

# CLIMATE CHANGE ADAPTATION IN NORWAY, SWEDEN, AND FINLAND – DO RESEARCH, POLICY AND PRACTICE MEET? - CARePol



Heikki Tuomenvirta<sup>1\*</sup>, Karoliina Pilli-Sihvola<sup>1</sup>, Reija Ruuhela<sup>1</sup>, Jenni Heikkinen<sup>2</sup>, Markku Ollikainen<sup>2</sup>, Markku Rummukainen<sup>3</sup>, Elin Löwendahl<sup>3</sup>, Louise Simonsson<sup>4</sup>, Björn-Ola Linnér<sup>4</sup>, Karin André<sup>4</sup>, Inger Hanssen-Bauer<sup>5</sup>, Eirik Førland<sup>5</sup>, Bob van Oort<sup>6</sup>, Grete Hovelsrud<sup>6</sup>

<sup>1</sup>Finnish Meteorological Institute, <sup>2</sup>Helsinki University, Department of Economics and Management <sup>3</sup>Swedish Meteorological and Hydrological Institute, <sup>4</sup>Linköping University, Center for Climate Science and Policy Research, <sup>5</sup>Norwegian Meteorological Institute, <sup>6</sup>Center for International Climate and Environmental Research, Oslo

## Objectives:

Building on climate, impact and adaptation research, in **dialogue with policy and practitioner representatives:**

1. Assess the present use of regional climate scenarios in communication, decision-support and decision-making on climate change adaptation and mitigation → to assess the flow of use of research results
2. Map the present status of national and Nordic adaptation studies
3. Identify and analyze differences and best practices in the Nordic countries
4. Provide recommendations for future impacts and adaptation research relevant to decision making and practice

## Methodology:

1. Three questionnaires conducted in Finland, Norway, and Sweden aimed at
  - Climate scenario producers
  - Climate scenario users (scientist and expert community)
  - Decision makers in governmental and regional level, who use both climate scenarios and other climate research information on impacts, adaptation and vulnerability
2. Compilation of a list of adaptation studies in the three countries. *(not shown in this poster)*
3. Adaptation policy in Finland, Sweden and Norway is assessed by using national adaptation strategies or policy documents as a background material. Assessment of adaptation policies is made between use of climate scenarios, vulnerable sectors and the exactness of adaptation measures. *(not shown in this poster)*
4. Synthesis, recommendations and identification of best practices in the three countries. *(in progress)*

## Examples of studies on the information flow from the research community to the policymakers:

### 1. From questionnaire for climate scenario producers

Climate variables available for climate impact, vulnerability and adaptation studies

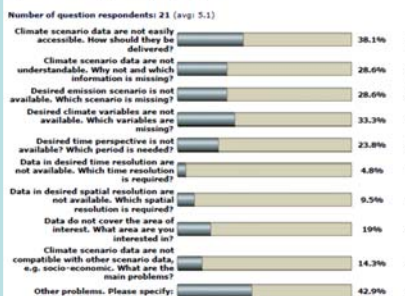
Variables	Number of projections (79)
Air temperature, 2 m	61
Surface temperature	33
Precipitation	64
Total cloudiness	47
Evaporation	25
Snow water equivalent	31
Total runoff	25
Soil moisture	25
Surface pressure	38
Mean sea level pressure	38
Max temperature, 2 m	46
Min temperature, 2 m	46
Average wind speed, 10 m	41
Max wind speed, 10 m	42
Dew point temp., 2 m	19
Relative humidity, 2 m	17
Specific humidity	8
Net SW radiation	37
Downward SW radiation	42
Net LW radiation	37
Downward LW radiation	37
Snowfall	33
Max precipitation-6h	4
Max precipitation-24h	1
Max precipitation-3d	4
MaxSnowfall-6h	4
Max temperature change in 6h	4
CO <sub>2</sub>	10
Sea level	9
Probability distribution, temperature	8
Probability distribution, precipitation	7
Cloud probability	4
Snow probability	4
Heating Degree Days (DD)	6
Growing DD	5
Cooling DD	7
Hot days	7
Frost days	3
Freeze-thaw cycles	5
Hours with icing	4
Frost season	1
Snow season	1
Growing season	5
Consecutive dry days	1

### 2. From questionnaire for climate scenario users (scientific community)

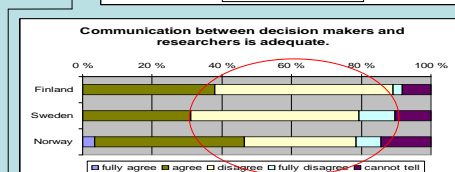
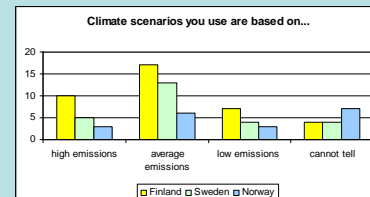
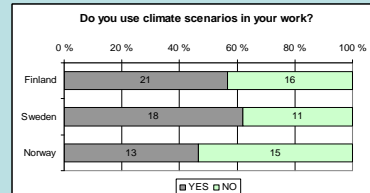
Have you received the information you wanted?

	Finland	Norway	Sweden	Grand Total
No	11	5	3	19
Partly	3	2	1	6
Yes	12	7	9	28

If you answered No, please specify why not:



### 3. From questionnaire for decision makers:



## Preliminary# conclusions

- Scenario users are in general satisfied with the data that can be provided, but express a need for more reliable (models comparing better with reality) and more detailed data with a higher spatial resolution
- In order to increase relevance in adaptation strategy planning, climate scenarios should be developed in concert with societal scenarios
- More communication is needed among scenario providers, scientists who apply scenario data in their work and policymakers. There is a need for more guidance and follow-up from scenario providers to users and from research community to end-users, especially on how to deal with the interpretation and communication of uncertainties.

- Somewhat different needs of sectorial research were expressed by decision-makers in the three countries. Energy sector was considered highly relevant in all three countries.
- IPCC reports, seminars and the expert authorities are the most important sources of information for decision makers.
- No major differences were found between countries in how sectoral vulnerability is assessed

CARePol is one of the CIRCLE Nordic projects on "Research on consequences of climate change for policy making in the Nordic countries" and it will be finalized in 2009. #CARePol will deliver three reports on questionnaire results; web catalogue on adaptation research projects in Finland, Norway and Sweden; assessment of national adaptation strategies; and a final report including policy recommendations.

Academy of Finland, Swedish Environmental Protection Agency and The Research Council of Norway are acknowledged for their financial support.

\*Contact: [heikki.tuomenvirta@fmi.fi](mailto:heikki.tuomenvirta@fmi.fi), tel +358 50 5746824