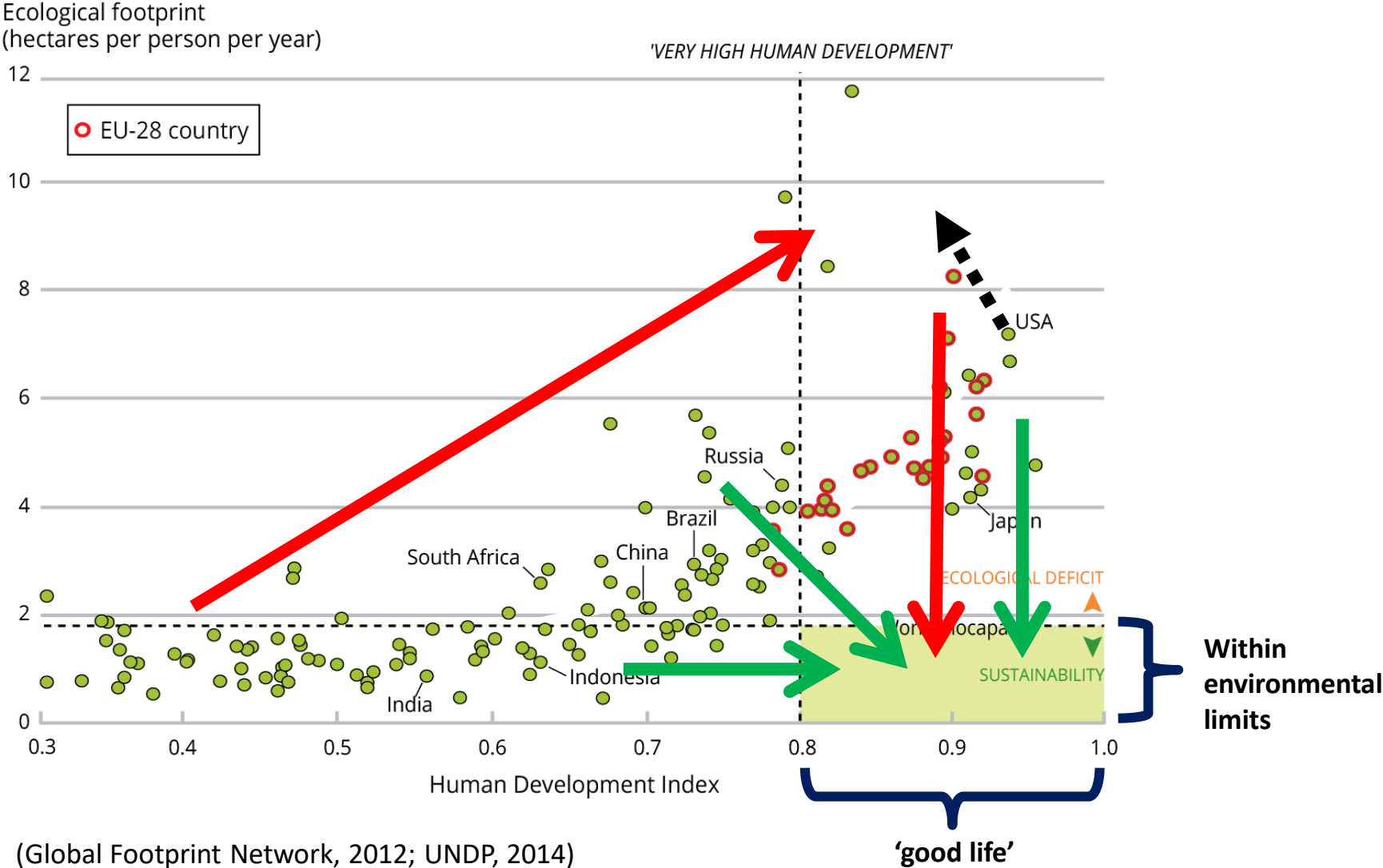


Towards a sustainable economy through technology and innovation



Impact Event, Bio Base Europe Pilot Plant, Gent
Dr Hans Bruyninckx, 19 February 2018

Challenge of the 21 century: 10 billion people, one planet



(Global Footprint Network, 2012; UNDP, 2014)

Global response: Sustainable Development Goals



Vision of the 7th Environment Action Programme

'In 2050, we live well, within the planet's ecological limits.'

Our prosperity and healthy environment stem from an innovative, **circular economy** where nothing is wasted and where natural resources are managed sustainably, and **biodiversity is protected**, valued and restored in ways that enhance our society's resilience.

Our **low-carbon growth** has long been decoupled from resource use, setting the pace for a global safe and sustainable society.'

Source: 7th Environment Action Programme, European Commission, 2013

Policy developments

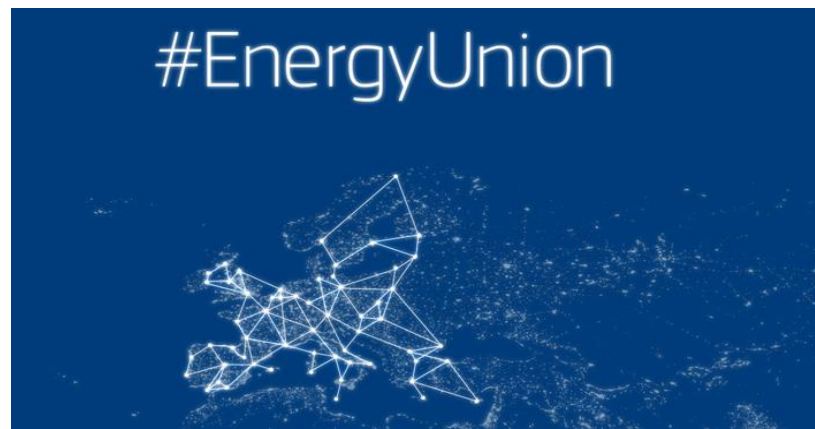
Macro-integrated policies

- “The Union has set this transformation in motion with long-term, integrated strategies” 7EAP

Circular Economy



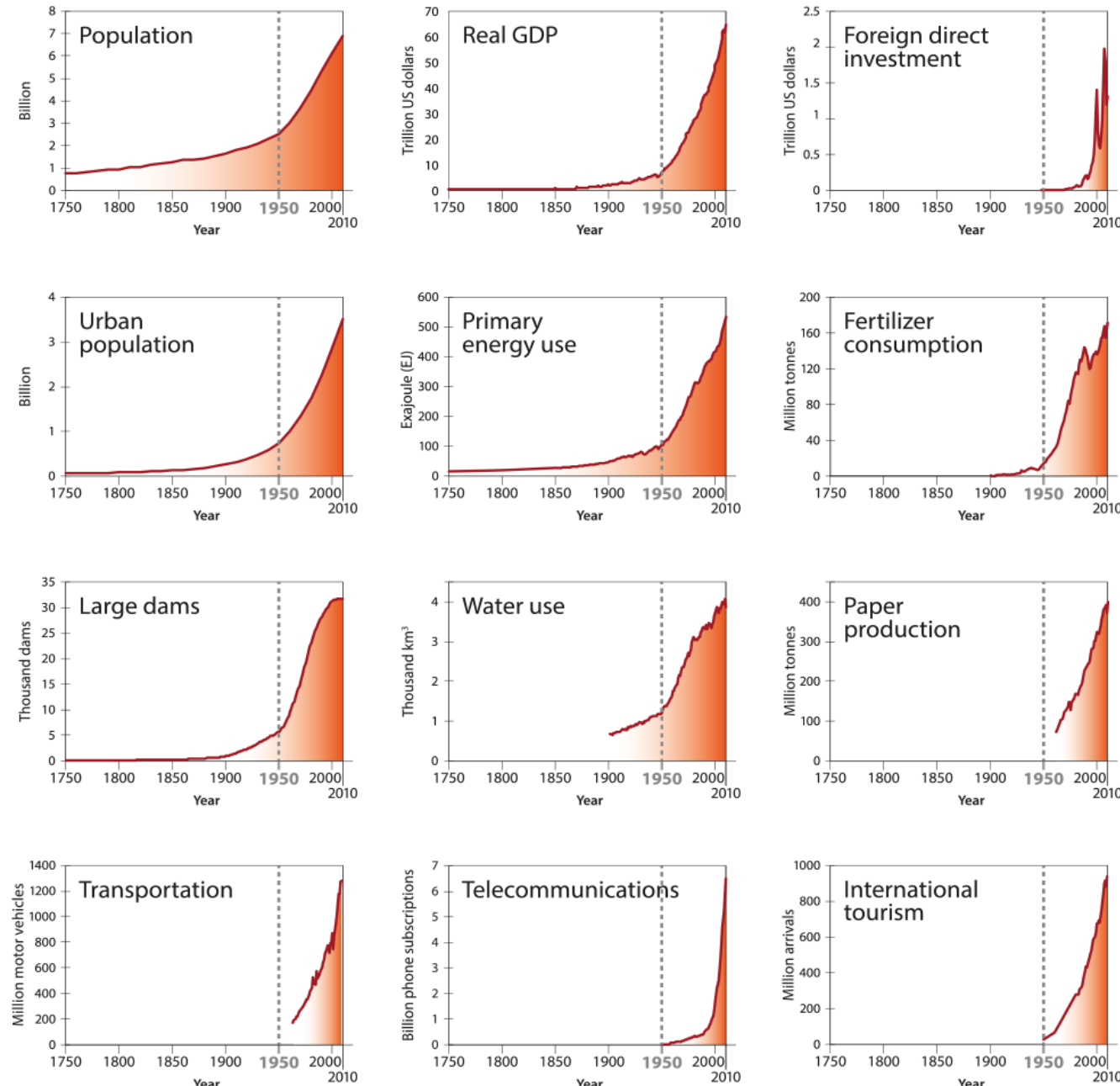
Low Carbon Economy



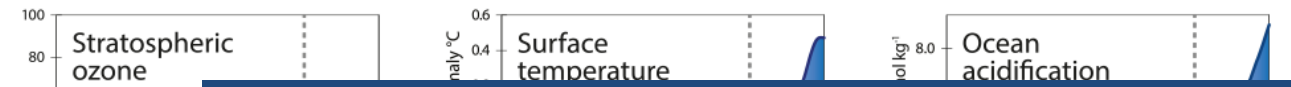
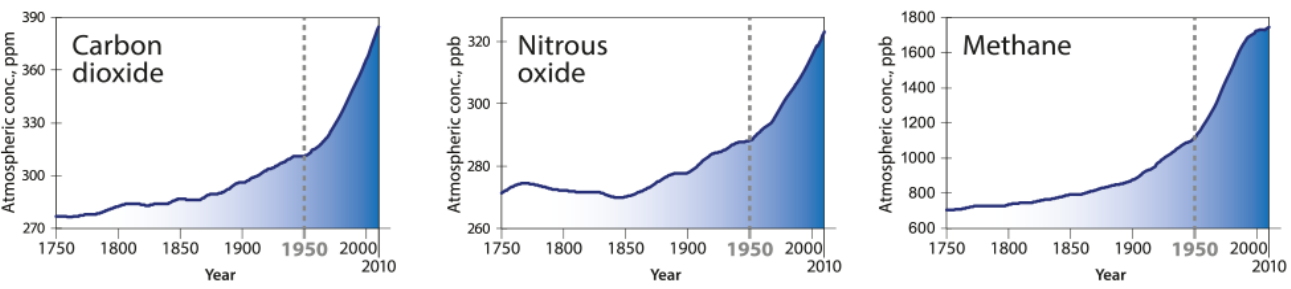
Bio-Economy



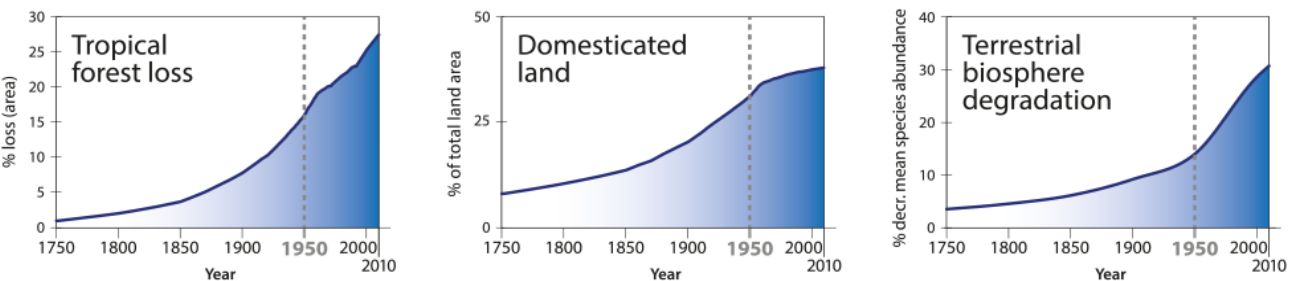
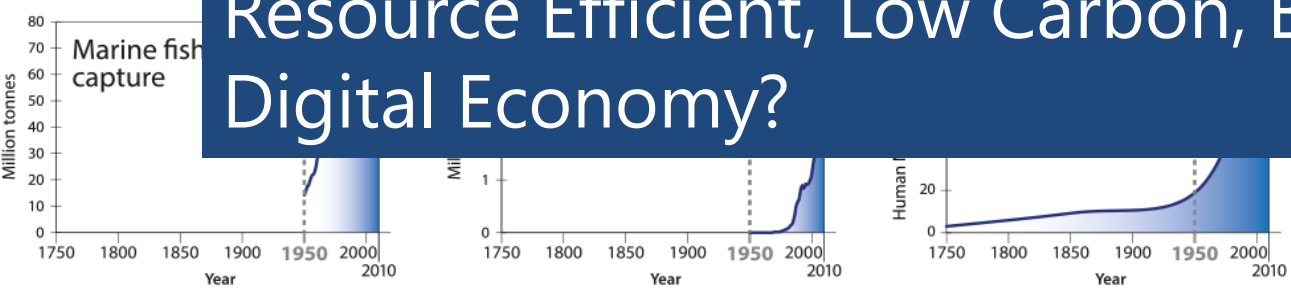
Globalisation of unsustainable systems of production and consumption



Expectations/
policy promises



Europe's emerging transition agenda
 Making sense of the Green, Blue, Circular,
 Resource Efficient, Low Carbon, Bio, Smart,
 Digital Economy?



How **credible?**
 What sort of
knowledge,
technology and
innovation?

Circular and Bioeconomy: responding to broader concerns

- Often used interchangeably or as re-enforcing approaches as they converge around
 - an economic agenda
 - a resource agenda: scarcity and security
 - an environment and climate agenda
 - a research and innovation agenda
 - a policy agenda: more coherence
 - a societal transition agenda
 - an aspirational agenda: a sustainable future

Stronger integrated and sustainability vision on both is needed

- Popular visions
 - Bioeconomy is circular by nature
 - Two-cycle principle
- Yet, key issues need to be addressed
 - Balance between the different uses of biomass
 - Danger of overuse of biomass and ecosystem degradation
 - Ecosystemic fundamentals: soil quality, biodiversity, ecosystem services, water quality, ...
 - Socio-economic aspects: rural development, SME, employment

A systems perspective for the Bioeconomy

- More than changing 'materials' in economic cycle
- Harnessing the full potential of bio-materials
- Impact of scaling up innovations
 - Supply limitations and systems
 - Logistics
 - Sorting, recycling, waste systems and infrastructure
- Balancing innovation with precaution

- Using system-design principles
 - Material use
 - Waste management
 - Consumer behaviour
 - AND coherent policies!

Thank you

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