The Shared Socio-Economic Pathways (SSPs): An Overview

Keywan Riahi1, Detlef P. van Vuuren2, Elmar Kriegler3, Brian O’Neill4, Poster presented by Joeri Rogelj1

SSP population by IIASA1, urbanization by NCAR5, GDP by Dellink et al., IIAA1, PIK3. SSP IAM scenarios by IIASA1, PBL2, PIK3, PNLL4, NIES5, FEEM7

WHY NEW SCENARIOS FOR CLIMATE CHANGE RESEARCH?

- Socio-economic scenarios used to derive emissions scenarios without (baseline scenarios) and with climate policies (mitigation scenarios)
- Emissions scenarios used to derive climate change projections
- Climate change projections and socio-economic scenarios used to evaluate climate impacts and adaptation measures

Preceding set of socio-economic scenarios are 15 years old (SRES, 2000). New socio-economic scenarios are needed (SSPs).

THE SHARED SOCIO-ECONOMIC PATHWAYS (SSPS)

- Should cover policy-relevant scenarios space  pathways with different socio-economic challenges for mitigation and adaptation
- Should relate to previous generation of emissions scenarios (RCPs) and climate projections (CMIP5) for seamless transition of impacts, adaptation, vulnerability (IAV) analysis  scenarios matrix architecture

Basic SSPs consist of a narrative outlining broad characteristics of the global future and country-level population, GDP, urbanization projections SSPs are not scenarios themselves, but their building blocks.

SCENARIO MATRIX ARCHITECTURE

- Climate change scenarios (incl. socio-economics, emissions, climate response) determined by SSP (columns) and anthropogenic forcing of climate system (rows)
- Both information needed for IAV, mitigation, and integrated analysis.

SSP POPULATION, GDP AND ECONOMIC GROWTH PROJECTIONS

SSP Land Use-Energy-Economy-Emissions Scenarios

The SSPs were implemented in six integrated assessment models (IAMs) to derive associated baseline and mitigation scenarios. For each SSP, there is a marker IAM scenario and a range of non-marker scenarios. Scenarios will be published soon in Glob Env Change (Riahi et al., 2016).

INTENDED USES OF THE SSPs AND ASSOCIATED SCENARIOS

SSPs aim not directly at decision makers but at climate change analysts preparing climate policy analysis based on the SSPs

- Link IAV and mitigation analysis more explicitly to socio-economic development
- Enable better integration of mitigation, adaptation and climate impact research in future assessments (AR6)
- Initiate open community process to build richer socio-economic data repository for climate change research.

Affiliations and Contact:
1 International Institute for Applied Systems Analysis (IIASA), Laxenburg, Austria (riahi@iiasa.ac.at)
2 PBL Netherlands Environmental Assessment Agency, Bilthoven, Netherlands (detlefpvanvuuren@pbl.nl)
3 Potsdam Institute for Climate Impact Research (PIK), Potsdam, Germany (kriegler@pik-potsdam.de)
4 Pacific Northwest National Laboratory (PNL), Joint Global Change Research Institute at the University of Maryland-College Park, College Park, MD, United States
5 National Institute for Environmental Studies, Tsukuba, Japan
6 Fondazione Enrico Mattei (FEEM), Milan, Italy
7 Institute for Applied Systems Analysis Institute for Applied Systems Analysis (IIASA), Laxenburg, Austria (riahi@iiasa.ac.at)