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INFRASTRUCTURE FOR THE EUROPEAN NETWORK FOR EARTH SYSTEM MODELLING

IS-ENES3 Climate Impact Autumn School
Nov. – Dec. 2020

Introduction to the case studies

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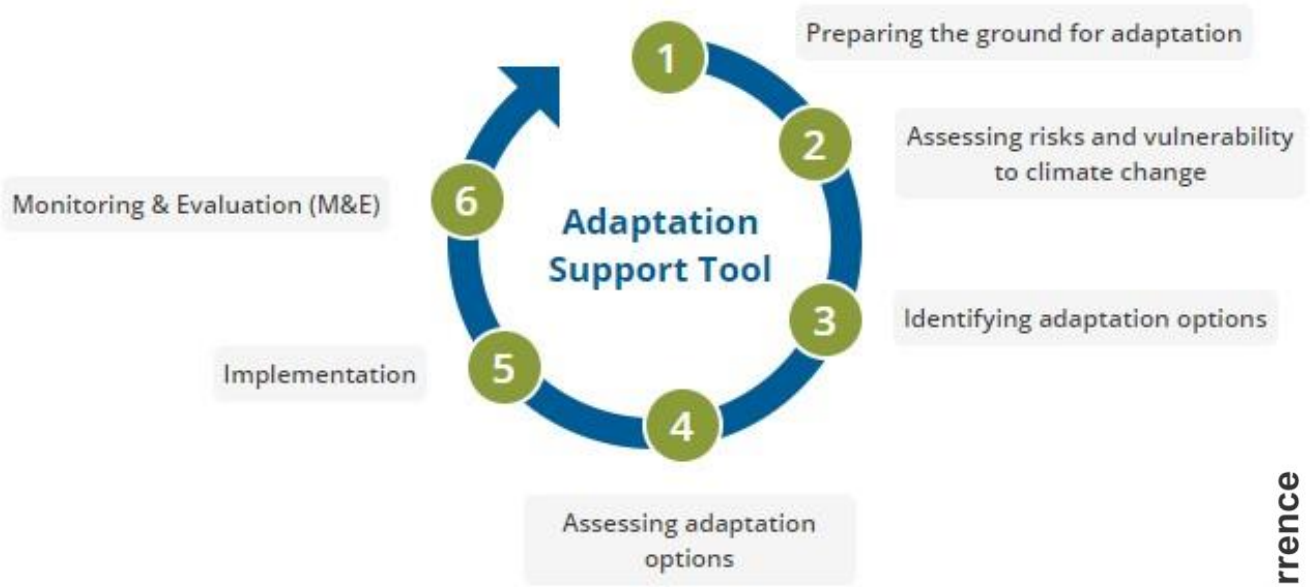
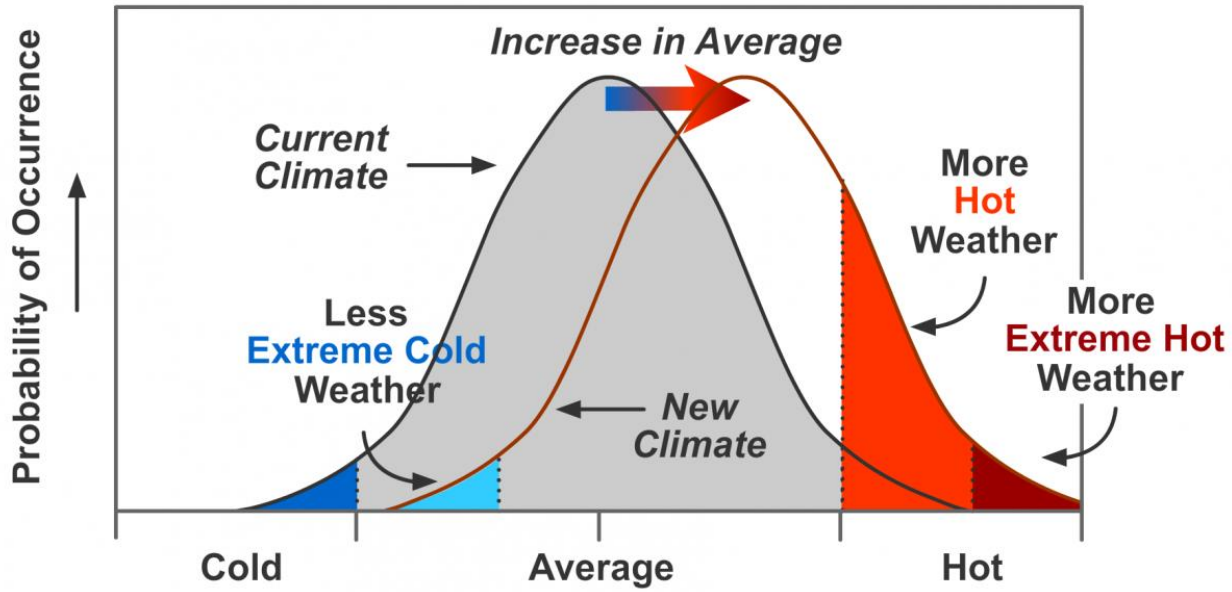
Case study aims

- How to do an impact study
- Experimenting with new tools
- Using climate data in practice (and pitfalls)
- Challenges in working with other disciplines
- Building a network
- Communicating results to users

Adaptation <> impacts; averages <> extremes

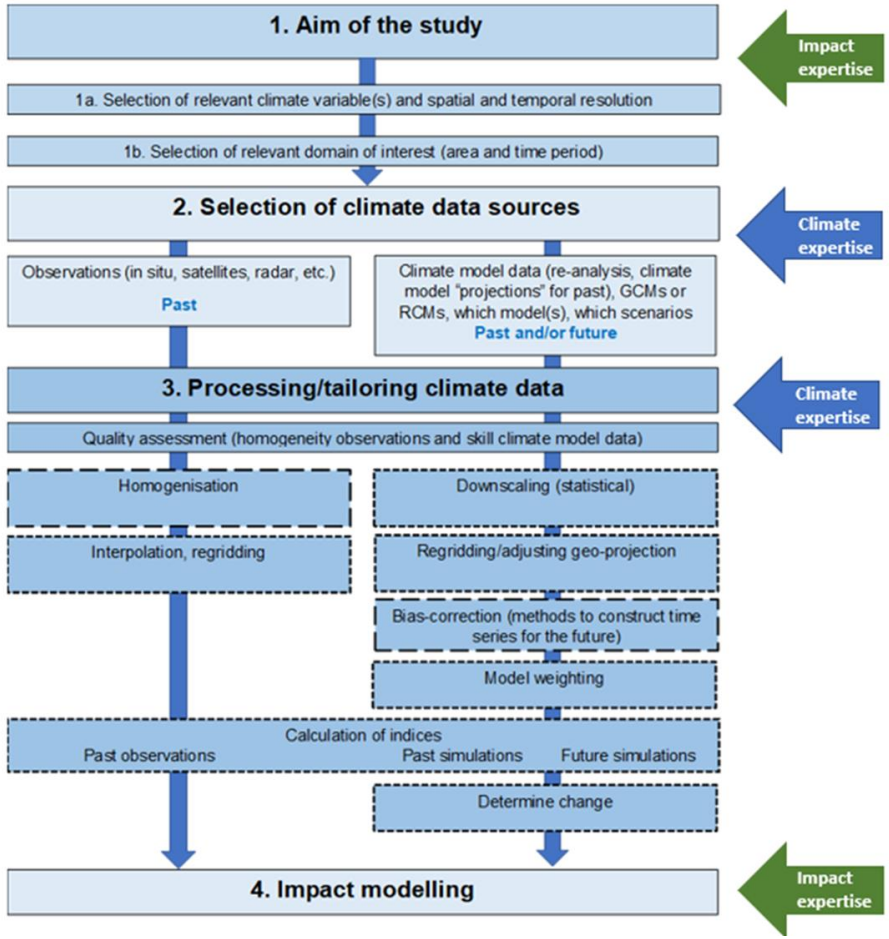


IPCC definition of **impacts** (2018): The consequences of realized risks on natural and human systems, where risks result from the interactions of climate-related hazards (including extreme weather and climate events), exposure, and vulnerability.



Case study steps

1. Describe context, aim and users
2. Define research question
3. Needs: variables, data, models, sources/platforms, method
4. Execute plan (data download, online tools, programming, validation...)
5. Reporting, indicator/output design



Step 1: users and the research question

User:
You know, about temperature increase…

Scientist:
What do you want to know?

User:
You tell me what I need!

Scientist:
Average? Max? Min? Variance? Extremes?

?

?

Courtesy: Markku Rummukainen (SMHI)

Two-way interaction with users needed

Question: your experience with users?

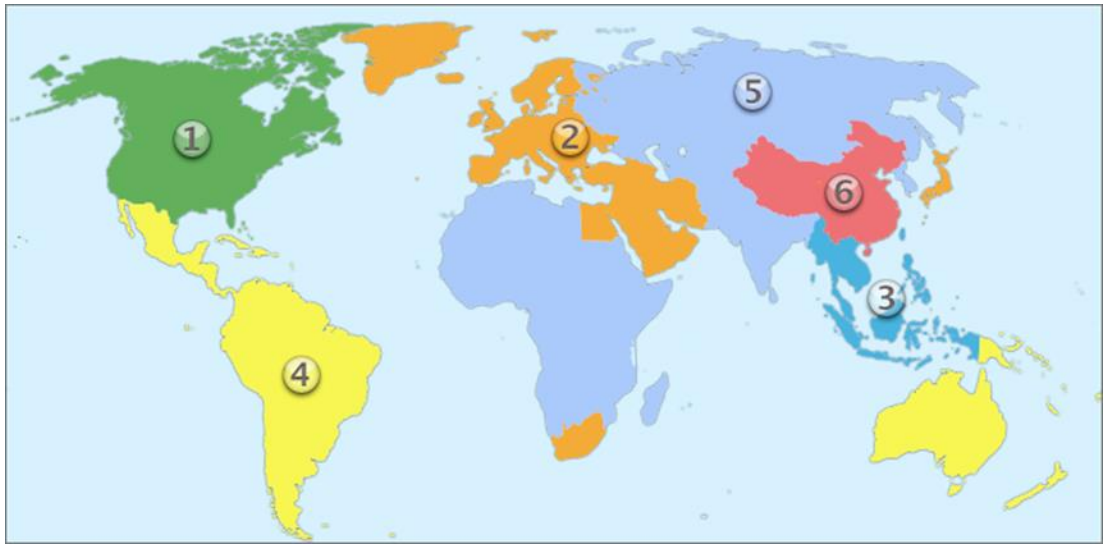
- ??

The question behind user requirements

What do users ask?	What do users want?
State-of the art climate knowledge	Usable information: not too complicated
Easy to use products	… but high detail
Clear description of the chain of uncertainties	…(how to deal with these uncertainties?)
Spatially and temporally detailed information (100 m, 10 min, …)	… not too big data files, data with low uncertainty
Probability of scenarios	Which scenario to use?
Peer-reviewed article	What to refer to?

Same words, different interpretation

A region is...



Be aware of different interpretations of words

Same words, different interpretation

Example term	The user thinks:	The scientist means:
positive trend	good trend	upward trend
theory	hunch, speculation	scientific understanding
uncertainty	ignorance	range
error	mistake, wrong, incorrect	difference from exact true number
bias	distortion, political motive	offset from an observation

Be aware of different interpretations of words

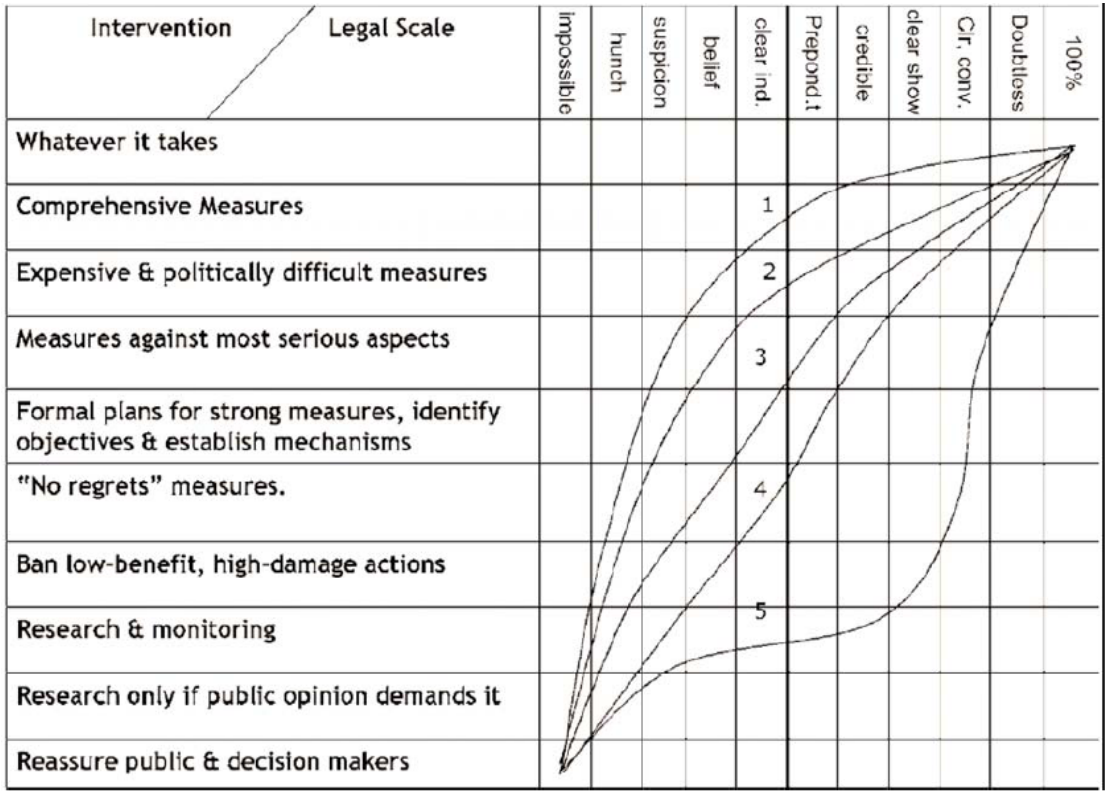
Dialogue with users to find out their needs

Needs are about: variable, resolution, time horizon...

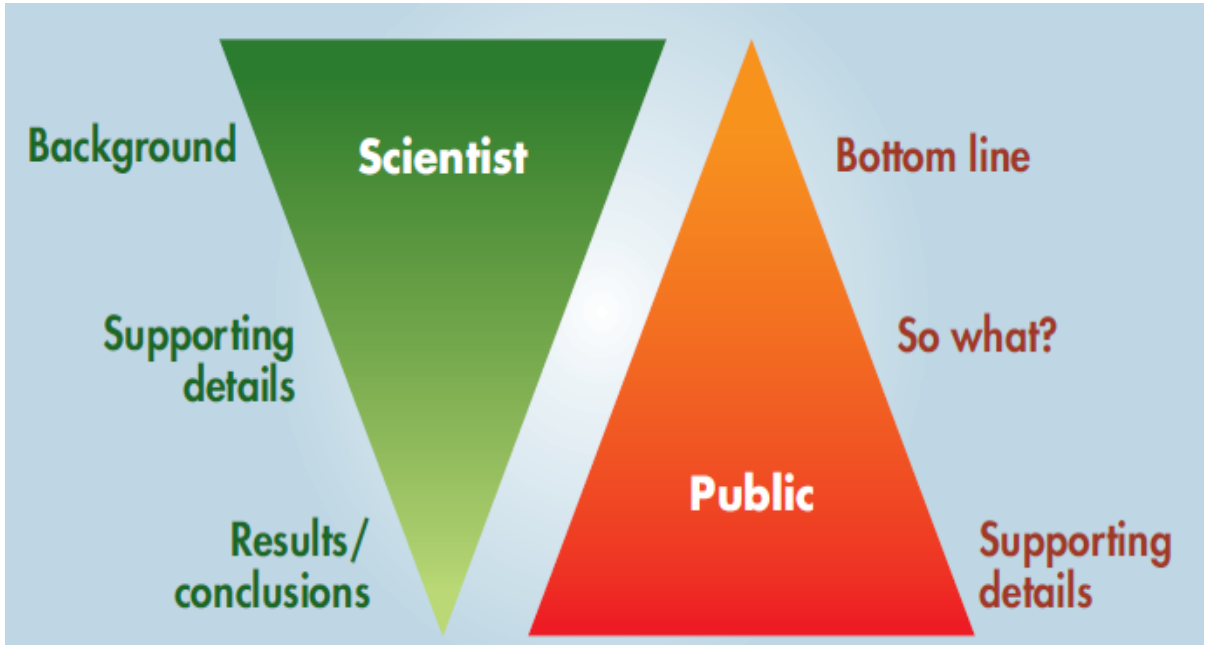
But also:

- How will they use the data?
- How do they deal with uncertainties?
- What perception of risks and opportunities?
- How to visualize the result?

A dialogue is needed to solve misunderstandings

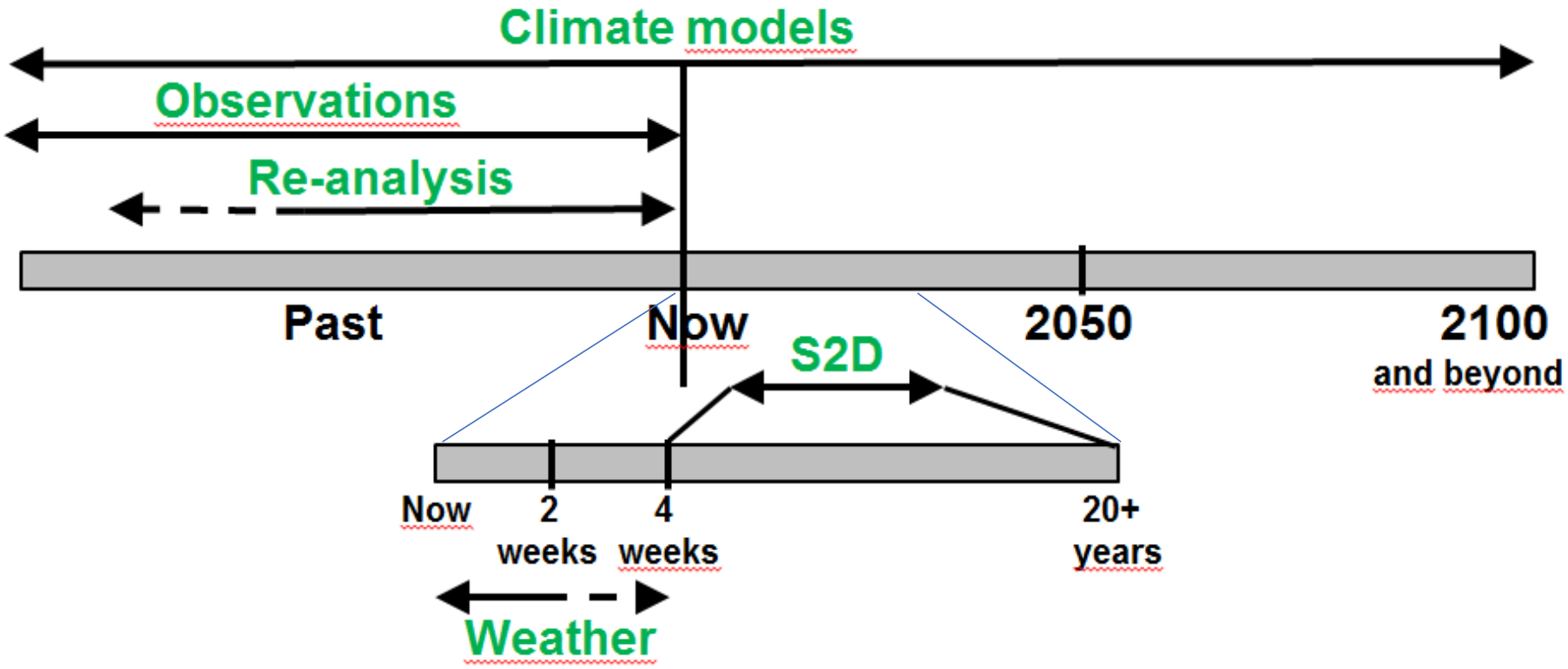


Dialogue with users to find out their needs



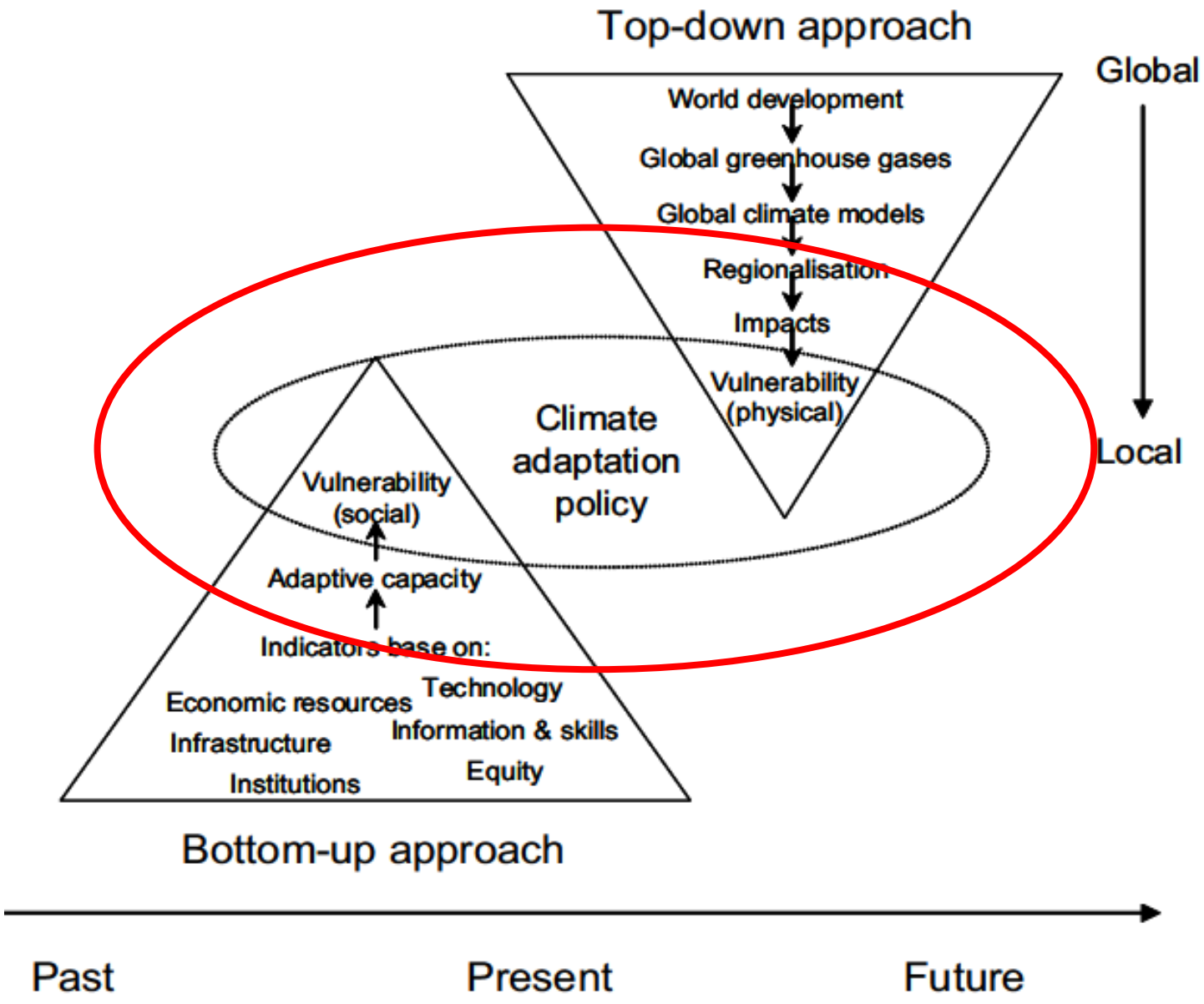
- Keep your audience in mind, translate info to their world and the media that they use
- Don’t tell too much and keep the main message in mind
- Check the interpretation of your audience
- Try different ways to present the information

Step 3: Selecting climate data



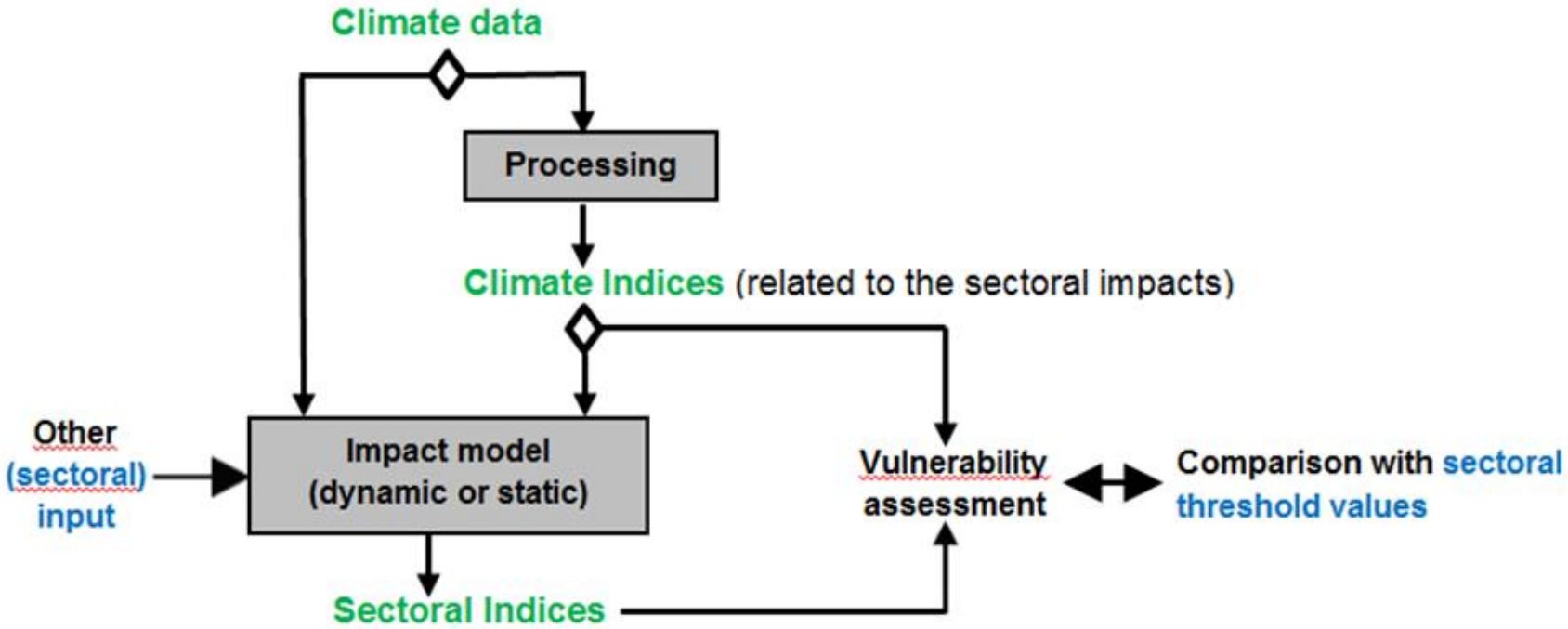
S2D: Seasonal to decadal predictions

Both ways at the same time



Creating climate data takes a lot of time, keep learning from each other, and work with what is available

Step 4: Processing climate data



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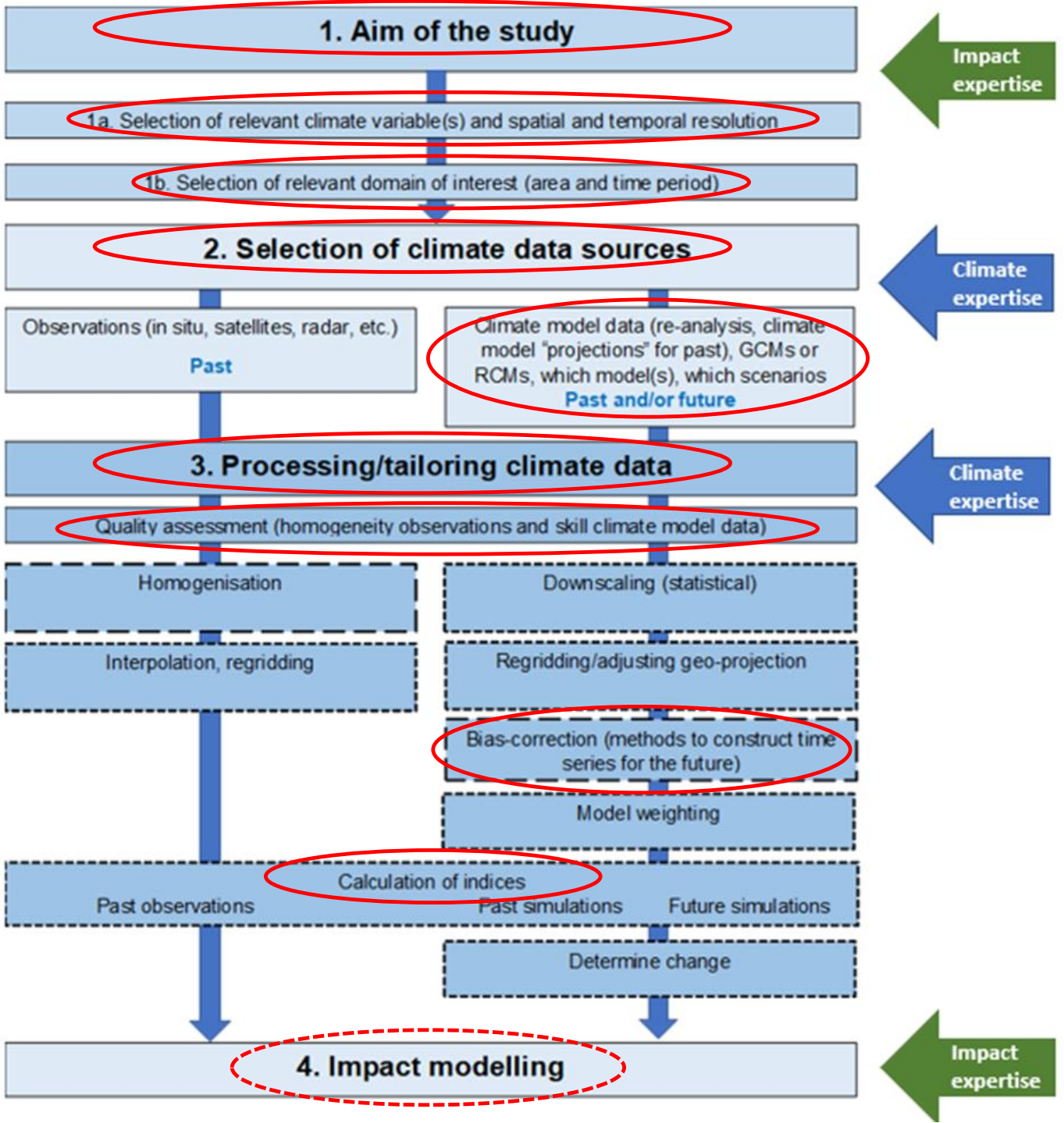
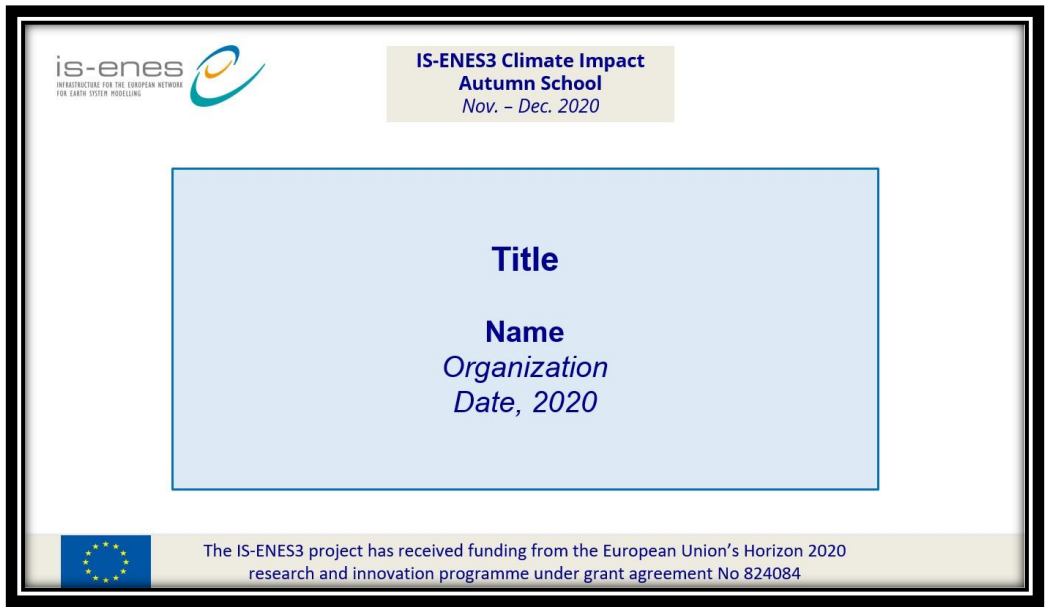


Step 5: case study report in final sessions



Report: ppt

- Context and aim
- Result
- Discussion strengths and weaknesses of the result
- Follow up?
- Reflection: most important lessons for you