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IMPROVING THE STATE  
OF THE WORLD

# The Fourth Industrial Revolution and the New Plastics Economy

Presentation to the UN Consultative Process on Oceans and the Law of the Sea

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Chair, World Economic Forum's Global Agenda Council on Oceans  
14<sup>th</sup> June 2016, New York

# About the World Economic Forum



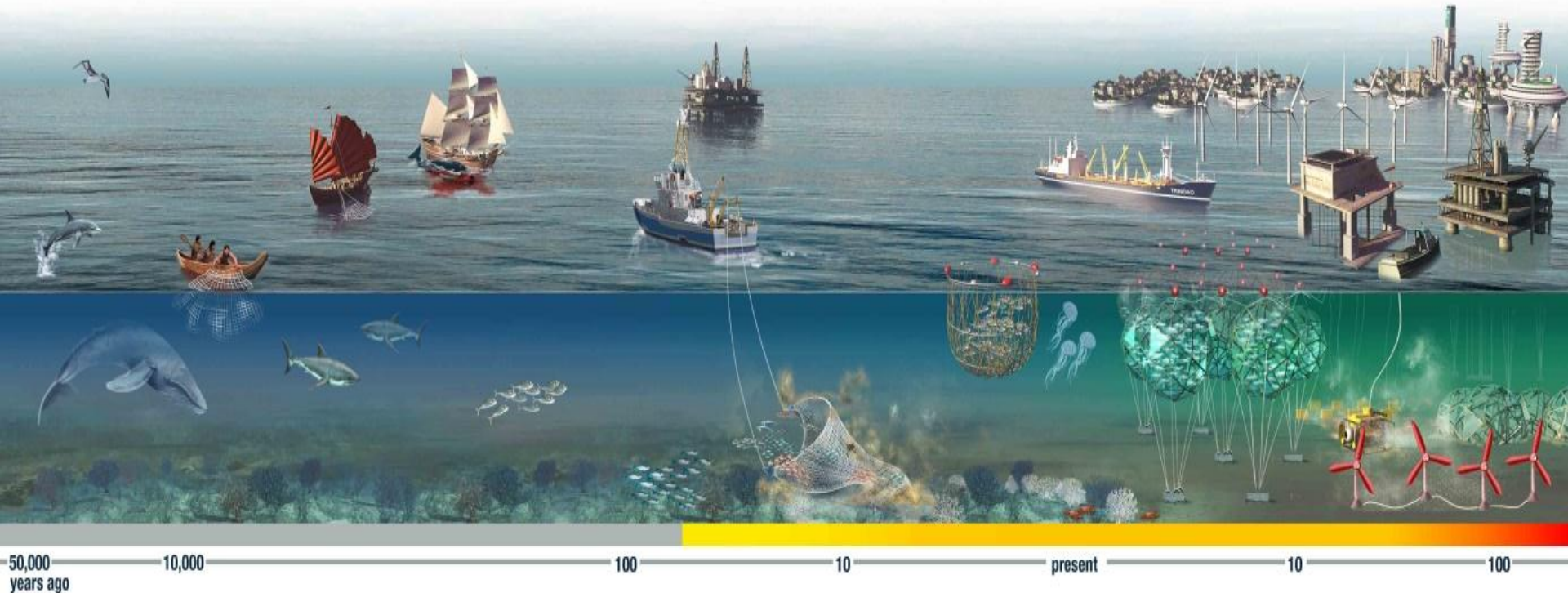
- The World Economic Forum's Mission: *Committed to Improving the State of the World*
- International Organisation for Public-Private Cooperation
- Several major communities:
  - Davos Annual Meeting
  - Regional Meetings
  - Global Agenda Councils
  - Public Figures
  - Businesses
  - Civil society
  - Technology pioneers

# Agenda

- The Fourth Industrial Revolution
- The New Plastics Economy
- Governance in a new age

# We are in the midst of a Fourth modern Industrial Revolution

*Overview of technological advancement in fisheries, shipping, ocean energy, navigation and marine governance*



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# The New Plastics Economy Report and Taskforce



## Key partners:

Ellen MacArthur Foundation

McKinsey & Company

Averda

BT

Ecolab

Indorama

Philips

Royal DSM

Suez Environment

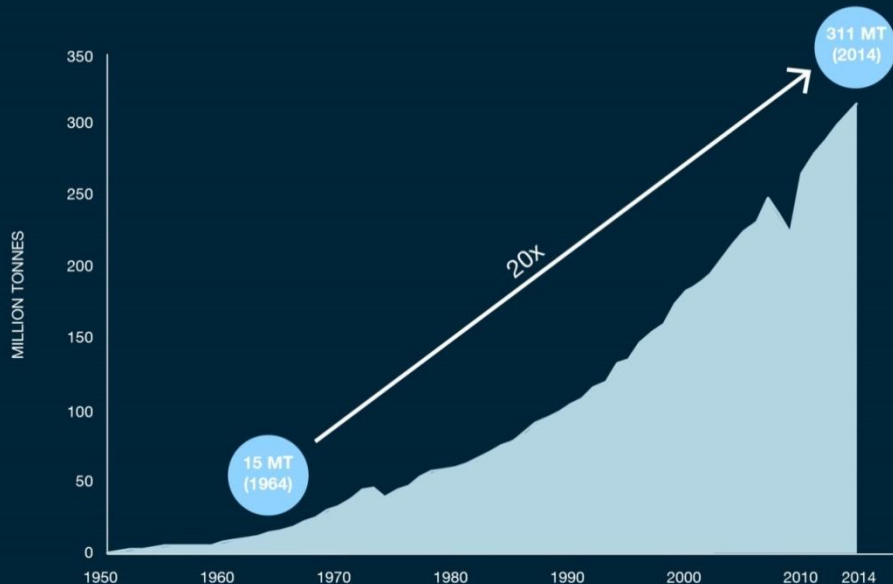
Tarkett

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# Plastics increased 20x in last 50 years... and is expected to increase 4x again by 2050 so there will be more plastics than fish in the sea

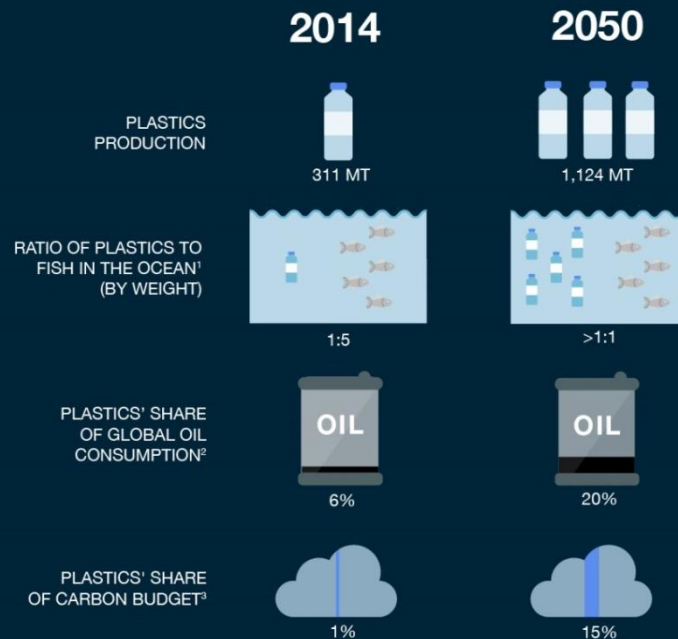
## PLASTICS PRODUCTION INCREASED TWENTY-FOLD OVER THE LAST 50 YEARS



WORLD ECONOMIC FORUM, ELLEN MACARTHUR FOUNDATION, MCKINSEY & COMPANY,  
A NEW PLASTICS ECONOMY: RETHINKING THE FUTURE OF PLASTICS (2016)  
WWW.WEFORUM.ORG/REPORTS

NOTE: Production from virgin petroleum-based feedstock only (does not include bio-based, greenhouse gas-based or recycled feedstock)  
SOURCE: PlasticsEurope, Plastics – the Facts 2013 (2013); PlasticsEurope, Plastics – the Facts 2015 (2015).

## WITH AN EXPECTED SURGE IN CONSUMPTION, NEGATIVE EXTERNALITIES RELATED TO PLASTICS WILL MULTIPLY

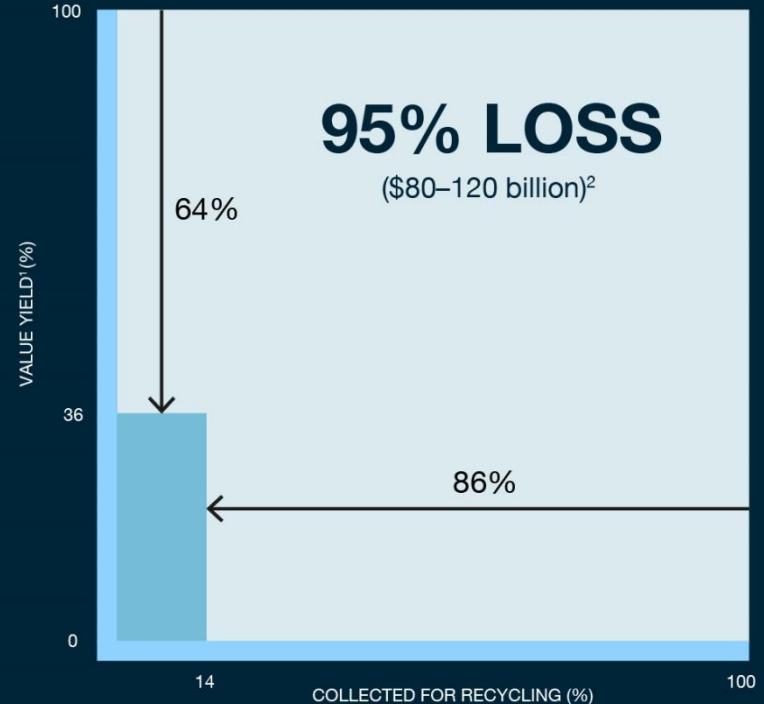


# Packaging is a major use of plastics, but 95% of packaging is discarded with a value of ~\$100billion a year

## Main plastic resin types and their use in packaging

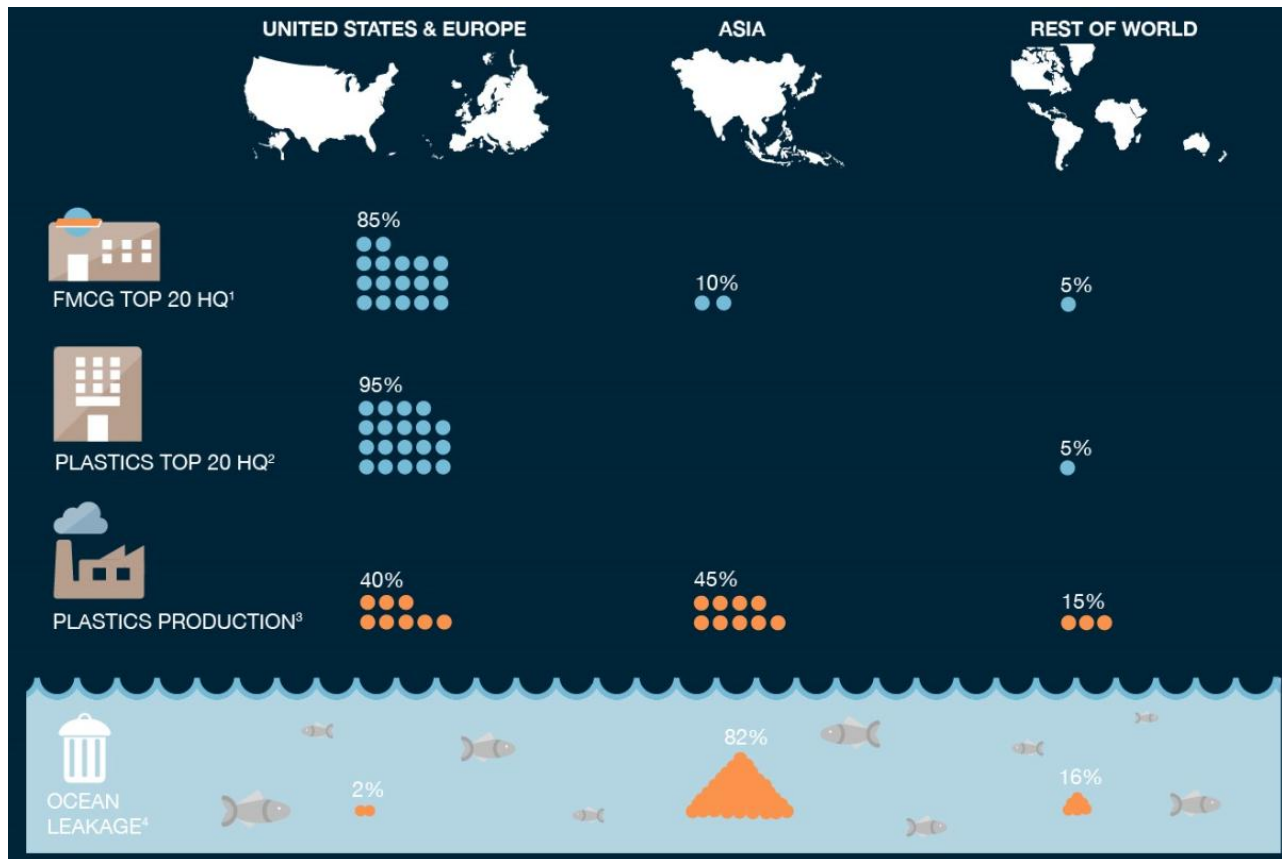
 PET	  	Water and soft drink bottles, salad domes, biscuit trays, salad dressing and peanut butter containers
 HDPE	  	Milk bottles, freezer bags, dip tubs, crinkly shopping bags, ice cream containers, juice bottles, shampoo, chemical and detergent bottles
 PVC	 	Cosmetic containers, commercial cling wrap
 LDPE	  	Squeeze bottles, cling wrap, shrink wrap, rubbish bags
 PP	  	Microwave dishes, ice cream tubs, potato chip bags, and dip tubs
 PS	  	CD cases, water station cups, plastic cutlery, imitation "crystal glassware", video cases
 EPS	  	Foamed polystyrene hot drink cups, hamburger take-away clamshells, foamed meat trays, protective packaging for fragile items
 OTHERS	  	Water cooler bottles, flexible films, multi-material packaging

## TODAY, 95% OF PLASTIC PACKAGING MATERIAL VALUE IS LOST AFTER A SHORT FIRST USE CYCLE



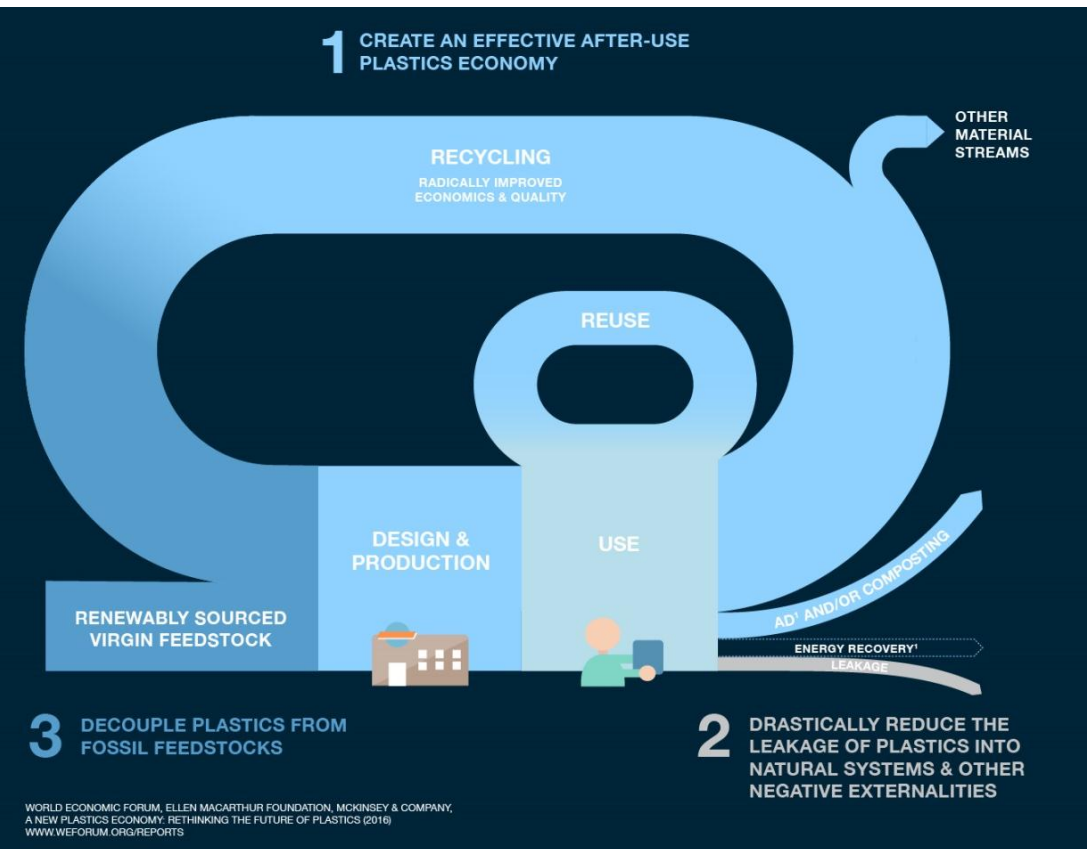


# It is critical to engage Asia, US and Europe in transitioning to a new plastics economy



- 82% of global plastics leaking into the ocean comes from Asia
- 85% of major Fast Moving Consumer Goods Headquarters are in the US and Europe
- 95% of major Plastics Producers Headquarters are in US and Europe (even if plastics production is more distributed across US, Europe and Asia)

# Several major steps are needed by both the private and public sector to transition to a new Plastics Economy

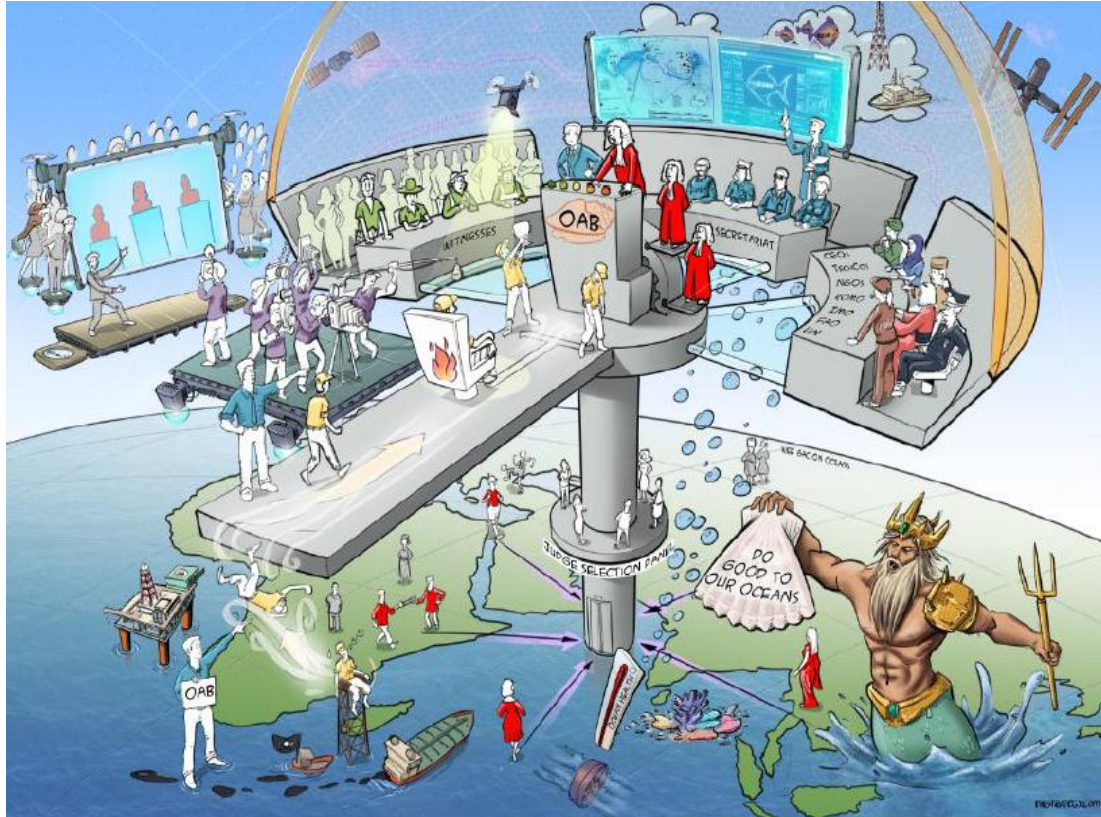


1. Establish the Global Plastics Protocol and coordinate large-scale pilots and demonstration projects
2. Mobilize large-scale, targeted “moon shot” innovations
3. Develop insights and build a base of economic and scientific evidence
4. Engage policy-makers
5. Coordinate and drive communication

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# New Governance approaches using new technologies are needed in the era of a Fourth Industrial Revolution



Source: World Economic Forum's New Vision for Oceans Initiative

Technologies that could transform governance of our oceans:

- Big Data
- Artificial Intelligence/Deep Machine Learning
- New satellite technologies
- New Materials
- Social Media
- Blockchain legal technologies
- Synthetic Biology
- Biological engineering

The background of the slide features a blurred, 3D-style logo for the World Economic Forum. The words "WORLD", "ECONOMIC", and "FORUM" are visible in a light blue/white color against a dark blue background. A thin white line curves around the text.

# THANK YOU

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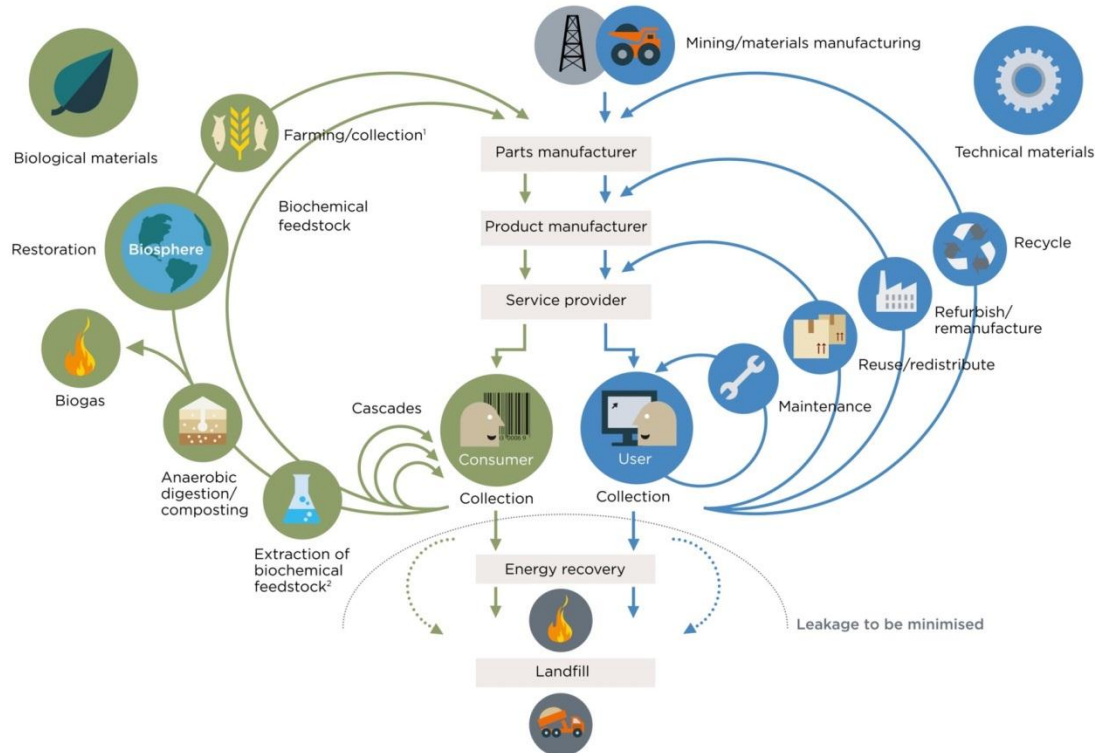
# APPENDIX

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# The circular economy aims to decouple economic growth from resource constraints

The circular economy—an industrial system that is restorative by design

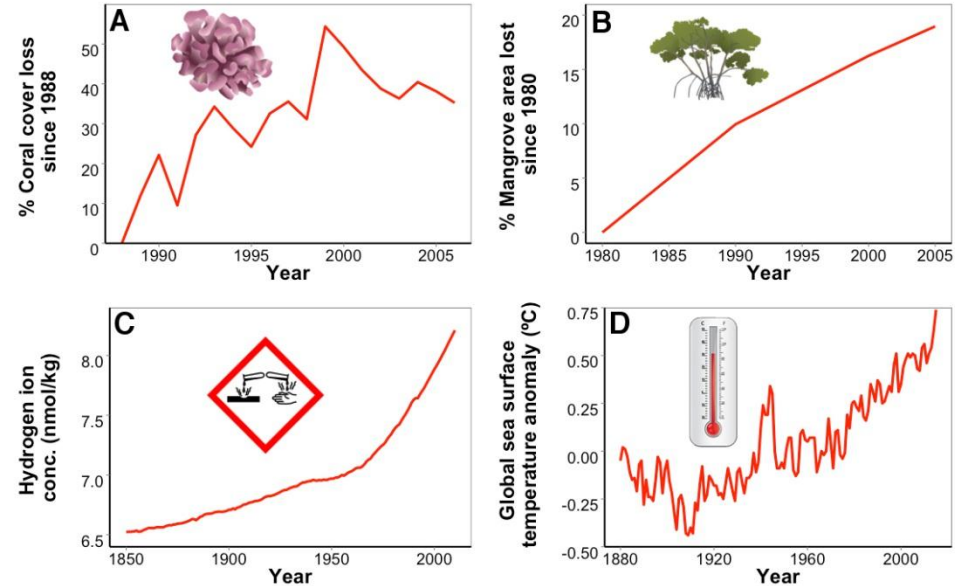
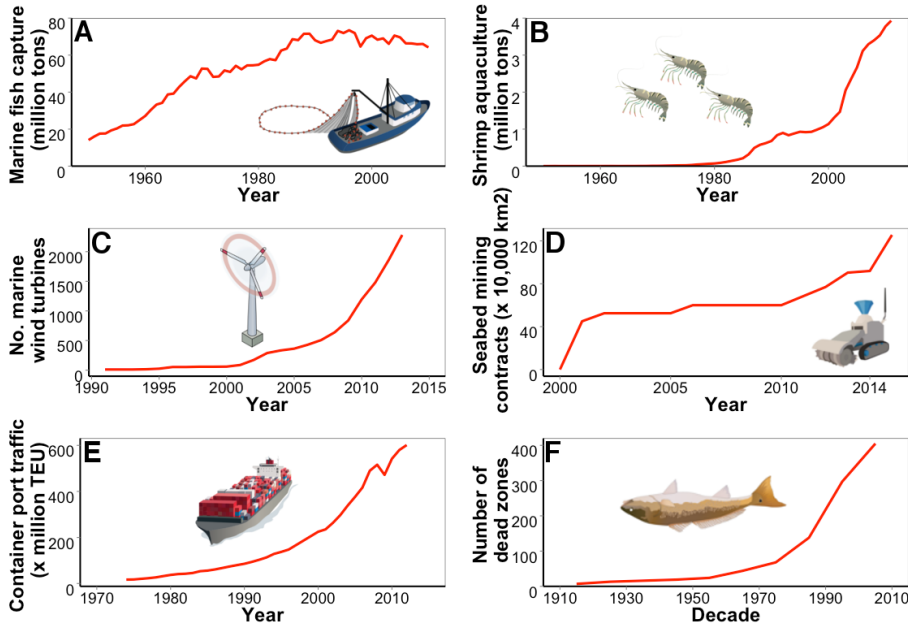


<sup>1</sup> Hunting and fishing  
<sup>2</sup> Can take both post-harvest and post-consumer waste as an input  
SOURCE: Ellen MacArthur Foundation - Adapted from the Circular Design Protocol by Braungart & McDonough

# The marine Industrial Revolution and its impact on Ocean Health

Technological progress from recent industrial revolutions...

...impact on ocean health



## SDG 14: Life under the Oceans



# SUSTAINABLE DEVELOPMENT GOALS



Conserve and sustainably use the oceans, seas and marine resources for sustainable development

**14.1** by 2025, prevent and significantly reduce marine pollution of all kinds, particularly from land-based activities, including marine debris and nutrient pollution