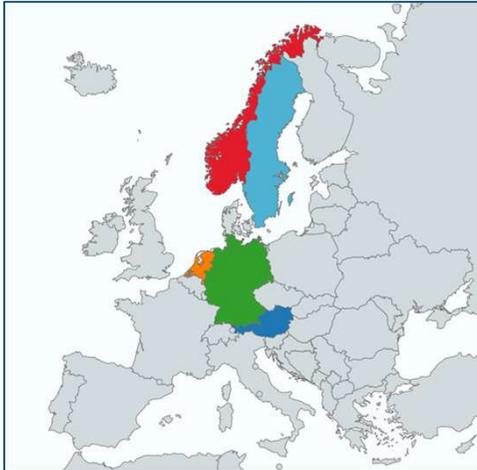




The SHAPE of Sustainable Development Pathways for the 2030 Agenda and beyond

Multistakeholder Webinar - June 30, 2020





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Project period: 09/2019 - 08/2022



SHAPE Consortium partners



POTSDAM INSTITUTE FOR
CLIMATE IMPACT RESEARCH

PIK (Germany):
project coordination
integrated assessment modelling



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



Universiteit Utrecht

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



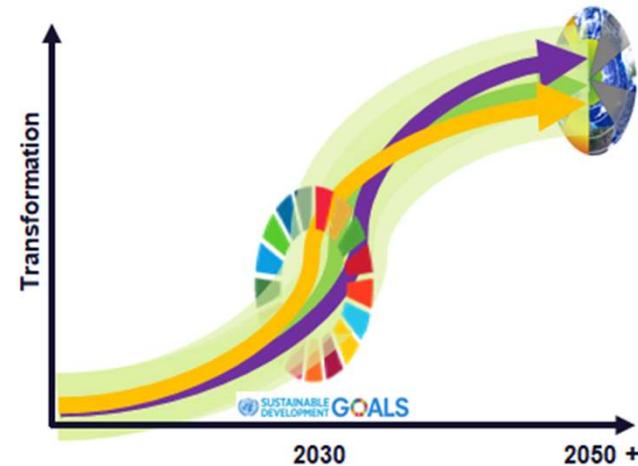
Source: Sachs et al., 2019, *Nature Sustainability* 2: 805–814

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)



Socio-economic challenges to mitigation



SSP5: Fossil-fueled development



SSP3: Regional rivalry

SSP2: Middle of the road



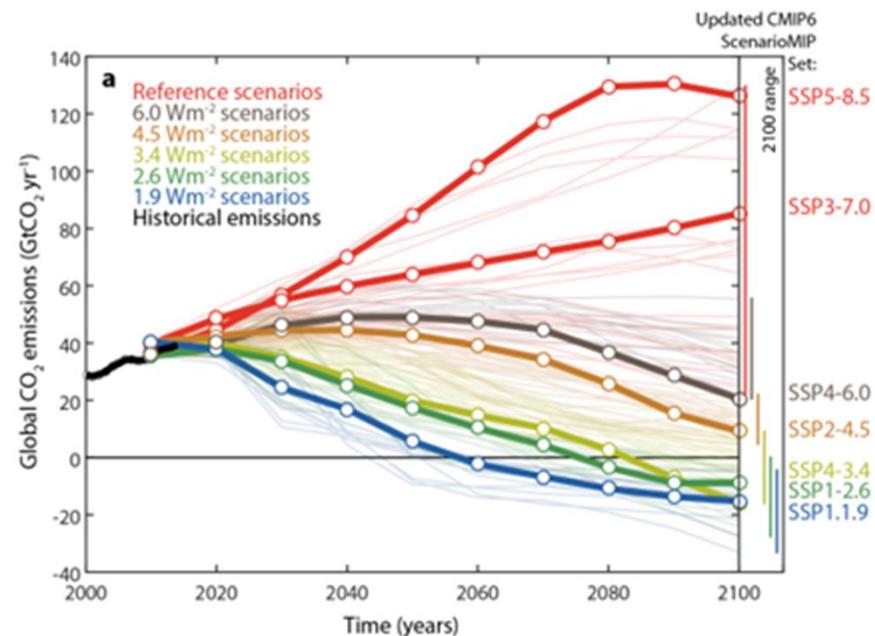
SSP1: Sustainability



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 Human well-being while safeguarding the climate And Planet Earth

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

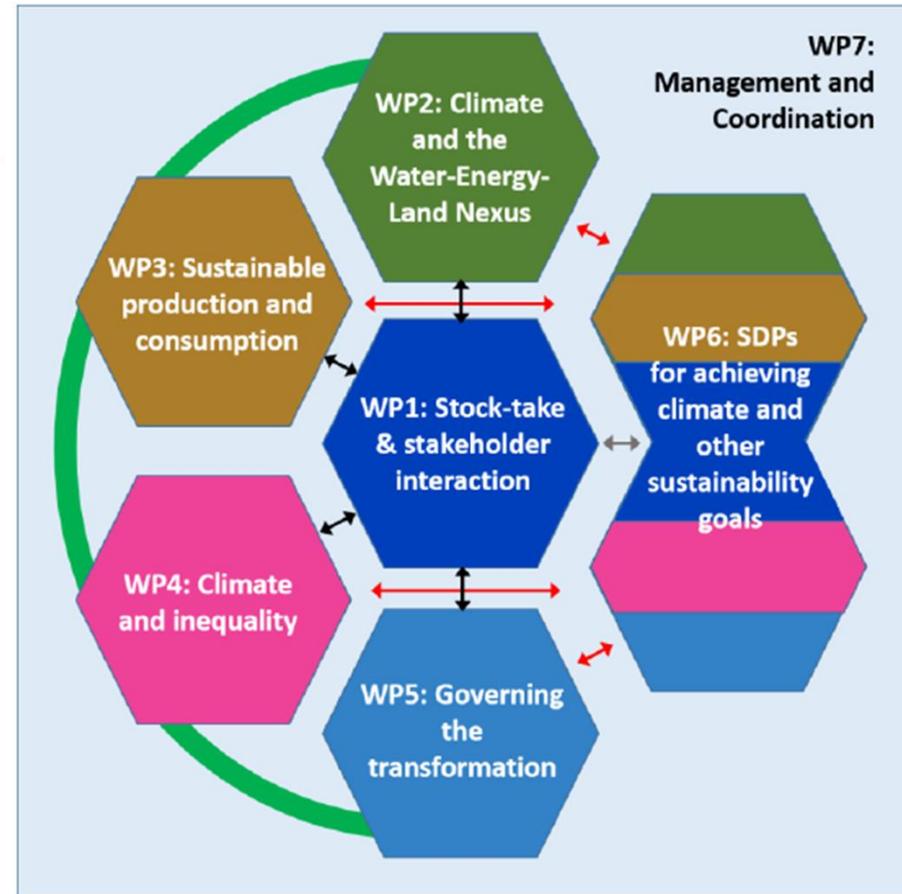
New areas of **multi-disciplinary integration**:

- 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



Assumptions

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

Models

Energy System
Land System

The diagram shows a circular flow between "Physical Earth Systems" and "Human Earth Systems". "Physical Earth Systems" includes icons for a sun, clouds, a tree, and a water drop. "Human Earth Systems" includes icons for a factory, a car, and a person. Arrows indicate interactions, with "CO2" labeled near the top and "Impact" near the bottom.

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





Thank you!

For more information:

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