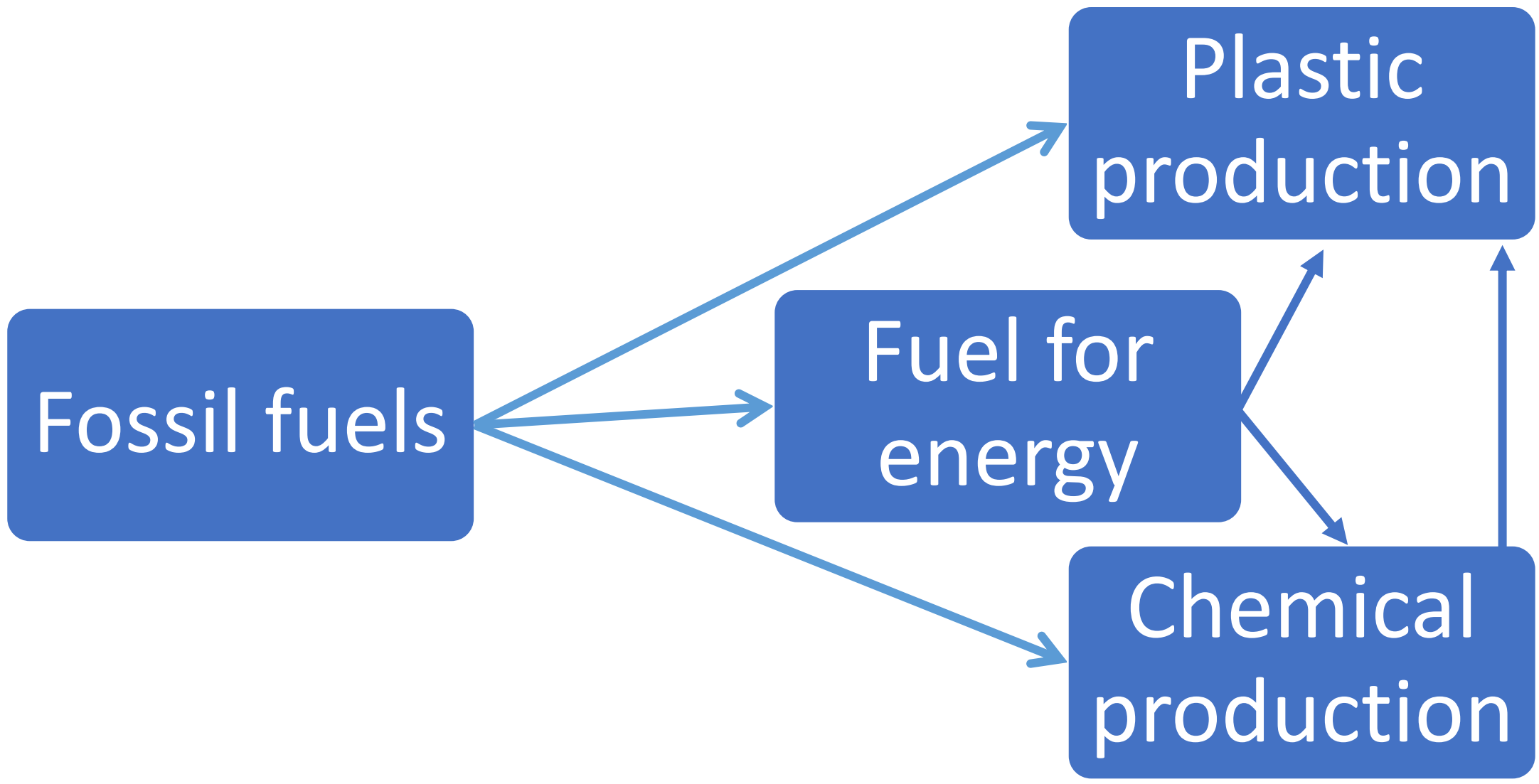


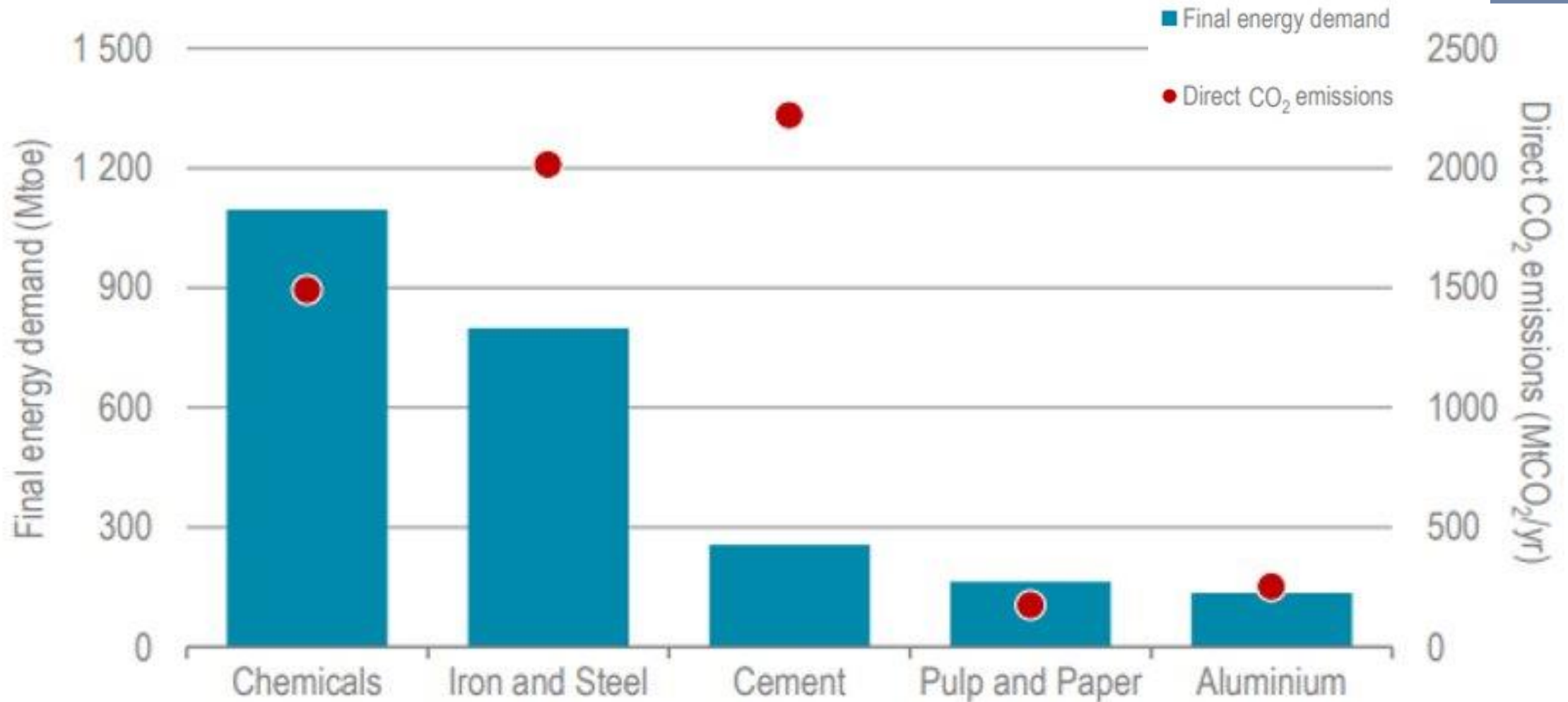
Climate change, plastic waste & chemical pollution



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Chemical production uses energy & releases CO₂



Global Final Energy Demand 2017

Source: UN Global Chemicals Outlook, 2019

A growing problem

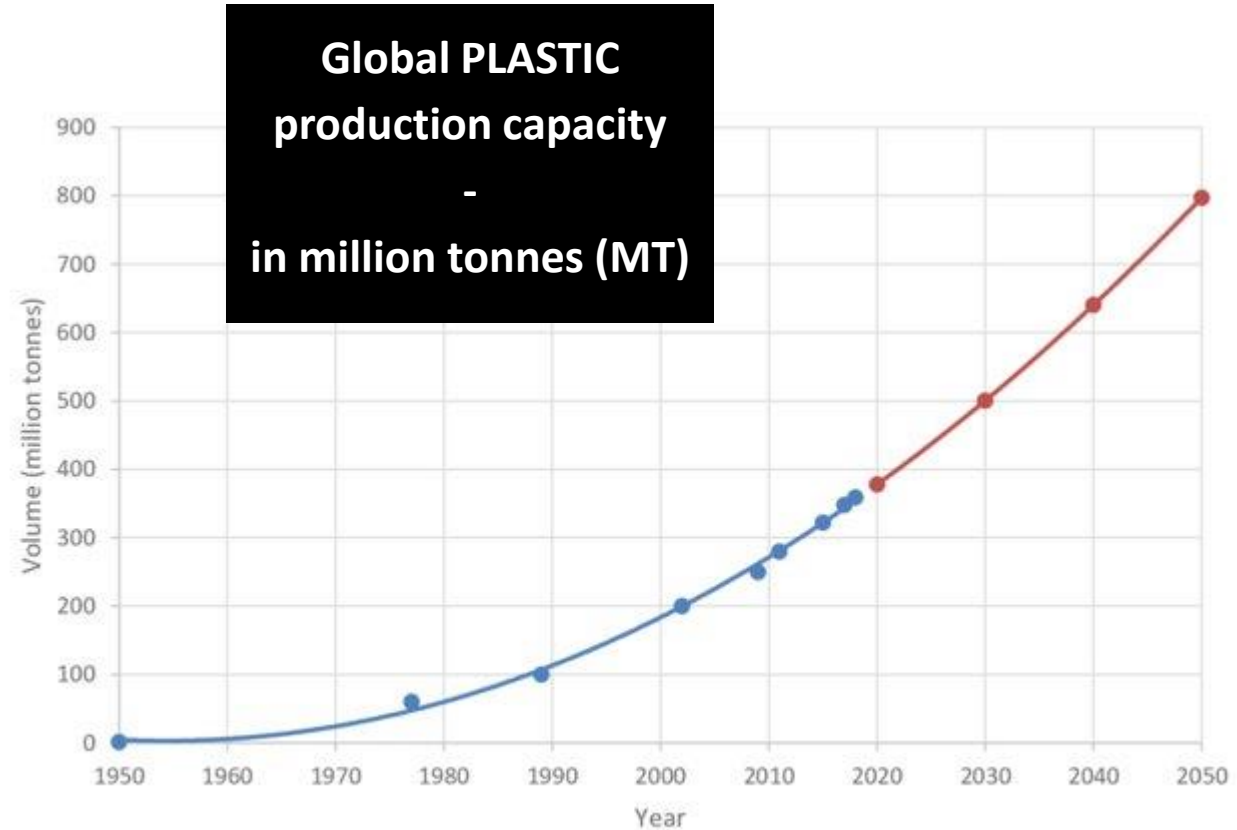
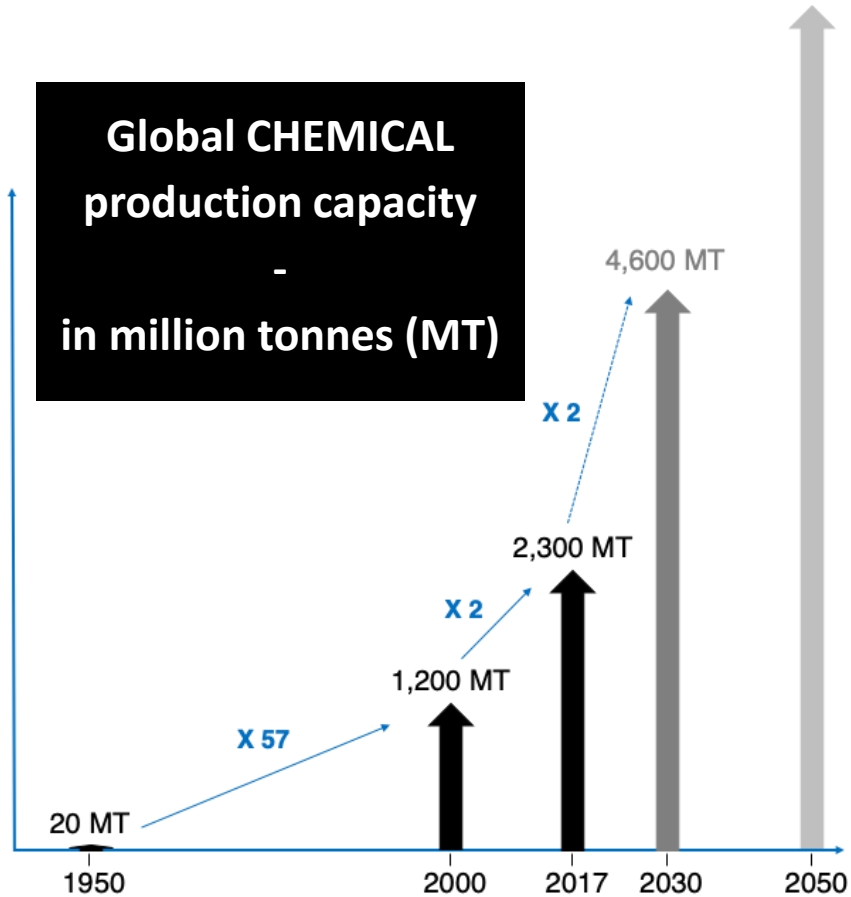
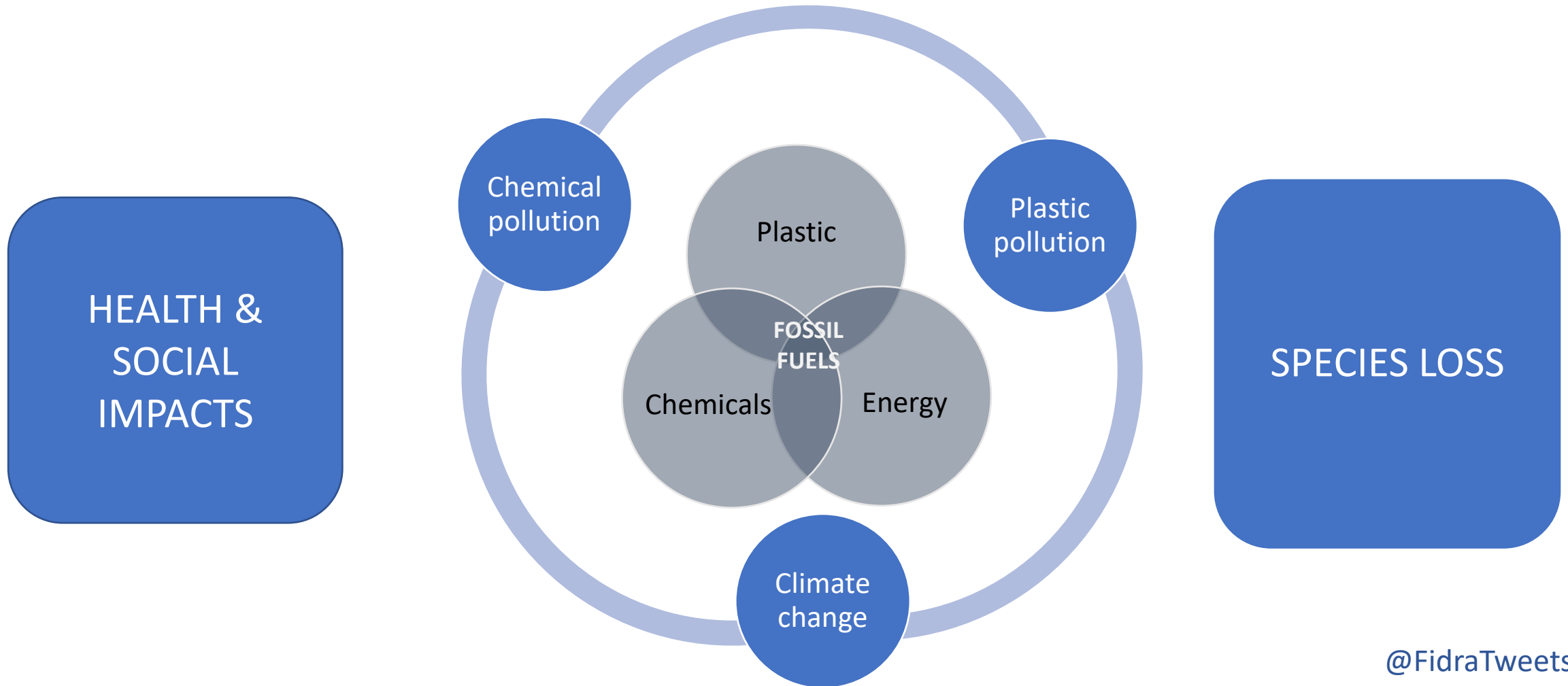


Image Source: UN Global Chemicals Outlook, 2019

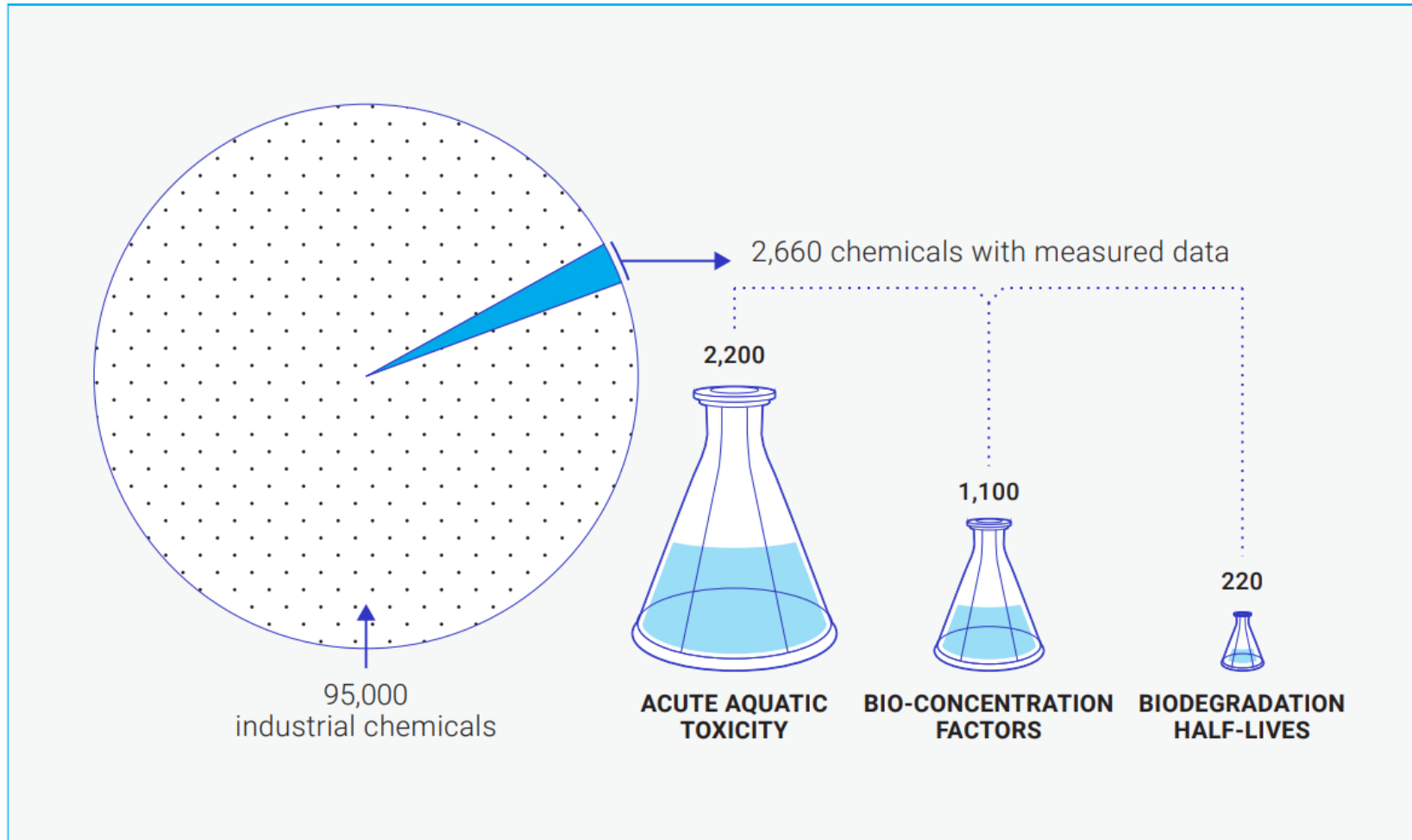
Data Source(blue line): Plastic Europe **Image source & forecast data** (red line): Rouch, Duncan. (2019). Plastic future: How to reduce the increasing environmental footprint of plastic packaging

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Are we going round in circles? Interrelated source and impacts



Unknown consequences of chemical use



Locking chemicals of concern into a circular economy

Note: Out of a set of 95,000 industrial chemicals, 2,200 had data on acute aquatic toxicity, 1,000 on the extent to which they build up in the environment (bio-concentration factors), and 220 on how long it takes them to break down (biodegradation half-lives)
Source: Stempel et al. 2012

Steps towards a clean circular economy



Plug leaks

- Nurdles: plastic supply chain
- Artificial Pitches: use & recycling

Design in & design out

e.g. use alternatives to harmful pollutants

- Plastic cotton buds
- Flame retardants
- PFAS
- Bisphenols

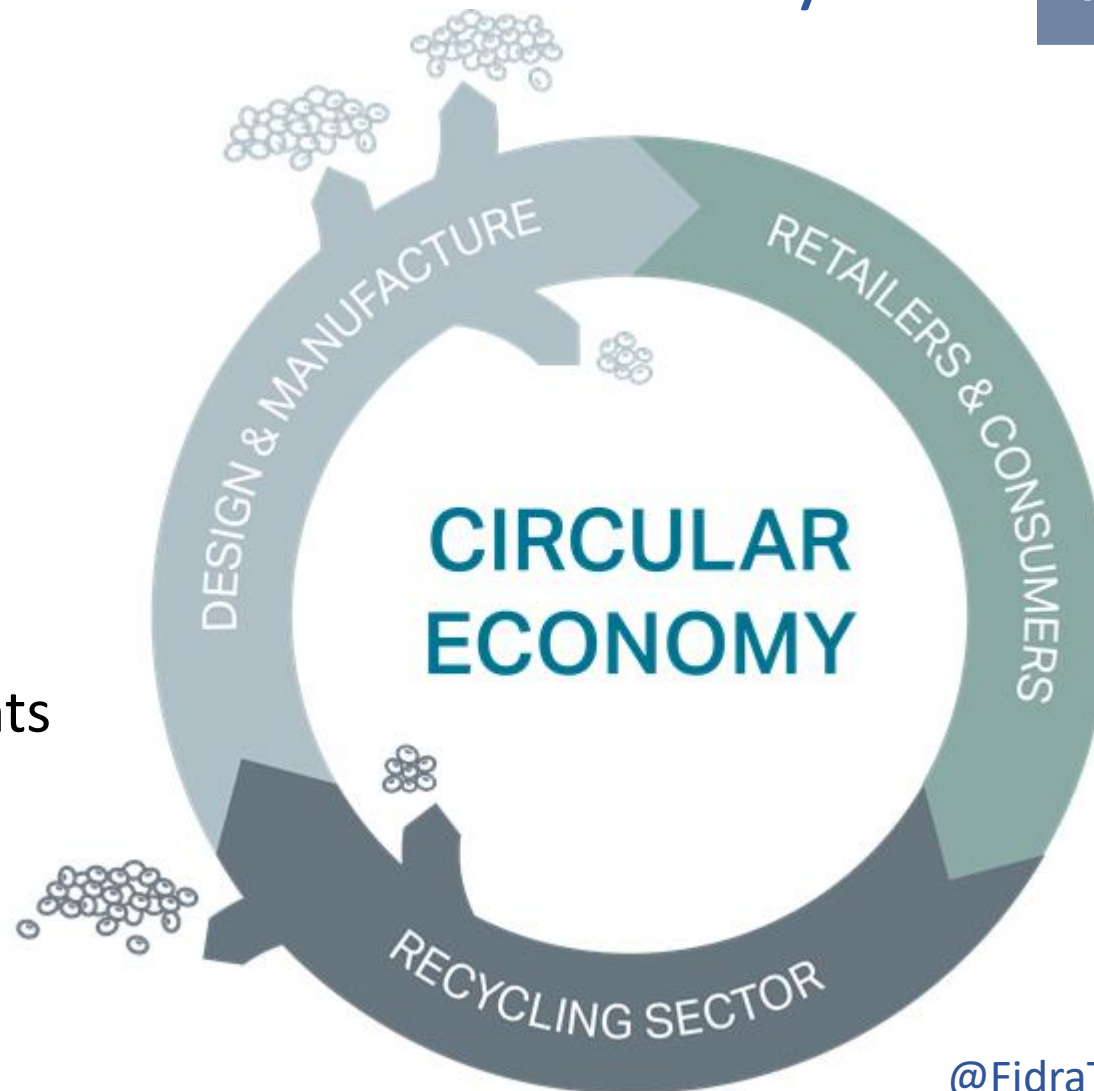


Image Source: FFI

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Steps towards a clean circular economy



Get real at every stage & every step

Engage industry, retail, consumers, recyclers and regulators

e.g. Packaging from polystyrene, compostables and reusables

e.g. Best Fishes: Can we minimise environmental impacts of Scottish salmon farming?

Recycled ideas



- Restrictions on materials and chemicals: PFAS in food contact; bisphenols in receipts
- Limits on pollutants
- Taxes on chemicals e.g. plastic additives, chemicals in textiles
- Ecodesign principles
- Green chemistry
- Essential use

Clean Circular Economy

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