



Key messages from the roadmap for circular economy for plastics and LCA studies developed by UNEP and partners

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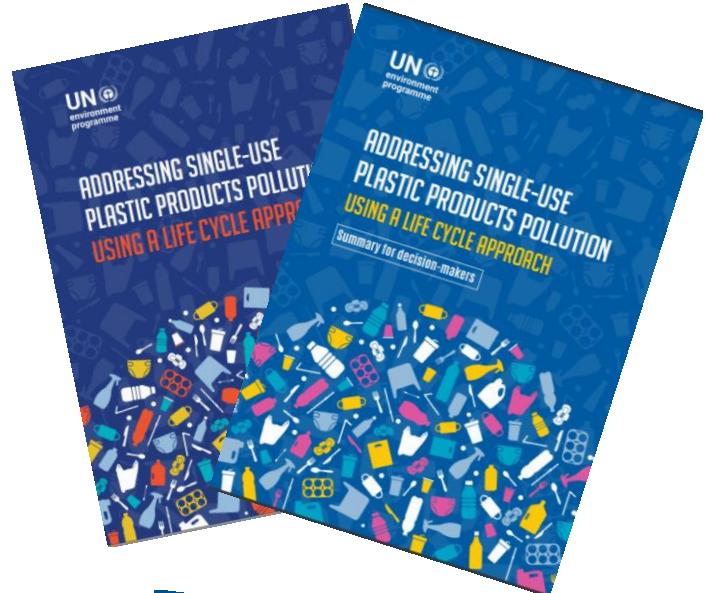
UNEP plastic value chain work



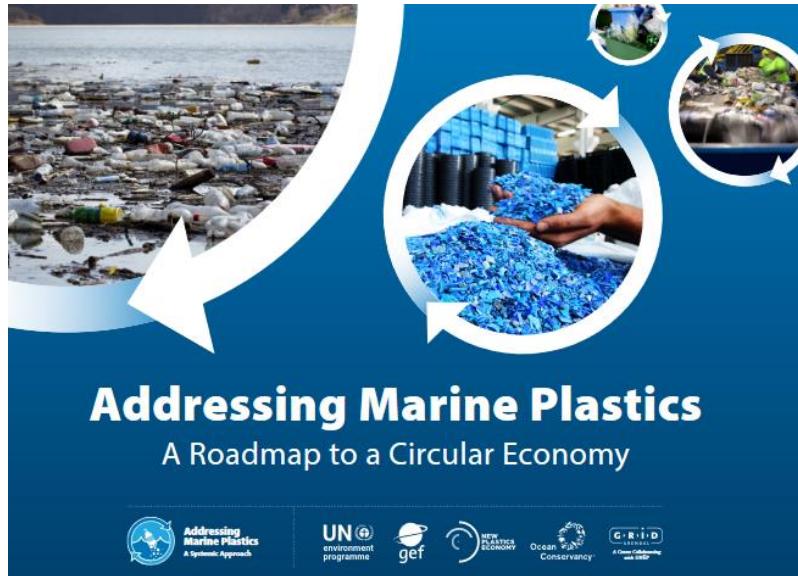
**Addressing
Marine Plastics**
A Systemic Approach



**Global Tourism
Plastics Initiative**



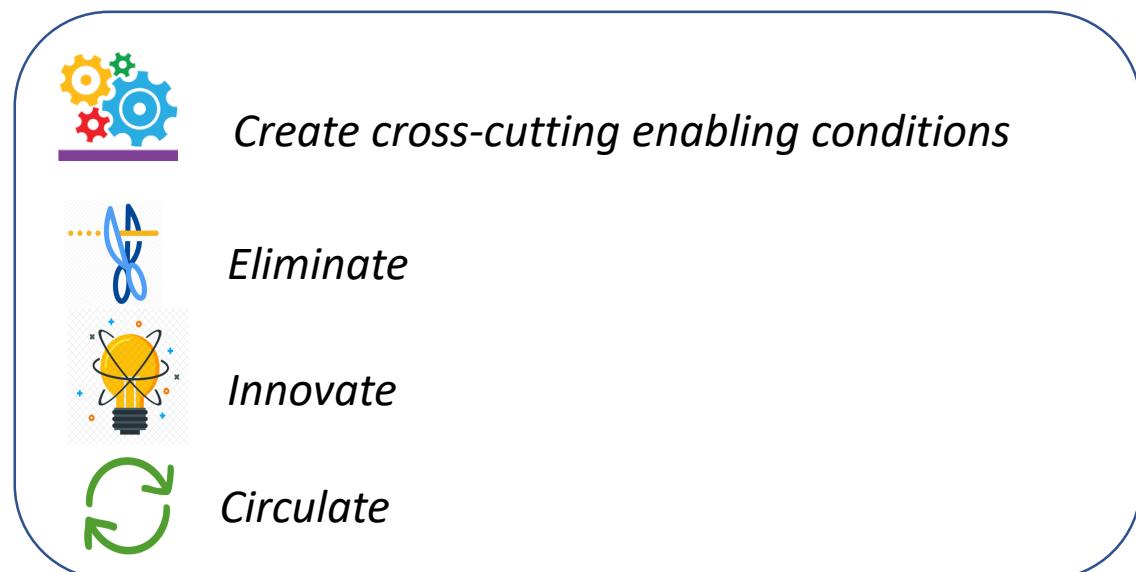
A roadmap to a circular economy for plastics (global level)



- ✓ Vision
- ✓ Outcome and output indicators
- ✓ Short-term, mid-term to long-term actions
- ✓ Stakeholders and roles
- ✓ Geographical scales

<https://gefmarineplastics.org/roadmap>

We envision: a world without negative impacts from plastics, where plastics retain their highest value along the value chain, no plastics leak into and damage the environment, and maximal circularity for plastic materials is reached at scale and around the globe.



Outcome indicators

- Improved circularity (reduction in production of virgin materials and consumption of plastics, increase in reuse rate, recycling rate, recycled content in new products etc.)
- Reduced plastic leakage
- Reduced impacts on ecosystem, human, climate change and resource scarcity



Create cross-cutting enabling conditions

Output indicators

- No. of baseline analysis developed
- No. of methods or tools developed
- No. of governments and/or businesses supported ...

Key actions

- Set up global consensus on methodology to allow for harmonized analysis on plastic material flows
- Set up country baseline and support governments measuring progress
- Develop and improve methodologies to evaluate the impacts of plastics and their alternatives (such as LCA)
- Develop policy and financial mechanism to reduce plastic waste generated, promote reuse and remanufacturing, increase demand for recycled content
- Develop and implement EPR policy
- Provide better consumer information ...



Eliminate



Innovate



Circulate

Output indicators

- No. of countries banning or restricting problematic and unnecessary plastic products...

Key actions

- Define a list of problematic materials or additives
- Ban or restrict problematic plastics, and provide alternative solutions based on full LCA
- Eliminate COC in plastic products

Output indicators

- No. of new polymers/ alternative materials identified and applied
- No. of new business models identified and applied

Key actions

- Innovate on new polymers and alternatives with lower impacts on environment
- Scale up the most viable new product/packaging designs
- Develop/improve technologies to sort, recycle, process plastics after use into high quality raw materials
- Develop new business models

Output indicators

- % of plastics being reusable, recyclable or compostable
- Reduction in waste generation
- Increase in reuse/collection/recycling rate

Key actions

- Promote sustainable purchasing, reuse and responsible disposal of plastic products, through education, training and campaigns
- Improve municipal solid waste management and wastewater and effluent treatment
- Develop public-private partnerships to recycle plastics
- Incentivize the engagement with informal waste collectors and sorters

Annex 2: List of detailed recommended actions

Action domain	Time frame and scale	Leading/supporting stakeholder	Main life cycle stage
<ul style="list-style-type: none">• Advocacy/ capacity building• Knowledge creation• Policy/ regulatory/ voluntary agreements• Technical product/ service innovation• Financing	<p>Time frame</p> <ul style="list-style-type: none">• Short-term (2020-2025)• Medium to long term <p>Scale: Global, regional, national and/or sub-national</p>	<ul style="list-style-type: none">• Intergovernmental organizations/ National and/or local governments• Brands, producers• Collectors, recyclers• Civil society organizations• Researchers/ academia	<ul style="list-style-type: none">• cross-cutting• raw material• production• consumption and reuse• collection, sorting, processing and disposal

Problematic or unnecessary plastic packaging or plastic packaging components



1. It is not reusable, recyclable or compostable (as per the definitions below).
2. It contains, or its manufacturing requires, hazardous chemicals that pose a significant risk to human health or the environment (applying the precautionary principle).
3. It can be avoided (or replaced by a reuse model) while maintaining utility.
4. It hinders or disrupts the recyclability or compostability of other items.
5. It has a high likelihood of being littered or ending up in the natural environment.

Single-use Plastic Products vs. alternatives

Knowledge products on SUPP from a Life Cycle perspective

Life Cycle Initiative

To respond to the request by Member States at the 4th session of the **UN Environment Assembly** (UNEA 4/9) in March 2019, the Life Cycle Unit has gathered info and proposed recommendations to address single-use plastic products pollution

Recommendations available for the following Single-use Products:



LIFE CYCLE ASSESSMENTS OF BEVERAGE CUPS: WHAT THE SCIENCE TELLS US

Single-use or reusable beverage cups depending on waste management context and behavioural considerations

This matrix helps countries, regions and cities to identify the closest scenario and current most appropriate options for their context. The content of the matrix is simplified, and the suggested preferences are indicative. Please refer to the full narrative of the meta-study for details.



Considerations of geographical and technological context

NO FORMAL WASTE MANAGEMENT & POOR RECYCLING SUPPORT

unsanitary landfill, open dumps, open burning, no policy support for recycling and/or composting

FORMAL WASTE MANAGEMENT BUT POOR RECYCLING SUPPORT

sanitary landfill, incineration with energy recovery, but no or low policy support for recycling and/or composting

FORMAL WASTE MANAGEMENT & RECYCLING INFRASTRUCTURE

sanitary landfill and/or incineration with energy recovery



Eco- or cost-conscious Consumer



Indifferent Consumer



EFFICIENT WASHING during use-phase (energy efficient dishwasher or hand wash in cold water)



CUPS REUSED many times



UNLIKELY TO LITTER /
likely to recycle or compost



INEFFICIENT WASHING during use-phase (Hand wash in hot water)



INSUFFICIENT REUSE of cups
(Little consumer awareness)



LIKELY TO LITTER /
unlikely to recycle

Reusable regardless of energy mix

Reusable Ceramic; glass; stainless steel; bamboo

Reusable Ceramic; glass; stainless steel; bamboo

Reusable in case of renewable energy mix

Single-use Wax-, PE- or bioplastic-lined paper

Reusable Ceramic; glass; stainless steel; bamboo

No clear preference in case of carbon intensive energy mix

Reusable Ceramic; glass; stainless steel; bamboo; PP

No clear preference between reusable and single-use (EPS) If incineration with energy recovery and **importantly** if single-use are being collected and managed.

Single-use in case of carbon intensive energy mix

Single-use EPS; wax-, PE- or bioplastic-lined paper

Reusable Ceramic; glass; stainless steel; bamboo

Single-use in case of carbon intensive energy mix

Reusable especially recyclable materials such as PP, glass, and stainless steel

Single-use PE- or bioplastic-lined paper; rPET

Single-use regardless of energy mix

Single-use PE- or bioplastic-lined paper; rPET

Reusable PP; ceramic; glass; stainless steel; bamboo

Reusable in case of renewable energy mix

Reusable especially recyclable materials such as PP, glass and stainless steel

Reusable cups preferred

Single-use cups preferred

No clear preference for reusable or single-use cups

<https://www.lifecycleinitiative.org/single-use-plastic-products-studies/>

ADDRESSING SINGLE-USE PLASTIC PRODUCTS POLLUTION USING A LIFE CYCLE APPROACH



Main Findings on SUPP

- It is the **single-use nature** of products that is the most problematic for the planet, more so than the material that they're made of
- Cleverly designed products should be **durable**, and the **lighter** a product's weight, (normally) the **lower its environmental impact**
- Member States are encouraged to promote actions that lead to **keeping resources at their highest value**, by **replacing single-use plastic products with reusable products**
- There is **no one single solution to plastic products pollution**. It is context and country-specific but taking a **life cycle approach** can help in taking the right decision.

Considerations for policy makers



Geographic context can strongly influence results:

- Waste management infrastructure
- Energy mix
- Source and type of raw materials
- Recycling rates

Cultural context is equally important:

- Acceptability of reusable alternatives – social norms
- Use behaviour (washing, laundering, changing etc.)
- Access to waste management – likelihood of littering
- Cost

Other issues:

- Recognise and manage trade-offs between environmental impacts
- Understand the limitations of life cycle assessment studies



Thank you for your attention!