Addressing Single-Use Plastic Products Pollution using a Life Cycle Approach

WEBINAR SERIES B – PART 1: NORTH AMERICA, LATIN AMERICA & THE CARRIBEAN + EUROPE/AFRICA/WEST ASIA (14:00 GMT ONLINE)

Response to UNEA4 Resolution 9: Addressing single-use plastic products pollution

13 OCTOBER 2020

Economy division, UNEP
1 rue Miollis, Building VII
75015 Paris, France

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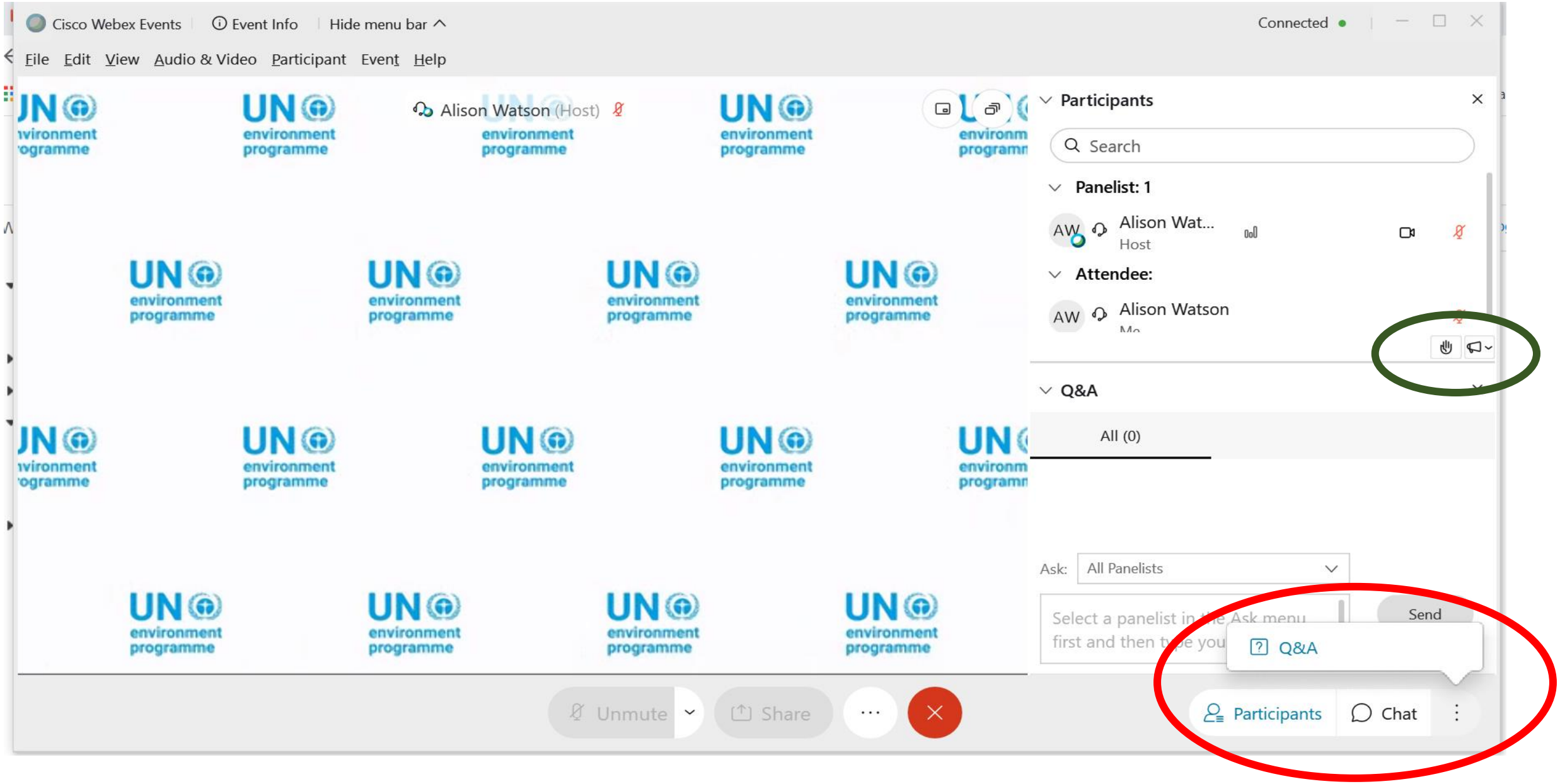
How to interact today…



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POLL

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Agenda

Time	Presentation	Speaker
14:00	Onboarding	Alison Watson, UNEP
14:05	**Introduction**	**Llorenc Mila I Canals**, UNEP
14:10	**LCA meta-studies on tableware, beverage cups, nappies, feminine hygiene products**	**Dr Yvonne Lewis**, principle consultant at The Green House & **Dr Philippa Notten**, director at TGH Think Space
14:20	Q & A	
14:30	**20 Years of Government Responses to the Global Plastic Pollution Problem**	**Rachel Karasik & Zoie Diana** Nicholas Institute for Environmental Policy Solutions Duke University
14:40	Q & A	
14:50	**Tackling Plastic Pollution: Legislative Guide on the Regulation of Single Use Plastic Products**	**Allan Meso**, Legal Officer, Law Division, UNEP
14:58	Q & A	
15:05	**Case study: Colombia**	**Alex Saer**, Director of Sectoral and Urban Environmental Affairs - Ministry of Environment and Sustainable Development
15:15	Q & A	
15:27	**Summary of session**	**Claudia Giacovelli**, UNEP
15:30	Close	Alison Watson, UNEP

Introduction

Why are we here?

Llorenç Milà i Canals
Life Cycle Assessment Team Leader, UNEP
Llorenc.milaicanals@un.org

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Framing the issue

- Single-use plastic products present a significant environmental problem and global challenge
- Alternatives are needed
- Policy makers require information to compare alternatives based on full life cycle environmental impacts

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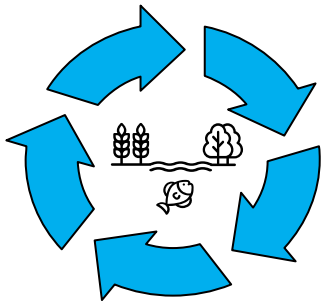
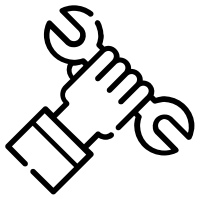
UNEP/EA.4/Res.9

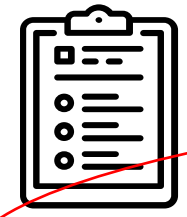
Addressing single-use plastic products (SUPP) pollution (adopted 15 March 2019)

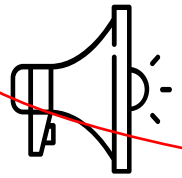
Encourages Member States to deal with the pollution generated by SUPP, considering all environmental impacts across their life cycle.
It requests UNEP to (Operative Paragraph 8, OP8):





- (OP8a) Support development and implementation of ***national or regional action plans***;
- (OP8b) ***Technical and policy support*** regarding the environmental impact of single-use plastic products and the promotion of solutions for their replacement;





- (OP8c) ***Make available existing information*** on ***actions taken*** to address plastic pollution and the ***full life cycle environmental impacts of plastic products and their alternatives*** in advance of UNEA 5.

Life Cycle Initiative

the "***full life cycle environmental impacts***" of products is assessed with Life Cycle Assessment (LCA)…

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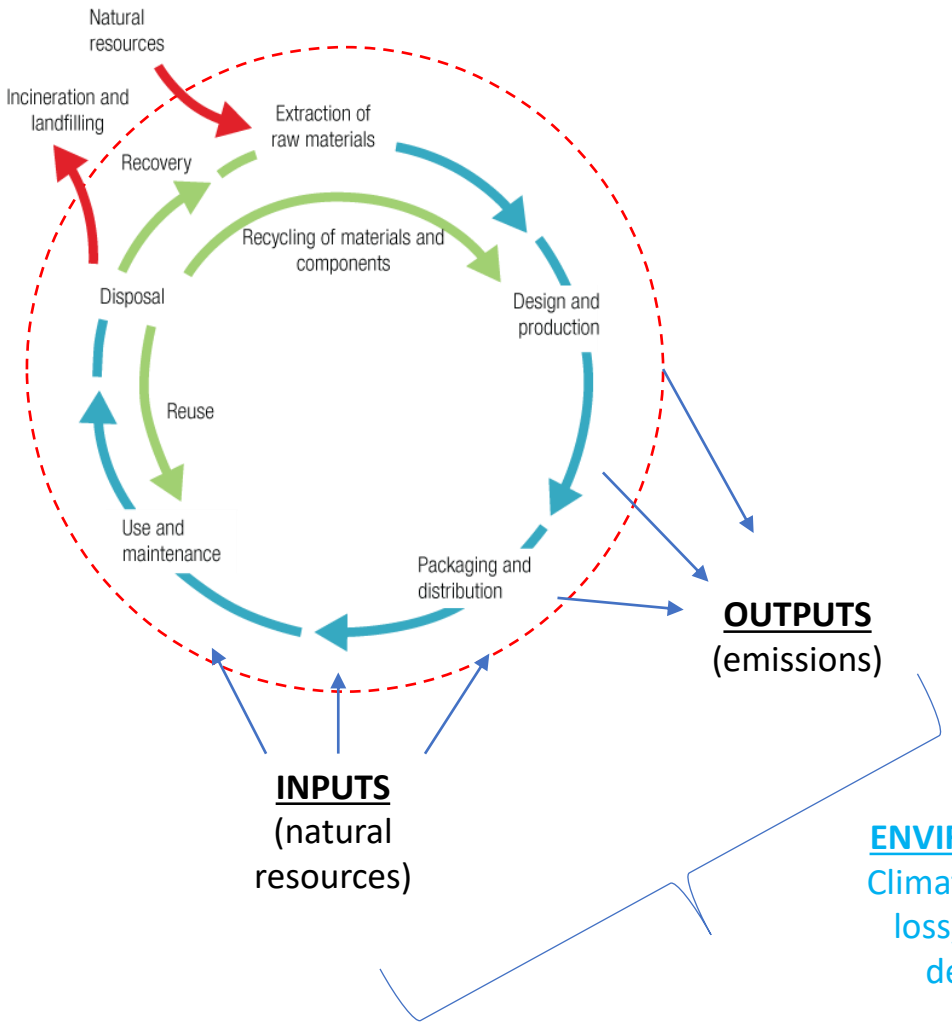
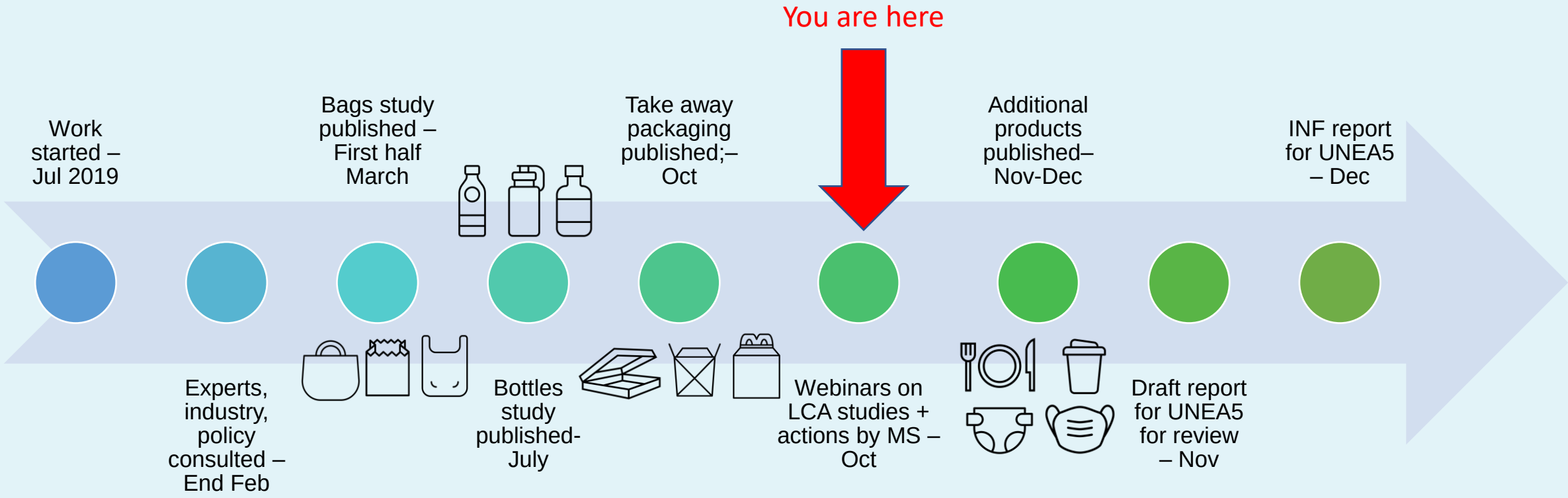
… so what is Life Cycle Assessment (LCA)?



Life Cycle Assessment (LCA) is the "***Compilation and evaluation of the inputs, outputs and the potential environmental impacts of a product system throughout its life cycle***" (ISO 2006)

Check the Life Cycle Initiative's e-Learning modules on Introduction to Life Cycle Thinking

Timeline for the follow-up of the SUPP resolution (OP8c)



LCA studies coordinated by and available through:

Life Cycle Initiative

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Several of the reports are already online

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

Life Cycle Initiative

hosted by UN environment programme

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Download the publications

Single-use plastic bags and their alternatives: Recommendations from Life Cycle Assessments

Single-use plastic bottles and their alternatives: Recommendations from Life Cycle Assessments

Single-use plastic take-away food packaging and its alternatives

- Webinar Series on Single Use Plastic Products and Learnings from LCA – October 2020
  September 28, 2020
- 2 Internship posts at the Life Cycle Initiative
  September 28, 2020
- Register now! Upcoming webinars on plastics
  September 26, 2020
- September – October LC Net newsletter is out!
  September 6, 2020

See all our latest stories on our news page.

TRANSLATE THIS PAGE

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Context and goals for today

Reminder of key blocks today

1. Learnings from Life Cycle Assessment Studies
2. Government actions across the world
3. Legislative Guide on single-use plastic products
4. Examples from a sample of governments using LCA in single-use plastic products policy

These are linked to other on-going processes in UNEP:

- Ad Hoc Expert Group on Marine Litter and Microplastics stock-taking exercise
- One Planet Network-wide Plastics Initiative

- 2-way dialogue!
- Please post questions and comments in the chat
- We are taking today's feedback into the final report!

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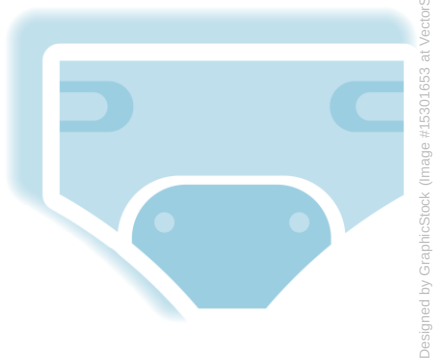
LCA meta-studies on beverage cups; tableware; nappies and feminine hygiene products

Dr Yvonne Lewis
Dr Philippa Notten

Meta-analysis of existing LCA studies

Beverage cups

Tableware



Nappies

Feminine hygiene products

Personal protective equipment (PPE) non-medical

TGH THINK SPACE

Beverage cups

	Single-use			Reusable	
	PLA	Plastic	Paper	Plastic	Other
Hot beverages	-	PS	PE-lined, PLA-lined, wax-lined	PP	Glass, ceramic, melamine, bamboo
Cold beverages	PLA	PP, PET, rPET	PE-lined, PLA-lined	PC	Stainless steel

Nine studies included in the meta-analysis

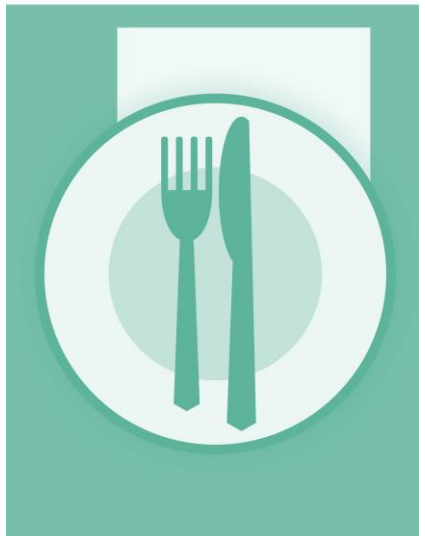
5 x Europe; 4 x North America; 2 x Asia; 1 x Australasia; 1 x global

Findings

Beverage Cups

- For **single-use cups** no material performs best or worst
  - **Manufacturing** largest contributor to life cycle emissions followed by end-of-life management
- **Reusable cups** outperform single-use cups regardless of material
- The number of re-uses to “break-even” varies between 10 and 140 uses
  - This depends on materials compared, end-of-life assumptions and washing assumptions
  - **Washing** contributes most to environmental impact, strongly influenced by water temperature and source of electricity

Tableware



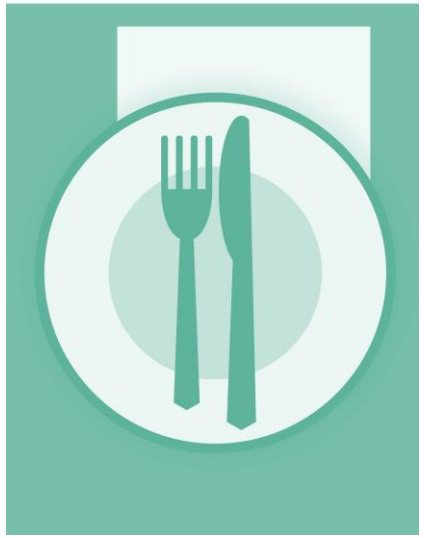
	Single-use			Reusable
	Bio-plastic	Fossil-plastic	Paper/ fibre	Various
Cutlery	Bio-plastic	PS		
Plates and bowls	PLA	rPET, PS, PP	CTMP, bagasse-pulp, LDPE-coated paper	Porcelain
Catering systems	E.g. Cardboard tray, PS plate, PS bowl, PLA cup, PS cutlery E.g. Melamine tray and bowl, porcelain plate, melamine bowl, reusable plastic bowl, stainless-steel cutlery			

Six studies included in the meta-analysis

4 x Europe; 2 x North America

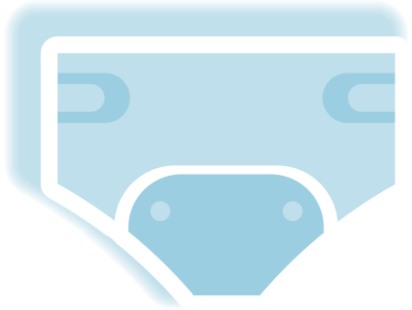
Findings

Tableware



- For **single-use cutlery**
  - Compostable cutlery outperforms plastic cutlery when co-composted with food waste
- For **single-use plates and bowls** – no clear trends
  - The weight of the product and energy mix are key factors
  - Raw material production, manufacturing and end-of-life are the most important life cycle stages
- Comparing with **reusable options**
  - Reusable porcelain plates have significantly lower impacts than all disposable options, except with regards to water use due to washing
  - In all catering systems considered (hospital, school and hotel), the reusable tableware products have lower environmental impacts than the single-use options

Nappies



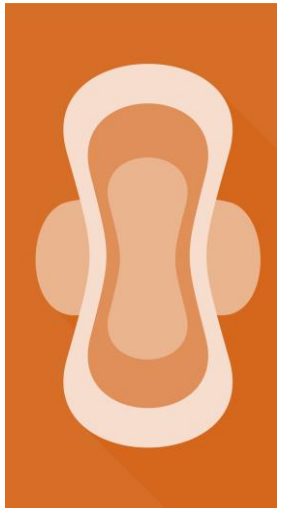
	Single-use	Reusable
Nappies	Disposable nappy, glueless nappy, bioplastic nappy	Terry cloth nappy, pre-folded, shaped nappy

Six nappy studies included in the meta-analysis
4 x Europe; 1 x South America; 1 x Australia

Initial findings

- Overall, **cloth nappies have lower environmental impacts** than disposable nappies across nearly all impact categories, with nappy-as-service (industrial laundry) having the best results
- Glueless nappies outperform conventional plastic nappies and bio-based nappies show potential, especially if composted at end-of-life

Feminine Hygiene Products



	Single-use	Reusable
Feminine Hygiene Products	Sanitary pads, tampon, tampon with applicator	Reusable pad, menstrual cup

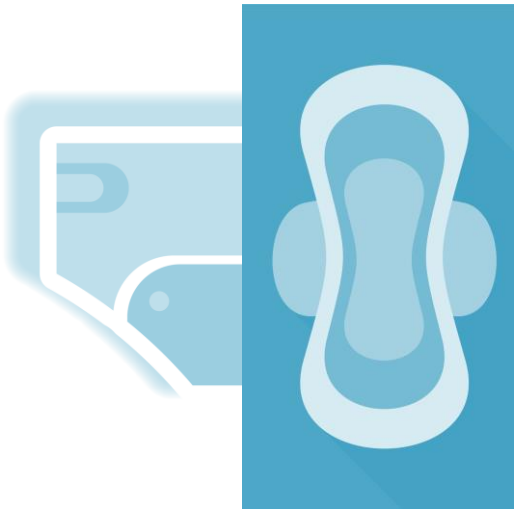
Three feminine hygiene studies
1 x Europe; 2 x North America; 1 x India; 1 x Africa

Initial findings

- The **reusable menstrual cup** has substantially lower environmental impacts than single-use feminine hygiene products and reusable pads
- For the menstrual cup, raw material production and use phase (washing) are most significant

Findings

Nappies and Feminine Hygiene Products



- Single use vs. reusable nappies
  - Overall, **cloth nappies have lower environmental impacts** than disposable nappies across nearly all impact categories, with nappy-as-service (industrial laundry) having the best results
  - Glueless nappies outperform conventional plastic nappies and bio-based nappies show potential, especially if composted at end-of-life
- Feminine hygiene products
  - The **reusable menstrual cup** has substantially lower environmental impacts than single-use feminine hygiene products and reusable pads
  - For the menstrual cup, the production of raw materials as well as the use phase (washing) are the most significant life cycle stages
  - Single use tampons perform better than single use pads, particularly if there is no applicator

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

Q & A Session with Dr Yvonne Lewis & Dr Philippa Notten

Please ask your questions in the Q & A Box (All Panellists)

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20 Years of Government Responses to the Global Plastic Pollution Problem

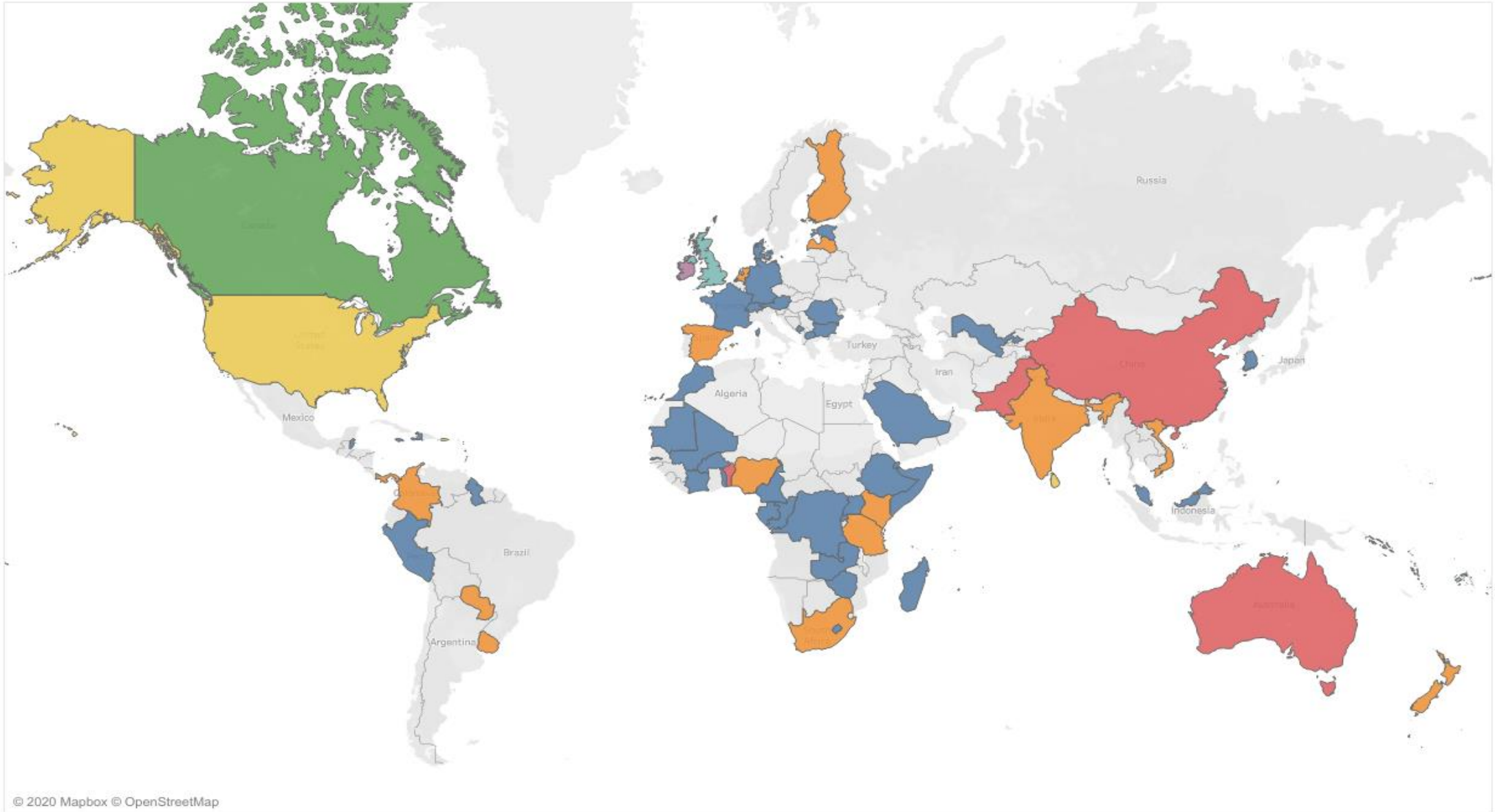
Zoie Diana & Rachel Karasik

How have governments around the world responded to the global plastic pollution problem (2000 to mid-2019)?

What do we know about what has worked and what didn't?

Rachel Karasik, Tibor Vegh, Zoie Diana, Janet Bering, Juan Caldas, Amy Pickle, Dan Rittschof and John Virdin

National Policies Included in Analysis

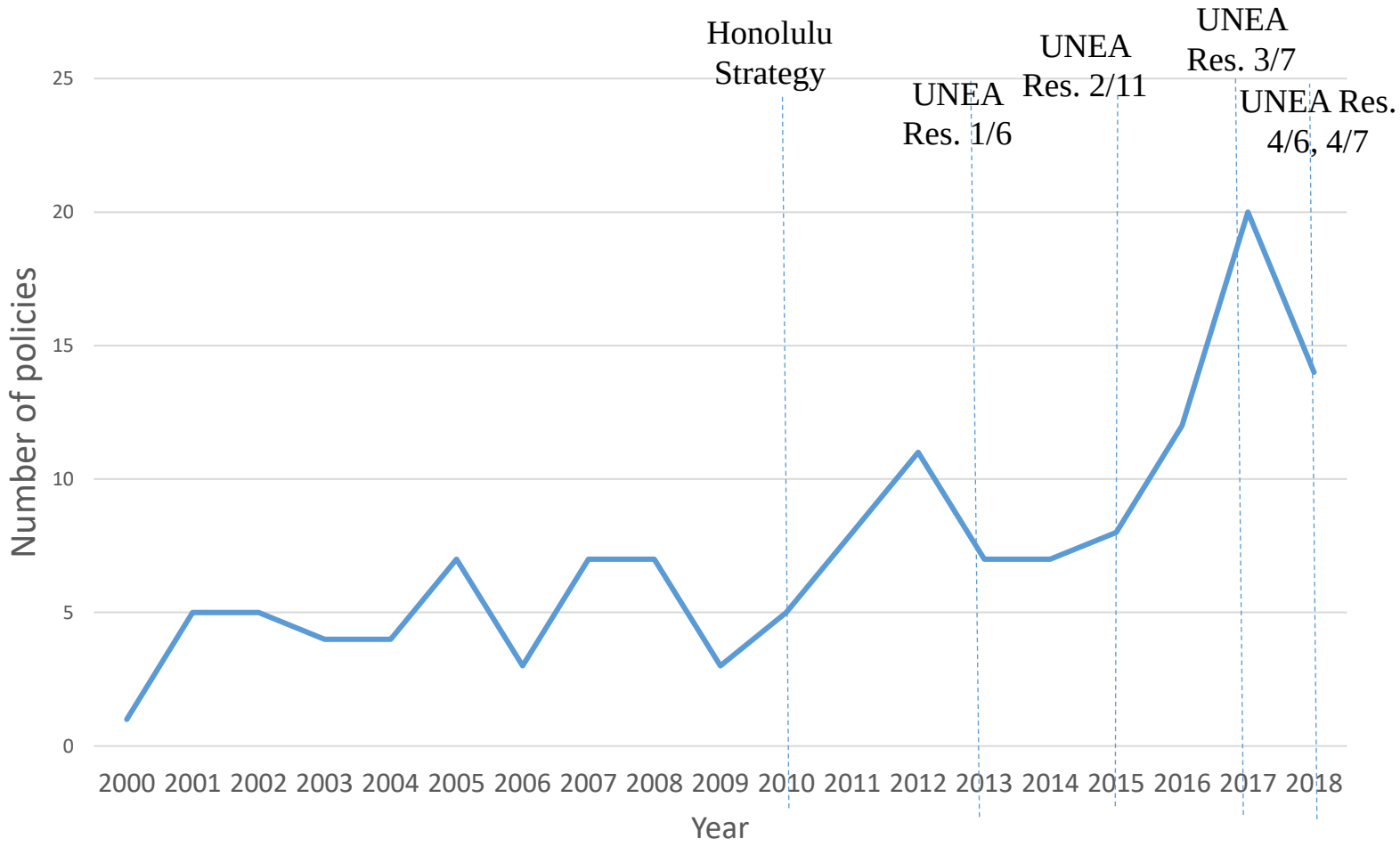


Number of Policies (n=147 total)

1 2 3 4 5 6 7

Key Findings: Policy design – how governments have responded

Clear upward trend in policy responses at every level: international, national and sub-national

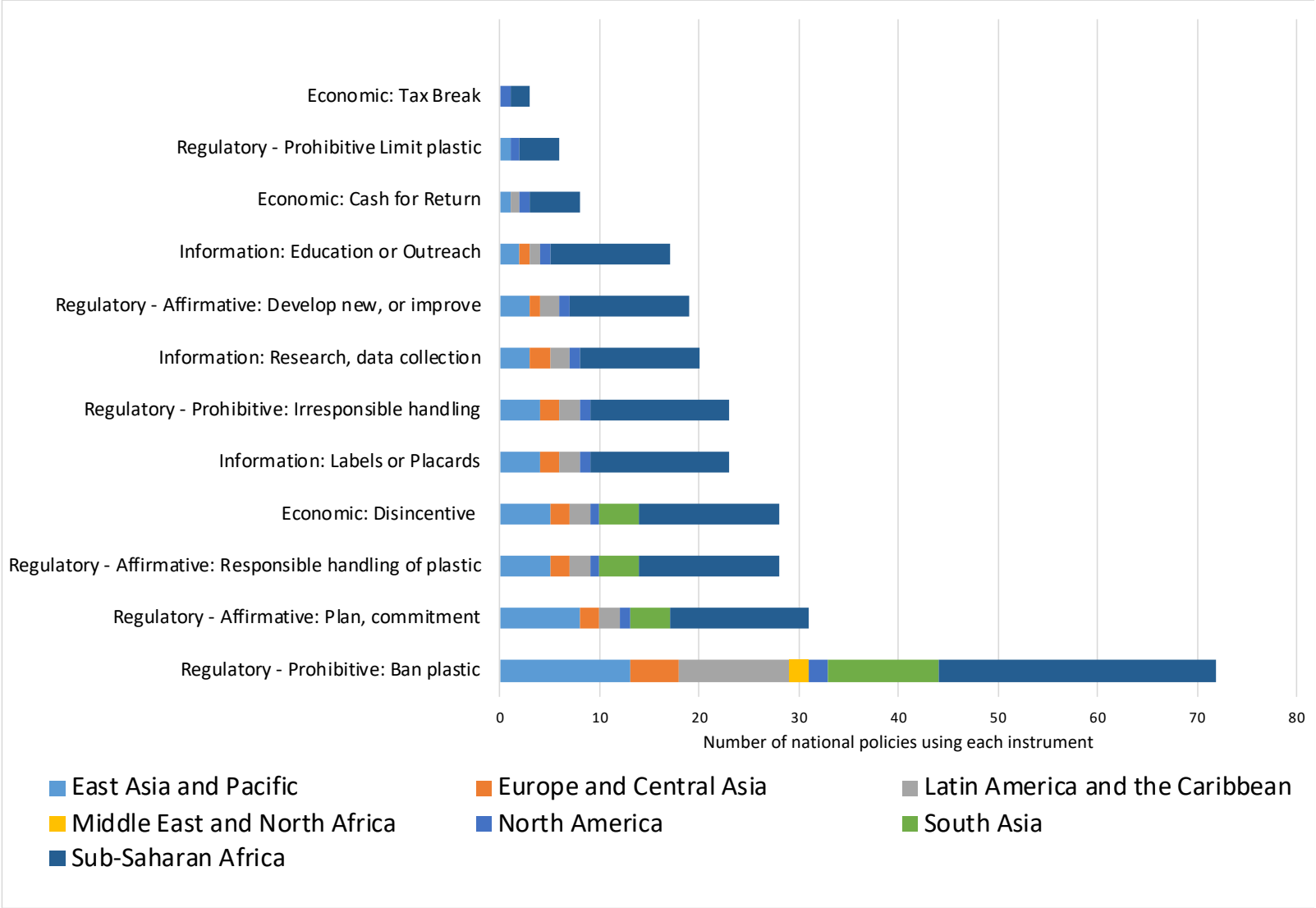


Number of National Plastics Policy Documents Analyzed, with Key Global Policies

Key Findings: Policy design – how national governments have responded

The upward trend in national policy responses largely reflects new policies introduced solely to address plastic bags.

As of mid-2019, governments had banned, taxed or levied fees on various forms of plastic bags in at least 43 countries, w a population of 952 million in 2018 – 3.7 billion if China and India policies included.



Instruments most frequently used by national governments to address the plastic pollution problem in the sample analyzed

Key Findings: Policy design – how governments have responded

Overall, of the top 20 countries producing mis-managed plastic waste from coastal land-based sources (Jambeck *et al.* 2015), 7 have no national policy document or reference in the inventory:

1. Philippines
2. Thailand
3. Egypt
4. Algeria
5. Brazil
6. Myanmar
7. North Korea

Another four have only national policies targeting plastic bags:

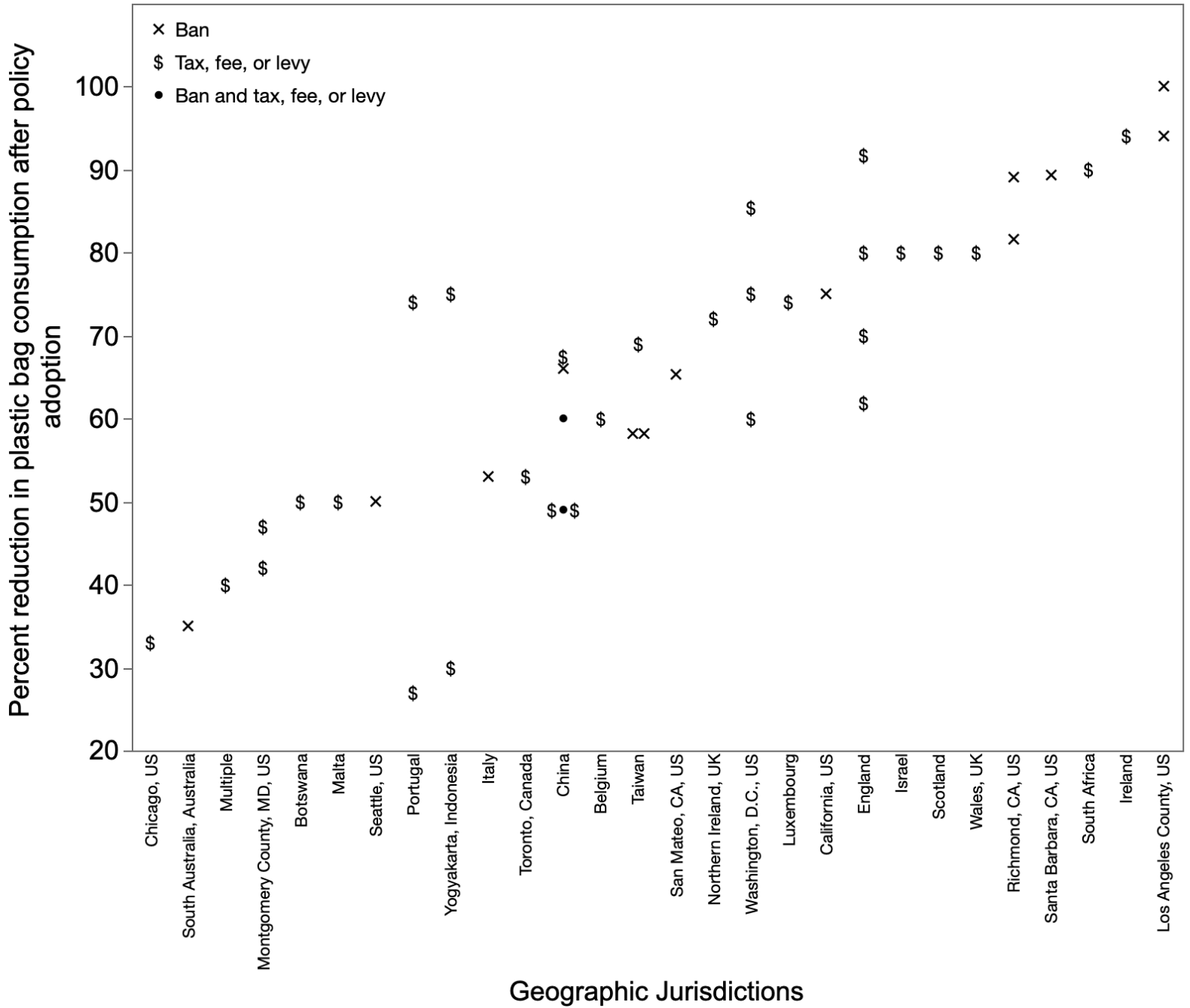
1. Nigeria
2. Bangladesh
3. South Africa
4. Morocco

Over half of the top 20 plastic polluting countries from Jambeck *et al.* (2015) do not have a policy in the inventory or have only a policy targeting plastic bags.

Note: Does not suggest with certainty no national policy exists, nor that presence of a policy indicates an effective response.

Key Findings: Policy effectiveness – what has worked and what hasn't

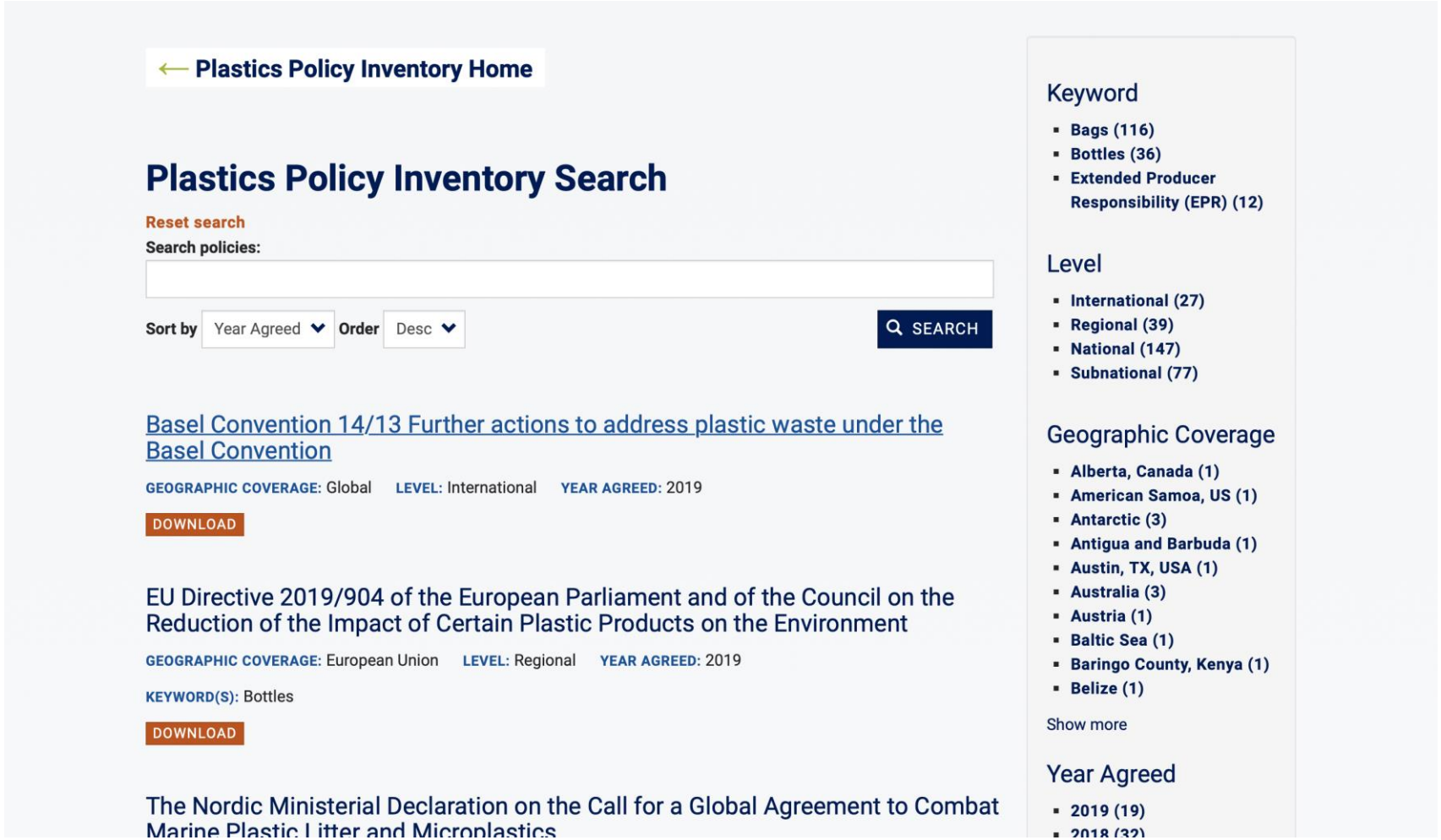
Regardless of the instrument used, significant reductions in plastic bag consumption were consistently measured in the short-term (within 24 months).



Summary of Policy Recommendations in the Scientific Literature

- For responses to all land-based sources, ***increased use of information instruments recommended*** – one of the more consistent recommendations
- For land-based sources of macro-plastic pollution, ***improved solid waste management*** is fundamental, particularly in lower and middle-income countries. Instruments that extend producer responsibility also consistently recommended.
- Larger body of recommendations and observations available for instruments to address plastic bags
- ***Regulatory bans for plastic bags, could be extended to other single-use plastic pollutants*** (e.g. bottles), at least in the short-term
- ***For plastic bottles, cash for return policies*** have been effective in increasing recycling rates and recommended for wider use (based largely on studies in Europe and N America)
- For micro-plastic pollutants, ***regulatory bans of plastic microbeads in all types of cosmetic and personal care products*** are recommended at all levels
- Across all land-based sources of plastic pollution, scientists have consistently called for ***a global treaty***, with global, binding and measurable targets for pollution reduction

Plastics Policy Inventory



https://nicholasinstitute.duke.edu/plastics-policy-inventory

Q & A Session with Rachel Karasik and Zoie Diana

Please ask your questions in the Q & A Box
(All Panelists)

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LEGISLATIVE GUIDE FOR THE REGULATION OF SINGLE-USE PLASTIC PRODUCTS

A PRESENTATION MADE DURING THE WEBINAR SERIES ON SINGLE-USE PLASTIC PRODUCTS: POLICY DEVELOPMENT AND LEARNINGS FROM LIFE CYCLE ASSESSMENT

Allan Meso
13 October 2020, Nairobi

Why the guide?

- Concerns about the environmental, social, health or other impacts of plastic waste and pollution
- To support the implementation of resolutions 1/6, 2/11, 3/7, 4/6 and 4/9 of the United Nations Environment Assembly
- Provide a practical tool for those working to develop laws and regulations to limit or manage single-use plastic products

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Developing legislation on single-use plastic products

- **Establish a baseline** – What is the problem?
- **Engage in transparent and diverse consultations** – How can stakeholders be part of developing solutions?
- **Consider the objectives and policymaking principles** – What do we want to achieve?
- **Select the regulatory approach or a mix of regulatory approaches to best meet your objectives** – what has worked elsewhere? what fits our context best?
- **Use clear definitions, incorporate transparency and accountability mechanisms and articulate precise institutional roles and responsibilities –** how do we communicate our regulation and policy clearly to all stakeholders?

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Principal regulatory approaches

- Bans or prohibitions
- Economic instruments
- Product standards, certification and labelling requirements
- Extended producer responsibility (EPR) schemes
- Waste management principles
- Other regulatory approaches such as consumer education programmes, funds or prizes; public procurement requirements; reuse incentives; and public-private partnerships.

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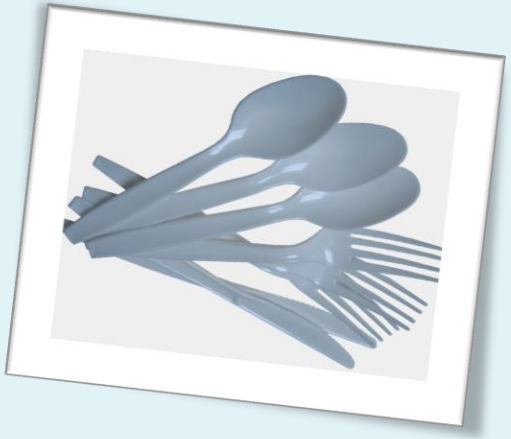
“We have decided we want a ban - what will I learn from the Guide when taking the first steps"?

“How do I choose between the different legislative options?”

“I'm reviewing the waste legislation in my country: how can I use legislation to tackle the problem of SUPP at source?"

“Why are clear definitions of single-use plastic products etc important when developing legislation?”



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Thank you

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Case-Studies: Colombia

Colombia's Advances to a National Plan for Sustainable Management of Single-use Plastics

Alex Saer Saker

Direction of Environmental , Sectorial and Urban Affairs

Ministry of Environment and Sustainable Development

Bogotá, October 2020

Background

United Nations Environment Assembly

XIV Summit of the Pacific Alliance

Timeline

November 2018

Launch of National Strategy for a Circular Economy
Estrategia Nacional de Economía Circular (ENEC)

December 2018

Formation of National Working Table for the National Plan for Sustainable Management of Single Use Plastics (SUPs).

Jan – Nov. 2019

8 Working Meetings to design Action Plan .

Aug – Sept. 2019

Participation on public audience of the legislative initiative presented.

September 2019

Sustainable SUPs plan Draft open for comments from different stake holders and adjustments made accordingly to comments received.

November 2019

Advances presented at the Forum: *"Opportunities derived from Sustainable Use of Plastics in Colombia"*

Members at the working table for the National Plan for Sustainable Management of SUP´s

El progreso es de todos — Mincomercio

La vivienda y el agua son de todos — Minvivienda

El ambiente es de todos — Minambiente

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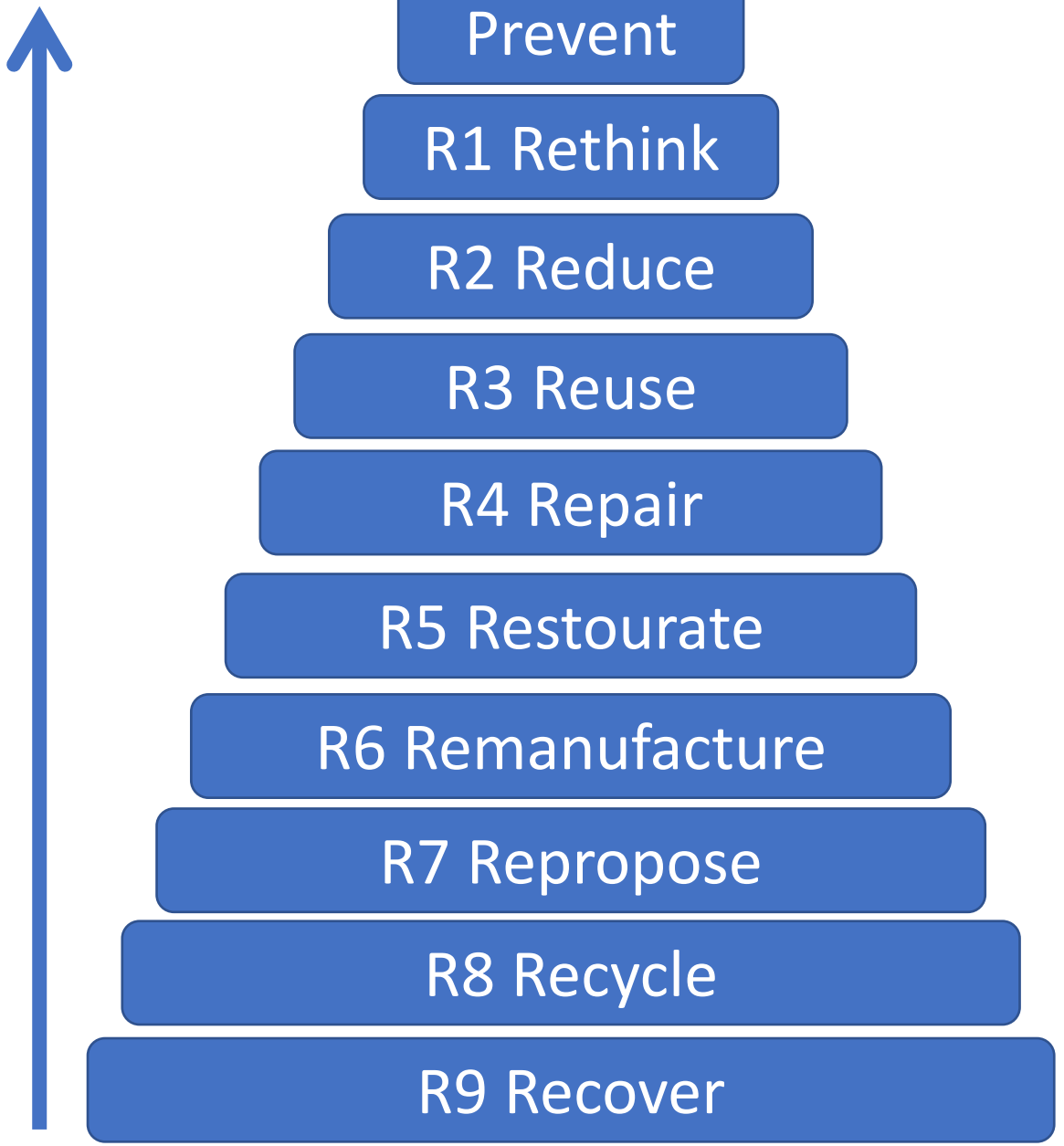
Actions defined according to **Solid Waste Management Hierarchy**



Nuevos modelos de negocio, transformación productiva y cierre de ciclos de materiales

Action 1	Gradual Substitution of single use materials
Action 2	Strengthening the value chain of recycled materials.
Action 3	Promote recyclable products at commerce establishments.
Action 4	Environmental management of food delivery packaging.
Action 5	Oxo-degradable or Oxo-Biodegradable plastics.
Action 6	Banning of SUPs at National Natural Parks System

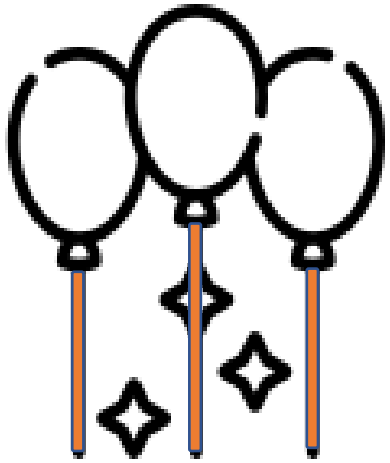
- Research
- Eco-design
- Prevention of Micro plastics
- Labeling Strategy
- Culture , education and communication program
- Sustainable Public Purchases
- Cooperation with Municipal Solid Waste Companies
- Management of Knowledge and Information
- Resource Management

Follow up and Results

Action 1

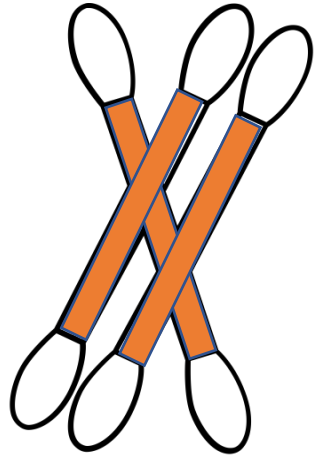
Gradual Substitution of **materials**

Mixers



Plastic support for balloons

Straws

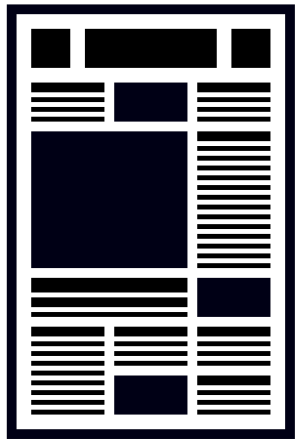


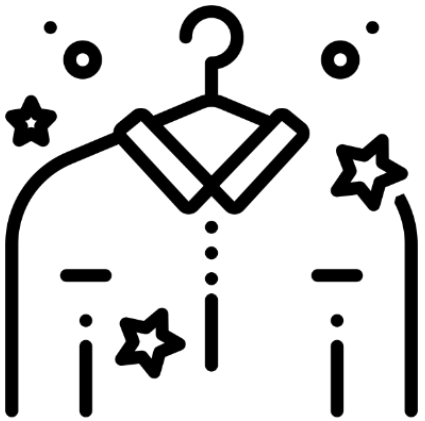
Cotton Swabs

The Law that support the implementation of this plan will ban this products starting in 2022.

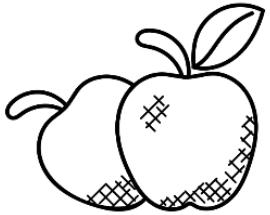
Action 1

Gradual Substitution of plastic bags





Plastic bags for packaging of clothing , journals , magazines etc.



Bags for Bulk Foods

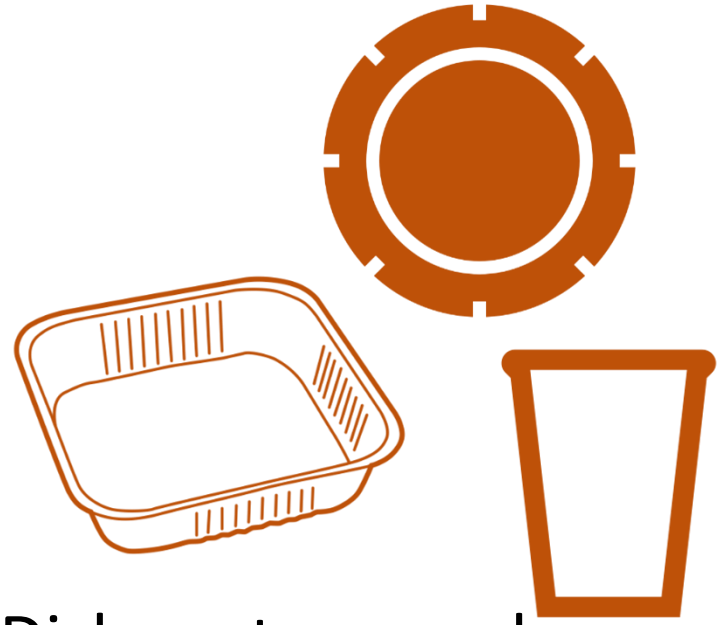
Bags for packaging of different products

The Law that support the implementation of this plan will ban this products starting in 2022.

Action 2

Strengthening the value chain of recycled materials and products by implementation of Extended Producer Responsibility(EPR)

Containers and packaging used by restaurants for food service



Dishes , trays and glasses

Knifes , forks and spoons

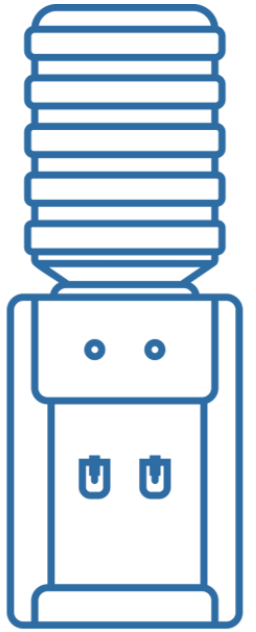
By 2021 , EPR decree will be implemented for this products.

Achieve reuse or recyclability of this materials in 25% in 2025 and 50% by 2030

Action 3

Promote Recyclable products at commerce establishments.

Sale of soda, water and other liquids in reusable cups.

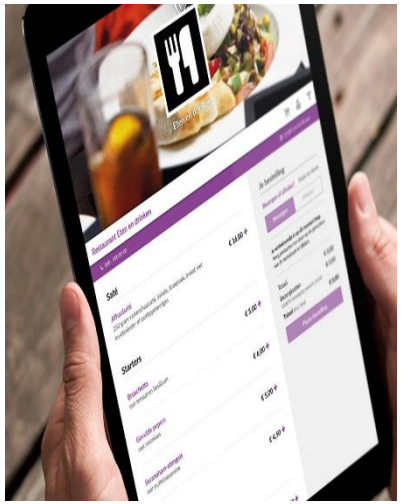


Incentivize free water for consumption whereas is possible .

Starting **2021,** implementation of pilot projects at different cities in the country.

Action 4

Free single-use materials will be charged in **food delivery services.**



This fare will be implemented a year from expedition of law.

Action 5

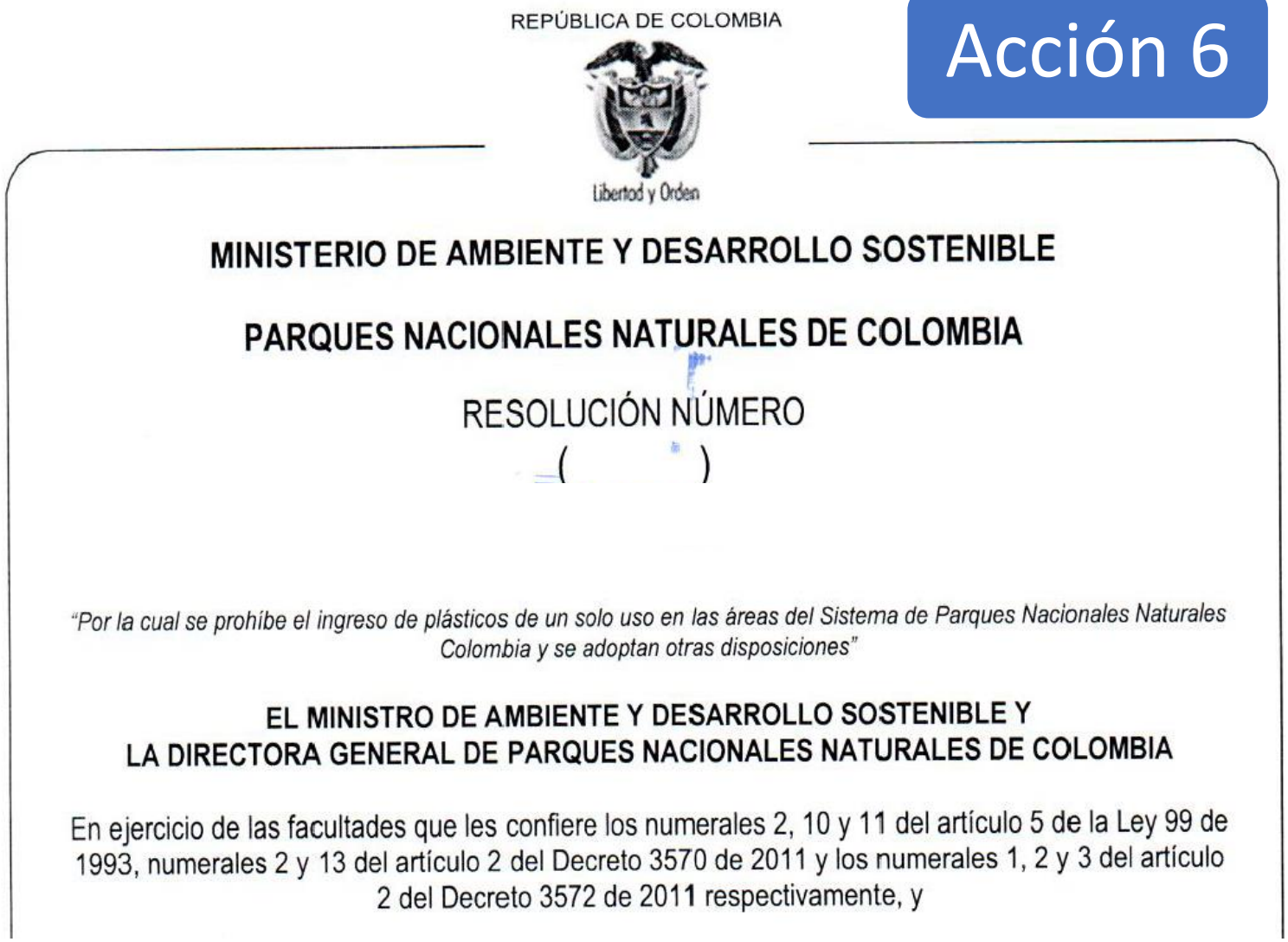
Start a process for the restriction of oxo-degradable plastics in Colombia.

OXO DEGRADABLE

Prohibition of this kind of materials are the main object of the law.

Acción 6

Prohibition of entrance and sell of single-use plastics inside **National Natural Parks** (Res. 1558 de 2019)



REPÚBLICA DE COLOMBIA

Libertad y Orden

MINISTERIO DE AMBIENTE Y DESARROLLO SOSTENIBLE

PARQUES NACIONALES NATURALES DE COLOMBIA

RESOLUCIÓN NÚMERO

( )

"Por la cual se prohíbe el ingreso de plásticos de un solo uso en las áreas del Sistema de Parques Nacionales Naturales Colombia y se adoptan otras disposiciones"

EL MINISTRO DE AMBIENTE Y DESARROLLO SOSTENIBLE Y LA DIRECTORA GENERAL DE PARQUES NACIONALES NATURALES DE COLOMBIA

En ejercicio de las facultades que les confiere los numerales 2, 10 y 11 del artículo 5 de la Ley 99 de 1993, numerales 2 y 13 del artículo 2 del Decreto 3570 de 2011 y los numerales 1, 2 y 3 del artículo 2 del Decreto 3572 de 2011 respectivamente, y

Desde **2020,** Implementación de la norma

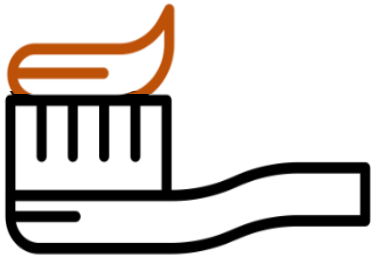
Desde **2021,** Evaluación de otras áreas especiales

Prioritized Transversal Actions

Research

invemar

El conocimiento es de todos | Minciencias



Microplastics Pollution.

Economic instruments to promote technologies for treatment and waste valuation.

Life Cycle Analysis.

Eco-design

Joint research programmes with Academia.

Labeling Strategy

Label that distinguish the compliance with the EPR.

Homologate the Colombian Environmental Seal : **“ Boosting sustainable consumption in Latin America”** by communication strategies to consumers and design of products.

By 2020, Execution of **Culture and Communication Strategy.**

Sustainable

Public Purchases

Since **2020 to National**
Gubernamental agencies

Since **2021** agencies from **regional and local order**

Cooperation with Municipal Solid Waste Companies

Instruments:

- Color bags code
- PGIRS
- Local Goals

Superservicios
Superintendencia de Servicios Públicos Domiciliarios

CRA

El ambiente es de todos | Minambiente

2019, build work agenda

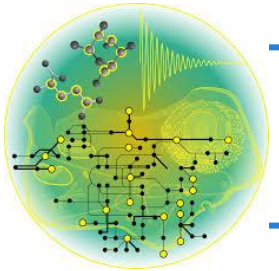
Knowledge and Information management

Incentives

Management of **National Economic Resources** and those from **International Donors**

Since **2020,** Designing of the System for a Circular Economy

Goals for 2020 - 2022



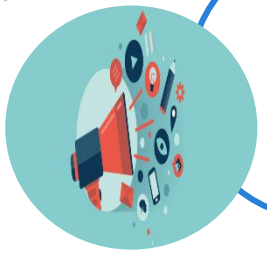
Metabolism of Material Flows

Present the Law for Managament and Sustainable Use of SUP´s

Innovation and Research Agenda

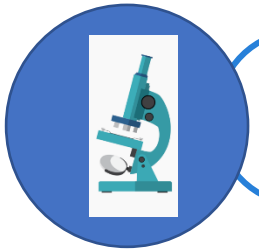
Collection of Data to Evaluate Progress

Evaluation of norms applicable to plastics



Strategy of Communications and Culture with Civil Society

Mechanisms for Financing



Comparative Analysis for various materials

Goals to 2030

100% of SUP´s are reusable , recyclable and compostable.

At least **50%** of products, dishes, trays and plastic cutlery are effectively reincorporated to industrial process **(EPR), or will be substituted.**

Single-use plastics count with at least 30% compound of recycled material.

GRACIAS

Ministry of Environment and Sustainable Development

Direction of Environmental , Sectorial and Urban Affairs

Q & A Session: Alex Saer

Please ask your questions in the Q & A Box (All Panellists)

UN environment programme

Summary of Key Points

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Addressing Single-Use Plastic Products Pollution using a Life Cycle Approach

Part 2: 27 October 08:00 GMT

LCA Meta-Studies: Shopping bags, beverage bottles, takeaway food containers. Behavioral Science on Plastics, Case studies from Canada, European Commission, Saint Lucia

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www.lifecycleinitiative.org

Addressing Single-Use Plastic Products Pollution using a Life Cycle Approach

UN environment programme

You will receive an email with the recording link for this session and registration link for Part Two.

Thank you for attending: WEBINAR SERIES B – PART 1: NORTH AMERICA, LATIN AMERICA & THE CARRIBEAN + EUROPE/AFRICA/WEST ASIA (14:00 GMT ONLINE)

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