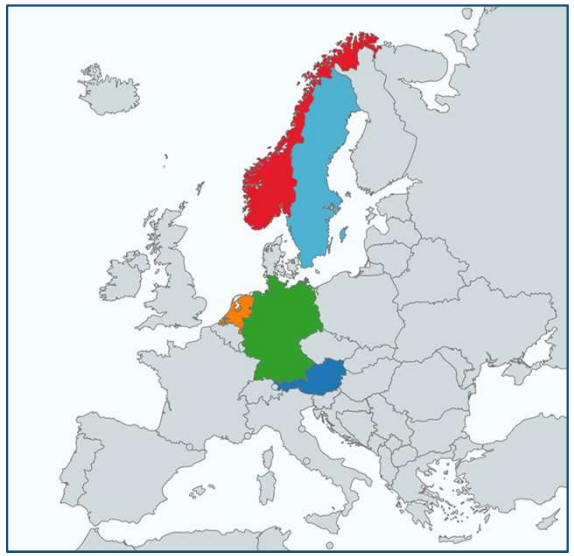
SHAPE

The SHAPE of
Sustainable Development Pathways
for the 2030 Agenda and beyond

Multistakeholder Webinar - June 30, 2020

AXIS | JPI Climate



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Project period: 09/2019 - 08/2022

AXIS JPI Climate

GEFÖRDERT VOM Bundesministerium für Bildung und Forschung

FORMAS

FFG Forschung wirkt.

NWO

The Research Council of Norway

SHAPE Consortium partners

PIK (Germany):
project coordination
integrated assessment modelling

IIASA (Austria):
integrated assessment modelling
Analysis of decent living standards

UU (Netherlands):
integrated assessment modelling
water-energy-land nexus

SRC (Sweden):
stakeholder dialogue
governance of transformations

IASS (Germany):
stakeholder dialogue
co-design of scenarios

DIE (Germany):
governance of transformations
political economy

NTNU (Norway):
industrial ecology
resource footprints

Introducing the SHAPE project

Elmar Kriegler
Potsdam Institute for Climate Impact Research (PIK)

UN 2030 Agenda: **The Future We Want**

Empowering **People**

Providing for **People**

Achieving **Prosperity**

A Healthy **Planet**

Peace and **Partnership**

17 Sustainable Development Goals

Major transformations are needed

to shift to a sustainable development pathway

SDG agenda is holistic

Individual SDGs are mutually enforcing and mostly synergistic.
Achieving all SDGs together is more feasible than achieving some in isolation.

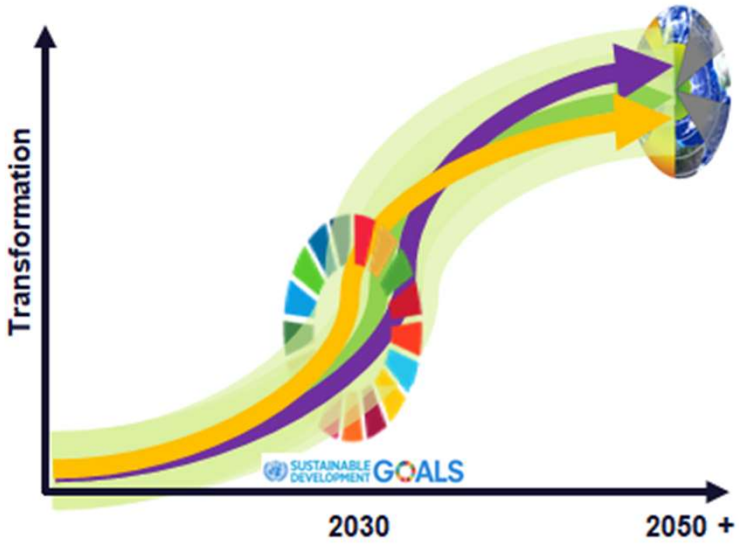
SDG agenda requires „pathway thinking“

A set of major underlying transformations are at the core of sustainable development and achieving the SDGs

Source: Sachs et al., 2019, Nature Sustainability 2: 805–814
See also: TWI2050 Report 2018 http://pure.iiasa.ac.at/id/eprint/15347

Connection to **scenario approaches**

- Scenarios are **not(!)** predictions of the future
- Scenarios explore consequences of action / inaction and implications of goals and limits
- Projections of possible futures:
  What can happen?
- **Goal-oriented / target seeking pathways:**
  What should happen?
- Scenarios help us to organize and coordinate our thinking (society, politics, business, science)



Source: TWI2050 Report 2018
http://pure.iiasa.ac.at/id/eprint/15347/

Climate change scenario framework

using Shared Socioeconomic Pathways (SSPs)

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Socio-economic challenges to mitigation

SSP5: Fossil-fueled development

SSP3: Regional rivalry

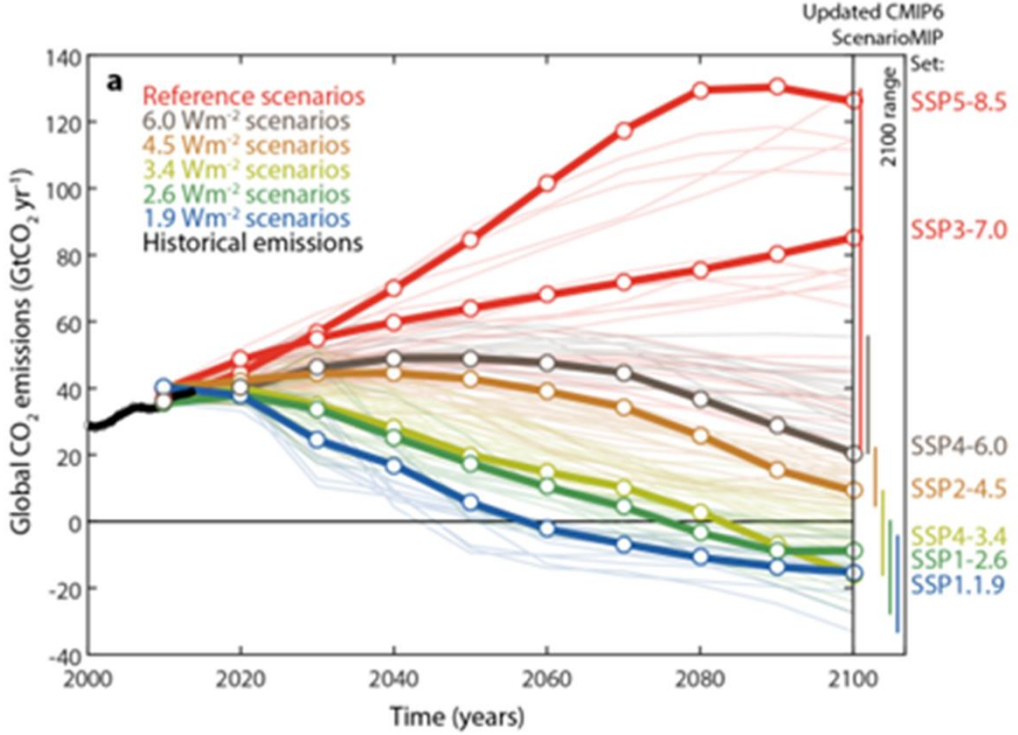
SSP2: Middle of the road

SSP1: Sustainability

SSP4: Inequality

Socio-economic challenges to adaptation

O'Neill et al., 2017, Global Env. Change 42: 169-180



Riahi et al., 2017, Global Env. Change 42: 153-168

Rogelj et al. 2018, Nat Clim Change 8: 325–332

Scenario data: https://secure.iiasa.ac.at/web-apps/ene/SspDb

SHAPE: Sustainable development pathways achieving **H**uman well-being while safeguarding the climate **A**nd **P**lanet **E**arth

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Project Objective: Develop and analyse ***Sustainable Development Pathways*** to investigate

1. crucial interactions between climate action and other SDGs related to *land and water, consumption and production, and economic development and inequalities*
2. *system transformations to overcome trade-offs and enhance synergies* to achieve this broad range of sustainable development objectives simultaneously
3. *effective means of governance* facilitating the deep transformations on both the regional and global level

The **SHAPE** Approach

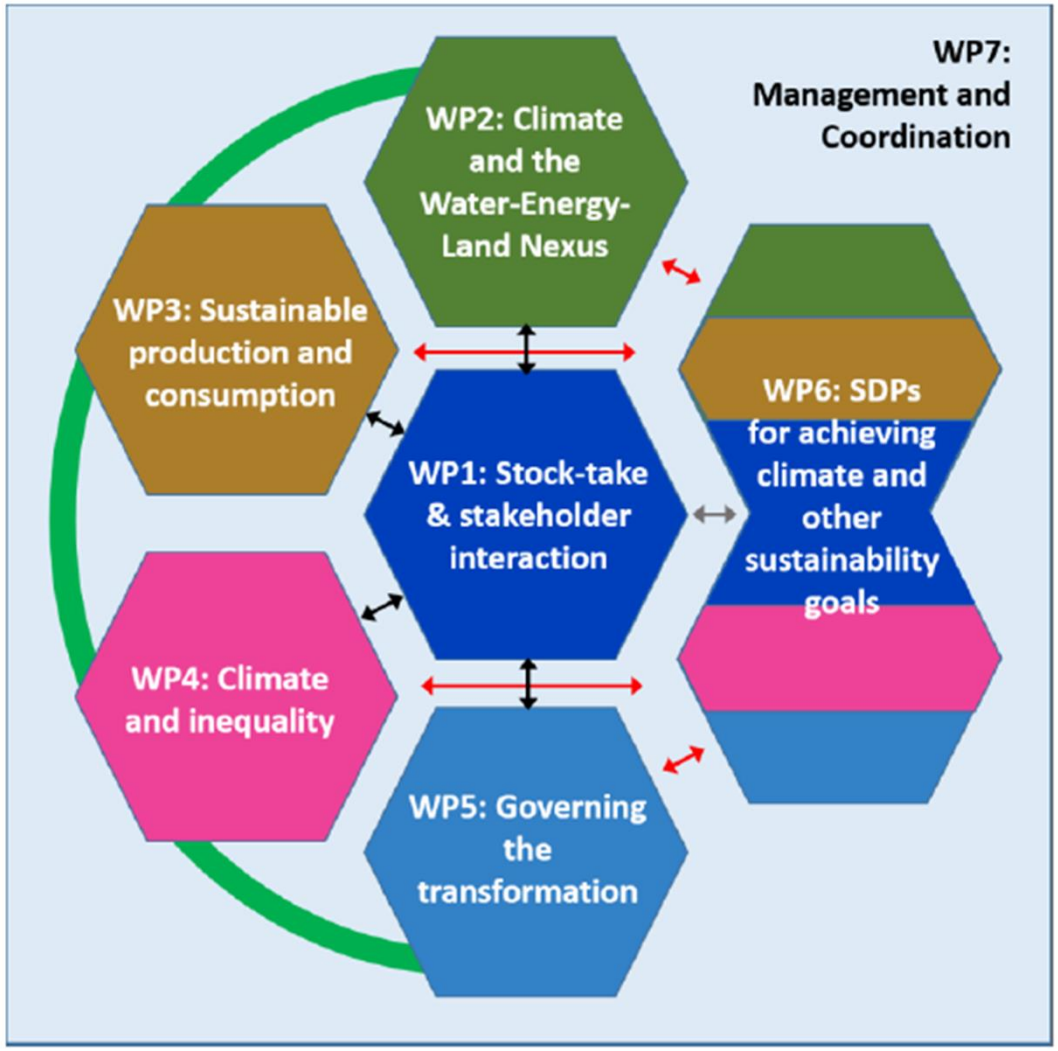
New areas of **multi-disciplinary integration**:

- Integrated assessment modelling
- Industrial ecology
- Inequality and poverty research
- Governance research

combined with

- **stakeholder interaction**

to develop and analyse **science-based scenarios of sustainable development**



Using Integrated Assessment Modelling

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Assumptions

- Future Narratives
- Economic drivers
- Social drivers
- Technology
- Policy

Models

- Energy System
- Land System

- Economic System
- Climate System

Outputs

- Energy use
- Land use
- Emissions
- Investments
- Technology deployment
- Prices
- Economic impacts
- Sust Dev links

...but incomplete coverage

Bridging qualitative and quantitative analysis…

… for a holistic assessment of Sustainable Development Pathways

Narratives play a central role

- **co-designing scenarios with users**
- bridging scales
- establishing basic consistency
- communicating scenario insights

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Thank you!

For more information:

http://shape-project.org

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