Water and Environment Support
in the ENI Southern Neighbourhood region

Regional Training on Phasing out Single Use Plastics (SUPs) RE-1-REG

Webinar 2: Responses to single-use plastics

Webinaire 2: Réponses aux plastiques à usage unique

Welcome remarks

28th January 2021

Magali Outters, SCP/RAC Team leader

LDK Consultants Engineers & Planners SA

UN environment programme | Mediterranean Action Plan Barcelona Convention

Regional Activity Centre for Sustainable Consumption and Production

This Project is funded by the European Union

The problematic of single-use plastics /La problématique des plastiques à usage unique

13th JAN

Responses to single-use plastics/ Réponses aux plastiques à usage unique

28th JAN

Feasibility and impact of measures in the Mediterranean/

Faisabilité et impact des mesures en Méditerranée

11th FEB

Implementation of measures and Regional Guidelines/Mise en oeuvre des mesures et directives régionales

25th FEB

Links with the UNEP Global and Regional Policy Agendas

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GLOBAL LEVEL United Nations Environment Assembly (UNEA)	UNEP/EA.4/Res.6 Marine Plastic Litter and Microplastics (UNEA4 – March 19)	UNEP/EA.4/Res.9 Addressing Single-use Plastic Products Pollution (UNEA4 – March 19)
REGIONAL LEVEL Barcelona Convention (UNEP/MAP)	**Decision IG.21/07 -** Regional Plan on Marine Litter Management in the Mediterranean in the Framework of Article 15 of the Land Based Sources Protocol (COP18 – Dec 2013)	**Decision IG.24/10 -** Main Elements of the Six Regional Plans to Reduce/Prevent Marine Pollution from Land-Based Sources; […] (COP 21 – Dec 2019)

Recap from Webinar 1: The problematic of single-use plastics

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- Basic **terms and definitions** related to SUPs
- Key facts and figures related to their **production and consumption**, as well as their **leakage** into the environment
- Initial discussion on **bioplastics**
- Overview of the amounts, types, pathways, sources and potential **impacts**
- Implications of the **COVID-19** pandemic

WHAT IS THIS SESSION ALL ABOUT?

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This session is about RESPONSES TO SINGLE-USE PLASTICS.

1. **Bio-based and compostable issues**. By Ayesha Bapasola, Eunomia

2. **Alternatives to SUPs:** Single-use non-plastic and multi-use option, By Ayesha Bapasola, Eunomia

3. **Policy measures to address SUPs:** Description and potential feasibility, by Chris Sherrington

4. **Wrap up,** by Ayesha Bapasola

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Regional Training on Phasing out Single Use Plastics (SUPs) RE-1-REG

Webinar 2: Responses to single-use plastics

Addressing bioplastics & identifying SUP alternatives

28th January 2021

Ayesha Bapasola, Eunomia Research & Consulting Ltd.

Policy Expert in Plastic Pollution Prevention Measures

Commissioned by SCP/RAC

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1. Bio-based and compostable issues

- What are “bioplastics”?
- What are the end destinations for such materials?
- What are oxo degradable plastics?
- Are they a suitable substitute for SUPs?
- Q&A

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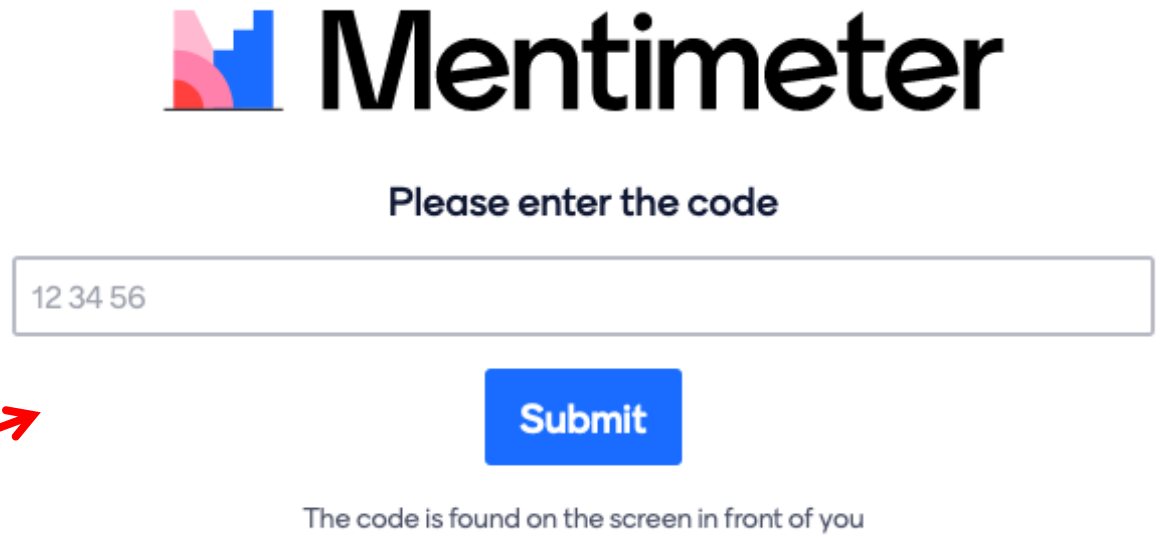
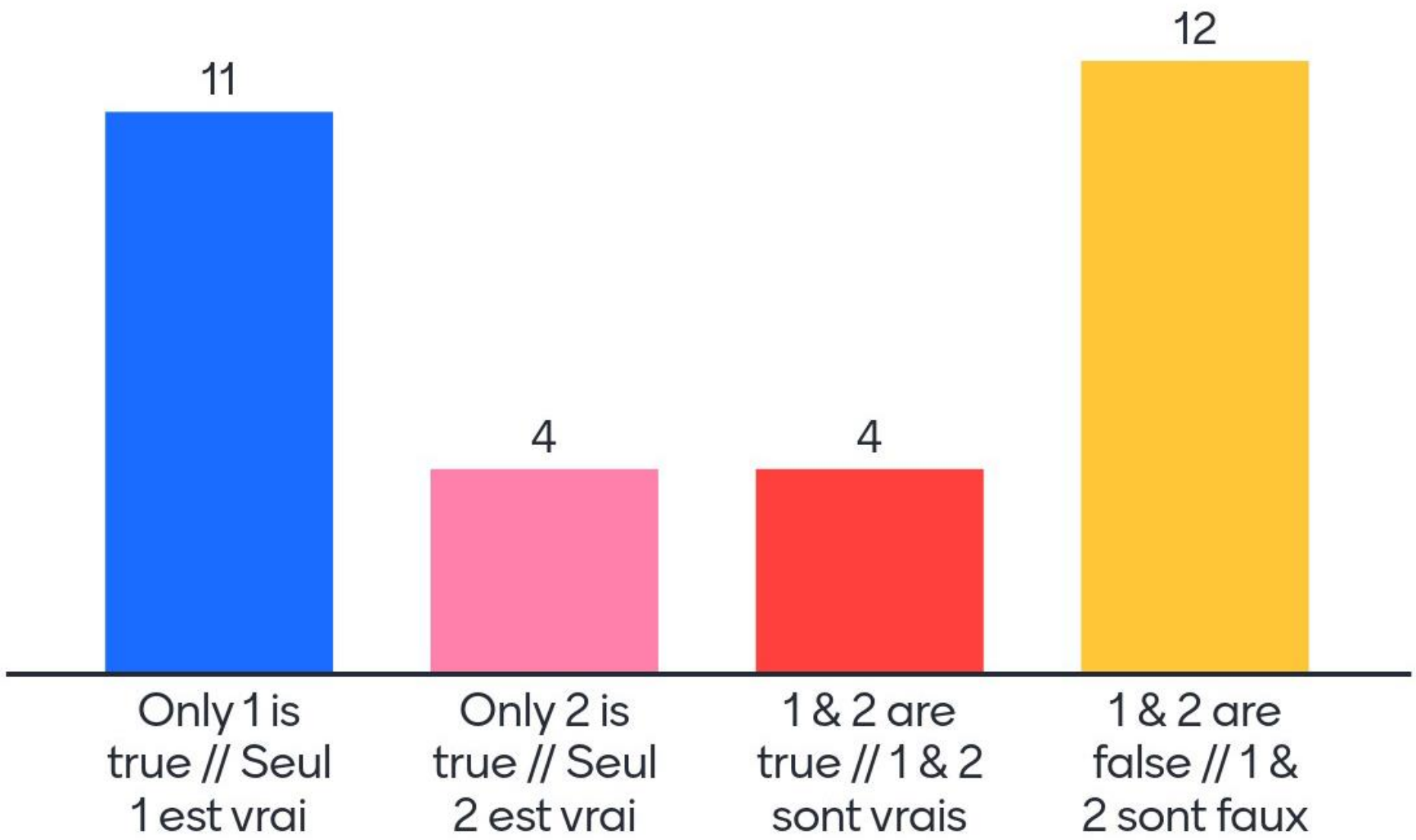


ials, (2) All bioplastics are BIODEGRADABLE?



Background

- Consumers increasingly concerned with impact on the environment, look to manufacturers and policy makers to offer ‘environmentally friendly’ solutions e.g. bio-based products
- Anti-plastic sentiment, particularly in single-use packaging applications

Background

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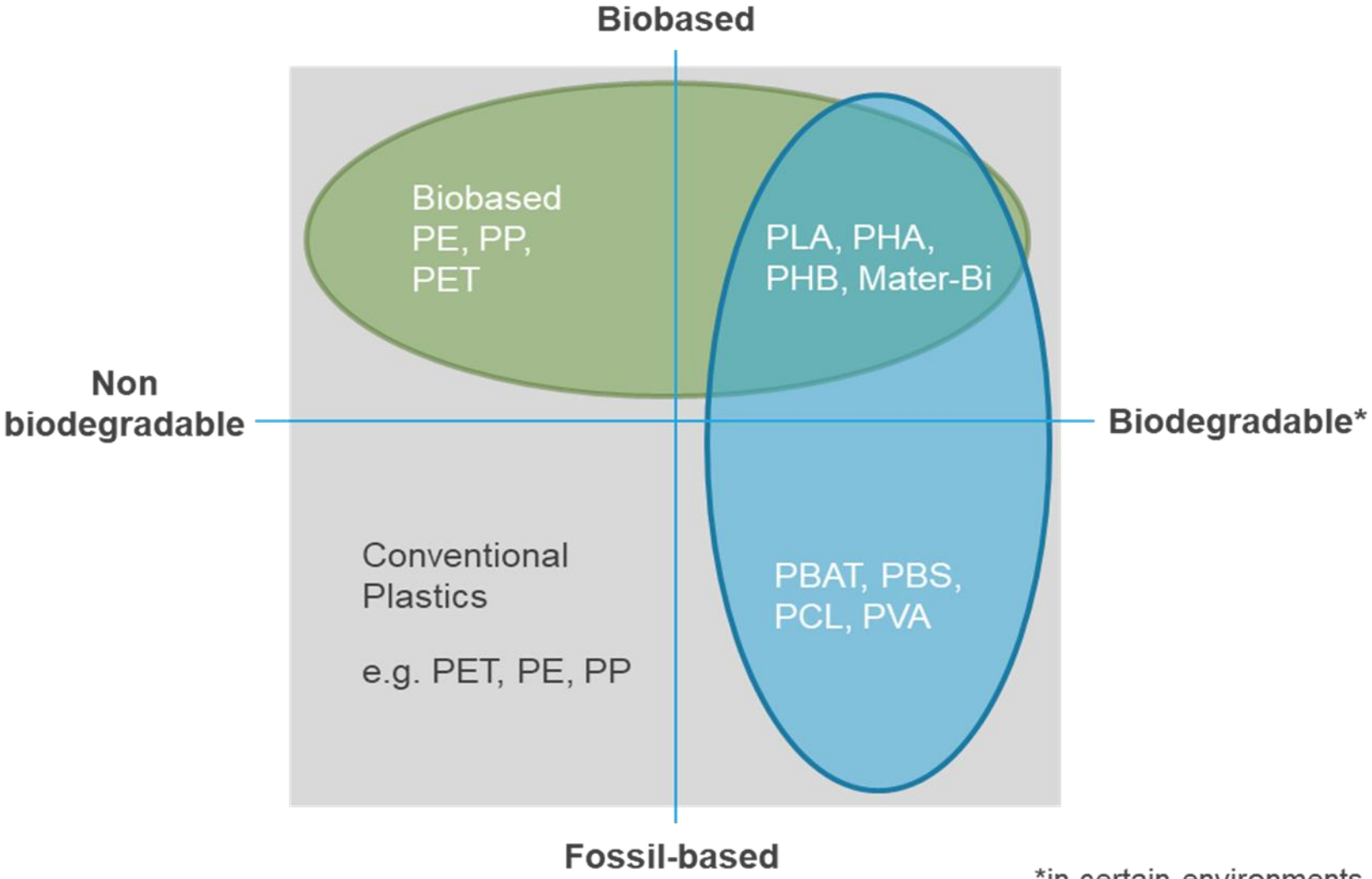
- Current top products in Europe
  - Carrier bags
  - Biowaste bags
  - Self-service fruit/veg/bakery bags
  - Prepacked fruit/veg bags
  - Single use cups
  - Single use cutlery
  - Single use deli boxes
  - Loose fill packaging
  - Multilayer packaging e.g. coffee pouches
  - Mulch films

What are “bioplastics”?



*in certain environments

Key concepts – end destinations

- Biodegradation
  - is a process by which material disintegrates and is decomposed by microorganisms into elements found in nature (e.g. CO2, water, biomass)
  - can occur in an oxygen rich environment (aerobic biodegradation) or in an oxygen poor environment (anaerobic biodegradation).
  - does not depend on the resource basis of a material: biodegradable plastic (as conventional plastic) can therefore be fossil-based or bio-based
- In theory, almost ALL materials ultimately may biodegrade, even in the open environment, though some will do so only after sometimes hundreds of years or more

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Key concepts – end destinations

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- Looking at biodegradation of plastics to avoid pollution hence only makes practical sense if
  - this takes into account a “reasonable” time frame AND
  - specific conditions and/or environments, e.g. marine environment
- In a policy context to address plastic pollution therefore, the term “biodegradable” without further specification is not useful

Key concepts – end destinations

- Composting
  - is enhanced biodegradation under managed conditions
  - is predominantly characterised by forced aeration and natural heat production resulting from biological activity taking place inside the material
  - The resulting output material, compost, contains valuable nutrients and may act as a soil improver
- Compostable Product (example definition)
  - *"Any product that is certified to EN 13432 with the requirement that biodegradation of at least 90% is reached within six months of testing in aerobic composting and 50% within two months for anaerobic composting."*

Key concepts – end destinations

Figure 2: Hierarchy of aggressiveness for biodegradation environments

More Aggressive Environment

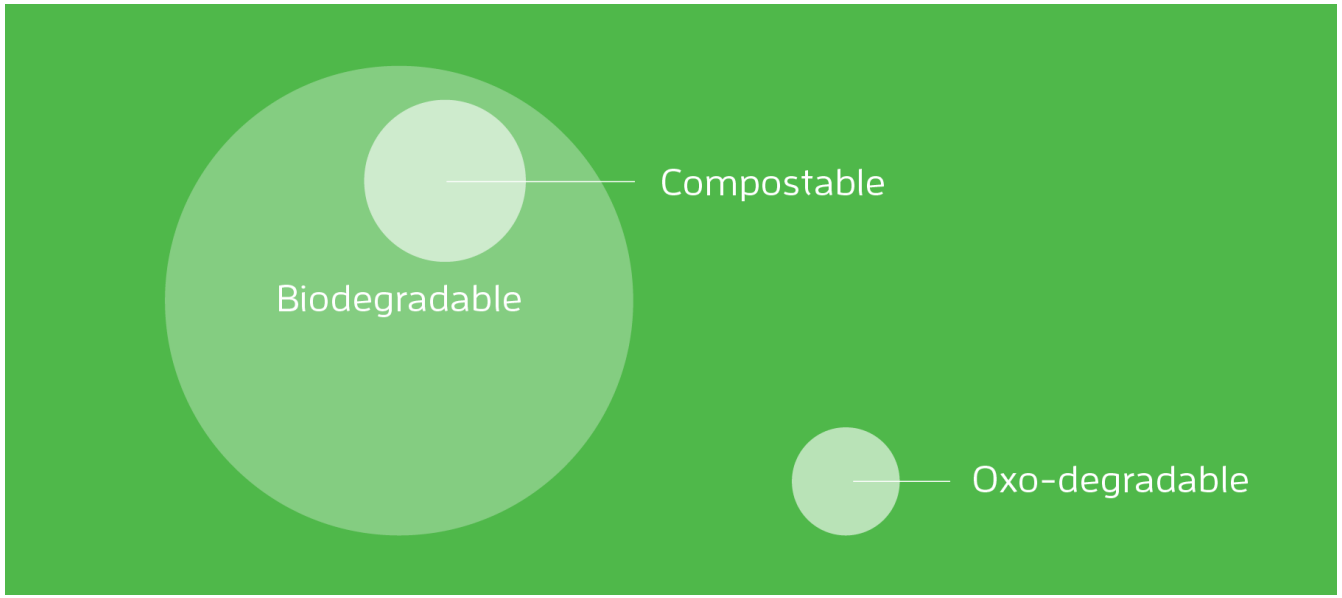
Environment	Conditions
Industrial Composting	High temperature (>58°C) Fungi and bacteria
Anaerobic Digestion Plant*	Elevated temperature (20-45°C) Bacteria
Home Composting	Ambient temperature (20-30°C)** Fungi and bacteria
Soil	Ambient temperature Fungi and bacteria
Fresh Water	Ambient temperature Bacteria only
Marine Water	Ambient temperature (<5 - >20°) Diluted bacteria
Landfill***	Ambient temperature Bacteria only

*included are mesophilic digestors, which make up 90% of ADs.
**figures here are for normal garden composting, composting cages can reach 60°C
***landfill may be more or less aggressive throughout its life and depending upon how it is managed. As it transitions from aerobic to anaerobic, material that needs aerobic conditions may not biodegrade.

Source: Adapted from- Degradable Polymers and Materials – Principles & Practice,33-43, 2012. Editors: Khemani, K. and Scholz, C

Key concepts – oxo degradables?

- Oxo-degradable plastics
  - *"While often confused with biodegradable plastics, oxo-degradables are a category unto themselves. They are neither a bioplastic nor a biodegradable plastic, but rather a conventional plastic mixed with an additive in order to imitate biodegredation. Oxo-degradable plastics quickly fragment into smaller and smaller pieces, called microplastics, but don't break down at the molecular or polymer level like biodegradable and compostable plastics. The resulting microplastics are left in the environment indefinitely until they eventually fully break down."*



Source: greendotbioplastics.com

Key concepts – are they suitable?

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- Problems with labelling
  - Home composting?

  - Litter?

  - Plastic?

  - Other materials?

Key concepts – are they suitable?

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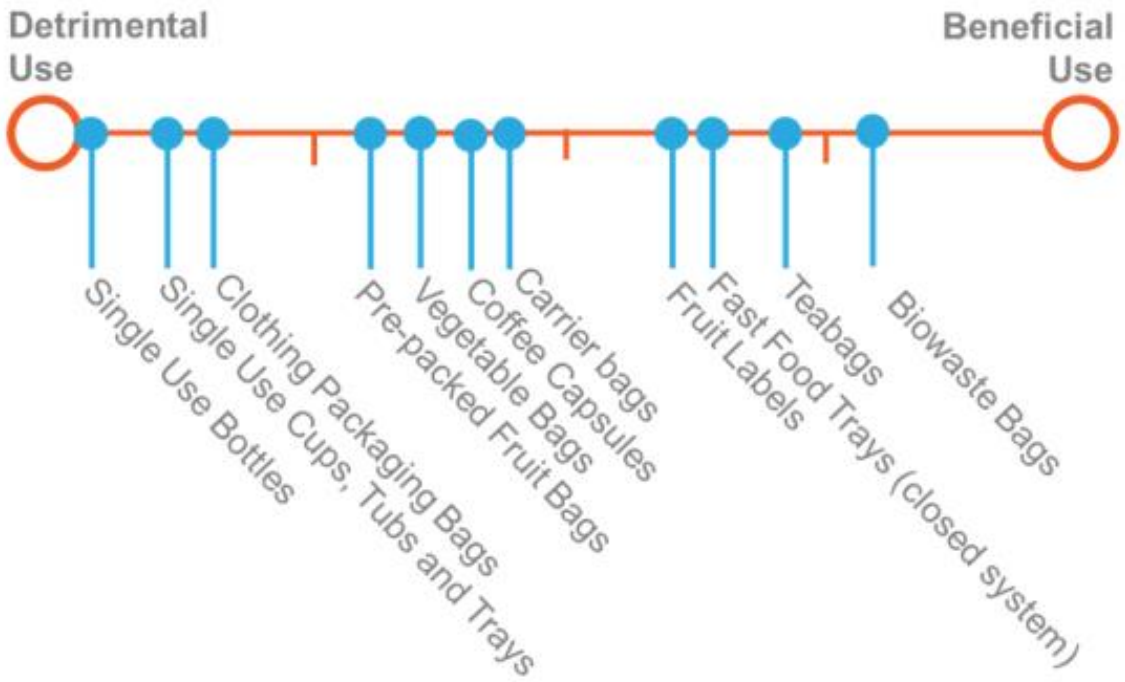
- Criteria
  - The use of compostable plastic brings 'environmental benefits' over other materials
  - The use of compostable plastic does not directly or indirectly result in a reduction of the quality of the resulting compost

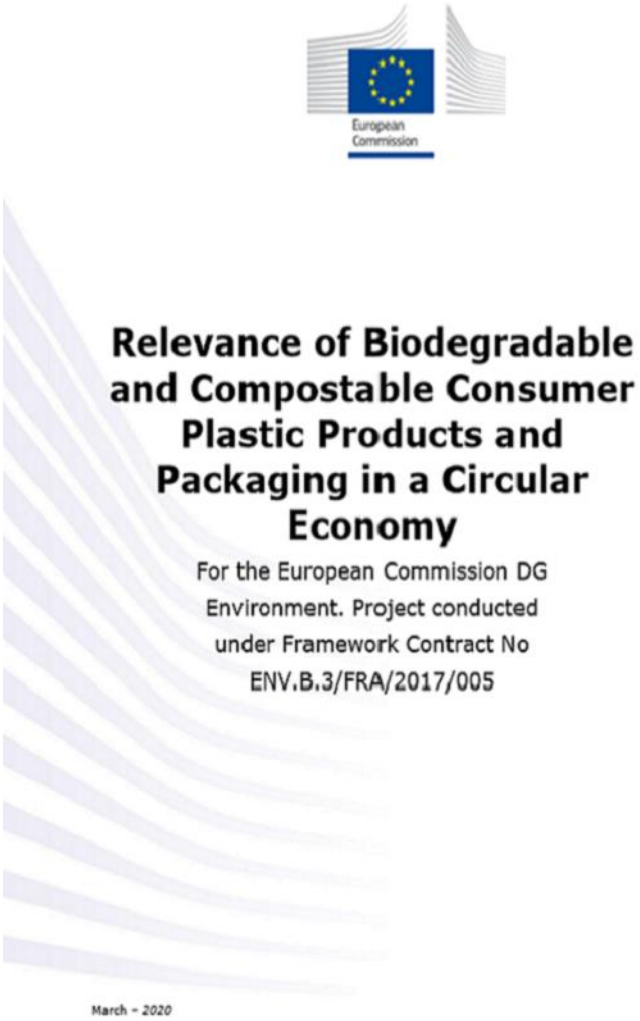
Figure 1: Compostable Plastics Beneficial Use Continuum



Source (in resource centre): https://www.eunomia.co.uk/reports-tools/relevance-of-biodegradable-and-compostable-consumer-plastic-products-and-packaging-in-a-circular-economy/

Conclusions

- Prerequisites before compostable packaging can be disposed of alongside biowaste without negative effects:
  - Do I have treatment infrastructure that is capable of dealing with these materials/ products with no negative effects?
  - Is the material/product performance as expected in industrial composting?
  - Have the waste treatment method and appropriate disposal actions required by the end user been clearly communicated?



Conclusions

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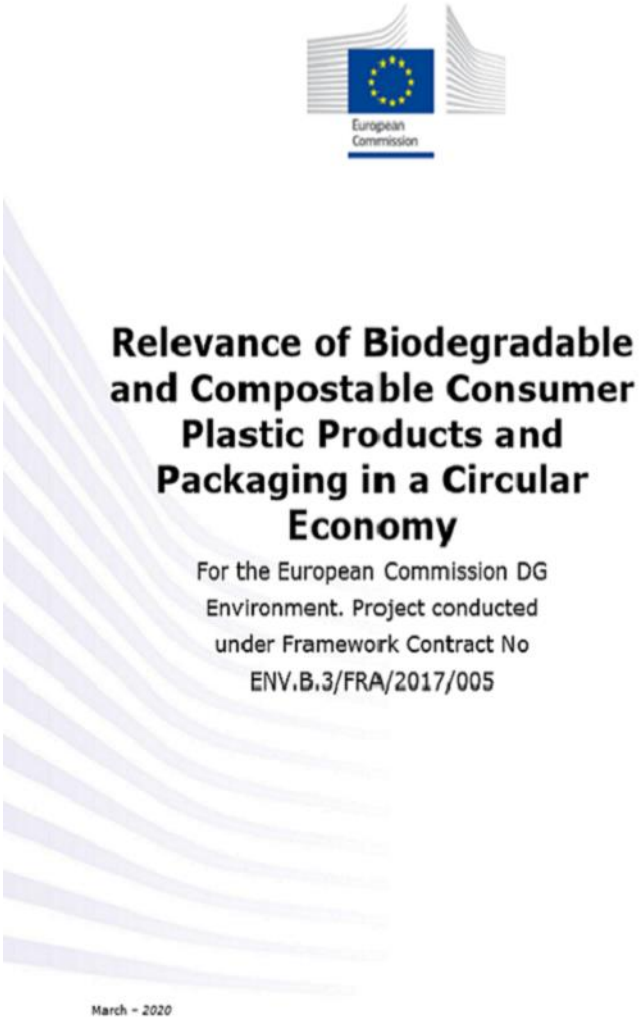
- Material choices for products and packaging should prioritise reusability and recyclability over compostability. Exceptions where compostable plastic has proven 'added benefits'
- Biowaste treatment infrastructure and collection practices differ and are not all effective at treating compostable plastic
- Compliance with EN 13432 does not automatically lead to effective treatment of compostable plastics
- Look out for Webinar 4!



Questions?

2. Alternatives to SUPs: Single-use non-plastic and multi-use option

- What are the main categories of alternatives to SUPs?
- What is their availability?
- How should they be assessed?
- Q&A

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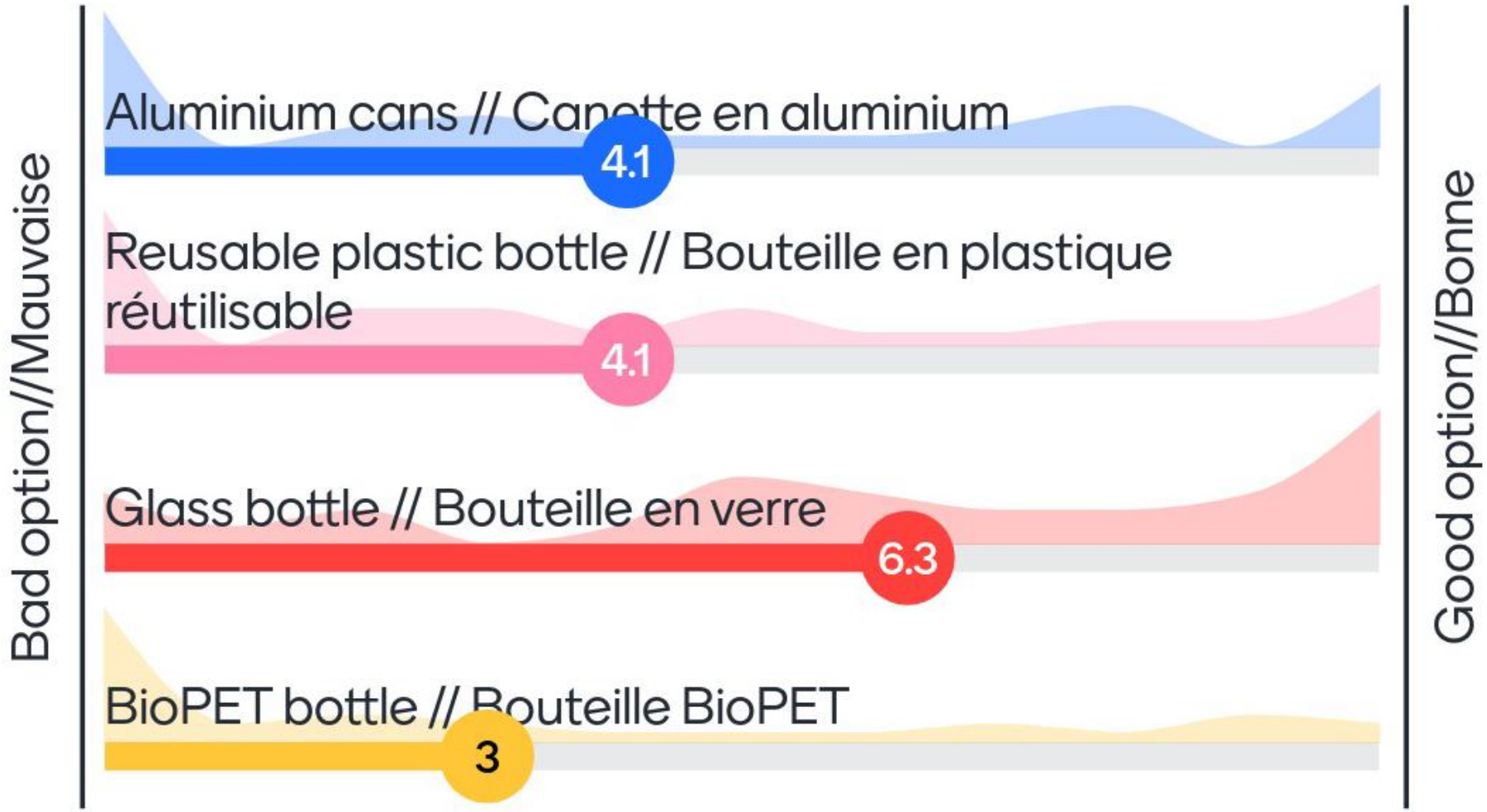

Single-use non-plastics (SUNPs)

- Not plastic, but still single use
- So, still get littered, but sometimes with less harmful impacts than plastic
- May be more recyclable than SUPs
- May have economic/ environmental benefits at outer points in the life cycle

Single-use non-plastic alternatives (SUNPs)

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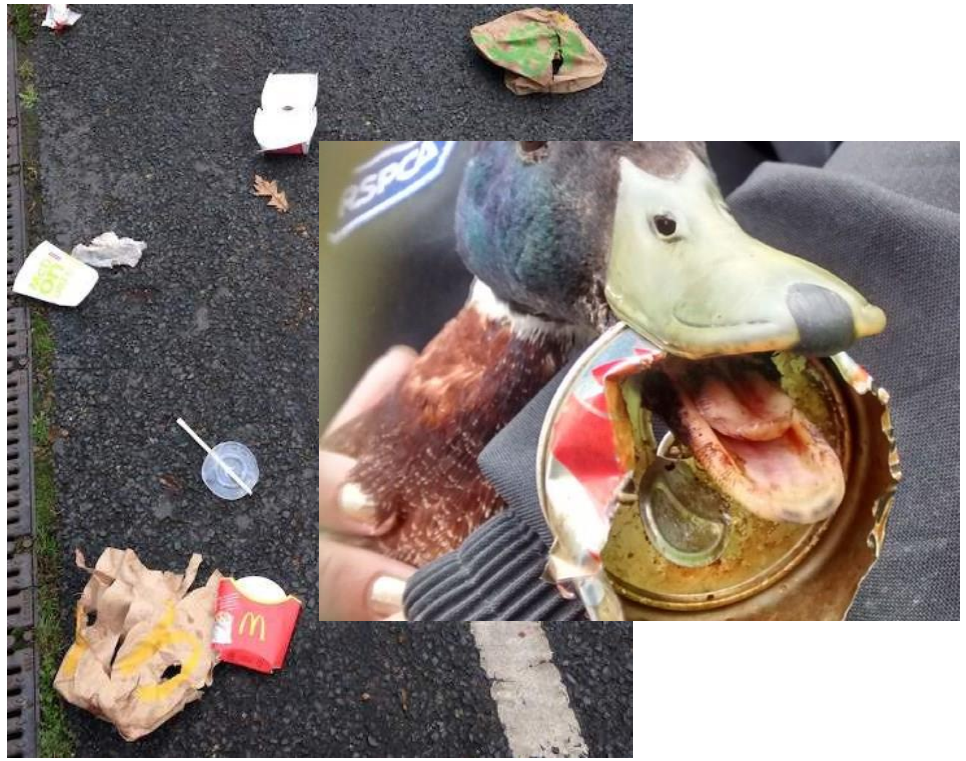

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Multiple Use Alternatives (MUs)

- Can be plastic
- Higher quality and durability
  - Increased environmental and economic costs in manufacturing phase, however
- This performance improves the more they are reused and
- They tend not to be littered

Multiple Use Alternatives

How to assess alternatives?

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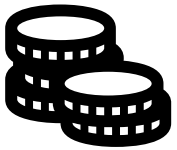
- What are the objectives
  - Prevent/ reduce waste?
  - Prevent/ reduce litter?
  - Increase circularity?

- Are there environmental benefits?
  - Production
  - Use – e.g. transport/ washing?
  - Disposal – infrastructure?
  - Litter

- Are there economic benefits?
  - To producers
  - To consumers – no. of uses basis
  - To waste managers
  - To enforcers



- Are there any social benefits?
  - Employment?
  - Disability/ gender/ other?
  - Distribution impacts?

How to assess alternatives?

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- What are the objectives
- Are there economic benefits
- Are there environmental benefits
- Are there social benefits

- How can I maximise and realise the net benefits?

Policy Design/ Impact Assessment [Webinar 3]

Questions?

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Webinar 2: Responses to single-use plastics

Policy measures to address SUPs

28th January 2021

Dr Chris Sherrington, Eunomia Research & Consulting Ltd.

Policy Expert in Plastic Pollution Prevention Measures

Commissioned by SCP/RAC

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Contents

- What types of policy measures can be identified for SUPs?
- How is policy design linked to the availability of alternatives?
- Examples
- Introduction to reuse-based business models
- Q&A

SUPs? // Quelles mesures pourraient être introduites votre pays pour régler les PUU?

Types of policy measures

- Specific Requirements on Product Design
  - Reducing the propensity for certain items to be littered

  - **Smaller items** are littered more frequently and collected less frequently in litter clean-up processes

- EPR – full cost of coverage of litter collections

  - **at least 80%** of litter clean-up costs will be covered by the producers
  - Method to discern the required **standard of cleanliness**
  - **Transparent funding** formulas.

Types of policy measures

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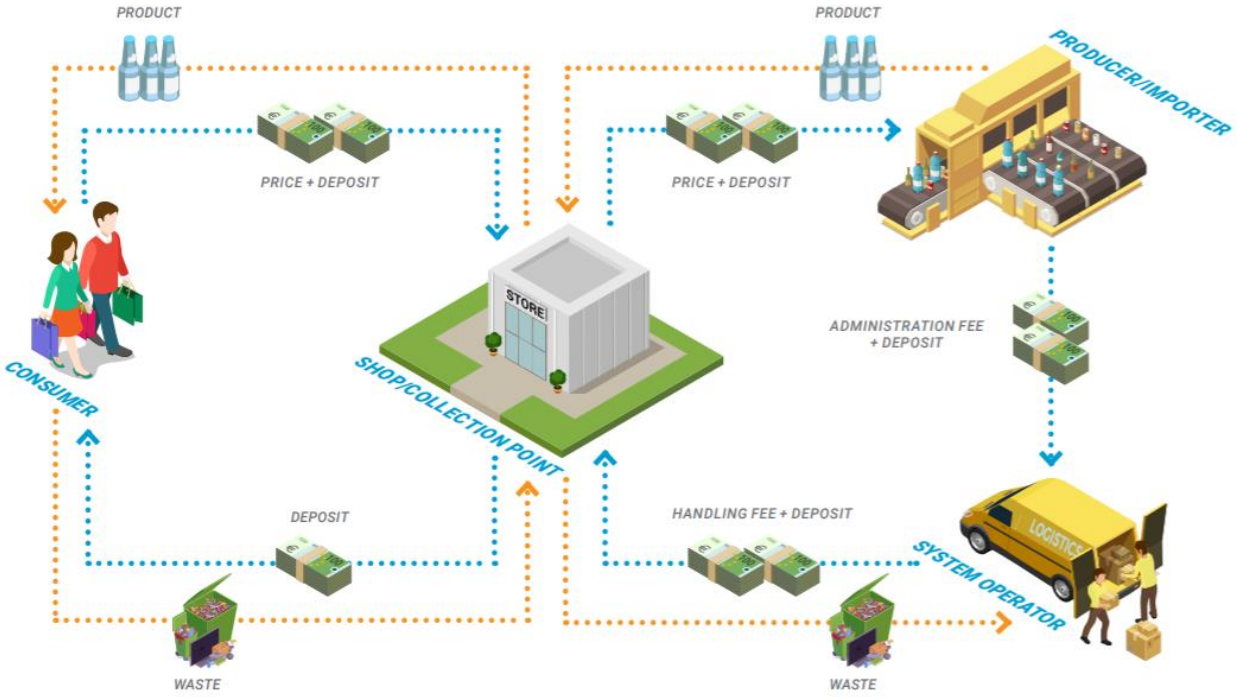
- DRS for beverage containers
  - Aiming to:
    - ✓ provide a **clear economic incentive** for consumers to return their empty containers.
    - ✓ Increase **economic value of initially littered bottles** to incentivize picking up and return.
  - **>90% capture rates**
  - potential for **closed loop recycling**
  - Example: Norway's collection rate (2019): 89.5% of all cans and 89.4% of all bottles placed on the market

Basic flowchart of the deposit refund system operation in the Scandinavian countries (based on the Norwegian, Finnish and Swedish systems)



Types of policy measures

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- Consumption levies
  - ‘levies’:
    - ✓ **increases the cost of SUP** items placed on the market
    - ✓ **incentivise non-use**
  - Success of the instrument depends on the **price elasticity** of demand for the product
  - Example: UK Houses of Parliament, 25p charge on disposable cups introduced in Autumn 2018 →74% reduction

Types of policy measures

- Reduction targets
  - Setting **legally binding reductions** in consumption (e.g. plastic carrier bags)
  - **Data reporting** is paramount
  - Targets assumed to be as % of total consumption or per capita
  - Example: The use of plastic bags is on the decline in Germany - 64% decrease since 2015.

Types of policy measures

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- Ban
  - Aiming at **completely banning the sale of certain SUP** items by a given year.
  - **Impact on retailers** depends on costs of alternatives
- Specific sales restrictions
  - Regulations that will restrict the sale of SUP items in various locations:
    - ✓ **Conferences and festivals**
    - ✓ **On-site** use of SUPs
    - ✓ **Upon request** provision of straws and stirrers

Types of policy measures

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- Measures for adoption by public authorities, including Green Public Procurement
  - Aiming to utilize public authorities' **competences** and **influence** as well as **spending power**.
  - Typical examples of actions:
    - ✓ **SUPs procurement** elimination
    - ✓ Requiring the use of MU items at events **under the control of the public authority** (e.g. licensing)
  - Example: Greece banned all SUPs in the Public Sector starting from 1st February 2021.

Types of policy measures

- Voluntary agreements (VAs), voluntary commitments and pledges
  - A range of measures taken by industry requiring **no specific legal instruments**
  - Voluntary commitments and pledges: made by **individual companies** and are usually made **independently.**
  - VAs at the European level typically involve a **specific industrial sector or a category of producers.**
  - Some **formal recognition** can be given through the approval of public authorities.
  - Types of approach that could be considered:
    - ✓ Improvements in **anti-littering messages** on packaging
    - ✓ **Switching material use** to alternatives which are demonstrated to degrade in the marine environment
    - ✓ Supporting the **provision of street bin infrastructure**
    - ✓ Supporting **litter clear up campaigns**
    - ✓ Implementing **refill/reuse schemes** in the HoReCa sector
    - ✓ Offering **discounts** for those using own coffee cups
    - ✓ **Funding** the sorts of campaigns mentioned above

Types of policy measures

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- Information Campaigns
  - Targeting consumers in a **population-wide approach**
  - Wide range of aims depending on the nature of the item:
    - ✓ Improve consumers' **understanding of littering impacts**
    - ✓ **Reduce incidence** of sanitary items flushed down to toilets and drains
    - ✓ Focusing on broader impacts of marine plastics to **encourage consumers move to available alternatives**

Types of policy measures

- Mandatory labelling
  - Targeting **consumers of specific products** directly
  - Aiming at **discourage littering** focusing on widely littered items.
  - The effectiveness of such a measure depends on various factors:
    - ✓ The **clarity of the message**
    - ✓ The impact of the message to the **specific consumers currently littering** the labelled items

Policy design and alternatives availability

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Types of SUP Alternatives: MUA & SUNP

✓ Single-use Non-Plastic Alternatives

- Little to no impact if not **combined with consumers' behavioral change**
- SUNPs **may be associated with negative impacts** at other points in the product lifecycle (economic, environmental etc.)
- Recycling is usually **easier**
- **Fewer negative impacts** if landfilled or littered

✓ Multiple use Alternatives

- Higher **quality and durability**, which leads to increased **manufacturing environmental impact and production costs**
- They tend not to be discarded **carelessly** as litter
- **The more they used** the more their environmental performance improves
- Alternative **business models** needed

! "biodegradable" plastic, or "bioplastic" alternatives, including bio-based plastics and compostable plastics are **not considered credible alternatives** for single use plastics at present.

Examples (further details in the info doc)

Country/Region	Policy option	Overview & Impact
Munich, Germany	Ban on disposable drinks and crockery	1990: Disposable drink containers and tableware **banned** for **large scale public events**. The City offers **rental** of mobile dishwashers and crockery sets. **50% decrease** in waste generation and **75% in unsegregated waste** between 1990 and 2004
Norway	DRS and environmental tax on plastic beverage bottles	Since 1999, a **national deposit and recycling system** for non-refillable plastic beverage bottles and cans has been operated by Infinitum in Norway. 87-88% recovery rate to RVMs: **social acceptance**
Copenhagen, Denmark	Water fountains	**65 drinking fountains** distributed throughout Copenhagen on streets, in parks, playgrounds or tourist attractions.

Examples (further details in the info doc)

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Country/Region	Policy option	Overview & Impact
UK	Reuse of water bottles	Refill is an initiative run by City to Sea, a system offered by cafes and restaurants that allows **consumers to reuse their own water bottles**. **400 Refill Schemes** across the UK. **30,000 Refill Stations** on the app in the UK alone
Antigua and Barbuda	Ban on EPS containers	**Ban on EPS foam food service containers** since 2017 **15.1% reduction** in plastic discarded to landfill in 1 yera
Red Sea Governate, Egypt	Ban on plastic bags and cutlery	In June 2019, the Governate of the Red Sea **banned single-use and disposable plastics** A number of **followers** in Egypt that also implemented the same policy.

Introduction to reuse-based business models

- Consumer led refill
  - ✓ Customers to use their **own packaging** or a brand's **refillable packaging**
  - ✓ The **consumer** is responsible for **cleaning the container**
  - ✓ SUPs could still be provided in the short term but at a cost to consumers to ensure incentivization and **encourage behavioral change**
- Industry-led return schemes
  - ✓ **Users to return empty packaging** either at a store or drop-off points to be collected, cleaned and refilled by the retailer or producer
  - ✓ **Reverse logistics** and associated **infrastructure** are required to collect, clean and distribute products
  - ✓ Potential to **improve the collection** of single use plastic waste, potentially **preventing litter**, particularly for single use beverage containers made of plastics but also of other materials
  - ✓ Potentially **part of wider EPR systems**

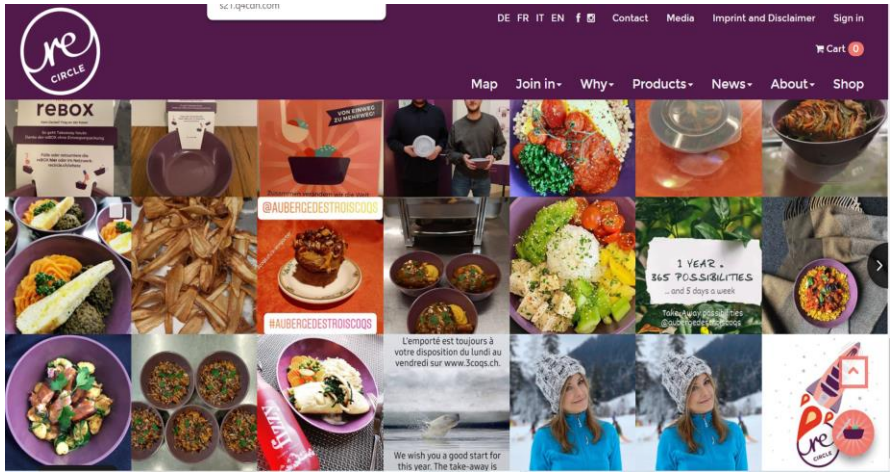
Example of a reuse-based business model

reCIRCLE – the Swiss reusable system for take-aways

- After lunch time, every garbage bin in the streets of Bern is filled with Styrofoam boxes, plastic salad bowls and non-recyclable food wrappers. This results in the bins being emptied 6 times per day, especially during the summer, when people enjoy their meals outside.

- **Customers of restaurants in Bern that participate in the scheme pay a 10-franc (approximately 7 EUR) deposit for a reusable plastic takeaway box**. After finishing the meal, the customer can return the box to any of the participating restaurants. The boxes are washed and redistributed. The whole scheme has been developed and implemented by Recircle which is a Swiss social enterprise funded in 2016.

The reCIRCLE reusable system launched in Bern is the world's first large-area, reusable system for take-aways. The reBOXes are washable containers with covers especially developed for waste prevention. **Notably, Recircle intends to have 2000 restaurants in their deposit scheme in 5 years and expand to other countries.**



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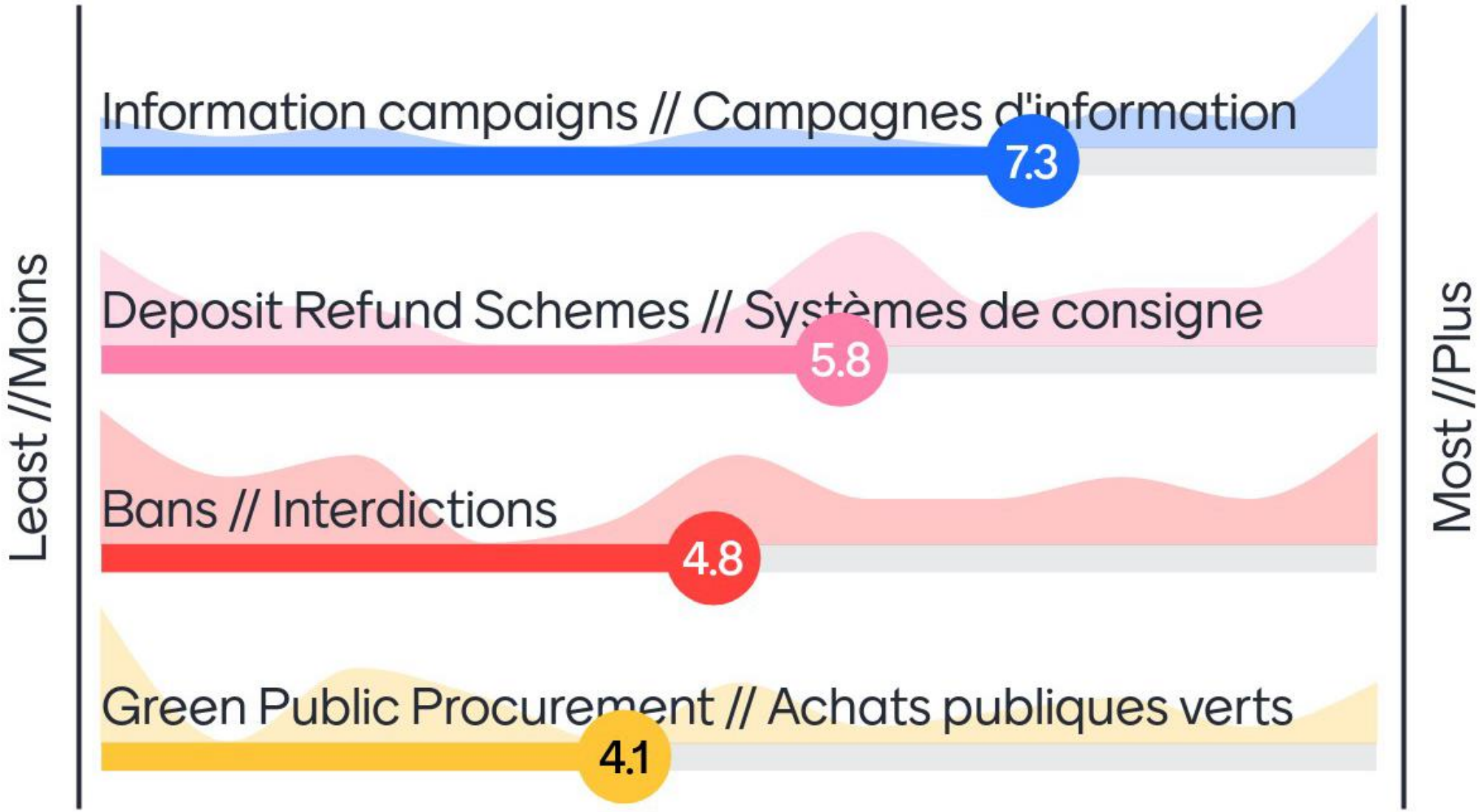

ountry? // Ces politiques seraient-elles EFFICACES
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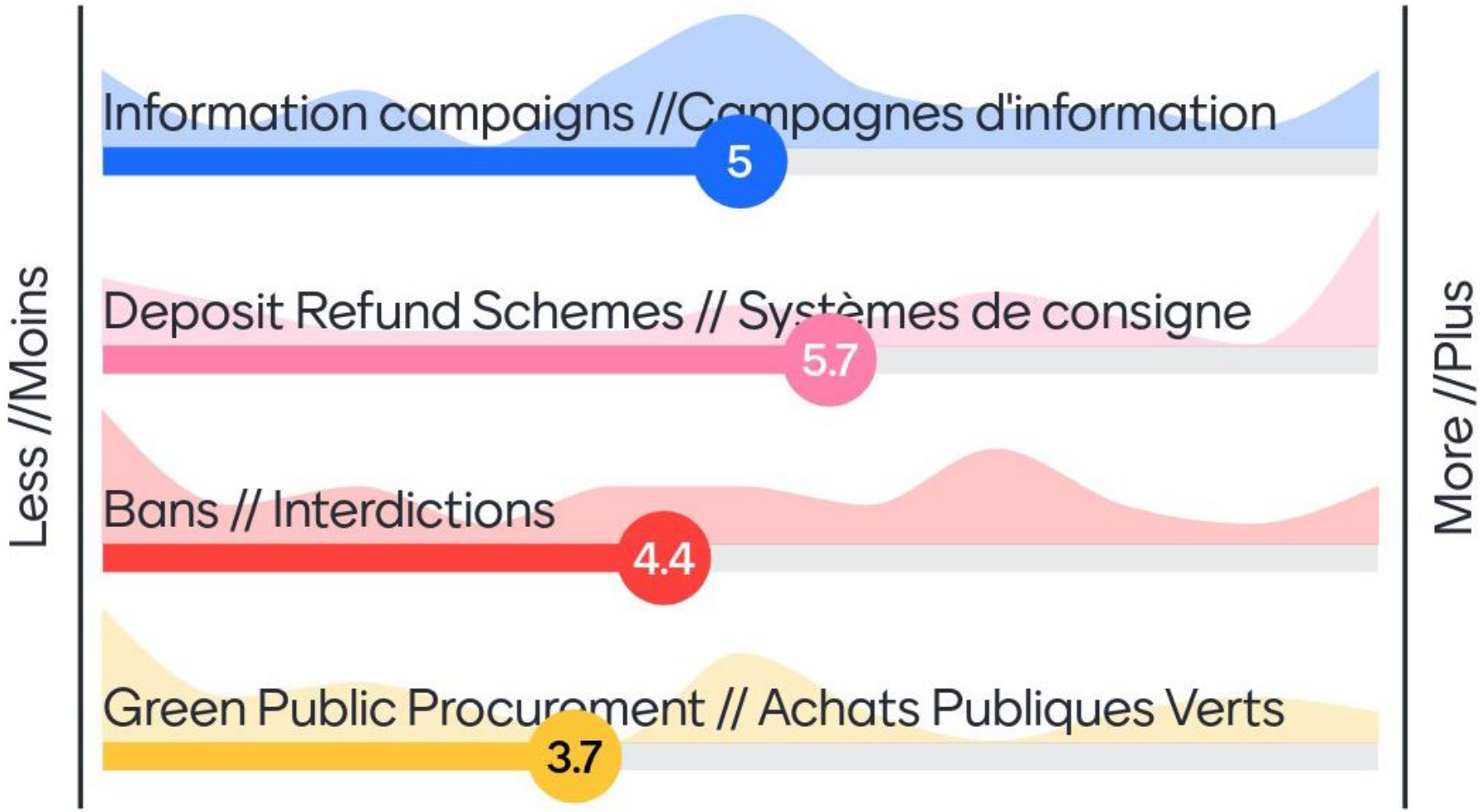

Questions?

Wrap up /*Conclusion*

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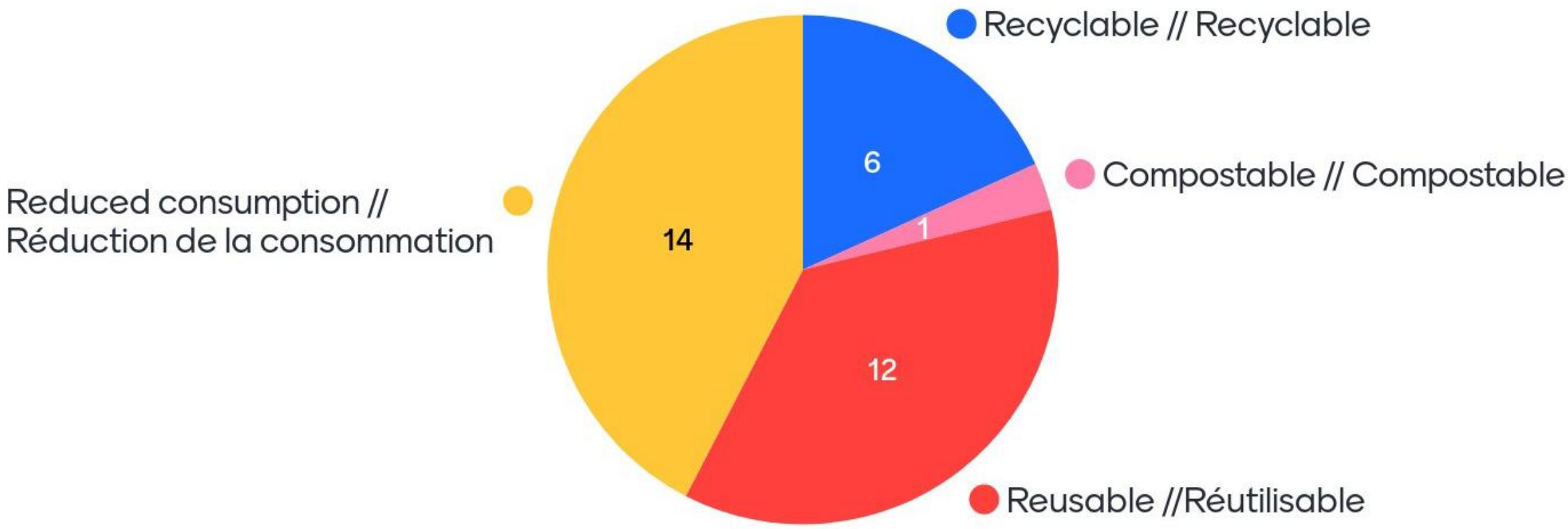
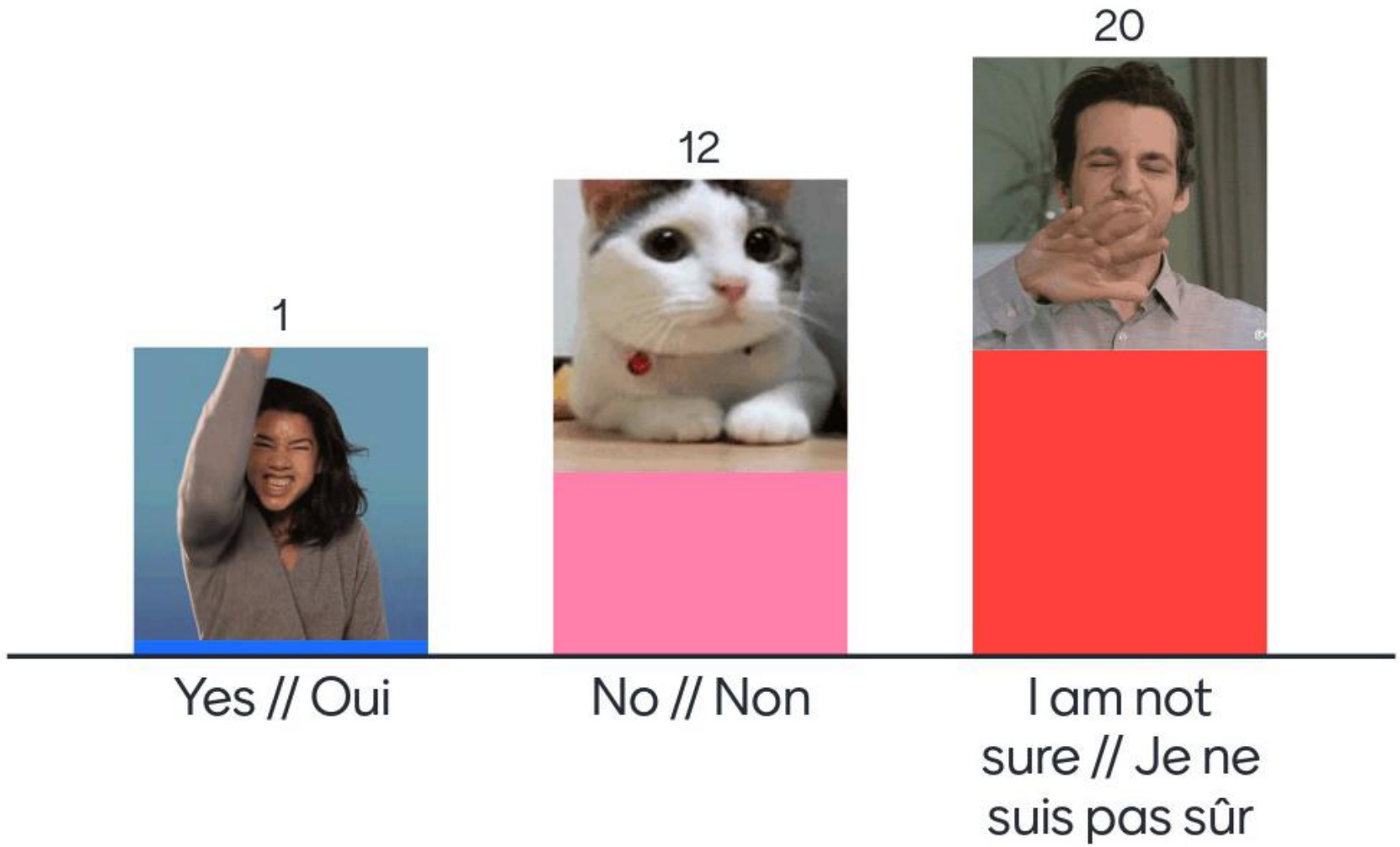
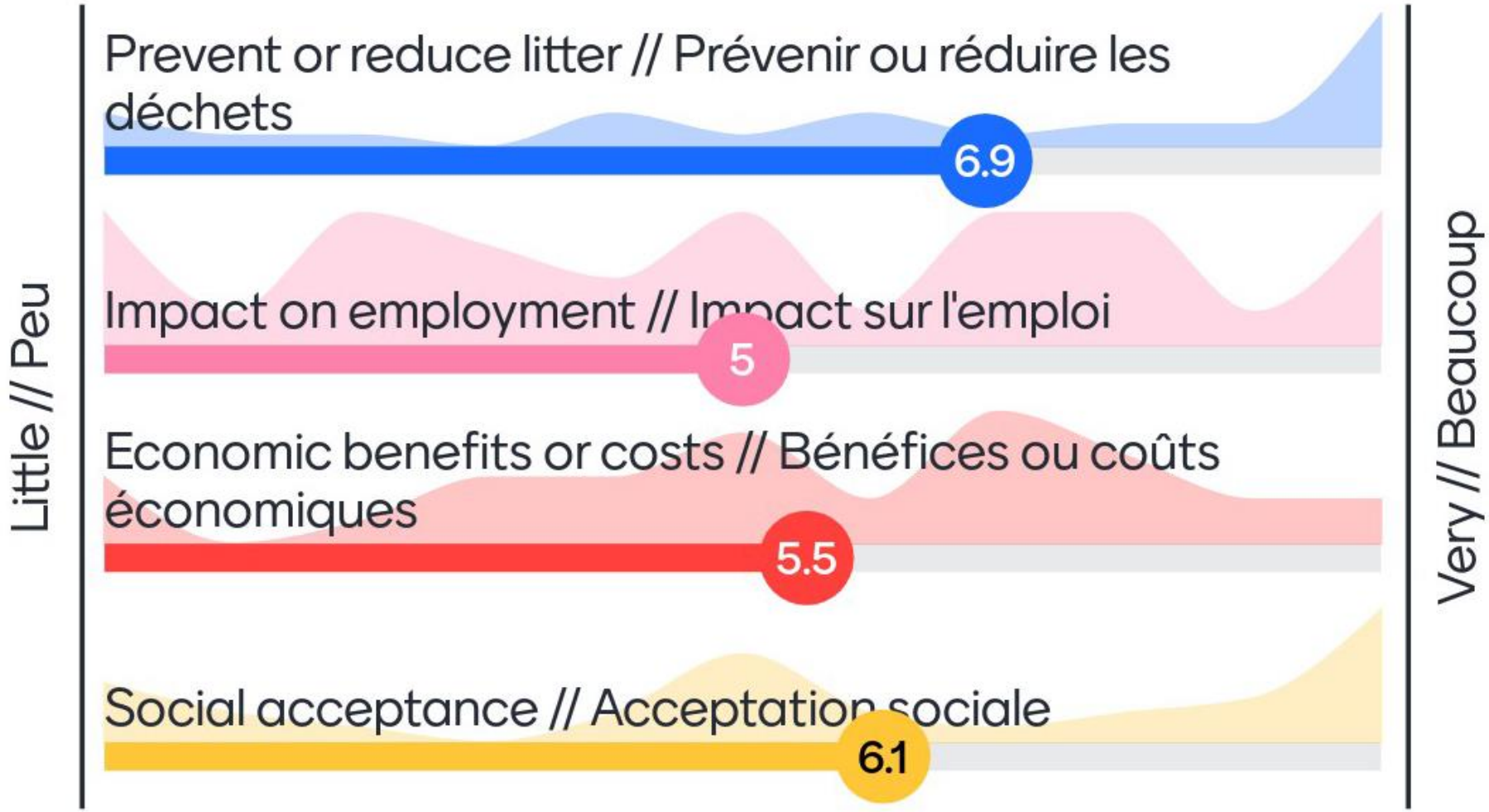


ry? // Le plastique compostable est-il une bonne ative au PUU chez vous?



Ps? // Quelle est l'importance de ces CRITÈRES pour er les alternatives aux PUU ?

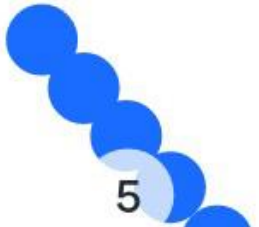


e est l'option politique que vous préférez pour votre

on Product Design//Exigences relatives
a conception des produits

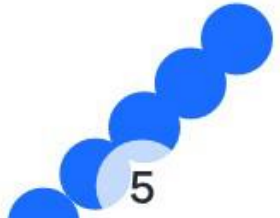
EPR full cost of coverage of litter collection //REP coût total de la couverture de la collecte des déchets

DRS for beverage containers// Systèm
pour les conteneurs de bois



tion levies // Taxes à la consommation
des PUU

Ban of SUPs (specific sales restrictions) // Interdiction des PUU (restrictions de vente spécifiques)



Information campaigns // Campagnes

Closure /*Clôture*

Water and Environment Support
in the ENI Southern Neighbourhood region

Evaluation / *Évaluation*

Next meeting / *Prochain rencontre*
Webinar 3

Water and Environment Support
in the ENI Southern Neighbourhood region

The problematic of single-use plastics /La problématique des plastiques à usage unique

13th JAN

Responses to single-use plastics/ Réponses aux plastiques à usage unique

28th JAN

Feasibility and impact of measures in the Mediterranean/

Faisabilité et impact des mesures en Méditerranée

11th FEB

Implementation of measures and Regional Guidelines/Mise en oeuvre des mesures et directives régionales

25th FEB

Next meeting / *Prochain rencontre*
Webinar 3

Water and Environment Support
in the ENI Southern Neighbourhood region

Feasibility and impact of measures in the Mediterranean/ Faisabilité et impact des mesures en Méditerranée

11th FEB

Preparatory work / *Travail préparatoire*

More details through e-mail

Plus d'informations par e-mail

Water and
Environment Support
in the ENI Southern Neighbourhood region

Thank you for your attention!

شكرا جزيلا

Merci

תודה

For further information/*Pour plus d'informations*

Water and Environment Support
in the ENI Southern Neighbourhood region

Visit our website / *Visitez notre site web:*

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Or follow us on Social media

Ou bien suivez-nous sur les médias sociaux

LDK Consultants Engineers & Planners SA

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