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**International environmental policy and
governance issues**

**Information on implementation of resolution 4/9 on addressing
single-use plastic products pollution*****

Note by the Executive Director

Introduction

1. This report sets out information on actions taken by Member States to address single-use plastic products pollution and the full lifecycle environmental impacts of single-use plastic products in comparison with the full life cycle environmental impacts of their alternatives in response to the request by Member States in UNEA/EA.4/Res.9 on 15 March 2019. It provides links to an integrative Report on Addressing Single-Use Plastic Products Pollution using a Life Cycle Approach, as well as other useful resources and guidance produced since UNEA4.
2. This report is organized into three main parts:
 - (a) Part A presents a summary of the eight meta-analyses undertaken that examine Life Cycle Assessment (LCA) studies that have been conducted on single-use plastic products and their alternatives.
 - (b) Part B provides a summary of actions already undertaken by Member States to address plastic pollution and notes a range of comprehensive resources for Member States to access further information and support on this aspect.
 - (c) Part C shares country-level case-studies that can help inform development and implementation of policy on single-use plastic products.
3. This report is a summary of the report, **Addressing Single-Use Plastic Products Pollution using a Life Cycle Approach** (UNEP, 2021a).

* In accordance with the decisions taken at the meeting of the Bureau of the United Nations Environment Assembly held on 8 October 2020 and at the joint meeting of the Bureaux of the United Nations Environment Assembly and the Committee of Permanent Representatives held on 1 December 2020, the fifth session of the Assembly is expected to adjourn on 23 February 2021 and resume as an in-person meeting in February 2022.

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

I. Summary of meta-analyses of Life Cycle Assessment (LCA) studies of plastic products in comparison with their alternatives

4. Eight meta-studies on various life cycle assessments (LCA) conducted across common single-use plastic product categories and their alternatives were conducted. This involved the following product categories:

- (a) Shopping bags
- (b) Beverage bottles
- (c) Beverage cups
- (d) Takeaway food packaging
- (e) Tableware
- (f) Nappies
- (g) Feminine hygiene products
- (h) Personal protective equipment (Facemasks)

5. Over fifty LCA studies were considered across the final eight reports and these were selected based on specific criteria, including completeness, transparency, geographic coverage, publication date (post-2000), and language (English). Preference was also given to peer-reviewed studies. Each report can be downloaded at <https://www.lifecycleinitiative.org/single-use-plastic-products-studies/>.

6. The results of the meta-studies demonstrated that LCA can usefully inform the development of policy on single-use plastic products by showing environmental impact trade-offs between the use of single-use plastic products and their alternatives and highlighting important hotspots across consumption and production of various products. Additionally, LCA studies provide information to policymakers to help inform what changes are needed to help shift systems to sustainable consumption and production.

7. Key points that policymakers should take into account when developing policy on single-use plastic products, based on the results of the eight LCA reports, include:

(a) **Promote reusable products.** Most often, reusable products have lower environmental impacts than single-use products. The meta-studies concluded that the more times a product can be used the lower the environmental impact of that product. Incentivize both reusable products and reuse rates in policy interventions.

(b) **Use LCA and a range of robust information sources.** LCA provides important insights for policymakers but these need to be supplemented with a range of additional studies and knowledge. Impact assessment of litter and health impacts are not yet well accounted for in LCA studies and should be carefully considered. There are also information gaps relating to long-term impacts on ecosystems and health e.g. microplastics. Social aspects as well as gender analysis also need careful consideration.

(c) **Know your context.** Be geographically and socially specific to the location to which the policy will apply. For example, understand the energy use at the source of production, the recycling capability within the community, and the mode of disposal at end-of-life. Factors, such as the weight of plastic products and recycling rates can differ between regions and countries. In countries with under-developed waste-management systems and poor infrastructure for collection and recycling, the impacts from littering may be a significant factor in designing policy.

(d) **Production is a significant contributor to the environmental footprint of single-use plastic products and their alternatives.** Consider opportunities to avoid or reduce negative environmental impacts within production and save impacts from production by reducing consumption of such products, or by keeping the products in the economy for longer through reuse.

(e) **End-of-life scenarios have a substantial influence on environmental impact results.** Each product material should be assessed considering the most feasible end-of-life option.

(f) **Promote product design for circularity, including reuse.** Lighter, smaller, and more durable products within the same material categories will reduce environmental impacts. Design innovation might also help reduce food waste or the environmental footprint of washing for reusable tableware. Design can also lead to different decisions at end-of-life that will impact on recyclability or disposal. A well-designed Extended Producer Responsibility scheme can also help positively influence design choices.

(g) **Recognise trade-offs.** There will always be trade-offs in policy decision-making. The important aspect is to transparently identify these where possible, minimize them, and reduce burden shifting. LCA studies can help make trade-offs transparent. Policymakers will need to decide how to best prioritize impacts according to their context. Be aware that environmental footprints of SUPP alternatives will depend on a range of factors which need to be assessed on a case-by-case basis. There may also be important social considerations which LCA have not taken into account, including the need to consider a gender lens when comparing different products and their use.

(h) **Factor in future technology innovation and change, as well as scale-up potential.** Novel production technologies may need time to develop and scale-up before they can perform at the same or better standard than established large-scale technologies. Recycling technologies for certain types of packaging, for instance, are developing rapidly. And power generation systems, transportation and recycling processes may change over time.

(i) **Reduce the use of single-use products whatever the material.** Replacing one disposable product (e.g. made of plastic) with another disposable product made of a different material (e.g. paper, biodegradable plastic) is only likely to transfer the burdens and create other problems.

8. A summary of the eight meta-study reports can be found in the report, **Addressing Single-Use Plastic Products Pollution using a Life Cycle Approach (UNEP, 2021a)**. In addition, Member States can access each meta-study report and webinar recordings at the following website: <https://www.lifecycleinitiative.org/single-use-plastic-products-studies/>.

II. Summary of actions by Member States to address plastic pollution

9. There is an increasing trend by governments, civil society organizations and the private sector towards the further development of policy and actions to address the environmental impact of single-use plastics products over the last decade. These actions have been noted at international, regional, national, and subnational levels (Table 1).

10. Analysis in, “**20 Years of Government Responses to the Global Plastic Pollution Problem**” (Karasik et al, 2020) indicates that as the number of national policies has increased over the last twenty years and the problem definition has evolved, more comprehensive policies have emerged that aim to address multiple stages of plastic product lifecycles.

11. The Ad hoc open-ended expert group on marine litter and microplastics (AHEG) have recently collated Member State actions in the **Report on the stock take of existing activities and action towards the long-term elimination of discharges into the oceans, to reduce marine plastic litter and microplastics** (UNEP, 2020a).

12. The annual reports of the **New Plastics Economy Global Commitment** led by Ellen MacArthur Foundation in collaboration with UNEP also track the progress of its government signatories on addressing plastic pollution. Since the launch of the Global Commitment in 2018, two annual reports have been published in 2019 and 2020 and are available at <https://www.newplasticseconomy.org/projects/global-commitment>.

13. A range of policy instruments are being used by governing authorities, at local, regional and national levels, to achieve a reduction in plastics pollution. These can be summarised as command and control (regulatory), market-based (economic), and information and voluntary (information, education and outreach) instruments. An analysis of regulatory and market-based policy interventions can be found in **A Summary of Legal Limits on Single-Use Plastics and Microplastics: A Global Review of National Laws and Regulations** (UNEP, 2018a).

14. Effective policies often require a mix of interventions to be used and should consider the broader context and needs of the society to which the policy will affect. The consideration of trade-offs and burden-shifting that might arise in the selection of one policy intervention over another is an important aspect of policymaking, e.g. in terms of needs to re-train/ resource specific sub-sectors with new skill sets and technologies. The use of life-cycle thinking can help more fully inform policymakers on these aspects by considering the full environmental impacts of single-use plastic products and their alternatives. **Single-Use Plastics: A Roadmap for Sustainability** (UNEP, 2018b) provides case studies and examples of measures introduced by governments and sets out a ten-step roadmap for governments to consider when developing policy on SUPP.

15. Further support for the Member States when developing laws and regulations that limit or manage single-use plastic products can be found in the **Tackling Plastic Pollution: Legislative Guide on the Regulation of Single-Use Plastic Products** (UNEP, 2020b). This resource provides guidance on how to develop legislation on single-use plastic products, outlines the main regulatory alternatives,

and suggests the core elements that each should include. The **Plastics Policy Inventory** is a free, searchable, online database of policies adopted to reduce plastic pollution that governments may use as examples for crafting existing legislation.

Table 1
Summary of Actions on Single-Use Plastic Products

International	<ul style="list-style-type: none"> • Approximately 33 international policies or agreements address plastics pollution in some manner. There are no globally binding agreements with specific and measurable targets to address plastic pollution. There is growing policy development at international level now bringing more focus to work on single-use plastic products pollution, notably in the United Nations Environment Assembly (UNEA) and its Ad Hoc Expert Group (AHEG) on marine litter and microplastics. • e.g. MARPOL, Basel Convention, UNEA Resolution 4/6 “Marine Plastic Litter and Microplastics”, 2019 UNEA Resolution 4/9 “Addressing Single-Use Plastic Products Pollution”. Basel Convention 14/13 Further actions to address plastic waste under the Basel Convention, 2019. BC-14/12: Amendments to Annexes II, VIII, and IX to the Basel Convention, 2019.
Regional	<ul style="list-style-type: none"> • Increasing number of regional approaches, with strong emergence of policies related to the Regional Seas Programmes and European Union efforts. • e.g. Directive (EU) 2019/904 of the European Parliament and of the Council of 5 June 2019 on the reduction of the impact of certain plastic products on the environment. East African Community Polythene Materials Control Bill, 2016. Pacific Regional Waste and Pollution Management Strategy 2016–2025. SPREP Pacific Regional Action Plan Marine Litter, 2018. Antarctic Treaty Resolution 5 (2019) - ATCM XLII - CEP XXII, Reducing Plastic Pollution in Antarctica and the Southern Ocean. ASEAN Framework of Action on Marine Debris 2019.
National	<ul style="list-style-type: none"> • At least 127 countries have adopted some legislation on single-use plastic bags. Increasing focus on other SUPP. Relatively few policy responses to microplastic pollution. National level policy responses to microplastic pollution primarily defined microplastics as microbeads in cosmetic products. • e.g. National-level ban on single-use plastic bags (many). Seychelles: Environment Protection (Restriction on Importation, Distribution and Sale of Plastic Utensils and Polystyrene Boxes) Regulations 2017. United Kingdom: Producer Responsibility Obligations (Packaging Waste) Regulations 2017. Denmark: Statutory Order on Deposits on and the Collection etc. of Packaging for Certain Beverages, 2016. Finland: Reduce and Refuse, Recycle and Replace: A Plastics Roadmap for Finland, 2019. Rwanda: Law on the Prohibition of Manufacturing, Importation, Use, and Sale of Polyethylene Bags and Single-use Plastic Items. 2019; Belize: Pollution from Plastics Regulations 2020. Panama: Regulating the Reduction and Progressive Replacement of Single-use Plastics in 2021, 2019. Samoa: Public Notice Plastic Prohibition (Ban) 2019. Chile: Law that bans the use of plastic bags (Law 21.100)
Sub-national	<ul style="list-style-type: none"> • Numerous sub-national policies • e.g. City of Darebin, Victoria, Australia: 2018 Banned balloons, disposable food containers and cups at events on council property, 2017. Portland, Oregon: Chapter 17.103 Prohibition and Restrictions on Single-Use Plastic, 2016. Punjab, India: The Punjab Plastic Carry Bags (Manufacture, Usage and Disposal) Control (Amendment) Act, 2016. Victoria Environment Protection Amendment Bill 2019. City of Peabody Regulation Regarding the Use of Disposable Plastic Bags at Retail Establishments, 2019. Chapter 16 of the San Francisco Environment Code: Food Service and Package Reduction Ordinance, 2019. The Environmental Protection (Microbeads) (Scotland) Regulations 2018. Washington State, US: SB 5397: Concerning the responsible management of plastic packaging, 2019.
Private Sector	<ul style="list-style-type: none"> • Growing number of individual company or collective approaches across companies to reducing SUPP and development of specific targets related to reducing single-use plastic product pollution. • e.g. Operation Cleansweep
Civil Society/Public/Private Partnerships	<ul style="list-style-type: none"> • Increasing CSO activity to address SUPP pollution and advance circular economy approaches. • e.g. The New Plastics Economy Global Commitment, led by the Ellen MacArthur Foundation with UNEP, and Plastics Pact (e.g. UK Plastics Pact, Circula El Plástico in Chile) supported by the Ellen MacArthur Foundation, Life Cycle Initiative, Surfrider Foundation, Alliance to End Plastic Waste. The Global Tourism Plastics Initiative. Chile ElIjoReciclar

Source: A Summary of Legal Limits on Single-Use Plastics and Microplastics: A Global Review of National Laws and Regulations (UNEP, 2018a); Single-Use Plastics: A Roadmap for Sustainability (UNEP, 2018b); Tackling Plastic Pollution: Legislative Guide on the Regulation of Single-Use Plastic Products (UNEP, 2020b); Report on the stocktake of existing activities and action towards the long-term elimination of discharges into the oceans, to reduce marine plastic litter and microplastics (UNEP, 2020a). 20 Years of Government Responses to the Global Plastic Pollution Problem (Karasik et al, 2020).

16. There is a growing number of recently published resources that can help guide policy development. For example, **The National Guidance for Plastic Pollution Hotspotting and Shaping Action** (UNEP, 2020c) is an informative guide to policymakers providing advice and online resources on identifying plastic leakage ‘hotspots’ and then prioritizing actions once these hotspots are identified. **Plastics, Gender and the Environment** (WECF, 2017) draws attention to the links between gender and plastics consumption and production. The **Rethinking single-use plastic products in tourism: impacts, management practices and recommendations** (UNEP, 2021b) report lists key hotspots and gives recommendations for tourism businesses and policymakers to address single-use plastic products pollution in the tourism sector.

17. **Addressing Marine Plastics: A Roadmap to a Circular Economy** (UNEP, 2019a) helps to identify a core set of priority solutions to be implemented by targeted stakeholders from across the plastics value chain under different time horizons and at different geographical scales. In addition, **Addressing marine plastics: A systemic approach: Recommendations for Action** (UNEP, 2019b) identifies gaps to address marine plastics at each value chain stage and recommends actions to be taken by different stakeholders to achieve a circular economy for plastics as the global level. **Identification of technical and financial resources and mechanisms for supporting countries in addressing marine plastic litter and microplastic** (UNEP, 2020d) is another useful resource.

18. Additional resources for policymakers to aid in the development of policy on single-use plastic products are identified in **Addressing Single-Use Plastic Products Pollution using a Life Cycle Approach** (UNEP, 2021a) and on the **One Planet Network-Wide Plastics Initiative** webpage at <https://www.oneplanetnetwork.org/one-planet-network-wide-plastics-initiative>.

III. Case studies on the development of policy on single-use plastic products using life cycle thinking

19. In the development of resources to summarize actions by the Member States and to support the development of policy, a webinar series was held in October 2020. A selection of Member States that had developed policy on single-use plastic products and who had drawn on life cycle thinking to inform decision-making presented across four sessions and/or provided written feedback. These included: Canada, Colombia, Mauritius, New Zealand, Peru, Rwanda, Saint Lucia, Singapore, Thailand, and the European Commission.

20. The webinar recordings and copies of presentations can be downloaded at <https://www.lifecycleinitiative.org/single-use-plastic-products-studies/>. The case studies are also shared in the report **Addressing Single-Use Plastic Products Pollution using a Life Cycle Approach** (UNEP, 2021a)

21. Key lessons shared by the Member States when developing policy on plastic pollution include:

(a) **There are many actions and solutions already being implemented to address single-use plastic product pollution.** Understanding what stakeholders are doing at local, regional and international levels is important, as well as exploring opportunities for new business models and/or support to help scale-up activities.

(b) **Consideration of a range of policy interventions is vital, as well as understanding the underlying economic drivers for behaviour.** For example, it may appear to be cheaper to dump waste than to recycle it when some costs are externalised. A mix of policy interventions is often required.

(c) **All stakeholders need to be involved in developing and implementing policy across the life cycle of SUPP.** Some governments have developed informal and/or formal agreements with the private sector to work on collaborative efforts to reduce plastics pollution. Civil society has also been actively involved in many policy developments. The informal waste sector is a significant stakeholder in many countries and decisionmakers are encouraged to find a way to integrate this sector into policy. Across the various levels of engagement, gender equality must be taken into consideration as women are key stakeholders in purchasing and waste management practices at the household and community levels. Encouraging the participation of women’s groups is also essential.

(d) **The establishment of dedicated gender-balanced teams and resources tasked with developing and implementing SUPP policy is beneficial.** This team should draw on resources across departments in government and look for areas to embed SUPP policy across other policy initiatives, for example, in tourism policy activities or health-related actions. Addressing SUPP pollution, e.g. by promoting reusable alternatives, is likely to affect genders differently and thus it is critical to ensure that proposed policies are gender responsive.

(e) **All materials have an impact, “the issue isn’t just plastic, it’s how we use it” with, “the most sustainable product being the multi-use product”.** Analysis of SUPP alternatives is therefore important, as well as developing a good understanding of how to encourage reuse of products multiple times. Addressing single-use plastic products pollution requires systems change.

(f) **A life cycle approach can help identify trade-offs and prevent burden-shifting.** LCA can highlight hotspots and when complemented by other evidence it can help inform policymaking. LCA should not, however, be used by itself for policy development. Aspects like litter or microplastics impacts are not yet adequately considered by LCA’s. Other factors, for example, socio-economic conditions (e.g. skill sets, employment) and culture are also important.

(g) **Access to quality, timely and location-specific data on the plastics sector is critical.** This informs policy development and is essential to the evaluation of policy but represents a significant issue for many policymakers.

(h) **Behavioural research provides insight into how different policies can help drive change related to people’s actions regarding the use of SUPP.** For instance, how different targeted communication and education strategies can enhance information, motivation and skills such that consumers can make better decisions around reuse, recycling and waste disposal. Utilising a gender lens can also highlight the gendered roles and behavioural preferences of women and men which can help unlock long-term behavioural change.

(i) **The design of products and management of products pre-consumer use is an important area of action.** Design can significantly reduce the environmental impacts of plastic products and their alternatives. Other co-benefits should also be explored when contemplating design modifications. For example, new designs for tableware could also consider how to reduce food waste. Considering how different stakeholders use products in various ways can also reveal opportunities for reducing impact.

(j) **Monitoring and enforcement are important in implementing SUPP policy, including the use of clear definitions.** Understanding the effectiveness of different policy approaches over time, including the enforcement of certain policy interventions is critical. A well-communicated timeline of policy and legislative action can send early signals to stakeholders of the need for future change to operations and/or behaviour. This can aid the transition towards new behaviour, activities, and innovation needed to support policy objectives. Clear definitions are essential to policy enforcement.

(k) **The global COVID-19 pandemic presents significant challenges.** Efforts of countries to reduce single-use plastic product pollution come under additional pressure in a pandemic. Safety and health requirements are essential along with a strong science-based approach to understanding the necessity for specific exemptions for the use of single-use plastic products. At the same time, it is important to note that it is usually the way we use products, rather than the products themselves, which guarantees safety (e.g. handwashing as opposed to wrapping items in plastic). There may also be opportunities for creative solutions and new business models that can address plastic pollution.

References

Useful resources referenced in this information document include:

Karasik, R., T. Vegh, Z. Diana, J. Bering, J. Caldas, A. Pickle, D. Rittschof, and J. Virdin. 2020. 20 Years of Government Responses to the Global Plastic Pollution Problem: The Plastics Policy Inventory. NI X 20-05. Durham, NC: Duke University.

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UNEP. 2015. Biodegradable Plastics and Marine Litter. Misconceptions, concerns and impacts on marine environments. United Nations Environment Programme (UNEP), Nairobi.

UNEP. 2018a. A Summary of Legal Limits on Single-Use Plastics and Microplastics: A Global Review of National Laws and Regulations.

UNEP. 2018b. Single-Use Plastics: A Roadmap for Sustainability.

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UNEP. 2020a. UNEP/AHEG/4/INF/6: Report on the stocktake of existing activities and action towards the long-term elimination of discharges into the oceans to reduce marine plastic litter and microplastics

UNEP. 2020b. Tackling Plastic Pollution: Legislative Guide on the Regulation of Single-Use Plastic Products.

UNEP. 2020c. The National Guidance for Plastic Pollution Hotspotting and Shaping Action.

UNEP. 2020d. UNEP/AHEG/4/3: Identification of technical and financial resources and mechanisms for supporting countries in addressing marine plastic litter and microplastic

UNEP. 2021a. Addressing Single-Use Plastic Products Pollution using a Life Cycle Approach (forthcoming).

UNEP. 2021b. Rethinking Single-Use Plastic Products in Tourism, Impacts, Management Practices and Recommendations (forthcoming).

WECF. 2017. Plastics, Gender and the Environment