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Partnership dialogues

Addressing marine pollution

Concept paper prepared by the secretariat

I. Introduction

1. The present concept paper for the partnership dialogue on the theme “Addressing marine pollution”, prepared pursuant to General Assembly resolution [70/303](#), relates to target 14.1 of the Sustainable Development Goals. The paper is based on inputs received from Member States, intergovernmental organizations, the United Nations system and other stakeholders.¹

2. Pollution from human activities can be found all across the ocean’s vast expanse: in both deep and shallow areas and within the organisms that live in it. Rivers carry waste, solid and liquid, and a wide range of other substances into the ocean. Discharges, spills and waste from shipping are another source of pollution. Pollutants discharged into the air are also deposited into the ocean. Although considerable progress has been achieved in limiting some forms of pollution, others persist. New challenges, whether relating to specific pollutants (e.g., microplastics) or broader trends (e.g., the rapid growth of coastal cities), will require sustained action that encompasses scientific research, knowledge-sharing and strengthened governance arrangements.

* [A/CONF.230/1](#).

¹ Given the word limit, not all inputs have been included in their entirety, but they can be accessed at <https://oceanconference.un.org/documents>.



II. Status and trends

3. In article 1 of the United Nations Convention on the Law of the Sea, “pollution of the marine environment” is defined as the introduction by man, directly or indirectly, of substances or energy into the marine environment, including estuaries, which results or is likely to result in such deleterious effects as harm to living resources and marine life, hazards to human health, hindrance to marine activities, including fishing and other legitimate uses of the sea, impairment of quality for use of sea water and reduction of amenities.

4. Land-based sources account for approximately 80 per cent of marine pollution globally. Such pollution emanates from a range of sources, including agricultural run-off, untreated sewage and wastewater, oils, nutrients, sediments and marine debris.² Agricultural practices, coastal tourism, port and harbour developments, the damming of rivers, urban development and construction, mining, fisheries, aquaculture and manufacturing are just some of the sources of marine pollution that are threatening coastal and marine habitats and the health and well-being of humanity.

5. Nutrient overenrichment from agricultural, municipal and industrial sources is also considered to be the main cause of so-called “dead zones”, hypoxic regions that exhibit oxygen levels too low to support many aquatic organisms, including commercially desirable species. The result is the collapse of some ecosystems. The extent and duration of dead zones is increasing worldwide,³ and there are now close to 500 dead zones covering more than 245,000 square kilometres globally, with the number doubling every 10 years since the 1960s.⁴ The economic costs to fisheries, tourism and other coastal livelihoods are already exacting a heavy toll. While rivers are the conduit for organic nitrogen entering the ocean, land-based nitrogen enters it primarily through atmospheric deposition. Expanded observation is necessary to properly characterize the magnitude and effects of those outflows.

6. At least 2 billion people currently lack access to regular waste collection. A large portion of that uncollected waste ends up in waterways and the ocean, becoming marine debris in the process. Marine debris, also known as marine litter, impacts economies, ecosystems, animal welfare and human health worldwide. Approximately 80 per cent of marine debris comes from land-based sources, while the remaining 20 per cent comes from sea-based sources, including maritime transport, fishing and industrial exploration. Plastics are by far the most prevalent debris item recorded, contributing to an estimated 60 to 80 per cent of all marine debris. Research suggests that by 2050 almost 99 per cent of seabirds will have ingested plastics.⁵

² United Nations Educational, Scientific and Cultural Organization, “Facts and figures on marine pollution” (2016). Available at en.unesco.org. United Nations Environment Programme Global Marine Oil Pollution Information Gateway (2016). Available at oils.gpa.unep.org/about/about.htm.

³ United Nations, Division for Ocean Affairs and the Law of the Sea, *The First Global Integrated Marine Assessment: World Ocean Assessment I* (Cambridge, Cambridge University Press, 2017). S. S. Rabotyagov and others, “The economics of dead zones: causes, impacts, policy challenges, and a model of the Gulf of Mexico hypoxic zone”, *Review of Environmental Economics and Policy*, vol. 8, No. 1 (2014), pp. 58-79.

⁴ United Nations Development Programme, “Issue brief: ocean hypoxia — “dead zones””, 15 May 2013. Available at www.undp.org.

⁵ Chris Wilcox, Erik Van Sebille and Britta Denise Hardesty, “Threat of plastic pollution to seabirds is global, pervasive, and increasing”, *Proceedings of the National Academy of Sciences of the United States of America (PNAS)*, vol. 112, No. 38 (2015), pp. 11899-11904.

7. The impact of marine debris includes entanglement with and ingestion by marine animals, and it has been identified as a global problem.⁶ Plastics typically constitute the most substantial part of marine debris, sometimes accounting for up to 100 per cent of floating litter.⁷ Plastic debris causes the deaths of large numbers of seabirds and marine mammals. Plastic materials and other litter can become concentrated in areas called gyres, which form when marine pollution is brought together by oceanic currents.

8. It is estimated that abandoned, lost or otherwise discarded fishing gear, also known as ghost fishing gear, accounts for up to 10 per cent of marine debris. Ghost fishing gear has an impact on marine wildlife through entanglement, but also represents a source of marine microplastics. Ghost fishing gear and related marine debris have been addressed by means of instruments related to international fisheries, for example, the Food and Agricultural Organization Code of Conduct for Responsible Fisheries and the Fish Stocks Agreement. In particular, the Fish Stocks Agreement requires States to minimize pollution and catch by lost or abandoned gear, through measures including, to the extent practicable, the development and use of selective, environmentally safe and cost-effective fishing gear and techniques.

9. Microplastics are a form of marine litter that has been shown to be widespread in the marine environment. Generally defined as plastic fragments with a size between 1 nanometre (one billionth of a metre) and 5 millimetres, microplastics originate from a wide range of sources. They are produced for use as ingredients in personal care and cosmetics products, for example, but they are also created over time through the process of weathering and fragmentation of larger plastic objects in the ocean. There are significant knowledge gaps, but concern has been expressed about the impact of microplastics on marine ecosystems.⁸ With regard to human health, it was determined in a study by the United Nations Environment Programme (UNEP) that microplastics in seafood do not currently represent a human health risk, although many uncertainties remain.⁹ However, the same study also found that there was still great uncertainty about the possible effects of nano-sized plastic particles, which are capable of crossing cell walls.

10. Sound chemical management is important in preventing marine pollution, protecting ecosystems and conserving biodiversity. In some parts of the world, the efforts of the past 40 years have been successful in reducing or, where possible, eliminating the impact of heavy metals and hazardous substances. The concentrations in the ocean of such metals and substances are now diminishing, for example, in the north-east Atlantic, even though problems persist in some local areas. New technologies and processes that can avoid such problems have also been widely developed, but there are gaps in the capacities to apply those newer processes, often because of the costs involved.

11. Pollution from ships takes the form of both catastrophic events (shipwrecks, collisions and groundings) and chronic pollution from regular operational discharges; however, good progress has been made in reducing both over the past 40 years. Global environmental rules and standards have been developed to regulate most of the ship-related sources of pollution. Steps are now being taken to further strengthen the uniform enforcement of those rules and standards around the globe.

⁶ *The First Global Integrated Marine Assessment*; report of the Secretary-General on oceans and the law of the sea (A/71/74).

⁷ François Galgani, Georg Hanke and Thomas Maes, "Global distribution, composition and abundance of marine litter", in *Marine Anthropogenic Litter*, Melanie Bergmann, Lars Gutow and Michael Klages, eds. (Heidelberg, Germany, Springer, 2015), pp. 29-56.

⁸ A/71/204.

⁹ United Nations Environment Programme, *Marine Plastic Debris and Microplastics: Global Lessons and Research to Inspire Action and Guide Policy Change* (Nairobi, 2016).

The global regulatory framework includes international conventions addressing the entire life cycle of ships (“from cradle to grave”, including design, building, operation and ship recycling) and the certification and training of seafarers.

12. Shipping displaces around 10 billion tons of ballast water each year. Ballast is absolutely essential to the safe and efficient operation of ships, providing balance and stability when empty of cargo. However, the exchange of ballast water is a possible route for the introduction of invasive species. While the International Convention for the Control and Management of Ships’ Ballast Water and Sediments of the International Maritime Organization will soon enter into force and is intended to control and manage this problem, its implementation will be influenced by more widespread ratification. The unintentional introduction of invasive alien species can also be caused by activities such as aquaculture, ocean research, tourism and sport fishing.

13. Human activities in the oceans are responsible for increasing levels of underwater noise, and there is growing concern regarding the potential threat to marine living resources posed by noise proliferation. Sources of anthropogenic ocean noise include commercial and non-commercial shipping, air guns used to carry out seismic surveys, military sonar, underwater detonations and construction, resource extraction and fishing activities. Suggested actions include conducting research to address knowledge gaps; mitigating and managing anthropogenic underwater noise; and addressing noise pollution at the source, through improved ship design, which could also potentially yield efficiency gains. At its twelfth meeting in 2014, the Conference of the Parties to the Convention on Biodiversity, in its decision XII/23, encouraged Parties and other Governments, as well as indigenous and local communities and other relevant stakeholders, to take specific measures to avoid, minimize and mitigate the potential significant adverse impacts of anthropogenic underwater noise on marine and coastal biodiversity.¹⁰ In its resolution 71/257, on oceans and the law of the sea, the General Assembly noted, inter alia, that ocean noise could have significant adverse impacts on living marine resources and affirmed the importance of sound scientific studies in addressing the matter. It also decided that the United Nations Open-ended Informal Consultative Process on Oceans and the Law of the Sea would focus its discussions in 2018 on the theme “anthropogenic ocean noise”.

14. Pollution from oil has been the most significant type of marine pollution from ships. Despite an increase in the quantity carried and the length of voyages, the number of spills exceeding 7 tons has decreased steadily, from over 100 spills in 1974 to under five in 2012.¹¹ The total quantity of oil released in those spills has been reduced by an even greater factor. Progress has also been made in improving response capabilities, although much remains to be done, especially as coastal States have to bear the capital cost of acquiring the necessary equipment. In the wake of a number of severe incidents related to offshore platforms in recent years, international attention has also focused on the need to prevent pollution of the marine environment from offshore oil and gas exploration and development. The International Seabed Authority has been developing rules, regulations and procedures concerning the prospecting, exploration and exploitation of marine minerals in the area, which, inter alia, are aimed at ensuring an environmentally sustainable development of seabed mineral resources therein.

15. The dumping of waste at sea was the first activity capable of causing marine pollution to have been brought under global regulation. The Convention on the

¹⁰ See United Nations Environment Programme, document UNEP/CBD/COP/12/29, annex, decision XII/23.

¹¹ *The First Global Integrated Marine Assessment*; [A/71/74](#).

Prevention of Marine Pollution by Dumping of Wastes and Other Matter (the London Convention), adopted in 1972, regulates the dumping of wastes and other matter at sea from ships, aircraft and man-made structures. Controls under that agreement have been progressively strengthened, in particular in the 1996 Protocol to the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, 1972 (the London Protocol). As stated in the concept paper for partnership dialogue 7, limited participation has had an impact on the effectiveness of a number of international legal instruments, including the Convention.¹² In addition, over half of the States party to the London Convention and the Protocol thereto do not submit reports on dumping under their control.¹³ The London Protocol was amended in October 2013 to regulate ocean fertilization activities and potentially other future marine geoengineering activities within its scope. A working group has been established under the Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection to better understand the potential environmental and socioeconomic impacts of different marine geoengineering approaches on the marine environment and to provide advice to the States parties to the London Protocol on marine geoengineering activities.¹⁴

16. The discharge of garbage from ships is a major part of the problem of marine debris. Steps are being taken to improve the implementation of new controls under the International Convention for the Prevention of Pollution from Ships. For example, the World Bank has helped several Caribbean States to set up port waste reception facilities, which has made it possible for the Wider Caribbean Region to be declared a special area under annex V of the Convention, under which stricter requirements apply. Other States (for example, the Member States of the European Union) have introduced requirements for the delivery of waste ashore before a ship leaves port and have removed economic incentives to avoid doing so. It is, however, too early to judge how such developments have succeeded in reducing the problem as the major obstacle to the implementation of the Convention has been the lack of, or insufficient, reception facilities in many ports worldwide. Compliance with the discharge requirements of the Convention depends heavily on the availability of adequate port reception facilities, especially within special areas established under annex V. In addition, regulations introduced under the Convention are designed to limit air pollution from ships, in particular from sulphur oxide and nitrous oxide emissions and from particulates. There is also scope extension to extend emission control areas, which are areas in which stricter controls are established to minimize emissions.

17. Some of the regional seas programmes (e.g., the Convention for the Protection of the Marine Environment of the North-East Atlantic and the Action Plan for the Protection, Management and Development of the Marine and Coastal Environment of the Northwest Pacific Region) have developed action plans that include monitoring and management of marine debris and other forms of pollution that stem from shipping and fisheries activities. Systems that are used to prevent sea life, such as algae and molluscs, from attaching to the hull and thereby slowing vessels can adversely affect marine biodiversity. A new international agreement addresses the use of chemicals in such systems.

18. There is a broad legal framework for the protection and preservation of the marine environment from all forms of marine pollution centred around the United Nations Convention on the Law of the Sea, which is complemented by a broad

¹² See concept paper on enhancing the conservation and sustainable use of oceans and their resources by implementing international law as reflected in the United Nations Convention on the Law of the Sea.

¹³ *The First Global Integrated Marine Assessment*, p. 29.

¹⁴ See the concept paper on minimizing and addressing ocean acidification.

range of binding and non-binding instruments related to specific types or sources of pollution.¹⁵ Pursuant to this framework, States have a general obligation to take, individually or jointly, as appropriate, all measures consistent with the Convention that are necessary to prevent, reduce and control pollution of the marine environment from any source, using for that purpose the best practicable means at their disposal and in accordance with their capabilities, and shall endeavour to harmonize their policies in this connection. States also have a broad range of specific legal obligations, contained in Part XII of the Convention and numerous other instruments to which they may be parties, to address marine pollution. Indeed, the Convention provides for internationally accepted rules, standards and recommended practices and procedures to be applied as minimum standards in the formulation and enforcement of national laws, regulations and measures aimed at addressing pollution from seabed activities, dumping and vessels. Such internationally accepted rules and standards must also be taken into account in the development of laws and regulations relating to pollution from land-based activities and pollution coming from, or transiting through, the atmosphere. However, there remain important gaps in and challenges to implementation at the regional, national and global levels that need to be addressed.

III. Challenges and opportunities

19. In its resolution [71/257](#), the General Assembly has identified a number of challenges, and actions that could be taken to address them, in relation to the protection and preservation of the marine environment. Such actions include increasing participation in global and regional instruments that address the protection and preservation of the marine environment; further developing and implementing, as appropriate and consistent with international law, including the United Nations Convention on the Law of the Sea, of the environmental impact assessment processes covering planned activities under their jurisdiction or control that may cause substantial pollution of or significant and harmful changes to the marine environment; jointly developing and promoting contingency plans for responding to pollution incidents and others that are likely to have significant adverse effects on the marine environment and biodiversity; integrating the issue of marine debris into national and, as appropriate, regional strategies dealing with waste management, including recycling, reuse, reduction and disposal, especially in the coastal zone, ports and maritime industries; addressing consumption and production patterns, including through awareness-raising campaigns; and improving flag State implementation and port State control measures. The General Assembly also reaffirmed the importance of applying an ecosystems approach to oceans.

20. Wastewater and nutrient load pollution is still a major threat to the ocean. The Global Programme of Action for the Protection of the Marine Environment from Land-based Activities is intended to deal with land-based impacts on the marine environment, specifically those resulting from sewage, persistent organic pollutants, radioactive substances, heavy metals, oils (hydrocarbons), nutrients, sediment mobilization, litter and physical alteration and destruction of habitat. Under the Global Programme of Action framework almost 100 countries have prepared national programmes of action and/or relevant national plans/strategies to address land-based pollution. The Convention on Biodiversity programme of work on marine and coastal biodiversity promotes steps for the effective application of the Global Programme of Action and other appropriate instruments, including proper coastal land use, watershed planning and the integration of marine and coastal zone

¹⁵ See also concept paper on enhancing the conservation and sustainable use of oceans.

management into key sectors. Although much has been done to implement national programmes of action adopted under the Programme, particularly in South America, the lack of sewage systems and wastewater treatment plants is still a major threat to the ocean. This is particularly true in very large urban settlements.

21. New wastewater treatment technologies and processes developed may have the ability to minimize problems, but there can be gaps in the capacity to apply these newer processes, often because of the costs involved. This is particularly true in developing countries. Information is lacking on the fate of heavy metals and other hazardous substances that are sometimes mixed in with wastewater discharges. There are gaps in educating farmers and industry and other stakeholders on more sustainable practices that reduce the discharge of waste and nutrients to the environment. In many parts of the world, there is no form of regular, systematic assessment of the impact of land-based inputs. Where assessments do occur, they tend to take place once and not in forms suitable for incorporation into wider, continuous assessments. Many of the regional seas programmes have adopted protocols for land-based sources of pollution and related action plans; however, the level of implementation of those protocols is not widely known in many regions.

22. Data and knowledge gaps exist with regard to all aspects of the life cycle of marine debris, plastics and microplastics. There is also a gap in information for evaluating the impacts of marine debris on coastal and marine species, habitats, economic well-being, human health and safety, and social values. Research and development is also required to encourage the reuse and recycling of plastics and create commercially viable options for converting plastic waste into other materials or energy. Marine debris is not only an environmental issue but also a socioeconomic one. Preventive awareness-raising and incentives for changing individual behaviour and industry practices are suggested as an essential first step.

23. With regard to impacts of pollution on marine and coastal biodiversity, in 2010 the Conference of the Parties to the Convention on Biological Diversity adopted Aichi Biodiversity Target 8, which calls for pollution, including from excess nutrients, to be brought down to levels that are not detrimental to ecosystem function and biodiversity by 2020. Efforts have been taken under the Convention to assist States Parties and relevant organizations in achieving that target. In addition, voluntary practical guidance on means of preventing and mitigating the impacts of marine debris on marine and coastal biodiversity and habitats has been developed under the Convention.¹⁶

24. With regard to pollution from ships, inadequate port reception facilities are a particularly acute problem, especially for small island developing States. Such ports are frequently visited by cruise ships that have a larger capacity than their facilities can handle. Where adequate port waste reception facilities exist, the effective use of those facilities has sometimes been hampered by high costs, complicated procedures, delays in ports, unnecessary paperwork, excessively stringent sanitary and customs regulations and other factors.¹⁷ In certain regions, there is a need to address the risks posed by wrecks and explosive ordnances from war relics, with due regard to cultural heritage and touristic value.

25. There are clear links between management of the oceans and food security, health, employment and cities. The lack of adequate sewage treatment in many large coastal conurbations, in particular in developing countries, and other excessive inputs of nutrients, especially nitrogen, are producing direct adverse impacts on

¹⁶ UNEP/CBD/COP/10/27, annex, decision XIII/10. See also the concept paper on managing, protecting, conserving and restoring marine and coastal ecosystems (A/CONF.230/5).

¹⁷ A/71/74, para. 62.

human health through the proliferation of microbial diseases and eutrophication problems. In many cases, those excessive nutrient inputs are creating harmful algal blooms, which disrupt ecosystems and damage fisheries, especially small-scale fisheries and the related livelihoods. In some cases, people have been poisoned as a result of algal toxins.¹⁸

26. Population density in coastal zones is significantly higher than in non-coastal areas, and the trend toward urbanization combined with an increasing world population will accelerate the ongoing population migration to coastal areas. That trend has already had a significant environmental impact on seas and oceans, caused in part by the lack of environmentally sound waste management in coastal cities. Similar problems are hardly inevitable in new coastal urban areas; in fact, the economies of scale and critical mass that cities generally provide are a basic prerequisite for most waste management infrastructure. When cities plan in advance and are supported by adequate legislation and financing, they are able to provide much better waste management than non-urban coastal areas. Support for integrated watershed and coastal zone management, especially in small island developing States, is needed.

27. The issue of pollution has direct linkages to several of the other areas covered in the Sustainable Development Goals, including management of freshwater resources, as rivers act as a conduit for pollutants into the marine environment. Sustainable consumption and production is highly relevant to the incorporation of circular economy principles and practices that touch on higher resource use efficiency, recycling and minimization of harmful discharges into the environment.

28. The increase in the accidental introduction of alien species, both from shipping through ballast water and from escaped farmed species, has implications for food security and human health. In favourable conditions, alien species may become invasive and outcompete local marine species and result in biodiversity loss, thereby impacting local marine ecology, complex food webs, food security and human health.

29. The General Assembly has recognized the importance of capacity-building for developing States, in particular the least developed countries, landlocked developing countries and small island developing States, as well as coastal African States, for the protection of the marine environment and the conservation and sustainable use of marine resources. It also recognized the need to build the capacity of developing States to raise awareness and support the implementation of improved waste management practices, noting the particular vulnerability of small island developing States to the impact of marine pollution of all kinds, in particular from land-based activities and marine debris and nutrient pollution.

30. Cross-sectoral and inter-agency cooperation and coordination at the global, regional and national levels is critical to addressing all forms of pollution, in particular from land-based sources. Strengthening such cooperation and coordination can facilitate the consideration of all costs and impacts of activities, including in relation to pollution of the marine environment. In that regard, the mainstreaming of considerations regarding the protection and preservation of the marine environment into national development programmes and strategies could be beneficial.

¹⁸ *The First Global Integrated Marine Assessment*, p. 37.

IV. Existing partnerships

31. There are a range of partnerships addressing marine pollution. A well-established example is the Global Programme of Action for the Protection of the Marine Environment from Land-based Activities, which was adopted in 1995. Since 2012, the programme has focused on marine pollution in relation to three source categories: nutrient management, marine litter and wastewater. All three partnerships (the Global Partnership on Nutrient Management, the Global Partnership on Marine Litter and the Global Wastewater Initiative) have advisory capacity and engage in science-policy interface activities. The partnerships under the Global Programme of Action are now all fairly well established with defined governance structures and recognized as providing a forum for the exchange of knowledge and best practices. One key success factor is the composition of the partnerships, which has broad stakeholder representation.

32. The resourcing of implementation actions has been identified as a gap, as has the building of national capacity for effective waste management. A challenge facing enhanced cooperation remains the predominance of the sectoral approach. Although this is understandable, in that a sectoral approach is based on thematic expertise of each organization, there has been a shift towards a holistic vision in recent years, as reflected in Sustainable Development Goal 14. In relation to the Global Programme of Action, it has been noted that there has been limited translation of the work of the partnerships into influential areas of government policy. There is some transfer of knowledge and best practices in both technical and policy arenas, but it could be substantially strengthened. This is partly due to the fact that there is insufficient representation by governmental entities in the partnerships. Resource and capacity limitations within the Global Programme of Action have limited the ability to fully support the partnerships at the national level. The private sector has seen limited engagement in the use of the partnerships for transmitting knowledge and incorporating best practices.

33. The Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection aims to provide authoritative, independent, interdisciplinary scientific advice to the United Nations system and other organizations to support the protection and sustainable use of the marine environment. At present, United Nations organizations with responsibilities relating to the marine environment include the Food and Agriculture Organization; the Intergovernmental Oceanographic Commission of the United Nations Educational, Scientific and Cultural Organization; the International Atomic Energy Agency; the International Maritime Organization; the United Nations Development Programme; UNEP; the United Nations Industrial Development Organization; the United Nations Secretariat; and the World Meteorological Organization. Those organizations sponsor activities of the Joint Group of Experts, including a number of working groups that provide advice on marine pollution issues.

34. The Regular Process for Global Reporting and Assessment of the State of the Marine Environment, including Socioeconomic Aspects, is the first global mechanism for reviewing the state of the marine environment, including socioeconomic aspects, on a continual and systematic basis by providing regular assessments at the global and supraregional levels and an integrated view of environmental, economic and social aspects. Such assessments support informed decision-making.¹⁹

¹⁹ See the concept paper for partnership on increasing scientific knowledge, and developing research capacity and transfer of marine technology (A/CONF.230/9).

35. At the regional level, there are other long-standing partnerships with key international and regional organizations that could be further built on, such as the partnership between UNEP/Mediterranean Action Plan and the European Environment Agency, the International Atomic Energy Agency and the International Maritime Organization, which all have specific objectives in relation to pollution management.

V. Possible areas for new partnerships

36. Areas that have been identified for further research and policy development are emerging pollutants, such as microplastics, endocrine-disrupting compounds and harmful algal blooms. Proposals for new partnerships, drawn from the submissions for the present dialogue, are outlined below:

(a) Raising public awareness on plastic pollution and its negative impacts and demonstrating the social, environmental and economic benefits of recycling are essential. There is scope for public-private partnerships that raise awareness among manufacturers, distributors, consumers and others, in order to promote the development of better alternatives, change consumer behaviour and promote recycling;

(b) Partnerships on improved and quieter ship design that bring together naval architects and designers, shipbuilders, and shipping companies could help to find a long-term way to address noise pollution from shipping;

(c) There is scope for partnerships to improve the sustainability of ports on a number of fronts, for instance, relating to waste management and reception facilities;

(d) Partnerships for the sound management of chemicals, including capacity development for the development of national legislation and management systems;

(e) Partnerships that promote sustainable marine transport in relation to reducing shipping emissions and new regional recycling and waste collection centres;

(f) A proposed new partnership between UNEP and the Secretariat of the Pacific Regional Environment Programme to cooperate in the delivery of the Global Partnership on Marine Litter in the Pacific in order to implement the Cleaner Pacific 2025: Pacific Regional Waste and Pollution Management Strategy 2016-2025;

(g) Engage additional sectoral interests, for instance, private sector entities with regional or global reach, in the Global Programme of Action partnerships;

(h) New partnerships operating at the land-sea interface could contribute to assessing and mitigating the entry of microplastics into the marine environment, possibly building on the Initiative on Water Quality of the United Nations Educational, Scientific and Cultural Organization;

(i) Building on existing partnerships should be further encouraged and strengthened, such as the Regional Cooperation Platform on Marine Litter in the Mediterranean, established between intergovernmental organizations, national authorities and targeted stakeholders, including the business community;

(j) Attention could also be given to strengthening the implementation of the legal regime for the protection and preservation of the marine environment. That could be achieved through activities and partnerships that provide training and technical assistance on the development of national legislation and policy and

develop the scientific and technical capacity to monitor, assess and address marine pollution.

VI. Guiding questions for the dialogue

37. The following questions could be considered in the dialogue:

- (a) How can linkages between collective arrangements at the regional and global levels be improved?
 - (b) What can be done to strengthen waste management practices with the aim of reducing marine debris and pollution? What sustainable financial mechanisms can be utilized for the development and maintenance of sound waste management practices and infrastructure?
 - (c) What are the key sectors that have the potential to make major contributions to controlling ocean pollution? What steps can be taken to deepen the engagement in existing and new partnerships?
 - (d) How can partnerships promote compliance with existing agreements (for example, the United Nations Convention on the Law of the Sea and the International Convention for the Prevention of Pollution from Ships)?
-