

What is the true meaning of circularity? Beverage packaging as a case study

An Open Online Discussion hosted by Brunel University London, Politecnino di Milano, Southern University Denmark and Wageningen Food & Biobased Research

Ciprian Cimpan - Associate Professor, Head of Programme for MSc. Environmental Engineering





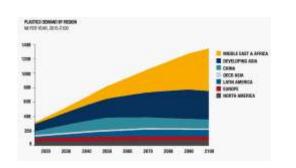


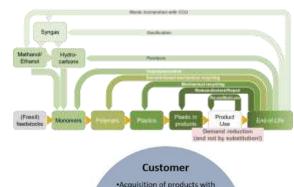




If we are to acheive large scale CE

- ➤ Include developing regions, and consider context and supply chain effects
- Flexibility on expanding portfolio of technical approaches to deliver circularity
- ➤ Include socio-technical perspectives, consumer/user behavior, markets









SDU 4

Plastic demand growth – convergence at 120

2070

2080

kg/person (Material Economics, 2018)

PLASTICS DEMAND BY REGION Mt PER YEAR. 2015-2100

1400

1200

MIDDLE EAST & AFRICA

DEVELOPING ASIA

OECD ASIA

LATIN AMERICA

CHINA

EUROPENORTH AMERICA

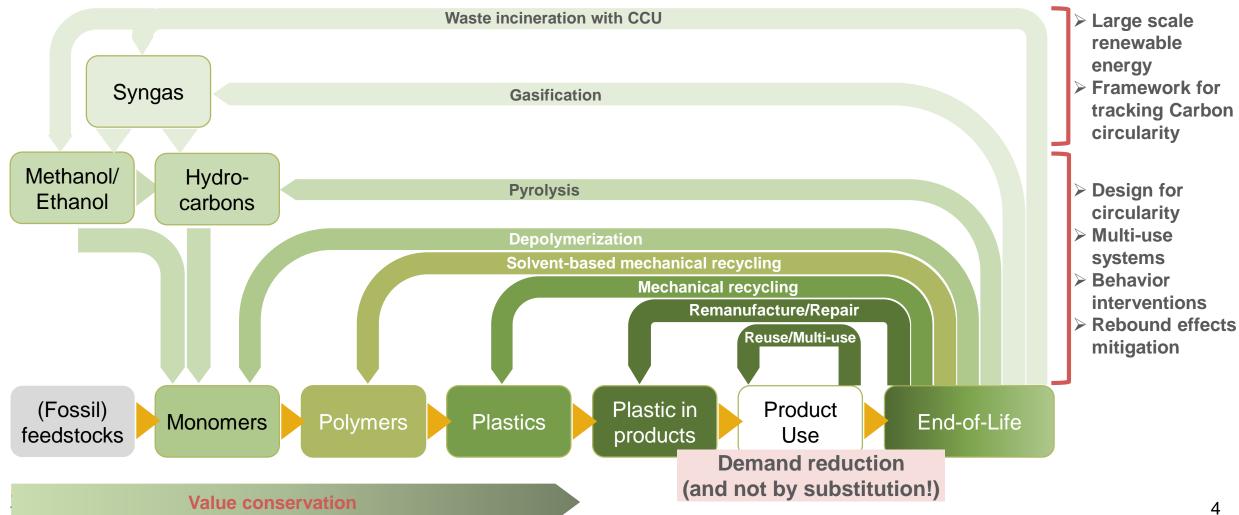
2100

The contextual nature of CE

1000 800 Global plastic waste: 600 275 million tonnes per year It can exceed primary production in a given year since it can incorporate 400 production from previous years. 200 2030 2040 2050 Coastal plastic waste: 99.5 million tonnes per This is the total of plastic waste generated by all populations within 50 kilometres of a coastline (therefore at risk of entering the ocean). Mismanaged coastal plastic Plastic in surface waters: waste: 31.9 million tonnes per year 10,000s to 100,000s tonnes This is the annual sum of inadequately managed and There is a wide range of estimates of the littered plastic waste from coastal populations. quantity of plastics in surface waters. Inadequately managed waste is that which It remains unclear where the majority of is stored in open or insecure landfills plastic inputs end up - a large quantity (and therefore at risk of leakage or loss). might accumulate at greater depths or on the seafloor. Plastic inputs to the oceans: 8 million tonnes per year 2 billion people living within 50km of coastline

J

Circularity (and Sustainability) requires a portfolio of approaches



If we are to acheive large scale CE

- Include developing regions, and consider context and supply chain effects
- Flexibility on expanding portfolio of technical approaches to deliver circularity
- Include socio-technical perspective, consumer/user behavior, markets

- Policy> Attention to export of collected/ sorted plastic waste, and emissions "leakage" (outsourcing) in general
- Policy/Business> More focus on value chains outside EU
- Business> Design products in context of consumer/user markets (e.g., waste man. infrastructure)
- Policy> CE Indicators that are flexible (cycling of carbon) and supply chain traceability
- Policy> Prioritize sector-specific closed loops (avoid market distortions)
- Policy/Business> Incentivize change in organizations/business and consumers

