

# Circular Economy and Digital Transformation Key Enablers of Arctic Sustainable Development

Sirpa Pietikäinen,  
MEP  
2017

# Arctic region

- Approximately four million people live in the region including indigenous peoples
- Growing geopolitical importance of the Arctic region
- Vulnerable ecosystem
- Arctic sea ice has diminished significantly since 1981
  - threatening to release huge amounts of carbon dioxide and methane into the atmosphere
- Melting glaciers contribute to globally rising sea levels

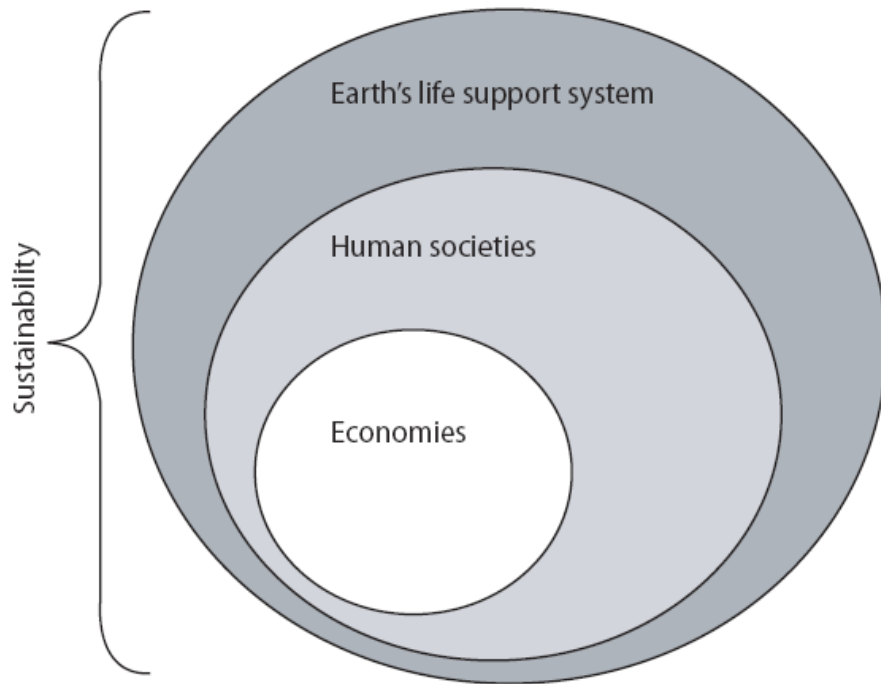
# Comprehensive approach to defining "resource"



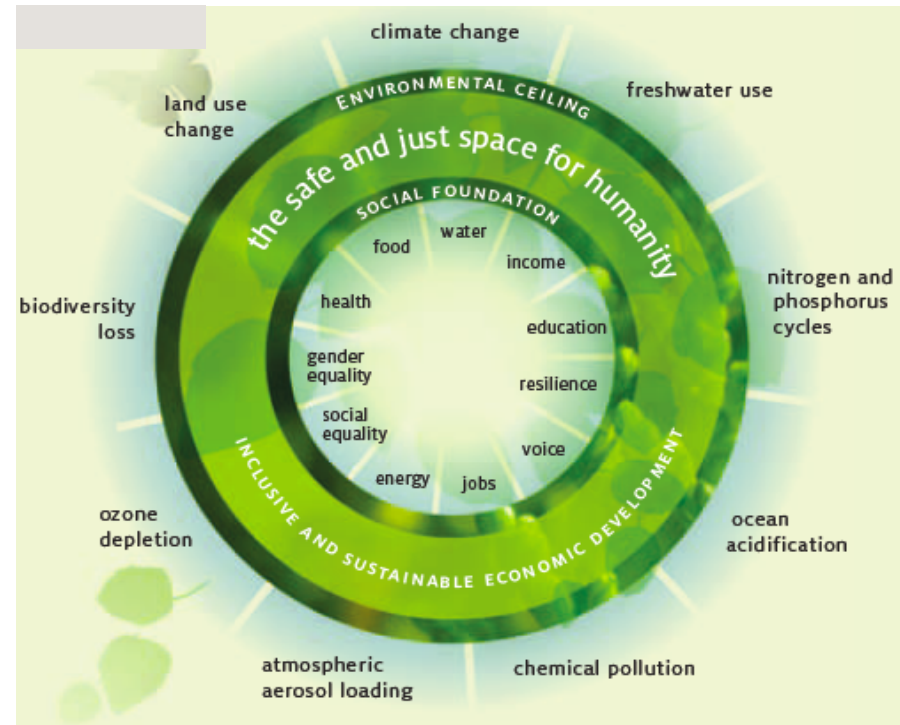
- Resources are not only raw materials such as oil, gas, metals, but also
  - clean air
  - clean water
  - biodiversity
  - ecosystem services ....

# Paradigm change

Old: industrial, cartesian, thinking in silos



New: holistic



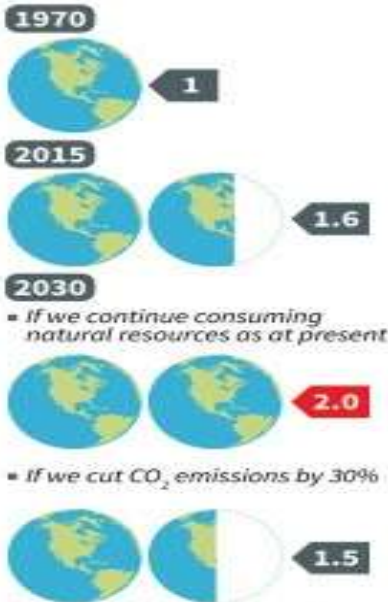
Rockström&Wijkman: Bankrupting Nature (2012)

# We only have one planet

## Earth Overshoot Day

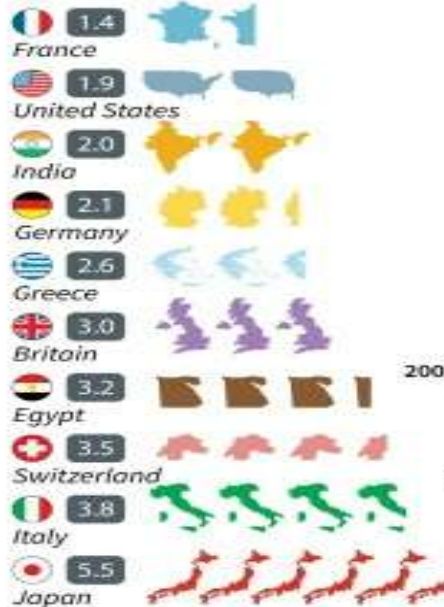
The date when humanity's use of natural resources in a given year (ecological footprint) exceeds what the Earth can regenerate in that year

▲ Number of Earths needed to sustain human activity



Source: Global Footprint Network

▲ Consuming more than they can generate (selected countries)



▲ Overshoot Day happens earlier each year

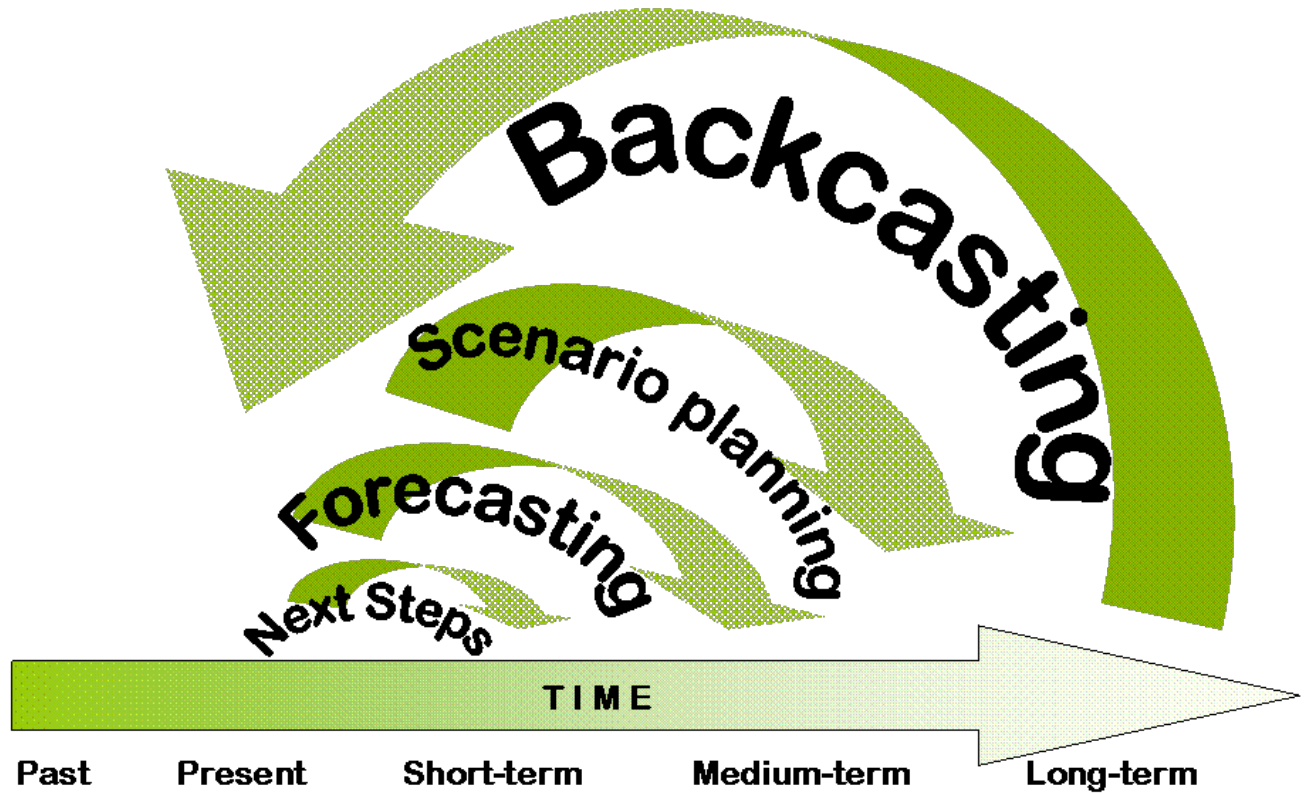
■ Days before overshoot is reached  
■ Days living over budget

In 2015, we used up the planet's annual resources by the 222<sup>nd</sup> day of the year (Aug 13)



AFP

Answer needs to be in line with the challenge



# Disruptive Changes

- Circular economy
- Digitalisation

# Resource Efficiency

- Circular economy
- Cascading use of resources
- Waste hierarchy
- Extended producer responsibility
- Sustainable procurement
- New business models



# Circular Economy

- Non-renewable energy sources – recycled in a closed system, used within limits set by sustainability
- Waste is eliminated by design from the system
- Any waste that is generated is collected efficiently and used for the production of new goods
- Virgin raw materials are used only when recycled materials are not available

# Digitalisation

- European Commission: Digital Single Market
  - New technology: internet, cloud computing, big data and data analytics, robotics and 3D printing
  - electronics for automotive, security and energy markets, telecom equipment, business software, and laser and sensor technologies
  - services: eHealth, modernising public services, digital skills, digitising industry, artificial intelligence
- Platform economy
  - enables resource efficiency
  - from Marriotts to Airbnb; car sharing
  - mobility as a service: services that come home using new forms of transportation (drones)
  - digitalisation of logistics: making transportation and shipping more efficient, automatisation of plastics sorting

# Possibilities for the Arctic

- Increased access to natural resources
  - Shipping routes and fishing routes
  - Increased wood growth
- Big data
- Use of information
- Virtual connectivity
- Innovation platform – possibilities for joint development of digital solutions
  - Mobility
  - Remote diagnostics
    - eHealth
  - Environmental research

04/10/2017

Thank you for your  
participation!

More information available on  
[www.sirpapietikainen.eu](http://www.sirpapietikainen.eu)



Sirpa Pietikäinen