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NAVIGATING THE PLASTOCENE ERA: A COMPREHENSIVE APPROACH TO TACKLING MARINE PLASTIC POLLUTION

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2nd International Symposium on Plastics in the Arctic and Sub-Arctic Region

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MIO-ECSDE AT A GLANCE

Who we are

We are a non-profit
Federation of **134**
Mediterranean environmental
NGOs

What we do

We act as a technical and
political platform for the
intervention of NGOs in the
Mediterranean scene

Our mission

Our mission is to protect the
Natural Environment &
Cultural Heritage and promote
Sustainable Development in a
peaceful Mediterranean

OUR EXPERIENCE



Raising public awareness

Promoting co-responsibility & consensus building

Building capacities

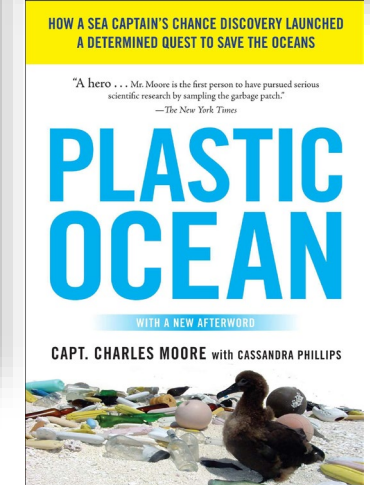
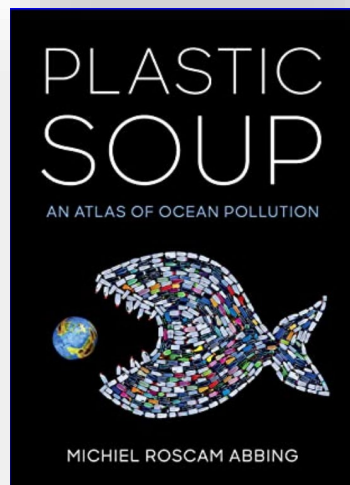
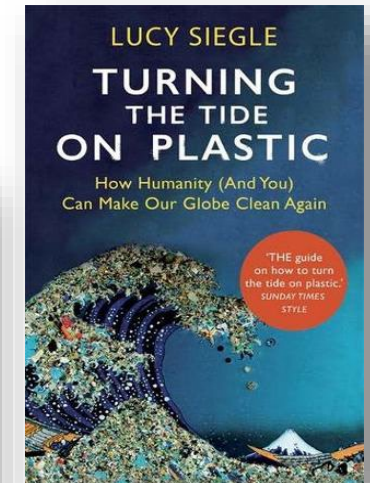
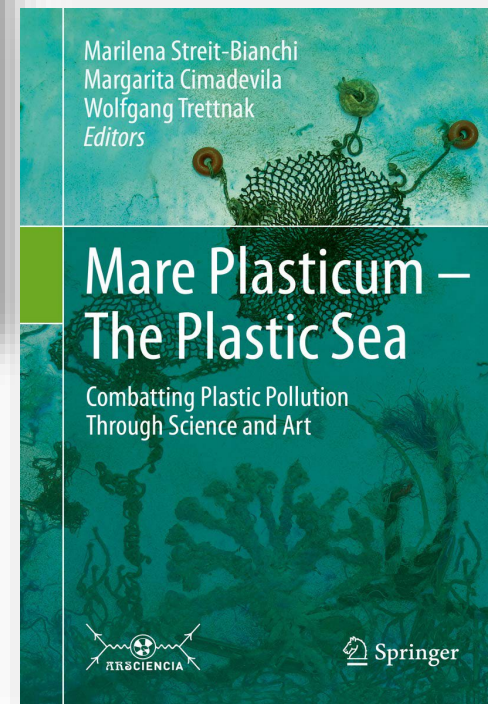
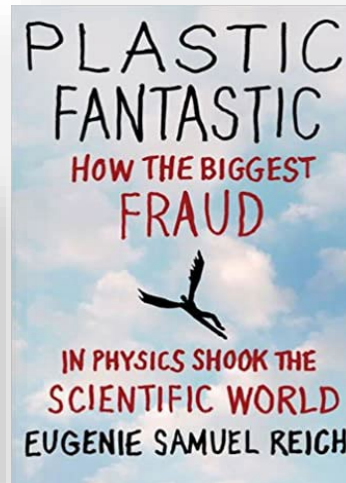
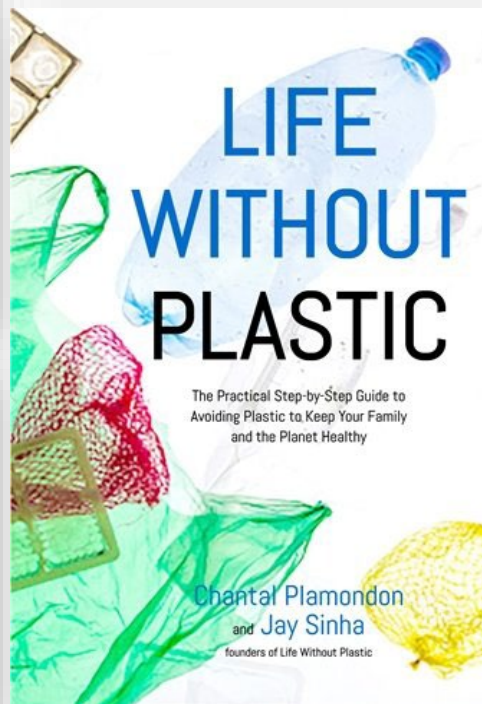
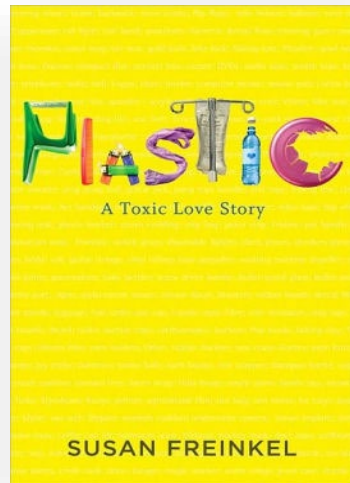
Filling in the knowledge gaps

Strengthening decision making & implementation

Piloting measures

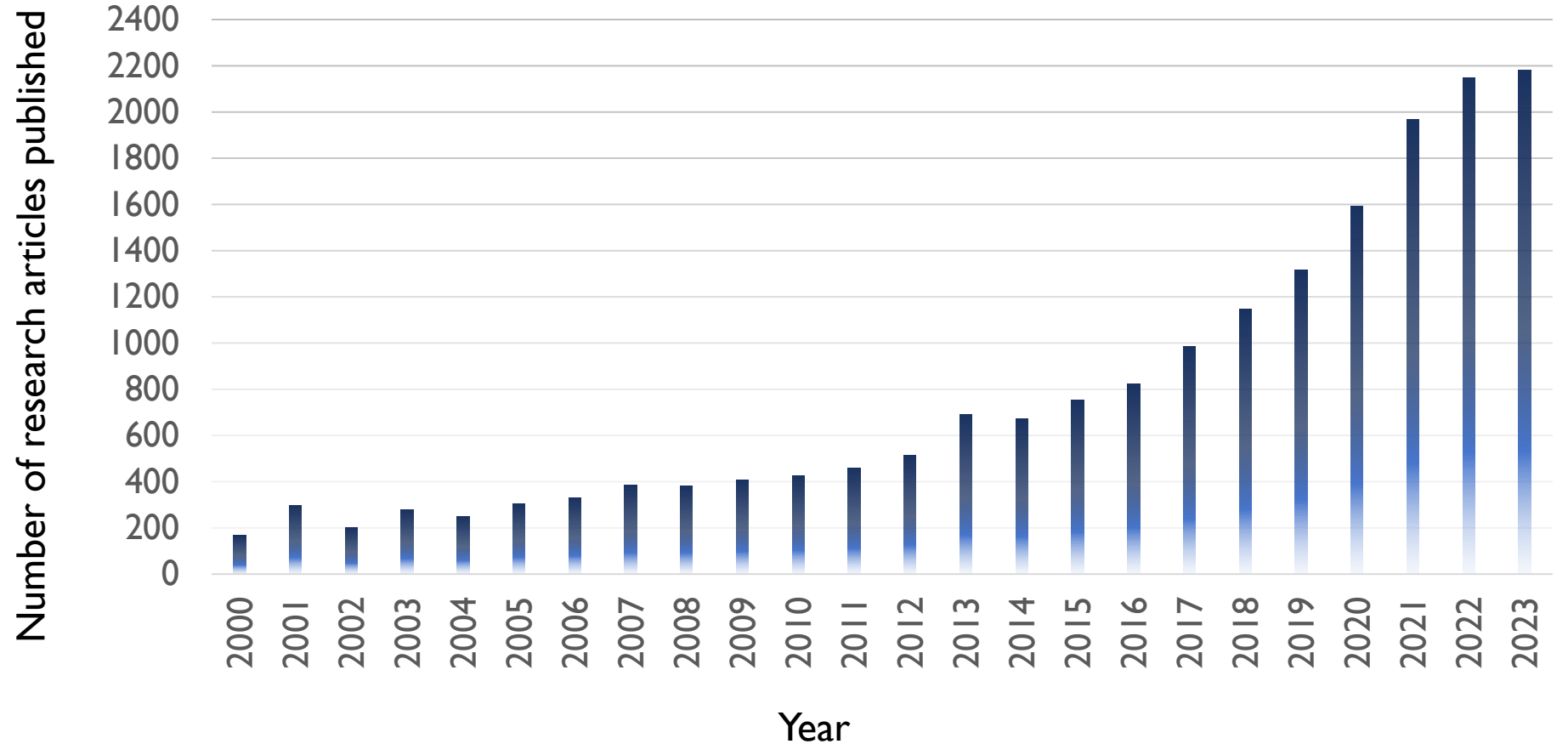


FROM THE ANTHROPOCENE TO THE PLASTOCENE...



MARINE LITTER & MARINE PLASTIC POLLUTION | AN INDISPUTABLE GLOBAL THREAT THAT IS GROWING

Some 19,000 research articles have been published in the last 23 years documenting the marine litter and marine plastic pollution threat



MARINE PLASTIC POLLUTION AS A PLANETARY BOUNDARY THREAT

Worldwide dispersion

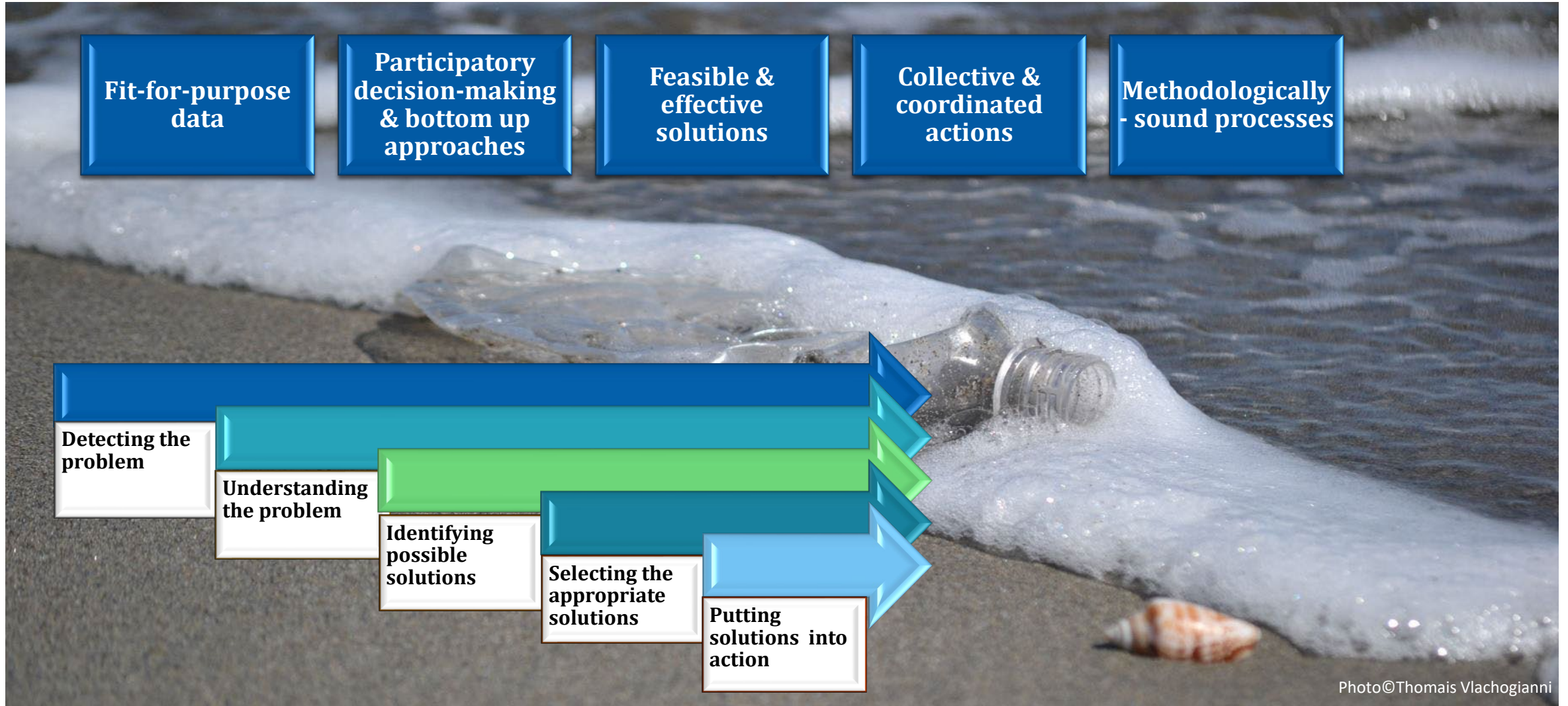
Non-reversible exposure

Endangering global ecosystems



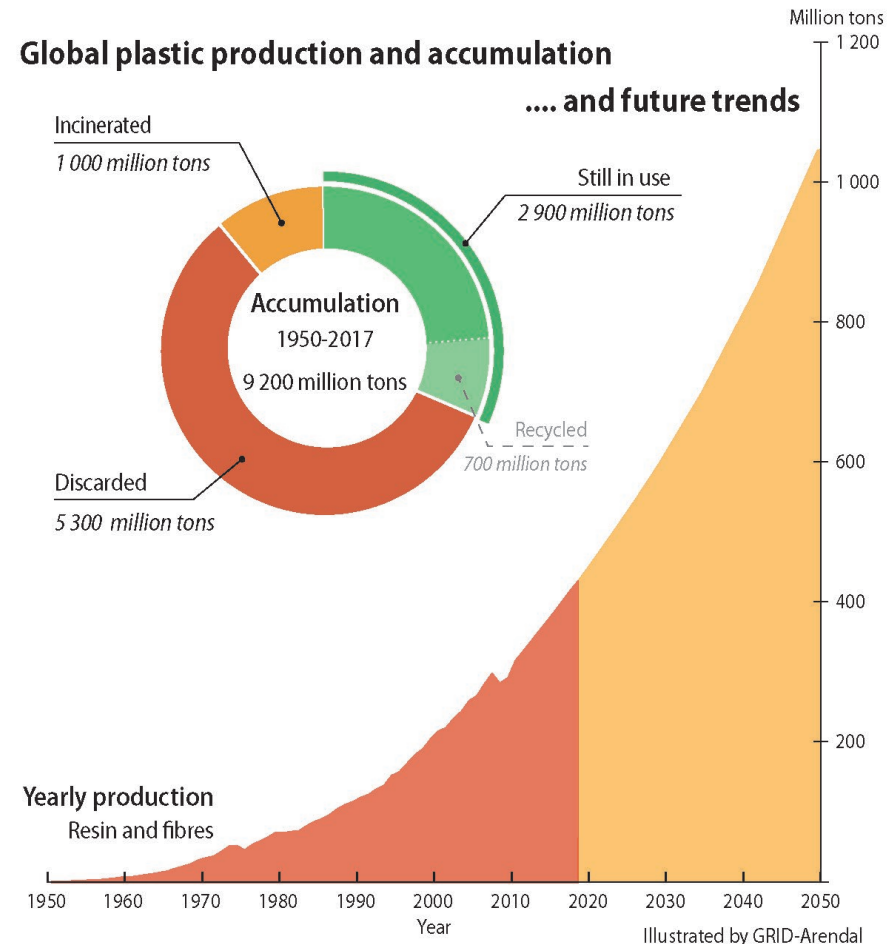
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FROM A COMPREHENSIVE DIAGNOSIS OF THE MARINE LITTER PROBLEM TO TAILOR-MADE ACTIONS ON THE GROUND



THE PLASTIC AGE

Plastics have become the basic component for manufacturing numerous everyday products, and since the 1950s, their production has consistently grown, with their global production expected to double by 2035.



UNEP (2021). From Pollution to Solution: A global assessment of marine litter and plastic pollution. Nairobi.

TOP BENEFITS OF PLASTICS

Durable

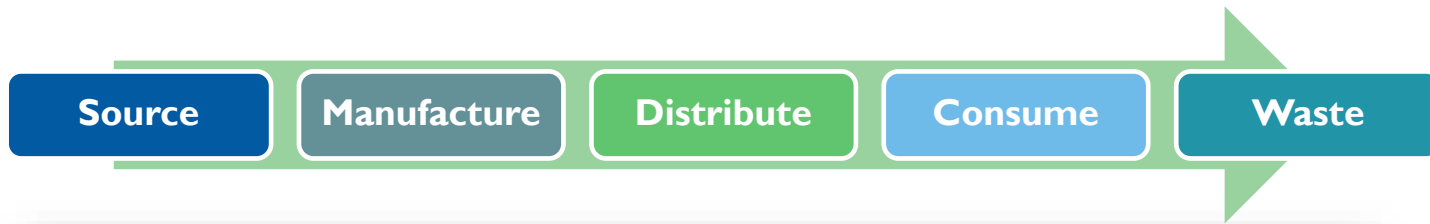
Lightweight

Versatile

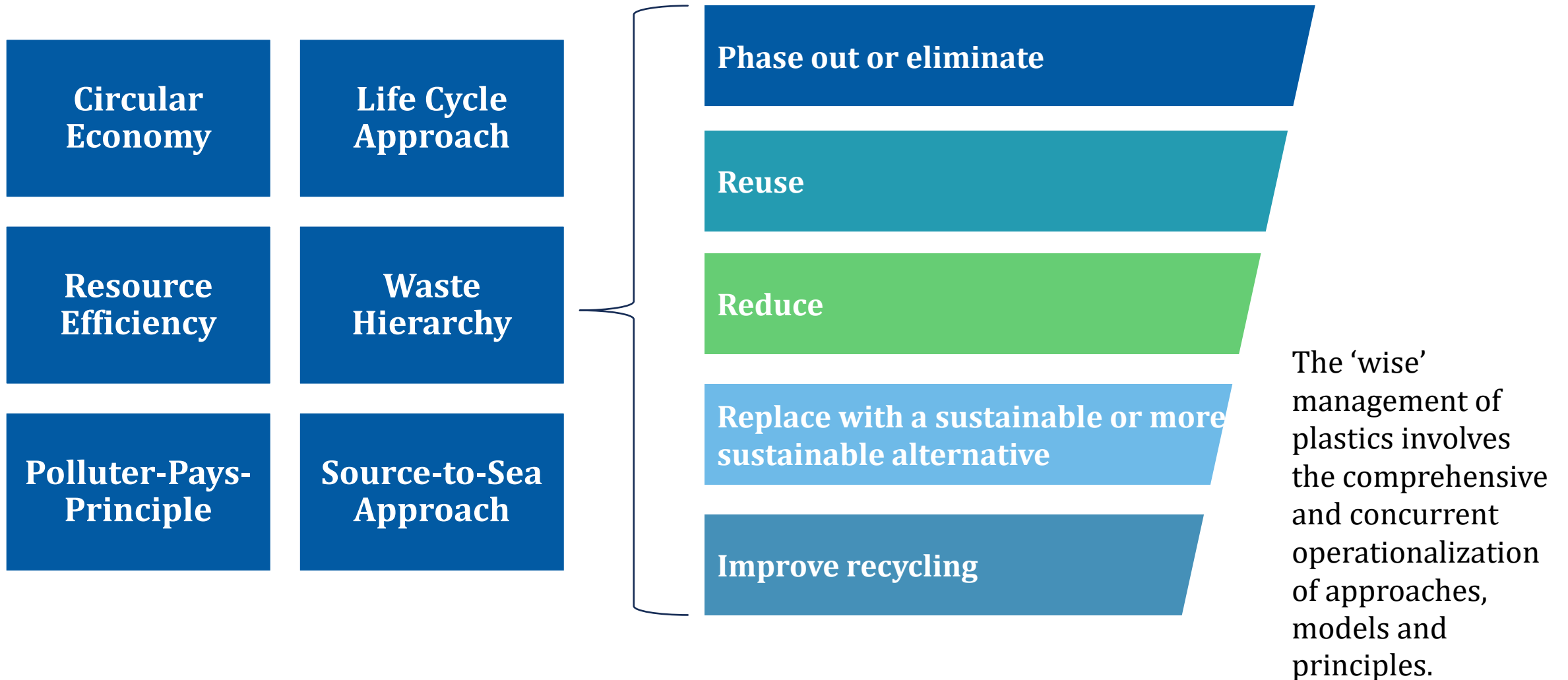
Inexpensive?

There are hidden costs associated with the environmental consequences of plastic production.

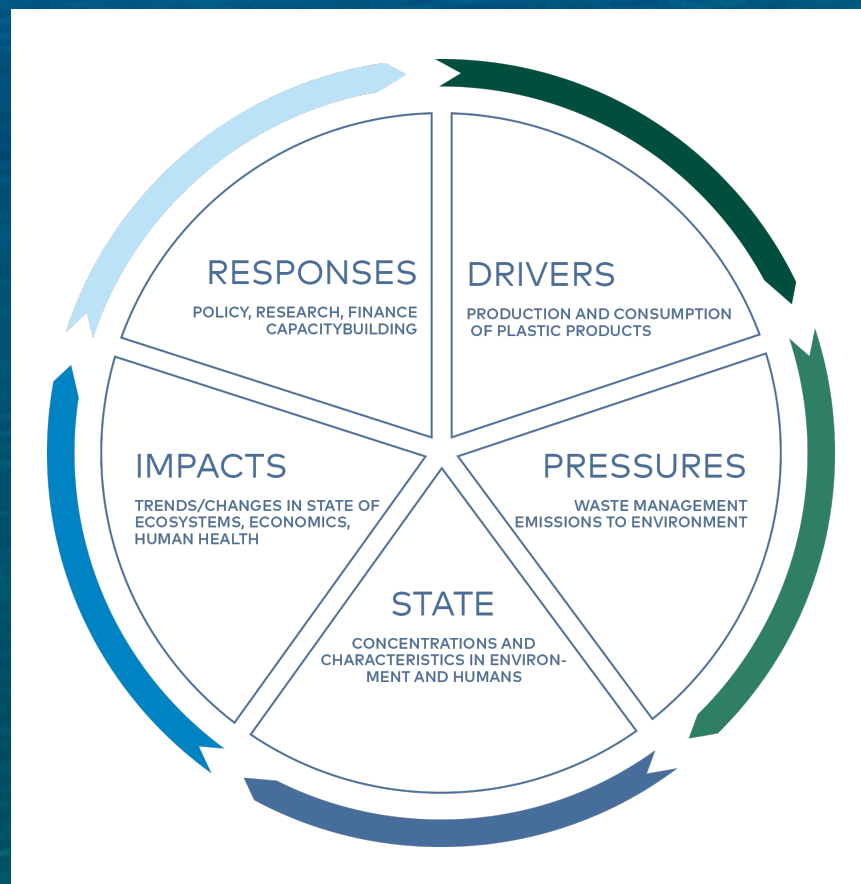
WISE USE OF PLASTICS WITHIN A CIRCULAR ECONOMY



WHAT DOES THE 'WISE' USE OF PLASTICS ENTAIL? COMPREHENSIVE MANAGEMENT APPROACHES



WHAT DOES THE 'WISE' USE OF PLASTICS ENTAIL? COMPREHENSIVE MANAGEMENT APPROACHES



**Drivers-Pressures-State-Impact-Response
(DPSIR)**

Understanding the sources & pathways

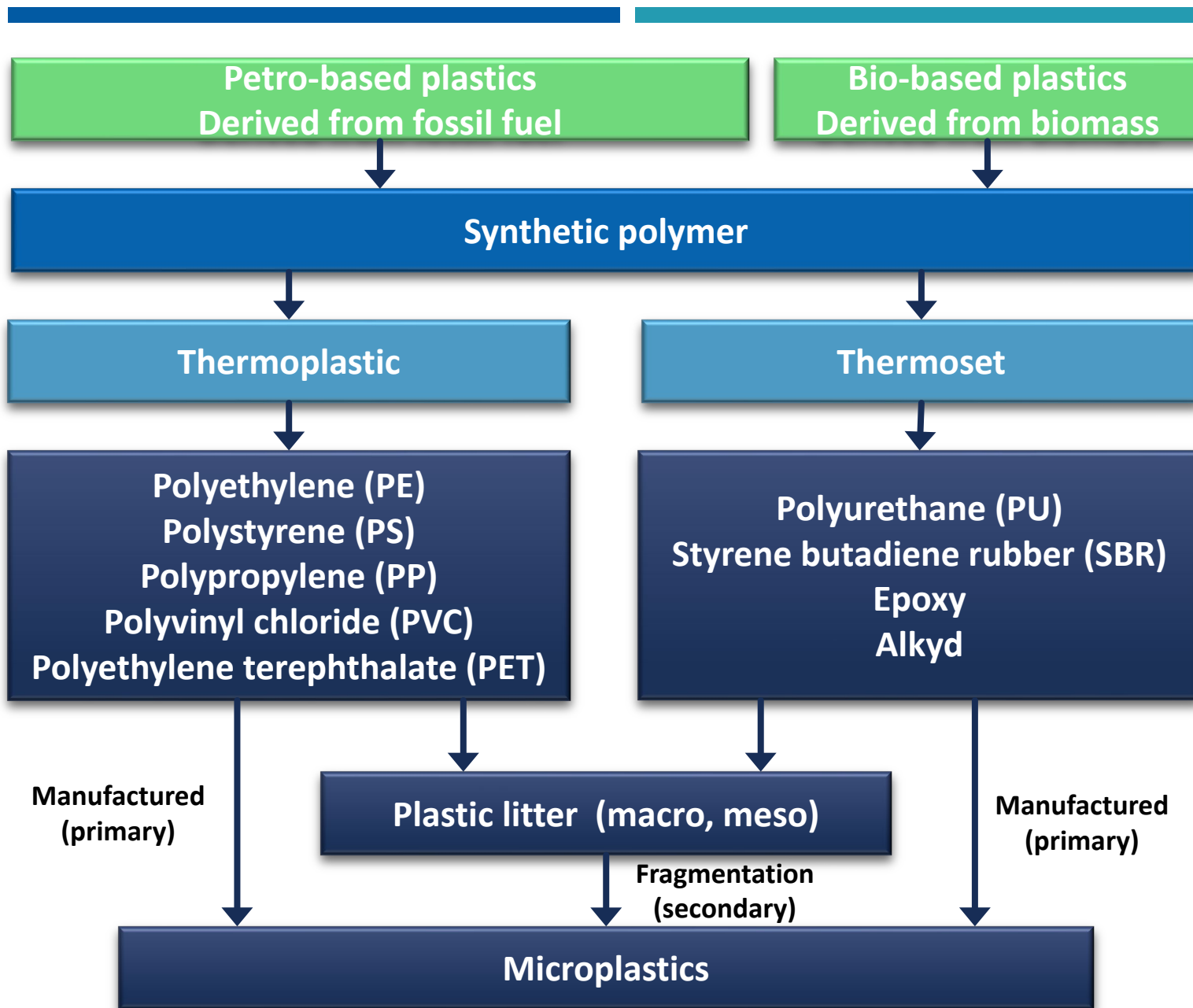
- point and diffuse sources
- land-based and ocean-based origins & sources
- human-induced activities & underlying causes

Understanding the solutions

- relevance and effectiveness of solutions
- contextual consideration of solutions
- recognizing limitations and complications

Stakeholder perspectives

- importance of stakeholder involvement
- perspectives and perceptions
- identifying bespoke solutions

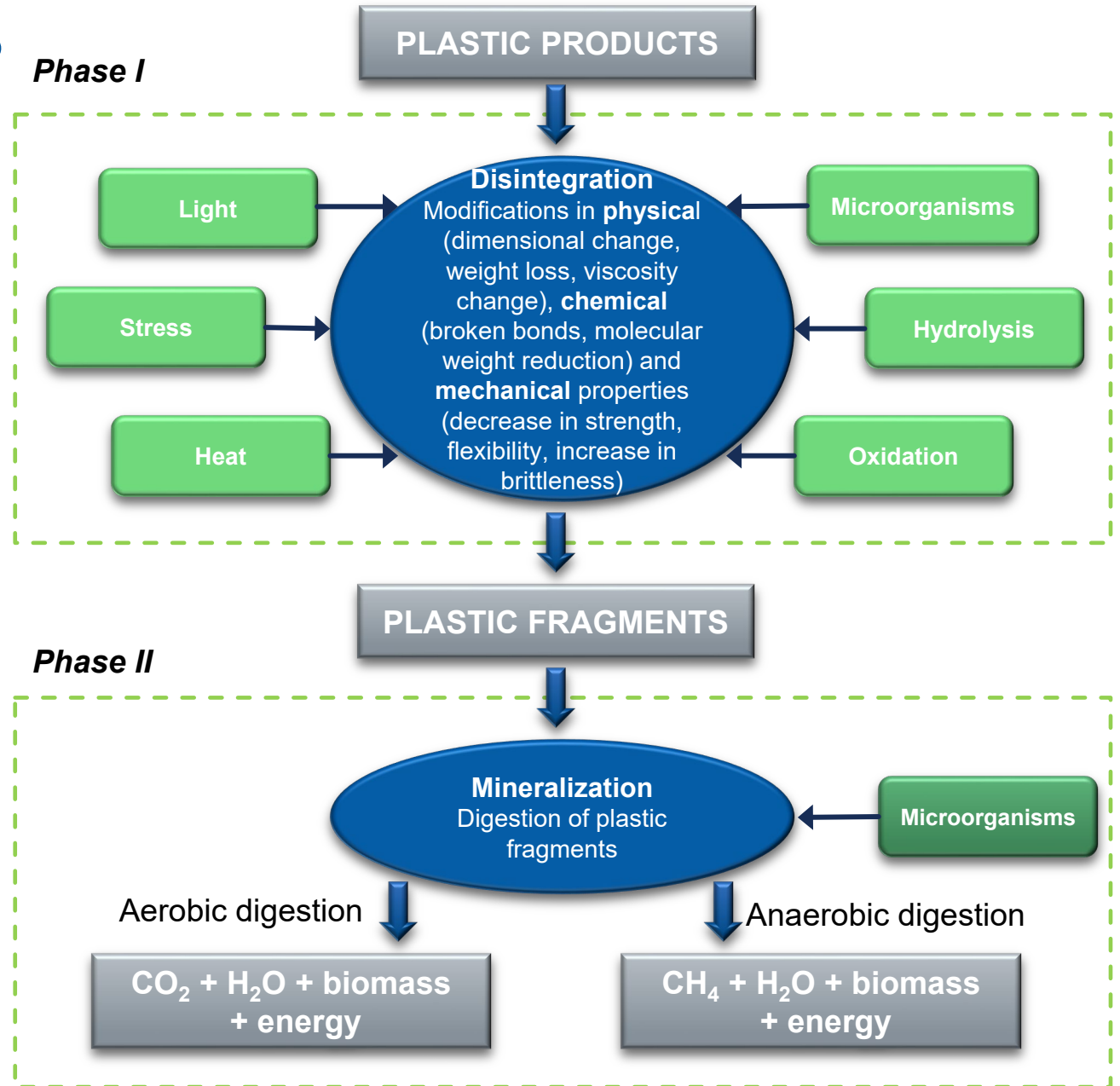


WHAT ARE PLASTICS & PLASTIC ITEMS MADE OF?

Polymer	Plastic product
HDPE	Milk bottles, freezer bags, shampoo bottles, ice cream containers
PET	Bottles for water and other drinks, dispensing containers for cleaning fluids, biscuit trays
LDPE	Bags, trays, containers, food packaging film
PP	Microwave dishes, potato chip bags, bottle caps
PS	Cutlery, plates and cups
EPS	Hot drink cups, insulated food packaging, protective packaging for fragile items

DEGRADATION OF PLASTICS

- ▶ The degradation of plastics is defined as the process that induces changes in the polymer properties (deterioration of functionality) due to chemical, physical or biological reactions.
- ▶ Depending upon the nature of the causing agents, polymer degradations have been classified as thermal- (heat), photo- (sunlight), oxidative- (oxygen), hydrolytic- (water), mechanical- (stress), and bio- (microorganisms) degradation.



DEBUNKING THE MYTHS & MISCONCEPTIONS ABOUT MARINE LITTER PREVENTION & MITIGATION ACTIONS

PHOTOGRAPH BY JUSTIN HOFMAN

Substituting 'conventional' plastics with biobased plastics is merely a distraction to the marine plastic issue.

End-of-pipe solutions such as cleanup operations cannot address the issue.

Biodegradable and compostable plastics pollute our coasts and seas just like conventional plastics, as they behave quite differently in the marine environment than in a terrestrial setting (landfill, composter) where the conditions required for rapid biodegradation are unlikely to occur. In addition, mixing of such plastics with normal plastics in the recycling stream may compromise the properties of the newly synthesised polymer.



EC GUIDELINES ON SINGLE-USE PLASTIC PRODUCTS

‘Plastics manufactured with modified natural polymers, or **plastics manufactured from bio-based, fossil or synthetic starting substances are not naturally occurring** and should therefore be addressed by the SUPs Directive. The adapted definition of plastics should therefore cover polymer-based rubber items and **bio-based and biodegradable plastics** regardless of whether they are derived from biomass or are intended to biodegrade over time’.



Commission guidelines on single-use plastic products in accordance with Directive (EU) 2019/904 of the European Parliament and of the Council on the reduction of the impact of certain plastic products on the environment (2021/C 216/01)

CAN MARINE PLASTICS BE MECHANICALLY RECYCLED?



CAN CHEMICAL 'RECYCLING' SOLVE THE PLASTIC POLLUTION CRISIS?

**energy-
intensive**

**produces
greenhouse gas
emissions**

**requires/emits
chemicals**

**logistical &
economic issues
related to
collection and
sorting**



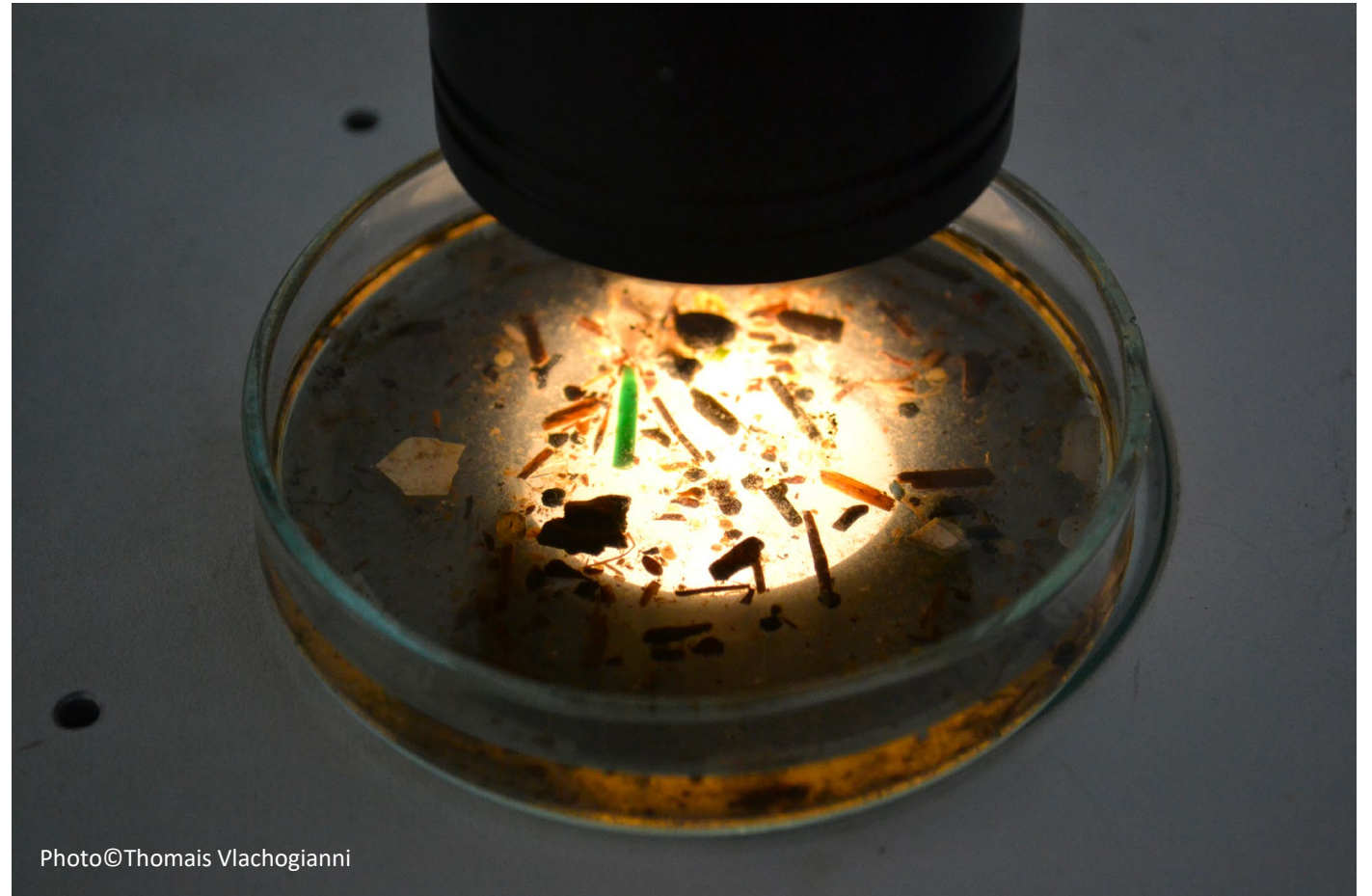
The related technology is still largely in the research and development phase.

BALANCING TECHNOLOGY AND SOCIAL INNOVATION

ongoing testing of new, often sophisticated (and sometimes controversial) technologies

accessibility and affordability considerations

role/advantages of social innovations in waste prevention



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A PARADIGM SHIFT TO MOVE AWAY FROM OUR THROWAWAY SOCIETIES

TAKE-HOME MESSAGES

Reshape the dynamics of how we produce, distribute, and consume products via transformative social innovations.

- ✓ **Production:** social innovations often involve the adoption of sustainable and environmentally friendly practices, fostering a shift towards circular economies and responsible resource management.
- ✓ **Distribution:** innovative models such as community-based networks and shared economies contribute to reducing environmental footprints and promoting inclusivity.
- ✓ **Consumption/use:** mindful choices deploying an environmental life-cycle perspective in every choice we make.

Actions of catalytic importance

- ✓ leverage multi-stakeholder collective learning
- ✓ remain attuned to local realities
- ✓ capitalize on the wealth of knowledge from prevention showcases

THANK YOU FOR YOUR ATTENTION!



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“ “ For a litter FREE coasts & seas!