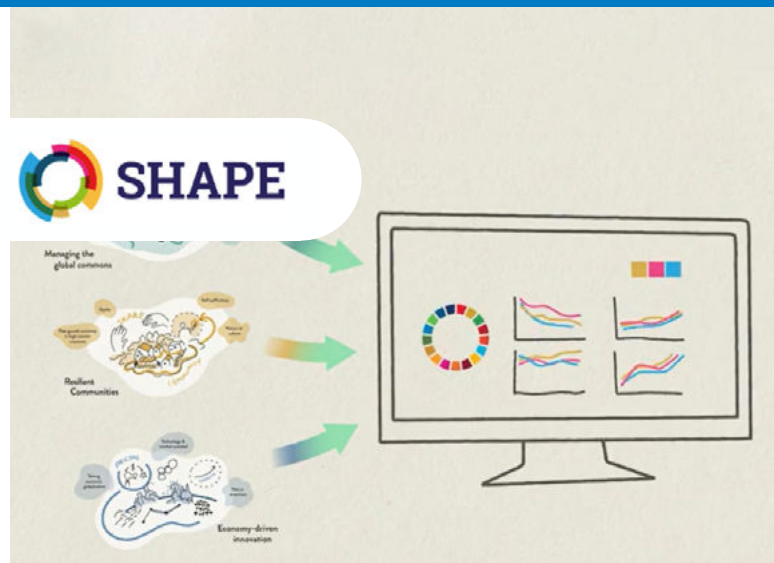


## Sustainable development pathways achieving Human well-being while safeguarding the climate And Planet Earth (SHAPE)

Which system transformations will allow to meet the Sustainable Development Goals (SDGs) and the Paris climate targets simultaneously? The SHAPE project provided an in-depth analysis of interactions between climate change mitigation strategies and the broader SDG target space. Based on this, the SHAPE team and a group of different stakeholders around the world co-created five new scenario narratives to describe different pathways to achieve these goals.

### Key Findings

- five new alternative narratives for sustainable development pathways (SDPs): The storylines are based on a systematically developed set of alternative development strategies in a total of twelve dimensions. The dimensions include for example economic paradigms, the key driving forces behind the transformation to sustainability, or the specific transformations of consumption and production across all relevant sectors. The narratives include development perspectives of "Economy-driven innovation", "Resilient communities", "Managing the Global Commons", "Local solutions" and a "Green and social market transition" to achieve sustainable development.
- new quantitative SDP scenarios based on the first three narratives, using three integrated assessment models (REMIND-MAGPIE, IMAGE, MESSAGEix-GLOBIOM) and one industrial ecology model (ODYM-RECC). The resulting model comparison is the first to compare different sustainable development pathways, and SDPs across different model implementations. Key insights from



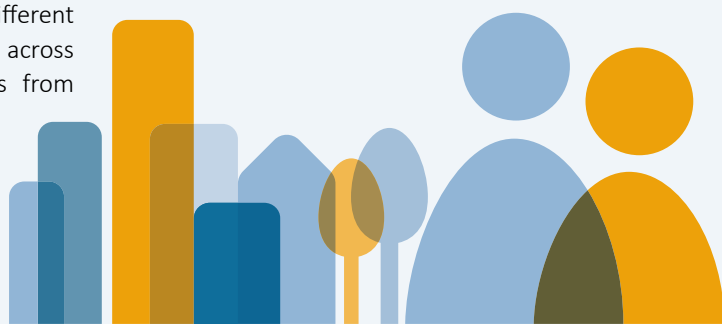
Source: Elsa Wikander / Azote

this comparison include an assessment of robust strategies for pursuing the SDGs, as well as an analysis of synergies and trade-offs across the different pathways.

- The development process was underpinned by
  - an extensive stakeholder dialogue which facilitated an iterative integration of diverse perspectives from all over the world;
  - extensive efforts to improve model representation of policies and SD indicators, with a focus on interrelationships between climate change and the water-energy-land (CLEW), expectations of future material demand, and interrelations of climate and inequality.
  - social science perspectives, with a focus on governance of transformations to sustainability.

### Engaging with Policy and Decision-Makers: SHAPE's Impactful Outreach Efforts

Several SHAPE scientists contributed to the IPCC 6th assessment report (2022). Talks targeting policy and other decision-makers were held at the Academic Advisory Council



meeting for the United Nations Forum on Sustainability Standards (UNFSS), the Managing Global Governance (MGG) Academy of IDOS, a High Level Political Forum side event, the Club of Lisbon, and a seminar series on Road to COP27 - Egypt Climate Change Ambassadors. PIK authored a Policy paper for the German Environmental Ministry, and IDOS provided inputs to the BMZ Kernthemenstrategie. Not least, several national and international institutions (e.g. BMU, FAO, ILO) were represented in the SHAPE stakeholder dialogue and this will be important multipliers for SHAPE's results and informing policy processes on multiple scales.

## Exploring Complex Challenges: Advancing Climate Mitigation and SDG Integration

Integrating climate mitigation strategies and SDG perspective is a Herculean task that cannot be completed within one project. Further research is needed for example on

- better representation of societal and political dimensions in IAMs (e.g. global governance and international institutions; gender equality; education; inequality and justice)
- integration of IAMs and Industrial Ecology perspectives and modeling
- integration non-eurocentric perspectives into narratives and scenarios
- assessment of potential conflicts between economic (SDG 8) and environmental goals
- more elaborated modelling of scenarios with alternative economic futures (e.g. post-growth).

## About AXIS

The ERA-NET Consortium AXIS (Assessment of Cross(X) - sectoral climate Impacts and pathways for Sustainable transformation) aims to promote cross-boundary, cross-community research with the overall goal to improve coherence, integration and robustness of climate impact research and connect it to societal needs. To this effect, AXIS aims to overcome boundaries between science communities through inter- or transdisciplinary research projects. <https://jpi-climate.eu/programme/axis>

### Partners

- [Potsdam Institute for Climate Impact Research](#)
- [International Institute for Applied Systems Analysis](#)
- [Universiteit Utrecht](#)
- [German Institute of Development and Sustainability](#)
- [Stockholm Resilience Centre](#)
- [Research Institute for Sustainability](#)
- [Norwegian University of Science and Technology](#)

### Project Duration

September 2019 - June 2023

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SHAPE is part of AXIS, an ERA-NET initiated by JPI Climate, and funded by FORMAS (a Swedish research council for sustainable development), BMBF (German Federal Ministry of Education and Research), BMWFW (Federal Ministry of Austria Education, Science and Research), Dutch Research Council (NWO), the Research Council of Norway with co-funding by the European Union (Grant No. 776608)

<https://shape-project.org/>

