ATV'S SUSTAINABILITY RELATED ACTIVITIES

CAETS Working Group: Engineering for SDGs
May 25th, 13-15

Martin Bech, PhD
Senior Advisor – Danish Academy of Technical Sciences
Contact info: mab@atv.dk / +45 3024 9959

Danish Academy of Technical Sciences

ATV

- Established in 1937
- App. 800 members
- Internationalization via strategic partnership with Innovation Center Denmark, located in seven innovation hotspots around the world

TOPICS

- Technology for Sustainability
- HealthTech
- Digitalisation
- Technology and Society
- Future of Production

SUSTAINABILITY – A (RELATIVELY) NEW TREND

Sustainability paradox?

The 2021 SDG Index scores

Rank	Country	Score
1	Finland	85.9
2	Sweden	85.6
3	Denmark	84.9
4	Germany	82.5
5	Belgium	82.2
6	Austria	82.1
7	Norway	82.0
8	France	81.7
9	Slovenia	81.6
10	Estonia	81.6

Sustainability paradox?

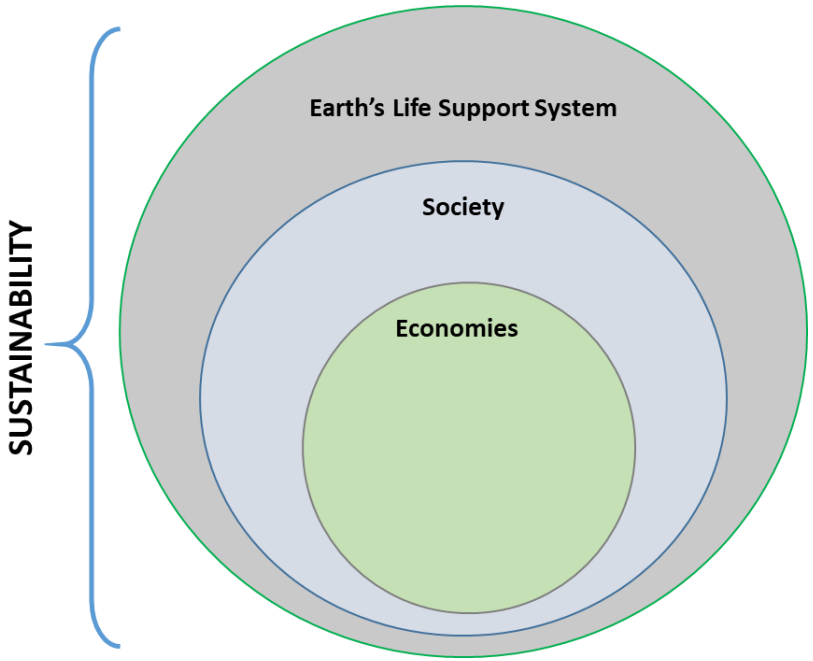
ATV

Why is sustainability so difficult?

A definition
Sustainability is to meet the needs of current and future generations within the bio physical limits of the Earth's Life Support System

But -

- Absolute Sustainability
- Whose needs, how much?
- Who sets the limits?
  - Politicians
  - Citizens
  - Scientists (Planetary Boundaries, Science-Based Targets)



Rockström J (2015) Bounding the planetary future: Why we need a great transition.
Great Transition Initiative

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But -

- Absolute Sustainability
  e.g. [Absolute sustainability: Challenges to life cycle engineering — Welcome to DTU Research Database]
- Whose needs, how much?
- Who sets the limits?
  - Politicians, Citizens
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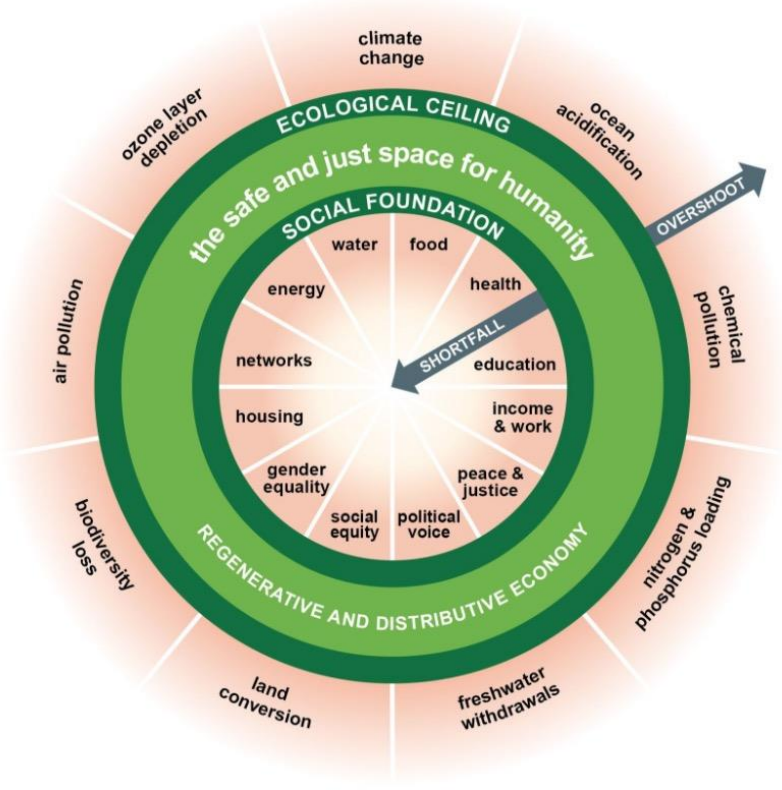


Kate Raworth, Doughnut Economics

Can the SDGs be used to evaluate technology?

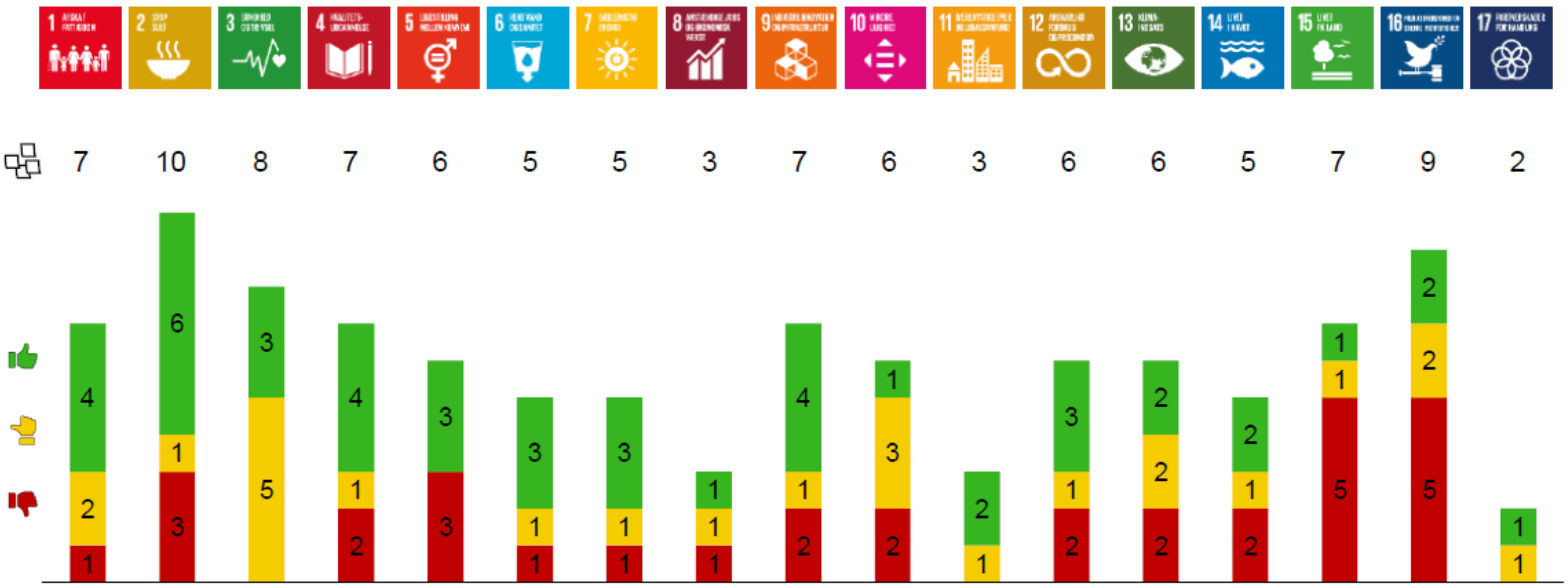


Illustration from ATV project

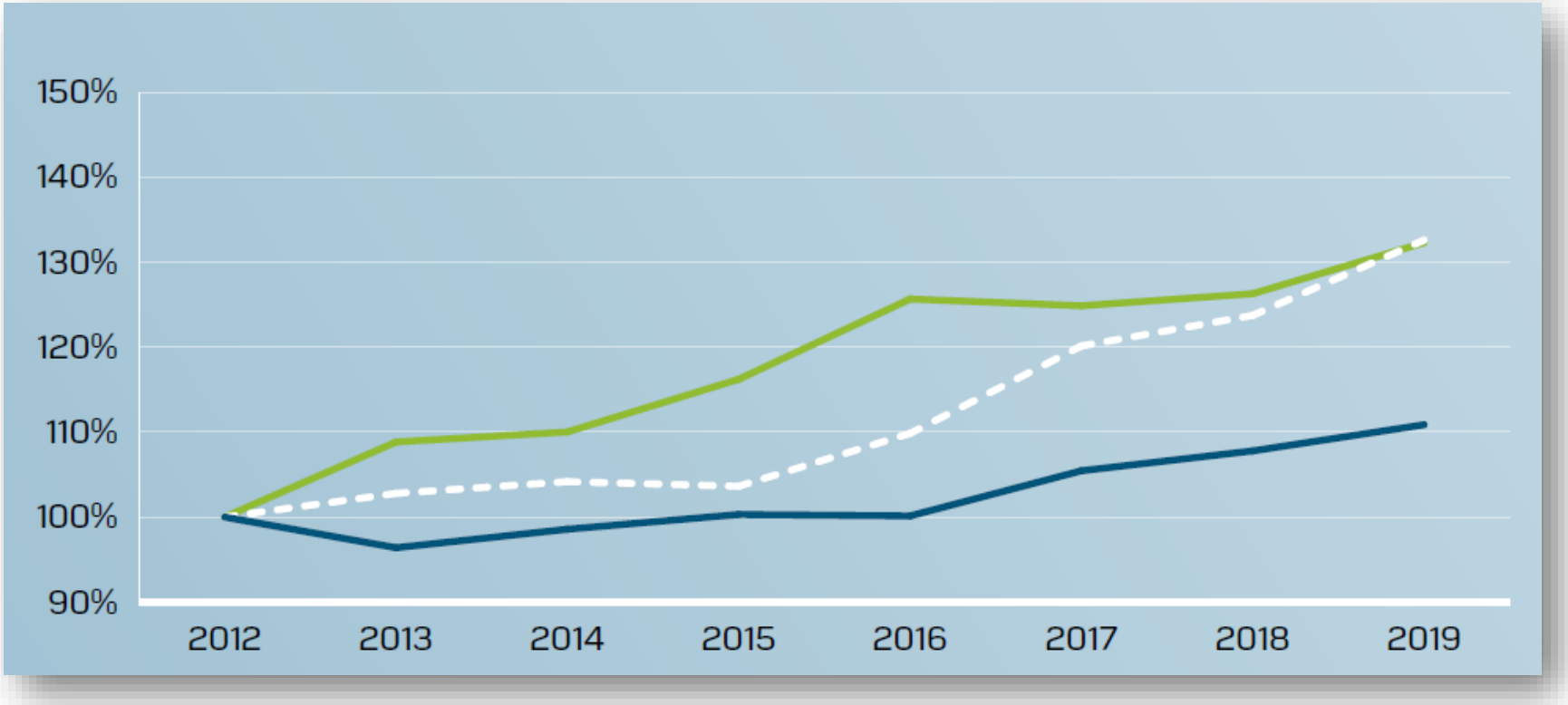
EXAMPLES OF ONGOING PROJECTS

Annual report

BASELINE -
Sustainable industrial production

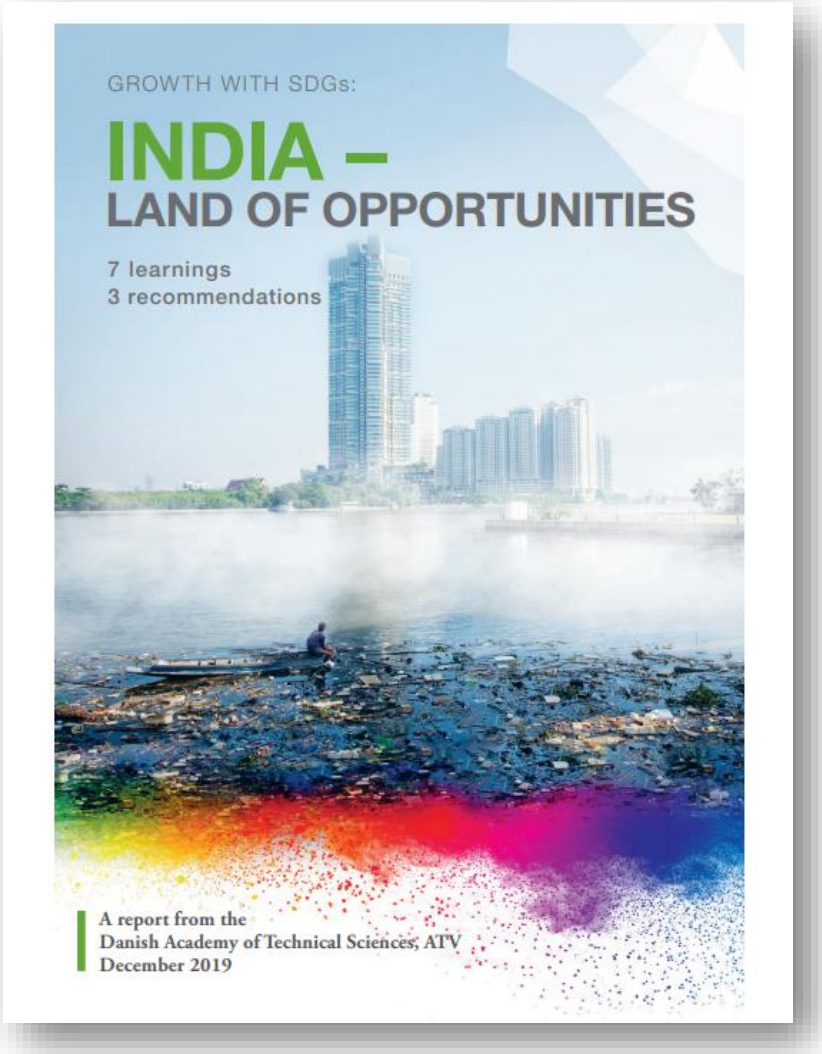
- **Resource use**
- **Water use**
- **Energy use**
- **CO2-emission**
- **Waste generation**

BASELINE -
Resource Use / Resource Productivity



Resource productivity
Gross value added
Resource use (ton)

Report: India land of opportunities (2019)



https://atv.dk/udgivelser-viden/india-land-of-opportunities

Pilot project: echo network, India (2022-2023)

Aim

Establish a platform that allows Danish, Indian and international researchers and scientists to engage in on-the-ground-projects that contribute to a green transition.

Topics

Regenerative Agriculture, One Health, and Ecosystem Valuation.

Tools

- Experts' Dialogue
- Joint research projects as well as student exchange & student projects in collaboration with DK universities
- Advisory

Partners

- www.echonetwork.in
- www.icdk.dk/our-locations/new-delhi-bangalore
- www.novonordiskfonden.dk/en

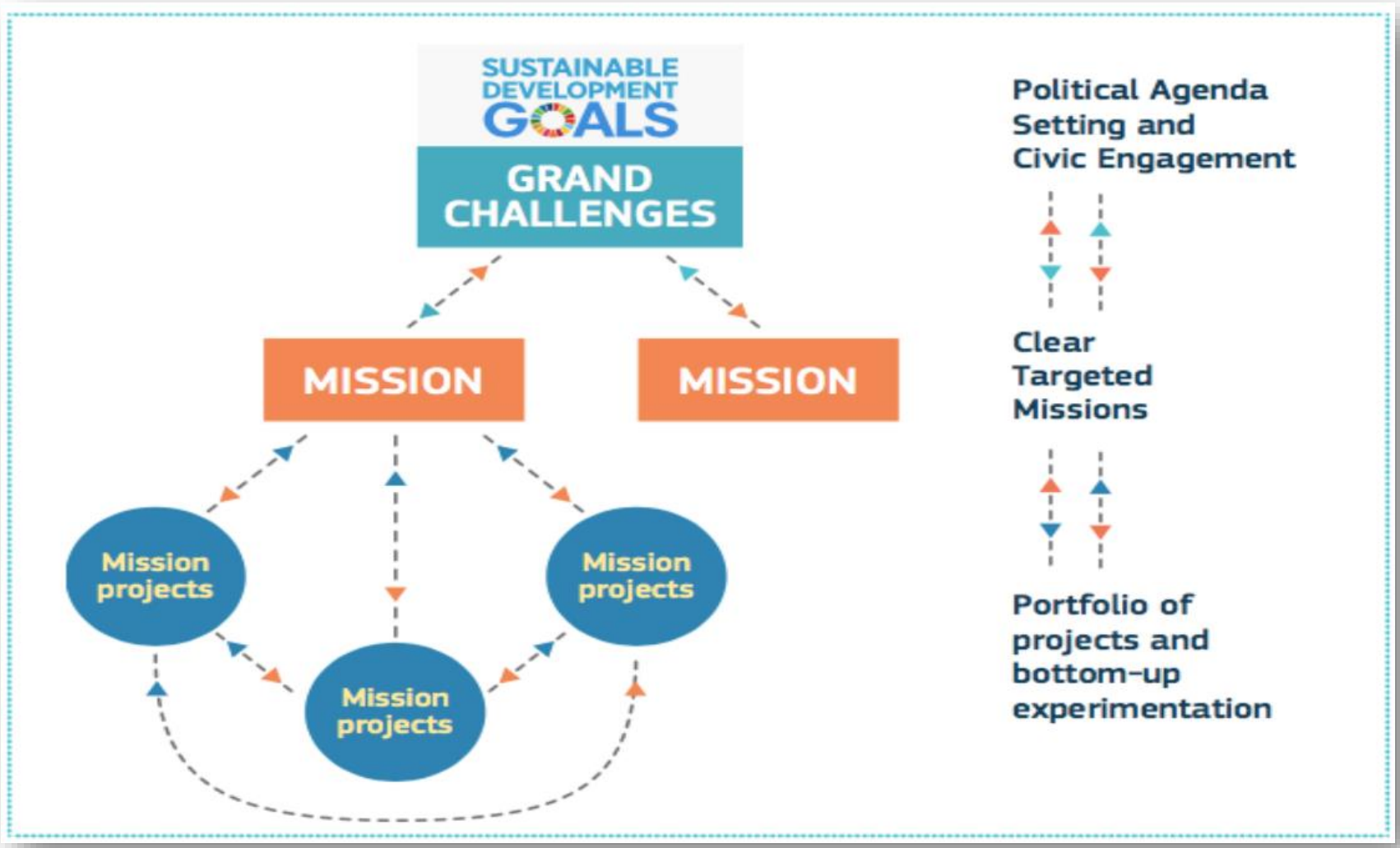
More information

https://atv.dk/sites/atv.dk/files/media/document/English%20version_0.pdf

ATV

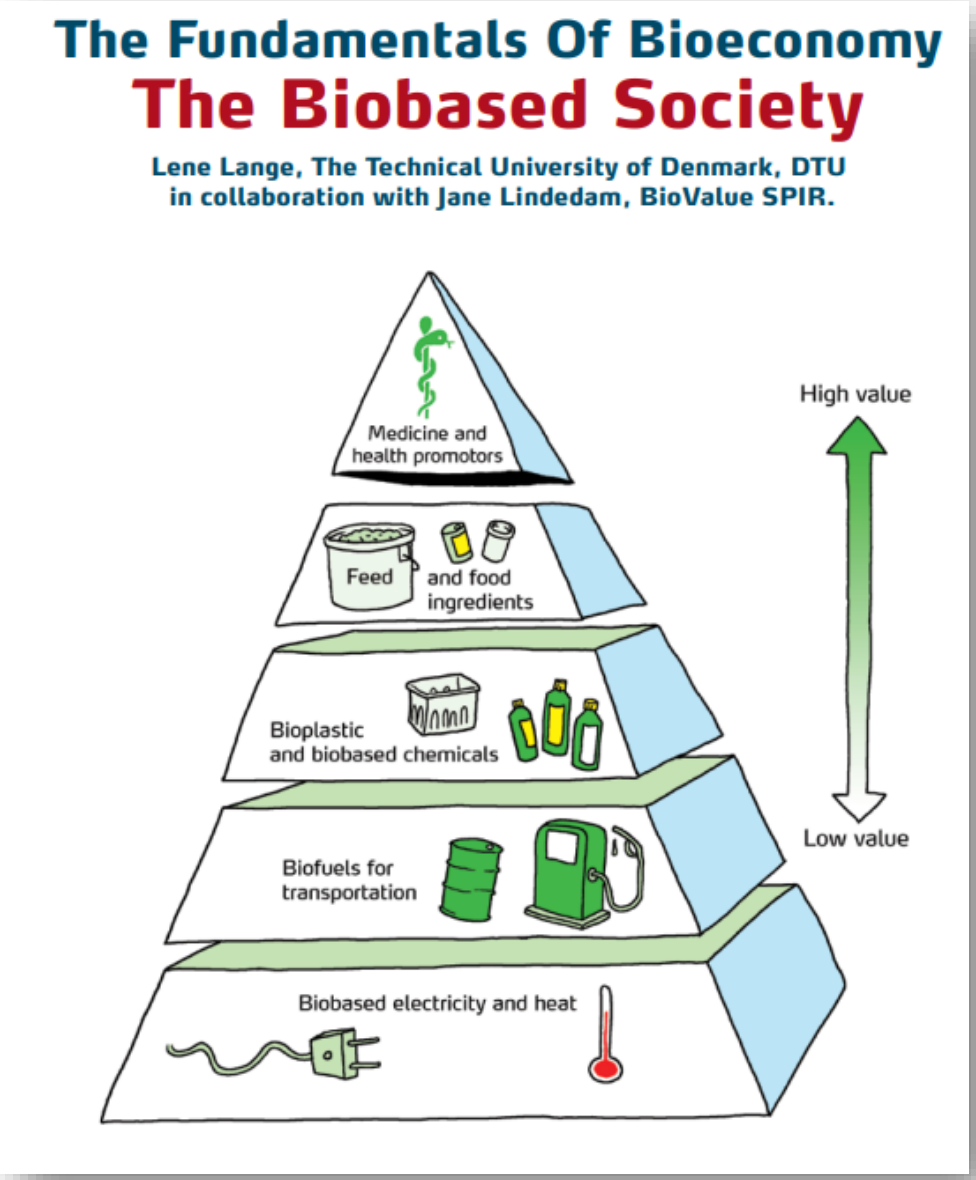
WHAT
IS
NEXT

ATV's Mission Labs – Inspired by Mazzucato (I)



E.g. Mazzucato, Mariana: 'Mission-oriented innovation policies: Challenges and opportunities' (2018)

ATV's Mission Labs – Inspired by Mazzucato (II)



Mission: Establish a legal and regulatory framework for biological production that facilitates the use of different forms for biomass across the value pyramid

https://backend.orbit.dtu.dk/ws/portalfiles/portal/140638164/Lange_L_Lindedam_J_2016_The_Fundamentals_Of_Bioeconomy_The_Biobased_Society..pdf

Three key take-aways

- Still working on finding a good way to integrate the SDGs in ongoing projects as well as analyze their inter-connectivity
- Focusing on five effect indicators for Danish industrial production has been helpful as a means to create awareness about sustainability
- Exploring how a technical academy can initiate a more comprehensive and fact-based dialogue with society and decision makers through mission-based science & engineering


PEACE, JUSTICE AND STRONG INSTITUTIONS
16
17
1
ZERO HUNGER
2
GOOD HEATH AND WELL-BEING
3
LIFE ON LAND
15
LIFE BELOW
QUALITY
6
CLEAN WATER AND SANITATION
7
AFFORDABLE AND CLEAN ENERGY
8
DECENT WORK AND ECONOMIC
9
10
REDUCED
11
SUSTAINABLE CITIES AND COMMUNITIES
12
RESPONSIBLE CONSUMPTION AND PRODUCTION
THANK YOU FOR YOUR ATTENTION!