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**United Nations
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**Ad hoc open-ended expert group
on marine litter and microplastics**

Fourth meeting

Online, 9–13 November 2020

Item 4 (b) of the provisional agenda*

**Identification of technical and financial resources or
mechanisms (subparagraph 7b)**

**Identification of technical and financial resources or
mechanisms for supporting countries in addressing marine
plastic litter and microplastics****

Note by the Secretariat

1. The ad hoc open-ended expert group (AHEG) was established through United Nations Environment Assembly resolution 3/7 paragraph 10. Its mandate was extended through resolution 4/6 paragraph 7, which also requested the group to, among other things, through subparagraph 7(b):

“Identify technical and financial resources or mechanisms for supporting countries in addressing marine plastic litter and microplastics”

2. The ad hoc open-ended expert group on marine litter and microplastics, at its third meeting, requested the Secretariat¹ to produce a report covering both technical and financial resources or mechanisms that would:

(a) Consider existing bodies of work such as the Basel Convention, the Partnership on Plastic Waste, the Global Partnership on Marine Litter, Asia Pacific Economic Cooperation, and the Commonwealth Clean Ocean Alliance.

(b) Collect information from existing sources, look at funding resources and mechanisms such as bilateral donors, and development assistance through multilateral bodies including the World Bank, the International Monetary Fund, regional and sub-regional development banks, the United Nations system (including Multilateral Environmental Agreements), the Global Environment Facility and other relevant sources, including national sources, as well as information from the private sector, including for-profit institutions, non-profit foundations, capital markets etc.

(c) Promote a better understanding of the current state of play of technical and financial resources and mechanisms, including a life cycle approach, as well as of the financing flows between

* UNEP/AHEG/2019/3/1/Rev.1.

** The present document is being issued without formal editing.

¹ Outcome document from the third ad hoc open-ended expert group on marine litter and microplastics. Final version, 22 November 2019, Bangkok, Thailand.
https://papersmart.unon.org/resolution/uploads/aheg_3_outcome_document_0.pdf.

key donors/financial institutions and recipients at regional and national level, including with regard to challenges and barriers.

(d) Examine new opportunities through innovative financing, including public-private sector partnerships, blended finance, and other approaches, with the aim to identify ways to promote cooperation.

(e) Gather information on existing technical resources, environmentally sound substitutes and mechanisms, addressing aspects of the whole life cycle of marine plastic litter and microplastics, taking into consideration information from both the public and private sector as well as civil society.

(f) Take into consideration other work streams in particular the stock-taking exercise.

3. This document identifies technical and financial resources or mechanisms for supporting countries in addressing marine plastic litter and microplastics. It is presented to AHEG-4 for discussion and consideration. Additional details are available in UNEP/AHEG/4/INF/7.

4. The ultimate objective of the exercise is to identify technical and financial resources or mechanism relevant for the prevention and reduction of both land-based and sea-based sources of marine plastic litter and microplastics, with a main focus on a) land-based (waste management) and near-shore (litter capturing) technologies and a priority on low- and medium-cost options, across the whole life cycle of plastics; and b) funding and financial resources for addressing marine plastic litter, as well as engagement of non-traditional stakeholders. The exercise utilizes information collected from the stock-taking exercise mandated under resolution 4/6 subparagraph 7(a) and described in UNEP/AHEG/4/2.

I. Introduction

A. The purpose of this document

5. Both technical and financial resources or mechanisms are fundamental requirements. They serve as enabling conditions to combat marine plastic litter. This document provides a summary of technical and financial resources or mechanisms available to support countries in addressing marine plastic litter and microplastics, taking into account feedback received by AHEG-3 to build on previous work under 3/7, and as outlined in the report and its outcome document. This document is not exhaustive. It should rather be seen as a compilation of existing information. The topics of wastewater treatment and the impacts of marine plastic litter are not within the scope of the review.

B. The importance of technical resources and mechanisms for tackling marine plastic litter and microplastics

6. Technical resources and mechanisms are sources of information, knowledge, expertise or support that can be drawn upon by a Member State or an organization to define an effective policy for preventing or remediating marine plastic litter and microplastics. Examples include technical guidelines and technical reports, information on best practices, tool kits, training materials and calculation models. Mechanisms refer to platforms and databases that provide access to a bigger collection of various technical resources.

7. A systematic synthesis of technical resources and mechanisms will:

(a) provide an overview and facilitate access to data and information, available from various sources, that are usually scattered;

(b) provide information to help stakeholders interested in combating marine plastic litter to prioritize their actions, as well as to learn from success stories in similar contexts and implement successful strategies;

(c) assist stakeholders and organizations in collaborating for increased efficiency, rather than competing, working in parallel or duplicating efforts.

C. The importance of financial resources and mechanisms for tackling marine plastic litter and microplastics

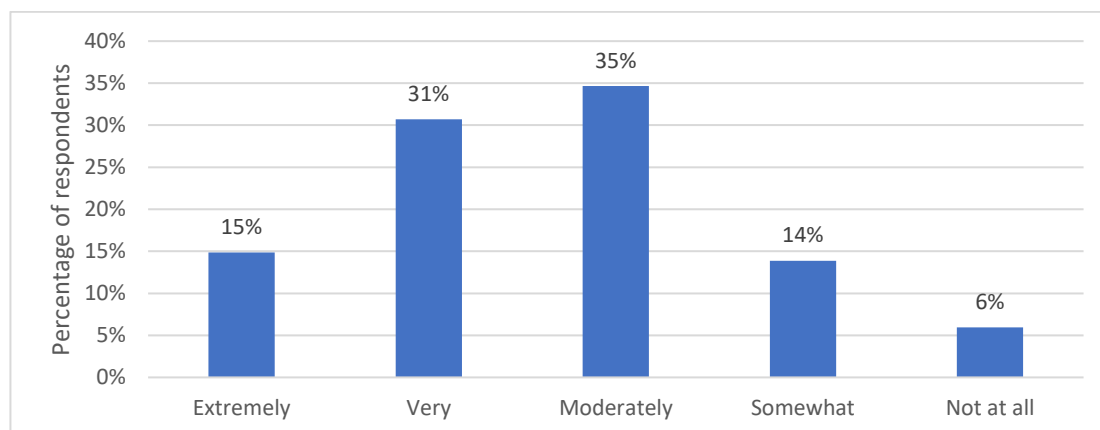
8. Financial resources and mechanisms are defined as all resources or mechanisms that can be used by a Member State or an organization to finance activities to tackle marine plastic litter and microplastics. They include grants, loans, investments, blended finance, crowdfunding and donations,

among others. These resources and mechanisms may be provided by multilateral or bilateral donors, governments, private not-for-profit and for-profit organizations, or individuals.

9. Tackling marine plastic litter and microplastics requires the implementation of an array of policies, activities and technologies, many of which have high financial costs. Member States and organizations therefore face important financial barriers in implementing necessary measures. This challenge was emphasized during the first and second meetings of the ad hoc open-ended expert group on marine plastic litter and microplastics. The need to address the costliness of interventions was reinforced by responses to the marine plastic litter and microplastics stock-taking survey described in UNEP/AHEG/4/2, in which 46 per cent of respondents indicated that they considered initiatives to address plastic pollution to be very or extremely expensive (Figure 1).

Figure 1

Perceptions of the costliness of initiatives to address plastic pollution (Source: data from the marine plastic litter and microplastics stock-taking survey)



10. To support Member States in addressing financial barriers and deciding on future actions related to financing, this document summarizes current financial resources and mechanisms available and provides recommendations for possible actions.

D. Existing challenges and barriers to addressing marine plastic litter and microplastics

11. During the first meeting of the ad hoc open-ended expert group on marine plastic litter and microplastics, held in Nairobi from 29 to 31 May 2018, participants noted numerous barriers to tackling marine plastic litter and microplastics.² The list of these barriers, especially those existing in developing countries, is long. They include inadequate financing, legal and regulatory deficits, low administrative capacities, lack of public awareness of good sanitary practices, and limited enforcement.

12. The barriers described at that meeting include many which are relevant to the discussion of technical and financial resources. This report builds on and addresses those barriers.

13. Financial barriers are related to situations in which high costs make a certain activity difficult to afford or implement. Technological barriers are related to the production, manufacturing and design of materials and products, distribution and consumption systems, and all aspects of waste collection, management and recovery. Information barriers pertain to data, research, transparency, and education and awareness.

14. Barriers listed in the discussion paper on the barriers to combating marine plastic litter and microplastics, including challenges with respect to resources in developing countries,³ which are related to technological resources, closely linked data and research resources, and financial resources include the following:

² Report of the first meeting of the ad hoc open-ended expert group on marine litter and microplastics. AHEG/2018/1/6. <https://papersmart.unon.org/resolution/uploads/k1801471.pdf>.

³ Discussion paper on barriers to combating marine litter and microplastics, including challenges related to resources in developing countries. UNEP/AHEG/2018/1/2. https://papersmart.unon.org/resolution/uploads/unep_aheg_2018_1_2_barriers_edited_0.pdf.

Technological barriers:

- (a) Industry design and consumption systems are not prioritized along the “3R waste hierarchy” of reduce, reuse, recycle.
- (b) Infrastructure is needed for waste management and/or recycling.
- (c) There is a disconnect between innovation in production and after-use systems and infrastructure.
- (d) Rural areas are not well serviced, which also reduces the likelihood of viable recycling schemes.
- (e) Coordinated development and adoption of labelling standards is lacking, which hinders product separation and the understanding of the content of products for reuse and recyclability purposes.
- (f) New alternative materials may need to be collected in a separate waste stream.
- (g) Many government authorities, corporations and the public have little or no knowledge
- (h) of the matters involved, or of the best available technologies and best environmental
- (i) practices required to address the issue of marine plastic litter and microplastics.
- (j) There is a fragmented approach at the regional level to waste management, including wastewater treatment. This fragmented approach extends to the national level in many countries.
- (k) There is poor or inadequate design of products to meet air and water quality standards in order to reduce emissions of microplastics from wear and tear during product use, as well as to evaluate compliance with such standards when conducting life cycle and environmental impact assessments.
- (l) There is insufficient involvement of industry in solutions.
- (m) There is insufficient research into new business models enables plastic to remain in the system.
- (n) There is insufficient understanding of how to increase the recycled content of products.

Data and research barriers:⁴

- (a) There is a lack of data at various levels on the sources and extent of plastics and microplastics in the marine environment and in organisms, and on associated health and ecosystem risks.
- (b) Lack of data on plastic material flows and waste: a better understanding of the routes of plastic flows into the ocean is needed (categorized by, for example, geography, application, polymer type and size).
- (c) Many countries do not have any data or monitoring programmes with which to set reduction targets or for priority interventions.
- (d) There is a lack of harmonized implementation of monitoring methodologies to facilitate the development of quantitative and operational reduction targets.
- (e) There is insufficient research on and development of alternative materials, backed with life cycle analysis, to assess environmental consequences, and that are scalable and economically viable.
- (f) There is limited formal education on marine plastic litter and microplastics.
- (g) There is a need to identify and address cultural barriers to behavioural change, in order to facilitate the adoption of reusable delivery systems and replace single-use plastics.
- (h) There is a lack of global standards for national monitoring and reporting on the consumption, use, final treatment and trade of plastic that will eventually become waste.
- (i) There is a need for greater reporting at the national level on consumption, production and end-of-life treatment of plastics.

⁴ Only the barriers listed in the discussion paper which are relevant to this report are included here.

- (j) There is a lack of transparent and inclusive decision-making; this prevents various societal actors and interest groups from engaging in discussions about responsible actors and the risks that society is willing to take.
- (k) Trade in plastic waste: greater transparency is required; international codes do not provide adequate information.
- (l) There is a lack of global reporting standards.
- (m) There is a lack of research and monitoring systems to determine if traded waste is mismanaged

Barriers related to financial resources:

- (a) There is a lack of internalization of costs for recovery and recycling of plastics.
- (b) Fossil fuel subsidies keep plastic cheap, as the cost of raw materials is sometimes lower than that of using recycled plastic.
- (c) There is no “polluter pays” principle in most countries relating to marine plastic litter and none in “common” areas such as the high seas, which leaves the cost of dealing with plastic waste to Governments.
- (d) Global funding schemes are not appropriate at the lower council level.
- (e) There are cross-border investment challenges.
- (f) There is a lack of funds and implementation of market-based instruments and tax incentives to stimulate investment in local infrastructure for the collection, treatment or disposal and environmentally and financially sustainable end-of-life treatment of plastic waste, especially in developing countries.
- (g) Separate fees for disposal of rubbish and fishing gear at port reception facilities encourage at-sea disposal/dumping.
- (h) There is a lack of implementation of market-based instruments and tax incentives to stimulate investment in facilities for environmentally and financially sustainable end-of-life treatment of plastic waste.
- (i) There is limited understanding of the costs of marine plastic litter at the national, regional and international levels, and a failure to internalize or make explicit the costs to human health and the environment.
- (j) Costs to human health are not factored in, as they are as yet unknown.
- (k) There is a failure to establish sustainable and profitable end-markets for all end-of-life plastics, both domestic and international.

II. Methodology

15. This report builds on previous work of the ad hoc open-ended expert group on marine litter and microplastics. It assesses the technical and financial resources and mechanisms available for countries to address marine plastic litter and microplastics, based on publicly available information as well as interviews with experts. The report methodology has made use of:

- (a) inventories of technical and financial resources or mechanisms for supporting countries in addressing marine plastic litter and microplastics, based on desk research;
- (b) inputs from the stocktake survey (UNEP/AHEG/4/2 and UNEP/AHEG/4/INF/6);
- (c) interviews and/or email communications with experts and stakeholders on financial and technical resources and mechanisms used.

III. Technical resources and mechanisms

A. The state of existing technical resources and mechanisms

16. This section outlines the technical resources and mechanisms currently available to address marine plastic litter and microplastics and related challenges. In total, 138 technical resources and mechanisms were included in the review. For the interested user it is crucial to understand the types of technical resources and mechanisms that are available, on which topics, and from which sources. The targeted scale and geographic scope of these resources and mechanisms are also of importance.

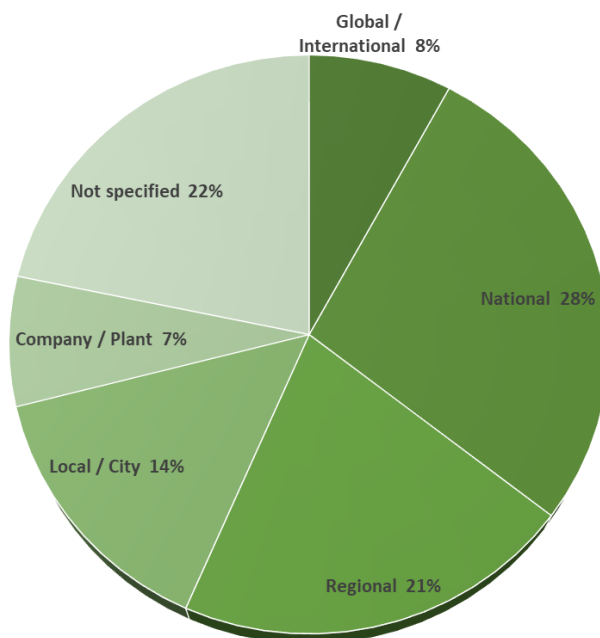
17. For the different types of resources and mechanisms a distinction was made between “application cases/pilot project”, “state of knowledge report including policy recommendations”, “calculation model/tool”, “operational/technical guidelines”, “toolkit/guidance for decision makers”, “monitoring methodology”, “training”, “best practice”, “manual” and “inventory”. Regarding topics, a value chain perspective was taken, looking at the stages in the plastics life cycle with respect to “prevention of litter and waste”, “design and production”, “use and consumption”, “waste management” and “marine litter monitoring and capturing”. Work on each of these topics can contribute to increasing or reducing marine plastics litter and microplastics, with different actors being key at each stage and with different barriers to be faced.

18. Some general patterns in the coverage of the reviewed technical resources and mechanisms can be described. While all of them cover macroplastics, only 50 per cent include microplastics. Macroplastics are the main source of microplastics owing to their degradation over time. With respect to scale, about one-third of the reviewed technical resources and mechanisms address the national level, 21 per cent the regional level, 14 per cent the local/city level, 7 per cent the company/plant level, and 8 per cent the global level (Figure 2). In the case of 22 per cent the scale is not specified. Concerning geographic focus, all parts of the world can be considered to be well covered.

19. With respect to the stage in source-to-sea movement, litter in and around rivers and lakes is often not extensively discussed while inland sources, the sea-land interface and the sea are well covered. This year UNEP will publish guidelines for the harmonization of methodologies for monitoring plastics in rivers and lakes.

Figure 2

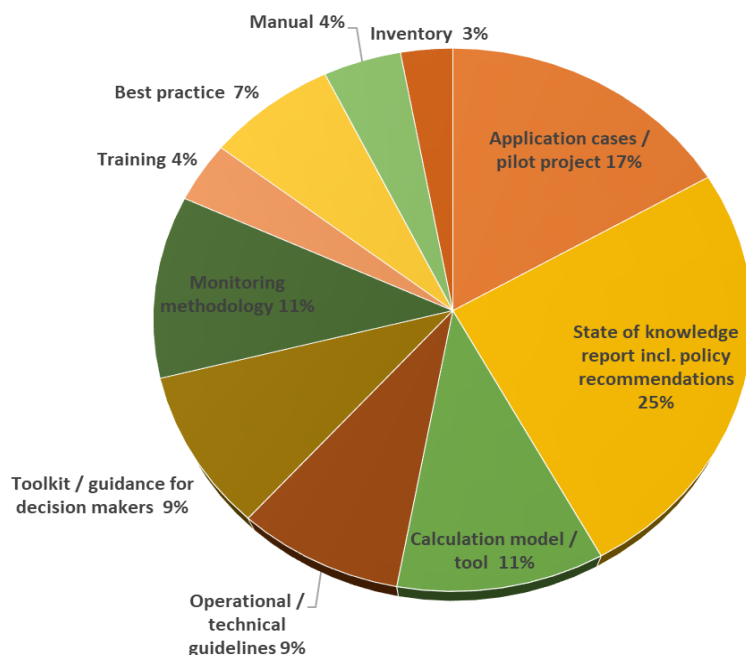
Scales addressed by the technical resources and mechanisms reviewed



20. With respect to types of technical resources and mechanisms (Figure 3), state-of knowledge reports, including policy recommendations, make up the largest share (25 per cent) while 17 per cent contain application cases and 7 per cent best practice. In addition, 4 per cent are labelled as training materials, 11 per cent describe monitoring methodologies (mainly for marine plastic litter monitoring), 11 per cent describe calculation tools to quantify marine plastic litter, 9 per cent provide toolkits or

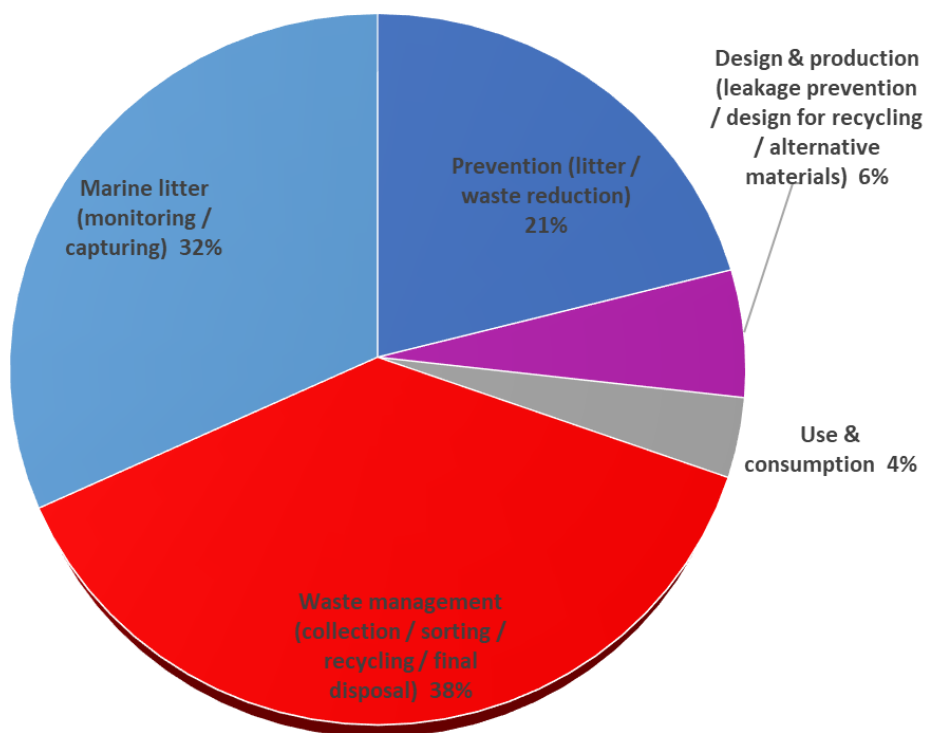
guidance for decision makers, 9 per cent provide more specific technical or operational guidelines, and 4 per cent are actual manuals on a range of different topics.

Figure 3
Types of technical resources and mechanisms



21. All of the technical resources and mechanisms were classified according to the main plastics life cycle stages to which they are related. Thus, 70 per cent cover waste management (38 per cent) and marine plastic litter (32 per cent), 20 per cent prevention of litter and waste reduction, 6 per cent design and production, and 4 per cent use and consumption (Figure 4). Although many resources and mechanisms cover changing product design and consumer choices, these topics are often not directly related to prevention of marine plastic litter and microplastics.

Figure 4
Plastic life cycle stages covered by the technical resources and mechanisms



22. **Waste management** resources and mechanisms were related to collection, sorting, recycling and final disposal, including landfills and waste-to-energy. They were provided chiefly by Asia Pacific Economic Cooperation (APEC), the International Solid Waste Association (ISWA), the Secretariat of the Basel, Rotterdam and Stockholm Conventions, the United Nations Development Programme (UNDP), UNEP, the United Nations Industrial Development Organization (UNIDO) and the World Bank. Waste management is covered by all types of technical resources and mechanisms except monitoring methodologies, which mostly concern marine plastic litter monitoring. The Basel, Rotterdam and Stockholm Conventions provides the most comprehensive platform, with operational and technical guidelines, fact sheets, toolkits, and guidance for policy and decision makers. Moreover, it offers concrete technical assistance activities such as training workshops (especially for developing countries). Reports on implemented pilot projects and best practices for plastic waste management can be found.

23. While collection, recycling and landfills are well covered, there is a major gap, especially in developing countries, in regard to innovative solutions for environmentally sound plastic disposal. In addition, solutions for recovered marine plastics are not addressed.

24. The share of technical resources and mechanisms that cover the monitoring and capturing of marine plastic litter is almost equal to the share that cover waste management. This topic is addressed by entities including the European Commission's Marine Strategy Framework Directive (MSFD) Technical Group on Marine Litter, the Global Partnership on Marine Litter (GPML), the International Union for Conservation of Nature (IUCN), the Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection (GESAMP), and the World Wide Fund for Nature (WWF).

25. Because monitoring methodologies are not widely harmonized, it is difficult to compare results. For instance, the methodology for Sustainable Development Goal (SDG) indicator 11.6.1, developed by UN-Habitat, mainly takes waste management related sources into account to quantify marine plastic litter, while the Plastic Drawdown methodology developed by Common Seas also considers sea-based sources and wastewater treatment plants. The Ministry of the Environment of Japan has started a harmonization process for marine microplastics monitoring by developing guidelines for sampling.

26. Often resources and mechanisms with a main focus on marine plastic litter (e.g. those provided by APEC and UNEP) promote waste management as an important solution in the short term. Most national, regional and local marine plastic litter action plans include waste management as a key task, often in combination with prevention and litter monitoring and capturing.

27. Another area where marine plastic litter and waste management are closely interlinked is tools to quantify and predict marine plastic litter, as developed by Common Seas, the German Development Agency (*Deutsche Gesellschaft für international Zusammenarbeit* [GIZ]), the ISWA taskforce on marine litter, IUCN and UNEP, UN-Habitat, and the University of Leeds, among others. Most of these tools were developed independently of each other without coordination. Some are more data-intensive than others. These tools are applicable at different scales from city to national level. Half of them include microplastics.

28. Other technical resources and mechanisms that cover litter monitoring and capturing consist of methodologies and/or operational and technical guidelines for monitoring and assessment and state-of-knowledge reports, including recommendations for decision makers and toolkits with specific guidance for political decision makers. While a number of detailed case studies, including lessons learned, are available (e.g. those provided by ISWA, UNEP and UNIDO), these types of technical resources and mechanisms are scarce in the case of marine plastic litter monitoring and capturing. Technical resources that address only marine plastic litter often provide high-level guidance, rather than applications to a specific local context, and implementation is not addressed. Not many technical resources address the link between marine plastic litter and cities, and specific case studies are not available.

29. In regard to **prevention of marine plastic litter and waste reduction**, a number of state-of-knowledge reports (including recommendations for decision makers and toolkits with specific guidance) are available. They are provided, for instance, by the Basel Convention Plastic Waste Partnership and the Secretariat of the Basel, Rotterdam and Stockholm Conventions, as well as by GPML. The United States National Oceanic and Atmospheric Administration (NOAA) Marine Debris Program operates a platform with numerous resources on marine debris prevention activities, monitoring and assessment, action planning and removal. This topic is obviously very broad and includes measures related to all stages, that is, design and production, use and consumption, as well as waste management.

30. Concerning **design and production**, a number of reports are available on eco-design and alternative materials such as biodegradable plastics. They are provided, for instance, by GPML, the Japan Clean Ocean Material Alliance (CLOMA), the Ministry of the Environment of Japan, UNEP, UNIDO and WWF and are mainly related to bans on single-use plastics and litter prevention. A limited number of existing technical resources and mechanisms address losses and leakages from production sites. A noteworthy initiative is Operation Clean Sweep® (OCS) by PlasticsEurope, an international programme designed to prevent the loss of plastic granules (pellets, flakes and powders) during handling along the plastics value chain and their release to the environment.

31. The life cycle stage **use and consumption** is not widely covered as a main theme by the reviewed technical resources and mechanisms. This is probably because it is mainly addressed in isolated education and awareness-raising campaigns (not included in this review), rather than, for instance, in material that provides specific instructions on how to achieve behavioural change. However, use and consumption is addressed in some marine plastic litter reports with respect to banning single-use plastics and consumers' disposal and source separation patterns.

B. Challenges and barriers

32. This section discusses important barriers and challenges to combating marine plastic litter and microplastics observed a) during the inventory exercise and b) in the stocktake survey results. It also compares them to the barriers previously identified in AHEG meetings. The prioritization of barriers could inform considerations of the global context for addressing marine plastic litter and microplastics.

(a) At AHEG-2 waste management was identified as one of the primary overarching barriers to combating marine plastic litter and microplastics. A number of legal, financial, technological and information barriers related to waste management were identified in the discussion paper cited above (UNEP/AHEG/2018/1/2) as barriers that deserved consideration for additional discussion by the UN Environment Assembly. Although waste management is extensively covered by technical resources from different sources, the problem of a mismatch between an increase in plastic production and consumption and available waste management infrastructure (especially in developing countries) is rarely addressed. This is particularly true in the case of remote and/or rural areas that receive plastic products but do not have adequate collection and recycling infrastructure.

(b) Integrated case studies at a local level that address both waste management and marine plastic litter by combining upstream and downstream measures are widely missing. Sharing expertise and best practices and scaling up local success stories should be encouraged and facilitated.

(c) AHEG-2 identified as a challenge the fact that industry design and consumption systems are not prioritized along the "3R waste hierarchy" of reduce, reuse, recycle. There are still no technical resources explicitly addressing new business models or alternative distribution systems (e.g. to reduce overpackaging). The use of new alternative materials is explored in a number of reports, along with the potential related problems of separate collection and the need for additional infrastructure. However, research and development for alternative materials that are scalable and economically viable is insufficient with respect to life cycle analysis and the assessment of environmental consequences.

(d) The previously identified challenge that coordinated development and adoption of labelling standards is lacking (which hinders product separation and understanding of the content of products for reuse and recyclability purposes) is still not sufficiently addressed by the reviewed technical resources. In addition, the involvement of industry in solutions is still limited, although industry associations such as PlasticsEurope are increasingly making efforts to help find solutions to marine plastic litter. Integrated case studies, whereby producers and waste management actors successfully communicate, can showcase improved circularity due to an increase in the recycled content of products. Moreover, understanding the content of products for reuse and recyclability purposes can contribute to clean cycles.

(e) There are many successful national strategies. Responses at the national level will remain a core element in regard to resolving the problem of marine plastic litter and microplastics. However, regional and global efforts could be improved and better coordinated so as to complement national efforts in support of global responses. At the global level the role of waste trade and its rules/implementation (equal standards of recycling) are not adequately addressed in the technical resources and mechanisms reviewed, while global approaches do not always take into account national circumstances.

(f) Integrated studies on how waste trade from developed to developing countries impacts waste management systems and the marine plastic litter situation in developing countries are missing,

which corresponds to the previously identified challenge that there is a lack of research and monitoring systems to determine whether traded waste is mismanaged. In addition, the lack of global standards for national monitoring and reporting on the consumption, use, final treatment and trade of plastic that will eventually become waste is not addressed by the technical resources and mechanisms reviewed. At the same time, at the national level there is still a need for greater reporting on consumption, production and end-of-life treatment of plastics.

(g) A challenge identified in the Consolidated background paper of the discussion papers presented at the first meeting of the AHEG⁵ is that many government authorities, corporations and the public have little or no knowledge of the matters involved, or of the best available techniques and best environmental practices required to address marine plastic litter and microplastics. There is a focus on this problem in an increasing number of toolkits, including specific guidance for political decision makers. Organizations such as the Secretariat of the Basel, Rotterdam and Stockholm Conventions provide technical assistance to the Parties with respect to plastic waste. Some marine plastic litter quantification tools, such as the one developed by GIZ (*Deutsche Gesellschaft für Internationale Zusammenarbeit*) and EAWAG (Swiss Federal Institute for Aquatic Science and Technology), are particularly designed to help local decision makers identify marine plastic litter hotspots. In addition, many of the state-of-knowledge reports on marine plastic litter and microplastics contain recommendations for decision makers. This creates an improved overall knowledge base which may eventually lead to a more transparent and inclusive decision-making process.

(h) The AHEG Consolidated background paper also identified cultural barriers to behavioural change as a challenge to facilitating the adoption of reusable delivery systems and replacing single-use plastics. This problem is not adequately addressed by the technical resources and mechanisms reviewed.

(i) The general lack of data on plastic material flow and waste is increasingly addressed by litter quantification tools in order to obtain a better understanding of the routes of plastic flows into the ocean. However, to calibrate these calculation tools primary data are needed for the calibration, as well as clarification on whether comparisons between the various tools are possible.

(j) The AHEG Consolidated background paper identified as a challenge that many countries do not have any data or monitoring programmes which can be used to set reduction targets or undertake priority interventions. National, regional and local marine plastic litter action plans could potentially play a role in supporting such target setting. For instance, the Mediterranean Regional Action Plan has a target of a 20 per cent reduction in beach litter by 2022. Several monitoring methodologies are available and guidance has been developed on uses and approaches, for instance through GESAMP. However, there is still a need for harmonized implementation of monitoring methodologies to facilitate the development of quantitative and operational reduction targets, as well as baselines against which progress can be measured.

IV. Financial resources and mechanisms

33. As concern about the impacts of marine plastic litter and microplastics has grown, so has the development of targeted financial resources and mechanisms to address that issue. This section will outline the financial resources currently available and expand on the barriers to financing as well as opportunities. To carry out the analysis, a non-exhaustive inventory of sources of finance for combating marine plastic litter and microplastics was developed.

34. This inventory is included as an annex to UNEP/AHEG/4/INF/7 and its contents are summarized in Figure 5. It should be noted that not all information was available for all sources identified, and that some may be relevant in more than one category (e.g. a financing source may target, and be counted under, both the waste management phase and the litter capturing phase).

⁵ Consolidated background paper of the discussion papers presented at the first meeting of the ad hoc open-ended expert group on marine litter and microplastics, held in Nairobi from 29 to 31 May 2018. UNEP/AHEG/2018/2/2. <https://papersmart.unon.org/resolution/uploads/k1803257.pdf>

Figure 5

Summary of the inventory of financial resources for efforts to combat marine plastic litter and microplastics

Total sources of financing identified		74				
Financing type						
Multilateral	Bilateral	Private for-profit		Private not-for-profit		
21	26	6		15		
Region targeted						
More than one region	Africa	Asia and the Pacific	Europe	Latin America and the Caribbean	North America	West Asia
38	3	16	9	3	5	0
Phase in the plastics life cycle/value chain targeted						
Production/manufacturing phase	Use phase	Waste management phase	Litter capturing	Prevention, minimization, reuse		
26	11	50	22	15		

A. Principle sources of funding

35. **Multilateral:** A number of large funds have been created at the multinational level, providing millions and even billions of dollars for actions to tackle marine plastic litter and microplastics. Many are broader initiatives which include a focus on marine plastics while others, such as Clean Oceans and ProBLUE, focus primarily on preventing marine plastic litter. These funds frequently combine investments, guarantees and grants. They usually have a global or regional focus, often focusing on Asia and the Pacific. Financing is generally made available to national and local government institutions, corporate entities and research institutions. In addition, the World Bank has released Sustainable Development Bonds to raise funds and awareness on marine plastic litter and microplastics, including the USD 28.6 million Sustainable Development Bond on Sustainable Use of Oceans and Coastal Areas – the “Blue Economy”, and the USD 10 million bond to specifically highlight the challenge of plastic waste in oceans.

36. **Bilateral:** Several countries have devoted significant bilateral aid budgets to tackle the issues of marine plastic litter and microplastics, including Australia, Germany, Japan, Norway, Sweden, the United Kingdom and the United States. In the inventory of financial resources bilateral financing was the most common type of financing, representing 44 per cent of the financial resources identified. Much bilateral aid focuses on countries in Asia and the Pacific, particularly on the five countries (China, Indonesia, the Philippines, Thailand and Viet Nam) from which it is Jambeck et al (2015) estimated that about half of all plastic waste that ends up in the ocean is released. Bilateral funding largely takes place through grant funding. Direct investment in private projects is not possible for some projects due to internal requirements. Nonetheless, some programmes have taken innovative approaches to support private initiatives and leverage private funding.

37. A notable example is the Incubator Network to Accelerate Ocean Plastic Solutions, set up with funding from the United States and Australia and run by Circulate Capital, with SecondMuse and Ocean Conservancy. The initiative aims to accelerate solutions to ocean plastic waste by partnering with existing incubators to build ecosystems of waste management and recycling innovators. Through another partnership with Circulate Capital, the United States Agency for International Development (USAID) has provided loan-portfolio guarantees to mobilize private investment to combat plastic pollution in oceans in the Indo-Pacific region. The United Kingdom’s Department for International Development (Dfid) has also tried innovative approaches, including partnerships with businesses such as Unilever and Coca-Cola, and matched giving approaches.

38. Bilateral donors have been key to driving initiatives to combat marine plastic litter and microplastics. Nonetheless, they recognize the need for greater coordination, both at headquarter level and at country level, to avoid duplication of efforts and to maximize impact.

39. **Private not-for-profit:** Private not-for-profit financing mechanisms include voluntary donations, crowdfunding donations, corporate social responsibility funds, and grants. Many large foundations and charities have taken a keen interest in this topic, as have private companies, which are increasingly involved through social responsibility initiatives or their foundations. This is particularly

true of many fast-moving consumer goods companies, many of which are coming under pressure for their contributions to plastic pollution. Finally, individual contributions through crowdfunding and voluntary donations play a role in providing additional funding.

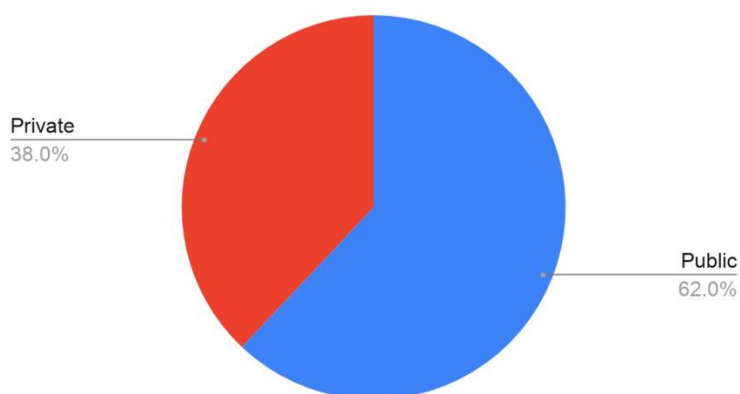
40. As with bilateral initiatives, there are multiple private initiatives with generally limited coordination. However, some initiatives have been set up in recent years to bring together private actors including businesses, civil society and research organizations to better coordinate funding and activities. The Trash Free Seas Alliance, launched by the non-governmental organization Ocean Conservancy, is an example.

41. **Private for-profit:** Private for-profit finance mechanisms include bank loans, venture capital, equity financing and angel networks. They play an increasingly important role in financing efforts to combat marine plastic litter and microplastics. Many initiatives, such as crowdfunding, impact investing and accelerator or incubator programmes, involve mixed non-profit and for-profit approaches. Accelerators and incubators, such as the Incubator Network to Accelerate Ocean Plastic Solutions mentioned above, support companies and organizations to improve and grow their operations and sometimes provide funding (often in return for an equity stake). Impact investors focusing explicitly on the issue of marine plastic litter are also emerging. An example is Odyssey Impact Investments, which invests in solutions to climate change and single-use plastics. Microfinance institutions (some run as for-profit financial institutions and others as cooperatives or non-profits) are also relevant for funding small businesses that tackle plastic pollution.

42. Overall, funding provided purely by private funds, investors and organizations remains a smaller proportion of funding than public funds. A study by UNEP (2020, forthcoming) has estimated that 62 per cent of funding for marine plastic litter prevention comes from public sources, compared with 38 per cent from private sources (Figure 6). Given the limitations on increasing public spending indefinitely, it is particularly important that international and public spending further leverages private funding in the future.

Figure 6

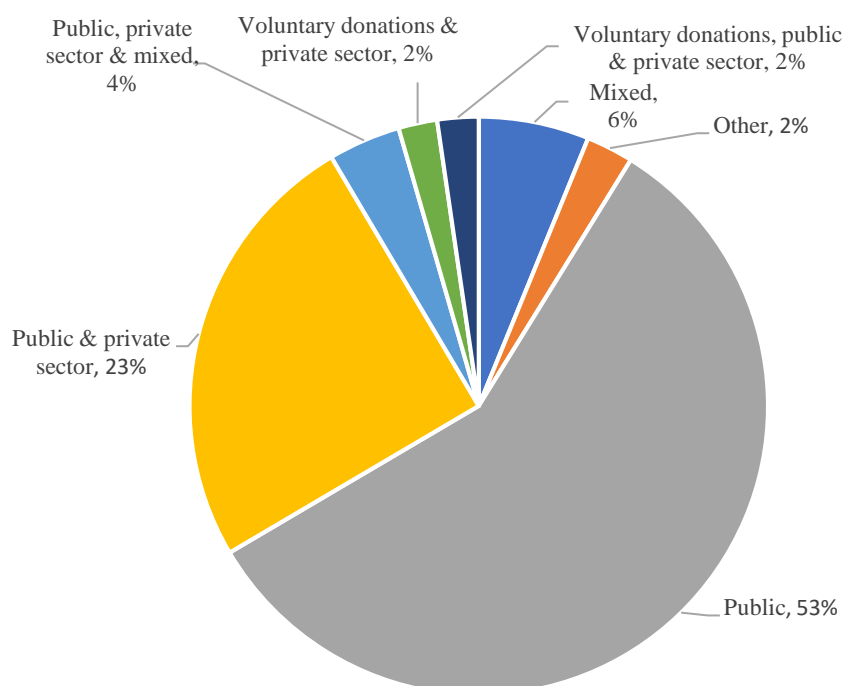
Estimated share of private vs. public funding for marine plastic litter and microplastics interventions worldwide (Source: UNEP 2020, forthcoming)



43. **Public national and municipal funding:** The inventory of financial resources completed for this study focuses on resources available to Member States and organizations from outside their own budgets. However, it is important to note that national and municipal public funding is by far the most important source of financing for efforts to tackle marine plastic litter and microplastics. The results of the stocktake survey showed that actions funded solely by public money represented 53 per cent of total funding (Figure 7). Furthermore, public funding was frequently combined with private money or donations to fund actions. Research conducted by UNEP (2020, forthcoming), has estimated that funds for this purpose from the public sector grew from USD 360 million in 2015 to USD 800 million in 2018 (Figure 8).

Figure 7

Percentage of financing recorded in the stock-taking from each funding source
(Source: stock-taking survey data)⁶



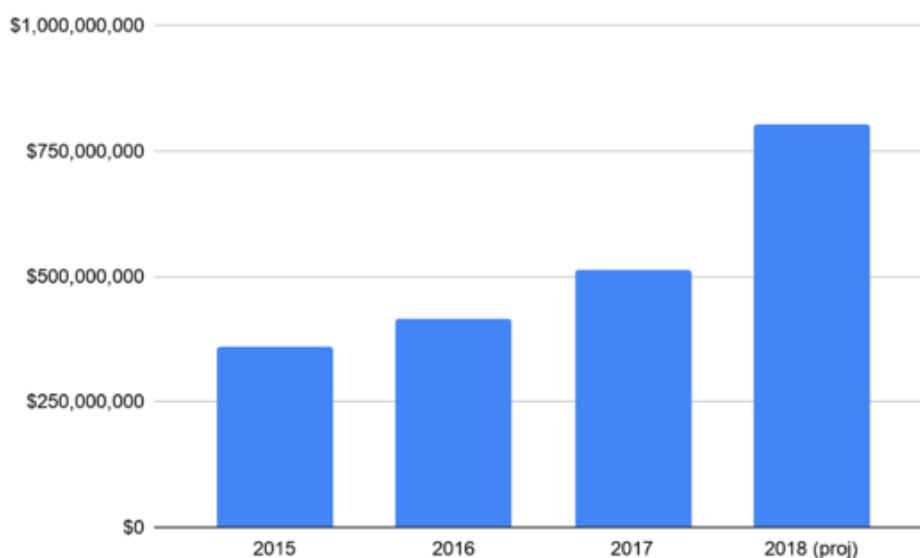
44. Public funding is invested heavily in waste management. Funds can be raised through broad-based revenue raising or through specific taxes or levies, such as dedicating the proceeds from plastic bag levies specifically to initiatives designed to tackle marine plastic litter (as discussed in further detail in section F). Increasingly, countries are both dedicating their own funds, and receiving varied international financing, to combat plastic pollution. This can lead to a lack of coordination and alignment with national priorities.

45. **Combined funding:** 34 per cent of actions reported in the stocktake survey were implemented using a combination of funds of various types. The importance of combined public and private funding should be noted. Around 29 per cent of funds provided came from mixed public and private sources, in some cases combined with additional sources such as voluntary donations. This trend is likely to increase in the future due to the growing need to use public funds to leverage private investment.

⁶ Funding sources representing less than 2 per cent of total funding recorded in the stock-taking survey are not shown. This includes funding from purely private sector sources, which represented just 1 per cent of the funding recorded. However, combined private sector and other funding types are shown in Figure 6.

Figure 8

Growth in public funding for initiatives to tackle marine plastic litter and microplastics (Source: UNEP 2020, in press)

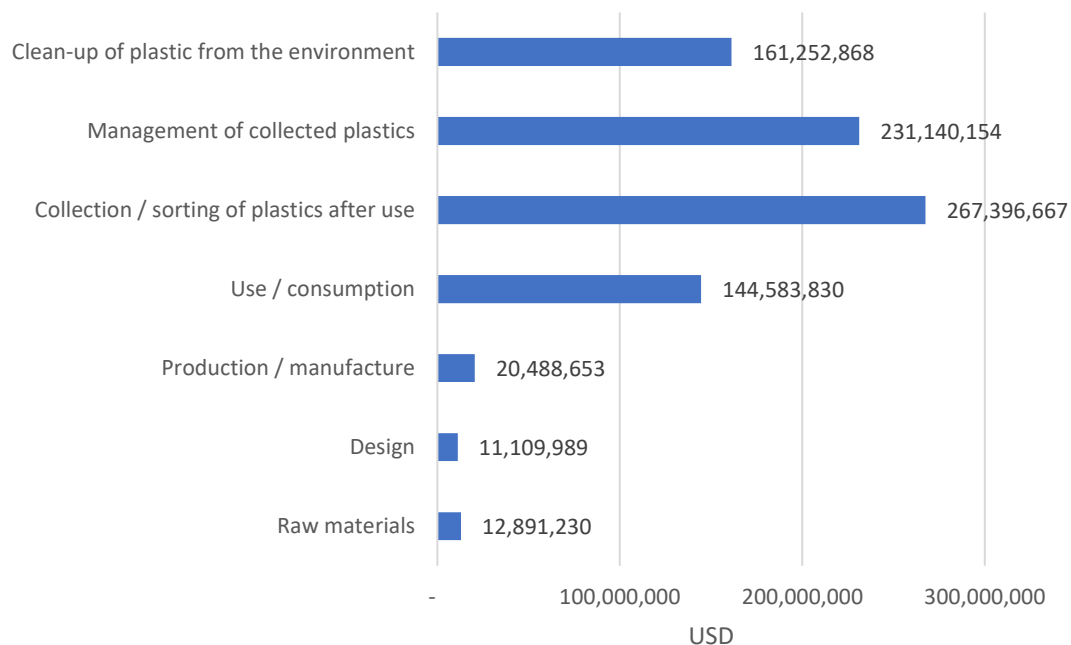


B. The focus of funding

46. **Stage in the plastics value chain targeted:** Given the urgency of dealing with enormous quantities of existing plastic pollution, many donors and others have prioritized waste management, including recycling. This focus is clear in both the inventory conducted for this study, in which 50 out of 74 financial resources included a focus on waste management, and in the analysis of funding recorded in the stocktake exercise (Figure 9).

Figure 9

Total funding to initiatives with at least a partial focus on each element of the plastic life cycle or supply chain (Source: Stock-taking survey data relevant for 1 January 2018-31 July 2020)



47. A relatively small proportion of funds, on the other hand, has been dedicated to preventing the problem of plastic litter before it occurs, such as investing in design, production and manufacturing for circularity, as seen in Figure 9. In the inventory of financial resources, 26 resources were documented

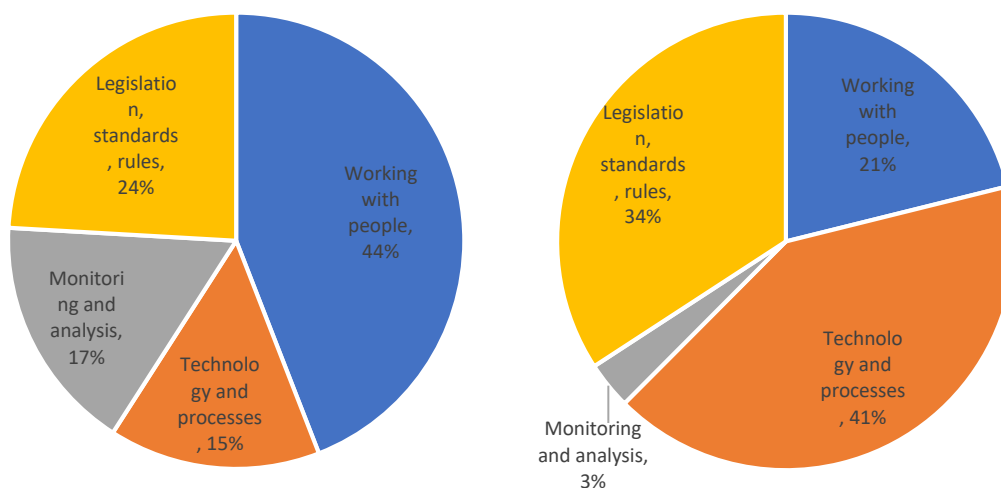
which included a focus on production and manufacturing, around half the number identified with a focus on waste management.

48. **Type of initiative:** Technology and processes (including research and development; new product design; new materials and processes; and changes in practice, operations, environmental management and planning) represented the smallest share of actions (15 per cent) but the largest share of financing (41 per cent), likely representing the relatively high cost of such interventions (Figure 10). It is likely that further financing needs to be mobilized in this area, since costly technology and operations projects form an important part of tackling marine plastic litter and microplastics. However, significant challenges exist in financing such projects. Public authorities often struggle to find sufficient funds for the large investments required, while private investors perceive such projects as high risk. Finally, bilateral donors also sometimes face difficulties in supporting such projects where they are private sector owned, due to their internal restrictions.

49. Actions relating to legislation, standards and rules represented the second largest proportion of funding reported (34 per cent), likely reflecting the importance of establishing rules, standards and legislation in order to enable and support all other action types. Actions related to working with people, on the other hand, represented the largest share of actions, at 44 per cent, but a smaller share of funding (21 per cent). Monitoring and analysis received the least financing, at 3 per cent.

Figure 10

Proportion of actions reported by types of action (left) and proportion of total funding reported by types of action (right) (Source: Data from stock-taking survey)

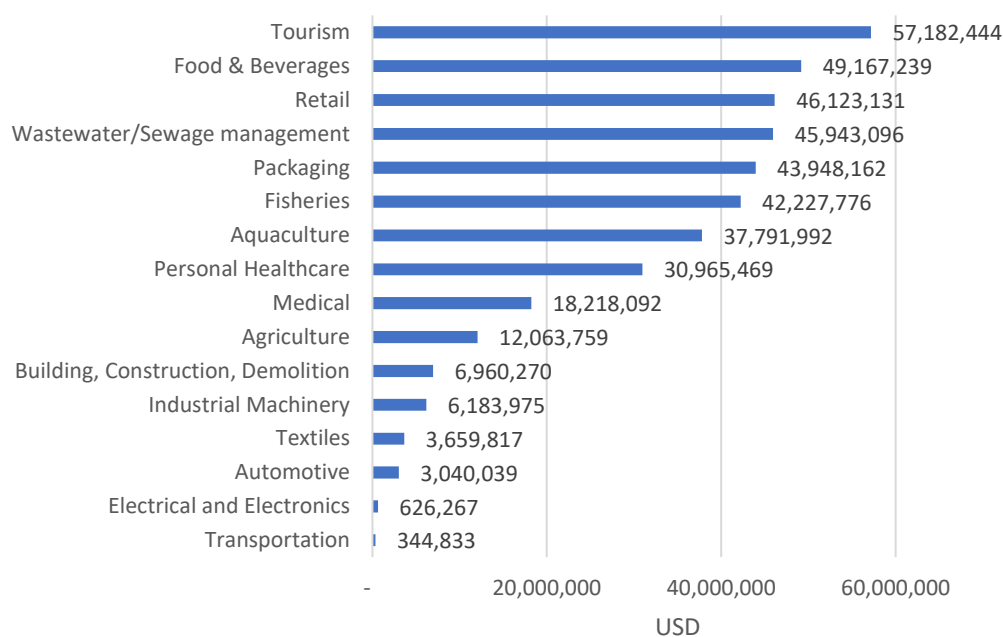


50. **Sectors prioritized:** Responses to the stock-taking survey revealed that initiatives targeting tourism received the highest amount of funding, followed by food and beverages, and retail (Figure 11). Those sectors with high proportions of funding correspond with high polluting sectors such as food and beverages, packaging, personal healthcare and retail, as well as those highly impacted by marine plastic litter such as tourism, and sectors that are both, such as fishing. However, some high polluting sectors, including textiles and agriculture, have relatively little financial resources dedicated.⁷

⁷ UNEP (2014). *Valuing Plastics: The Business Case for Measuring, Managing and Disclosing Plastic Use in the Consumer Goods Industry*. United Nations Environment Programme. <http://wedocs.unep.org/handle/20.500.11822/25302>

Figure 11

Total funding to initiatives with at least a partial focus on each sector
(Source: Stock-taking survey data)



51. **Gender:** It is notable that very few financing initiatives take an explicit approach to gender in the context of plastic pollution. There are some exceptions (e.g. USAID's loan-portfolio guarantee with Circulate Capital designed to help mobilize investment to combat plastic pollution in oceans throughout the Indo-Pacific region, one focus of which is to empower women entrepreneurs in the environmental field). This lack of gender focus is important because plastic pollution is recognized as having different and disproportionate impacts on women, including the health effects of chemicals in plastics⁸ and the high exposure of women workers and women-owned businesses in certain sectors effected by plastic pollution such as tourism⁹ as well as in informal waste collection.¹⁰

C. Organizations receiving funding

52. Funds are evenly spread among public and private recipients, although funding flows for each are different. Governments are more likely to receive multilateral funding, whereas companies are more likely to be eligible to receive finance in the form of investment or loans. Grants in the form of prize money are also available in some cases. Many bilateral donors are not able to give money directly to private companies, but they may support them indirectly through support for incubators or accelerators. The results of the stock-taking survey show that the largest proportion of funds reported in the study (45 per cent) are allocated to actions implemented jointly by the public and private actors (Figure 12).

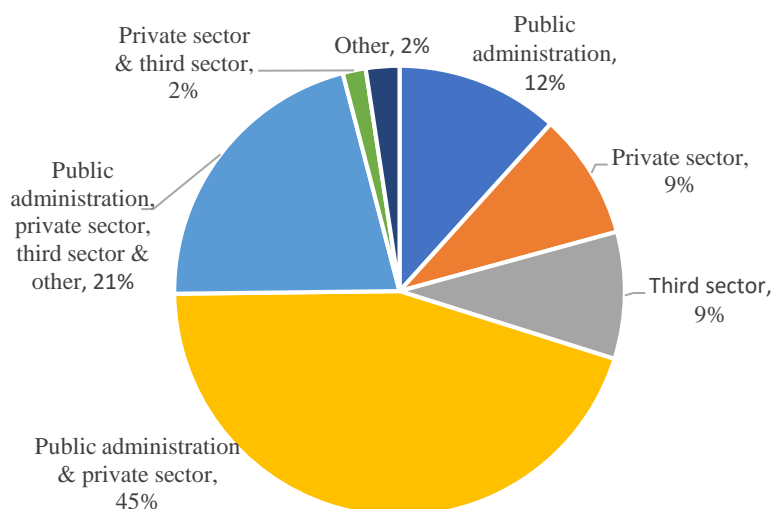
⁸ Brophy, J.T., Keith, M.M. Watterson, A., Park, A., Gilbertson, M. and Maticka-Tyndale, E. (2012). Breast cancer risk in relation to occupations with exposure to carcinogens and endocrine disruptors: A Canadian case-control study. *Environmental Health* 11, 87. <https://link.springer.com/article/10.1186/1476-069X-11-87>

⁹ World Tourism Organization (2019). *Global Report on Women in Tourism, Second Edition*. <https://www.e-unwto.org/doi/epdf/10.18111/9789284420384>. <https://oceanconservancy.org/wp-content/uploads/2019/06/The-Role-of-Gender-in-Waste-Management.pdf>.

¹⁰ Circular, G.A. (2019). *The Role of Gender in Waste Management: Gender Perspectives on Waste in India, Indonesia, the Philippines and Vietnam*. Commissioned by Ocean Conservancy. <https://oceanconservancy.org/wp-content/uploads/2019/06/The-Role-of-Gender-in-Waste-Management.pdf>.

Figure 12

Total funds allocated by type(s) of organization implementing the action
(Source: Data from stock-taking survey)



53. One notable trend is an increasing interest in funding cities and municipalities through grants or low interest loans, such as Dfid Waste Pilots, the Trash Free Seas Alliance and Closed Loop Partners. On the other hand, the inventory of financial resources suggests that quite limited funds are available to initiatives of community-based organizations and indigenous communities, with notable exceptions including the Global Environment Facility (GEF) Small Grants Program.

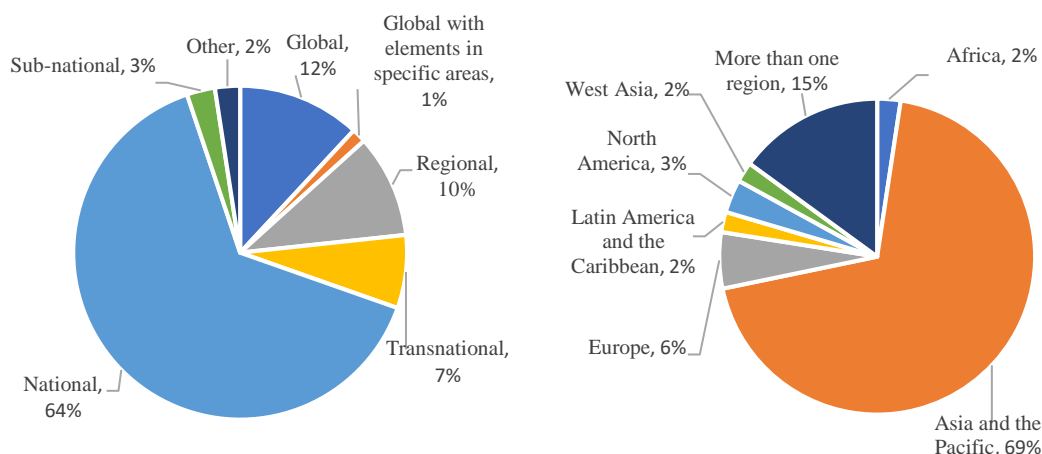
D. Geographical focus

54. The majority of funding (64 per cent) reported in the stock-taking survey was for actions at national level. Jambeck *et al.* (2015) estimated that about half of all the plastic that ended up in the oceans came from just five countries: China, Indonesia, the Philippines, Thailand and Viet Nam.¹¹ As a result, funders have tended to focus their efforts there, and the majority of funding reported in the stocktake survey was for actions in countries in Asia and the Pacific (69 per cent) (Figure 13). Similarly, almost half (44 per cent) of the financial resources identified in the inventory which targeted a specific region were for Asia and the Pacific.

¹¹ Jambeck, J.R., Geyer, R., Wilcox, C., Siegler, T.R., Perryman, M., Andrady, A. *et al.* (2015). Plastic waste inputs from land into the ocean. *Science* 347(6223), 768-771. <https://doi.org/10.1126/science.1260352>.

Figure 13

The geographic spread of financial resources by geographic area of focus (left) and by region (right) (Source: Data from stock-taking survey)



55. The majority of documentation about financing opportunities identified during the inventory exercise was in English. Material is also often available in the language of the donor country, in the case of bilateral funds, and in the languages of target regions or countries where financing has a specific geographic target. In some cases international financing may be more difficult to access where government bodies or other organizations are not comfortable submitting applications in English.

E. Challenges and barriers

56. This study confirms the importance of the barriers identified by the ad hoc open-ended expert group on marine plastic litter and microplastics and outlined in paragraph 14. In addition, it raises several other challenges:

(a) **Limited coordination of bilateral funding.** There is little coordination of bilateral funding in overall funding strategies or in project funding at a national level. This results in replication of efforts and funding, and limits the alignment of funding with national or regional priorities and plans.

(b) **Continued need to increase private investment.** Despite increased efforts and funds designed to mobilize private financing, there are still enormous gaps with respect to private investment in projects that would help reduce marine plastic litter and microplastics. One reason is the perceived lack of financial incentive. Many investors see high risks and a lack of viable business models. To a certain extent this challenge must be met outside financing mechanisms, given, for example, the continuing production of cheap virgin plastic and fossil fuel subsidies which undercuts recycled plastics. It can be addressed through other mechanisms such as taxation or bans. Nonetheless, the perceived lack of profitability in the sector could be tackled through greater cooperation between the public and private sectors. For example, development banks can offer **concessional** capital and guarantees to reduce risks for private investors and governments can contribute to better enabling environments for such projects.

(c) **Difficulties with bilateral aid being used to support private sector projects.** Some donors with an interest in supporting private sector projects may be limited by internal requirements. Other possibilities, such as capacity-building to create a pipeline of bankable projects, may be more feasible.

(d) **Challenges for countries in accessing multilateral funds.** Some countries encounter difficulties in meeting the requirements for funding, particularly from multilateral sources. **Lessons** can be learned from climate finance, in which donors have recognized countries' problems with accessing international funding and have developed supporting mechanisms to help countries do so, such as the Green Climate Fund Readiness Programme.

(e) **Difficulties in coordinating national budgets and plans with various international funds and initiatives.** Countries are increasingly dedicating their own funds and receiving significant international funds to combat marine plastic litter and microplastics. This can lead to a lack of coordination and of alignment with national priorities on tackling marine plastic pollution.

(f) **Limited donor attention to some sectors with significant plastic footprints.** These sectors include textiles and agriculture, which receive relatively limited attention compared to others (see paragraph 50) despite their role in contributing to marine plastic litter and (in the case of agriculture) facing risks as a result of plastic pollution.

(g) **Lack of an explicit focus on gender.** In most cases, financing efforts do not appear to explicitly address gender elements of plastic pollution despite the important impacts of plastic pollution on women (see paragraph 51).

(h) **Limited funds available to community-based initiatives and initiatives by indigenous communities.** This may limit the ability of these communities to respond to plastic pollution and find innovative solutions. Lack of such funding may also limit support available to groups excluded from national and international projects.

F. New opportunities for innovative financing of efforts to address marine plastic litter and microplastics

57. Given the need for vastly increased investment in this area, stakeholders are looking at innovative financing mechanisms. These mechanisms include the following:

58. **Joint public-private initiatives.** Increasingly, actors providing finance recognize the need for players of all types to collaborate in addressing this complex and highly global issue. As a result, some public-private initiatives have developed to leverage the strengths of public and private actors and to coordinate efforts and funding. They include the Trash Free Seas Alliance, the Commonwealth Marine Plastics Research and Innovation Framework, and the Global Plastics Action Partnership.

59. **Blended finance.** Blended finance involves private and public, or not-for-profit, entities partnering in order to finance initiatives. This could include subsidized loans offered to companies tackling marine plastic litter and plastic pollution at below market rates. Alternatively, a public or not-for-profit entity could guarantee all or part of a loan in case of default, making investment less risky and thereby encouraging private investment. It might also invest in capacity-building initiatives or initial grants to help a company or initiative reach a stage at which it is ready for traditional investment.

60. **Blue bonds.** A bond is a debt product used by companies, governments and municipalities to raise funding for projects. Recently, Blue Bonds have been employed to fund marine and ocean projects, with the first such bond launched by the Seychelles in 2018. The World Bank has also issued a Sustainable Development Bond for the Blue Economy. Such bonds can be guaranteed by development banks and supported by initiatives from other funders and development agencies, making them more attractive to investors. There may be significant potential for other entities, particularly cities and municipalities, to make greater use of such Blue Bonds.

61. **Plastic offset programmes.** Similarly to carbon offset programmes, these programmes allow a company to measure its plastic “footprint” and offset that footprint through contributions to litter prevention, recycling or clean-up. Such mechanisms are still in quite early stages, especially since there is not yet any agreed methodology for measuring a company or organization’s plastic footprint.

62. **Specific plastics taxes or levies.** Plastics taxes and levies already exist in the form of plastic bag levies in many countries. The proceeds of these levies are often specifically designated to initiatives designed to tackle marine plastic litter. These funds can either be used for government initiatives or opened up to civil society and other organizations to submit proposals. Strong communication and transparency on the use of funds is vital to maintain public support. It has been reported that in South Africa consumers’ acceptance of the plastic bag levy decreased partly due to unclear administration of the finances raised through the levy as well as poor results of the investments made, in terms of recycling and the creation of green jobs.¹² In the future such plastic taxes and levies could be applied more broadly to plastics, particularly single-use plastics. Moves are already being made in this direction. The European Commission, for example, proposed a plastics tax in 2018.

63. **Advanced disposal fees.** These fees place a surcharge on consumer good to subsidize their otherwise cost-prohibitive recycling.

64. **Extended producer responsibility (EPR) schemes.** EPR is an environmental policy approach in which a producer’s responsibility for a product is extended to the post-consumer stage of a

¹² Nahmann, A. (2010). Extended producer responsibility for packaging waste in South Africa: Current approaches and lessons learned. *Resources, Conservation and Recycling* 54(3), 155-162. <https://doi.org/10.1016/j.resconrec.2009.07.006>

product's life cycle.¹³ This can mean companies take responsibility for treating or disposing of post-consumer products, or that they are made responsible for the cost. If they are made responsible for the cost, EPR schemes can generate funds for plastic waste management and recycling efforts. Most Organisation for Economic Co-operation (OECD) countries and many emerging economies have EPR programmes in place for various products such as electronic equipment, batteries and vehicles. These schemes have not generally been introduced specifically for plastics, but many existing EPR programmes, especially for electronic waste, help to ensure the proper waste treatment of plastics in those products. In 2018 the European Commission made proposals for EPR schemes to cover the costs of waste management, clean-up and awareness-raising measures to reduce certain kinds of litter including food and drink containers.

65. **Innovative insurance instruments.** A study by UNEP's Principles for Sustainable Insurance and the Global Partnership on Marine Litter (GPML)¹⁴ examined the possibility that insurers could develop products to support cities or tourism areas in managing surges in plastic pollution. Insurers are already piloting parametric insurance policies based on factors such as air pollution,¹⁵ and similar approaches could be considered for marine plastic litter and plastic pollution. Such cover could be used to fund both clean-up efforts and measures to deal with the impacts of marine plastic litter and plastic pollution.

66. **Environmentally preferred purchasing programmes.** It is important for governments and large companies to consider how their procurement policies can be an indirect source of financing to tackle marine plastic pollution and microplastics. For instance, they could introduce policies that mandate certain levels of recycled plastics in their purchases to stimulate the recycled plastics market.

67. Further information and analysis is provided in UNEP/AHEG/4/INF/7.

¹³ Organisation for Economic Co-operation and Development (OECD) (2016). *OECD Policy Highlights: Extended Producer Responsibility. Guidance for Efficient Waste Management.*

<https://www.oecd.org/environment/waste/Extended-producer-responsibility-Policy-Highlights-2016-web.pdf>.

¹⁴ UNEP (2019). *Unwrapping the risks of plastic pollution to the insurance industry. The first global insurance industry study on managing the risks associated with plastic pollution, marine plastic litter and microplastics.* <https://www.unepfi.org/psi/unwrapping-the-risks-of-plastic-pollution-to-the-insurance-industry/>

¹⁵ For instance, Swiss Re is offering insurance against haze outbreaks in Singapore. <https://corporatesolutions.swissre.com/innovative-risk-solutions/non-physical-damage-business-interruption/hazeshield.html>.