MISTRA SWECIA
CLIMATE, IMPACTS & ADAPTATION

Exploring diverse knowledge systems for adaptation: the case of the Swedish Mistra-SWECIA programme

ECCA Conference

Hamburg 18 March 2013

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Specific aim & approach

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Aim

- Explore how different knowledge systems converge and evolve in participatory processes in the context of climate change adaptation

Approach

- Case study of the Swedish forestry sector
- Interdisciplinary: research on climate, impacts and adaptation, combined in participatory processes on CCA

Knowledge system

A network of actors connected by social relationships, either formal or informal, who dynamically combine knowing, doing and learning to bring about specific actions for sustainable development (van Kerkhoff & Szlezák, 2006)

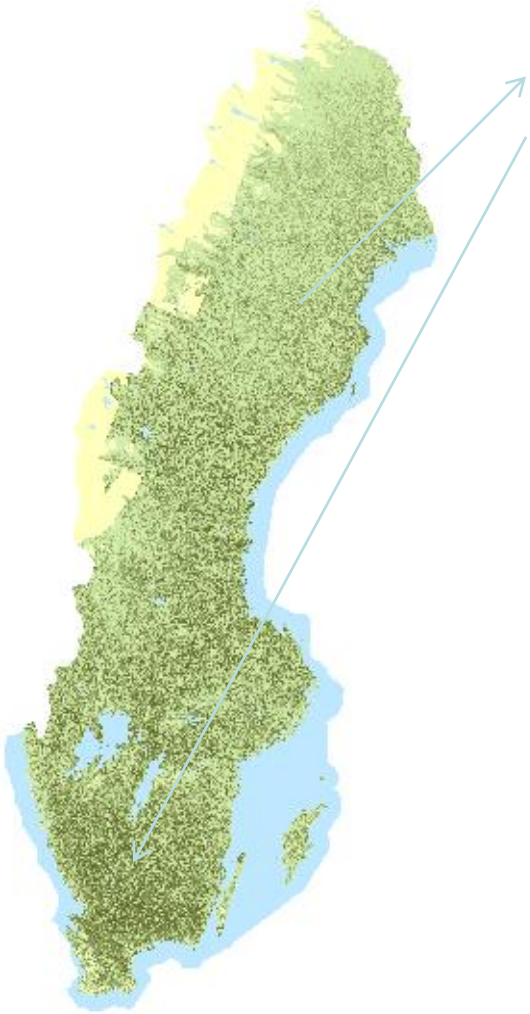
The context

CC has considerable impacts on forestry

  - increasing stress and vulnerability for the forest and its species on the one hand, and forest owners and companies on the other

- Forests can contribute to solving the problem (mitigation)
- Nearly 60% of Sweden covered by forest land, traditionally highly valued by citizens, 350 000 private forest owners
- 3% of GDP, 11 percent of Sweden's exports
- Forest management practices include e.g. road construction and maintenance, ditching, thinning and salvage of trees, harvesting, reforestation

Participatory research approach



Two case study regions of Swedish forestry (2010-2011):

- Västerbotten County
- Kronoberg County

Involved 27 stakeholders as informants

- Private forest owners
- Forest professionals (area inspectors, forest agency advisers, buyers, public and private forest companies)

Discussion themes in focus groups & final stakeholder workshop

- Exploration of risk perceptions and exposure
- Interactions w experts, scientifically discussion on climate and impact scenarios; implications for forestry
- Expectations of future adaptation needs, barriers, possible pathways within Swedish forestry

Follow up interviews

- Assess longer-term effects of participatory process in terms of learning, general reflections

Preliminary results (Phase I)

Knowledge types represented (simplistic model)

Scientific knowledge

- often explicit knowledge derived from formal, natural, social & behavioural sciences
- In MSW: CC & impact scenarios; participatory process designed and facilitated by social scientists

Local knowledge

- informal, lay, personal, experiential, often implicit or tacit, possibly expert
- In MSW: Forest owners

Hybrid knowledge

- Various degrees of knowledge integration (multi-, inter-, transdisciplinary research; combining local knowledge)
- In MSW: forest professionals; process of knowledge integration in focus groups

Scientific knowledge highlighted

- Increase in temperature and precipitation, notably winters
- Less snow and ground frost, shorter length of season
- Uncertainty re future frequency & storm magnitude
- Longer vegetation periods
- Storm and bark beetle damage on spruce, other insects, fungus
- Sensitivity of spruce forests to wind
- Risks for forest management, e.g. shorter rotation length=reduced risk

Knowledge mismatches

- Insufficient data on risks of: infestations, 'wet snow', amount of water, depth /duration of ground frost, tree felling, timing / length of warm periods → Useful input to further simulations (e.g. periods below +5 degrees not critical, insights into problems of road damage)
- Not suffiently tailored to local conditions within which they are operating , in order to serve as effective decision support

Stakeholder preferences for scientific information

Userfriendliness

Colorful graphs helpful but wish for verbal translation into non-technical language. Little space for application and experimenting based on scenarios

The setting / process

Informal, interactive discussion amongst model expert/s and stakeholders, conducive environment, opportunity for sense-making and co learning.

Practical relevance

Impact scenarios more useful for long term planning, no urgency in forest mgmt measures (’maximum one per year’). Some limits: lack of holistic perspective; uncertainty about the quality of scenarios, forest owners ‘exposed’ to science.

The process of knowledge integration

- Limited change in mindsets and (long term) learning on the part of forest professionals ("repetition", "knew much of this before")
- Moderate change in mindsets and self reported learning on the part of forest owners
- Different stakeholders possess diverse knowledges and interests; the participatory process should be tailored to the specific needs and aims
- Science- stakeholder interactions serve as a two-way communication and mutual learning process
- Currently unmet need to exchange local and experiential knowledge with other forest owners

Conclusions & lessons for Phase II

Expanded scope of inquiry

- From knowledge types & roles to knowledge systems & the process of knowledge integration (world views and values, social networks, leadership, power) to better understand governance of adaptation

Change in research design

- Add pre-assessment of stakeholder knowledges & values
- Tailor to the specific contexts and particular stakeholders
- Focus on climate impacts of practical relevance → agent-based model to study human behaviour and decision making strategies
- New programme component on science-policy interface incl partner-driven studies and syntheses

THANK YOU!

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With acknowledgements to programme partners, colleagues and Mistra