided for the main types of bags, others should be included as appropriate. As for the definition of single-use and ultra-light plastic bags, based on international experience, it is recommended to use a threshold of 40-50 microns and 15-20 microns respectively.

a) "plastic": generic term used in the case of polymeric material that may contain other substances to improve performance or reduce costs;
b) "plastic bags": bags, with or without handles, made out of plastic, that are provided to consumers in goods and products selling points;
c) "single-use plastic bags": light plastic bags, considered as those having a wall thickness below [xx] microns;
d) "cashier bags": bags that are provided, paid or free of charge, at the cashier selling points as means to carryout grocery products;
e) "ultra-light plastic bags": plastic bags which wall thickness is below [xx] microns, which are necessary for hygiene reasons, or which are provided as primary packaging for bulk products such as fruits, vegetables, meat, poultry or fish, among others, when the use supports the prevention of food waste;
f) "oxo-degradable bags": bags made out of conventional plastic materials with artificial additives that fragment into small pieces.
g) "compostable plastic bags": bags made out of plastic capable to decompose in aerobic environments that are maintained under specific controlled temperature and humidity conditions.

Article 3. Measures

This section shall contain the provisions to ban specific types of plastic bags. Different phases and different actions may be considered to target the aforementioned types of plastic bags, as well as the exceptions. An example is provided which should be adapted to the national policy strategy.

1. As from [date]:
    a. [Single-use plastic bags to manufacturing, import, distribution and use is forbidden, [with the exception of compostable bags.] [It is forbidden to distribute single-use plastic bags to customers at the points of sale, [with the exception of compostable bags].]
    b. [It is forbidden to distribute oxo-degradable plastic bags to customers at the points of sale.]
    c. [Other types of bags distributed at the point of sale must have a minimum charge of [national currency.]

2. As from [date]:
    a. [The distribution of ultra-light plastic bags is forbidden, unless they are compostable.]
    b. [Re-usable bags must have a minimum [xx]% of recycled material.]

Article 4. Labelling

In the event compostable bags are exempted from the fee, a specific labelling should be needed for those bags, often referring to a national or international norm. For other bags, whether they are paid or free of charge, additional labelling conditions may be set. Additional provisions may be set for permitted bags. The following wording provides examples.

1. Permitted bags shall include the name of the manufacturer/importer, as well as manufacturing date.
2. The material, dimensions, volume and thickness.
3. Compostable bags must include the label that indicates that it can be composted according to the norm [xxxxx] and that they can be disposed in specific bio-waste containers.
4. Permitted plastic bags must include the label that indicates that they can be recycled and that they can be disposed in specific containers.
5. Re-usable bags must indicate the % of recycled content.

Article 6. Sanctions

The type of incompliance and related sanction may be specified or referred to an existing legal document.

Appendix 5
Terminology

Plastic: Material consisting of any of a wide range of synthetic or semi-synthetic organic compounds that are malleable and so can be molded into solid objects. Plastics are typically organic polymers of high molecular mass and often contain other substances. They are usually synthetic, most commonly derived from petrochemicals, however, an array of variants are made from renewable materials such as polylactic acid from corn or cellulosics from cotton linters.

Bio-plastic: The term bio-plastic is a term used rather loosely. It has been often described as comprising both biodegradable plastics and bio-based plastics, which may or may not be biodegradable. To avoid confusion, it is suggested that the description "bio-plastic" is qualified to indicate the precise source or properties on the polymer concerned.

Bio-based plastics: Bio-based plastics are derived from biomass such as organic waste material or crops grown specifically for the purpose. Some polymers made from biomass sources, such as maize, may be non-biodegradable.

Common definitions regarding the biodegradation of polymers

Degradation: The partial or complete breakdown of a polymer as a result of e.g. UV radiation, oxygen attack, biological attack. This implies alteration of the properties, such as discolouration, surface cracking, and fragmentation.

Biodegradation: Biological process of organic matter, which is completely or partially converted to water, CO_2/methane, energy and new biomass by microorganisms (bacteria and fungi). The conditions under which "biodegradable" polymers will actually biodegrade vary widely. For example, a single-use plastic shopping bag marked 'biodegradable' may require the conditions that commonly occur only in an industrial composter (e.g. 50°C) to breakdown completely into its constituent components of water, carbon dioxide, methane, on a reasonable or practical timescale.

Mineralisation: In the context of polymer degradation, it refers to the complete breakdown of a polymer as a result of the combined abiotic and microbial activity, into CO_2, water, methane, hydrogen, ammonia and other simple inorganic compounds.

Biodegradable: Capable of being biodegraded.

Compostable: Capable of being biodegraded at elevated temperatures in soil under specified conditions and time scales, usually only encountered in an industrial composter (standards apply).

Oxo-degradable: Conventional polymers, such as polyethylene, which have had a metal compound added to act as a catalyst, or pro-oxidant, to increase the rate of initial oxidation and fragmentation. They are sometimes referred to as oxy-biodegradable or oxo-degradable. Initial degradation may result in the production of many small fragments (i.e. microplastics), but the eventual fate of these is poorly understood. As with all forms of degradation the rate and degree of fragmentation and utilization by microorganisms will be dependent on the surrounding environment. There appears to be no convincing published evidence that oxo-degradable plastics do mineralize completely in the environment, except under industrial composting conditions.

EN 13432: European compostability standard for biodegradable packaging designed for treatment in industrial composting facilities and anaerobic digestion, requiring that at least 90% of the organic matter is converted into CO_2 within 6 months, and that no more than 30% of the residue is retained by a 2mm mesh sieve after 3 months composting. Standard EN 14995 describes the same requirements and tests, however it applies not only to packaging but plastics in general. The same holds for ISO 18606 "Packaging and the environment – Organic Recycling" and ISO 17088 "Specifications for compostable plastics".

Annex III

Operational Guidelines on the Provision of Reception Facilities in Ports and the Delivery of Ship-Generated Wastes in the Mediterranean

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List of Abbreviations / Acronyms

EU	European Union
IMO	International Maritime Organization
MAP	Mediterranean Action Plan
MARPOL	International Convention for the Prevention of Pollution from Ships
PoW	Programme of Work
REMPEC	Regional Marine Pollution Emergency Response Centre for the Mediterranean Sea
UN	United Nations

1 INTRODUCTION

1.1 Background

1. The 18th Meeting of the Contracting Parties to the Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean ("the Barcelona Convention") and its Protocols, which was held in Istanbul, Turkey from 3 to 6 December 2013, adopted Decision IG.21/7 related to the Regional Plan on Marine Litter Management in the Mediterranean in the Framework of Article 15 of the Protocol for the Protection of the Mediterranean Sea against Pollution from Land-based Sources and Activities (LBS Protocol) to the Barcelona Convention, hereinafter referred to as the Marine Litter Regional Plan (UNEP(DEPI)/MED IG.21/9).

2. According to Article 9(5) of the Marine Litter Regional Plan, in conformity with the objectives and principles thereof, the Contracting Parties to the Barcelona Convention shall, in accordance with Article 14 of the Protocol concerning Cooperation in Preventing Pollution from Ships and, in Cases of Emergency, Combating Pollution of the Mediterranean Sea ("the 2002 Prevention and Emergency Protocol") to the Barcelona Convention, take the necessary steps to provide ships using their ports with updated information relevant to the obligation arising from Annex V of the International Convention for the Prevention of Pollution from Ships (MARPOL) and from their legislation applicable in the field.

3. Furthermore, according to Article 14 of the Marine Litter Regional Plan, the MAP-Barcelona Convention Secretariat in cooperation with relevant international and regional organisations, shall prepare specific guidelines taking into account where appropriate existing guidelines, to support and facilitate the implementation of measures provided for in articles 9 and 10 thereof. Subject to availability of external funds these guidelines shall be published in different Mediterranean region languages.

4. The 19th Meeting of the Contracting Parties to the Barcelona Convention and its Protocols, which was convened in Athens, Greece from 9 to 12 February 2016, adopted Decision IG.22/4 related to the Regional Strategy for Prevention of and Response to Marine Pollution from Ships (2016-2021), hereinafter referred to as the Regional Strategy (2016-2021) (UNEP(DEPI)/MED IG.22/28).

5. The Regional Strategy (2016-2021), which aims at assisting the Contracting Parties to the Barcelona Convention to implement the 2002 Prevention and Emergency Protocol, addresses the issue of marine litter in Specific Objectives 5 (Provision of reception facilities in ports), 6 (Delivery of ship-generated wastes) and 9 (To reduce the pollution generated by pleasure craft activities). It also addresses the related issue of illicit ship pollution discharges in Specific Objectives 7 (Improved follow-up of pollution events as well as monitoring and surveillance of illicit discharges) and 8 (To improve the level of enforcement and the prosecution of discharge offenders). Therefore, reducing (illegal) discharges of ship generated waste features among the priority areas of work of the Regional Marine Pollution Emergency Response Centre for the Mediterranean Sea (REMPEC) established within the framework of the Mediterranean Action Plan (MAP) of the United Nations Environment Programme (UNEP), also referred to as UNEP/MAP, with a view to coordinating the activities of the Mediterranean coastal States related to the implementation of the 2002 Prevention and Emergency Protocol.

6. The UNEP/MAP Programme of Work (PoW) 2018-2019 adopted by the 20th Meeting of the Contracting Parties to the Barcelona Convention and its Protocols, which was held in Tirana, Albania, from 17 to 20 December 2017, includes several activities addressing marine litter, including the implementation of the EU-funded "Marine Litter-MED" Project that is aimed at supporting the Contracting Parties to the Barcelona Convention from Southern Mediterranean/European Neighbourhood to implement the Marine Litter Regional Plan.

7. The EU-funded "Marine Litter-MED" Project has specific outputs on the development of a set of technical guidelines within the framework of Article 14 of the Marine Litter Regional Plan and one of its components, which is coordinated by REMPEC, focuses on measures related to the better management of marine litter from sea-based sources in ports and marinas in the Mediterranean, in particular the application of charges at reasonable costs for the use of port reception facilities or, when applicable, application of No-Special-Fee System, as well as the provision of reception facilities and the delivery of ship-generated wastes in ports and marinas in the Mediterranean.

8. In this context, REMPEC prepared the present document entitled "Operational Guidelines on the provision of reception facilities in ports and the delivery of ship-generated wastes in the Mediterranean, hereinafter referred to as "the Operational Guidelines".

1.2 Goal and scope of the Operational Guidelines

9. The Operational Guidelines look in detail at issues related to the provision of Port Reception Facilities (PRF), including the type and capacity for the different types of MARPOL wastes in the different types of ports, and the operational procedures related to the use of the PRF and the delivery of ship-generated waste. The Operational Guidelines focus on the practical steps that can help to achieve the provision of adequate PRF in ports and marinas in the Mediterranean Sea, from the point of view of the port authority.

10. It should be noted that also other wastes and residues from ships, such as ballast water sediments and residues from anti-fouling systems, can be relevant when assessing the need for PRF. However, as these types of wastes do not fall within the scope of MARPOL, wastes and residues regulated by the Ballast Water Management Convention, the Anti-Fouling Systems Convention and the London Protocol/London Convention are not covered in the present document.

1.3 Marine litter from sea-based sources

11. Marine litter in the oceans exerts numerous harmful effects on marine life and biodiversity, as well as negative impacts on human health. In addition, marine litter negatively impacts on activities such as tourism, fisheries and shipping, and material that has the potential to be brought back into the economy by means of reuse or recycling is lost once littered. There are several different categories of marine litter, with plastics being the most challenging due to its low degradability and likelihood to enter the human food chain.

12. Litter enters the marine environment through various means and from numerous different origins, including land-based and sea-based sources. The main land-based sources of marine litter include municipal landfills, riverine transport of waste from landfills and urban areas or other sources along rivers and other waterways, discharge of untreated municipal sewage, industrial facilities and tourism, particularly recreational visitors to the coast/beach.

13. The primary ocean-based sources of marine litter are merchant shipping, ferries and cruise liners, fishing vessels, particularly with respect to lost or abandoned fishing gear, military fleets and research vessels, pleasure craft, offshore oil and gas platforms, and aquaculture farms.

14. It is frequently cited that globally 80% of marine debris originates from land-based sources, and 20% from ocean-based sources, however the origins of this ratio are unclear (NOAA, 2009). Besides, the importance of these sources in terms of their contribution to the marine litter problem varies significantly regionally and locally depending on the scale of these activities in the area, as well as the policies regulating them. This means that there is significant variation in the amounts and types of debris arising from these sources regionally and locally, and indeed, seasonally[27].

[27] Unger A., Harrison N., 2016, "*Fisheries as a source of marine debris on beaches in the United Kingdom*", Marine Pollution Bulletin

15. The assessment of the trends in marine litter levels and its sources is crucial for identifying and adopting targeted measures for the different sources. In this respect, the monitoring actions in regional sea conventions, such as the OSPAR Convention, the Helsinki Convention and the Barcelona Convention, are very valuable. Monitoring is applied on uniform marine litter indicators and methods (like beach monitoring and fulmar and/or turtle stomach monitoring), which provide information on the trends in marine litter accumulation and effectiveness of measures. Furthermore, proper source identification is a key element in the monitoring programmes.

16. Although land-based sources are dominant in generating marine litter, sea-based sources actively contribute to the problem. Recent studies have shown that, although the majority of marine litter originates from land-based sources, a significant part comes from sea-based sources. This is notwithstanding the fact that garbage from ships, as listed in Annex V of MARPOL, is subject to strict rules and may not be discharged into the sea, with only few exceptions (e.g. food waste and non-harmful to the marine environment (HME) cargo residues). There is a strict ban on discharges of any plastic into the sea. Furthermore, Annex V requires that the loss of fishing gear is reported to the vessel's flag State and to the coastal State in whose waters the loss occurred.

17. Studies have indicated that in EU-waters sea-based activities, in particular shipping (e.g. lost containers) including fishing and yachting, but also offshore activities, are relevant sources of marine litter as they are responsible for an estimated EU average of 32% and values up to 50% for some sea basins[28]. Recent studies have also indicated that among the sea-based contributors to the problem of marine litter, the fishing sector features quite dominantly, with the recreational sector also taking a significant share[29]. And although garbage delivered in ports has increased since the introduction of Directive 2000/59/EC, a significant delivery gap remains, estimated between 60,000 and 300,000 tons, i.e. 7% to 34% of the total to be delivered annually.

18. In some areas, such as in certain parts of the Pacific and the North Sea**,** sea-based sources even prevail over land-based sources. Mismanaged garbage, and old and derelict fishing gear, are among the most prevalent items of (plastic) marine litter from ships.

2 REGULATORY FRAMEWORKS RELATED TO PORT RECEPTION FACILITIES

2.1 Introduction

19. As maritime and international shipping in general is a global industry, the majority of the legal and policy frameworks regarding maritime safety, pollution prevention and marine environmental protection are developed and maintained by international and intergovernmental bodies, such as the various UN agencies. However, as the origin of both the land- and sea-based legal and policy frameworks often differ from each other, also the resulting frameworks for the management of wastes that are generated onboard ships, on one hand, and requirements regarding the collection, delivery and processing of wastes generated in land-based facilities, on the other hand, also differ. In many cases, they may not even be compatible.

20. The legal and policy framework for the collection, the transport and management of wastes from ships often finds its origin in regulations that mainly focus on the collection, transport and disposal, including storage, of wastes generated at land-based sources. It is therefore more land-oriented and may not always be compatible with the legal and policy framework for operations at sea.

[28] European Commission (DG ENV) study "to support the development of measures to combat a range of marine litter resources" (Eunomia, 2016).

[29] http://www.fishingforlitter.org.uk/assets/file/Report%20FFL%202011%20-%2014.pdf; Marine Pollution Bulletin 2016 Unger et al. (2016); UNEP OSPAR (2009); Marine Litter Distribution and Density in European Seas (2014); Eunomia (2016), p.95, 30% estimate share for the fishing sector, and 19% for the recreational sector; the balance of sea-based sources is provided by the merchant sector; Arcadis (2012) has estimated a share of 65% share for the fishing sector alone

21. For maritime shipping the International Maritime Organization (IMO), as specialized agency of the United Nations, is the global standard-setting authority for the safety, security and environmental performance of international shipping. Its main role is to create an international regulatory framework for the shipping industry that is fair and effective, and universally adopted and implemented. It is therefore not a surprise that the majority of international rules and regulations regarding the environmental performance of shipping, including the onboard management of ship-generated wastes and the protection of the marine environment through the prevention of pollution by ships, originates from the IMO. Other international and regional regulatory and policy initiatives have been developed by the Basel Convention and the European Union.

22. The following table provides a visual overview of the legal framework regarding the management of ship-generated wastes and other ship-related residues at the international and regional level, in order to give an indication of the different conventions and the scope of their application.

Table 1: Overview of the legal framework at the international and regional level regarding the management of ship-generated wastes and residues

On board ships	At the sea-land interface	At land-based facilities
• United Nations Convention on the Law of the Sea (UNCLOS) • MARPOL Convention • Ballast Water Management Convention • Anti-Fouling Systems Convention • London Protocol and Convention	• MARPOL Convention • Basel Convention • Directive (EU) 2019/883	• Basel Convention • EU Waste Framework Directive 2008/98/EC

2.2 International regulatory framework

2.2.1 MARPOL Convention

23. The International Convention for the Prevention of Pollution from Ships (1973 as modified by the 1978 and 1997 Protocols), hereinafter referred to as "MARPOL", is one of the most important international conventions regulating the marine environment. It was developed by the IMO aiming to preserve the marine environment by fully eliminating pollution by operational discharges of oil and other harmful substances from ships, and to minimize accidental spillage of such substances.

24. Together with its six annexes covering pollution by oil, chemicals, harmful substances in packaged form, sewage, garbage and airborne emissions, MARPOL works as a whole: the articles mainly deal with jurisdiction, powers of enforcement and inspection, while more detailed anti-pollution regulations are contained in the annexes.

25. In general MARPOL contains provisions in order to regulate the availability of adequate Port Reception Facilities (PRF), which types of ship-generated wastes can (and as a consequence also which cannot) be legally discharged into the sea, onboard waste management, and enforcement and inspections. The MARPOL requirements regarding the availability of adequate PRF are contained in the following regulations:

- Regulation 38 of Annex I
- Regulation 18 of Annex II
- Regulations 12 and 13 (passenger ships in special areas) of Annex IV
- Regulation 8 of Annex V

- Regulation 17 of Annex VI

26. In addition to MARPOL (including its Annexes), the IMO has adopted several guidelines related to the management of ship-generated wastes, providing additional tools to all stakeholders (private and public) in order to provide good practices. These practices can be used by governments when establishing stricter national or regional requirements, but also by port authorities when organizing the collection of waste from ships.

27. Guidelines related to the management of MARPOL Annex V are:

- 2017 Guidelines for the implementation of MARPOL Annex V (Resolution MEPC.295(71))
- 2018 Consolidated guidance for port reception facility providers and users (MEPC.1/Circ.834/Rev.1)
- 2012 Guidelines for the development of Garbage Management Plans (Resolution MEPC.220(63))
- 2012 Guidelines for the development of a regional reception facilities plan (Resolution MEPC.221(63))
- 2000 Guidelines for ensuring the adequacy of port waste reception facilities (Resolution MEPC.83(44)
- 2016 IMO Manual "Port Reception Facilities – How To Do It"

2.2.2 IMO Special Areas

28. The possibility to legally discharge waste at sea is an element that can influence the delivery of ship's waste to PRF. Although MARPOL regulations have become stricter over the years, it is still allowed to – under specific conditions – discharge certain waste types at sea. These discharge criteria are included in the following regulations:

- MARPOL Annex I: Regulations 15 and 34
- MARPOL Annex II: Regulation 13
- MARPOL Annex IV: Regulation 11
- MARPOL Annex V: Regulations 4 and 6

29. Due to specific oceanographic, ecological and traffic characteristics of some sea areas, MARPOL defines certain sea areas as "Special Areas", in which the application of stricter measures for the protection of sea pollution is required. Under MARPOL, these special areas are provided with a higher level of protection than other areas of the sea.

30. It should be noted that the Mediterranean Sea is designated as a special area under MARPOL Annexes I and V. An up-to-date list of all the IMO Special Areas can be found on the IMO website (http://www.imo.org – click on Marine Environment, then Special Areas).

31. As the discharge criteria for ship-generated wastes are stricter in Special Areas, ships sailing in those areas might not meet these criteria and therefore be required to deliver their wastes to a PRF. States and port authorities should therefore take into consideration the importance of compliance in these special areas.

32. It should be noted that, outside special areas, MARPOL Annex V cargo residues that are not considered harmful to the marine environment (non-HME) can, under certain conditions, be legally discharged at sea. However, as the Mediterranean Sea is a special area under MARPOL Annex V, non-HME cargo residues (also contained in wash water) can only be discharged at sea if:

a. both the port of departure and the next port of destination are within the special area and the ship will not transit outside the special area between these ports (regulation 6.1.2.2 of MARPOL Annex V); and
b. if no adequate reception facilities are available at those ports (regulation 6.1.2.3 of MARPOL Annex V).

33. In order to protect the marine environment, it is therefore important that the governments of countries bordering the Mediterranean Sea ensure the availability of adequate PRF for the collection of MARPOL Annex V cargo residues, and notify the existence of these facilities in the IMO Global Integrated Shipping Information System database (GISIS, see also section 2.2.3).

Table 2: Summary of restrictions to the discharge of garbage into the sea under regulation 4, 5, and 6 of MARPOL Annex V and chapter 5 of part II-A of the Polar Code (source: IMO)

<table>
<tr><th rowspan="2">Garbage type[1]</th><th colspan="2">All ships except platforms[4]</th><th rowspan="2">Regulation 5
Offshore platforms located more than 12 nm from nearest land and ships when alongside or within 500 metres of such platforms[4]</th></tr>
<tr><th>Regulation 4
Outside special areas
(Distances are from the nearest land)</th><th>Regulation 6
Within special areas
(Distances are from nearest land or nearest ice-shelf)</th></tr>
<tr><td>Food waste comminuted or ground[2]</td><td>≥3 nm, en route and as far as practicable</td><td>≥12 nm, en route and as far as practicable[3]</td><td>Discharge permitted</td></tr>
<tr><td>Food waste not comminuted or ground</td><td>≥12 nm, en route and as far as practicable</td><td rowspan="2">Discharge prohibited</td><td>Discharge prohibited</td></tr>
<tr><td>Cargo residues[5, 6] not contained in wash water</td><td rowspan="2">≥ 12 nm, en route and as far as practicable</td><td rowspan="2">Discharge prohibited</td></tr>
<tr><td>Cargo residues[5, 6] contained in wash water</td><td>≥ 12 nm, en route and as far as practicable (subject to conditions in regulation 6.1.2 and paragraph 5.2.1.5 of part II-A of the Polar Code)</td></tr>
<tr><td>Cleaning agents and additives[6] contained in cargo hold wash water</td><td rowspan="2">Discharge permitted</td><td>≥ 12 nm, en route and as far as practicable (subject to conditions in regulation 6.1.2 and paragraph 5.2.1.5 of part II-A of the Polar Code)</td><td rowspan="2">Discharge prohibited</td></tr>
<tr><td>Cleaning agents and additives[6] in deck and external surfaces wash water</td><td>Discharge permitted</td></tr>
</table>

Garbage type[1]	**All ships except platforms**[4]		**Regulation 5 Offshore platforms located more than 12 nm from nearest land and ships when alongside or within 500 metres of such platforms**[4]
	Regulation 4 Outside special areas (Distances are from the nearest land)	**Regulation 6 Within special areas** (Distances are from nearest land or nearest ice-shelf)	
Animal Carcasses (should be split or otherwise treated to ensure the carcasses will sink immediately)	Must be en route and as far from the nearest land as possible. Should be >100 nm and maximum water depth	Discharge prohibited	Discharge prohibited
All other garbage including plastics, synthetic ropes, fishing gear, plastic garbage bags, incinerator ashes, clinkers, cooking oil, floating dunnage, lining and packing materials, paper, rags, glass, metal, bottles, crockery and similar refuse	Discharge prohibited	Discharge prohibited	Discharge prohibited

1 When garbage is mixed with or contaminated by other harmful substances prohibited from discharge or having different discharge requirements, the more stringent requirements shall apply.

2 Comminuted or ground food wastes must be able to pass through a screen with mesh no larger than 25 mm.

3 The discharge of introduced avian products in the Antarctic area is not permitted unless incinerated, autoclaved or otherwise treated to be made sterile.

4 Offshore platforms located 12 nm from nearest land and associated ships include all fixed or floating platforms engaged in exploration or exploitation or associated processing of seabed mineral resources, and all ships alongside or within 500 m of such platforms.

[5] Cargo residues means only those cargo residues that cannot be recovered using commonly available methods for unloading.

[6] These substances must not be harmful to the marine environment.

2.2.3 IMO's Global Integrated Shipping Information System (GISIS)

34. In order to facilitate the dissemination of information and promote public access to sets of data collection by the IMO Secretariat, the IMO has developed an internet-based database on information for shipping: the Global Integrated Shipping Information System[30] (GISIS). This database contains both information open to the general public and a member's area section with more specific information only accessible to registered IMO users.

35. The GISIS Port Reception Facility Database (PRFD) provides data on facilities for the reception of all categories of ship-generated waste. While the public is allowed free access (following a simple initial registration) to all the information on a view-only basis, only the respective party States can update data for reception facilities via a login password. The database aims at improving the rate of reporting alleged inadequacies of reception facilities so that the problem can be tackled more effectively.

36. Parties to MARPOL are also required to communicate the information on available PRF's in their ports into the PRFD.

2.3 Regional regulatory framework: Directive (EU) 2019/883 on port reception facilities for the delivery of waste from ships

2.3.1 Introduction

37. In 2000 the European Union adopted a specific regulatory tool addressing the issue of preventing pollution of the marine environment by waste from ships. The purpose of Directive 2000/59/EC on port reception facilities for ship-generated waste and cargo residues 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 Union, by improving the availability and use of port reception facilities for ship-generated waste and cargo residues, thereby enhancing the protection of the marine environment. Although the purpose of Directive 2000/59/EC is similar to the main goal of MARPOL, there are some differences regarding their key requirements (see overview in table 3). A new PRF Directive (EU) 2019/883 was adopted on 9th April 2019, which repeals Directive 2000/59/EC and puts in place some important regulatory changes.

38. The Directive (EU) 2019/883 applies to all ships (including fishing vessels and recreational craft but with the exception of any warship, naval auxiliary or other ship owned or operated by a State and used on government non-commercial service only), irrespective of their flag, calling at, or operating within, a port of an EU Member State, and to all ports of the EU Member States normally visited by these ships.

2.3.2 Key elements

39. Key requirements of Directive (EU) 2019/883 include:

a) An obligation for the EU Member States to ensure the availability of PRF adequate to meet the needs of ships normally visiting the port, without causing undue delay. In order to allow the management of waste from ships in an environmentally sound manner and facilitate reuse and recycling, EU Member States are to ensure the separate collection of waste from ships, taking into account the waste categories defined in MARPOL;

[30] https://gisis.imo.org/Public/Default.aspx

b) Ports have to develop and implement a Waste Reception and Handling Plan (WRHP), following consultation with all relevant parties, in particular the port users. These plans shall be evaluated and approved by the competent authority in the EU Member State;
c) The master of a ship has to complete a waste notification form and forward it in due time (at least 24 hours prior to arrival), informing the port of call about the ship's intentions regarding the delivery of ship-generated waste and cargo residues;
d) Upon delivery the PRF-operator or the port authority is to issue a waste delivery receipt, the information of which needs to be electronically reported by the master of the ship;
e) A mandatory delivery for all ship-generated waste. However, there is a possibility for the vessel not to deliver waste if it has sufficient dedicated waste storage capacity till the next port of delivery;
f) The implementation of a cost recovery system applying the "polluter pays" principle through the application of a waste fee, providing an incentive to ships not to discharge ship-generated waste at sea. For ship's garbage (MARPOL Annex V-waste, other than cargo residues) a 100% indirect fee system is required. In order to provide for a maximum incentive for the delivery of garbage, no direct fee shall be charged for such waste, in order to ensure a right of delivery without any additional charges based on the volume of waste delivered. The only exception is when the volume of waste delivered exceeds the maximum dedicated storage capacity, which is mentioned in the advance notification form: in that case an additional direct fee can be charged in order to ensure that the costs related to receiving this exceptional amount of waste do not cause a disproportionate burden on a port's cost recovery system;
g) The establishment of an enforcement scheme, by which EU Member States ensure that any ship may be subject to inspection. Each EU Member State is to carry out inspections of ships calling in its ports corresponding to at least 15% of the total number of individual ships calling its ports annually. A risk-based approach is to be applied for inspections, based on information from the advance waste notification and waste receipt which are electronically reported and exchanged.

40. The Directive (EU) 2019/883 also provides guidance on what is to be considered an "adequate" port reception facility:

> "To achieve adequacy, the reception facilities shall be capable of receiving the types and quantities of ship-generated waste and cargo residues from ships normally using that port, taking into account the operational needs of the users of the port, the size and the geographical location of the port, the type of ships calling at that port and the exemptions provided for under Article 9."

41. The Directive (EU) 2019/883 also contains five annexes:

a) Annex 1 provides an overview of elements to be addressed in the port's Waste Reception and Handling Plan;
b) Annex 2 provides a standard format for the advance waste notification form for waste delivery to port reception facilities;
c) Annex 3 provides a standard format for the waste delivery receipt;
d) Annex 4 provides an overview of categories of costs and net revenues related to the operation and administration of port reception facilities
e) Annex 5 provides a format for an exemption certificate pursuant to Article 9 (exemption for frequent callers).

Table 3: Overview of the main differences regarding PRF requirements between MARPOL and Directive (EU) 2019/883:

	MARPOL	**Directive (EU) 2019/883**
Definitions:	Although both MARPOL and Directive (EU) 2019/883 contain several definitions of wastes and residues there are no commonly used definitions, which sometimes leads towards different understanding.	
Provision of adequate PRF:	Required by MARPOL	Required by Directive (EU) 2019/883

	MARPOL	Directive (EU) 2019/883
Ensure separate collection	No requirements in MARPOL	Required by Directive (EU) 2019/883
Downstream processing and treatment:	No requirements in MARPOL	Treatment, recycling, energy recovery or disposal to be carried out in accordance with EU waste legislation
Port waste plans:	Not required by MARPOL, although encouraged by IMO guidelines[31]	To be developed and implemented for each port. Required content of the plan is set out in Annex 1 of Directive (EU) 2019/883
Mandatory delivery of ship's waste:	Not required by MARPOL, except for certain types of cargo residues and washing waters (MARPOL Annex II)	Mandatory delivery of all waste carried on board, except in case of sufficient dedicated storage capacity
Advance waste notification:	Not required by MARPOL, although encouraged by IMO guidelines[4]	Required by Directive (EU) 2019/883, incl. the use of standardised format (Annex 2)
Waste Delivery Receipt:	Not required by MARPOL, although encouraged by IMO guidelines[32]	Required by Directive (EU) 2019/883, incl. the use of standardized format (Annex 3)
Cost recovery systems:	Not required by MARPOL, although encouraged by IMO guidelines[33]	Required by Directive (EU) 2019/883: cost for PRF, incl. collection and treatment, is to be paid by a fee from ships. Cost recovery system is to provide incentive not to discharge at sea. In order to increase transparency, the fee is to be calculated based on the costs and revenues listed in Annex 4.
Exemptions for frequent callers:	Not provided by MARPOL	Provided by Directive (EU) 2019/883 for ships engaged in scheduled traffic with frequent and regular port calls, that have an arrangement to ensure the delivery of the waste and payment of the fees in a port along the ship's route (incl. the use of a standardized exemption certificate in Annex 5)

Table 4: Overview of the main amendments made in Directive (EU) 2019/883 (comparing with Directive 2000/59/EC).

Article	Subject	Amendment
2	Definitions	• "waste from ships": means all waste, including cargo residues, which is generated during the service of a ship or during loading, unloading and cleaning operations and falls under the scope of Annexes I, II, IV, V and VI to MARPOL and passively fished waste. • "passively fished waste" means waste collected in nets during fishing operations • "recreational craft" means a ship of any type, with a hull length of 2,5 metres or more, regardless of the means of propulsion, intended for sports or leisure purposes, and not engaged in trade

[31] Consolidated guidance for PRF providers and users (MEPC.1/Circ.834/Rev.1).
[32] 2017 guidelines for the implementation of MARPOL Annex V (MEPC.295(71)).
[33] 2017 guidelines for the implementation of MARPOL Annex V (MEPC.295(71)).

Article	Subject	Amendment
3	Scope	The Directive (EU) 2019/883 shall apply to: (a) all ships, irrespective of their flag, calling at, or operating within, a port of an EU Member State, with the exception of ships engaged in port related services[34], any warship, naval auxiliary or other ship owned or operated by a State and used, for the time being, only on a government non-commercial basis; (b) all ports of the EU Member States normally visited by ships falling under the scope of point (a). EU Member States may decide to exclude the requirements related to advance waste notification, delivery of ship's waste and cost recovery systems at anchorage areas. This article also includes derogations for land locked EU Member States.
4	Provision of PRF	EU Member States shall ensure the availability of adequate port reception facilities, taking into account the needs of the port users. PRF are to ensure separate collection of ship's waste in order to facilitate reuse and recycling. In order to facilitate this process, PRF may collect the separate waste fractions in accordance with waste categories defined in MARPOL and its guidelines.
5	Waste reception and handling plans (WRHP)	• Appropriate WRHP's are to be in place and implemented for each port • The WRHP's are te be developed following ongoing consultations with the relevant parties, including in particular with port users or their representatives, and where appropriate local competent authorities, port reception facilities operators, and organisations implementing extended producer responsibility obligations and representatives of civil society. • Those consultations should be held both during the initial drafting of the plans and after their adoption, in particular when significant changes have taken place.
6	Notification	Waste information shall be reported electronically in the EU's information, monitoring and enforcement system[35]
7	Delivery of waste from ships	The master of a ship calling an EU port shall, before leaving the port, deliver all its waste carried on board to a port reception facility in accordance with the relevant discharge norms laid down in the MARPOL Convention. This requirement shall not apply in small ports with unmanned facilities or that are remotely located (provided that the EU Member State where such ports are located has notified these ports electronically). Upon delivery, the PRF operator or the port authority where the waste was delivered shall complete a Waste Delivery Receipt (in Annex 3) and issue and provide it, without undue delay, to the ship.

[34] As defined in Regulation (EU) 2017/352

[35] SafeSeaNet

Article	Subject	Amendment
		The operator, agent or master of a ship[36] shall before departure, or as soon as this has been received, electronically report the information from the waste receipt in the EU's information, monitoring and enforcement system. In order to ensure uniform conditions for the implementation of the exception based on sufficient dedicated storage capacity, implementing powers shall be conferred on the Commission to define the methods to be used for the calculation of the sufficient dedicated storage capacity on board. If it cannot be established based on the available information, including information electronically available in the EU's information, monitoring and enforcement system or in GISIS, that adequate facilities are available in the next port of call, or this port is unknown, the EU Member State shall require the ship to deliver, before departure, all waste that cannot be adequately received and handled at the next port of call.
8	Cost recovery systems	EU Member States shall ensure that the costs of operating port reception facilities for the reception and treatment of waste from ships, other than cargo residues, are covered through the collection of a fee from ships. These costs include the elements listed in Annex 4 (categories of costs and net revenues related to the operation and administration of PRF, incl. direct costs, indirect costs and net revenues) The cost recovery systems shall provide no incentive for ships to discharge their waste at sea. To this end, the EU Member States shall apply the following principles in the design and operation of the cost recovery systems in ports: (a) ships shall pay an indirect fee, irrespective of delivery of waste to a port reception facility; (b) the indirect fee shall cover the indirect administrative costs, as well as a significant part of the direct operational costs, as determined in Annex 4. The significant part of the direct operational costs shall represent at least 30 % of the total direct costs for actual delivery of the waste during the previous year. Costs related to expected traffic volume for the coming year can also be taken into account; (c) in order to provide for a maximum incentive for the delivery of waste as defined in Annex V to the MARPOL Convention other than cargo residues, no direct fee shall be charged for this waste, in order to ensure a right of delivery without any additional charges based on volume of waste delivered, except when this volume of waste delivered exceeds the maximum dedicated storage capacity as mentioned in the form set out in Annex 2 to Directive (EU) 2019/883. Passively fished waste shall be covered by this regime, including the right of delivery; (d) in order to avoid that the costs of collection and treatment of passively fished waste are borne exclusively by port users, EU Member States shall cover, where appropriate, those costs from

[36] Falling within the scope of Directive 2002/59/EC

Article	Subject	Amendment
		the revenues generated by alternative financing systems, including waste management schemes and European, national or regional funding available; (e) in order to encourage the delivery of residues from tank washing containing high-viscosity persistent floating substances, EU Member States may provide for appropriate financial incentives for their delivery; (f) the indirect fee shall not include the waste from exhaust gas cleaning systems, the costs of which shall be covered on the basis of the types and quantities of waste delivered; The part of the costs which is not covered by the fee referred to in subparagraph (b), if any, shall be covered on the basis of the types and quantities of waste actually delivered by the ship The fees may be differentiated on the following basis: - the category, type and size of the ship; - the provision of services to ships outside normal operating hours in the port; or - the hazardous nature of the waste. The fees shall be reduced on the following basis: - the type of trade the ship is engaged in, in particular when a ship is engaged in short sea shipping trade; or - the ship's design, equipment and operation which demonstrate that the ship produces reduced quantities of waste, and manages its waste in a sustainable and environmentally sound manner.
9	Exemptions	EU Member States may decide to exempt a ship calling their ports from the advance waste notification (art. 6), the mandatory waste delivery (art. 7) and the payment of the waste fee (art. 8), when the ship meets certain requirements related to the frequency and regularity of the port calls, the arrangement to ensure the delivery of the waste and the payment of a waste fee in a port along the ship's route.
10	Inspections	EU Member States shall ensure that any ship may be subject to an inspection in order to verify that it complies with the requirements of Directive (EU) 2019/883.
12	Inspection commitments	EU Member States shall carry out inspections of ships calling in their ports corresponding to at least 15% of the total number of individual ships calling in the EU Member State annually. The total number of individual ships calling in an EU Member State shall be calculated as the average number of individual ships over the three previous years, as reported through the information, monitoring and enforcement system. EU Member States shall comply with the number of inspections by selecting ships on the basis of an EU risk-based targeting mechanism, facilitated by electronic reporting and exchange of information from the advance waste notification and the waste receipt.

3 PLANNING AND PROVISION OF PORT RECEPTION FACILITIES

3.1 Introduction

42. In order to ensure the provision of adequate and cost-efficient port waste management infrastructure, be it for the collection, storage and/or treatment of the ship-generated waste, several planning and information assessment steps are to be considered. Although the planning of waste management infrastructure seems especially logic and useful in large and industrialized ports, it is however an equally important step to be applied for smaller ports, fishing ports and marinas.

43. The key elements to be addressed are:

- Planning of port waste infrastructure;
- Collection of data and information;
- Assessing the information; and
- Decisions regarding the type of PRF.

44. As the collection and treatment of ship-generated waste is preferably embedded in an ambitious and well-developed wider waste management strategy aiming at an environmentally sound waste management linked to a sustainable and circular economy, it is therefore crucial that also this aspect is thoroughly assessed.

3.2 Planning port waste management infrastructure, including the integration of ship-generated waste in a wider waste management strategy

3.2.1 Planning port waste management infrastructure

45. The proper planning of a cost-efficient waste management infrastructure is of crucial importance in order to facilitate the needs of the ships calling the port. In addition, this waste management infrastructure is preferably embedded in a strategy aiming at environmental sound waste management and linked to a sustainable and circular economy.

46. When planning waste management infrastructure in a port area in general or PRF for ship's waste specifically, it should be kept in mind that, due to an extensive set of variable characteristics, ports can be very different:

- Geographical location, incl. the impact of Special Areas (implying stricter discharge criteria at sea) and/or seasonal influences (such as increased tourism);
- Size of the port;
- Types of traffic (commercial, fishing, recreational, navy, offshore support, etc.);
- Types of cargo being handled in the port;
- Number of ships calling the port;
- Size of the ships calling the port;
- Port structure and governance;
- Presence of industrial clusters in the port;
- Existing capacity for waste collection, storage and treatment; and
- Presence of densely populated areas in the port or in the immediate vicinity.

47. Also the specific ship-related elements influencing the delivery of ship-generated wastes are to be taken into account. As indicated by the EMSA study on "the management of ship-generated waste types on-board ships[37]" ships can opt to treat waste on board and – when complying with the criteria – legally discharge the effluent at sea. Common examples are:

[37] The management of ship-generated waste types on-board ships, 2017, CE Delft & CHEW, EMSA/OP/02/2016

- The treatment of bilge water in an OWS and the subsequent discharge of the separated oil to a PRF and the water to the sea;
- Sewage is treated in different ways and if well treated can be disposed at sea;
- Food waste can be comminuted, shredded or passed through a grinder and afterwards disposed at sea or being collected in bins and delivered to PRF; and
- Wash water containing certain types of cargo residues are often discharged at sea.

48. It is therefore clear that the need for adequate PRF, including the downstream waste disposal facilities, is primarily determined by the port users' needs. And as their needs will be very different in differing ports, the provision of adequate PRF and the waste disposal options requires good planning and design.

49. Ports cannot provide adequate PRF for users without an accurate assessment of their needs. As a consequence, the development of a port waste assessment procedure or management plan is vital. Ships are customers of the port and meeting the needs of the ship while they are in port is simple "customer care".

50. It is generally agreed that port waste management planning is intended to identify common elements which all ports should consider when planning waste management infrastructure, regardless of the size and type of the port or the types of wastes received. Key elements during the planning phase are:

- Collection of data and information;
- Assessing these data; and
- Decisions regarding the type of port reception facility.

51. Each of these steps is explained more in detail in the following sections.

3.2.1.1 Collection of data and information

52. An essential first step in the planning phase of PRF is the collection of reliable data and information about the existing situation in the port, supplemented with an overview of the applicable regulatory framework. Key data and information to be collected should include:

- *Data/information regarding the port:*
    - Geographical characteristics;
    - Waterborne traffic;
    - Terminals and cargo flows;
    - Industrial clusters in the port;
    - Forecasts regarding the expected traffic in the near and mid-term future;
    - Safety requirements (e.g. LNG-terminals);

- *Ship-related data/information:*
    - Number and types of ships calling the port (commercial/non-commercial, chemical/oil tankers, passengers, fishing, recreational, etc.);
    - Forecast for the near and mid-term future;
    - Safety requirements (e.g. LNG);

- *Data/information regarding the types and quantities of ship-generated waste:*
    - An overview of the types and quantities of ship-generated wastes and residues currently received;
    - Estimates of the types and quantities of ship-generated wastes and residues that are expected to be delivered in the near and mid-term future, taking into account possible changes of traffic;

- Waste streams in the port that are being generated through other activities (land-based industry, stevedoring and cargo handling, etc.);

- *Data/information regarding the waste handling:*
  - The options for disposal including temporary storage and (pre-)treatment for ship-generated wastes and residues that are already available in the port area and its vicinity;
  - The possible need for additional waste storage, pre-treatment and disposal capacity and infrastructure;

- *Applicable regulatory framework:*
  - Overview of the applicable legal requirements (national and local) regarding waste management in general and ship-generated waste specifically;
  - Overview of the key elements of the overarching waste management strategy.

53. According to the IMO 2017 "Guidelines for the implementation of MARPOL Annex V (resolution MEPC.295(71))" ship, port and terminal operators should consider the following when determining quantities and types of garbage on a per ship basis:

- Types of garbage normally generated;
- Ship type and design;
- Ship operating route;
- Number of persons on board;
- Duration of voyage;
- Time spent in areas where discharge into the sea is prohibited or restricted; and
- Time spent in port.

54. Although there might be differences depending on the way ports are being organized (private/public), the data and information on port characteristics will most likely be available at the port authority or the competent governmental administration responsible for ports. Also, the data regarding the types of ships, traffic and cargo turnover should be available there.

55. Data regarding the types and quantities of ship-generated waste might also be available at the port authority, although not every port authority registers it.

56. In case an advance notification scheme for ship-generated waste is being applied in the port, the information about the types and volumes of wastes intended to be delivered by the ship to the PRF should be available at the stakeholder receiving the advance notification form from the ship (in many cases it is the agent forwarding the information to the harbour master's office). In some ports, for logistical reasons, the providers of PRF may require advance notification from the ship of its intention to use the facilities[38]. Providing advance notification to the reception facility of the type and quantity of MARPOL wastes on board and the type and quantity intended to be delivered will greatly assist the PRF operator in receiving the waste while minimizing any delay to the vessel's normal port operation. A generally recommended practice is to provide the information at least 24 hours' notice, although specific requirements may vary.

57. If a ship visits a port on a regular basis, a standing arrangement with the PRF may prove to be most efficient. Although in EU ports the mandatory notification format provided by Directive (EU) 2019/883 is required, outside the EU shipmasters are recommended to use the standardized IMO

[38] Further information on this requirement is provided in section 4 of the Guidelines for ensuring the adequacy of port waste reception facilities (resolution MEPC.83(44)).

Advance Notification Form[39]. Port authorities, agents and facility operators are urged to accept the standardized format; however, some operators may require an alternate form.

58. In many cases also existing PRF and waste collectors should be a reliable source of information, not only on amounts and types of wastes that are already being collected[40] but also regarding the existing infrastructure for collection, transport and disposal. Especially when a system with waste delivery receipts is being applied in the port, reliable data on delivered volumes and types of ship-generated wastes and residues should be available.

59. In case these data and information are not directly available, also the usage of questionnaires might be considered. However, a thorough consultation of stakeholders is in either case very much recommended.

3.2.1.2 Assessing the information

60. The goals of the assessment should be to firstly reveal shortcomings in existing practices, and secondly to suggest improvements. Also, the assessment should look into possible changes in the port's infrastructure (such as new terminals), operations (such as increased traffic) and management (such as introduction of new financial schemes).

61. Some of the key elements that should be addressed when assessing the information are:

Possible change:	**Possible impact:**	**Possible response:**
More ships calling (increased traffic)	More ships delivering waste	Additional collection and disposal capacity required
Other types of ships calling (new traffic)	Other types of waste being delivered	New types of receptacles required
Expansion of the port: new terminals in operation	More ships delivering waste, and other types of cargo residues and wash waters being delivered	Additional and specific types of receptacles/means of collection required
Introduction of financial schemes incentivising delivery (e.g. fee systems)	More ships delivering (more) waste	Additional collection and disposal capacity required

62. Other issues that are to be taken into consideration are:

- The expected investment and operational costs related to the new collection and treatment facilities;
- Means of transport (e.g. trucks, railway or ships) that may have to be commissioned and licensed;
- Agreements may be needed on who transports the waste;
- In case of a regional strategy, the international agreements that need to be prepared (such as the implications of transboundary movements of waste).

3.2.1.3 Decisions regarding the type of PRF

63. After the assessment of the data and information a decision will have to be taken whether additional and/or other types of PRF are needed in order to establish or maintain the necessary

[39] Annex 2 of IMO Circular MEPC.1/Circ.834/Rev.1.
[40] As in most cases the PRF will use a register to note incoming and outgoing waste streams.

adequacy level, and whether additional waste management operations (such as storage and treatment) are required.

64. Choices will need to be made regarding, but not limited to:

- The type of port reception facilities required, including the necessary capacity for collection of ship-generated wastes and residues;
- Who will invest in and operate the reception facility as well as the downstream waste treatment infrastructure.

65. It should also be noted that the provision of additional PRF and/or waste processing and treatment infrastructure are preferably embedded in and complementary with an overarching waste management strategy, as mentioned in section 3.1.2 of the present document.

66. The selection of the type of reception facility that will be operated in the port is of key importance. While the disposal facilities for the ship-generated waste will always be located on shore, the equipment for the collection can either be mobile or shore-based at a strategic point. Options are to choose between different types of mobile and fixed port reception facilities, although in large ports both can be applied. Especially in case of fixed facilities, the choice of location for these facilities will be crucial. In that case a site selection assessment should be included.

67. Mobile PRF have the advantage that in general the investment cost is less than for fixed facilities, and that they can be put in operation rather quick and flexible. Possible disadvantages can be their interference with other operations, such as loading/unloading of cargo, and a restricted or prohibited access for mobile facilities on jetties, such as those where oil products, liquefied gases, noxious liquid substances or packaged dangerous goods are being handled.

68. Fixed facilities on the other hand have the advantage that they might be able to collect more types of wastes (as they can be designed and equipped in a way that all ship-generated wastes can be collected), that they can have a larger capacity for collection and storage, and that they can combine the collection, incl. storage and treatment, of different waste types, also from land-based facilities. A substantial disadvantage is the higher investment cost for these facilities, and the fact that they are to be located at a strategic location that is easily accessible for ships.

69. More information about the types of PRF is provided in chapter 4 of the present document.

3.2.2 Development of integrated ship-generated waste management strategy

70. The development of a waste management strategy is a powerful tool to establish a coherent system of integrated waste management practices and facilities. A proper waste management strategy leads to an efficient and effective operating waste management system easing the transition towards a circular economy, and therefore it should facilitate the development of regulations, procedures and infrastructure that lead towards the environmentally sound management of both hazardous and non-hazardous wastes. It describes the objectives and goals, and it outlines the practical issues such as collection, transport and disposal, including storage.

71. Key stakeholders such as governments and local authorities, waste generators, waste collectors and transporters, dealers, brokers, waste disposal facilities and non-governmental organizations, all have a crucial role to play.

72. When developing a waste management strategy for ship-generated waste delivered in ports, it might be useful to consider the following elements:

- *Administrative, legislative and policy measures:*

- Choose the optimal level to implement the different legislative and administrative measures;
- Specific schemes for licensing and permitting for the collection and disposal of ship-generated wastes and residues;
- Apply a ship's waste fee systems in order to incentivize a maximum delivery of ship-generated wastes and residues to port reception facilities, in order to get as much waste as possible from ship to shore and thus avoiding discharges at sea;
- Incentivize the delivery of segregated waste streams rather than mixtures of wastes, as the recovery of segregated waste is usually much easier;
- Embedding the management of ship-generated wastes in a general waste strategy, facilitating the circular economy;

- *Technology and facilities required:*
  - Provision of adequate port reception facilities, in order to meet the port users' needs and facilitate a smooth delivery from the ship without causing undue delay;
  - Introduce modern technology to be implemented by the waste management industry, in order to minimize the impact of waste management towards the environment, avoiding emissions to land, water and air;

- *Processes and coordination mechanisms:*
  - Stakeholder involvement both from the industry side as from competent authorities, in order to facilitate communication and exchange of information and practices;
  - Cooperation between ports;
  - Install a modern data and information system monitoring the delivery and management of the delivered ship-generated wastes and residues, such as web-based systems providing direct access to all stakeholders and enforcing authorities.

73. Some of these elements are described more in detail below:

3.2.2.1 Waste prevention and minimization:

74. As a priority, waste prevention and minimization are key elements of a waste management strategy. Unnecessary waste generation burdens on waste transport and disposal facilities, and should be avoided. Of course, it is not always possible to efficiently incentivize waste prevention and minimization on board ships by applying land-based regulations. Some ports therefore have implemented voluntary (financial) incentive schemes, such as a reduction of port fees or the (partial) reimbursement of waste fees for ships that have installed technology or apply management schemes that lead to reduced amounts of on-board generated waste.

3.2.2.2 Addressing both ship- and land-generated waste:

75. A basic principle when developing a waste management strategy for ship-generated wastes and residues that are being delivered to reception facilities in a port or terminal, is that these ship-generated wastes should not be seen separate from land-based wastes: after all, ship-generated waste systems within a port do not exist in isolation from the rest of the port operations, services and infrastructure, and becomes a part of the total waste stream of a port, once received on shore. As both ship-generated wastes and land-generated wastes in the port are to be managed in an environmentally sound manner, it is obvious that a proper waste management strategy should address the management of both ship-generated wastes and land-generated wastes, either from a domestic or industrial origin.

76. Especially in smaller ports such as local ports, fishing ports and marinas, the volumes of ship-generated wastes delivered to PRF might not be sufficient enough in order to develop a cost-efficient waste management. Still, when combining the ship-generated wastes with similar wastes generated by land-based industrial activities and municipal wastes, volumes might be sufficient enough in order to

establish not only an economically viable business opportunity, but also facilitate environmentally sound waste management.

3.2.2.3 Cooperation between ports:

77. Increased cooperation between ports might also be a valuable and economically viable option. In this case the strategy would be that all ship-generated wastes can be received in all of the participating ports, but then subsequently are being transported to central disposal facilities. Such a strategy can be more cost-efficient and effective than the provision of disposal facilities in each of the participating ports.

78. An inter-port strategy may be applicable at a regional level, where ports in neighbouring countries cooperate, or on a subnational level, where ports in one country cooperate. In particular if ports are located in remote areas or in case of a cluster of small ports (e.g. located on several small islands), inter-port cooperation in the field of reception and treatment might be worthwhile to consider.

79. It can be noted that the IMO has already developed a specific framework and guidance for addressing the adequacy of port reception facilities on a regional and inter-port level:

- *2012 Resolution MEPC.216(63): Regional arrangements for port reception facilities under MARPOL Annexes I, II, IV and V;*
- *2012 Resolution MEPC.217(63): Regional arrangements for port reception facilities under MARPOL Annex VI (and Certification of marine diesel engines fitted with Selective Catalytic Reduction systems under the NOx Technical Code 2008);*
- *2012 Resolution MEPC.221(63): Guidelines for the development of a regional reception facilities plan.*

3.2.2.4 Circular economy:

80. Another important element is that an integrated approach to waste management incorporating the entire life cycle of waste, from the moment of generation until its disposal, may save considerable future expenses (the so-called “cradle-to-grave approach”). As ship-generated as well as land-generated wastes contain valuable materials, they might be recovered as a resource material for other industrial activities. Final disposal of these wastes would be an inefficient use of resources, and recovery options should be explored (the so-called “cradle-to-cradle approach”).

4 TYPES OF PORT RECEPTION FACILITIES

4.1 Introduction to the types of PRF

81. When arranging the provision of reception facilities for each Annex of MARPOL, it is clear that port authorities and terminal operators should be aware of the needs of the ships calling their premises. Although ports should identify the ships’ needs on a more individual basis, in general almost every port will need reception facilities for garbage (MARPOL Annex V). Other ports (bunkering ports, major traffic ports, oil terminals and refineries that load oil in bulk) will also need reception facilities for oily residues. Depending on the ports’ characteristics, some ports will also need PRF for specific types of ship-generated wastes (e.g. fishing nets) and residues (e.g. wash waters containing Noxious Liquid Substances).

82. While the disposal facilities for ship-generated waste will be located on shore, the collection facilities can either be mobile or shore-based at a fixed point. Options are to choose between different types of mobile and fixed port reception facilities, although in large ports both can be applied. Especially in the case of fixed facilities, the choice of location will be crucial. In that case a site selection assessment is to be included.

83. According to the IMO "Guidelines for ensuring the adequacy of port reception facilities" (resolution MEPC.83(44)) waste reception facilities should be available in all ports where there is a need for ships to deliver wastes ashore. They should be easily accessible and be equipped to deal with the various waste streams and quantities that users deliver. Reception facilities must be able to deal with the range of wastes that is likely to arise from ships using the port. Where appropriate – depending on the type of traffic – the PRF should be capable of handling wastes resorting under one or more of the MARPOL Annexes I, II, IV, V and/or VI, although it is also possible to provide PRF for specific types of wastes only (e.g. liquid hazardous wastes such as wash waters containing certain chemicals).

84. It is necessary for ports to provide adequate reception facilities to cater for each type of waste delivered by the ships using their port, being both cargo residues and wastes generated through the normal operation of the ship. Following a consultation process (as also described in section 5.5 of the present document) the port will be in a better position to tailor the facilities it will need to provide in order to meet individual circumstances according to the port's normal traffic.

85. For various waste streams, where appropriate, port authorities may prefer ship operators or their agents to make their own arrangements with waste contractors. However, the port authority must retain responsibility for ensuring that the reception facilities provided are sufficient for the amounts and types of ship-generates wastes and residues received. The port authority can do this by exercising general oversight as part of its waste management plan.

86. Some authorities impose specific requirements regarding quarantine waste (such as food and catering waste) from international modes of transport. Therefore, this type of ship-generated waste may require separate receptacles, which should be clearly marked and sufficiently secured to prevent birds and animals from entering. The location of facilities for quarantine waste should not present an increased health risk to the people living in the vicinity of the site, nor during its transportation, treatment and final disposal. In addition, ports should ensure that specific national requirements relating to quarantine wastes are properly notified and communicated to the ship owners and operators, and their agents.

87. It can be noted that also the ISO International Standard 16304 relating to the "Arrangement and management of port reception facilities[41]" provides guidance regarding the selection of types of port reception facilities.

4.2 Mobile port reception facilities

4.2.1 Floating reception facilities

88. When choosing for floating reception facilities for ship-generates waste, barges (either being towed or self-propelled) provide several advantages. As barges used for collecting liquid ship-generated wastes and cargo residues in most cases have limited draught requirements, they will present little difficulties in terms of adequate water depths. In some cases, barges can also be used for the simultaneous collection of both solid and liquid ship-generated wastes. A disadvantage of a combined collection, however, could be that on board of a tanker barge there might not be sufficient free space to provide for a segregated collection of the solid ship-generated waste (e.g. by using several skips on deck) in the case the ship wants to land segregated waste streams.

89. Also, sufficient calm weather berthing space and suitable docking facilities must be made available for the delivery of the wastes and residues that are being collected. Port reception facility barges can often use berthing facilities, which were built for other purposes. In ports where berths

[41] The ISO Standard 16304 is available on the ISO website (www.iso.org).

have become obsolete due to increased ship size, the old berths may be converted into docking port reception facilities for barges.

90. When using floating reception facilities, the ship-generated waste is off-loaded directly from the delivering ships to a collecting barge. For the collection of garbage, care should be taken that nets or other means of coverage are used to prevent garbage from ending up into the water. In case of collecting oily wastes, adequate spill remediation equipment is to be available on board.

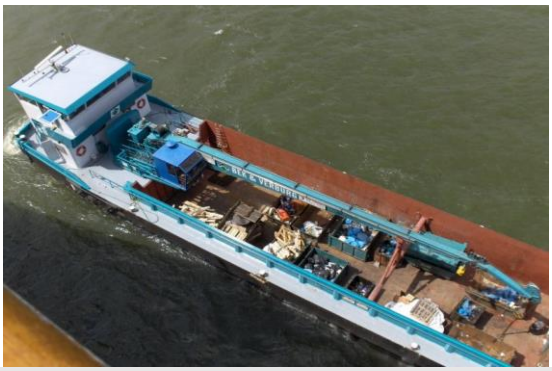
91. When the ship-generated wastes and cargo residues are being collected by a barge or other floating collection device (e.g. a towed pontoon), the waste at some point needs to be off-loaded to shore to be hauled to a storage and/or disposal facility. Some provisions must be made for off-loading the waste barge either in the port at which the wastes and residues are being collected, at the disposal site (if it is accessible to the barge), or at another port if the wastes and residues are being transported by water to another port.

92. Some examples of floating reception facilities:

Barge collecting liquid oily waste
(Photo credits: MAC² Antwerp, Belgium)

Barge for the collection of garbage
(Photo credits: Martens Cleaning, Vlissingen NL)

Barge collecting garbage only
(Photo credits: Vlamo, Antwerp, Belgium)



Barge collecting segregated garbage
(Photo credits: Bek & Verburg, Rotterdam, NL)

4.2.2 Vehicles, trucks and skips

93. When land vehicles are used for the reception of ship-generated waste, a high flexibility can be achieved not only regarding the place of collection of the wastes, but sometimes it can also be combined with a shorter service waiting time as compared to barges. However, while vehicles share to a large extent the same advantages as floating PRF, there are certain aspects that need to be observed: the loading capacity of vehicles is usually smaller than the capacity of barges, and terrain and road surfacing in the port might not always be suitable for a safe and swift transport.

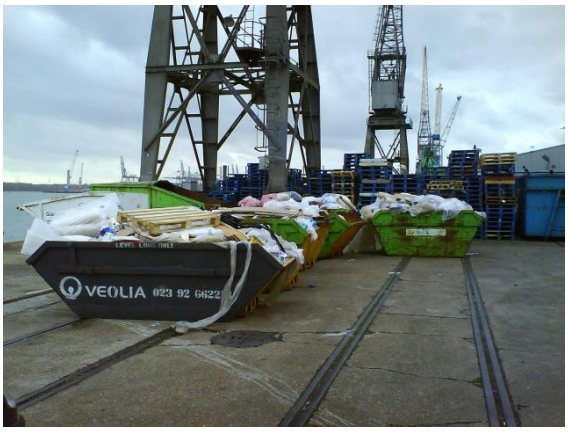
94. Trucks or other vehicles that are used to collect solid ship-generated waste (such as garbage) by off-loading directly from ships, require easy access to get close to the ships, which requires a good road system within the port area and terminals. Good logistics will be required to coordinate the waste

collection. As with collecting barges, care should be taken during off-loading for garbage not being blown into the water. In the case of the collection of segregated waste streams it might also be necessary to order more than one vehicle, in order to prevent the residues getting mixed (e.g. hazardous with non-hazardous solid waste).

95. It can be noted that also receptacles such as skips and containers can easily be transported to a berthing area where ships intend to deliver solid wastes (e.g. garbage). An advantage is that in those cases a truck can transport the receptacle to the berthing place in the port, leave it there for the period of time the ship needs for delivering the waste, and return afterwards for collection when the receptacles are filled with the garbage. However, in that case a good communication between the ship and the port reception facility is necessary in order to prevent that the receptacles being used have sufficient collection capacity and are adequate (e.g. in case of delivery of food waste) for the ship's use.

96. Some examples of vehicles and skips being used as reception facilities:

Tank truck collecting oily waste
(Photo credits: Kayak Maritime Services, Antwerp, Belgium)



Receptacles for garbage from ships
(Photo credits: Veolia)

4.3 Fixed port reception facilities

97. An alternative for the mobile collection of ship-generated waste is to have one or more centrally located fixed shore-based waste reception facilities, or fixed collection points with containers or skips. For smaller ports this might be a suitable option, especially when the collection is organized on a strategic place in the port (e.g. a lock providing the main access to the port).

98. A specific advantage of a fixed PRF is that its operations can be extended and combined with waste (pre-)treatment. For large ports the main disadvantage of a fixed reception facility is that in order to deliver wastes and residues, a ship might have to shift berths if the reception of the ship-generated waste is located at a fixed place somewhere else in the port. Shifting berths is a very time-consuming and expensive operation, which may lead to undue delay or ships not being keen to use the PRF. If PRF are located in a less suitable place, delays, congestion and an increased risk of accidents and collisions will result. Appropriate sites for fixed garbage receptacles therefore include wharves adjacent to moorages, access points to docks, fuel stations and boat launching ramps.

99. Depending on the size of the port, stationary receptacles can be placed either in one central location or at multiple sites within the port area. The space required depends on the number and type of receptacles to be placed together, and on the types and volumes of ship-generated waste to be collected at a single site. For example, some countries have strict requirements regarding the collection and disposal of international catering waste, often referred to as quarantine waste. In these cases, waste contractors have to provide separate bins in order to collect the ship-generated waste concerned.

100. In smaller ports such as fishing ports and marinas, limited types of fixed reception facilities can be applied, in cases when:

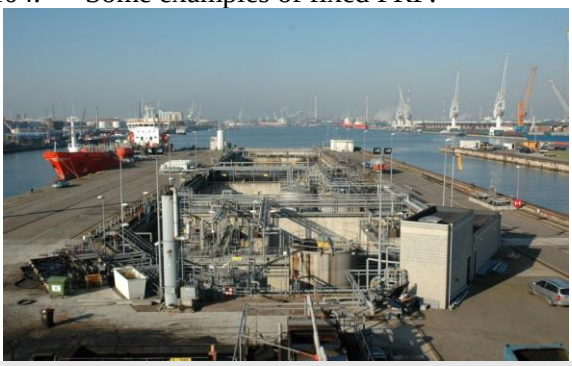
a) Only limited amounts of ship-generated wastes will be delivered in those ports; and
b) Although they can be specific (e.g. fishing nets, synthetic fishing gear, etc.), also limited types of ship-generated waste (mainly household wastes and garbage) will be delivered.

101. In marinas it is not always necessary to provide large and differentiated reception facilities. As in these ports the main type of ship-generated waste delivered will be garbage and household waste, general receptacles designed for the collection of the most common fractions of household waste will be sufficient. However, depending on the size of the port (e.g. facilitating large motor yachts) and the number and type of the ships calling, it might be useful to equip the facility with a pumping station for the collection of bilge water (oily water mixture, mainly consisting of water) and/or waste from chemical toilets.

102. For reception of oily residues and other liquid ship-generated wastes such as sewage, the construction of pipelines to each berth might be a feasible option, especially if the reception is combined with a tank cleaning facility, e.g. at an oil terminal.

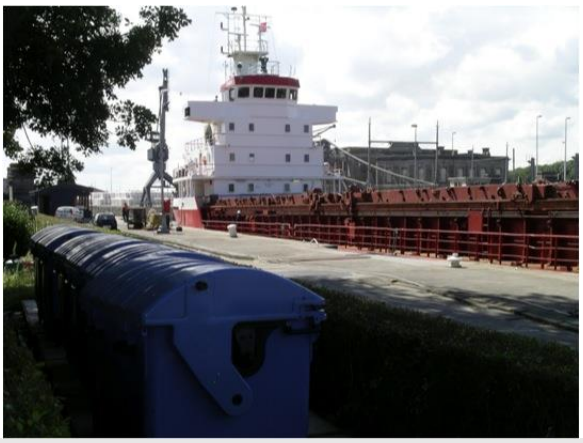
103. If receptacles are placed at a designated site for the collection of ship-generated wastes and cargo residues, they can be placed in a compound or environmental shelter, which is used to physically and visually shield the containers, to discourage use by non-port users, and to prevent the ship-generated wastes from blowing away.

104. Some examples of fixed PRF:



Fixed reception and treatment facility
(Photo credits: MAC^2 Antwerp, Belgium)

Receptacles for collecting ship-generated waste at a designated and covered area
(Photo credits: Peter Van den dries)



Containers for garbage, strategically located at an entrance lock in the port
(Photo credits: Peter Van den dries)

5 COLLECTION AND STORAGE OF SHIP-GENERATED WASTES

105. The effectiveness of ships to comply with the MARPOL discharge requirements, especially within Special Areas, largely depends upon the availability of adequate PRF. Hence, the provision of adequate reception facilities at ports and terminals for the reception of ship-generated wastes and cargo residues is essential. As final treatment facilities, incl. facilities for recycling and disposal, not necessarily have to be located within the port area, also storage infrastructure is to be developed.

106. When designing and developing adequate PRF for ship-generated wastes, criteria are in general based on the required collection capacity (the amount that can be received from a ship, without causing undue delay) and the further disposal and storage capacity for these waste streams (choice of disposal options). When specifically looking at the requirements for temporary storage in order to ensure an environmentally sound waste management, it should be noted that also the need for segregated storage of certain waste streams is to be taken into consideration, in order to facilitate the recovery of wastes. Especially when certain MARPOL Annex V wastes and residues already have been segregated on board the ship, the port reception facility should be able to receive and store the different waste streams separately. This facilitates the disposal of the wastes according to the waste management hierarchy. Appropriate and designated storage capacity and equipment is therefore indispensable. Also for hazardous wastes some general requirements for appropriate collection and storage should be taken into account, such as:

- Receptacles used for the storage of hazardous wastes are to be made of material that is compatible with the waste (e.g. for corrosive wastes polyethylene containers are better than metal drums);
- Containers must be leak proof;
- For specific hazardous wastes secondary containment might be necessary;
- Receptacles should be properly labelled;
- Incompatible hazardous wastes are to be kept separate; and
- Receptacles for hazardous wastes should be kept closed and out of the weather.

107. As the alternatives for the collection, storage and transportation of ship-generated waste largely depend on the type (and amount) of the waste, the options for collection and storage presented in this section will use the categorization applied in the different MARPOL Annexes.

5.1 Options for the collection and storage of MARPOL Annex I wastes

108. Liquid oily wastes generated on board ships are in general mixtures of oil, water and sediments. The exact composition between these components can differ significantly, depending on

the place where the oily mixture is generated on board the ship, such as oily bilge water, oil residues (sludge), oily tank washings (slops), dirty ballast water, or scale and sludge from tank cleaning.

109. Oily residues consist mainly of oil that might be contaminated with water, whereas oily tank washings, bilge water and dirty ballast water consist mainly of water contaminated with a limited amount of oil. For collection purposes sludge is in general considered to be a separate category, because of its higher solids content, the fact that in some cases sludge is not easily pumpable, and contains a considerable amount of oil (50-75 %).

110. As after collection liquid oily waste will be only temporarily stored on the barge, it might not be advisable to use on-board oil/water separators. After proper chemical analysis, separation of oily-water mixtures is preferably performed in land-based waste treatment facilities. In addition, barges usually do not have sufficient space for installation of a separation unit. Furthermore, in many ports the effluent discharge from a barge into the dock water might be prohibited due to local water quality regulations.

111. On shore collection can be done using tank trucks or at a central fixed collection facility. In these cases, storage tanks with pumping facilities for the oily residues will be needed, to which the ships, collection barges or collection vehicles (depending on which system is used for collection) can discharge their (collected) oily residues.

5.2 Options for the collection and storage of MARPOL Annex II wastes

112. Depending on the categorization of the MARPOL Annex II noxious liquid substances in one of the sub-categories X, Y, Z or “other”, tank cleaning is to be carried out. And as certain cargo residues and washing waters from cargo holds contain substances that are not allowed to be discharged at sea, they therefore need to be delivered to a PRF suitable for the collection and temporary storage in port of substantial amounts of wash waters.

113. Tanks for chemical cargoes are usually cleaned using hot or cold water in which cleaning additives might be added. Some noxious liquids cannot be cleaned with water only, and specific cleaning agents are required for proper tank cleaning. The main concern for a PRF collecting MARPOL Annex II residues is that the received cargo residues in wash water can contain a wide variety of noxious liquid substances, each with their own special chemical characteristics and toxicity. Therefore, also temporary storage facilities will have to be capable to deal with a large variety of residues.

114. MARPOL Annex II wash water containing residues to be categorized as noxious liquid substances usually result from mandatory prewashes and commercial tank cleaning activities and therefore the option exists to combine tank cleaning facilities with PRF. As the volumes of these wash waters in most cases will be substantial, the collection will require efficient pumping devices and relatively large storage tanks. Both barges and trucks certified for the carriage of dangerous goods can be used, but also fixed PRF that can combine the collection of wash waters containing noxious liquid substances with the cleaning activity itself.

115. Still, as it is common for chemical tankers to wash their own tanks leading to situations that ships calling a port already have large amounts of washing water on board which they might want to deliver to a reception facility, pumping devices and storage tanks might be required at a central place in the port. As the amount of this type of waste may be substantial and the variety of the possible residues big, it is advisable to consult with the relevant cargo handling companies in order to get a good insight of the amounts and types of washing waters to expect

116. As these wash waters containing noxious liquid substance are in many cases to be considered to be hazardous according to land-based waste catalogues, their handling requires strict safety measures. The most important safety aspect for the reception of MARPOL Annex II wastes is to see to

it that they are not mixed, as this may create risky situations for both the environment and human health.

5.3 Options for the collection and storage of MARPOL Annex IV wastes

117. Sewage from ships consists of so-called “black water” (sewage from toilets and urinals) and grey water (generated from activities such as laundry, dishwashing and bathing). In most cases black and grey water are mixed. In some cases, sewage also includes mixtures with oil and other substances. It should be noted that also residues from on board sewage treatment systems, such as sewage sludge and bio-residues fall within the scope of MARPOL Annex IV.

118. For the collection of sewage its significant volumes that can be delivered to a PRF are to be taken into account. As trucks have limited capacity, their use may lead to an unnecessary delay for the delivering ship.

119. Reception of sewage can be organized either by temporary storage in tanks, or by pumping the sewage directly into the municipal sewage system or a sewage treatment facility. Regulation 10 of MARPOL Annex IV provides specified standard dimensions of flanges for sewage discharge connections to enable pipes of port reception facilities to be connected with the ships' discharge pipeline.

120. In passenger/cruise ports it might be an efficient option to provide the possibility to pump the ship’s sewage directly into the municipal sewer system. Especially where ships always call at the same terminal (such as passenger or cruise terminals), the cost for building the piping system might be reasonable.

5.4 Options for the collection and storage of MARPOL Annex V wastes

121. When establishing a system of environmentally sound management of ship-generated wastes it is not only required to provide PRF that are adequate to meet the needs of the ships, but it is also of key importance that during the collection and storage phase the recycling or final disposal is being facilitated. Therefore, equipment used for the storage of the ship-generated garbage should be suitable for the separate storage of the main waste types that are being delivered.

122. According to the IMO 2017 “Guidelines for the implementation of MARPOL Annex V” (resolution MEPC.295(71)), it is recommended that the following garbage types are to be kept separate on board of ships:

- Non-recyclable plastics and plastics mixed with non-plastic garbage;
- Rags;
- Recyclable material:
    - cooking oil;
    - glass;
    - aluminium cans;
    - paper, cardboard, corrugated board;
    - wood;
    - metal;
    - plastics (including styrofoam or other similar plastic material);
- E-waste generated on board (e.g. electronic cards, gadgets, instruments, equipment, computers, printer cartridges, etc.); and
- Garbage that might present a hazard to the ship or crew (e.g. oily rags, light bulbs, acids, chemicals, batteries, etc.).

123. Equipment for handling ship-generated garbage in a port should basically facilitate the collection, temporary storage and subsequent transport of the segregated types of ship-generated garbage delivered by the ship. A large variety of containers and bins can be used for collecting ship-generated garbage, but basically the applied receptacles need to be safe, functional and easy to use.

124. When evaluating the different options for selecting receptacles for the collection and storage of MARPOL Annex V wastes, the following elements need to be considered:

a) Capacity of the receptacles should at any time match the demand by the users, not only in terms of their individual size and capacity, but also the number of receptacles that is required;
b) Ship types influence the required capacity, e.g.:
    a. cruise ships generate more garbage than commercial ships;
    b. fishing vessels need specific collection and storage capacity for fishing nets;
    c. in marinas seasonal fluctuations might have an impact on the delivery of garbage;
c) When selecting the differing types of garbage to be collected and stored separately, the increased interest and value in the recycling of wastes as a potential source of raw materials should be considered;
d) In case more stringent standards are applicable for specific types of wastes (e.g. food or medical waste) the reception facilities might need to meet specific standards (e.g. sealed and/or leak proof containers). Especially for medical waste specific containers are to be used in order to ensure hygienic and safe handling;
e) For hazardous wastes specific types of receptacles are to be applied, ensuring that compatible material is used for the receptacles, that they are leak proof, etc.;
f) Receptacles should be constructed of durable materials and equipped with lids to control vermin, to prevent litter spreading on the quayside and to prevent offensive odours;
g) In order to reduce the volume of the garbage to be transported, compactors or baling equipment may be used, leading to cost savings. However, the use of compactors should not impede the reuse or recycling possibilities.

125. Hazardous wastes are not to be mixed with non-hazardous waste, and are to be handled in accordance with the appropriate procedures and requirements (e.g. a signature should be kept for the records). Another specific consideration when selecting the type of receptacle is the compatibility of the receptacle, in terms of unloaded weight, maximum load and size, with the available means of transport and other handling equipment such as forklifts and cranes.

5.5 Options for the collection and storage of MARPOL Annex VI wastes

126. MARPOL Annex VI regulates the impact of air pollution from ships. Regarding the issue of PRF, there are two relevant types of wastes and residues classified under MARPOL Annex VI, being Ozone-Depleting Substances (ODS) contained in certain equipment, such as refrigeration, air conditioning and fire extinguishing equipment, and residues from systems used for exhaust gas cleaning.

127. Although MARPOL Annex VI entered into force in 2005, including the requirement for the provision of reception facilities in ports for ozone-depleting substances (and equipment containing them) and residues from exhaust gas cleaning systems, not much information is available yet on the amounts and characteristics of MARPOL Annex VI residues to be expected, nor on collection practices.

128. Depending on the type of scrubbers, the generated wastes and residues are different:

a) Scrubbers in open loop use sea water for the cleaning of the ship’s exhaust emissions. The scrubber water that contains sulphur, soot and various metals ends up into the sea, so in principle there is no delivery to a PRF;

b) Scrubbers in closed loop use fresh water stored on board and an agent for cleaning the exhaust. There is then an extra step that treats the first scrubber water stream. Sludge containing the soot and metals is generated, which needs to be delivered to a PRF, as it is not allowed to incinerate scrubber sludge on board. Still, a yellowish water containing sulphur is discharged into the water;
c) There are also so-called hybrid scrubbers, which can be used in either open or closed loop. The residues generated are similar to these generated by open and closed loop scrubbers, depending on the mode the system is being operated in;
d) Dry scrubbers generate a gypsum-like residue. As these types of scrubbers are currently not generally being used, not much information about the residues is available.

129. Not much information is currently available on the volumes of wastes that are generated by different types of scrubbers. However, some producers report that the amount of sludge generated is approximately 0,1 to 0,4 kg/MWh, while others indicate a sludge generation of 0,2 kg/MWh from a seawater scrubber.

130. It can be noted that the storage of equipment containing ODS from ships is very similar with practices on land. As these types of wastes are to be considered as hazardous wastes, also their storage should meet the appropriate requirements. Receptacles should be watertight and sheltered, in order to avoid drainage of possible contaminants to water and/or soil.

131. Disposable equipment on board containing ODS, such as broken refrigerators and expired fire-extinguishers, can be collected and stored in different ways. The most appropriate way of temporary storage of these wastes is under a shelter on an impervious floor. In addition, the period of storage should be kept as short as possible, especially when the equipment is broken and when there is a substantial risk of leakage of ODS into the atmosphere. Although the temporary storage can be inside the port area, the treatment in most cases will not. This again depends on the port area and its degree of industrialization. The disposal of the equipment will take place in highly specialized treatment plants by trained personnel.

5.6 Options for the collection and storage of passively fished waste

132. During their fishing operations fishermen are often confronted with waste that is collected in their nets (passively fished waste). Therefore, some international NGO's have developed the scheme known as "Fishing for Litter". The idea behind it is quite simple: instead of throwing the waste back into sea, the fishermen are encouraged to collect it on-board and deliver it free of charge to a PRF when returning to port. By doing so they reduce the amount of marine litter in our seas by physically removing it. In addition, it also highlights the importance of good waste management amongst the fishing fleet.

133. Fishing for Litter measures have been included in several Regional Action Plans (RAP) on Marine Litter, for example the RAP's adopted by the Barcelona Convention (UNEP/MAP) for the Mediterranean Sea, by the OSPAR Commission for the North-East Atlantic, and by the Helsinki Commission (HELCOM) for the Baltic Sea. It should be noted that, within the scope of the Marine Litter Regional Action Plan in the Mediterranean, Fishing For Litter Guidelines have been adopted (decision IG.22/10).

134. Also Directive (EU) 2019/883 has included requirements related to the management of passively fished waste:

- "passively fished waste" has been included in the definition of "waste from ships";
- as EU Member States are required to ensure the provision of adequate PRF capable of providing the service of receiving the "waste from ships", this also includes the provision of PRF for passively fished waste;

- for garbage the Directive (EU) 2019/883 includes, after payment of the waste fee, a right of delivery without any additional charges based on the volume of waste delivered[42]: this is also the case for passively fished waste. However, in order to avoid that the costs of collection and treatment of passively fished waste are born exclusively by port users, EU Member States shall cover, where appropriate, those costs from the revenues generated by alternative financing systems, including by waste management schemes (e.g. EPR) and by EU, national or regional funding available.

135. Several countries have already implemented this measure, and have set up schemes for the reception of passively fished waste. Also in the Mediterranean Sea fishermen are involved in cleaning the sea. A good example is the Fishing For Litter scheme deployed in the countries surrounding the Adriatic where, between 2014 and 2016, 124 vessels located in 15 ports between Italy, Slovenia, Croatia, Montenegro and Greece removed 122 tons of waste, mainly plastic, from the sea (this project was linked to the implementation of pilot projects for Fishing for Litter of the DeFishGear European project[43]).

136. In cooperation with regional and/or national stakeholders, participating vessels are given hardwearing bags to collect marine litter that is caught in their nets during their normal fishing activities. Filled bags are deposited in participating ports on the quayside where they are moved by port staff to a dedicated skip or bin for disposal. Operational or galley waste generated on board, and hence the responsibility of the vessel, continues to go through established port waste management systems.

Big bag used for the on-board collection of passively fished waste in UK
(Photo credit: KIMO)

Big bag used for the on-board collection of passively fished waste in NL
(Photo credit: KIMO)

137. Reception facilities are being provided in fishing ports where the fishermen can deliver their passively fished waste. As the passively fished waste is in general quite similar to ship-generated garbage, also the PRF for this type of waste is similar.

[42] Except where the volume of waste delivered exceeds the ships' maximum dedicated storage capacity.

[43] "Fishing for Litter in the Adriatic-Ionian macroregion (Mediterranean Sea): Strengths, weaknesses, opportunities and threats", Ronchi et al, 2018.

Collection of passively fished waste in port
(Photo credit: KIMO)

Reception container for passively fished waste
(Photo credit: KIMO)

138. It can be noted that in order to avoid that the costs for the provision of the PRF (incl. the treatment of the passively fished waste) are to be fully borne by the fishermen, leading to a disincentive for fishermen to participate in such schemes, several governments apply alternative financing systems or funding, including national and/or international funding. Therefore, in general it are also the national coordinating bodies responsible for the Fishing For Litter schemes that provide the bags free of charge to the fishermen, and cover all costs for collection and treatment of the passively fished waste.

6 ENSURING THE ADEQUACY OF DIFFERENT TYPES OF PRF

6.1 The "adequacy" issue

139. Both the Annexes I, II, IV, V and VI of MARPOL and Directive (EU) 2019/883 require the provision of adequate PRF, which are to meet the needs of ships normally visiting the port without causing undue delay. When implementing this requirement, some governments opt to shift the responsibility to provide these adequate PRF to local authorities such as municipalities or port authorities, or to private stakeholders (e.g. terminal operators). In addition, the interpretation of "adequacy" is left to the port State and the port's users (being the ships visiting the ports).

140. As the competent authority, which can resort under either a maritime, port or environmental department, should ensure that the requirements regarding "adequacy" are brought into practice, it must consequently be made clear, both for the enforcing authority as for the stakeholder that is required to provide the PRF, how "adequacy" is to be defined. However, determination of adequacy has been proven quite difficult.

6.1.1 "Adequacy" guidance according to the IMO:

141. In order to give guidance regarding the determination of adequacy, also the IMO has adopted several guidelines:

a) In the "Guidelines for ensuring the adequacy of port waste reception facilities" (resolution MEPC.83(44)) "adequate" is being described as: *"To achieve adequacy the port should have regard to the operational needs of users and provide reception facilities for the types and quantities of wastes from ships normally visiting the port."*

b) In addition, "adequate facilities" are being described as those which:
- mariners use;
- fully meet the need of ships regularly using them;
- do not provide mariners with a disincentive to use them; and
- contribute to the improvement of the marine environment.

c) Furthermore, the provided PRF must "meet the needs of the ships normally using the port" and "allow for the ultimate disposal of ship-generated wastes and residues to take place in an environmentally appropriate way".

d) According to the "2017 Guidelines for the implementation of MARPOL Annex V" (resolution MEPC.295(71)) the methodology for determining the adequacy of a reception facility should be based on the number and types of ships that will call at the port, the waste management requirements of each type of ship as well as the size and location of a port. Emphasis should also be placed on calculating the quantities of garbage, including recyclable material, which is not discharged into the sea, in accordance with the provisions of MARPOL Annex V. Due to differences in port reception procedures and additional treatment among ports, PRF may require the separation on board of:

- Food wastes (e.g. animal derived products and by-products because of risk of animal diseases);
- Cooking oil (animal derived products and by-products because of risk of animal diseases);
- Plastics;
- Domestic waste, operational waste and recyclable or reusable material;
- Special items like medical waste, outdated pyrotechnics and fumigation remnants;
- Animal wastes, including used bedding from the transport of live animals (due to risk of disease) but excluding drainage from spaces containing living animals;
- Cargo residues; and

- E-waste such as electronic cards, gadgets, equipment, computers, printer cartridges, etc.

142. When ship operators, ports and terminals assess the expected quantities and types of ship-generated wastes on a per ship basis, the following issues should be considered:

- Types of garbage normally generated;
- Ship type and design;
- Type of main fuel used by the ship (as cleaner fuel such as diesel/gasoline generates less sludge);
- The ship's speed (as fuel consumption can indicate sludge production);
- The ship's operating route;
- Number of persons on board (both crew and passengers);
- Duration of the voyage;
- Time spent in areas where discharge into the sea is prohibited or restricted; and
- Time spent in port.

143. As a minimum, the capacity of reception facilities at cargo unloading, loading, and repair ports and terminals should be capable of receiving those residues and mixtures which are normally handled within that port and which ships intend to deliver to port reception facilities. All ports, including marinas and fishing ports regardless of their size, need to provide adequate facilities to receive garbage and oil residues from engines, etc. Larger ports, with more and various types of ships calling, will need to provide more extensive reception capacity (e.g. for cargo residues, bilge water, quarantine waste, etc.).

144. The receiving capacity should be at least appropriate in time and availability to respond to the continuing needs of the ships normally using the port. Arrangements needed to facilitate the discharge of residues, mixtures and all types of ship-generated wastes without causing undue delay to ships, such as prior notification of types and quantities of wastes and residues expected to be delivered, piping or equipment required for discharge etc. are to be made timely between the ship and the PRF.

145. When assessing the adequacy of reception facilities, the competent (port) authorities should also consider the technological challenges related to the management and discharge of ship-generated wastes. When doing so, it is recommended that relevant international standards be considered as it helps ensuring that the management of the ship-generated wastes and residues is environmentally sound.

146. When selecting the most appropriate type of reception facility for a particular port, attention should be given to alternative methods available: mobile facilities, such as trucks, can enhance a cost-efficient way of collecting ship-generated wastes. Or even floating facilities, such as barges, might be considered more effective, in particular where access by road is not practicable.

147. It should also be noted that due to additional treatment processes, especially when the principles of environmentally sound management are being applied, PRF might promote or (financially) incentivize the on-board separation of:

- Non-recyclable plastics and plastics mixed with non-plastic garbage;
- Rags;
- Recyclable wastes:
    - Cooking oil;
    - Glass;
    - Aluminium cans;
    - Paper, cardboard, corrugated board;
    - Wood;
    - Metal;

- Plastics (including styrofoam or other similar plastic material)
- E-wastes such as electronic cards, equipment, computers, printer cartridges, etc.
- Garbage that might present a hazard to the ship or crew (e.g. oily rags, light bulbs, acids, chemicals, batteries, etc.);

148. Undue delay may arise when the time spent in port for the delivery of residues, mixtures or wastes goes beyond the normal turnaround time of the ship in that port, unless the delay is caused by fault of the ship, its master, its owner or his authorized representatives, specific safety requirements in place or the normal port procedures. In order to provide maximum flexibility for the ship to deliver wastes while avoiding undue delay, in major ports the availability of reception facilities on a 24/7 basis might be considered.

6.1.2 "Adequacy" guidance according to the EU:

149. In Article 4 of Directive (EU) 2019/883 it is stated that PRF are to be adequate "to meet the need of the ships normally using the port without causing undue delay to ships". Furthermore, the same article additionally requires that:

- the PRF have the capacity to receive the types and quantities of waste from ships normally using that port, taking into account:
  - the operational needs of the port users;
  - the size and geographical location of that port;
  - the type of ships calling at that port; and
  - the exemptions provided under art. 9
- the formalities and practical arrangements relating to the use of the PRF are simple and expeditious to avoid undue delay to ships;
- the fees charged for delivery do not create a disincentive for ships to use the PRF; and
- the PRF allow for the management of the waste from ships in an environmentally sound manner[44].

150. The adequacy relates to operational conditions on the one side, i.e. to meet the needs of ships normally visiting the ports and not to create obstacles to ships using the PRF, as well as the environmental management of the PRF.

151. As regards the necessary operational conditions, the European Commission underlines that the mere provision of PRF does not necessarily mean these facilities are adequate. Poor location, complicated procedures, restricted availability and unreasonably high costs for the service provided are all factors which may deter the use of reception facilities. For a PRF to be considered adequate, the facility should be available during a ship's visit to the port, be conveniently located and easy to use, cater for all types of waste streams usually entering the port and not cost so much as to present a disincentive to users. At the same time, the European Commission emphasizes that both the size and geographical location of the port may limit what can technically and reasonably be provided in terms of reception and handling of the waste.

152. The PRF must allow for the ultimate disposal of ship-generated waste to take place in an environmentally appropriate way. According to Directive (EU) 2019/883, the EU Member States shall ensure separate collection to facilitate reuse and recycling of waste from ships in ports. In order to facilitate this process, PRF may collect the separate waste fractions in accordance with the waste categories defined in MARPOL, taking into account the guidelines thereof. In this respect it should be mentioned that, although not required by MARPOL, more and more ship operators segregate their waste onboard: the subsequent separate collection of these wastes by PRF should not only be considered as an appropriate service towards the ship, but will definitely facilitate reuse and recycling operations.

[44] in accordance with Directive 2008/98/EC and other relevant EU and national waste law.

153. A key element to ensure the adequacy of PRF is the development, implementation and re-assessment of the port's waste reception and handling plan, based on the consultation of all relevant parties. For practical and organizational reasons, this plan can be jointly developed by neighbouring ports in the same geographical region, with the appropriate involvement of each port and provided that the need for and availability of PRF are specified for each port.

6.2 Options for cooperation on a regional/sub-regional/national/sub-national level

154. When ships can deliver their wastes and washing waters containing cargo residues only in a few ports in a region, this will either mean that these ports carry the burden for the whole region (i.e. receiving ship-generated waste that should have been delivered to a PRF in other ports) or (even more likely) that ships are more inclined to discharge their waste illegally. If the area is designated as a Special Area, a lack of adequate PRF even has greater implications.

155. It is fair to acknowledge that some of the requirements on providing adequate reception facilities can raise concerns, in particular for Small Island Developing States (SIDS). In that respect, reference can be made to regulation 8.3 of MARPOL Annex V, which provides that Small Island Developing States may satisfy the requirements of reception facilities through regional arrangements when, because of those States' unique circumstances, such arrangements are the only practical means to satisfy these requirements.

156. For the implementation of regional arrangements, the IMO has developed the 2012 "Guidelines for the development of a Regional Reception Facilities Plan (resolution MEPC.221(63)' to provide guidance for the development of a Regional Reception Facilities Plan (RRFP), to assist governments and port authorities in specific geographic regions of the world with the appropriate and effective implementation requirements of MARPOL.

7 PROCEDURES RELATED TO THE OPERATION OF PORT RECEPTION FACILITIES

7.1 Tools for information management and monitoring

157. Even though the provision of adequate PRF, the development of waste management plans and installing coordinated waste delivery procedures are important prerequisites in order to facilitate the reception and environmentally sound management of ship-generated wastes, information management and monitoring mechanisms are even so indispensable.

158. Modern information and data management in combination with proper monitoring can help to facilitate efficient collection and treatment of ship-generated waste. However, this is not always easy to accomplish, particularly when some of the key stakeholders operate at sea. Still, a substantial set of documents, data and information regarding ship-generated wastes is available during the process from generation to delivery, such as:

- Waste notification by ships;
- Waste delivery receipts;
- Recording waste levels delivered in port;
- Information in Oil Record Book, Garbage Record Book and Cargo Record Book; and
- Licenses granted to the involved stakeholders.

159. Furthermore, the application of the information and data in an automated ICT system will facilitate the information management and monitoring, will allow cross-referencing, and reduce bureaucracy.

7.1.1 Advance notification schemes

160. Ports may need to comply with varying local requirements for specialized handling of certain types of ship-generated wastes. Therefore, ship operators should check with local agents, port authorities, harbour masters or PRF providers for port-specific requirements prior to arrival in order to plan for and accommodate any special handling requirements for that particular port, including additional segregation that may need to take place on board well in advance of arrival. This information should be incorporated into the company's environmental management plan and should be taken into consideration in voyage planning. In many ports, either for logistical or policy reasons, the port authority and/or PRF providers requires an advance notification from the ship indicating its intention to use the reception facilities.

161. Providing advance notification to the PRF of the type and quantity of ship-generated wastes on board and the type and quantity intended to be delivered, will also greatly assist the PRF operator in receiving the waste while minimizing any delay to the ship's normal port operations. A general recommended practice is to provide at least 24 hours' notice, although specific requirements may vary by port or PRF.

162. Many port authorities require shipmasters to use the standardized Advance Notification Form as developed by the IMO in the appendix 2 of the “Consolidated guidance for port reception facility providers and users” (MEPC.1/Circ.834/Rev.1)). Other port authorities, agents and facility operators are urged to accept the standardized format, although in some other cases they require an alternate form.

163. It can be noted that in EU ports Directive (EU) 2019/883 already requires the mandatory use of the advance notification format in its Annex 2. The use of this advance notification form, which is in line with the format of the revised MARPOL Annex V and the IMO Circular MEPC.1/Circ.834/Rev.1, strengthens the implementation and enforcement of Directive (EU) 2019/883 by requiring the provision on the format of accurate information on the types and quantities of wastes actually delivered.

164. The advance waste notification can be sent by the ship or its port representative to the port authority or directly to the PRF. If a ship visits a port on a regular basis, a standing arrangement with the port reception facility may prove to be most efficient.

7.1.2 Waste Delivery Receipt

165. Following delivery of its ship-generated waste, the master of a ship should request a Waste Delivery Receipt to document the type and quantity of MARPOL wastes actually received by the facility. The IMO has standardized the format of this document to facilitate its use and application and in order to provide uniformity of records throughout the world (Appendix 3 of the Consolidated Guidance in MEPC.1/Circ.834/Rev.1). The ships’ master or responsible officer and the receiver both sign the document, and a copy is made available as proof of the legal discharge.

166. In EU ports Directive (EU) 2019/883 requires the use of the waste delivery receipt: upon delivery, the PRF operator or the authority of the port where the waste was delivered is to complete truly and accurately the form provided in the Annex 3 (waste delivery receipt) to Directive (EU) 2019/883, and issue and provide it, without undue delay, to the master of the ship. Furthermore, the information in the waste delivery receipt needs to be electronically reported to SafeSeaNet by the operator, agent or master of the ship.

167. Corresponding records, receipts or certificates of the delivery are also to be kept, for a minimum of two years, in the appropriate Garbage Record Book, the Oil Record Book (part I for all ship types and part II for oil tankers), or the Cargo Record Book for chemical tankers.

168. Systematic usage of the waste delivery receipt can also be a useful tool for a port authority to follow the waste from delivery to final disposal.

7.1.3 Reporting of alleged inadequacies of PRF

169. In cases when ships want to deliver their ship-generated waste and/or cargo residues in port but they cannot because of absence or possible non-adequacy of the available reception facility, the ship's master can use the format for reporting alleged inadequacies of PRF that is provided by Appendix 1 of the IMO Circular MEPC.1/Circ.834/Rev.1.

170. Flag States are requested to distribute this format to ships and urge masters to use this format to report alleged inadequacies of PRF to the maritime administration of the flag State and, if possible, to the authorities of the port State. It is the obligation of the flag State to notify IMO and to inform the Parties concerned of any case where facilities are alleged to be inadequate. Port States should ensure the provision of proper arrangements to consider and respond appropriately and effectively to reports of alleged inadequacies, informing IMO and the reporting flag State of the outcome of their investigation.

171. Also, the PRF database in GISIS contains information regarding reported alleged inadequacies.

7.1.4 Licensing as a tool for monitoring wastes

172. Licenses are used by authorities to allow an activity that otherwise might be forbidden. It may require proving a capability but may also serve to keep the authorities informed on a type of activity, and to give them the opportunity to set conditions and limitations. Licensing is one of the principal tools by which authorities can exercise regulatory controls of the reception, storage, treatment and disposal of wastes.

173. Especially when installing procedures to ensure the delivery of ship-generated wastes, it is necessary to track these wastes from delivery by the ship to the moment of collection at the PRF. Even proof of final disposal can be established by applying a system of notification and tracking documents.

174. These documents, that are to accompany the waste transport, should contain particulars regarding the type and quantity of the waste in question, the means of transport and details regarding the producer, carrier and PRF. In this way the waste routing becomes transparent both for the competent authorities and for the companies involved, as these documents link (e.g. through a tracking system) the different activities.

175. Several port authorities have adopted a tracking system to document the delivery, collection and transport of ship-generated wastes. The documents accompany the waste shipments and provide a record of movement from the producer of the waste through each intermediate stakeholder. Every time the waste changes hands, the responsible person(s) sign(s) the allocated document.

7.1.5 Port waste information and monitoring systems

176. Combining differing types of data and information from different sources is not always a straightforward task and requires the use of modern IT information and data warehousing technology. As the usage of web-based applications nowadays is not extremely expensive, an internet-based data and information management system can already provide a lot of advantages when implementing monitoring tools in order to establish or move towards an environmentally sound management of ship-generated wastes. In addition, most ports already have an individual port communication system based on internet communication, to which additional tools for the monitoring of ship-generated wastes can be added relatively easily.

177. Installing a proper port information and data management system for ship-generated wastes will not only provide a comprehensive overview and deliver reliable statistics during the different steps in the process of ship-generated waste – from collection over treatment to final disposal – that can easily be monitored and audited, but it will also facilitate efficient and effective enforcement.

178. Therefore, it is recommended that port authorities develop an ICT-supported data management system including procedures that can handle the following issues:

- Waste notification by ships;
- Recording waste levels delivered in port;
- Information in Oil Record Book, Garbage Record Book and Cargo Record Book;
- Waste delivery receipts;
- Exemption certificates (in order to allow the monitoring of the arrangements for waste delivery)
- Evaluation and calculation of annual waste statistics;
- Waste fee system (when applicable); and
- Facilitating enforcement (e.g. risk-based targeting).

179. A proper monitoring and information system for ship-generated wastes can be developed on the port level and be operated and managed by the port authority, or on a national level, combining the data that is being provided by the individual ports. It is also preferable that all stakeholders involved, both private (such as private PRF and ship agents) and public (such as enforcing authorities) have direct access to the system in order to facilitate a swift transfer of reliable data (real time information), to reduce bureaucracy (no paperwork) and to increase transparency. Not every stakeholder should be granted access to the whole system, but only to the fields that are relevant for that particular stakeholder.

7.2 Waste delivery procedures: incentivizing the delivery of segregated waste

180. Procedures for collecting and storing garbage generated on board should be based on the consideration of: what is permitted and what is not permitted to be discharged into the sea while *en route*; and whether a particular garbage type can be discharged to PRF for recycling or reuse. Still, in order to reduce or avoid the need for extra sorting after the garbage has been delivered to a PRF and to facilitate reuse and recycling, it is preferable that the waste is directly segregated on board according to the recommendations of the IMO 2017 “Guidelines for the implementation of MARPOL Annex V” (resolution MEPC.295(71)), which recommends that garbage is being segregated (also see paragraph 120).

181. As this is only a recommendation and not a MARPOL-requirement, ships can still decide to deliver mixtures of wastes and residues. However, taking into account the principles of environmentally sound waste management, the PRF must allow for the ultimate disposal of ship-generated waste to take place in an environmentally appropriate way.

182. In EU this principle has been included in Directive (EU) 2019/883: EU Member States shall ensure separate collection to facilitate reuse and recycling of waste from ships in ports. In order to facilitate this process, PRF may collect the separate waste fractions in accordance with the waste categories defined in MARPOL, taking into account the guidelines thereof.

183. Sometimes the shipping industry indicates that even when ship-generated garbage is being segregated on board according to the recommendations of the IMO guidelines, PRF still collect all wastes in one receptacle and thus mixing everything again. An option therefore could be to address this issue in port regulations in a way that segregated ship-generated wastes that are delivered to a PRF are in principle to be accepted that way by the PRF and are to be kept segregated for further processing, in order to maximize their potential for recycling.

184. Some port authorities and terminal operators decided to incentivize the delivery of certain types of segregated ship-generated wastes. A certain practice that already is being applied in several ports is to grant ships that deliver segregated wastes a reduction on the port dues and/or waste fee. The Directive (EU) 2019/883 includes a mandatory "green ship" rebate scheme for the cases where it can be demonstrated that the ship's design, equipment and operation results in the production of reduced quantities of waste, and the ship manages its waste in a sustainable and environmentally sound manner.

7.3 Downstream waste management

185. MARPOL as such does not contain any specific requirements for the downstream management of ship-generated wastes and cargo residues received in a port, as it only requires for the provision of adequate PRF and the proper reception of the ship-generated wastes.

186. Still, once the ship-generated wastes and cargo residues are offloaded from a ship, they must be managed in an environmentally sound manner in accordance with the provisions of the national waste management regulatory framework, and – when applicable – the provisions of the overarching waste strategy. Also, on the international level, the Basel Convention and the EU Waste Framework Directive contain specific requirements regarding the recycling, treatment and final disposal of wastes. And according to the IMO "Guidelines for ensuring the adequacy of port waste reception facilities" (resolution MEPC.83(44)) the PRF must "allow for the ultimate disposal of ship-generated wastes and residues to take place in an environmentally appropriate way".

187. Although port authorities are in general not directly involved with the provision and operation downstream waste management infrastructure, the availability of adequate treatment options (e.g. recycling, incineration, landfill) in the vicinity of the port area can be an important advantage when establishing infrastructure for the reception of ship-generated waste and cargo residues, as this might have an impact on both the capacity and costs for the collection.

188. As in principle there is no big difference between the treatment of ship-generated wastes and wastes originating from land-based operations, it is also recommended that ship-generated wastes should not be seen separate from land-based wastes: after all, ship-generated waste systems within a port do not exist in isolation from the rest of the port operations, services and infrastructure, and becomes a part of the total waste stream of a port, once received on shore.

189. Especially in smaller ports such as local ports, fishing ports and marinas, the volumes of ship-generated wastes delivered to PRF might not be sufficient enough in order to develop a cost-efficient waste management. Still, when combining the ship-generated wastes with similar wastes generated by land-based industrial activities and municipal wastes, volumes might be sufficient enough in order to establish not only an economically viable business opportunity, but also facilitate environmentally sound waste management.

7.4 Port waste management plans

190. Although the development of port waste management plans (PWMP) falls outside the scope of MARPOL, it is generally acknowledged that an up-to-date PWMP, when established in consultation with all relevant parties, will not only improve the adequacy of PRF but also provide a detailed coordinated compendium of all processes related to the delivery of ship-generated wastes and residues.

191. A PWMP should preferably be a public and legally binding document, that not only can be used as a compilation of all applicable relevant requirements related to the management of ship-generated wastes, but also as a guidance manual for port users and other stakeholders. The PWMP should – when applicable – also consider the requirements and goals of the national waste

management strategy, translating the goals regarding the environmental sound management of waste into practical processes and procedures, and the port waste strategy.

192. The PWMP should be developed by the port authority, in close consultation with all port users such as ship owners, ship agents, waste collectors, possible port-based disposal facilities, and relevant competent authorities such as port State control, environmental agencies and maritime authorities. However, in some cases it might be useful that also independently managed areas in the ports, such as fishing ports, oil terminals and chemical plants, draft their own plans and are responsible for managing their services on reception of wastes and residues from ships as part of their operations.

193. When drafting a PWMP, and specifically when assessing the adequacy of existing PRF and analysing the need for additional reception capacity, it is important that this assessment is done based on reliable and detailed information on types and quantities of ship-generated wastes. The plan should also consider the characteristics of the port, and of its users.

194. The PWMP should include all relevant information on, but not limited to, the following key elements:

- An overview of the relevant applicable legislation on waste management, including the responsibilities under national waste laws of the relevant parties involved in the port;
- A list of existing port reception facilities, including location, type (fixed/mobile), capacity and the types of wastes they collect;
- An assessment of the need for additional port reception facilities, taking into account possible changes in traffic in the upcoming years;
- An overview of type and quantities of ship-generated waste received and handled;
- A description of the procedures for the reception and collection of ship-generated waste;
- A description of the charging system (when applicable);
- Procedures for how to report and take action on alleged inadequacies of reception facilities;
- Procedures on notification and reporting of ship-generated waste;
- Procedures for consultations with local stakeholders; and
- Enforcement measures.

195. Ports within a region may also choose to develop a common PWMP and to apply a similar waste collection and cost recovery system. If the reception facilities also serve more than one port, care should be taken that these mobile port reception facilities may be able to serve the ships without undue delay in all ports involved.

196. It should be noted that Directive (EU) 2019/883 makes the development of the PWMP mandatory and contains in its Annex 1 the detailed requirements for the development and content of these PWMP. According to Directive (EU) 2019/883 these PWMP can, when required for reasons of efficiency, be developed in a regional context with the appropriate involvement of each port, provided that the need for, and availability of, reception facilities are specified for each individual port. EU Member States must evaluate and approve the waste reception and handling plan, monitor its implementation and ensure its re-approval at least every five years and after significant changes in the operation of the port.

197. It should be noted that, according to Article 5.2 of Directive (EU) 2019/883, EU ports are required to communicate information from the PWMP related to the availability of PRF to all port users, being:

- Location of PRF applicable to each berth and, where relevant, their opening hours;
- List of waste from ships normally managed by the port;
- List of contact points, the PRF operators and the services offered;
- Description of procedures for delivery of the waste;
- Description of the cost recovery system, including waste management schemes and funds as referred to in Annex 4, where applicable.

198. This can be done through flyers or publication on the port's website. For EU ports this information is also to be reported electronically into SafeSeaNet and kept up-to-date.

7.5 Consultation of stakeholders

199. The large variety of issues that need to be addressed in order to establish an environmentally sound management of ship-generated wastes, the many different stakeholders from both the private and public sectors that are involved at different levels and the diverse technological, financial and legal input that needs to provide, all require a thorough coordination process at different levels and at varying moments in time. Good alignment of port and ship requirements is important in order to enable a fast and a safe disposal procedure for ship-generated wastes, and to avoid undue delay.

200. This will also help in determining the appropriate levels of service for each waste stream, actual and potential, and identify ways to improve service and reduce disruptions. Furthermore, consultation with governing bodies and local authorities is required to ensure that compliance with local and national legislation or regulations is achieved and maintained.

201. Also, during the development of a proper PWMP the consultation of stakeholders is an essential element. When determining the appropriate level of service for the management of ship-generated wastes, it is important to thoroughly consult all port users to assess their needs with respect to the provision of PRF. Extensive consultation will also identify ways to improve practices.

202. Article 5.1 of Directive (EU) 2019/883 contains specific requirements related to the organization of the different consultations related to the Waste Reception and Handling Plan (WRHP), and the stakeholders that should take part in it: EU Member States are to ensure that an appropriate WRHP has been implemented for each port following ongoing consultations with the relevant parties, including in particular with port users or their representatives, and, where appropriate, local competent authorities, PRF operators, organizations implementing extended producer responsibility obligations and representatives of civil society. Such consultations are to be held both during the initial drafting of the WRHP and after its adoption, in particular when significant changes have taken place in the operations of the port.

203. The methodology for consultation can differ and may depend on the size and type of the port, the way local stakeholders are organized through associations, and take into account the port's institutional framework (private or public port). Consultation can be done in the form of informative meetings, using workshops, or through an official consultation procedure where the draft plan is made public and every interested party can submit their comments within a certain timeframe.

204. To guard that the stakeholders' consultation process is ensured and transparent, it can be useful that the procedures for public consultation of PWMP are implemented in national and/or local environmental and port regulations.

8 GUIDANCE RELATED TO THE PROVISION OF PRF IN THE MEDITERRANEAN

8.1 Impact of the Mediterranean Sea being a Special Area for MARPOL Annex I and MARPOL Annex V

205. As already indicated in section 2.2.2 of the present document, the IMO has identified and designated several seas as so-called "Special Areas". When a particular sea area is designated as a Special Area for one or more Annexes of MARPOL, the discharge requirements for ships in that area are more stringent than outside Special Areas. Ships sailing in those areas might not meet these discharge criteria, and are therefore required to deliver their waste to a PRF.

206. This also means that the governments of countries bordering a Special Area have a special responsibility to ensure the provision of adequate reception facilities in all ports that receive ship-generated wastes and cargo residues. The Special Area status cannot come into effect until there are adequate PRF in ports bordering that area. States and port authorities should therefore take into consideration the importance of compliance in these special areas.

207. It should be noted that the Mediterranean Sea is designated as a special area under MARPOL Annexes I (oily residues) and V. The discharge of certain wash waters and cargo residues contained in MARPOL Annex V is subject to the controls specified within Regulations 4 and 6 of that Annex. In essence the discharge of MARPOL Annex V cargo residues contained in wash water is governed by the following criteria:

a) No discharge of cargo residues should occur less than 12 nautical miles from the nearest land, or the nearest ice shelf.
b) No discharge of cargo residues should occur within the six MARPOL defined "Special Areas" (the Mediterranean, the "Gulfs" area, the wider Caribbean including the Gulf of Mexico, the Baltic Sea, the North Sea and the Antarctic). The discharge of cargo residues contained in wash water is only permitted if both the destination and departure ports are within the Special Area and the ship will not transit outside the Special Area between these ports, and only provided that no adequate PRF exist. In such instances discharge of non-recoverable, non-HME (harmful to the marine environment) cargo residues in hold wash water should take place as far out to sea as is practicable and, in any event, no less than 12 nautical miles from the nearest land or the nearest ice shelf.
c) No discharge of any cargo residues specified as HME. Hold wash water should be discharged to a suitable reception facility.

208. Specific attention should be given to the impact of the revised MARPOL Annex V on the provision of PRF for HME-cargo residues: as mentioned in point b) of the above paragraph, it is still possible to legally discharge HME-cargo residues, even in special areas such as the Mediterranean Sea, when there are no PRF in both the destination and departure ports and the ship will not transit outside the Special Area between these ports. In order to achieve maximum protection of the marine environment, it is therefore important that all countries bordering the Mediterranean Sea ensure the provision of adequate PRF for the collection of these HME-cargo residues in their ports.

8.2 Who is to provide the PRF?

209. Both in MARPOL and Directive (EU) 2019/883 the requirement of ensuring the provision of adequate PRF is with the MARPOL-Party or EU Member State. This leaves the Party or EU Member State with a certain degree of flexibility in order to decide which body is responsible for providing the PRF, from a legal as well as a practical perspective. As both the MARPOL and Directive (EU) 2019/883 are to be implemented in national law, there is a possibility to add additional legal requirements, and/or clarify certain issues more in detail.

210. In EU ports the legal responsibility to provide the provision of PRF is with the EU Member State, but many have delegated it to sub-national or local authorities. For major ports this can be the port authority, although through the approval of the port waste management plans (in which the provision of PRF should be clearly addressed) also the relevant ministries (e.g. the competent environmental departments) are still involved. For smaller ports this can be the municipality or port administrator.

211. In several cases the port authorities do not provide the PRF themselves, but they prefer to appoint a private waste contractor. Especially in ports where there is a substantial volume of ship-generated waste being delivered, this often provides a business case for private operations and port authorities will not have to invest in PRF infrastructure themselves. In smaller ports such as small

fishing ports and marinas, the PRF can be provided by implementing the reception of the ship-generated waste in the municipal waste collection system.

8.3 Key elements regarding the provision of PRF

212. As already mentioned in section 3 of the present document, ports can differ substantially regarding size, type and amount of traffic, availability of industrial clusters, geographical location (incl. the impact of IMO Special Areas), types of cargo being handled in the port, existing capacity for waste collection, storage and treatment, etc. As a consequence, also the requirements regarding the provision of adequate PRF can differ.

213. Still, there are several key elements that can be identified when considering the provision of PRF. To summarize, the following considerations are important when selecting a PRF, either as a fixed or mobile PRF and/or pre-treatment or temporary storage site:

- Regarding the general operation of the PRF:

    - Other port operations, such as cargo loading/unloading or bunkering, should not be hindered;
    - The risks for ship-generated wastes and cargo residues eventually to end up in the water should be minimized;
    - Necessary equipment to clean or prevent spills from contaminating the whole port area should be easily available at the facility;
    - Fixed PRF or fixed places where ship-generated waste can be delivered should be built at strategically chosen places, that are easily accessible both for the ships and for port personnel and vehicles;
    - The PRF sites should have sufficient lighting, to allow for and encourage ship-generated waste collection 24 hours a day;
    - Reception areas need to be clearly marked and easily located, especially when waste streams are to be collected in a segregated way;
    - Reception areas must be secure to prevent abuse or misuse and to ensure the safety of seafarers and port personnel using them;
    - The impact of the collection and/or temporary storage of the ship-generated waste 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 the collection and processing of ship-generated wastes and cargo residues;

- Regarding ensuring adequacy:

    - The operational needs of the users of the port are to be considered;
    - Facilities should be capable of receiving the types and quantities of wastes from ships normally visiting the port;
    - Adequate facilities are those which:
        - mariners use;
        - fully meet the need of ships regularly using them;
        - do not provide mariners with a disincentive to use them;
        - contribute to the improvement of the marine environment
    - Allow for the ultimate disposal of ship-generated wastes and residues to take place in an environmentally appropriate way.

8.4 Guidance related to the provision of PRF in merchant seaports, cruise/passenger ports, fishing ports and marinas

214. In this section some additional guidance is given regarding the provision of PRF in specific types of ports, including examples of PRF that have turned out to be very efficient. Distinction is being made between merchant seaports, passenger/cruise ports, fishing ports and marinas.

8.4.1 Merchant seaports

215. Due to the generally larger volumes of ship-generated wastes and cargo residues (either contained in wash waters or not) delivered, in merchant seaports in general a larger variety of PRF can be provided and operated. Both mobile (trucks as well as barges) and fixed facilities can be cost efficient.

216. Still, when providing fixed facilities, the choice of location is to be well chosen as ships might need to shift berths which is not only a time-consuming and expensive operation, but this may also lead to undue delay or ships not being keen to use the PRF. Appropriate sites for fixed garbage receptacles therefore include wharves adjacent to moorages, access points to docks, fuel stations and boat launching ramps.

217. For reception of oily residues and other liquid ship-generated wastes such as sewage, the construction of pipelines to each berth might be a feasible option, especially if the reception is combined with a tank cleaning facility, e.g. at an oil terminal.

218. If receptacles are placed at a designated site for the collection of ship-generated wastes and cargo residues, they can be placed in a compound or environmental shelter, which is used to physically and visually shield the containers, to discourage use by non-port users, and to prevent the ship-generated wastes from blowing away.

Collecting barge in port of Montréal (Canada)
(Photo credits: port de Montréal)

Collecting barge in port of Rotterdam (NL)
(Photo credits: port of Rotterdam)

219. In order to provide maximum flexibility for the ship to deliver wastes while avoiding undue delay, in major ports the availability of reception facilities on a 24/7 basis might be considered.

Mobile collection in port of Piraeus (Greece)
(Photo credits: Antipollution)

Fixed PRF in port of Antwerp (Belgium)
(Photo credits: MAC[2])

8.4.2 Passenger/cruise ports

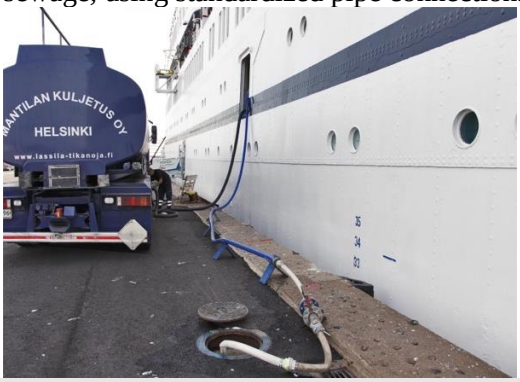
220. In passenger/cruise ports in general the same type of PRF can be applied as in merchant seaports, although seasonal traffic and increased tourism can have a substantial impact on the volumes of ship-generated waste delivered.

Container for garbage from a cruise ship
(Photo credits: Peter Van den dries)

Tank truck collecting liquid waste from a cruise ship
(Photo credits: Peter Van den dries)

221. In passenger ports, where the same vessels often call on a frequent and regular basis, specific facilities can be provided in order to facilitate the swift collection of liquid wastes, such as sewage, using standardized pipe connections.

Sewage collection in Trelleborg port (Sweden)
(Photo credits: Clean Baltic Sea Shipping)



Sewage collection in port of Helsinki (Finland)
(Photo credits: Clean Baltic Sea Shipping)

8.4.3 Fishing ports

222. In smaller ports such as fishing ports and marinas, although the use of mobile collection facilities can be efficient, limited types of fixed reception facilities can be applied, in cases when:

- Only limited amounts of ship-generated wastes will be delivered in those ports; and
- Although they can be specific (e.g. fishing nets, synthetic fishing gear, etc.), also limited types of ship-generated waste (mainly household wastes and garbage) will be delivered.

223. Due to the limited types of ship-generated wastes that are being delivered by fishing vessels, in general fishing ports can focus on the collection of MARPOL Annex I (bilge water and waste oil) and MARPOL Annex V (garbage, including fishing gear). As a consequence, the collection of waste from fishing vessels can be organized relatively easily using tanker trucks (for the bilge water) and containers and skips (for the garbage and fishing gear).

Receptacles for garbage in Tromsø (Norway)
(Photo credits: Peter Van den dries)

Receptacles for garbage in Sicily (Italy)
(Photo credits: Peter Van den dries)

Receptacles for garbage in Ostend (Belgium)
(Photo credits: Peter Van den dries)

Receptacles for garbage in a Dutch port
(Photo credits: unknown)

8.4.4 Marinas

224. In marinas it is not always necessary to provide large and differentiated reception facilities. By far the largest volume of ship-generated waste to be delivered to a PRF in a marina will be garbage, mainly of a domestic type. As in these ports the main type of ship-generated waste delivered will be garbage and household waste, general receptacles designed for the collection of the most common fractions of household waste will be sufficient. Plastic, paper and cardboard wrapping materials, steel, tin and aluminum food and drink cans, glass and plastic bottles, etc. will all need to be accepted by a marina's PRF.

Receptacle for oil in Marseille marina (France)
(Photo credits: Peter Van den dries)

Combined reception facility for bilge water and garbage in a marina in Belgium
(Photo credits: Peter Van den dries)

225. Depending on the size of the port (e.g. facilitating large motor yachts) and the number and type of the ships calling, it might be useful to equip the facility with a pumping station for the collection of bilge water (oily water mixture, mainly consisting of water) and/or waste from chemical toilets.

Receptacles for garbage in Nieuwpoort marina (Belgium)
(Photo credits: Peter Van den dries)

Receptacles for garbage in Marina di Ragusa (Italy)
(Photo credits: Peter Van den dries)

Annex 4
Guidance Document to Determine the Application of Charges at Reasonable Costs for the Use of Port Reception Facilities or, when Applicable, Application of the No-Special-Fee System, in the Mediterranean

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List of Abbreviations/Acronyms

EU	European Union
IMO	International Maritime Organization
MAP	Mediterranean Action Plan
MARPOL	International Convention for the Prevention of Pollution from Ships
PoW	Programme of Work
REMPEC	Regional Marine Pollution Emergency Response Centre for the Mediterranean Sea
UN	United Nations

1 INTRODUCTION

1.1 Background

1. The 18th Meeting of the Contracting Parties to the Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean ("the Barcelona Convention") and its Protocols, which was held in Istanbul, Turkey from 3 to 6 December 2013, adopted Decision IG.21/7 related to the Regional Plan on Marine Litter Management in the Mediterranean in the Framework of Article 15 of the Protocol for the Protection of the Mediterranean Sea against Pollution from Land-based Sources and Activities (LBS Protocol) to the Barcelona Convention, hereinafter referred to as the Marine Litter Regional Plan (UNEP(DEPI)/MED IG.21/9).

2. According to Article 9(5) of the Marine Litter Regional Plan, in conformity with the objectives and principles thereof, the Contracting Parties to the Barcelona Convention shall, in accordance with Article 14 of the Protocol concerning Cooperation in Preventing Pollution from Ships and, in Cases of Emergency, Combating Pollution of the Mediterranean Sea ("the 2002 Prevention and Emergency Protocol") to the Barcelona Convention, explore and implement to the extent possible by 2017, ways and means to charge reasonable cost for the use of Port Reception Facilities (PRF) or when applicable, apply No-Special-Fee System.

3. Moreover, according to Article 10(f) of the Marine Litter Regional Plan, the Contracting Parties to the Barcelona Convention undertake to explore and implement to the extent possible the following measures by the year 2019, […], (f) Charge reasonable costs for the use of port reception facilities or, when applicable apply No-Special-Fee system, in consultation with competent international and regional organisations, when using port reception facilities for implementing the measures provided for in Article 10.

4. Furthermore, according to Article 14 of the Marine Litter Regional Plan, the MAP-Barcelona Convention Secretariat in cooperation with relevant international and regional organisations, shall prepare specific guidelines taking into account where appropriate existing guidelines, to support and facilitate the implementation of measures provided for in articles 9 and 10 thereof. Subject to availability of external funds these guidelines shall be published in different Mediterranean region languages.

5. The 19th Meeting of the Contracting Parties to the Barcelona Convention and its Protocols, which was convened in Athens, Greece from 9 to 12 February 2016, adopted Decision IG.22/4 related to the Regional Strategy for Prevention of and Response to Marine Pollution from Ships (2016-2021), hereinafter referred to as the Regional Strategy (2016-2021) (UNEP(DEPI)/MED IG.22/28).

6. The Regional Strategy (2016-2021), which aims at assisting the Contracting Parties to the Barcelona Convention to implement the 2002 Prevention and Emergency Protocol, addresses the issue of marine litter in Specific Objectives 5 (Provision of reception facilities in ports), 6 (Delivery of ship-generated wastes) and 9 (To reduce the pollution generated by pleasure craft activities). It also addresses the related issue of illicit ship pollution discharges in Specific Objectives 7 (Improved follow-up of pollution events as well as monitoring and surveillance of illicit discharges) and 8 (To improve the level of enforcement and the prosecution of discharge offenders). Therefore, reducing (illegal) discharges of ship generated waste features among the priority areas of work of the Regional Marine Pollution Emergency Response Centre for the Mediterranean Sea (REMPEC) established within the framework of the Mediterranean Action Plan (MAP) of the United Nations Environment Programme (UNEP), also referred to as UNEP/MAP, with a view to coordinating the activities of the Mediterranean coastal States related to the implementation of the 2002 Prevention and Emergency Protocol.

7. The UNEP/MAP Programme of Work (PoW) 2018-2019 adopted by the 20th Meeting of the Contracting Parties to the Barcelona Convention and its Protocols, which was held in Tirana, Albania,

from 17 to 20 December 2017, includes several activities addressing marine litter, including the implementation of the EU-funded "Marine Litter-MED" Project that is aimed at supporting the Contracting Parties to the Barcelona Convention from Southern Mediterranean / European Neighbourhood to implement the Marine Litter Regional Plan.

8. The EU-funded "Marine Litter-MED" Project has specific outputs on the development of a set of technical guidelines within the framework of Article 14 of the Marine Litter Regional Plan and one of its components, which is coordinated by REMPEC, focuses on measures related to the better management of marine litter from sea-based sources in ports and marinas in the Mediterranean, in particular the application of charges at reasonable costs for the use of port reception facilities or, when applicable, application of No-Special-Fee System, as well as the provision of reception facilities and the delivery of ship-generated wastes in ports and marinas in the Mediterranean.

9. In this context, REMPEC prepared the present document entitled "Guidance Document to determine the application of charges at reasonable costs for the use of port reception facilities or, when applicable, application of the No-Special-Fee system, in the Mediterranean", hereinafter referred to as "the Guidance Document".

1.2 Goal and scope of the Guidance Document

10. The Guidance Document looks in detail at the charging elements for the use of PRF in the different fee systems, including the No-Special-Fee (NSF) system. The different elements that influence the cost for providing and operating PRF are identified, and how they can be implemented in a fee system embracing the "polluter pays" principle without entailing excessive costs for the users of ports and marinas in the Mediterranean is being assessed.

11. It should be noted that also other wastes and residues from ships, such as ballast water sediments and residues from anti-fouling systems, can be relevant when assessing the application of cost recovery systems for the use of PRF. However, as these types of wastes do not fall within the scope of MARPOL, wastes and residues regulated by the Ballast Water Management Convention, the Anti-Fouling Systems Convention and the London Protocol/London Convention are not covered in the present document.

1.3 Marine litter from sea-based sources

12. Marine litter in the oceans exerts numerous harmful effects on marine life and biodiversity, as well as negative impacts on human health. In addition, marine litter negatively impacts on activities such as tourism, fisheries and shipping, and material that has the potential to be brought back into the economy by means of reuse or recycling is lost once littered. There are several different categories of marine litter, with plastics being the most challenging due to its low degradability and likelihood to enter the human food chain.

13. Litter enters the marine environment through various means and from numerous different origins, including land-based and sea-based sources. The main land-based sources of marine litter include municipal landfills, riverine transport of waste from landfills and urban areas or other sources along rivers and other waterways, discharge of untreated municipal sewage, industrial facilities and tourism, particularly recreational visitors to the coast/beach.

14. The primary ocean-based sources of marine litter are merchant shipping, ferries and cruise liners, fishing vessels, particularly with respect to lost or abandoned fishing gear, military fleets and research vessels, pleasure craft, offshore oil and gas platforms, and aquaculture farms.

15. It is frequently cited that globally 80% of marine debris originates from land-based sources, and 20% from ocean-based sources, however the origins of this ratio are unclear (NOAA, 2009). Besides, the importance of these sources in terms of their contribution to the marine litter problem

varies significantly regionally and locally depending on the scale of these activities in the area, as well as the policies regulating them. This means that there is significant variation in the amounts and types of debris arising from these sources regionally and locally, and indeed, seasonally[45].

16. The assessment of the trends in marine litter levels and its sources is crucial for identifying and adopting targeted measures for the different sources. In this respect, the monitoring actions in regional sea conventions, such as the OSPAR Convention, the Helsinki Convention and the Barcelona Convention, are very valuable. Monitoring is applied on uniform marine litter indicators and methods (like beach monitoring and fulmar and/or turtle stomach monitoring), which provide information on the trends in marine litter accumulation and effectiveness of measures. Furthermore, proper source identification is a key element in the monitoring programmes.

17. Although land-based sources are dominant in generating marine litter, sea-based sources actively contribute to the problem. Recent studies have shown that, although the majority of marine litter originates from land-based sources, a significant part comes from sea-based sources. This is notwithstanding the fact that garbage from ships, as listed in Annex V of MARPOL, is subject to strict rules and may not be discharged into the sea, with only few exceptions (e.g. food waste and non-harmful to the marine environment (HME) cargo residues). There is a strict ban on discharges of any plastic into the sea. Furthermore, Annex V requires that the loss of fishing gear is reported to the vessel's flag State and to the coastal State in whose waters the loss occurred.

18. Studies have indicated that in EU-waters sea-based activities, in particular shipping (e.g. lost containers) including fishing and yachting, but also offshore activities, are relevant sources of marine litter as they are responsible for an estimated EU average of 32% and values up to 50% for some sea basins[46]. Recent studies have also indicated that among the sea-based contributors to the problem of marine litter, the fishing sector features quite dominantly, with the recreational sector also taking a significant share[47]. And although garbage delivered in ports has increased since the introduction of Directive 2000/59/EC, a significant delivery gap remains, estimated between 60,000 and 300,000 tons, i.e. 7% to 34% of the total to be delivered annually.

19. In some areas, such as in certain parts of the Pacific and the North Sea**,** sea-based sources even prevail over land-based sources. Mismanaged garbage, and old and derelict fishing gear, are among the most prevalent items of (plastic) marine litter from ships.

2 Regulatory frameworks related to COST RECOVERY SYSTEMS

2.1 International regulatory framework: the MARPOL Convention

20. The International Convention for the Prevention of Pollution from Ships (1973 as modified by the 1978 and 1997 Protocols), MARPOL, is one of the most important international conventions regulating the marine environment. It was developed by the International Maritime Organization (IMO) aiming to preserve the marine environment by fully eliminating pollution by operational discharges of oil and other harmful substances from ships, and to minimize accidental spillage of such substances.

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[45] Unger A., Harrison N., 2016, "*Fisheries as a source of marine debris on beaches in the United Kingdom*", Marine Pollution Bulletin

[46] European Commission (DG ENV) study "to support the development of measures to combat a range of marine litter resources" (Eunomia, 2016)

[47] http://www.fishingforlitter.org.uk/assets/file/Report%20FFL%202011%20-%2014.pdf ; Marine Pollution Bulletin 2016 Unger et al. (2016); UNEP OSPAR (2009); Marine Litter Distribution and Density in European Seas (2014); Eunomia (2016), p.95, 30% estimate share for the fishing sector, and 19% for the recreational sector; the balance of sea-based sources is provided by the merchant sector; Arcadis (2012) has estimated a share of 65% share for the fishing sector alone

21. Together with its six annexes covering pollution by oil, chemicals, harmful substances in packaged form, sewage, garbage and airborne emissions, MARPOL works as a whole: the articles mainly deal with jurisdiction, powers of enforcement and inspection, while more detailed anti-pollution regulations are contained in the annexes.

22. MARPOL contains provisions in order to regulate the availability of adequate Port Reception Facilities (PRF), which types of wastes/residues can (and as a consequence also which cannot) be legally discharged into the sea, onboard waste management, and enforcement and inspections.

23. MARPOL does not contain any explicit requirements to install cost recovery systems. However, reference is being made in section 6.3 of the 2017 "Guidelines for the implementation of MARPOL Annex V" (Resolution MEPC.295(71)) provides references to the use of compliance incentive systems:

> "The augmentation of port reception facilities to serve ship traffic without undue delay or inconvenience may call for capital investment from port and terminal operators as well as the garbage management companies serving those ports. Governments are encouraged to evaluate means within their authority to lessen this impact, thereby helping to ensure that garbage delivered to port is actually received and disposed of properly at reasonable cost or without charging special fees to individual ships. Such means could include, but are not limited to:
>
> .1 Tax incentives
> .2 Loan guarantees;
> .3 Public ship business preference;
> .4 Special funds to assist in problem situations such as remote ports with no land-based garbage management system in which to deliver ships' garbage;
> .5 Government subsidies; and
> .6 Special funds to help defray the cost of a bounty programme for lost, abandoned or discarded fishing gear or other persistent garbage. The programme would make appropriate payments to persons who retrieve such fishing gear, or other persistent garbage other than their own, from marine waters under the jurisdiction of Government."

24. Although the "tax incentives" as mentioned in section 6.3 of the guidelines are not explicitly implicating the use of cost recovery systems implementing the "polluter pays" principle, the section does encourage governments to explore the use of systems helping to ensure that garbage delivered to port is actually received and disposed of properly. In addition, the reference to the "reasonable cost or without charging special fees to individual ships" could be interpreted as an encouragement to distribute the cost for the provision and/or the use of PRF over all ships calling the port, e.g. by applying a no-special fee system. Still, the current text leaves substantial room for interpretation.

2.2 Regional regulatory frameworks

2.2.1 Regional Plan for the Marine Litter Management in the Mediterranean

25. In 2013 the Regional Plan for the Marine Litter Management in the Mediterranean was adopted. The main objectives of the Regional Plan are to:

a) Prevent and reduce to the minimum marine litter pollution in the Mediterranean and its impact on ecosystem services, habitats, species in particular the endangered species public health and safety;
b) Remove to the extent possible already existent marine litter;
c) Enhance knowledge on marine litter; and
d) Achieve that the management of marine litter in the Mediterranean is performed in accordance with accepted international standards and approaches as well as those of

relevant regional organizations and as appropriate in harmony with programmes and measures applied in other seas.

26. Several measures were included to address marine litter from sea-based sources, including marine litter from sea-based sources.

27. In its Article 9.5 the plan refers to the fact that the Contracting Parties shall, in conformity with the objectives and principles of the Regional Plan:

"*In accordance with Article 14 of the Prevention and Emergency Protocol explore and implement to the extent possible by 2017, ways and means to charge reasonable cost for the use of port reception facilities or when applicable, apply No-Special-Fee system. The Contracting Parties shall also take the necessary steps to provide ships using their ports with updated information relevant to the obligation arising from Annex V of MARPOL Convention5 and from their legislation applicable in the field.*"

28. Also, in its Article 10.(f) the Contracting Parties agreed to assess the possibility to:

"*charge reasonable costs for the use of port reception facilities or, when applicable apply No-Special-Fee system, in consultation with competent international and regional organizations, when using port reception facilities for implementing the measures provided for in Article 10.*"

2.2.2 Directive (EU) 2019/883 on port reception facilities for the delivery of waste from ships.

2.2.2.1 Introduction:

29. A way to promote the use of PRF and achieve a maximal delivery of wastes from ship to shore could be through the application of the "polluter pays[48]" principle. In addition to ensuring the availability of adequate PRF, applying the "polluter pays" principle to ship's waste can be facilitated by requiring ships to contribute significantly to the costs for the reception and management of ship's waste. This contribution can be collected by installing a specific cost recovery system using a fee from the ships calling the port, irrespective whether they make use of the reception facilities or not. This fee should cover the costs for the collection, transport and disposal of the ship's wastes.

30. In 2000 the European Union adopted a specific regulatory tool addressing the issue of preventing pollution of the marine environment by waste from ships. The purpose of Directive 2000/59/EC on port reception facilities for ship-generated waste and cargo residues 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 Union, by improving the availability and use of port reception facilities for ship-generated waste and cargo residues, thereby enhancing the protection of the marine environment.

31. However, Directive 2000/59/EC left substantial room for interpretation by the individual EU Member States: as a Directive is a legal act of the European Union which requires EU Member States to achieve a particular result without dictating the means of achieving that result[49], Directives leave EU Member States often with a certain amount of leeway as to the exact rules to be adopted. This was also the case for some of the key elements of Directive 2000/59/EC, including elements[50] that are related the cost recovery

[48] The "polluter pays" principle is enacted to make the party responsible for producing pollution responsible for paying for the damage done to the natural environment.

[49] Differing from Regulations, which are self-executing and do not require any implementing measures

[50] Study to support the development of measures to combat a range of marine litter sources, Eunomia report for European Commission (DG ENV), 2016

systems. Therefore A new Directive (EU) 2019/883 was adopted on 9th of April 2019, which repeals Directive 2000/59/EC, and puts into place important regulatory changes.

2.2.2.2 Key elements of Directive (EU) 2019/883:

32. The Directive (EU) 2019/883 applies to all ships (including fishing vessels and recreational craft but with the exception of any warship, naval auxiliary or other ship owned or operated by a State and used on government non-commercial service only), irrespective of their flag, calling at, or operating within, a port of an EU Member State, and to all ports of the EU Member States normally visited by these ships.

33. Key requirements of Directive (EU) 2019/883 include:

a) An obligation for the EU Member States to ensure the availability of PRF adequate to meet the needs of ships normally visiting the port, without causing undue delay;
b) Ports have to develop and implement a Waste Reception and Handling Plan (WRHP), following consultation with all relevant parties, in particular the port users. These plans shall be evaluated and approved by the competent authority in the Member State;
c) The master of a ship has to complete a waste notification form and forward it in due time (at least 24 hours prior to arrival), informing the port of call about the ship's intentions regarding the delivery of ship-generated waste and cargo residues;
d) Upon delivery the PRF-operator or the port authority is to issue a waste delivery receipt, the information of which needs to be electronically reported by the master of the ship;
e) A mandatory delivery for all ship-generated waste. However, there is a possibility for the vessel not to deliver waste if it has sufficient dedicated waste storage capacity till the next port of delivery;
f) The implementation of a cost recovery system applying the “polluter pays” principle through the application of a waste fee, providing an incentive to ships not to discharge ship-generated waste at sea; and
g) The establishment of an enforcement scheme, by which EU Member States ensure that any ship may be subject to inspection. A risk-based approach is to be applied for inspections, based on information from the advance waste notification and waste receipt which are electronically reported and exchanged.

2.2.2.3 Cost recovery systems in Directive (EU) 2019/883:

34. In order to address the ambiguity of Directive 2000/59/EC towards some of the key elements related to cost recovery systems, and to achieve a higher level of harmonization, the Directive (EU) 2019/883 provides additional clarification regarding cost recovery systems, such as:

- fishing vessels and recreational craft are no longer being exempt from the indirect fee system;
- elements that determine the “cost” of a PRF, such as the operational and administrative costs but also the net revenues from EPR[51]-schemes and national/regional funding. Further information regarding cost elements are provided in Annex 4 to Directive (EU) 2019/883;
- more transparency in relation between the indirect fee and costs;
- more harmonized calculation method of significant contribution;
- indirect fee element to apply also to sewage (MARPOL Annex IV) and oily waste (MARPOL Annex I, other than cargo residues);
- mandatory application of the 100% indirect fee for garbage, including fishing gear and passively fished waste;

[51] Extended Producer Responsibility

- the costs for the collection and treatment of passively fished waste shall be covered, where appropriate, by revenues generated by alternative financing systems, including waste management schemes and EU, national or regional funding;
- the criteria regarding the "green ship" concept are to be further defined through an implementing act.

35. The Directive (EU) 2019/883 requires the provision of a cost recovery system through its Article 8:

> *1. Member States shall ensure that the costs of operating port reception facilities for the reception and treatment of waste from ships, other than cargo residues, are covered through the collection of a fee from ships. Those costs include the elements listed in Annex 4.*
>
> *2. The cost recovery systems shall provide no incentive for ships to discharge their waste at sea. To this end, the Member States shall apply all of the following principles in the design and operation of the cost recovery systems:*
> *(a) ships shall pay an indirect fee, irrespective of delivery of waste to a port reception facility;*
> *(b) the indirect fee shall cover:*
> *(i) the indirect administrative costs;*
> *(ii) a significant part of the direct operational costs, as determined in Annex 4, which shall represent at least 30 % of the total direct costs for actual delivery of the waste during the previous year, with the possibility of also taking into account costs related to the traffic volume expected for the coming year;*
> *(c) in order to provide for a maximum incentive for the delivery of MARPOL Annex V waste other than cargo residues, no direct fee shall be charged for such waste, in order to ensure a right of delivery without any additional charges based on the volume of waste delivered, except where the volume of waste delivered exceeds the maximum dedicated storage capacity mentioned in the form set out in Annex 2 to this Directive; passively fished waste shall be covered by this regime, including the right of delivery;*
> *(d) in order to avoid that the costs of collection and treatment of passively fished waste are borne exclusively by port users, Member States shall cover, where appropriate, those costs from the revenues generated by alternative financing systems, including by waste management schemes and by Union, national or regional funding available;*
> *(e) in order to encourage the delivery of residues from tank washing containing high-viscosity persistent floating substances, Member States may provide for appropriate financial incentives for their delivery;*
> *(f) the indirect fee shall not include the waste from exhaust gas cleaning systems, the costs of which shall be covered on the basis of the types and quantities of waste delivered.*
>
> *3. The part of the costs which is not covered by the indirect fee, if any, shall be covered on the basis of the types and quantities of waste actually delivered by the ship.*
>
> *4. The fees may be differentiated on the following basis:*
> *(a) the category, type and size of the ship;*
> *(b) the provision of services to ships outside normal operating hours in the port; or*
> *(c) the hazardous nature of the waste.*

5. The fees shall be reduced on the following basis:

(a) the type of trade the ship is engaged in, in particular when a ship is engaged in short sea shipping trade;

(b) the ship's design, equipment and operation demonstrate that the ship produces reduced quantities of waste and manages its waste in a sustainable and environmentally sound manner.

By … [12 months after the date of entry into force of this Directive], the Commission shall adopt implementing acts to define the criteria for determining that a ship meets the requirements stated in point (b) of the first subparagraph in relation to the ship's on-board waste management. Those implementing acts shall be adopted in accordance with the examination procedure referred to in Article 20(2).

6. In order to ensure that the fees are fair, transparent, easily identifiable, non-discriminatory, and that they reflect the costs of the facilities and services made available, and, where appropriate, used, the amount of the fees and the basis on which they have been calculated shall be made available in an official language of the Member State where the port is located and, where relevant, in a language that is internationally used to the port users in the waste reception and handling plan.

7. Member States shall ensure that monitoring data on the volume and quantity of passively fished waste are collected and shall report such monitoring data to the Commission. The Commission shall, on the basis of those monitoring data, publish a report by 31 December 2022 and every two years thereafter.

The Commission shall adopt implementing acts to define monitoring data methodologies and the format for reporting. Those implementing acts shall be adopted in accordance with the examination procedure referred to in Article 20(2).

36. It should be noted that Directive (EU) 2019/883 does not make a distinction between the types of ships, and fully incorporates requirements regarding cost recovery systems for merchant ships, passenger/cruise ships, fishing vessels as well as recreational craft.

37. Another important element is that for ship’s garbage (MARPOL Annex V-waste, other than cargo residues) a 100% indirect fee system is required. In order to provide for a maximum incentive for the delivery of garbage, no direct fee shall be charged for such waste, in order to ensure a right of delivery without any additional charges based on the volume of waste delivered. The only exception is when the volume of waste delivered exceeds the maximum dedicated storage capacity, which is mentioned in the advance notification form: in that case an additional direct fee can be charged in order to ensure that the costs related to receiving this exceptional amount of waste do not cause a disproportionate burden on a port’s cost recovery system.

38. It should also be noted that cost recovery systems are not required to cover the collection and treatment of cargo residues. According to Article 8.1 of Directive (EU) 2019/883, which excludes cargo residues from the requirements of cost recovery systems, the cost for delivery of cargo residues is to be paid directly by the user of the reception facility. Also for waste from exhaust gas cleaning systems (MARPOL Annex VI) a direct fee is to be applied.

39. As Directive (EU) 2019/883 applies to ports within the EU only, today all EU ports have cost recovery systems for ship’s wastes in place. However, also several ports outside the EU have established such cost recovery systems.

3. TYPES OF COST RECOVERY SYSTEMS

3.1 Introduction to cost recovery systems for ship-generated waste

40. It is fair to state that, due to the lack of strict prescriptive regulations in both MARPOL (as explained in paragraph 18) and Directive 2000/59/EC (as explained in paragraph 28), varying interpretations regarding cost recovery systems resulted in a large variety of cost recovery systems in place in EU ports.

41. Several studies and analyses have looked at the issue of cost recovery systems for waste from ships. In 2010 the European Maritime Safety Agency (EMSA)[52] performed a Horizontal Assessment on PRF in EU ports. The assessment was based upon the reports of visits to 22 EU Member States made by EMSA in the period 2007 – 2010, to gauge the implementation of Directive 2000/59/EC, including the availability of cost recovery systems. The assessment indicated that there was a difference in implementation and application of cost recovery systems between (and sometimes within) EU Member States. The systems could be categorized in three major groups:

- **No special fee systems (NSF)**: these charge ships a waste handling fee, irrespective of their use of facilities;
- **Administrative waste fee/contribution systems (ADM)**: these charge ships a fee, which is partly based on the amount of waste, delivered, and an additional fixed fee, which is refundable on delivery of waste; and
- **Direct fee only systems**: charge port users based on the volumes of waste discharged, without an additional standard fee.

42. Within these three categories there is a wide variety of specific models used by individual ports and/or EU Member States. To add to the complexity, on top of the variety of cost recovery systems, ports and/or EU Member States sometimes have different cost recovery systems in place for different types of waste.

43. Other studies further built on this categorization of cost recovery systems:

- The 2012 EMSA study on the delivery of ship-generated waste and cargo residues to port reception facilities in EU ports, Ramboll (EMSA/OP/06/2011);
- The 2015 “Ex-post evaluation of Directive 2000/59/EC on PRF” developed by Panteia/PwC for the European Commission (DG MOVE), within the framework of the EC’s Regulatory Fitness and Performance programme (REFIT) for the revision of the Directive 2000/59/EC;
- The 2017 Impact Assessment, accompanying the Proposal for a Directive of the European Parliament and of the Council on port reception facilities for the delivery of waste from ships, repealing Directive 2000/59/EC and amending Directive 2009/16/EC and Directive 2010/65/EU (Ecorys/COWI), SWD(2018) 21 final.

44. Therefore, also in this overview the three categories of cost recovery systems mentioned in the EMSA Horizontal Assessment will be maintained.

45. It should be noted that also the 2016 “study to support the development of measures to combat a range of marine litter sources” (Eunomia, report for the European Commission DG ENV) in principle used these same categories, but added a few more varieties:

- Direct fees;
- Indirect fees (and reverse fee systems);

[52] EMSA is the EU Agency that provides technical assistance and support to the European Commission and EU Member States in the development and implementation of EU legislation on maritime safety, pollution by ships and maritime security (www.emsa.europa.eu).

- Partial indirect fees;
- Deposit refund systems;
- Penalties; and
- Voucher systems.

46. The three main categories are presented below and explained more in detail, based on the analysis done in the ex-post evaluation of Directive 2000/59/EC (Panteia/PwC, 2015).

3.2 No-special-fee systems (NSF)

47. Among cost recovery systems without special fees (no-special fee) in place in European ports, several do not provide limits to the amounts of waste landed (referred to as 100% NSF). In this system, no fee is charged in addition to the common waste handling fee, which the port authority charges to all ships. This handling fee does not depend on the quantity of the delivered waste, and is also charged if a vessel does not use the port reception facilities at all. The fee is normally based on ship size and sometimes also on ship type, and the waste handling fee can be included in the port dues or charged separately.

48. There are also ports applying a variety of this no special fee system, where they accept waste up to a certain (reasonable) amount (referred to as NSF with reasonable amounts), meaning that a specified amount of waste is covered by the common waste handling fee charged to all ships. All quantities of waste that are considered "excessive" are charged separately, and may be charged by either the port authority or by waste operating companies. The amounts covered by the common waste fee are defined by the port authority. Any additional waste is charged separately, based on the volume of delivered quantities.

49. In order to provide for a maximal incentive for the delivery of garbage, it should be noted that according to Directive (EU) 2019/883 volume limitations are no longer allowed for the delivery of garbage. The only exception allowed is where the volume of the garbage delivered exceeds the maximum dedicated storage capacity mentioned in the advance waste notification form (Annex 2 of the Directive (EU) 2019/883).

50. Many EU ports have implemented a variation of the NSF system. In most cases, this system can apply to both MARPOL Annex I (oil) and Annex V (garbage). In a few cases sewage is included as well. Some ports have implemented a cost recovery system in which a no special fee is only charged for garbage (referred to as the "garbage-only" NSF system). In these cases, the indirect fee covers all garbage reception costs, while all other costs are charged based on the volumes of waste delivered.

3.3 Administrative waste fee/contribution systems (ADM)

51. Administrative waste contribution systems generally consist of two separate parts, being the common administrative fee and a fee that is directly related to the volumes of waste delivered.

52. One variation of this system is an administrative waste fee deposit (referred to as ADM/deposit system). In this system a significant part of the costs of PRF is covered by a fee from ships.

53. An important difference in how the ADM/deposit system can be found in EU Member State ports is whether or not ships get a refund of their deposit after discharging waste at a port reception facility. In some ports, a non-refundable administrative waste fee is charged to ships. However, in several cases, ships receive a full or partial refund if they discharge waste. In this system, all ships pay a waste fee to the port authority. All waste reception costs are directly charged by waste operators, and are based on the volumes of waste discharged. Subsequently, a refund can be reclaimed from the port authority when evidence can be submitted of the waste handling transaction in the port.

54. It should be noted that for EU ports Directive (EU) 2019/883 requires that this indirect fee is to cover the indirect administrative costs plus a significant part of the direct operational costs (30% of total direct costs for the actual delivery of the waste during the previous year).

55. Another cost recovery system type including an administrative fee that is applied in EU ports is the ADM/opposite fee system. In this case, all ships are charged a penalty fee unless they can submit proof of having discharged waste in that or another EU port.

3.4 Direct fee only systems

56. In addition to NSF and ADM cost recovery systems, one additional model was found. This system covers all waste reception costs with a fee that is directly related to the amounts of waste landed only, so there are no charges if the user delivers no waste. By only charging vessels that deliver waste, fully based on the volume of waste delivered, these systems do not provide incentives to discharge waste in ports, and therefore are not in line with Directive (EU) 2019/883, which requires that such incentives are in place.

57. According to Directive (EU) 2019/883 direct fee systems can only be applied for cargo residues, washing waters and scrubber wastes (MARPOL Annex VI).

4. APPLICATION OF COST RECOVERY SYSTEMS IN PORTS AND MARINAS

4.1 Overview of the application of cost recovery systems in EU merchant seaports

58. In 2015 the ex-post evaluation (Panteia/PwC) analysed the application of the type of cost recovery systems (CRS) in EU ports, also considering that ports often use different CRS for different types of waste. Overall the evaluation indicated that most ports either apply an NSF or an ADM system, with the NSF system being more commonly used than ADM systems.

59. Within the ports using the NSF system, most of them were inclined to set maximum limits to the amount of waste covered by the fixed fee, and use a "reasonable amount" more often than the 100% system (unlimited use). Especially for garbage ports often use indirect systems, either through NSF or some form of ADM system. For oily waste (MARPOL Annex I) and particularly sewage (MARPOL Annex IV), more often a direct fee is charged related to the amount of waste delivered.

60. When divided by geographical region, it became clear that especially EU Member States in the Baltic Sea area have adopted NSF systems. The ADM system is mostly found in continental North Sea ports, while fees in direct relation to volumes of waste discharged are found in the Mediterranean region and the Atlantic Ocean region for some types of waste (including the North Sea particularly for sewage).

61. To address the issue of pollution of the marine environment by ship-generated waste, some regions have developed specific strategies, including binding measures. An example of such a regional approach is the Helsinki Commission for the Baltic Sea (HELCOM), which approved the Strategy for Port Reception Facilities for Ship-generated Wastes and Associated Issues, also known as the Baltic Strategy. This strategy comprises a set of measures and regulations aiming to ensure ships' compliance with global and regional discharge regulations, and to eliminate illegal discharges into the sea of all wastes from all ships. In 2007 HELCOM approved its Recommendation 28/1 on the "Application of the no-special-fee system to ship-generated wastes in the Baltic Sea". As a result, all ports in the Baltic apply the NSF.

62. In the 2018 "Study based on a literature review on existing best practices in the Mediterranean as well as other European regional seas for the application of charges at reasonable costs and of the No-Special-Fee system for the use of port reception facilities" (REMPEC) a limited internet survey has been performed to look at the application of CRS in the following merchant seaports:

Port	Type of CRS
Antwerp	ADM with partial reimbursement
Lisbon	ADM
Gdansk	NSF for reasonable amounts
Patras	NSF
Marseille	ADM opposite fee system

4.2 Application of cost recovery systems in cruise/passenger ports

63. The 2015 ex-post evaluation (Panteia/PwC) did not make a distinction between merchant seaports and cruise/passenger ports.

64. In the 2018 "Study based on a literature review on existing best practices in the Mediterranean as well as other European regional seas for the application of charges at reasonable costs and of the No-Special-Fee system for the use of port reception facilities" (REMPEC) a limited internet survey has been performed to look at the application of CRS in the following cruise/passenger ports:

Port	Type of CRS
Barcelona	100% NSF
Dubrovnik	NSF for garbage, direct charge for other wastes
Kusadasi	NSF for reasonable amounts
Skagen	NSF for reasonable amounts
Stockholm	100% NSF

4.3 Application of cost recovery systems in fishing ports

65. For EU ports it can be noted that in Directive 2000/59/EC fishing vessels were exempt from the principles set out in the article 8 on cost recovery systems. In effect this meant that there was no obligation to charge these vessels a separate standard waste fee, and contribution to the cost of PRF could be fully incorporated in the port dues. In Directive (EU) 2019/883 also fishing vessels are to meet all requirements related to cost recovery systems, including the 100% indirect fee for the delivery of garbage (incl. fishing gear).

66. In the 2018 "Study based on a literature review on existing best practices in the Mediterranean as well as other European regional seas for the application of charges at reasonable costs and of the No-Special-Fee system for the use of port reception facilities" (REMPEC), it was found that for fishing ports only limited information regarding CRS was available on the internet. A reason for this could be that, differing from the collection of waste from merchant ships and other vessels operating internationally, in many cases fishing vessels have a "home port" (or at least a limited number of ports they visit in order to market the fish) to which they return to after their fishing activities. As a consequence, this allows a more direct communication (in the native language) regarding regulations and waste collection schemes in the home port, and there might not be a real need for port authorities and fishing communities to make waste fees and tariffs publicly available on their website. Still, some information regarding CRS could be found for the following fishing ports:

Port	Type of CRS
Den Helder	NSF for oily waste and small hazardous wastes
Gamla Höfnin (Reykjavik)	NSF
Peterhead	NSF
Zeebrugge	100% NSF for garbage

4.4 Application of cost recovery systems in marinas

67. For EU ports it should be noted that in Directive 2000/59/EC recreational craft were exempt from the principles set out in the article 8 on cost recovery systems. In effect this meant that there was no obligation to charge these vessels a separate standard waste fee, and contribution to the cost of PRF could be fully incorporated in the port dues. In Directive (EU) 2019/883 also recreational craft are to meet all requirements related to cost recovery systems, including the 100% indirect fee for the delivery of garbage.

68. Under the old PRF regime recreational craft were excluded from the indirect fee system. As a consequence, the majority of marinas assessed in the 2018 "Study based on a literature review on existing best practices in the Mediterranean as well as other European regional seas for the application of charges at reasonable costs and of the No-Special-Fee system for the use of port reception facilities" (REMPEC) indicated on their website that "garbage/waste delivery is included" (or similar language). Also in 4 of the 5 marinas that were subject of the internet survey, a NSF was applied.

5. ELEMENTS DETERMINING THE "COST" OF PRF

5.1 The "cost" of PRF

69. There are several cost elements associated with the provision and operation of PRF, as the total cost of a PRF is not only linked to the cost for the collection from the wastes from the ship, but also depends on the cost for recycling, treatment and final disposal. In addition, there is also a cost for personnel, administration, etc.

70. In compliance with Article 8.1 of Directive (EU) 2019/883, where the costs of PRF are to be covered by a fee from ships, EU port authorities or port administrators (can be municipalities, yacht clubs, etc.) transfer these costs in differing ways to the port users by applying CRS. To this end, according to Article 8.2 of Directive (EU) 2019/883, all ships shall pay an indirect fee, irrespective of delivery of waste to a PRF.

71. When taking a closer look at the cost elements, each CRS tends to segregate costs into:

a) Direct costs, which are the operational costs arising from the actual delivery (collection, treatment and final disposal) of the ship-generated wastes, including infrastructural costs (investments). The direct costs can originate from the waste operators or the port authority, depending on the local PRF arrangements; and
b) Indirect costs, which relate to the administrative costs of the port arising from the management of information such as the advance waste notification, the development of the waste reception and handling plan (including consultation, communication, licensing waste contractors, tendering procedures etc.) and the cost recovery system itself (invoicing, reimbursements for waste operators, financial follow-up).

72. Furthermore, the costs of PRF are also influenced by possible revenues from selling the treated ship-generated waste, and/or recycling or reuse.

73. These terms were used nor defined in Directive 2000/59/EC, leading to different interpretations of what is the "cost of PRF". Therefore, it is acknowledged that by identifying the different cost elements as administrative indirect costs and operational direct costs, it would facilitate clarifying the CRS and make them more transparent for port users. The relation between fees and costs has been further clarified in the Annex 4 of Directive (EU) 2019/883.

74. It should also be noted that the term "indirect costs" should not be confused with the term "indirect fee" which refers to the waste fee that provides a financial incentive for a vessel to deliver its ship-generated waste and which has to be paid by all vessels visiting an EU port irrespective of the use of the PRF (significant contribution). The indirect fee covers both the indirect costs, as well as a significant part of the direct operational costs.

75. In EU there are clear differences how ports organize and provide PRF services. Some ports provide all PRF services for ship-generated waste under their own control (normally waste contractors selected through public tender procedure) as some ports own the PRF infrastructure, while others provide all PRF service through waste contractors in an open market system. It is clear that cost elements depend on the manner in which the PRF are operated and the degree of the port authorities' involvement (e.g. in some small ports not all indirect administrative costs will be taken into account in CRS). Furthermore, the costs are not the same in all ports, as direct costs in one port may be considered as indirect in other ports (temporary storage, loading/unloading etc.).

76. As a regulatory framework for CRS currently only exists in the EU, also the practices and experiences with CRS and cost elements of PRF are very much based on expertise available in the EU. The following sections provide an overview of the different cost elements that have been identified

during the Impact Assessment supporting the revision of Directive 2000/59/EC, and which have been included in Annex 4 of Directive (EU) 2019/883.

77. The combination of these direct and indirect cost elements together with the net revenues will result in the net total cost for the collection, storage, treatment and final disposal of the ship-generated wastes and/or cargo residues.

5.1.1 Direct costs

78. Direct costs are operational costs that arise from the actual delivery of waste from ships, including:

- The provision of PRF infrastructure, including skips, containers, tanks, processing tools, barges, trucks, waste reception, treatment installations;
- Concessions due to site leasing, if applicable, or for leasing the equipment necessary for the operation of PRF;
- The actual operation of the PRF: collection of the wastes from the ship, transport of waste from the PRF for final treatment, maintenance and cleaning of PRF, costs for staff, including overtime, provision of electricity, waste analysis and insurance;
- Pre-treatment of the ship-generated waste: preparing for re-use, recycling or disposal of the waste, including separate collection and/or additional segregation of the waste;
- Costs for administration: invoicing, issuing of waste receipts to the ship, reporting, etc.

79. Direct costs can be influenced by the availability of existing waste treatment infrastructure: ports that are in the vicinity of large industrial clusters may have better access to land-based waste treatment facilities (e.g. incineration plants and/or landfill sites), which may entail lower costs for the treatment of ship-generated waste because of larger volumes can be handled, and reduced transport costs.

5.1.2 Indirect costs

80. Indirect costs are administrative costs that arise from the management of the collection system for ship-generated waste in the port, including:

- Development and approval of the port’s waste reception and handling plan, including all (financial) audits of the plan and its implementation;
- Updating the port’s waste reception and handling plan, including labour costs and consultancy fees, where applicable;
- Organizing the consultation procedures for the (re-)evaluation of the port’s waste reception and handling plan;
- Management of the advance waste notification and cost recovery systems, including the application of reduced fees for "green ships", the provision of ICT-systems at port level, statistical analysis and associated labour costs;
- Organisation of public procurement procedures for the provision of PRF, as well as the issuing of the necessary authorisations for the provision of PRF;
- Communication of information to port users through the distribution of flyers, putting up signs and posters in the port, or publication of the information on the port's website, and electronic reporting of the information as required in Article 5 of Directive (EU) 2019/883 (information that is to be made available to all port users);
- Management of waste management schemes: extended producer responsibility (EPR) schemes, recycling and application for and implementing of national/regional funds; and
- Other administrative costs: monitoring exemptions and electronic reporting of this information as required in Article 9 of Directive (EU) 2019/883 (exemptions for ships that frequently and regularly call a port and have arranged for the delivery of the ship-generated waste).

5.2 Revenues

81. Revenues are net proceeds from waste management schemes and national/regional funding available, including the following revenue elements:

- Net financial benefits provided by extended producer responsibility (EPR) schemes;
- Other net revenues from waste management such as recycling schemes;
- Funding under the European Maritime and Fisheries Fund (EMFF); and
- Other funding or subsidies available to ports for waste management and fisheries.

82. Net revenues not only depend on the availability of a market for the use of recycled waste or secondary materials (which can be stimulated and supported by a regulatory framework facilitating the circular economy), but also on the application of EPR schemes and national/international funding.

5.3 The "reasonable cost" aspect

83. According to Article 10(f) of the Marine Litter Regional Plan for the Mediterranean Sea, the Contracting Parties to the Barcelona Convention undertake to explore and implement to the extent possible the measures to charge "*reasonable costs*" for the use of PRF or, when applicable apply a No-Special-Fee system.

84. The wording "reasonable cost" is also being used in IMO guidelines:

a) In section 6.3 of the IMO 2017 "Guidelines for the implementation of MARPOL Annex V" (resolution MEPC.295(71)): "Governments are encouraged to evaluate means within their authority to lessen this impact, thereby helping to ensure that garbage delivered to port is actually received and disposed of properly at *reasonable cost* or without charging special fees to individual ships";
b) In section 5.2 of the IMO 2000 "Guidelines for ensuring the adequacy of Port Waste Reception Facilities" (resolution MEPC.83(44) it is mentioned that "the mere provision of facilities, which are then not fully utilized, does not necessarily mean they are adequate. Poor location, complicated procedures, restricted availability and *unreasonably* high cost for the service provided, are all factors which may deter the use of reception facilities."

85. The Marine Litter Regional Plan for the Mediterranean Sea nor the IMO MARPOL Annex V implementation guidelines further provide additional guidance on what is to be understood under this "reasonable cost".

86. "Reasonable cost" as such is a very subjective term as there are many angles to it, for example:

a) It depends on the point of view: a cost that can be perceived as very "reasonable" for a port authority or a PRF, may be experienced as "unreasonable" for the ship owner, the ship operator or the agent;
b) Differing practices in the waste management industry may have an impact: e.g. implementation of higher standards for the recycling or treatment of certain types of waste can lead to higher costs, which on its turn may change the perception of what is "reasonable" or not. In some countries higher waste management standards may be the rule, leading to higher costs for the delivery of ship-generated waste in port. This may be perceived as "unreasonable" compared with lower standards in other ports/countries;
c) The number of ships calling and consequently also the amount of waste delivered can have an impact on the perception of "reasonable cost", even within the same port: in some countries port terminals are also required to perform as a PRF for the ships calling the terminal. A terminal/PRF with a limited number of ships calling (that as a consequence deliver less waste) may have the same indirect (and partly also direct) costs as a terminal/PRF with many ships

delivering. If a similar cost for the collection and treatment of ship-generated waste is to be covered by a waste fee from a limited number of ships, this waste fee will be higher which can be perceived as unreasonable.

87. As a consequence, it is impossible to put an absolute figure to "reasonable cost", not in terms of money nor in terms of X% of the total cost for a ship to call a port.

88. There are however a few important elements for further consideration:

a) As the cost for the delivery of the ship-generated waste to a PRF in general is only a fraction of the total cost for a ship (incl. pilots, tugboats, loading/unloading, port dues, etc.) a division of the cost for PRF over all the ships calling the port/terminal, irrespective whether they use the PRF or not (i.e. application of a fee system with an indirect fee, irrespective of delivery of waste to a PRF, such as required by Directive (EU) 2019/883), will only have a limited impact on the total cost for the ship. Dividing the total cost for PRF in a port over all port users, will reduce the cost for the individual ship and will reduce the perception of "unreasonable";
b) In order to avoid discussions and misunderstandings on what is perceived as a "reasonable cost" or not, a key element is transparency. There are cases where the ship operator or agent does not have a good understanding of what is included in the payment of the waste fee: they are required to pay the fee, but then have no information regarding the consequences, e.g. they are not aware that payment of the fee gives them the right to deliver a certain amount of ship-generated waste without extra charges (NSF system), or they do not know that there is a full or partial reimbursement for the cost when they deliver their waste to a PRF. Also, if there are other (direct) charges, this should be made transparent and well communicated. It can be noted that in its Article 8.6 the Directive (EU) 2019/883 explicitly refers to the transparency issue, and that the fees and the basis on which they have been calculated on is to be made available to the port users;
c) Maximum transparency regarding how the collected waste is treated is important: a higher treatment level (e.g. better recycling) may lead to a higher cost but which may be fully acceptable by the shipowner or operator, and might therefore not necessarily not to be perceived as "unreasonable";
d) The collection and treatment of certain types of waste, e.g. hazardous wastes, can entail higher costs, and can therefore lead to higher waste fees. This should also be properly communicated to the port users;
e) For specific types of traffic, such as Short Sea Shipping (SSS) or cruise vessels, a differentiated fee can be taken into consideration, where the specificities of the traffic can be fully addressed:
    - in case of SSS the ship makes relatively shorter voyages with frequent port calls, so in principle there should be plenty of opportunities to deliver the ship's waste to a PRF. It is therefore acceptable that the ship carries small amounts of waste, and as a consequence is not requested to pay a "full" waste fee;
    - cruise vessels generate large amounts of garbage leading to higher costs for collection and treatment, which can be reflected in the waste fee;
f) In case of "green ships" (where the ships' design, equipment and operation demonstrate that the ship produces reduced quantities of waste and manages its waste in a sustainable and environmentally sound manner) ports may install a rebate scheme.

6. RECOMMENDATIONS FOR THE APPLICATION OF COST RECOVERY SYSTEMS IN PORTS AND MARINAS IN THE MEDITERRANEAN

89. Based on the elements addressed and the conclusions of the studies, analyses and assessments that have been the subject of the 2018 "Study based on a literature review on existing best practices in the Mediterranean as well as other European regional seas for the application of charges at reasonable costs and of the No-Special-Fee system for the use of port reception facilities" (REMPEC), taking into account the good practices of fee systems in ports that are available on the internet and considering the

requirements of Directive (EU) 2019/883, some recommendations on cost recovery systems can be distilled. These recommendations are presented below per port type and MARPOL waste type.

90. For EU ports the following requirements of Directive (EU) 2019/883 are to be put forward:
- Application of an indirect fee system for garbage (MARPOL Annex V, other than cargo residues), either 100% or for reasonable amounts;
- For other wastes types that are being delivered by the ships normally calling the port: application of an indirect fee, irrespective of actual use of the PRF, that covers all indirect administrative costs plus a significant part of the direct operational costs (as determined in Annex 4 of Directive (EU) 2019/883), which shall represent at least 30% of the total direct costs for actual delivery of the waste during the previous year;
- Maximum transparency regarding the right to deliver or reimbursement;
- Maximum transparency regarding the downstream waste treatment.

For non-EU ports these elements can be put forward as general recommendations.

91. Still, it should be borne in mind that incentivizing the delivery of waste from ships to a PRF consists of a combination of different elements, such as:

- Availability and accessibility of the PRF;
- Adequacy of the PRF, including price and service level;
- Size of the port;
- Types of traffic, including seasonal traffic;
- Volumes of waste normally delivered by the ships;
- Downstream waste management and recycling options.

92. Therefore, it is possible that, beside the following recommendations, also other types of cost recovery systems might be both effective and cost-efficient in a port. It can also be noted that adequate enforcement schemes will contribute positively to the use of PRF.

6.1 Recommendations for cost recovery systems in merchant seaports

6.1.1 MARPOL Annex I wastes

93. Considering the specificities of MARPOL Annex I wastes:

a) Liquid oily wastes such as sludge and oily bilge water can be stored onboard relatively easy in designated holding tanks. As the storage capacity of these tanks can be quite large, ships can sail long distances before the holding tanks are full and delivery to a PRF is necessary.
b) When the ship is equipped with bilge water separation technology such as an oil-water separator (OWS), which can reduce the quantity of bilge water by 65–85%, the time for delivery to a PRF can even be prolonged.
c) Delivery of liquid oily wastes is a complex operation requiring designated equipment (tanks and piping) and extensive pumping capacity. As the delivery of oily bilge water and/or sludge therefore can take some time, ship operators will not be keen on delivering small amounts in every single port of call, but only:
    a. When the remaining storage tanks' capacity is limited in order to cover the amount of oily waste that will be generated during the following voyage; or
    b. When state-of-the-art service levels for collection can be provided by a PRF in a specific port.
d) Shipping companies appear to optimize their waste delivery in order to reduce the cost of waste management. According to information from PRF operators oily waste, which sometimes has a commercial value, is typically kept on board in order to be delivered to a PRF in a port where market conditions are most favorable (relating to oil prices, demand for oily waste, etc.). Such conditions may be found within but possibly also outside the EU.

e) Cargo residues in general remain the property of the cargo owner after unloading the cargo to the terminal, as they often have an economic value. For this reason, the cargo residues in most cases are not included in the cost recovery systems and the application of an indirect fee. Charges for the delivery of cargo residues are being paid directly by the user of the PRF, as specified in the contractual arrangements between the parties involved or in other local arrangements.

94. Considering the outcome of the assessments of cost recovery systems:

a) It has been noted that consistently increasing levels of oily waste are delivered to ADM/deposit fee systems. This indicated that in ports with these systems, a similar number of vessels deliver on average more MARPOL Annex I waste than before.
b) Other cost recovery systems did not show a similar rising trend.

Recommendation:
- For ship-generated oily waste (bilge water, sludge, waste oil): application of an ADM system, containing a fixed indirect fee supplemented with a refundable (deposit) part or penalty (in case of no delivery)
- For MARPOL Annex I cargo residues and washing waters: in general, the delivery of cargo residues and washing waters is charged directly, linked to the amount of waste delivered

6.1.2 MARPOL Annex II wastes

95. Considering the specificities of MARPOL Annex II waste:

a) In general cargo residues remain the property of the cargo owner after unloading the cargo to the terminal, as they often have an economic value. For this reason, cargo residues in most cases are not included in cost recovery systems and the application of an indirect fee.
b) The charges for the delivery of cargo residues are being paid directly by the user of the PRF, as specified in the contractual arrangements between the parties involved or in other local arrangements.
c) Cargo residues also include the remnants of noxious liquid cargo after cleaning operations to which the discharge norms of MARPOL apply, and which under certain conditions, as set out in the MARPOL Annexes, do not need to be delivered in port to avoid unnecessary operational costs for ships and congestion in ports.
d) In principle only, bulk (dry and liquid) ships can generate cargo residues or washing water containing cargo residues. Therefore, it does not seem fair to apply an indirect fee system for this type of waste and distribute the cost for collection and treatment over all port users (also the ones that do not generate cargo residues).

96. Considering the outcome of the assessments of cost recovery systems:

- Indirect fee systems including cargo residues have only been applied in very few and specific cases (e.g. in smaller ports with only a few dedicated terminals);
- It can be noted that, according to Directive (EU) 2019/883, EU Member States may encourage the delivery of residues from tank washings containing high-viscosity persistent floating substances by providing appropriate financial incentives.

Recommendation: application of a direct fee system, linked to the amounts of waste delivered to the PRF

6.1.3 MARPOL Annex IV wastes

97. Considering the specificities of MARPOL Annex IV waste:

a) Most merchant ships have sewage holding tanks. The size of these tank covers the necessary capacity for the retention of all sewage generated during the operation of the ship, and the number of persons onboard. Depending on the storage capacity of these tanks, it might not always be necessary for the ship to deliver sewage to a PRF.
b) Some ships are equipped with type approved sewage treatment plants. In those cases ships are only required to deliver the generated effluent when the ship is in port (where ships are often prohibited to discharge), as while it is on the route all sewage (when it is well treated) can be continuously legally discharged at sea. Therefore, not every ship delivers sewage to a PRF, and yearly volumes of sewage delivered to PRF in a port can be rather low.

98. Considering the outcome of the assessments of cost recovery systems:

a) Ports with a NSF/unlimited system received comparatively higher amounts of sewage than ports with other cost recovery systems.
b) It was concluded that the type of cost recovery system is not the key factor influencing the level of delivery of sewage, but that it is more related to the regional circumstances (such as e.g. the efforts of HELCOM in the Baltic Sea, which is a special area under MARPOL Annex IV).

Recommendation:	Depending of the normal and expected traffic in the port (amounts of sewage normally delivered), application of a NSF system with unlimited or reasonable amounts.

6.1.4 MARPOL Annex V wastes

6.1.4.1 Garbage (MARPOL Annex V other than cargo residues)

99. Considering the specificities of MARPOL Annex V waste:

a) The generation of garbage is inseparably linked with the amount of people onboard a ship. And as every ship has crew and/or passengers on board, every ship generates garbage.
b) After a while garbage, especially when contaminated with galley waste and food packaging, can be quite smelly. As it is not allowed to discharge any garbage at sea (except for food waste, under specific conditions), for hygienic reasons the ship's crew in general is not keen on keeping the garbage onboard the ship and, especially after long travels, are therefore happy to deliver their garbage when calling a port.
c) Garbage from ships is relatively similar to municipal waste, which is generated in every city and port. Therefore, means for collection (garbage trucks, skips, waste containers) of this type of waste are relatively inexpensive (especially when compared with specific chemical wastes) and easily available.
d) Although appendix II to MARPOL Annex V provides different categories[53] of garbage to be grouped in the Garbage Record Book, it does not require onboard segregation of these waste types. In addition, MARPOL Annex V does not contain a requirement to segregate hazardous garbage from non-hazardous garbage. As a consequence, the cost for collection and treatment of mixed garbage is not only determined by the volume of the garbage delivered, but also by the amount of hazardous wastes (as the cost for handling and treatment of this type of waste is significantly higher).

100. Considering the outcome of the assessments of cost recovery systems:

[53] Plastics (category A), Food wastes (B), Domestic wastes (C), Cooking oil (D), Incinerator ashes (E), Operational wastes (F), Animal carcasses (G), Fishing gear (H) and E-waste (I)

a) It was found that lower amounts of waste are delivered to ports that charge in relation to the volumes of waste delivered, when compared with ports with indirect fee systems in place.
b) Whereas these levels were relatively low until 2008, in recent years a clear rising trend has been observed in ports with NSF systems. This finding is in line with how a NSF cost recovery system provides incentives to deliver in the port.
c) Directive (EU) 2019/883 contains the requirement to implement a 100% indirect cost recovery system for MARPOL Annex V wastes, other than cargo residues. This 100% indirect fee will ensure a right of delivery without any additional charges based on volume of waste delivered, except when this volume of waste delivered exceeds the maximum dedicated storage capacity as mentioned in the form set out in Annex 2[54] to Directive (EU) 2019/883.
d) Although it is generally perceived that the 100% NSF system, apart from being transparent and relatively simple to manage, has the advantage to provide a significant incentive not to discharge garbage at sea, it is sometimes also mentioned[55] that this system does not provide a clear incentive for ships to reduce waste generation on board. This can be addressed by introducing:
    a. For non-EU ports: limited volumes included in the NSF (reasonable amounts); or
    b. Reduced waste fees for ships generating less amounts of waste

Recommendation:
- for EU ports: 100% NSF system
- for non-EU ports: 100% NSF system, or NSF for reasonable amounts

6.1.4.2 MARPOL Annex V cargo residues

101. Considering the specificities of MARPOL Annex V cargo residues:

a) Cargo residues often remain the property of the cargo owner after unloading the cargo to the terminal. Therefore, in most cases cargo residues are not included in cost recovery systems and the application of an indirect fee.
b) The charges for the delivery of cargo residues are being paid directly by the user of the PRF, as specified in the contractual arrangements between the parties involved or in other local arrangements.
c) Outside special areas MARPOL Annex V cargo residues that are not considered harmful to the marine environment (non-HME) can, under certain conditions, be legally discharged at sea. However, as the Mediterranean Sea is a special area under MARPOL Annex V, non-HME cargo residues (also contained in wash water) can only be discharged at sea if:
    a. both the port of departure and the next port of destination are within the special area and the ship will not transit outside the special area between these ports (regulation 6.1.2.2 of MARPOL Annex V); and
    b. if no adequate reception facilities are available at those ports (regulation 6.1.2.3 of MARPOL Annex V).
d) As according to MARPOL Annex V non-HME cargo residues (also contained in wash water after cleaning operations) are not needed to be delivered in port, in order to avoid unnecessary operational costs for ships and congestion in ports.
e) In principle only, bulk (dry and liquid) ships can generate cargo residues or washing water containing cargo residues. Therefore, it does not seem fair to apply an indirect fee system for this type of waste and distribute the cost for collection and treatment over all port users (also the ones that do not generate cargo residues).

102. Considering the outcome of the assessments of cost recovery systems:

[54] Standard format of the advance notification form for waste delivery to port reception facilities

[55] Mr. Jordi Vila (Barcelona Port Authority) in his presentation on the NSF in the port of Barcelona, given during a meeting of the PRF sub-group of the European Sustainable Shipping Forum (ESSF), 30/09/2015 in Brussels

- Indirect fee systems including cargo residues have only been applied in very few and specific cases (e.g. in smaller ports with only a few dedicated terminals).

Recommendation:	application of a direct fee system, linked to the amounts of waste delivered to the PRF

6.1.5 MARPOL Annex VI wastes

103. Considering the specificities of MARPOL Annex VI:

a) MARPOL Annex VI includes waste from exhaust gas cleaning systems (scrubber sludge) and ozone depleting substances (ODS). As ODS are mainly handled through repair yards, they are not being included in fee systems.
b) As MARPOL Annex VI does not require the use of scrubbers, not every ship generates it. And although it is expected that there will be a growth of this type of waste in the future, scrubber sludge is currently generated in limited volumes only, due to the fact that the number of ships with onboard scrubbers is still relatively small.

104. Considering the outcome of the assessments of cost recovery systems:

- Only in very few cases fee systems are being applied for scrubber waste. Due to the limited volumes of scrubber waste generated, in most of these cases direct fee systems were applied.

Recommendation:	application of a direct fee system, linked to the amounts of waste delivered to the PRF

6.2 Cruise/passenger ports

6.2.1 MARPOL Annex I wastes

105. Considering the specificities of MARPOL Annex I wastes:

a) Liquid oily wastes such as sludge and oily bilge water can be stored onboard relatively easy in designated holding tanks. As the storage capacity of these tanks can be quite large, ships can sail long distances before the holding tanks are full and delivery to a PRF is necessary.
b) When the ship is equipped with bilge water separation technology such as an oil-water separator (OWS), which can reduce the quantity of bilge water by 65–85%, the time for delivery to a PRF can even be prolonged.
c) Delivery of liquid oily wastes is a complex operation requiring designated equipment (tanks and piping) and extensive pumping capacity. As the delivery of oily bilge water and/or sludge therefore can take some time, ship operators will not be keen on delivering small amounts in every single port of call, but only:
    a. when the remaining storage tanks' capacity is limited in order to cover the amount of oily waste that will be generated during the following voyage; or
    b. when state-of-the-art service levels for collection can be provided by a PRF in a specific port.
d) Shipping companies appear to optimize their waste delivery in order to reduce the cost of waste management. According to information from PRF operators oily waste, which sometimes has a commercial value, is typically kept on board in order to be delivered to a PRF in a port where market conditions are most favourable (relating to oil prices, demand for oily waste, etc.). Such conditions may be found within but possibly also outside the EU.
e) Cruise/passenger ports are heavily affected by seasonal traffic (many ships in high season), which also impacts volumes of waste delivered.

106. Considering the outcome of the assessments of cost recovery systems:

a) It has been noted that consistently increasing levels of oily waste are delivered to ADM/deposit fee systems. This indicated that in ports with these systems, a similar number of vessels deliver on average more MARPOL Annex I waste than before.
b) Other cost recovery systems did not show a similar rising trend.

Recommendation: For ship-generated oily waste (bilge water, sludge, waste oil): application of an ADM system, containing a fixed indirect fee supplemented with a refundable (deposit) part or penalty (in case of no delivery). As cruise/passenger ports are heavily affected by seasonal traffic (many ships in high season), also NSF can be applied during these periods.

6.2.2 MARPOL Annex II wastes

107. Not applicable to cruise/passenger ships.

6.2.3 MARPOL Annex IV wastes

108. Considering the specificities of MARPOL Annex IV waste:

a) Most cruise ships have sewage holding tanks. The size of these tank covers the necessary capacity for the retention of all sewage generated during the operation of the ship, and the number of persons onboard. Depending on the storage capacity of these tanks, it might not always be necessary for the ship to deliver sewage to a PRF.
b) Most cruise ships are equipped with type approved sewage treatment plants. In those cases, ships are only required to deliver the generated effluent when the ship is in port (where ships are often prohibited to discharge), as while it is on the route all sewage treatment effluent can be continuously legally discharged at sea. Therefore, not every ship delivers sewage to a PRF, and yearly volumes of sewage delivered to PRF in a port can be rather low.
c) Cruise/passenger ports are heavily affected by seasonal traffic (many ships in high season), which also impacts volumes of sewage delivered.

109. Considering the outcome of the assessments of cost recovery systems:

a) Ports with a NSF system received comparatively higher amounts of sewage than ports with other cost recovery systems.
b) It was concluded that the type of cost recovery system is not the key factor influencing the level of delivery of sewage, but that it is more related to the regional circumstances (such as e.g. the efforts of HELCOM in the Baltic Sea, which is a special area under MARPOL Annex IV).

Recommendation: Depending of the normal and expected (high season) cruise and passenger traffic in the port, application of a NSF system

6.2.4 MARPOL Annex V wastes

110. Considering the specificities of MARPOL Annex V waste:

a) The generation of garbage is inseparably linked with the amount of people onboard a ship. And cruise/passenger ships per definition have large crew and passengers on board, every cruise/passenger ship generates substantial amounts of garbage.
b) As it is not allowed to discharge any garbage at sea (except for food waste, under specific conditions), for hygienic reasons the ship's crew in general is not keen on keeping the garbage

onboard the ship and, especially after long travels, are therefore happy to deliver their garbage to a PRF.

c) Garbage from ships is relatively similar to municipal waste, which is generated in every city and port. Therefore, means for collection (garbage trucks, skips, waste containers) of this type of waste are relatively inexpensive (especially when compared with specific chemical wastes) and easily available.

d) Although appendix II to MARPOL Annex V provides different categories[56] of garbage to be grouped in the Garbage Record Book, it does not require onboard segregation of these waste types. In addition, MARPOL Annex V does not contain a requirement to segregate hazardous garbage from non-hazardous garbage. As a consequence, the cost for collection and treatment of mixed garbage is not only determined by the volume of the garbage delivered, but also by the amount of hazardous wastes (as the cost for handling and treatment of this type of waste is significantly higher).

e) Cruise ship operators often maintain high environmental standards and implement some of the most advanced waste management schemes in the maritime industry, including the segregation of several hazardous and non-hazardous waste streams.

111. Considering the outcome of the assessments of cost recovery systems:

a) It was found that lower amounts of waste are delivered to ports that charge in relation to the volumes of waste delivered, when compared with ports with indirect fee systems in place.

b) Whereas these levels were relatively low until 2008, in recent years a clear rising trend has been observed in ports with NSF systems. This finding is in line with how a NSF cost recovery system provides incentives to deliver in the port.

c) Directive (EU) 2019/883 contains the requirement to implement a 100% indirect cost recovery system for MARPOL Annex V other than cargo residues. This 100% indirect fee will ensure a right of delivery without any additional charges based on volume of waste delivered, except when this volume of waste delivered exceeds the maximum dedicated storage capacity as mentioned in the form set out in Annex 2[57] to Directive (EU) 2019/883.

d) Although it is generally perceived that the 100% NSF system, apart from being transparent and relatively simple to manage, has the advantage to provide a significant incentive not to discharge garbage at sea, it is sometimes also mentioned[58] that this system does not provide a clear incentive for ships to reduce waste generation on board. This can be addressed by introducing:

e)
    a. for non-EU ports: limited volumes included in the NSF (reasonable amounts); or
    b. reduced waste fees for ships generating less amounts of waste

Recommendation:
- for EU ports: 100% NSF system
- for non-EU ports: 100% NSF system, or NSF system with reasonable amounts

6.2.5 MARPOL Annex VI wastes

112. Considering the specificities of MARPOL Annex VI:

a) MARPOL Annex VI includes waste from exhaust gas cleaning systems (scrubbers sludge) and ozone depleting substances (ODS). As ODS are mainly handled through repair yards, they are not being included in fee systems.

[56] Plastics (category A), Food wastes (B), Domestic wastes (C), Cooking oil (D), Incinerator ashes (E), Operational wastes (F), Animal carcasses (G), Fishing gear (H) and E-waste (I)

[57] Standard format of the advance notification form for waste delivery to port reception facilities

[58] Mr. Jordi Vila (Barcelona Port Authority) in his presentation on the NSF in the port of Barcelona, given during a meeting of the PRF sub-group of the European Sustainable Shipping Forum (ESSF), 30/09/2015 in Brussels

b) As MARPOL Annex VI does not require the use of scrubbers, not every ship generates it. And although it is expected that there will be a growth of this type of waste in the future, scrubber sludge is currently generated in limited volumes only, due to the fact that the number of ships with onboard scrubbers is still relatively small.

113. Considering the outcome of the assessments of cost recovery systems:

- Only in very few cases fee systems are being applied for scrubber waste. Due to the limited volumes of scrubber waste generated, in most of these cases direct fee systems were applied.

Recommendation:	application of a direct fee system, linked to the amount of waste delivered to the PRF

6.3 Fishing ports

6.3.1 MARPOL Annex I wastes

114. Considering the specificities of MARPOL Annex I wastes:

a) As fishing vessels most likely use lighter fuels such as diesel, these types of ships do not generate sludge.
b) Liquid oily wastes such as oily bilge water can be stored onboard in designated holding tanks. Delivery to a PRF will depend on the storage capacity of these tanks.
c) When the ship is equipped with bilge water separation technology such as an oil-water separator (OWS), which can reduce the quantity of bilge water by 65–85%, the time for delivery to a PRF can even be prolonged.

115. Considering the outcome of the assessments of cost recovery systems:

a) It has been noted that consistently increasing levels of oily waste are delivered to ADM/deposit fee systems. This indicated that in ports with these systems, a similar number of vessels deliver on average more MARPOL Annex I waste than before.
b) However, some of the practices related to cost recovery systems in fishing ports also include NSF systems for oily waste. This will depend on whether the fishing port more or less always the same ships has calling with which a specific agreement can be arranged, or it is often visited by other ships.

Recommendation:

- For fishing ports generally visited by the same ships and with which a specific agreement can be arranged: NSF
- Visitors to the port:
  - for EU ports: ADM system
  - for non- EU ports: ADM or direct fee system, linked to the amount of waste delivered

6.3.2 MARPOL Annex II wastes

116. Not applicable to fishing vessels.

6.3.3 MARPOL Annex IV wastes

117. Considering the specificities of MARPOL Annex IV waste:

When fishing vessels are equipped with sewage holding tanks, delivery of sewage to a PRF depends on the size of these tanks in combination with the length of the journey.

118. Considering the outcome of the assessments of cost recovery systems:

a) Ports with a NSF system received comparatively higher amounts of sewage than ports with other cost recovery systems.
b) It was concluded that the type of cost recovery system is not the key factor influencing the level of delivery of sewage, but that it is more related to the regional circumstances (such as e.g. the efforts of HELCOM in the Baltic Sea, which is a special area under MARPOL Annex IV).
c) None of the practices on cost recovery systems assessed during the internet survey included a NSF for sewage.

Recommendation:
- for EU ports: ADM system
- for non-EU ports: ADM or direct fee system, linked to the amount of waste delivered

6.3.4 MARPOL Annex V wastes

119. Considering the specificities of MARPOL Annex V waste:

a) The generation of garbage is inseparably linked with the amount of people onboard a ship. And as every ship has crew and/or passengers on board, every ship generates garbage.
b) After a while garbage, especially when contaminated with galley waste and food packaging, can be quite smelly. As it is not allowed to discharge any garbage at sea (except for food waste, under specific conditions), for hygienic reasons the ship's crew in general is not keen on keeping the garbage onboard the ship and, especially after long travels, are therefore happy to deliver their garbage when calling a port.
c) Garbage from ships is relatively similar to municipal waste, which is generated in every city and port. Therefore, means for collection (garbage trucks, skips, waste containers) of this type of waste are relatively inexpensive (especially when compared with specific chemical wastes) and easily available.
d) Although appendix II to MARPOL Annex V provides different categories[59] of garbage to be grouped in the Garbage Record Book, it does not require onboard segregation of these waste types. In addition, MARPOL Annex V does not contain a requirement to segregate hazardous garbage from non-hazardous garbage. As a consequence, the cost for collection and treatment of mixed garbage is not only determined by the volume of the garbage delivered, but also by the amount of hazardous wastes (as the cost for handling and treatment of this type of waste is significantly higher).
e) In some regions schemes have been set up to collect "passively fished waste" (waste that has been collected in nets during fishing operations). As this type of waste is in principle similar to garbage, it can be collected in ports.

120. Considering the outcome of the assessments of cost recovery systems:

a) It was found that lower amounts of waste are delivered to ports that charge in relation to the volumes of waste delivered, when compared with ports with indirect fee systems in place. In

[59] Plastics (category A), Food wastes (B), Domestic wastes (C), Cooking oil (D), Incinerator ashes (E), Operational wastes (F), Animal carcasses (G), Fishing gear (H) and E-waste (I)

recent years a clear rising trend has been observed in ports with NSF systems. This finding is in line with how a NSF cost recovery system provides incentives to deliver in the port.

b) Directive (EU) 2019/883 contains the requirement to implement a 100% indirect cost recovery system for MARPOL Annex V other than cargo residues.
c) Although it is generally perceived that the 100% NSF system, apart from being transparent and relatively simple to manage, has the advantage to provide a significant incentive not to discharge garbage at sea, it is sometimes also mentioned[60] that this system does not provide a clear incentive for ships to reduce waste generation on board. This can be addressed by introducing:
    a. for non-EU ports: limited volumes included in the NSF (reasonable amounts); or
    b. reduced waste fees for ships generating less amounts of waste
d) In some regions schemes have been set up to collect "passively fished waste" (waste that has been collected in nets during fishing operations). As this type of waste is in principle similar to garbage, it can be collected in ports. However, it is not recommended that the cost for collection and treatment of this type of waste is to be covered by a fee from the fishing vessels, in order not create a disincentive for fishing port communities to participate in delivery schemes for passively fished waste. In most cases the cost for the collection and treatment of passively fished waste was covered by national or sub-national financing schemes (subsidies).

Recommendation:

- For EU-ports: 100% NSF system, including for fishing gear
- For non-EU ports: 100% NSF system or NSF for reasonable amounts, including fishing gear
- Can be arranged at national or sub-national level
- Cost for collection and treatment of passively fished waste may be covered by alternative financing/subsidies on a national or sub-national level

6.3.5 MARPOL Annex VI wastes

121. Not applicable to fishing vessels.

6.4 Marinas

6.4.1 MARPOL Annex I wastes

122. Considering the specificities of MARPOL Annex I wastes:

a) As yachts use lighter fuels such as diesel, these types of ships do not generate sludge. Also bilge water is generated in limited amounts, depending on the size of the ship.
b) Liquid oily wastes such as oily bilge water can be stored onboard in tanks. Delivery to a PRF will depend on the storage capacity of these tanks.

123. Considering the outcome of the assessments of cost recovery systems:

a) It has been noted that consistently increasing levels of oily waste are delivered to ADM/deposit fee systems. This indicated that in ports with these systems, a similar number of vessels deliver on average more MARPOL Annex I waste than before.
b) However, some of the practices related to cost recovery systems in marinas also include NSF systems for oily wastes.

[60] Mr. Jordi Vila (Barcelona Port Authority) in his presentation on the NSF in the port of Barcelona, given during a meeting of the PRF sub-group of the European Sustainable Shipping Forum (ESSF), 30/09/2015 in Brussels

Recommendation:

- For club members and/or seasonal visitors of the marina: 100% NSF system, or NSF for reasonable amounts
- Daily visitors:
  - for EU ports: ADM system
  - for non-EU ports: ADM or direct fee system, linked to the amount of waste delivered

6.4.2 MARPOL Annex II wastes

124. Not applicable to recreational vessels.

6.4.3 MARPOL Annex IV wastes

125. Considering the specificities of MARPOL Annex IV waste:

- Delivery of sewage to a PRF depends on the size of the holding tanks in combination with the length of the journey.

126. Considering the outcome of the assessments of cost recovery systems:

a) Although it was concluded that ports with a NSF system received comparatively higher amounts of sewage than ports with other cost recovery systems, the assessments on cost recovery systems mainly focused on merchant seaports, not at marinas.
b) However, some of the practices related to cost recovery systems in marinas also included NSF systems for sewage.

Recommendation:

- For club members and/or seasonal visitors of the marina: 100% NSF system, or NSF with limited amounts
- Daily visitors:
  - for EU ports: ADM system
  - for non-EU ports: ADM or direct fee system, linked to the amount of waste delivered

6.4.4 MARPOL Annex V wastes

127. Considering the specificities of MARPOL Annex V waste:

a) The generation of garbage is inseparably linked with the amount of people onboard a ship. And as every ship has crew and/or passengers on board, every ship generates garbage.
b) Garbage from ships is relatively similar to municipal waste, which is generated in every city and port. Therefore, means for collection (garbage trucks, skips, waste containers) of this type of waste are relatively inexpensive (especially when compared with specific chemical wastes) and easily available.

128. Considering the outcome of the assessments of cost recovery systems:

a) Although it was concluded that ports with a NSF system received comparatively higher amounts of garbage than ports with other cost recovery systems, the assessments on cost recovery systems mainly focused on merchant seaports, not at marinas.
b) However, all marinas assessed within the framework of this study applied NSF systems for garbage.

Recommendation:
- For EU ports: 100% NSF system
- For non-EU ports:
  - 100% NSF system, or NSF for reasonable amounts
  - Daily visitors: ADM or direct fee system, linked to the amount of waste delivered

6.4.5 MARPOL Annex VI wastes

129. Not applicable to recreational vessels.

6.5 Overview of recommendations

Port/waste type	Recommended cost recovery system
Merchant seaports	
MARPOL Annex I wastes	• For ship-generated oily waste (bilge water, sludge, waste oil): application of an ADM system, containing a fixed indirect fee supplemented with a refundable (deposit) part or penalty (in case of no delivery) • For MARPOL Annex I cargo residues and washing waters: in general, the delivery of cargo residues and washing waters is charged directly, linked to the amounts of waste delivered
MARPOL Annex II wastes	Application of a direct fee system linked to the amounts of waste delivered to the PRF
MARPOL Annex IV wastes	Depending of the normal and expected traffic in the port (amounts of sewage normally delivered), application of a NSF system with unlimited or reasonable amounts.
MARPOL Annex V wastes, other than cargo residues	• For EU ports: 100% NSF system • For non-EU ports: 100% NSF system, or NSF for reasonable amounts
MARPOL Annex V cargo residues	Application of a direct fee system linked to the amounts of waste delivered to the PRF
MARPOL Annex VI wastes	Application of a direct fee system linked to the amounts of waste delivered to the PRF
Cruise/passenger ports	
MARPOL Annex I wastes	For ship-generated oily waste (bilge water, sludge, waste oil): application of an ADM system, containing a fixed indirect fee supplemented with a refundable (deposit) part or penalty (in case of no delivery). As cruise/passenger ports are heavily affected by seasonal traffic (many ships in high season), also NSF can be applied during these periods.
MARPOL Annex II wastes	N/A
MARPOL Annex IV wastes	Depending of the normal and expected (high season) cruise and passenger traffic in the port, application of a 100% NSF system or NSF for reasonable amounts.

MARPOL Annex V wastes	• For EU ports: 100% NSF system • For non-EU ports: 100% NSF system, or NSF for reasonable amounts
MARPOL Annex VI wastes	Application of a direct fee system linked to the amounts of waste delivered to the PRF
Fishing ports	
MARPOL Annex I wastes	• For fishing ports generally visited by the same ships and with which a specific agreement can be arranged: NSF • Visitors to the port: ADM or direct fee system, linked to the amount of waste delivered
MARPOL Annex II wastes	N/A
MARPOL Annex IV wastes	ADM or direct fee system linked to the amount of waste delivered
MARPOL Annex V wastes	• For EU ports: 100% NSF system, including fishing gear • For non-EU ports: 100% NSF system, or NSF for reasonable amounts, including fishing gear • Can be arranged at national or sub-national level • Cost for collection and treatment of passively fished waste may be covered by alternative financing/subsidies on a national or sub-national level
MARPOL Annex VI wastes	N/A
Marinas	
MARPOL Annex I wastes	• For club members and/or seasonal visitors of the marina: 100% NSF system, or NSF for reasonable amounts • Daily visitors: ADM or direct fee system, linked to the amount of waste delivered
MARPOL Annex II wastes	N/A
MARPOL Annex IV wastes	• For club members and/or seasonal visitors of the marina: 100% NSF system, or NSF for reasonable amounts • Daily visitors: ADM or direct fee system, linked to the amount of waste delivered

MARPOL Annex V wastes	• For EU ports: 100% NSF system
	• For non-EU ports:
	  ○ 100% NSF system, or NSF for reasonable amounts
	  ○ Daily visitors: ADM or direct fee system, linked to the amount of waste delivered

MARPOL Annex VI wastes	N/A