



International Institute for  
Applied Systems Analysis

The logo for the Arctic Monitoring and Assessment Programme (AMAP). It consists of a light blue arc with a diagonal line passing through it. The text 'AMAP' is written in a large, blue, sans-serif font above the arc, and 'Arctic Monitoring and Assessment Programme' is written in a smaller, blue, sans-serif font below the arc.

AMAP  
Arctic Monitoring and  
Assessment Programme

## Arctic Scenarios Workshop (19-20 May 2014, IIASA, Austria)

### Day2 Plenary IIASA AACA Scenarios Workshop Laxenburg 19-20/5/2014

# Summary of Day 1

## Agreements

- Key Arctic elements
- Cross cutting issues

## Disagreements/Confusions

- Application/Use of scenarios
- Consistency/comparability
- Top-down vs bottom-up
- Framing questions
- SSPs/RCPs/SPAs/etc

# Key elements

Resources (renewable/non-renewable/oil/gas/fish/ecosystems/...)  
Population (Migration/Urbanization)  
Human resources (Education/Health/...)  
Economy (Conventional/Traditional/Structure/Location)  
Property rights / access rights  
Government/Governance/Institutions (Nesting of levels)  
Security (Water/Food/Energy/Military)  
Infrastructure (Maritime/Land/Communication/IT/Buildings/...)  
Search and Rescue  
Culture/Values/Lifestyle/Well-being (Indigenous rights)  
Tourism  
Resilience/adaptive capacity  
Ecosystems  
Environment (Climate/Pollution/Variability)

# Cross cutting issues

- Internal and external driving forces
- Regional and global impacts
- Scale: heterogeneity across the Arctic and within the regions. Extensions necessary
- Tipping points / Black Swans
- Unexpected events

# Why scenarios?

- **External drivers** place “boundary conditions” on opportunities and challenges
  - Climate, GDP, trade, etc...
- **Internal drivers** place “boundary conditions” on opportunities and challenges
  - Identity, self-determination, subsistence living,  
...

# Chapters of AACCA regional reports

- Ch. 1 Introduction
- Ch. 2 Stakeholder perspectives
- Ch. 3 General Description of Region
- Ch. 4 Global drivers and change
- Ch. 5 Regional drivers and change
- Ch. 6 Impact assessment
- Ch. 7 Resilience
- Ch. 8 Scenarios
- Ch. 9 Adaptation Options/Actions
- Ch. 10 Co-benefits and Synergies

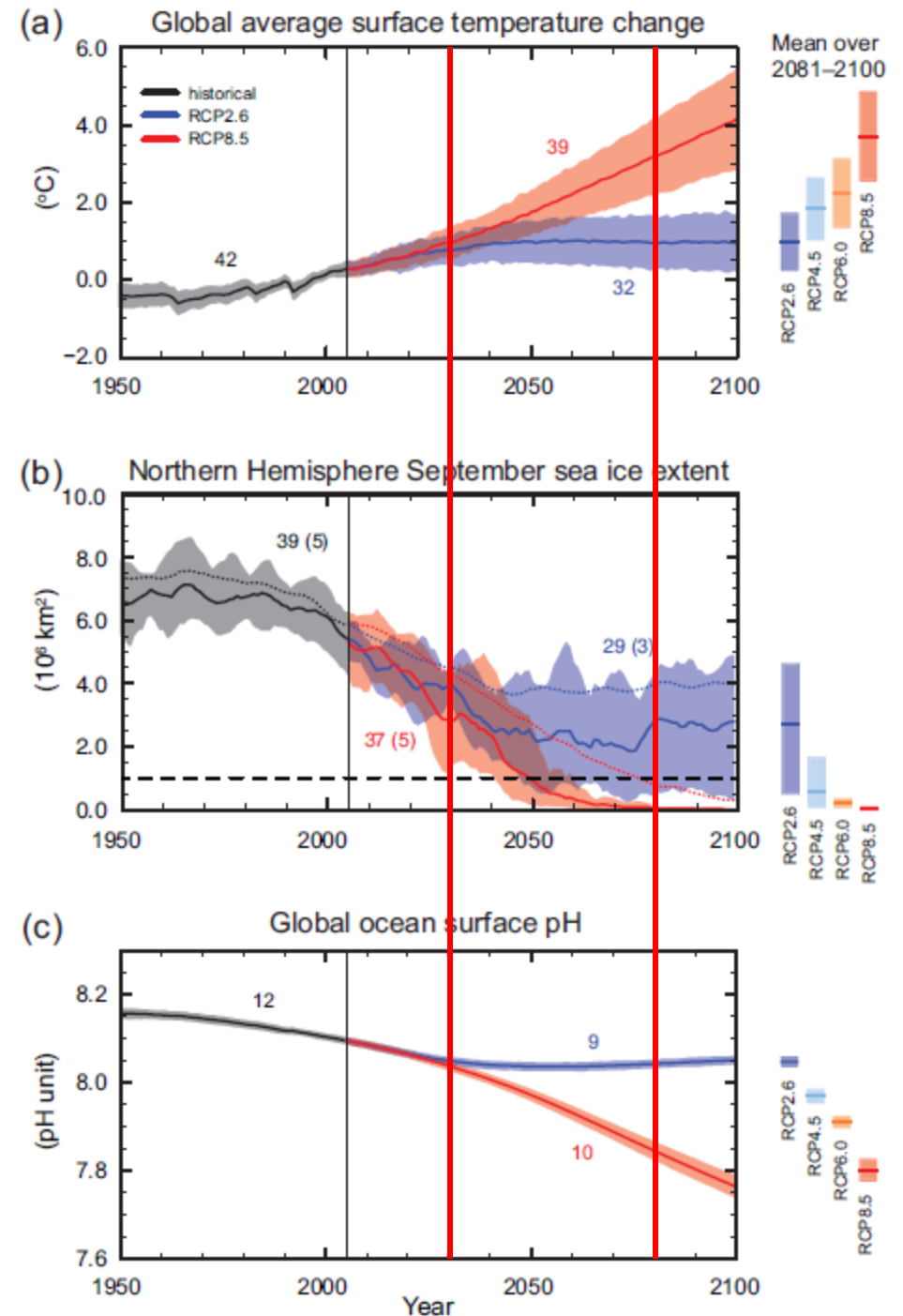


# A top-down approach

Ch4: Global drivers and change

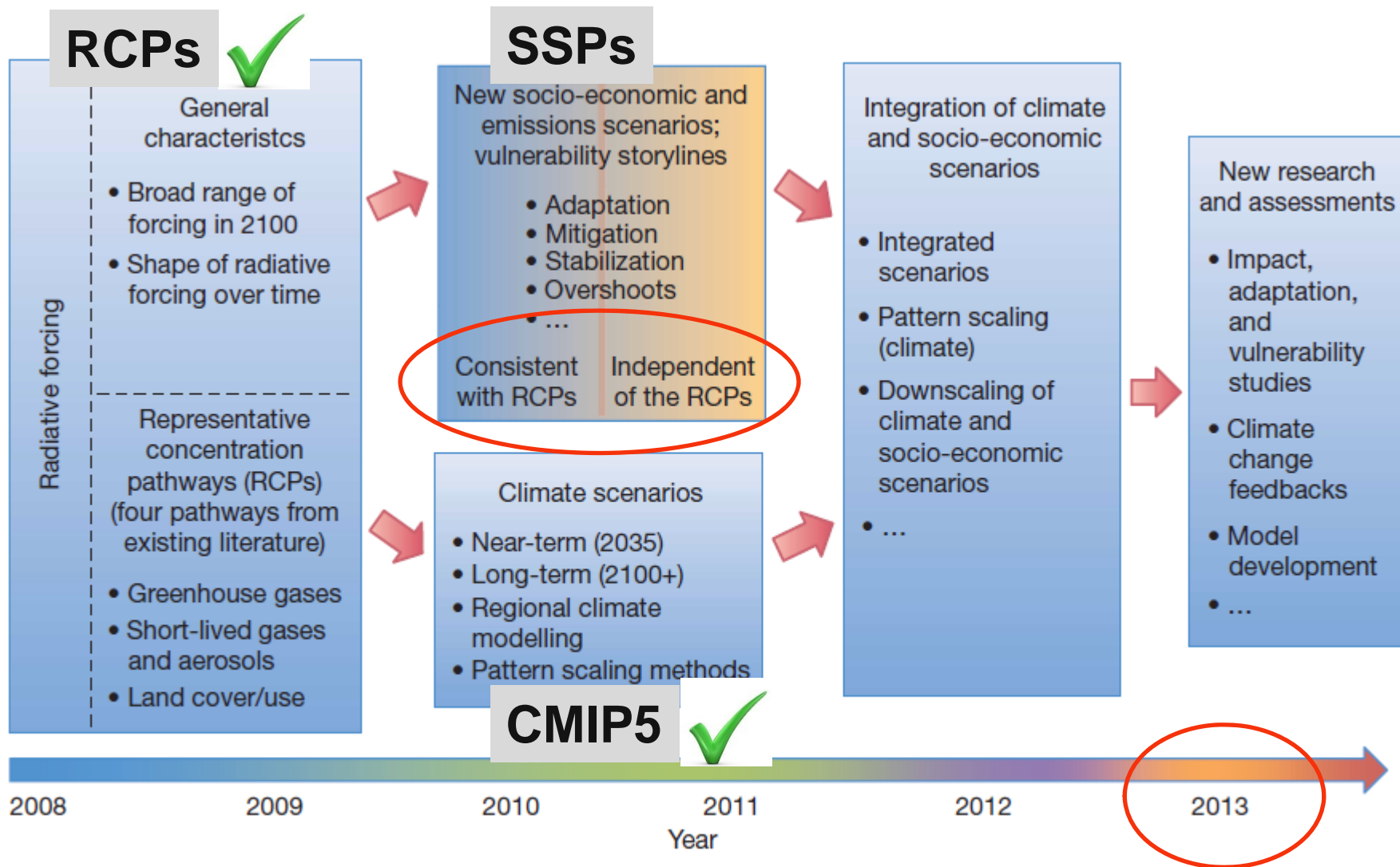
# Why Scenarios? (2030/2080)

- Adaptation actions requires knowledge of the impacts
- Impacts may also give opportunities
- Exploring the breadth of the uncertainties
- Multiple “worlds” (SSPs) can give the same climate impacts and opportunities
- Climate: Could pick an RCP?
- Adaptation/Mitigation: Need more than just RCPs

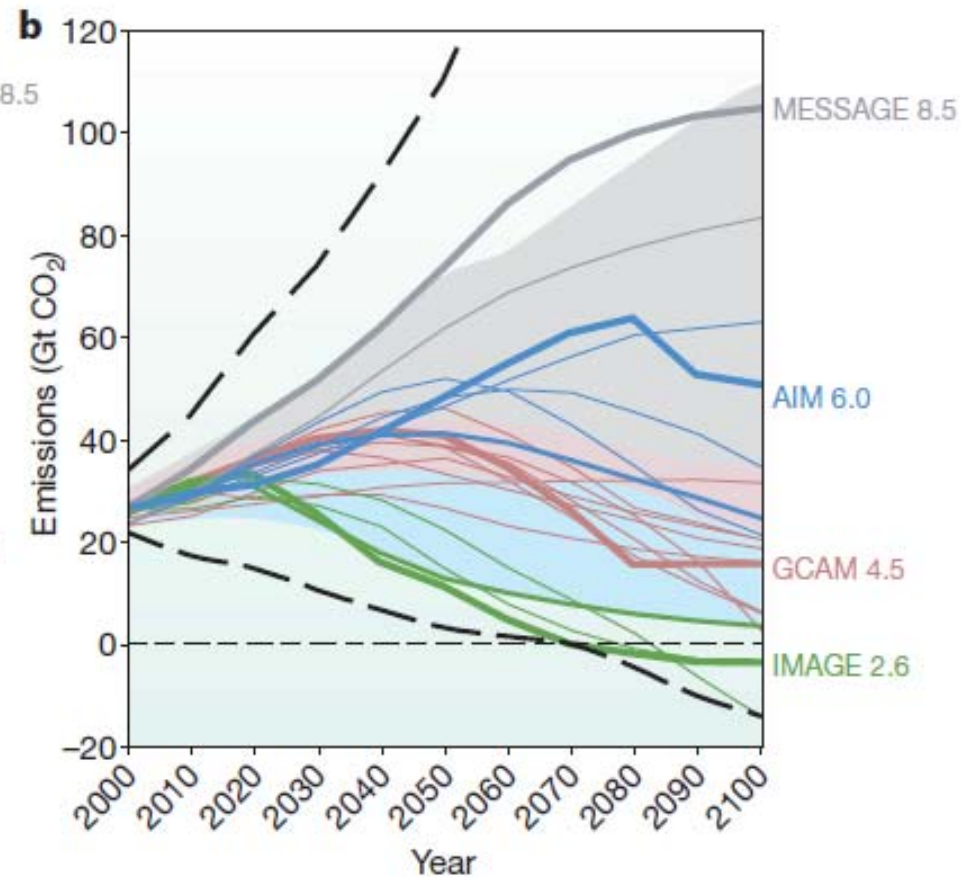
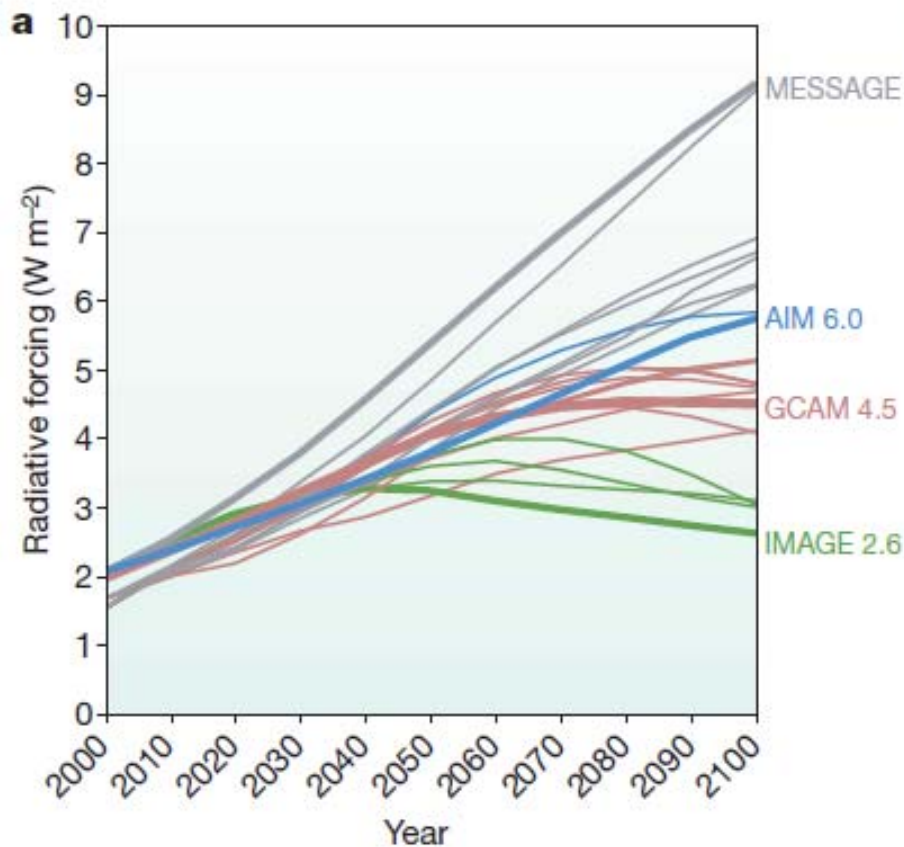




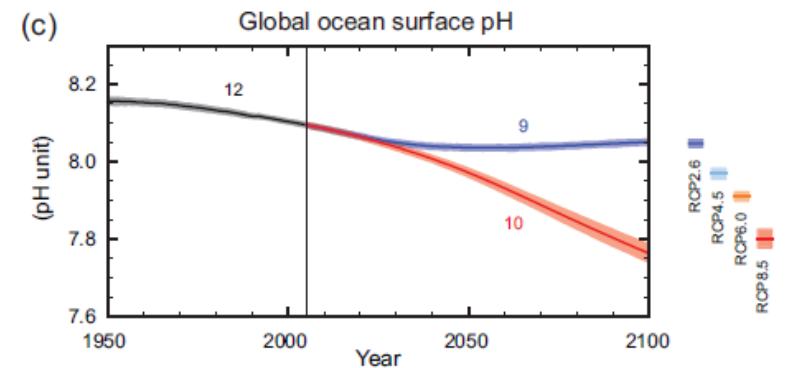
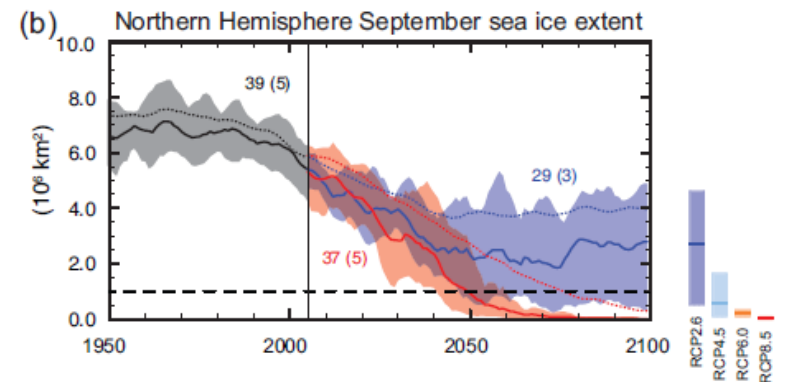
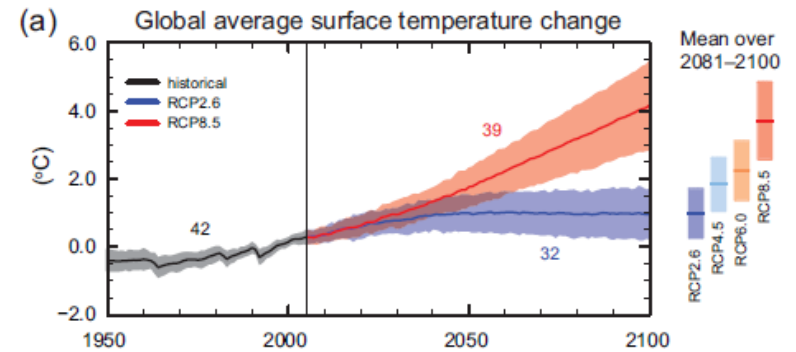
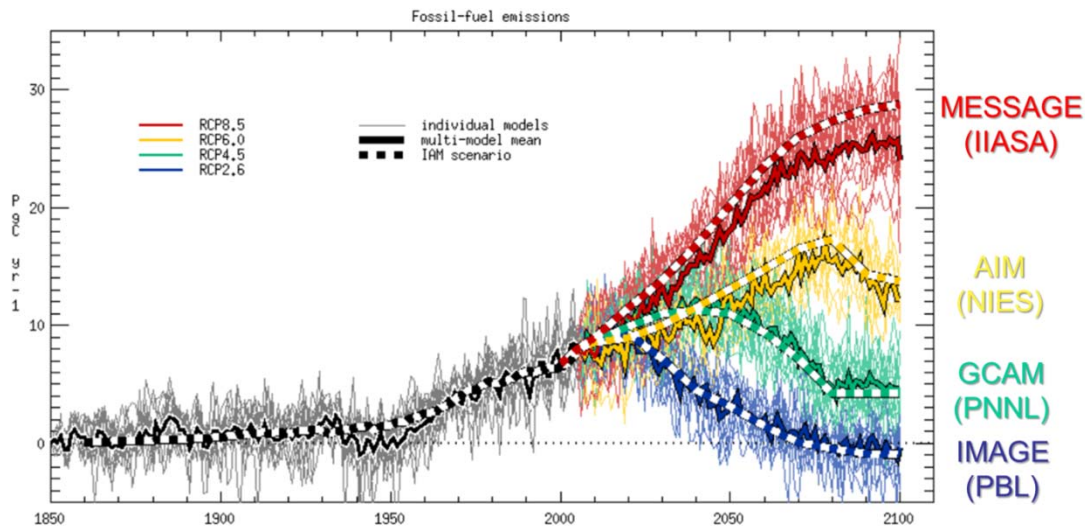
# The parallel process



# Step 1: Define RCPs



# Step 2b: CMIP5



**CMIP5: Huge knowledge based with climate runs of RCPs**

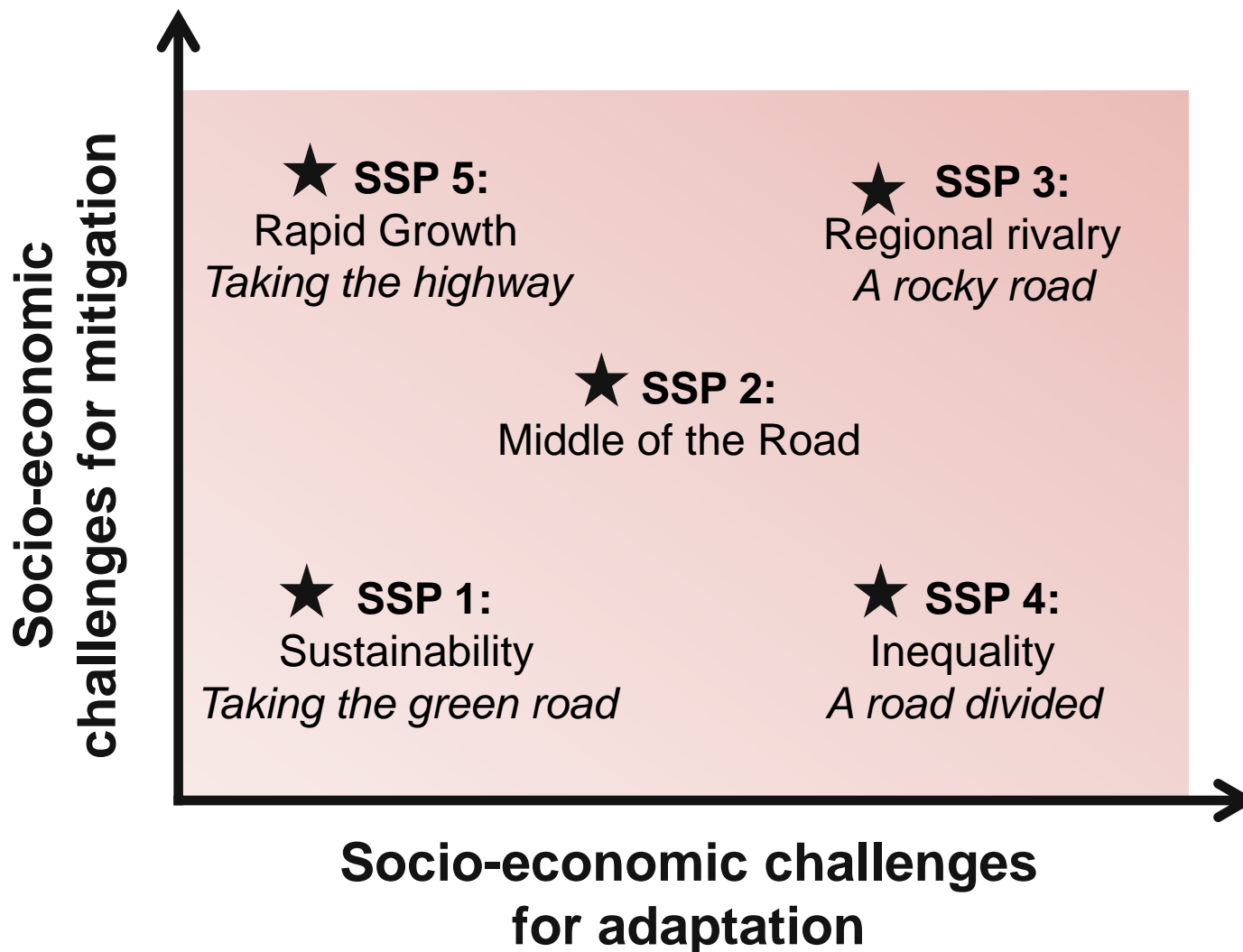
**We draw on this knowledge base**

# Why SSPs?

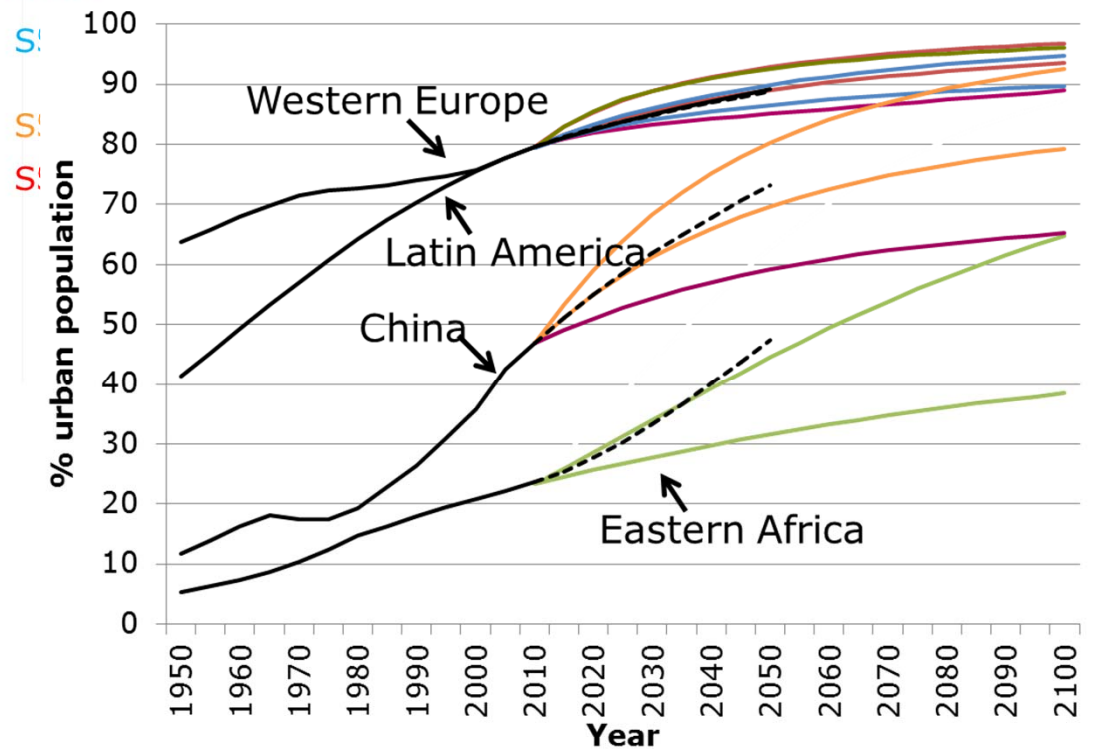
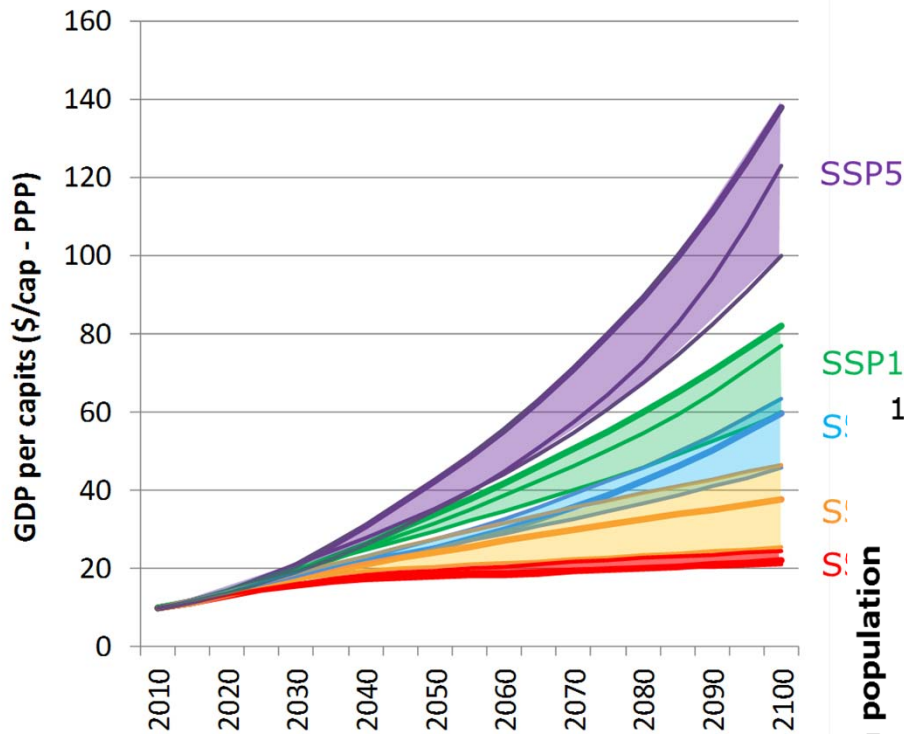
Are the RCPs (and CMIP) results sufficient?

If we want to do mitigation or adaptation analysis, we need more than RCPs

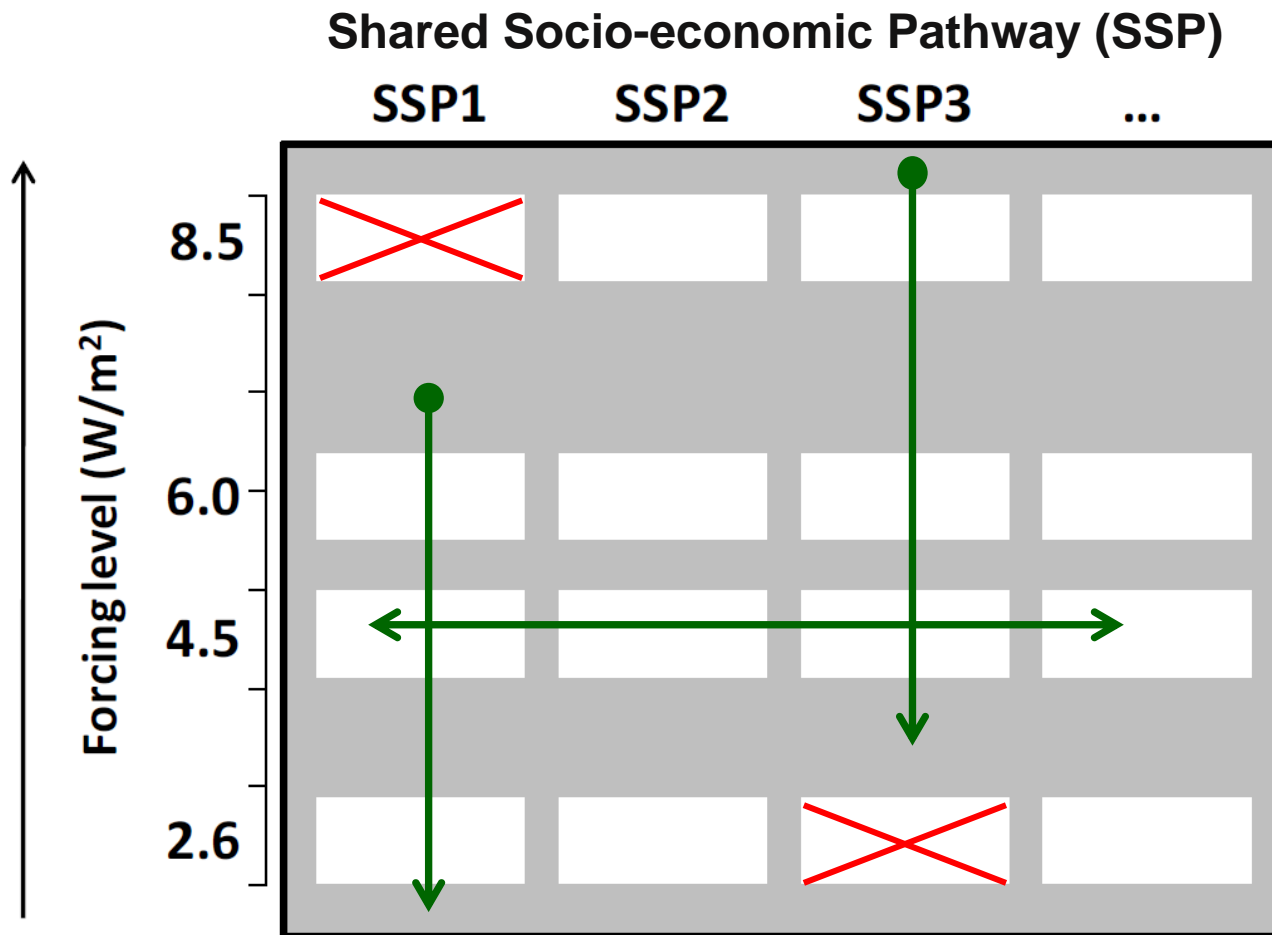
# Step 2)b)i): SSP narratives



# Step 2)b)ii): Quantitative SSPs



# Linking SSPs and RCPs

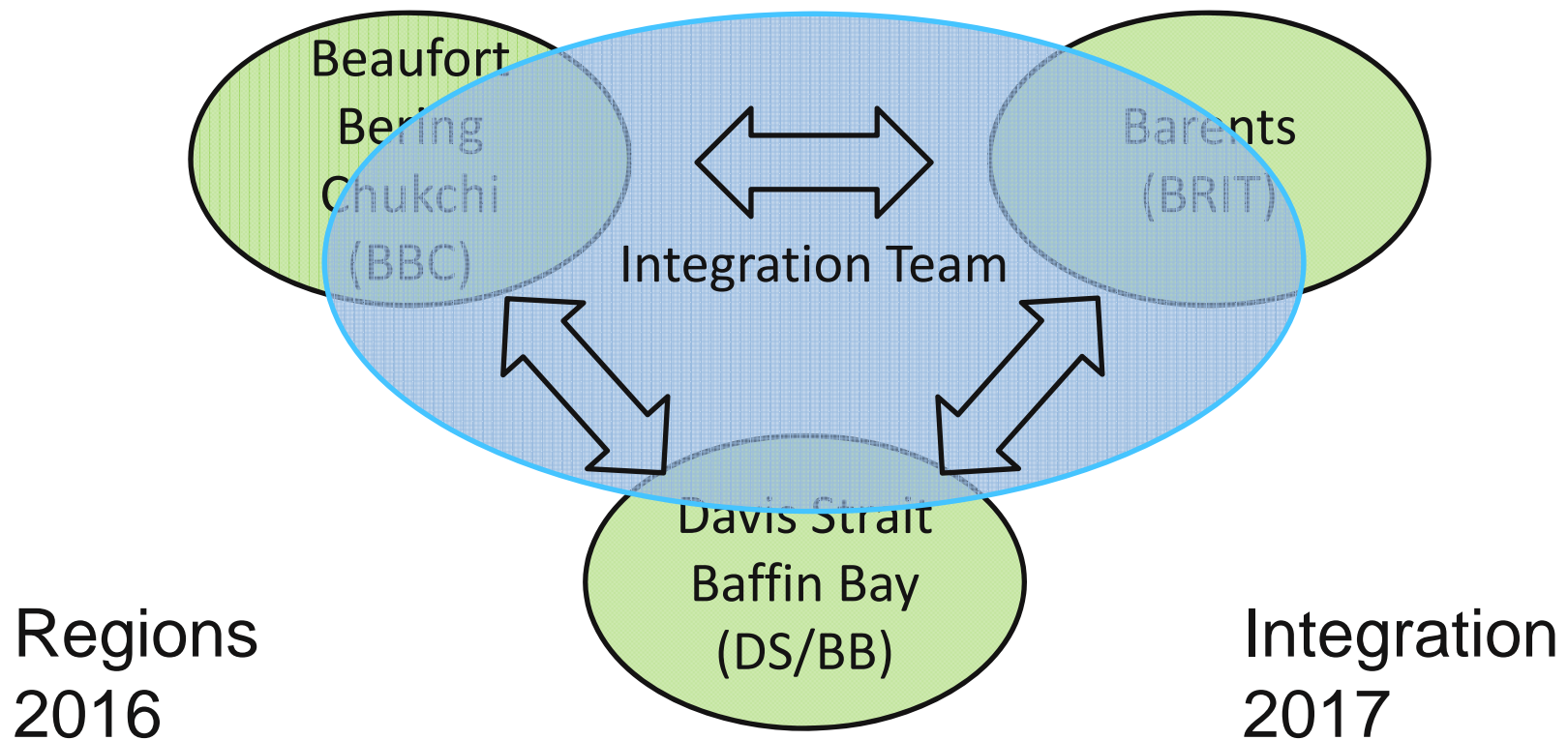


# Scenarios in AACCA/AGP/etc

- Is a top-down approach relevant for Arctic scenarios where climate is an external driver?
- Can the SSPs be “extended” and still be relevant?
- Bottom-up approach would seek “focal questions”, “key uncertainties”, etc, in collaboration stakeholders
- **Can bottom-up and top-down be reconciled?**



# AACA Report Structure

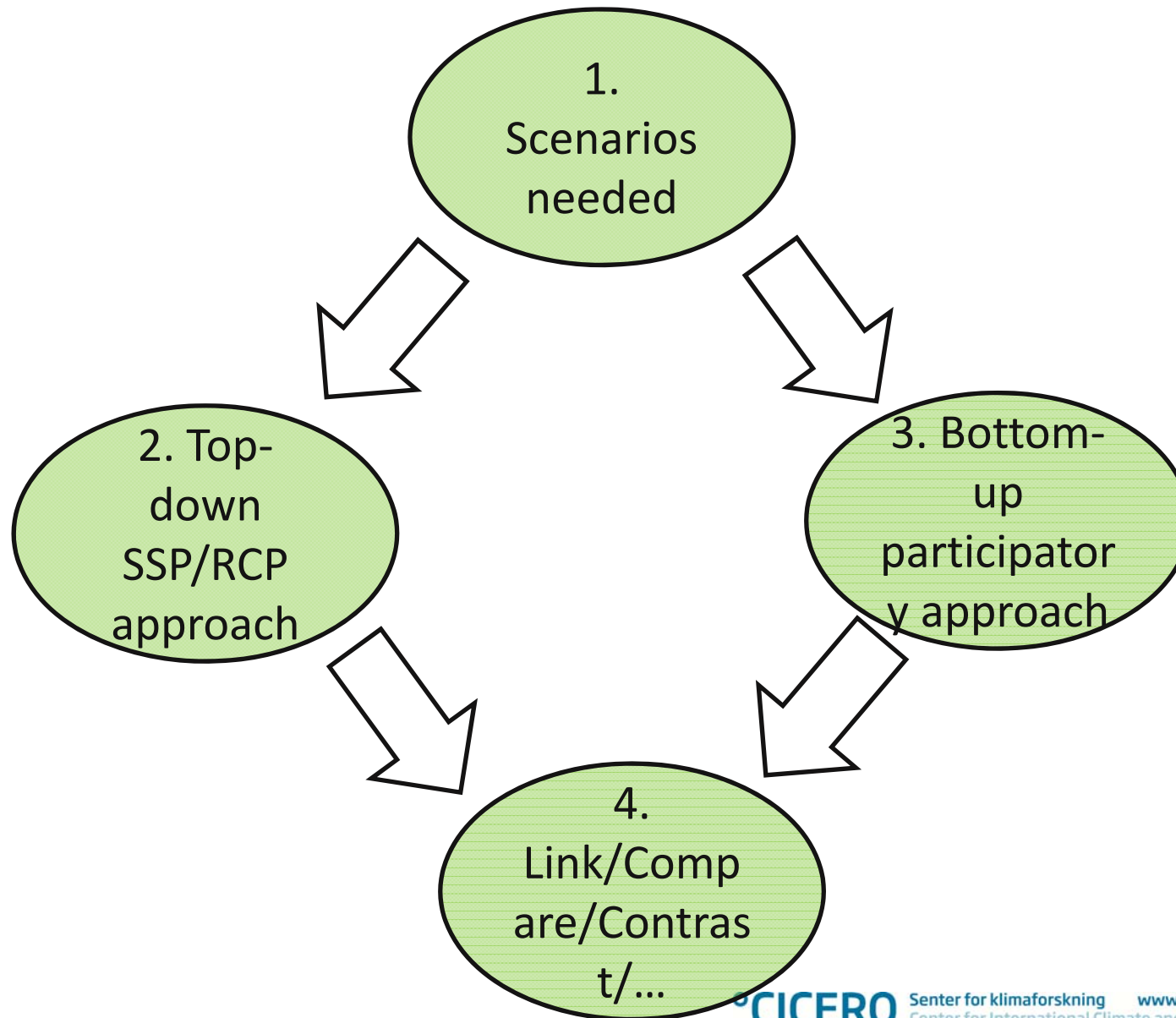


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# AACA “Parallel Process”



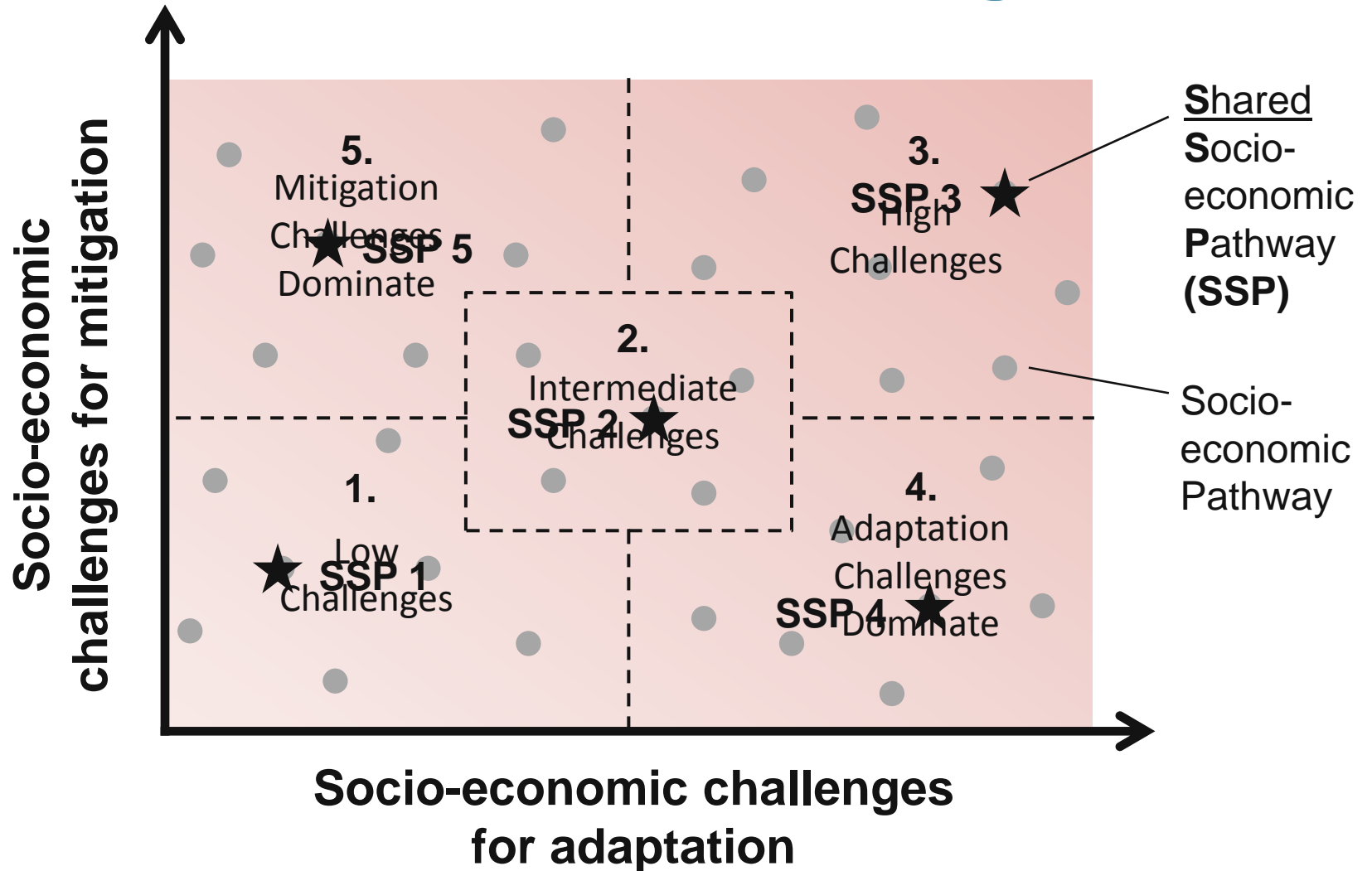
# Top-down Summary

- Extend (selected) SSPs to the Arctic
- Expand on relevant key elements
- Consistency from the start
  - Though variations in how to do this
- “Chapter 4”
  - Workshop report, summarised in regions
  - Potential paper/commentary
  - “Elevated” to the pan-Arctic report
  - **Used by other AACCA/AFP/Others**

# Bottom-up

- “Chapter 8”
- Participatory approach
- Driven by needs, questions, challenges, of stakeholders
  - Gains ownership and legitimacy
- Unlikely to be consistency across regions
- Can we “nest” (community to country to pilot region to Arctic to ...)
- To aid comparability, how do the bottom-up scenarios map to the SSP narratives

# Post-SSP mapping



Adapted from O'Neill (2012)

# Breakout 3

# The AACCA Mandate

The Arctic Council requested AMAP to:

“produce information to *assist* local decision makers and stakeholders in three pilot regions in *developing adaptation tools and strategies* to better deal with climate change and other pertinent environmental stressors”



# Breakout 3 – Bottom up

## 1. Country breakouts

- Focal question, key uncertainties, axes
- SSP people note takers
- 30 mins

## 2. Pilot regional

- Reconcile focal questions, uncertainties, axes

## 3. Plenary

- Reconcile at pan-Arctic
- Related to SSPs?



# Top-down Breakout

- Outline report/chapter on extending SSPs
- Key issues
  - Which elements to extend, prioritise
  - Extended storylines
  - SSP/RCP linkages
    - Are SPAs (policies) needed?
    - Which SSPs to select?
  - External vs internal drivers (climate)
  - “Nesting” of drivers

# Bottom-up breakout

- Outline detail report Chapter 8 on a consistent and comparable regional approach
- Key issues
  - Consistent method/design, different outcomes
  - Reconciling community, country, region, ...
  - Explore linking back to SSPs