Multidimensional feasibility – "the big picture"
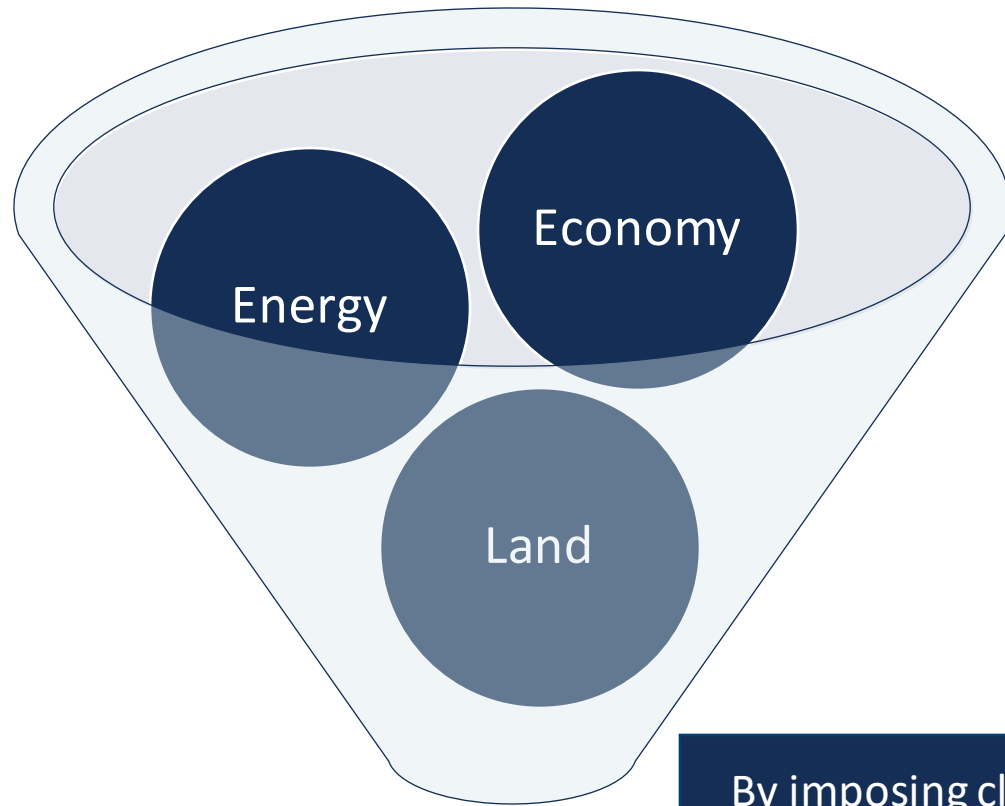
Insights from the feasibility evaluation of ENGAGE scenarios with the focus on Regions

What are scenarios or pathways?

Integrated Assessment Models (**IAM**s) cover the
main "systems" that could be sources (or sinks) of emissions
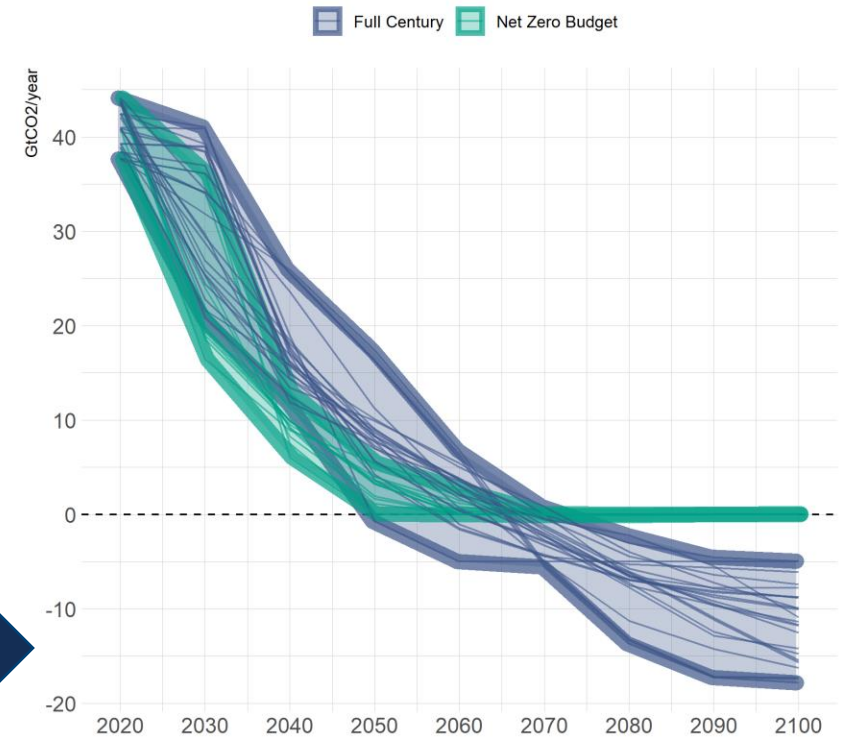
Economy

Energy

Land

CO2 emissions

By imposing climate goals, we can learn how emission pathways could look like

**Through mitigation efforts <u>global</u> emissions need to decrease at least by half or more in 2030**

CO2 emissions ranges 600Gt Budget scenarios

Full Century   Net Zero Budget

GtCO2/year

40

30

20

10

0

-10

-20

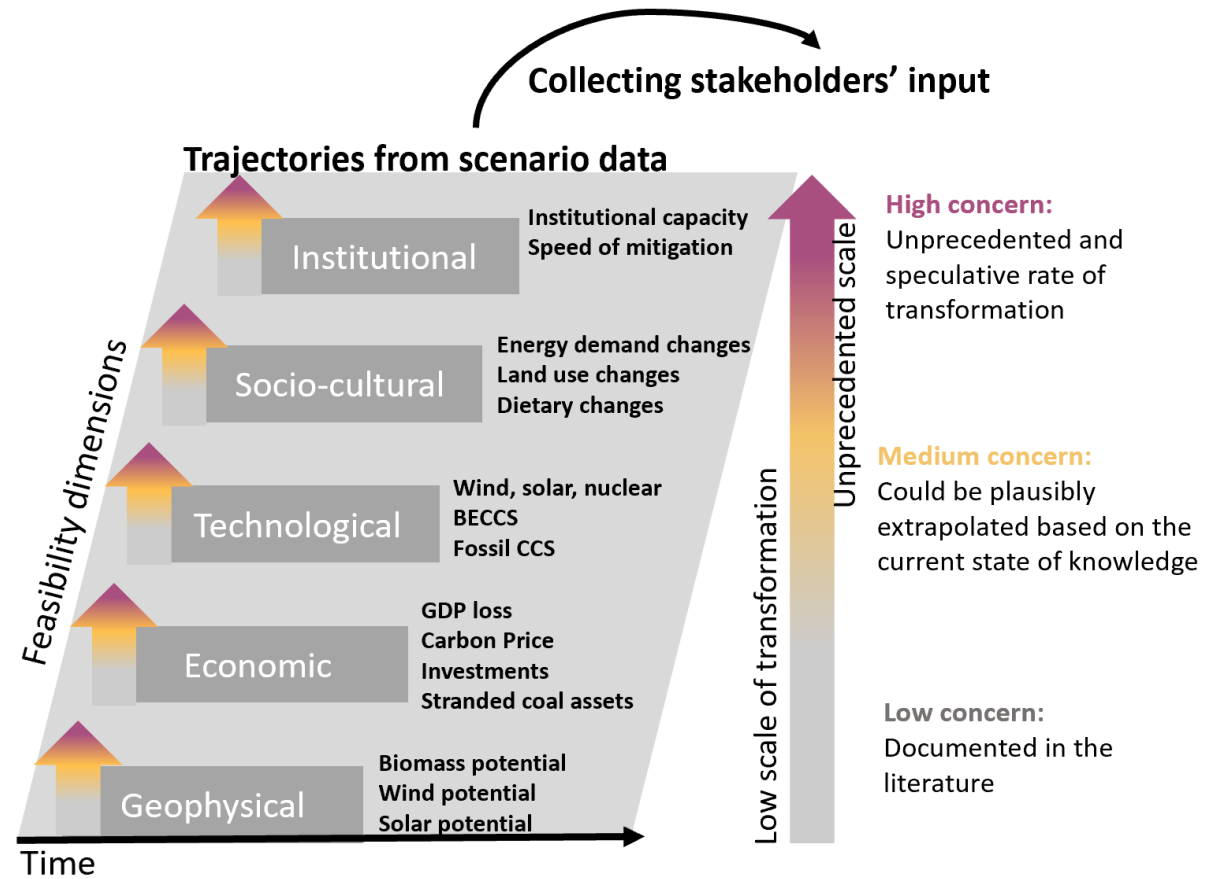2020 2030 2040 2050 2060 2070 2080 2090 2100

Global scenario runs from the ENGAGE project

Multi-dimensional feasibility assessment

IAMs report **many variables** that could be benchmarked to real world data
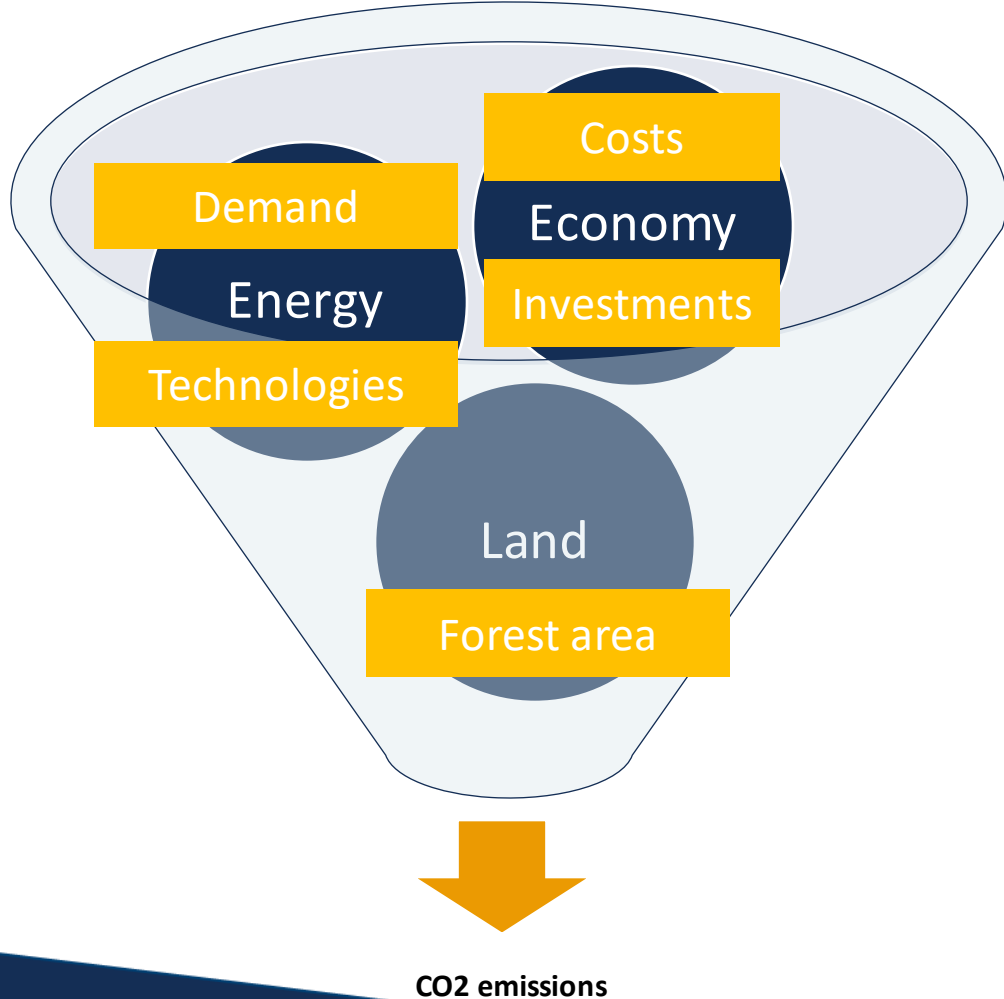
Based on **Brutschin et al. (2021)** we propose an over-reaching systematic evaluation along the following **dimensions**:

What did we learn based the thresholds that we derived?

Global Net Zero Budget scenarios require **faster transition by 2030** but **avoid persistent feasibility concerns later in the century** when compared to Full Century scenarios

Illustration of aggregated levels of concern
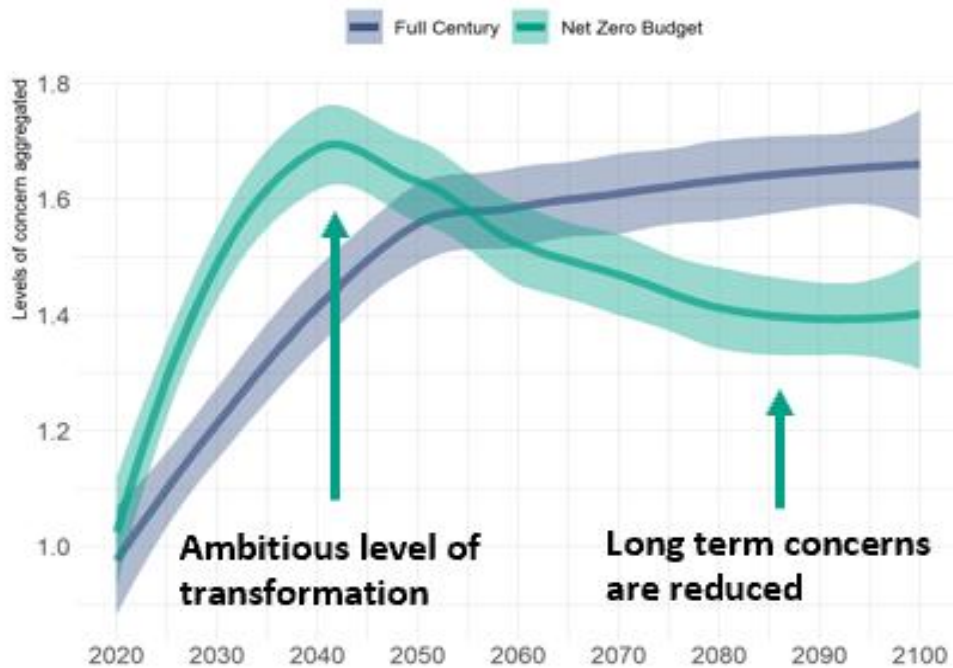
What are we missing?

Accounting for regional heterogeneity

Input from stakeholders and regional experts
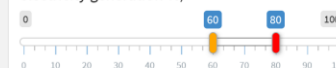
Visual tool to evaluate scenarios

Our plan for today

- **Main goal:** feedback from stakeholders regarding the current scenario ensemble and the levels of transformation that are implied for the Asian region

  ⇒ Step 1: brief survey on 4 key indicators (to gain a better understanding of the indicators and the methods)

  ⇒ Step 2: Exploring ambitious climate scenarios with the visual tool based on the group's Input

  ⇒ Step 3: Q&A