

# Pathways to sustainable development: Latest research on how to stay within safe and just planetary boundaries

Thursday, 20 November 2025, 14:45-15:45

The Planetary Science Pavilion

Blue Zone (#PV-B47)

## Abstract

Achieving global climate and sustainability goals requires development pathways that are both **safe** for the planet and **just** for humanity. This COP30 session presents cutting-edge analyses on how countries and the world can **navigate climate transitions while respecting planetary boundaries** and ensuring decent living standards for all.

The session begins with an overview of **multiple sustainable development pathways**, illustrating diverse global routes toward deep decarbonization and a range of sustainable development objectives. The session continues by grounding global insights in national contexts, highlighting how countries can align **national development objectives** with sustainability pathways, including a call for new development-focused economic projections. The session also presents recent insights from the **Earth Commission's Transformation Pathways Initiative**, including a set of initial pathways designed to remain within the Earth system's safe operating space. Building on this planetary framing, the session concludes on how societies can **secure decent living standards for all** through resource-efficient, equitable, and climate-safe transformations.

Together, these perspectives offer a coherent picture of feasible, equitable, and science-based routes to a climate-safe and socially just future.

## Speakers

- Elmar Kriegler (PIK, Germany)
- Saritha Sudharmma Vishwanathan (Kyoto University, Japan; IIMA, India)
- Detlef van Vuuren (PBL, Netherlands)
- Keywan Riahi (IIASA, Austria)
- Vaibhav Chaturvedi (CEEW, India)
- Fatima Denton (UNU, Ghana)

Moderator: Ryna Cui (UMD, USA)



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## Agenda

**14:45** **Introductory remarks** - *Ryna Cui, UMD*

**14:50** **Presentations**

Multiple pathways to sustainable development - *Elmar Kriegler, PIK*

National development narratives and pathways - *Saritha Sudharma Vishwanathan, Kyoto University & IIMA*

The Earth Commission's transformation pathways initiative and a pathway staying within planetary boundaries - *Detlef van Vuuren, PBL*

Securing decent living for all within a safe and just earth system - *Keywan Riahi, IIASA*

**15:20** **Comments**

An Indian perspective - *Vaibhav Chaturvedi, CEEW*

Insights - *Fatima Denton, UNU*

**15:30** **Discussion between audience and panelists**

**15:40** **Closing remarks** - *Ryna Cui, UMD*

Find more information about the Planetary Science Pavilion, including the programme, at: [planetarysciencepavilion.org](http://planetarysciencepavilion.org).

This event is organized by the Potsdam Institute for Climate Impact Research (PIK), in cooperation with Kyoto University, IIMA, PBL, IIASA, CEEW, and UNU.

