

Swedish Research to Support National and Local Adaptation to Climate Change

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From “Climate change, so what?” to “Climate change, what to do?”

- The implementation of adaptation options cannot be informed only by the output of climate models
- Vulnerability to climate change is also determined by local factors that are often unrelated to climate change, but which do affect the capacity of an individual, a community or a sector to adapt

Information needs for adaptation

- Issue identification and awareness raising
- Priority setting
- Strategic planning and policy development
- Operational decision-making

Issue identification and awareness raising

- Assessments are aimed at obtaining a picture of:
 - Potential impacts of climate change on human and natural systems
 - The extent to which adaptation could reduce these impacts
- Typically relies on the use of scenarios and models (traditional climate impact research)
- Spatial scale is global to national, sometimes more detailed; temporal scale is decade to century
- Requires (often bold) assumptions on adaptation
- Example: Studies based on the IPCC Technical Guidelines

Priority setting

- Assessments are aimed at providing insights into:
 - The relative importance of impacts and the urgency of addressing them
 - The relative importance of climate change compared to other developments
- Typically interprets scenario- and model-based information in a dialogue with stakeholders
- Spatial scale is regional to mostly national; temporal scale is year to decade
- Example: National Adaptation Programmes of Action

Strategic planning and policy development

- Assessments are aimed at identifying:
 - Opportunities to incorporate adaptation into sectoral planning and decision-making
 - Current and future needs for building adaptive capacity
- Typically involves a participatory approach to setting criteria for adaptation and to evaluating adaptive capacity
- Spatial scale is regional to sub-national; temporal scale is year to decade
- Example: UNDP Adaptation Policy Frameworks

Operational decision-making

- Assessments are aimed at evaluating:
 - The effectiveness of alternative adaptation options
 - The most suitable time and place for their implementation
- Typically involves the use of decision tools, possibly in a participatory setting
- Spatial scale is national to local; temporal scale is year to decade
- Example: Climate Adaptation: Risk, Uncertainty and Decision-Making (UKCIP)

The research dilemma

- To meet these different information needs would require a joint effort from climate impact research and climate adaptation research
- However, the two types of research appear to be moving into different directions

Impact research

Continued reliance on scenarios and models

Recent developments:

- Increasing spatial scale and resolution
- Increasing number of climate variables
- Scenarios of non-climatic changes
- Stakeholder involvement



Adaptation research

Increased reliance on qualitative methods

Important characteristics:

- Place-based studies that consider every situation as unique
- Climate change in a broader context
- Focus on adaptive capacity
- Participatory approaches



Relevant research in Sweden (1)

- Sweden has developed a world-renowned climate modelling capacity (SWECLIM) and also focuses strongly on hydrological and ecosystem impact assessment, including model coupling
- Engineering risks of climate change are studied by the Swedish Geotechnical Institute
- Most research on adaptation carried out in Sweden focuses on developing countries (*e.g.*, Lund University, Linköping University, SMHI, Swedish Agricultural University, Stockholm University, SEI)

Relevant research in Sweden (2)

- Recently a number of initiatives have been taken to address adaptation in Sweden:
 - Government inquiry on vulnerability to climate change (Ministry of Environment)
 - CLIMATOOLS (Defence Research Agency)
 - Stockholm (RTK)
 - Adaptive capacity to floods (Formas)
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The current situation

- Information needs for adaptation
 - Issue identification and awareness raising
 - Priority setting
 - Strategic planning and policy development
 - Operational decision-making

- Sweden has a strong natural science and engineering knowledge base, which has been successful in identifying the issues and raising awareness
- Sweden is in the process of setting priorities for action
- Research to support strategic planning, policy development and operational decision-making is underrepresented

The challenge

- Successful adaptation in Sweden would require:
 - Investing in the development of knowledge and tools for adaptation that build on local experiences and incorporate climate information
 - Taking a risk-based approach to climate change to enable decision-makers to evaluate impacts and adaptation options along with other issues
 - Conducting participatory research to understand better the factors that influence the process by which people do or do not adapt



Thank you very much for your attention

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