

Barents region futures under different global socio-economic scenarios

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Adaptation Futures 2016

May 10-13, Rotterdam, the Netherlands

Session: Scenarios, governance and adaptation in the Arctic, May 10, 13.30-15.15

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Background

- AACA: Adaptation Actions for a Changing Arctic
Rapid Arctic change places focus on need for adaptation
- Adaptation planning requires assessing risks related to uncertain futures
 - > Scenarios are tools to discuss the future and identify pathways for adaptation

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What are the assumptions in our approach?

“Scenarios: plausible, often simplified descriptions of how the future may develop based on coherent and internally consistent assumptions about key driving forces and relationships”

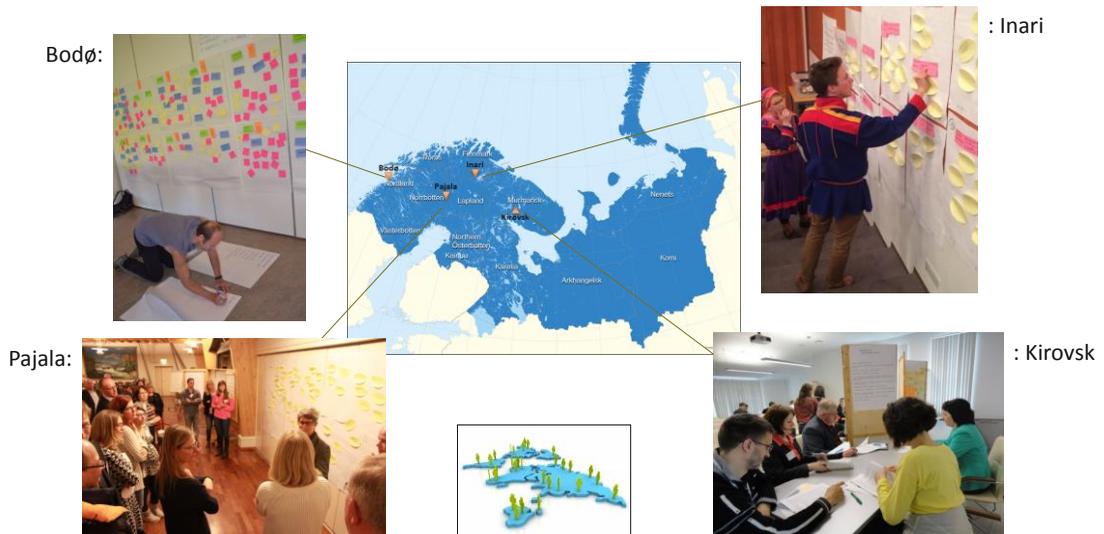
Assumption about relationships:

- Future of regional and local development is entangled with global development pathways

Assumption about drivers (and identifying these):

- Driving forces can be many
- Need to involve local actors to identify locally important issues, drivers and uncertainties, and to understand and reflect (on) local dynamics

Methodology: global to local connection – local narratives



Methodology: global to local connection – global scenarios

Global SSPs (shared socioeconomic pathways, IPCC AR5): Standardized and comparable approach.

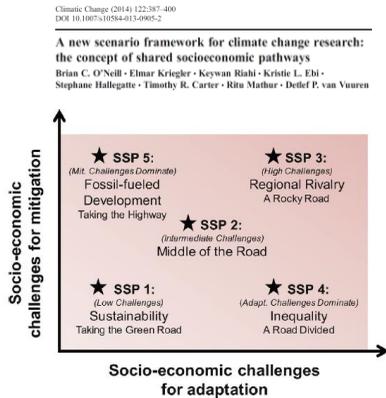


Table 2 Initial starting points for SSP narratives, based on Kriegerler et al (2012). SRES analogues are based on comparison of storylines only. See van Vuuren and Carter (2013) for a more thorough assessment of analogues to existing scenarios

SSP	Challenges	Illustrative starting points for narratives	Possible SRES analogue
SSP 1	Low for mitigation and adaptation	Sustainable development proceeds at a reasonably high pace, inequalities are lessened, technological change is rapid and directed toward environmentally friendly processes, including lower carbon energy sources and high productivity of land.	B1, A1T
SSP2	Moderate	An intermediate case between SSP1 and SSP3.	A2
SSP 3	High for mitigation and adaptation	Unmitigated emissions are high due to moderate economic growth, a rapidly growing population, and slow technological change in the energy sector, making mitigation difficult. Investments in human capital are low, inequality remains high, and economies are relatively trade flows, and institutional development is unfavorable, leaving large numbers of people vulnerable to climate change and many parts of the world with low adaptive capacity.	
SSP 4	High for adaptation, low for mitigation	A mixed world, with relatively rapid technological development in low carbon energy sources in key emitting regions, leading to relatively large mitigative capacity in places where it mattered most to global emissions. However, in other regions development proceeds slowly, inequality remains high, and economies are relatively isolated, leaving these regions highly vulnerable to climate change with limited adaptive capacity.	No analogue
SSP 5	High for mitigation, low for adaptation	In the absence of climate policies, energy demand is high and most of this demand is met with carbon-based fuels. Investments in alternative energy technologies are low, and there are few readily available options for mitigation. Nonetheless, economic development is relatively rapid and itself is driven by high investments in human capital. Improved human capital also produces a more equitable distribution of resources, stronger institutions, and slower population growth, leading to a less vulnerable world better able to adapt to climate impacts.	A1FI

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Which changes will affect the region economically, socially and environmentally in 2 generations from now?



Identify issues of importance, and uncertainty: drivers of change

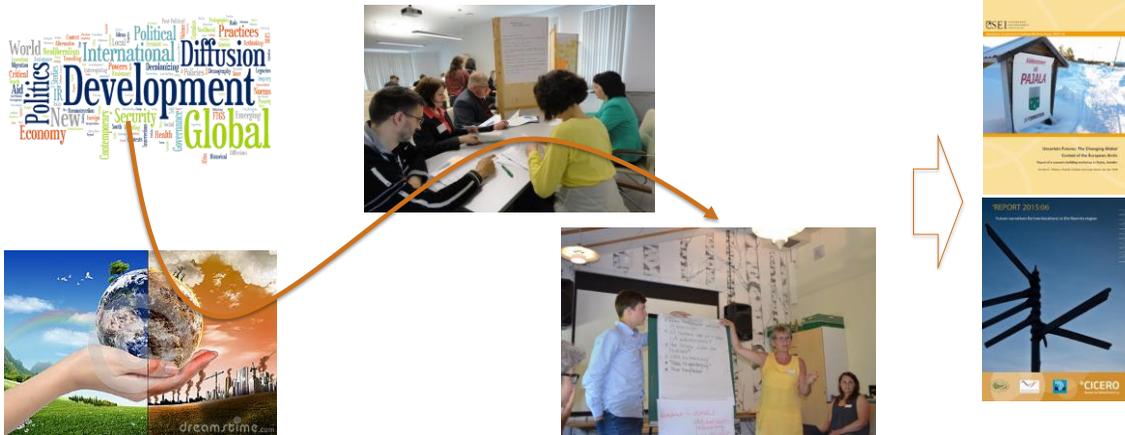


Clustering and Voting



Ranking: Which drivers are most important? Most uncertain?

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+ AACA report
+ Paper

Findings

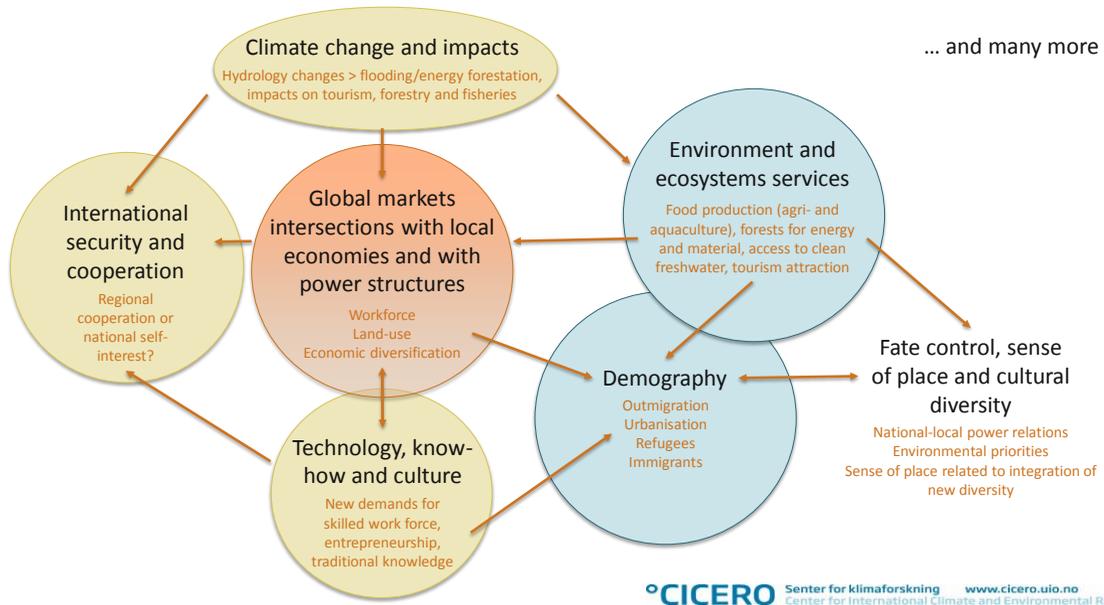
Markets and Economy
 Security, health
 Climate change
 Demography

Resources
 Knowledge/Technology
 Demography
 Ideology, culture, values

Markets and Economy
 Climate change
 Politics, regulations
 Security, health

	Barents Region		Bodø (NORWAY)			Kirovsk (Russia)			Pajala (SWEDEN)		
	Importance	Uncertainty	Importance	Uncertainty	Importance	Uncertainty	Importance	Uncertainty	Importance	Uncertainty	
1	Overarching issues										
	Markets and Economic developments	24	19								
2	Ecosystems and natural resources										
	Security and health	13	8								
3	Ideology, values										
	Demography (structure)	12	7								
4	Knowledge and Technology										
	Climate change	11	10								
	Politics, policies, regulations	9	13								
	Transport	4	1								

Key themes and linkages in extended local narratives



Key conclusions

- ☺ Narrative approach helps identify 1) key issues and drivers, and 2) linkages and interdependence between these
 - Current focus often on adaptation to current climate (and potential change)
 - Climate important element of change in the north, but many other (global and local) drivers are of greater influence
 - Local adaptation challenges closely linked to global developments
 - Local impacts of global development influenced by local entrepreneurship, values, skills, and power
 - ☹ Impacts and narratives are spatio-temporal context dependent
 - Identification of local issues depends on local and regional economic structures and resource base
 - Timing plays a large role in prioritizing drivers/factors/issues
 - ☺ *But:* (feedbacks) Participation and insights more important than narratives themselves
- ➡ Narratives very useful tool, and need increased focus on including, co-developing and communicating socio-economic scenarios and narratives

Thank you

And also to:

Henrik Carlsen (Stockholm Environment Institute, Stockholm, Sweden),
 Ingrid Bay-Larsen (Nordland Research Institute, Bodø, Norway),
 Maiken Bjørkan (Nordland Research Institute, Bodø, Norway),
 Kirsti Jylhä (Finnish Meteorological Institute, Helsinki, Finland),
 Elena Klyuchnikova (Kola Science Center, RAS, Apatity, Russian Federation),
 Vladimir Masloboev (Kola Science Center, RAS, Apatity, Russian Federation),
 Annika E Nilsson (Stockholm Environment Institute and KTH, Stockholm, Sweden),
 Lize-Marié van der Watt (Umeå University, Sweden)



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Submission number: ABSSUB-1120
 Title: Barents region futures under different global socio-economic scenarios
 First Choice Theme: The Arctic

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Title of the session : Scenarios and futures thinking in practice: the arctic in 2050

Organisation name:: Arctic Monitoring and Assessment Programme AMAP

Research question: How might global developments influence local futures in the Barents region, and what differences exist within the region? We present a systematic methodology for how global socio-economic pathways can be utilised at the local level in a participatory setting for generating narratives about the future. We also present example narratives from a workshop series consisting of three workshops in the Barents region in which local and regional actors generated possible futures linked to a set of global scenarios in a time perspective of 30-50 years.

Methodology: The methodology employed utilises the 'scenario matrix framework' developed by the climate change research community. In our approach, the local futures narrative are based on linking local and regional "bottom-up" input with the global contexts are provided by Shared Socioeconomic Pathways (SSPs) of the matrix framework. Interactive workshops held in the Swedish, Russian, and Norwegian north generated the bottom-up input, where participants identified locally relevant drivers of change and discussed how they might play out in different future worlds as provided by the SSPs.

Findings: The results show that active engagement of local actors brings out dimension and issues that are usually not highlighted in scenarios that focus on larger scales. In addition to climate change and its impacts, the narratives generated from the workshops highlight both specific local concerns and how they link to developments at other scales. The issues include power over decision-making, sense of place, and social features that affect the capacity to shape the future and to adapt, such as entrepreneurship. Demography, including migration, also plays a central role in future challenges from a local perspective. Finally, global market dynamics, international cooperation and security are identified as a key factors which will play out differently at the local level under different global futures.

Significance for practical solutions: A key challenge for the impacts, adaptation and vulnerability (IAV) community is to enhance comparability between studies from different regions and from different sectors. The new scenario matrix framework is a promising starting point for doing this. The work presented here shows one way of utilising this framework and at the same time ensuring that knowledge and perspectives from local stakeholders are included. In our case, the workshop results show that participatory methods for co-producing future narratives are a powerful way to add nuance to discussions about Arctic futures. These can be used to explore the boundaries of Arctic futures, the "best and worst case" scenarios for local adaptation, and to test the robustness of certain decisions.

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