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Innovation for Sustainable
Development Network

Session on Driving Circular Economy Transition

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Greening Growth Partnership & EEPRN Annual
Symposium, Canadian Museum of Nature,
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Global push for low-carbon economies...



UCL

COP 21 Paris: a disruptive paradigm shift towards low-carbon economies



Limit Temperature Increase
to well below 2° C



Reducing GHG
Emissions by
~ 80 - 90% by
2050/2100

Will encourage eco-innovation,
but along with risks of
“Stranded Assets” for fossil fuel
based industries

[doi:10.1038/nature14016](https://doi.org/10.1038/nature14016)



BlackRock's Larry Fink climate crisis
letter to CEOs Jan 2020



News > UK > UK Politics

Theresa May announces legal commitment to end UK's global
warming contributions by 2050

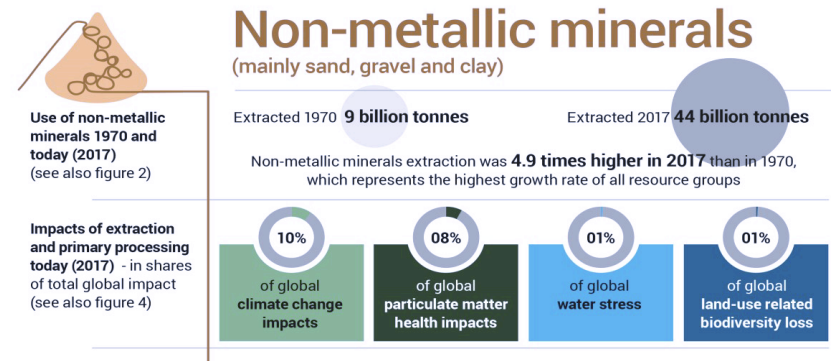
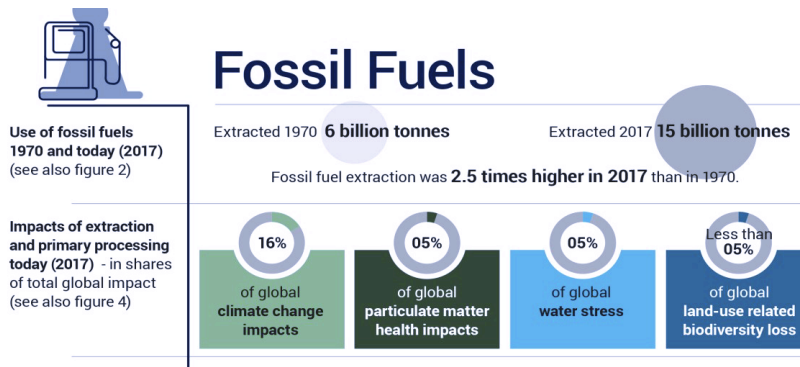
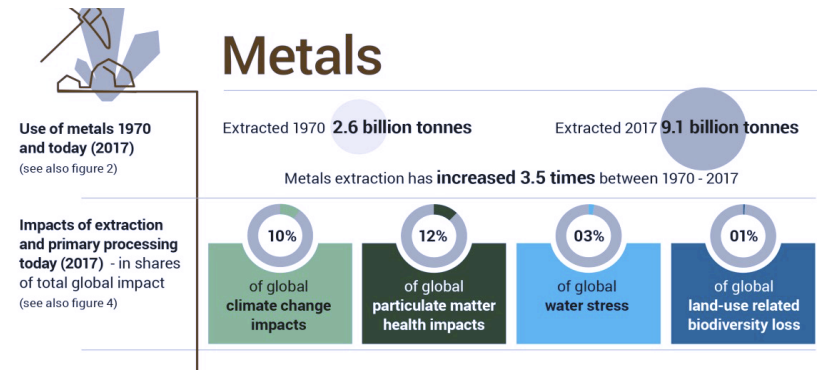
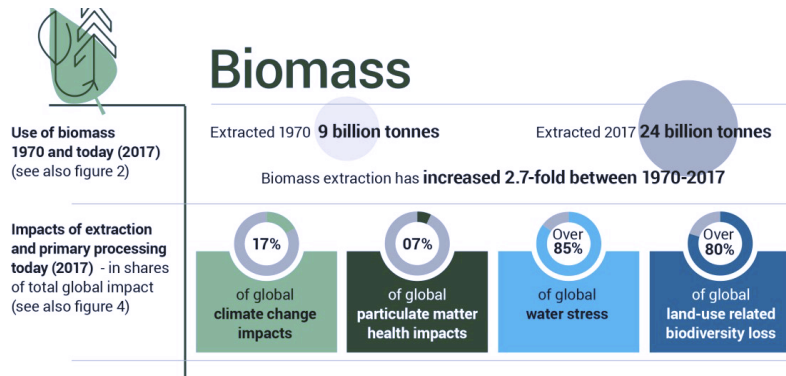
PM introduces legislation enacting target of net-zero greenhouse gas emissions by 2050



Linear Growth Model Needs to Change



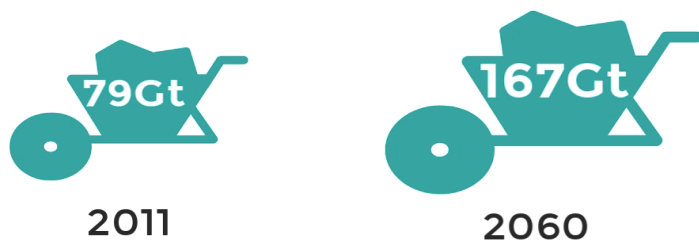
Using 2.5 – 5 times more resources 1970 – 2017



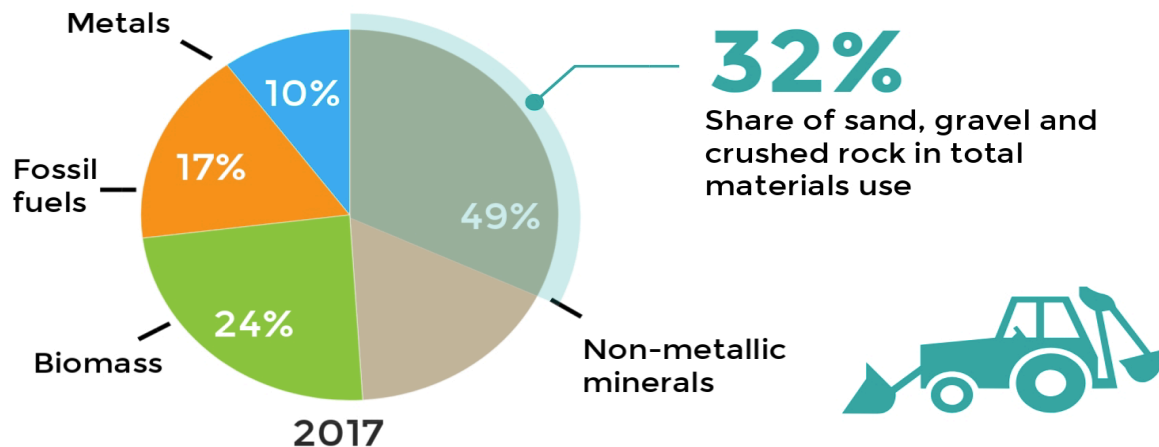
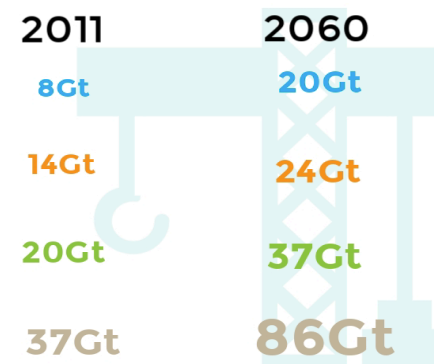
Source: UNEP IRP 2019

Dynamic Demand Increase Projected for 2060 UCL

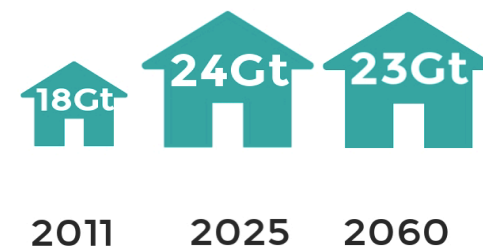
Materials use increase



-  Metals
-  Fossil fuels
-  Biomass
-  Non-metallic minerals



Construction materials use stabilises in China after 2025

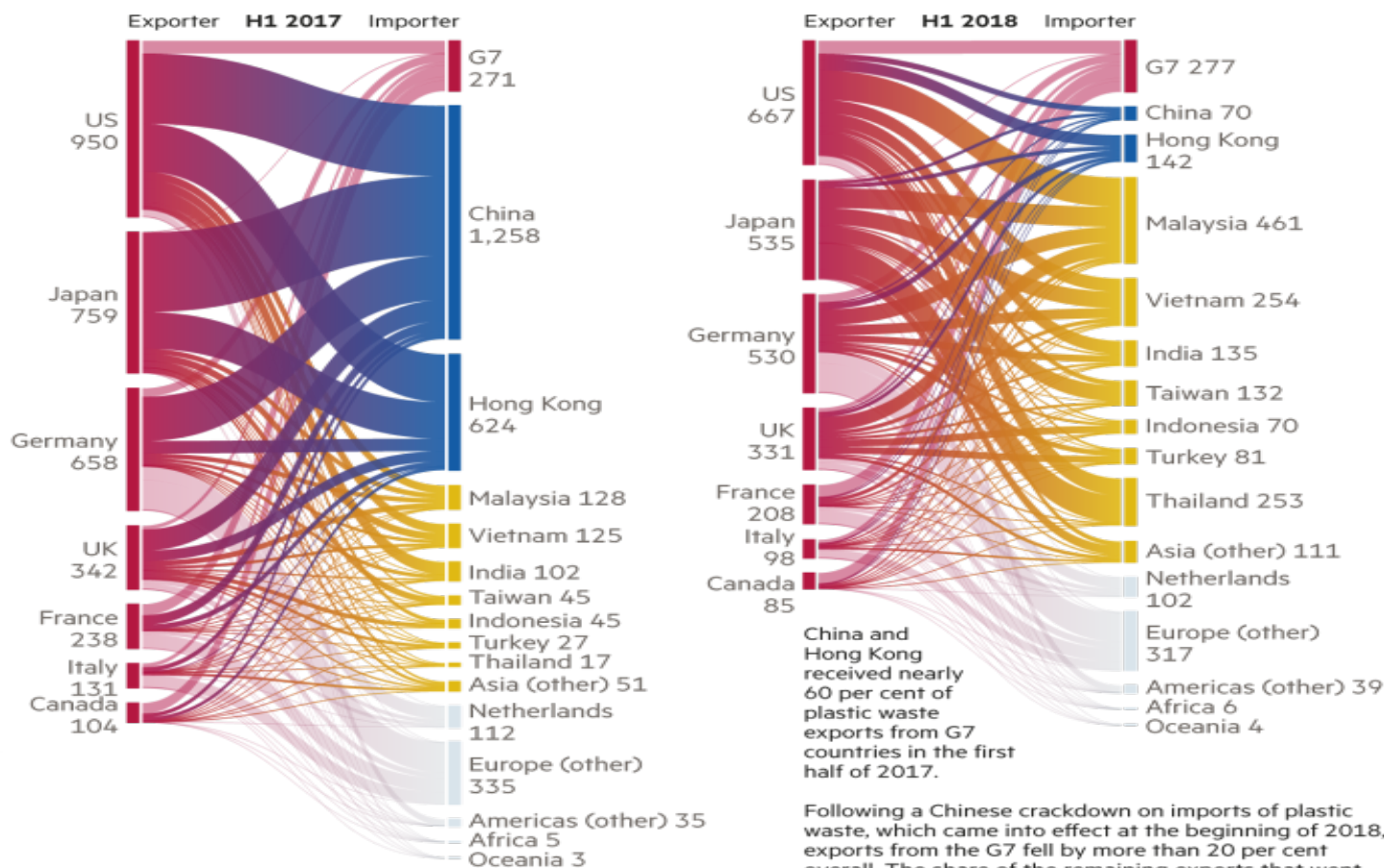


A New Plastics Economy Emerges

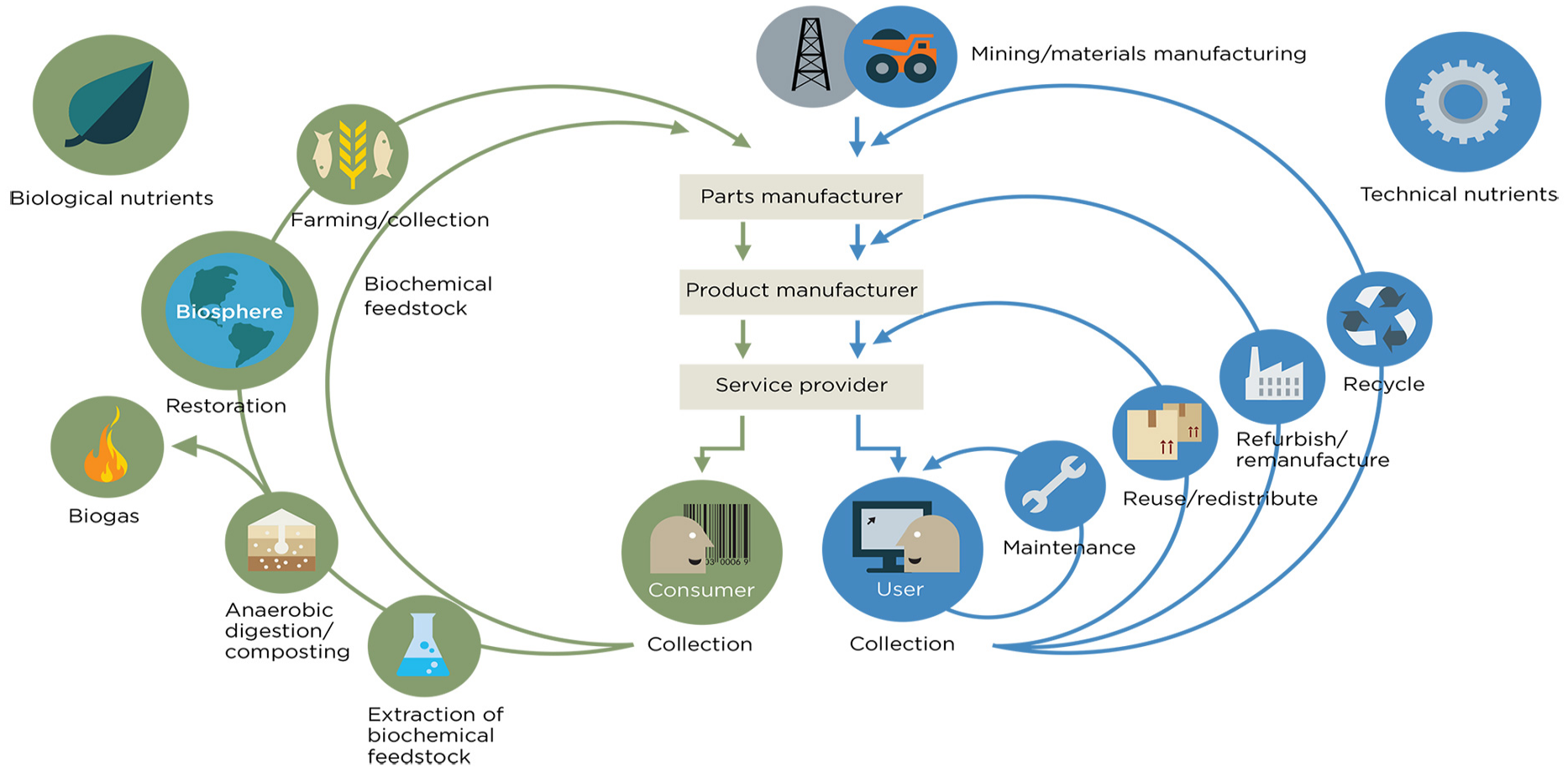
Plastic waste and the 'China Shock'

How the global river of plastic waste changed course in just 12 months

Exports of plastic waste, parings and scrap from G7 countries ('000 tonnes)

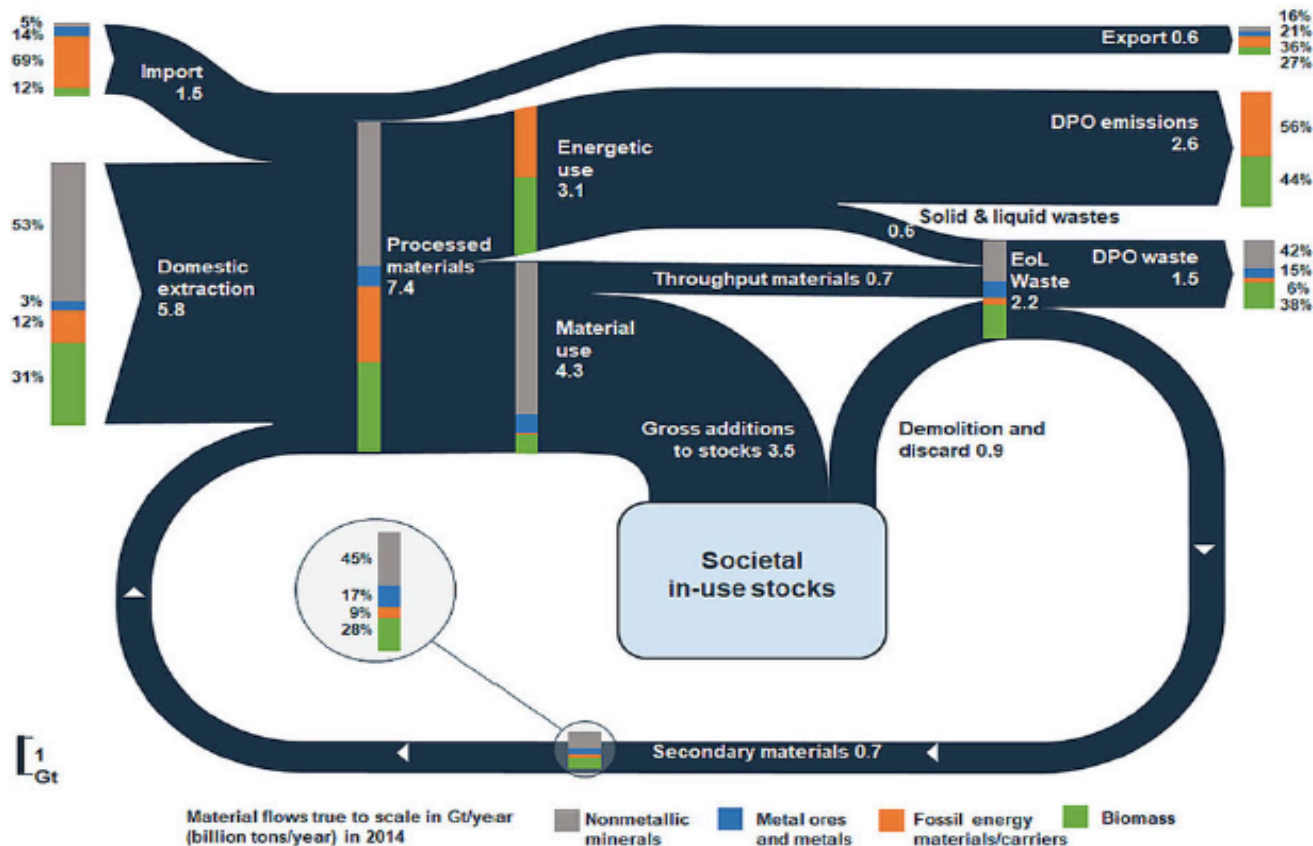


The Shape of a Circular Economy

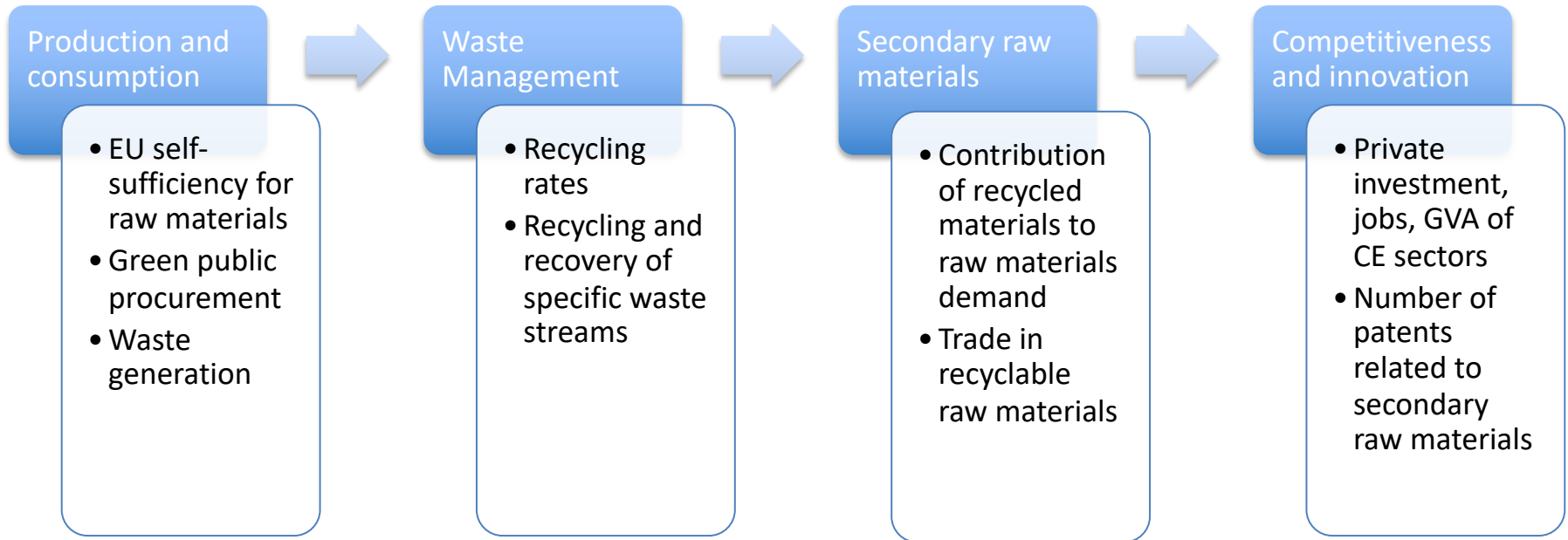


So how 'circular' are we today?

Just around 6% globally (EU: 9,6%)



So how do we get there?



CE Monitoring Framework (EC, 2018)

Mobilising New Alliances

Coalitions of the Willing, 1st and 2nd Mover, Up-scaler



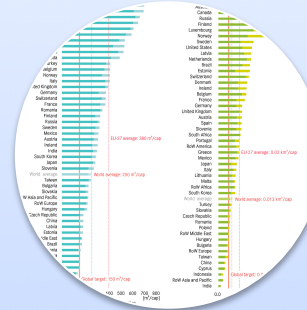
New Plastics Economy

- HM, Unilever, Pepsi Cola, Nestle...
- Various Regulations
- Ambitious Targets: 100% by 2025
- Research on DCs to add



Green ICT and FabLabs

- Fits to Low Carbon & CE
- Open access and inclusive institutions
- Cases for Africa



Footprints & LCA

- Methods and data on carbon, water, materials well established
- In line with 'scope 2 + 3' inventories
- Interest from investors and business
- More EPDs and PCFs



Transparency

- Emerging in anti-corruption efforts
- Certification for conflict minerals (case: Coltan)
- EITI and due diligence
- Implementation, enforcement and...extensions

Evidence on 'what works', mutual learning and assessments, transforming findings into roadmaps

Innovation – and Exnovation: Pillars for Just Transitions

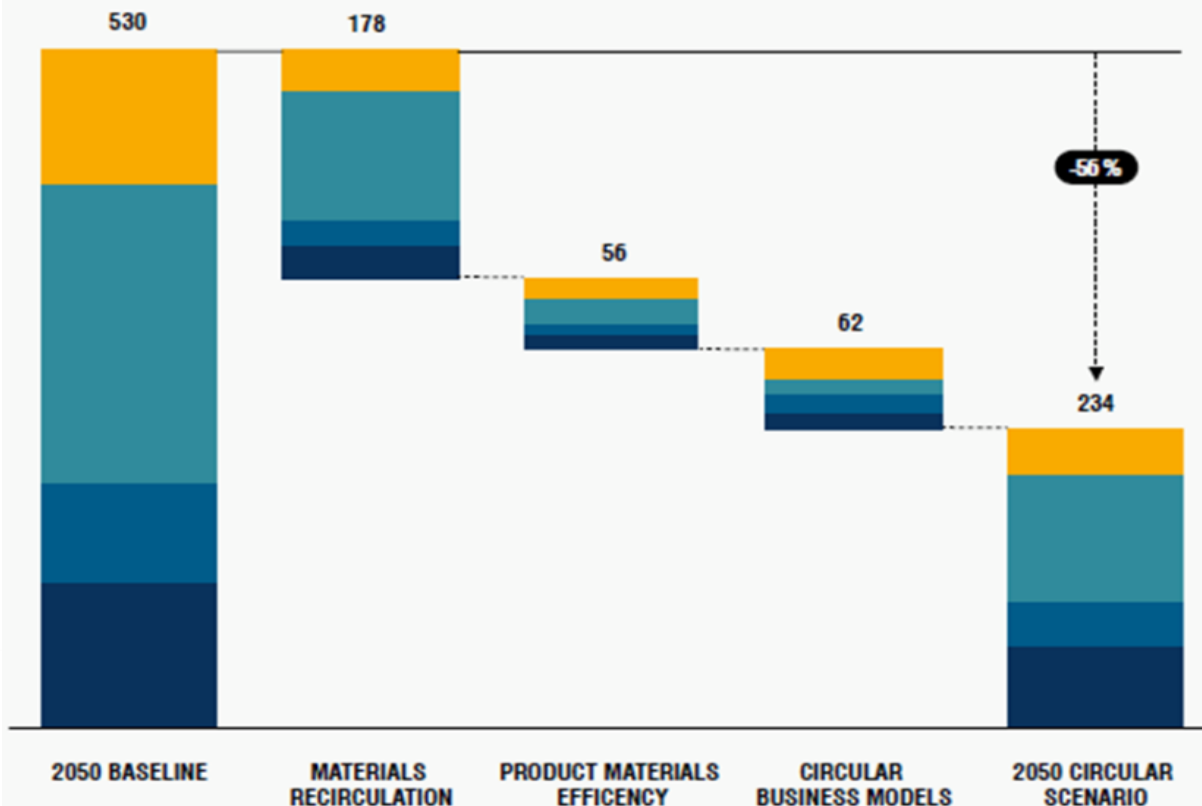
- Introducing heat pumps alongside existing boilers
- Logistic companies purchasing e-vehicles alongside efficient diesel trucks
- Green shift towards secondary steel: estimated benefits in China of USD 819 billion by 2030, plus benefits for DCs

=> To establish trust, enhance market introduction, decrease cost, transform infrastructures

Implications of a Circular Economy

EU EMISSIONS REDUCTIONS POTENTIAL FROM A MORE CIRCULAR ECONOMY, 2050
Mt of CARBON DIOXIDE PER YEAR

STEEL PLASTICS ALUMINIUM CEMENT



**Environmental
and resource
implications of
moves towards
a circular
economy**

Source: Material Economics
2018, Exhibit 1.5, p.19

Engaging Mining and Minerals ?!



Resource-efficient Mining

- Reducing mining waste, apply REN, sustainable water use
- Selective mining for by-products
- Manage ecosystems (TEEB) and land use



Circular Economy Knowledge

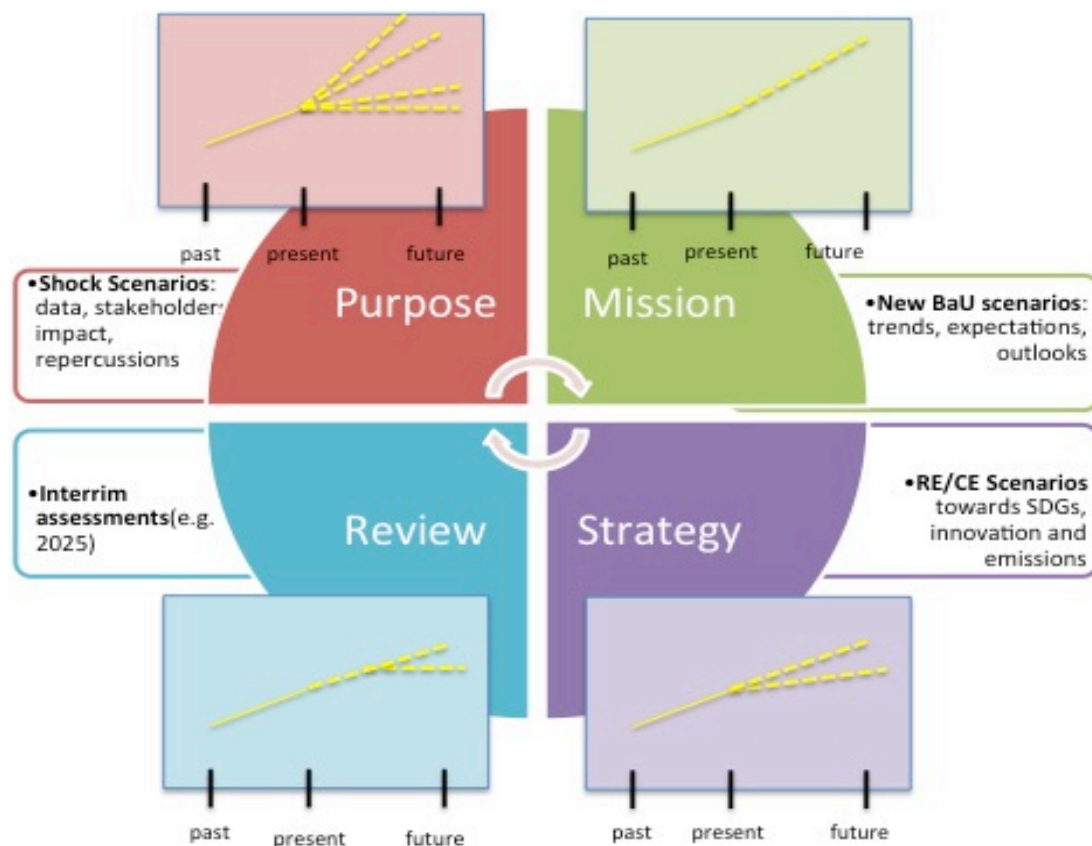
- Refineries to deliver critical materials, close loops with recycling
- International recycling for metals
- Tracing consumer goods
- Hub on secondary materials



Urban Mining

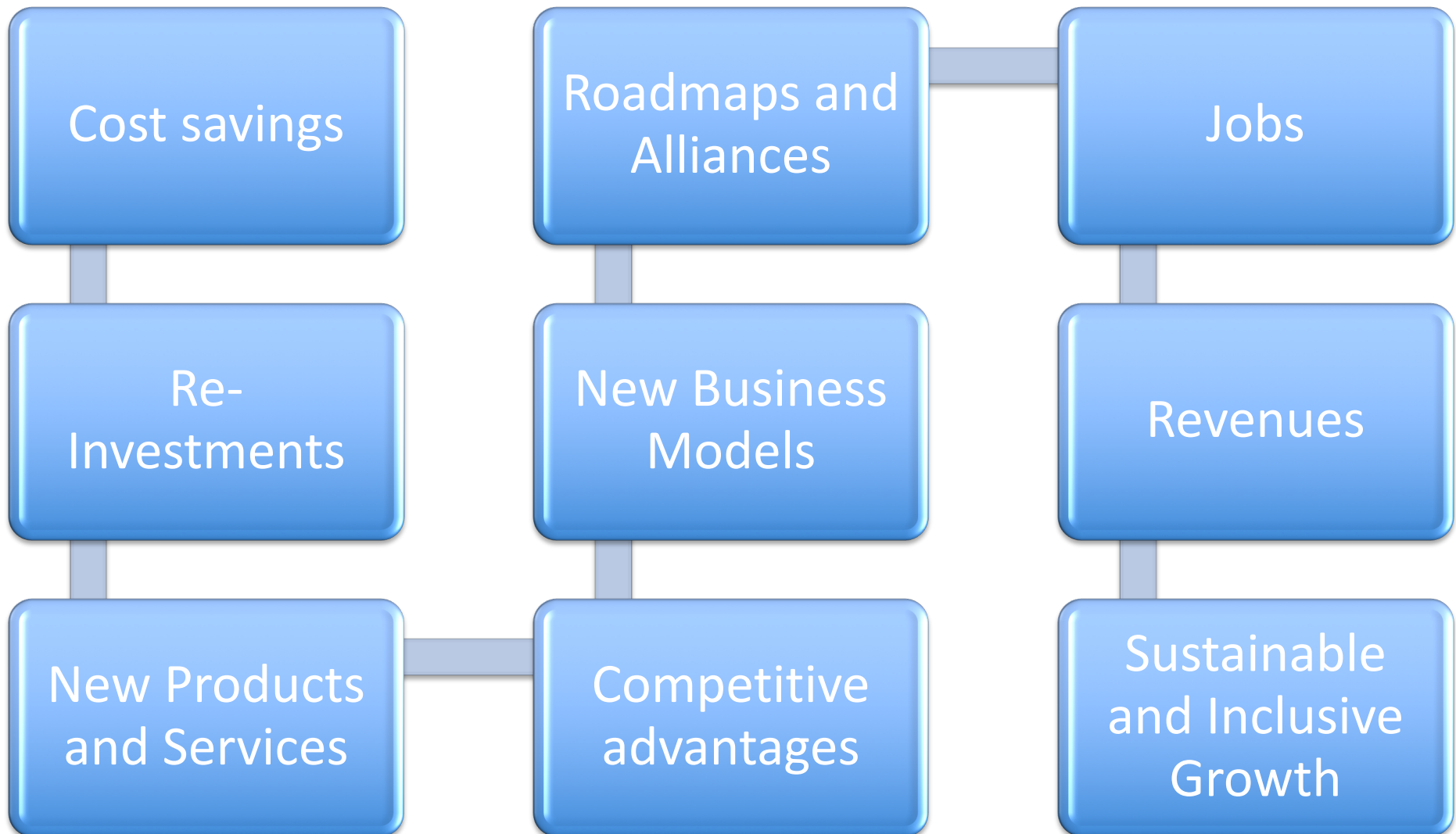
- Anthropogenic stocks in products and infrastructures
- Re-open landfills
- Prepare for Asia 2.0

New Scenarios and Roadmaps



Roadmaps on transformative pathways for key industries and product systems

...a Take on New Economic Dynamics



A wider strategy for CE



- 1) A Global Database capturing EPDs & PCFs, interlinkages between using resources, stocks, production costs and market trends
 - 2) Platform for knowledge and learning
 - 3) International Alliances for Large-scale Experiments
 - 4) Standards for performance measurement, reporting, accounting and for future products
 - 5) Policy mechanisms on enforcement, dispute settlement, sanctions, preferably through an international agreement
-and – do National Innovation System cease to exist, to be replaced by international networks of innovation?





Thank you

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www.bartlett.ucl.ac.uk/sustainable, <https://www.inno4sd.net/>