

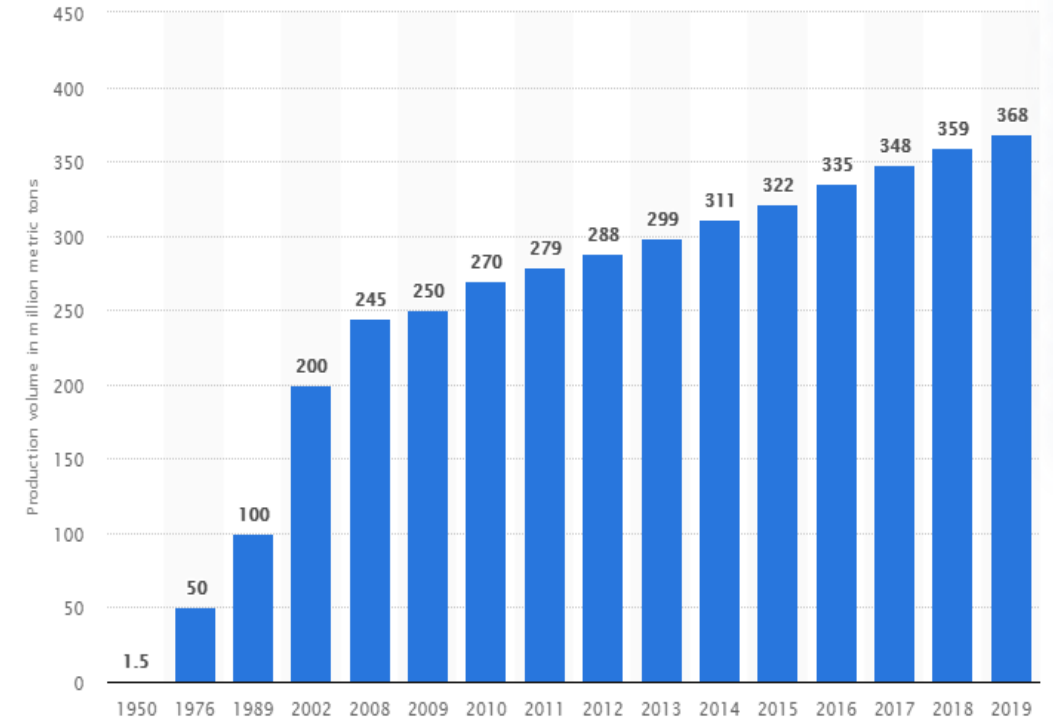
Plastics – chemicals risks to circularity and climate change mitigation?

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Plastic as a valuable material

- Plastic as a material helps to tackle a number of the challenges in our society
- Light, durable, low cost
- Half of all plastics ever manufactured have been made in the last 15 years
- Plastic consumption is expected to triple by 2050
- Globally, about 40% of plastics are used as packaging



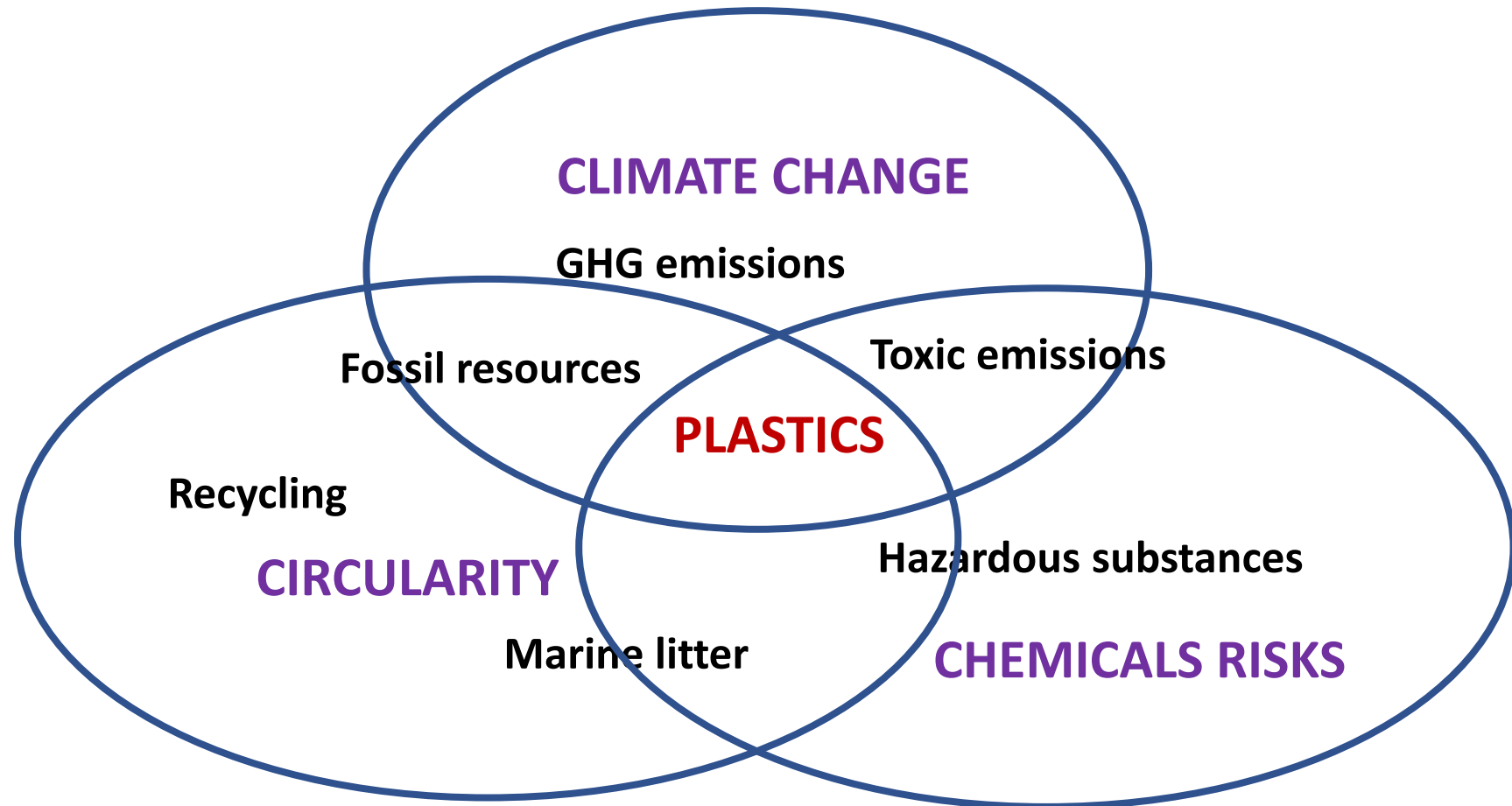
Plastic as a problem

- Plastic has become a significant environmental problem
 - 4-8% of annual global oil consumption is associated with plastics
 - More than 90% of used plastic products is landfilled, leaked into the environment, or incinerated
 - 8 million tons of plastic end up in our oceans every year
- Plastic as a health problem
 - Use of plastic products leads to ingestion and/or inhalation of large amounts of both microplastic particles and hundreds of hazardous substances with known or suspected carcinogenic, developmental, or endocrine-disrupting impacts.



There is an urgent need to shift to a new sustainable plastics economy

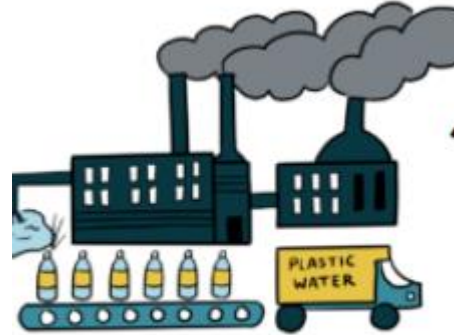
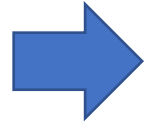
Plastics in the context of chemicals risks, circularity and climate change



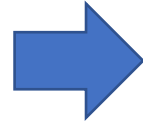
A Lifecycle Approach to Plastic Pollution



EXTRACTION



PLASTIC PRODUCTION



CONSUMERS



DUMPING & BURNING

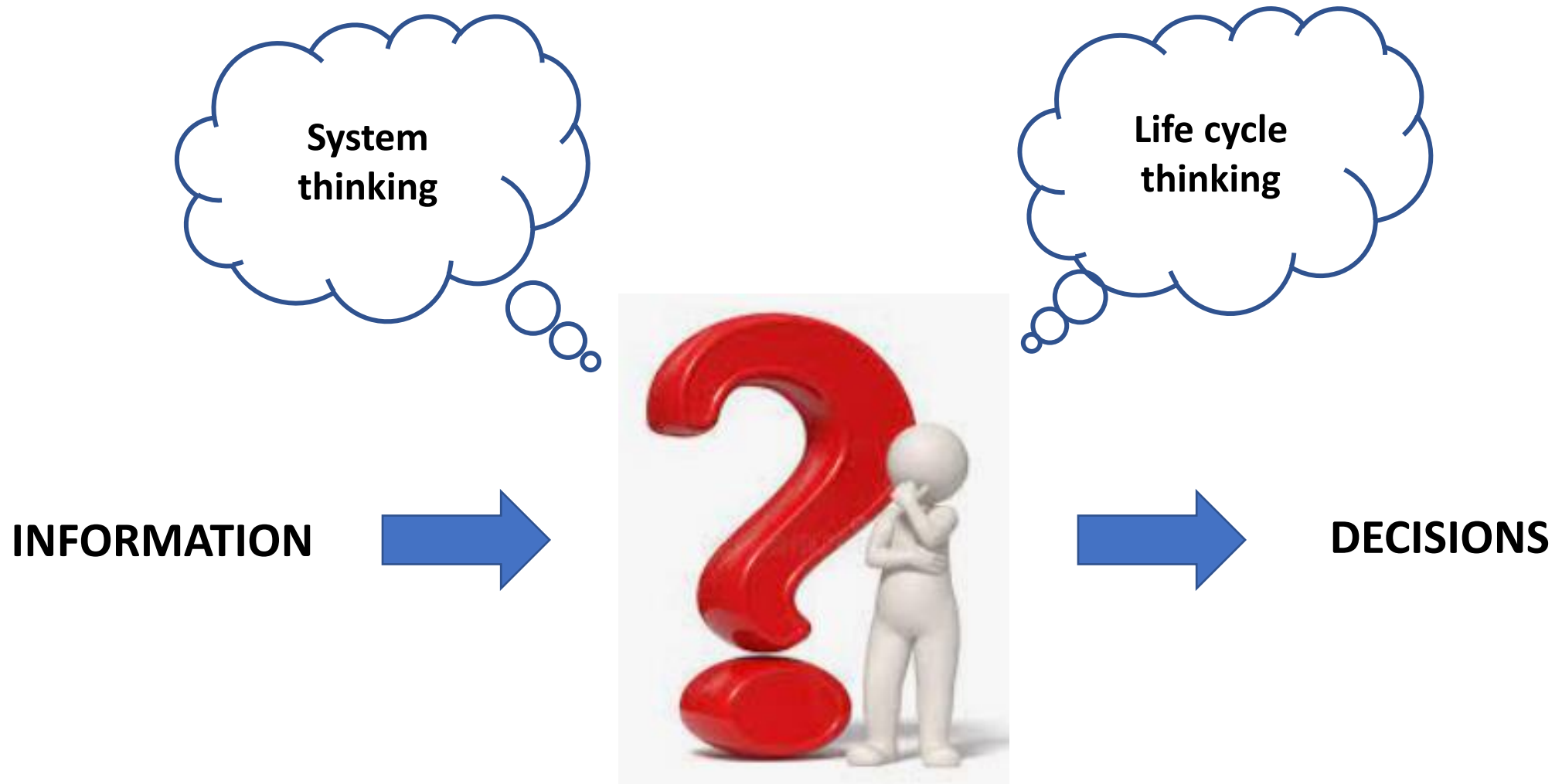
Complex and intersecting environmental and human health impacts occur at every stage of the plastic lifecycle



WASTE INDUSTRY



How to make better decisions?



Making informed decisions that address plastic risks demands a systematic and full lifecycle approach to understand the full scope of its impacts on environment and human health

Examples: PVC popular building material or health danger?

- PVC is the most commonly used thermoplastic
- Commonly used for:
 - Window frames and doors
 - Cable Insulation
 - Clothes
 - Toys
- Several health and environmental risks, especially when its entire life cycle is considered



Examples: Textiles - natural vs synthetic fibers

- Plant-based or man-made (chemicals/oil-based) fiber and textile?
- Synthetic fibres ca 65% of all fibres produced annually
- Both fabrics have their fair amount of advantages and disadvantages
- Production involves hazardous chemicals for both materials
- Synthetic materials
 - energy intensive
 - non-biodegradable, plastic pollution, microplastic (35% of total microplastics), Hard to recycle
 - health issues - hazardous substances and additives (textile allergies)



Examples: Biodegradable plastics - natural vs synthetic plastic

- Biodegradable plastics – solution to plastic crisis?
- Food or bioplastics?
- Biodegradability?
- Recyclability?
- Different chemicals, different problems - not necessarily safer than conventional plastics with regard to the toxicity of the chemical mixtures they include

