
Informal technical briefing #3 to support discussions at INC-1

Session 3- Plastics science and overview of existing funding

Wednesday 9 November 2022

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Heidi Savelli, Ecosystems Division - UNEP

Structure of the discussion	Proposed timing
Introduction and welcome from the INC secretariat	5 mins
<p><u>Part 1)</u></p> <p>a) Plastic science, Presenter: Llorenç Milà i Canals</p> <p>b) Q & A session facilitated by the secretariat</p>	35 mins
<p><u>Part 2)</u></p> <p>a) Overview of existing funding, Presenter: Heidi Savelli</p> <p>b) Q & A session facilitated by the secretariat</p>	35 mins
Secretariat update on logistics	10 mins
Secretariat wrap-up & announcement of next sessions	5 mins

Plastics Science

UNEP/PP/INC.1/7

Preparation of an international legally binding instrument on plastic pollution,
including in the marine environment

Llorenç Milà i Canals, Life Cycle Initiative, Economy Division
Wednesday November 9th, 2022

Overview

Plastic pollution science

- A. Summary
- B. Trends in plastic production, waste generation and chemical use in manufacturing
- C. Plastic pollution sources and pathways in the environment
- D. Impacts of plastic pollution
- E. Monitoring and reporting
- F. Solutions and technologies and their costs and benefits

B. Trends in plastic production, waste generation and chemical use in manufacturing

Production: exponential growth since 1950s, mainly from fossil feedstocks.

Figure 1. Plastic production forecast by 2060

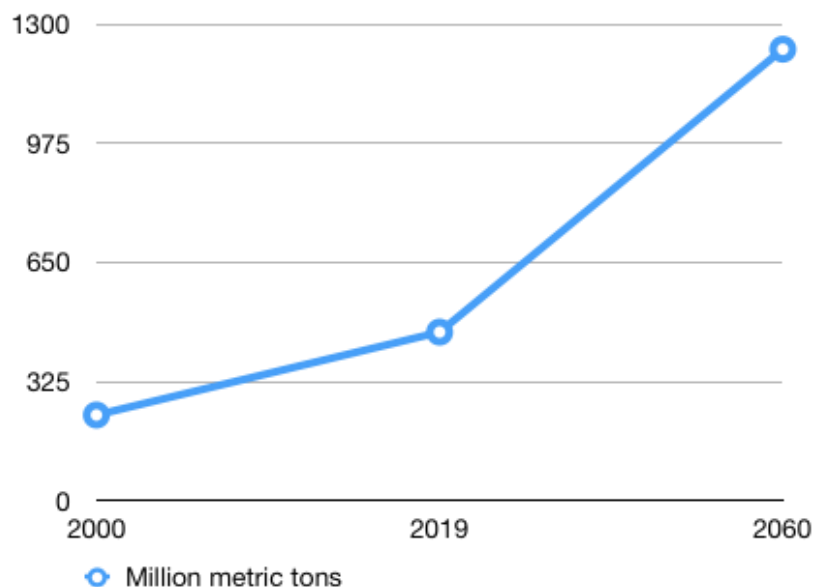
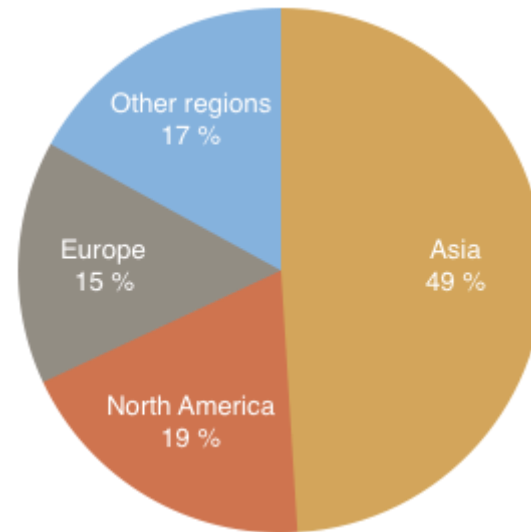


Figure 2. Plastic production by region in 2020

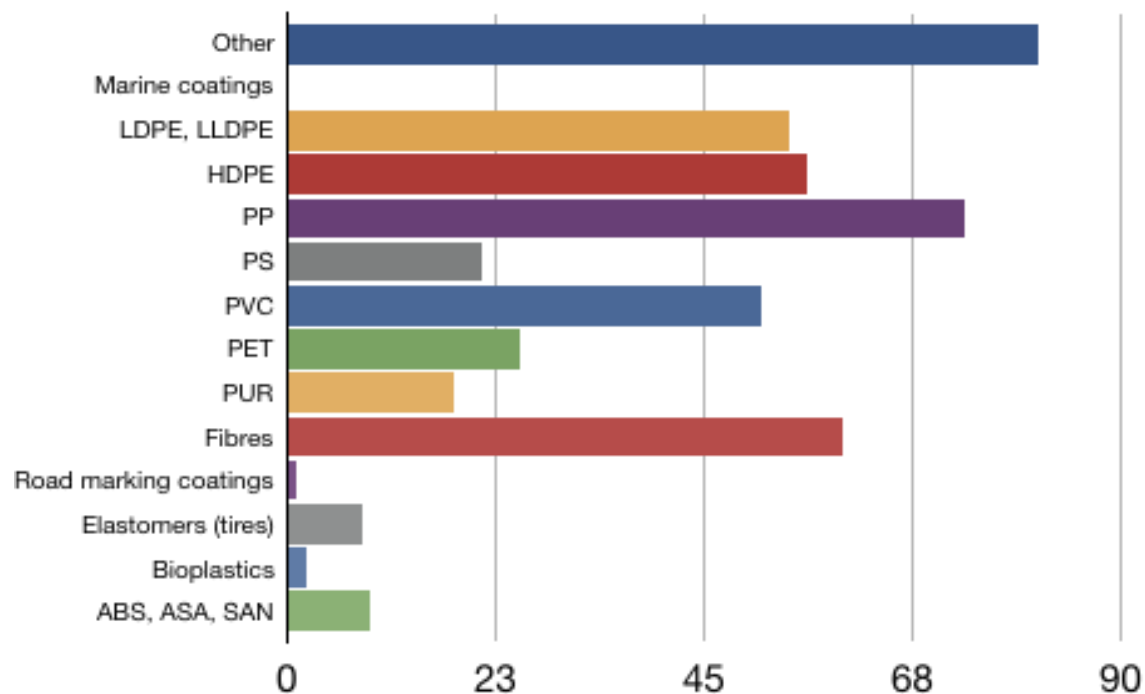


- By 2060 OECD non-member countries are expected to account for 64% of global plastic use (Emerging Economies in sub-Saharan Africa and Asia).
- OECD member countries are set to remain the largest consumers of plastics on an average per capita basis in 2060: **238 kg**, compared with **77 kg** in OECD non-member countries.

B. Trends in plastic production, waste generation and chemical use in manufacturing

Composition and products

Figure 3. Plastics use in 2019, by polymer and application (millions of metric tons).



- Plastics are mainly used in packaging, followed by sectors such as building and construction, transportation and textiles.
- Up to 99% of plastics are made from polymers derived from non-renewable hydrocarbons.
- Some 86% of the global market is dominated by thermoplastics.
- Short-lived plastic products made up 66% of plastics use in 2019.
- Durable or long-lasting plastic products found in buildings and construction, transportation, electronics and machinery made up around 35% of plastic product use in 2019.
- Bio-based plastics are receiving growing attention.

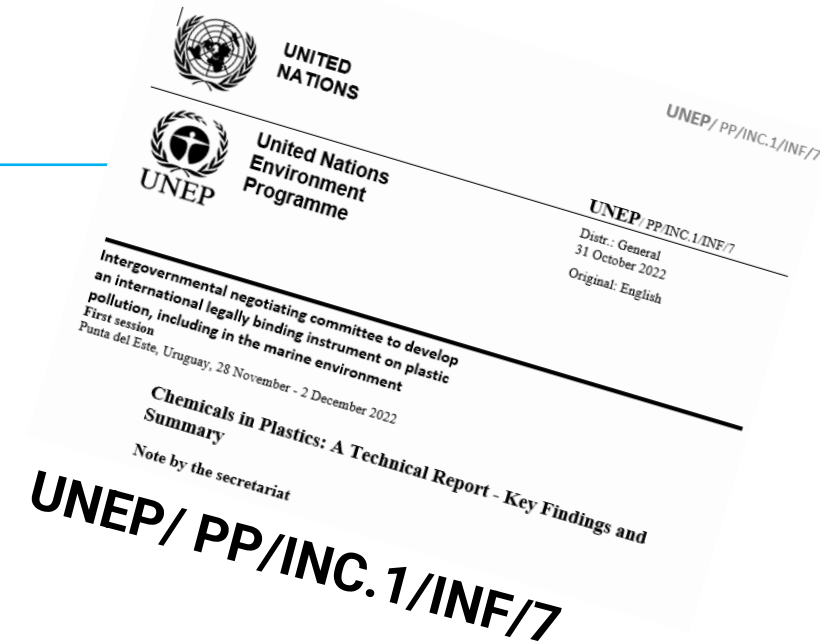
B. Trends in plastic production, waste generation and **chemical use in manufacturing**

Chemical use in manufacturing



Around a quarter of the over 10,000 unique chemicals used in plastics are of potential concern to human health and safety.

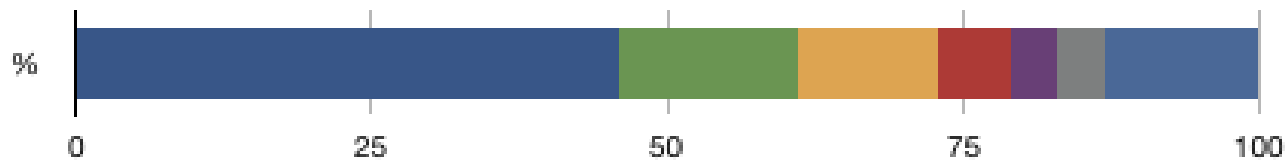
- Chemicals are either added deliberately during the production process or are unintentionally added by-products, breakdown products or contaminants. Around 20 additives per product were found on average.



B. Trends in plastic production, waste generation and chemical use in manufacturing

Plastic waste and recycling

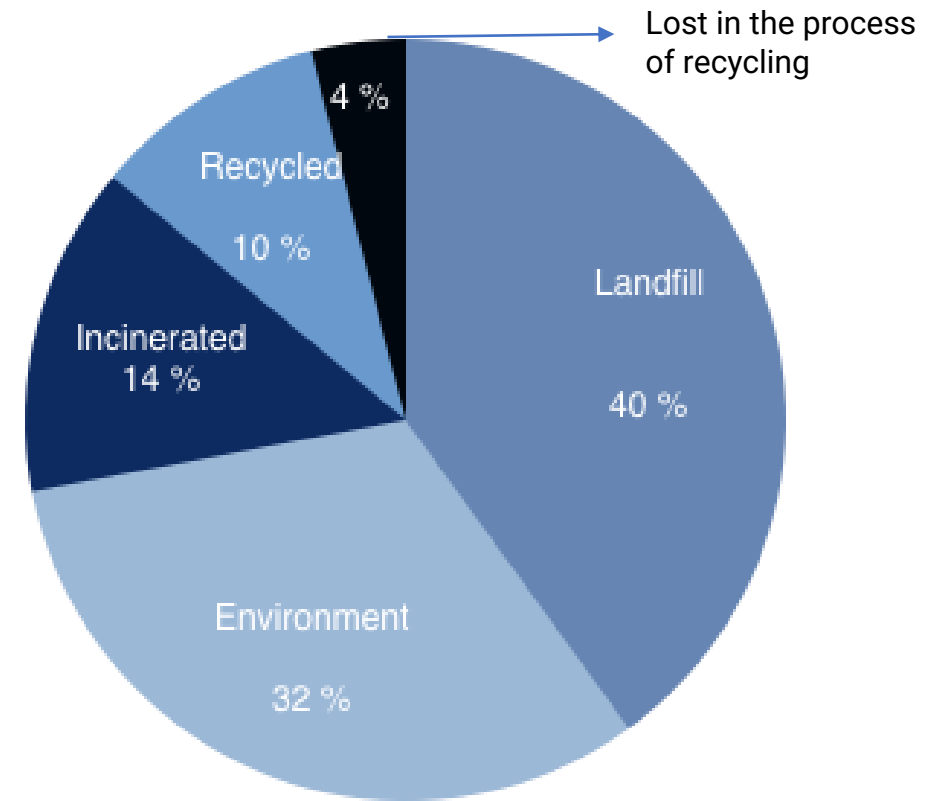
Figure 4. Plastic consumption, share by sector



- packaging sector
- textile
- consumer products
- transportation
- building and construction
- electrical
- other

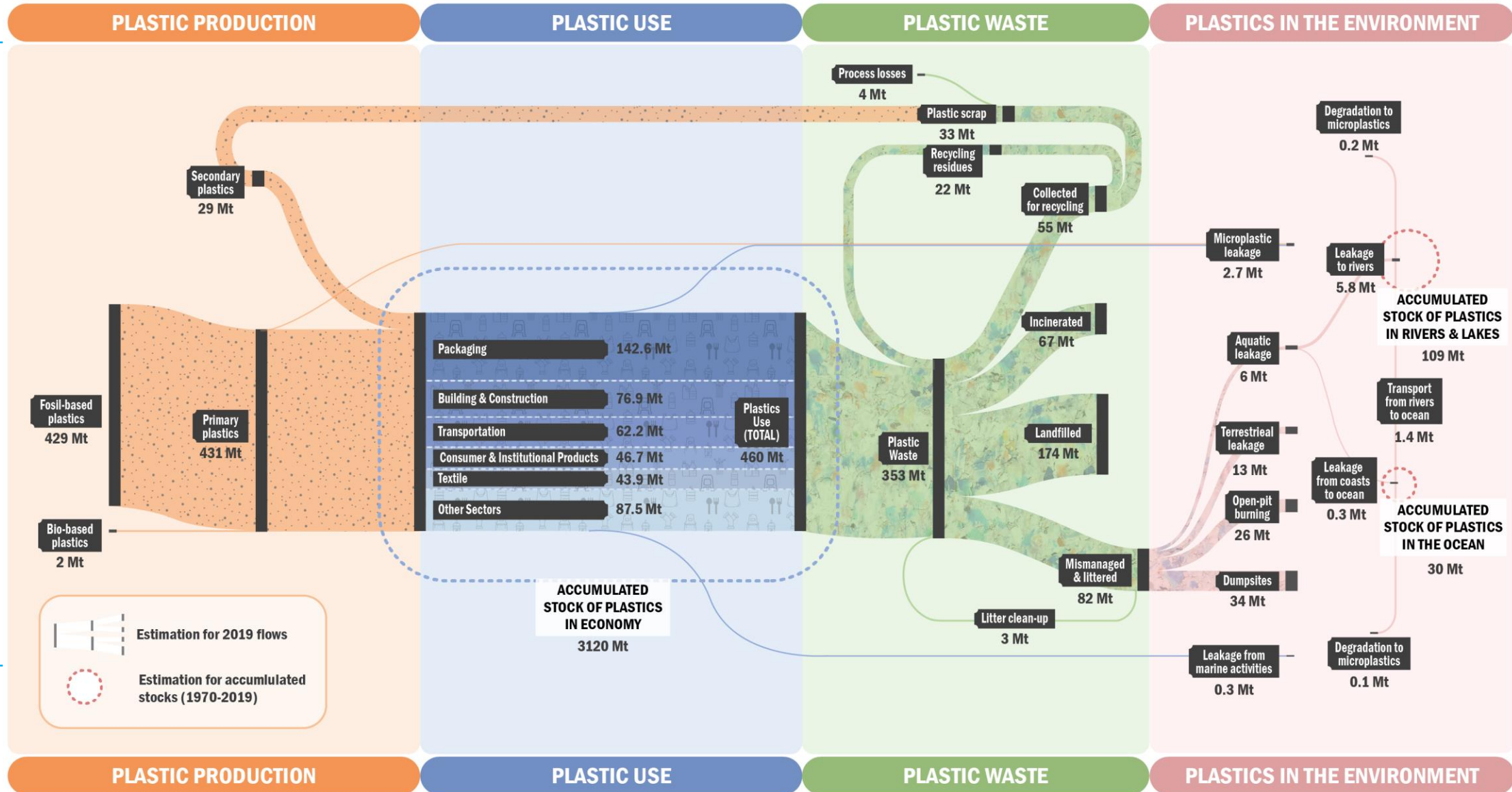
End-of-Life – packaging sector

- Plastic waste is forecast to rise, with the packaging sector being the largest generator. Plastic waste in Asia and Africa is forecast to quadruple by 2060.
- Very few packaging formats and polymers are recycled in practice and at scale: PET bottles; HDPE (bottles/rigid formats); PP bottles; PE mono-material flexibles (in business-to-business)



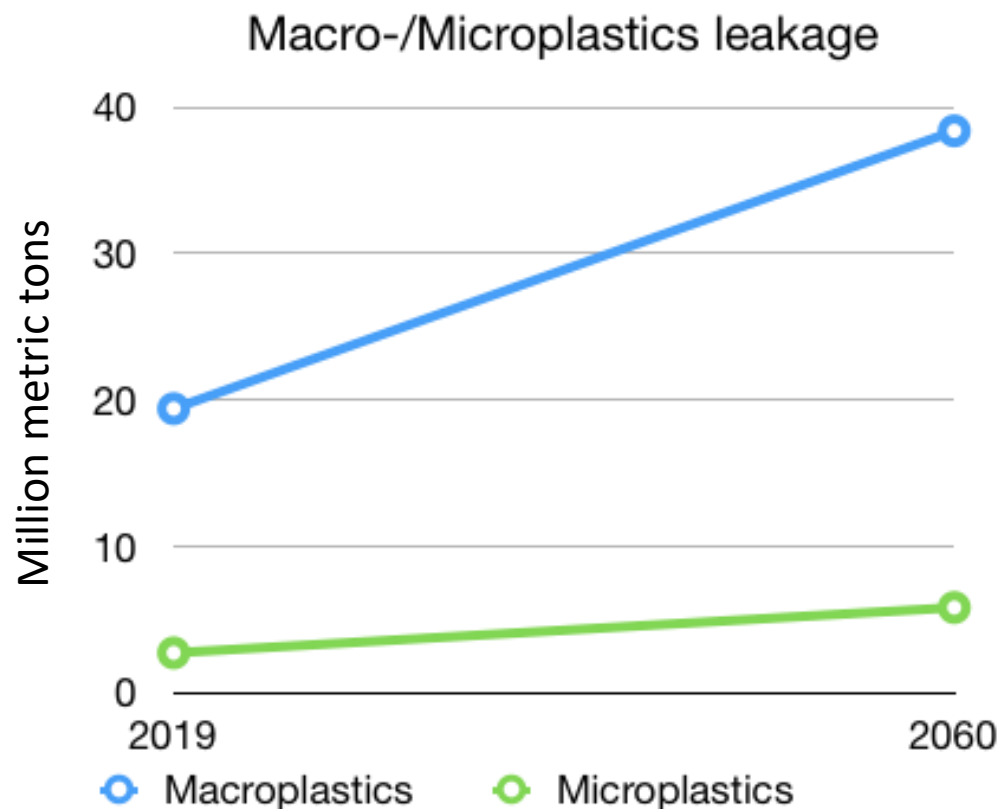
C. Plastic pollution sources and pathways in the environment

Flows of plastic in the global plastic life cycle, and losses to and accumulated stocks in the environment.



C. Plastic pollution sources and pathways in the environment

Macroplastics leakage

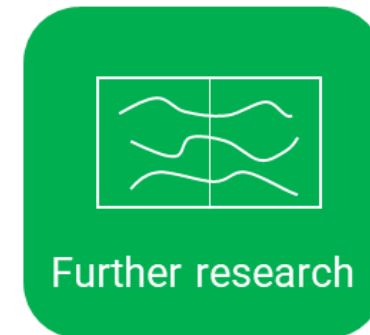


Plastic Pollution: *the negative effects and emissions resulting from the production and consumption of plastic materials and products across their entire life cycle. This includes plastic waste that is mismanaged (e.g., open-burned and dumped in uncontrolled dumpsites) and leakage and accumulation of plastic objects and particles that can adversely affect humans and the living and non-living environment (working definition, see Appendix I)*

- **Fishing gear, Agricultural plastics particularly problematic**
- **Microplastic leakage projected to more than double globally from 2019 to 2060 (mainly secondary).**
- Released **plastic travels in the environment** and through the food web, but significant knowledge gaps remain

D. Impacts of plastic pollution

1. Impacts of plastic pollution on human health



D. Impacts of plastic pollution

2. Impacts of plastic pollution on the environment

Contamination:
marine environment

Marine food chains

Lethal and
sublethal effects

Vectors for
pathogenic organisms

Global carbon
cycling

Climate change

Positive net
radiative forcing

Ozone layer

Soil ecosystems

Shift the ecology

D. Impacts of plastic pollution

3. Socioeconomic impacts of plastic pollution



63. Addressing plastic pollution will **require consideration** of the impact on **different communities**.

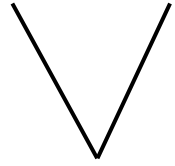
64. The **aggregate value** of plastic is lost to the economy when it becomes waste...

65. ...while plastic waste adds a **burden** to human health and the environment.

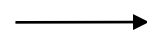
66. **Investing** in the **prevention** of waste and pollution at source is **less expensive** than remediation.

67. Plastic pollution has a **human rights dimension**, too.

E. Monitoring and reporting



Knowledge gaps



... prevent a full understanding of the global plastic crisis and our ability to confront it in a comprehensive way.



A harmonized set of metrics



A harmonized set of metrics can support better assessments and decisions by all actors.



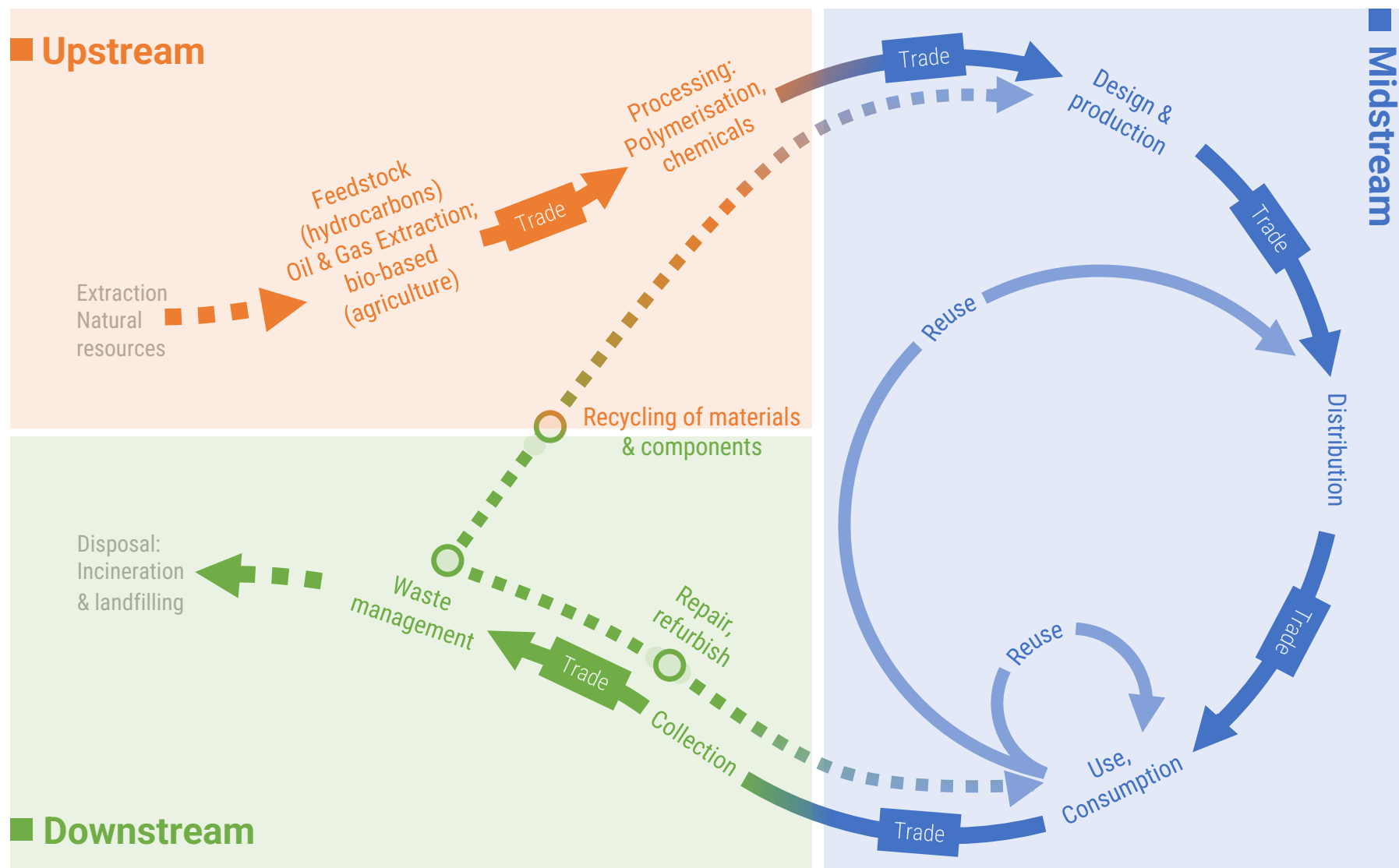
Country baselines



Some of these metrics need to be assessed as country baselines in order to then measure progress against them.

F. Solutions and technologies and their costs and benefits

Life-cycle approach to addressing plastic pollution



Resolution 5/14 requests

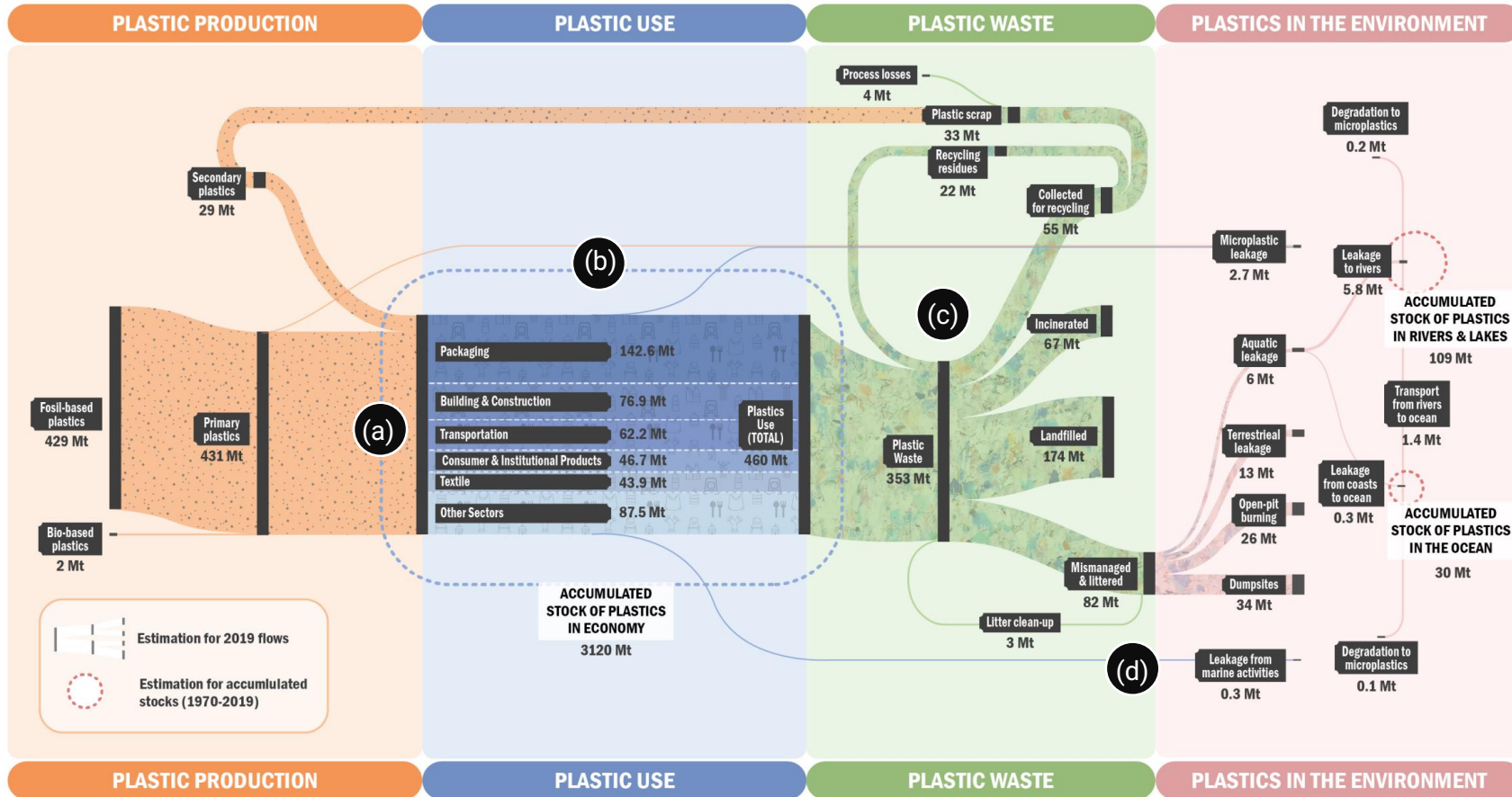
- the need for a comprehensive, integrated application of solutions across the **full life cycle of plastics**
- and the need to shift to a **resource-efficient circular economy**

(full) Life-cycle approach: means considering all potential impacts of all activities and outcomes associated with the production and consumption of plastics... (working definition, see Appendix I)



F. Solutions and technologies and their costs and benefits

Policy and legislative tools across the life cycle



(a) SG1. The elimination of problematic and unnecessary plastic, including hazardous additives.

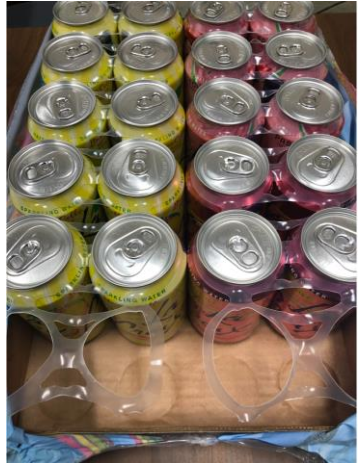
(b) SG2. Innovation to ensure that the plastics used in the economy are reusable, recyclable or compostable.

(c) SG3. Circulation of all the plastic items used, to keep them in the economy and out of the environment (reused, recycled or composted in practice).

(d) SG4. Collection and responsible disposal of plastics that cannot be recycled or have accumulated in the environment.

F. Solutions and technologies and their costs and benefits

Strategic goals to support a systems change to address plastic pollution



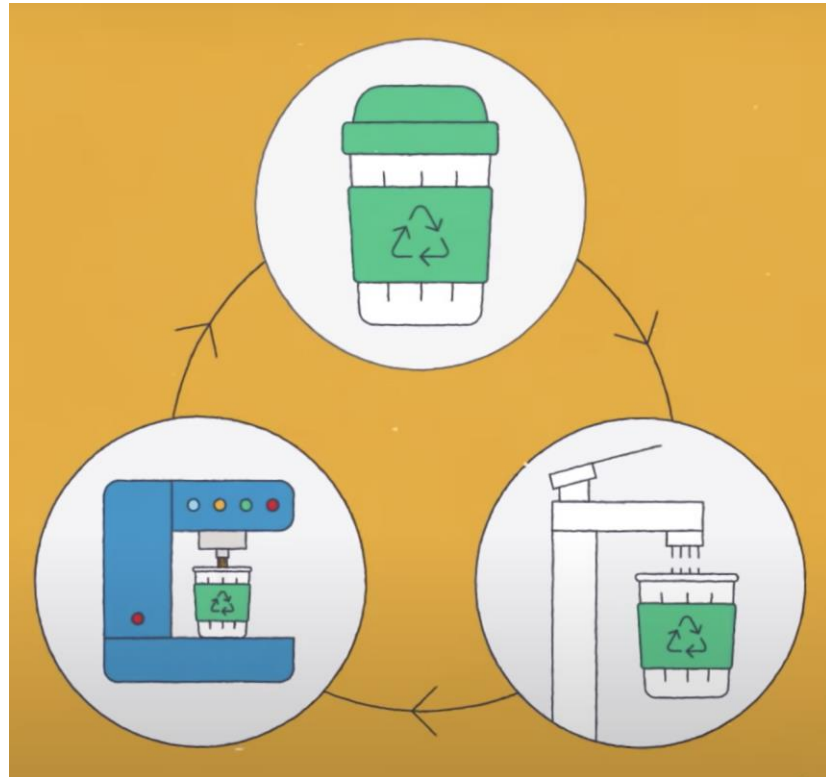
SG 1: Reduce the size of the problem by **eliminating and substituting** problematic and **unnecessary plastic items**, including hazardous additives

Eliminating products by **rethinking design and purpose**.

- (Eliminating problematic and unnecessary plastic products is best achieved by rethinking the design and purpose of products to “design out” problematic or unnecessary plastic use as well as hazardous chemicals and “design in” sustainable alternatives)

F. Solutions and technologies and their costs and benefits

Strategic goals to support a systems change to address plastic pollution



Ellen McArthur Foundation: Elimination of problematic or unnecessary plastic packaging.

SG 2: Ensure that plastic products are **designed** to be **circular** (**reusable**, recyclable or compostable).

Necessary plastic products will continue to play an important role in society.

Design phase critical to ensuring **reuse** and **recyclability** while addressing **chemicals of concern**.

Compostable plastic products: potential solution for very specific applications (provided adequate standards are enforced).

F. Solutions and technologies and their costs and benefits

Strategic goals to support a systems change to address plastic pollution



Loop Durable System UK Ltd.



SG 3: Close the loop of plastics in the economy by ensuring that plastic products are **circulated** in practice (**reused**, recycled or composted)

Closing the loop of plastics in the economy is the key to transitioning to a circular economy. The two main possible technologies for recycling are **mechanical recycling** and **chemical recycling**.

Actions could help support the circularity of plastics across their life cycle. (e.g., Scale up alternative sustainable recycling technologies; Foster innovation in technologies for capturing leaked plastic)

F. Solutions and technologies and their costs and benefits

Strategic goals to support a systems change to address plastic pollution



SG 4: Managing plastic waste that cannot be reused or recycled in an environmentally sound manner (including existing pollution).

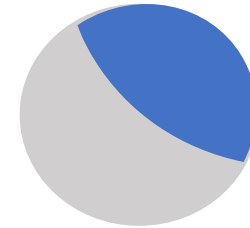
Safe disposal is still needed for non-circular plastic products.

- Minimize end-of-life plastic disposal;
- Prevent the export of waste to nations with insufficient capacity to manage that waste;
- Capture leaked microplastics by enhancing collection and management systems;
- Foster innovation in technologies for capturing leaked plastic.

F. Solutions and technologies and their costs and benefits

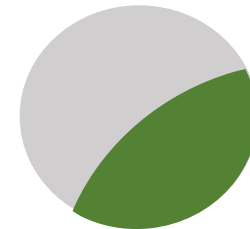
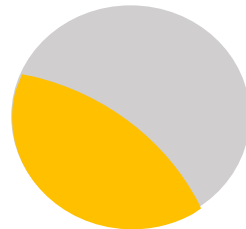
The importance of **trade** in the plastics economy

- economic weight
 - Over \$1 Tn over one year ~ 5% of global trade in 2018



- occurs across plastics life cycle:
 - Primary, intermediate and final plastic products
 - Plastic waste

- flows are relevant to plastic pollution
 - GHG emissions
 - Adding to waste management burden



- has a broad geographic spread
 - Virtually all countries import
 - Many countries export
- requires an international approach

F. Solutions and technologies and their costs and benefits

Opportunities in moving forward: the costs and benefits of systems change



80% ↓

Reduction of
plastic pollution



700,000 Jobs



Greenhouse gas
emissions ↓



Net savings

A. Summary

Plastic pollution science

1. Massive global increase in plastic production.
2. Increasing clarity linking plastic to impacts on human and environmental health.
3. Lethal for many species, and contributes to climate change.
4. The resource-inefficient, linear, take-make-waste plastic economy is at the core of the plastic pollution crisis.
5. Millions of workers in informal settings ensure some level of waste collection and recycling in many countries across the world.
6. Circularity in the economy is a critical part of the solution: Four strategic goals across the full life cycle can guide the transition to a circular economy.
7. A comprehensive and integrated approach to solutions is needed: no silver bullets!
8. Harmonized measures and legal obligations will be key.
9. Systems change is possible, but this demands vision targets, monitoring and reporting.

Questions

Please send questions to all panellists

Please type:

Country + name if you are representing a member state
Organization + name if you are representing other groups

Overview of existing funding currently available for addressing plastic pollution

[UNEP/PP/INC.1/9](#)

Addendum - UNEP/PP/INC.1/INF/10

Preparation of an international legally binding instrument on plastic pollution,
including in the marine environment

Overview

- **Section 1:** Introduction
- **Section 2:** Scope, methods and materials
- **Section 3:** Review of international funding for plastic pollution action
- **Section 4:** Insights from other international funding arrangements
- **Section 5:** Summary and conclusions

Section 2: Scope, methods and materials

- **Conceptual framework:** **Transition finance** - a significant and catalytic finance to enable transition
- **Scope:** “**provide an overview**” - defining, cataloguing and analysing new developments in international funding for addressing plastic pollution.
- **Baseline:** “Provisional summary of the **inventory of technical and financial resources and mechanisms** for supporting countries in addressing marine plastic litter and microplastics” and its underlying data sources including the Duke University Plastics Policy Inventory .
- **Data sourcing:** **UNEP/PP/INC.1/INF/10** is provided as an addendum - setting out the data sourced.
- **Major assumptions:** (a) The 2020 Inventory captured funding arrangements beyond marine ecosystem interventions across the plastics lifecycle. (b) The Duke University Plastics Policy Inventory has been regularly updated. (c) There are enough overlaps, similarities or analogous experiences.

Section 3: Review of international funding for plastic pollution action

A. Baseline: characterizing the situation in 2019: Five baseline issues identified

Attraction for private investment

Access to multilateral funding arrangements for national governments

Coordination challenges in both multilateral and bilateral funds

Resourcing a strategic approach to preventing plastic pollution

An explicit focus on equity, gender and justice concerns in innovating solutions

B. Analysis of developments in international funding for plastic pollution 2020 – 2022

- In 2022 plastic pollution is rather viewed as a widespread **sustainable consumption and production** challenge
- Multilateral arrangements for funding action on plastic pollution are **multiplying**
- **New initiatives** have been undertaken by a number of multilateral development banks
- Bilateral finance has shifted significantly since 2019 (e.g. experimentation and innovation in funding modalities with private sector engagement)
- Investment in **National Policy** for addressing plastic pollution continues to emerge, albeit at a slower pace compared to 2019. Instruments are starting to **diversify** in ways that are more encouraging for private sector participation in financing plastic pollution action
- **Private and hybrid arrangements** are proliferating, though it is difficult to evaluate their contributions and impacts at this point in time

Section 3: Review of international funding for plastic pollution action

C. Progress since 2019 on the identified baseline issues

- Progress can be observed in **attractiveness** for private investment
- **Access to multilateral funding** arrangements for national governments appears to be **improving**
- **Coordination challenges** in both multilateral and bilateral funds are **easing in Asia** but could emerge in other regions in future
- Progress appears to be happening in **resourcing a strategic approach** to preventing plastic pollution through more upstream focus and some action in significant industry sectors, although potential **changes in bilateral funding flows** may mean reduced long-term financial resources to tackle strategic priorities in future
- An explicit focus on **equity, gender and justice** concerns in innovating solutions to address plastic pollution. Pollution is **recognized as having different and disproportionate impacts** on women, formal and informal workers, and local and indigenous peoples

Section 4: Insights from other international funding arrangements

Multi-donor trust fund

- Potential for sustainable, reliable financial flows and risk-sharing between partners.
- Advantages: enabling rapid, more flexible, and better coordinated financing responses.

Existing multilateral environment agreements

- The United Nations Framework Convention on Climate Change and the Montreal Protocol on Substances that Deplete the Ozone Layer.
- The Minamata Convention on Mercury and Stockholm Convention on Persistent Organic Pollutants.

Other models and instruments

- Examples include, but are not limited to: GAVI, GEF, Green Climate Fund
- Lessons: the development processes and results with their innovative financing measures could inform financing action to address plastic pollution in future – such as developing attractive opportunities for private investment particularly for scaling funding flows on a continued, long-term basis.

Section 5: Summary and conclusions

The major advance in recent years appears to be a **shift** away from treating plastic pollution only as a waste or environmental pollution management issue.

Among submissions to the intergovernmental negotiating committee, several countries have made proposals on a **dedicated financial mechanism** to support the future implementation of the international legally binding instrument on plastic pollution.

- The five baseline issues identified in preparing the 2020 Inventory will likely **remain relevant** for coming years and will **evolve** in a context of changing bilateral funding priorities and flows
- For transition opportunities to be effectively pursued, a **joint leadership effort** between public, private and civil society actors is required for risk management
- **New and emerging issues** observed in recent studies that are recommended for consideration

Questions

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Logistical information

- **INC-1 logistics note:**

<https://www.unep.org/events/conference/inter-governmental-negotiating-committee-meeting-inc-1>

- **Plastic-free meeting.** Delegates are suggested to bring their own water bottles to the meeting. Water dispensers for refilling will be provided.
- **Registration will open** 25 November, 9 a.m. - 6 p.m.; 26 November - 1 December, 8 a.m. - 5 p.m.
- **Transfer services** will be available between:
 - i. The capital Montevideo and Punta del Este for flight arrivals and departures
 - ii. Punta del Este city centre and the venue every day.
- **Visa letters:** The Government of Uruguay will issue special **individual letters** to participants authorizing entry into the country without a visa. Please note that only participants that require a visa will be issued the letter.
- **Accommodation list is available on-line:** Due to peak season in Uruguay, participants are encouraged to book hotels as early as possible.

Informal technical briefings

Tuesday 1 November	Topic 1: Organization of the INC-1 and its scenario note
Thursday 3 November	Topic 2: Potential elements; structure; glossary of key terms; and final provisions
Wednesday 9 November	Topic 3: Plastics science; and overview of existing funding
Friday 11 November	Topic 4: Priorities, needs, challenges and barriers to end plastic pollution at national level; and existing information that might assist policymakers
Tuesday 15 November	Topic 5: Organization of the Multistakeholder Forum; stakeholder engagement; and cooperation and coordination with relevant regional and international conventions, instruments and organizations

Thank you

For questions and queries, please write to:
unep-incplastic.secretariat@un.org