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Imagining climate-resilient futures through adaptation-stories

Nina Pirttioja,
Päivi Abernethy, Sami Ahonen, Stefan Fronzek, Tiina Jouppila, Kirsti Jylhä, Niina Kautto, Sanna Luhtala, Taru Palosuo, Karoliina Rimhanen, Reija Ruuhela, Kirsti Saarremaa, Timothy R. Carter

Finnish Environment Institute (Syke)

Policies & Risks Group, Climate Solutions Unit

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Context

- Climate change is rapidly reshaping societies and sectors, underscoring the need for adaptation
- Adaptation requires proactive action to address current and future climate impacts, mostly implemented locally or regionally
- The volume, complexity, and uncertainty of available information can hinder stakeholders' ability to make decisive decisions
- Effective adaptation requires more than information: practical examples, participation, and emotionally engaging messages
- Climate change adaptation-stories seek to deepen understanding and stimulate imagination, supporting the **envisioning of adaptation solutions**

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Assessment of climate change impacts

For example, in the case of heatwaves, the risk to health posed by a heatwave is the result…

…of the heatwave itself,

…the characteristics of the population (such as age and health status)…

…the number of people affected, the thermal performance of the dwellings in which they live…

…and implemented preventive and adaptive measures—such as heat-resilient building design, access to cooling and early warning systems

Source: Simpson et al. 2021, with modifications

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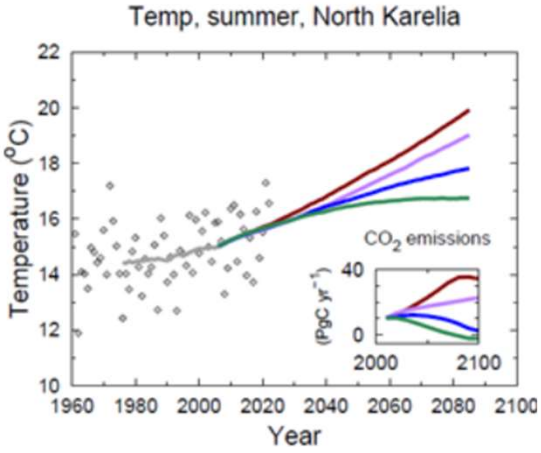
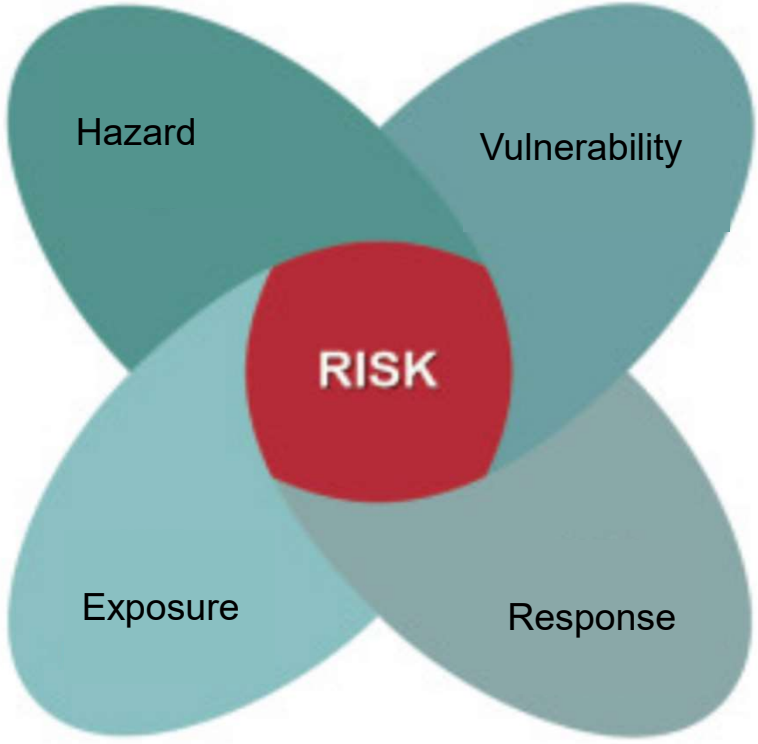
Assessment of climate change impacts

Climatic impact drivers (hazard)

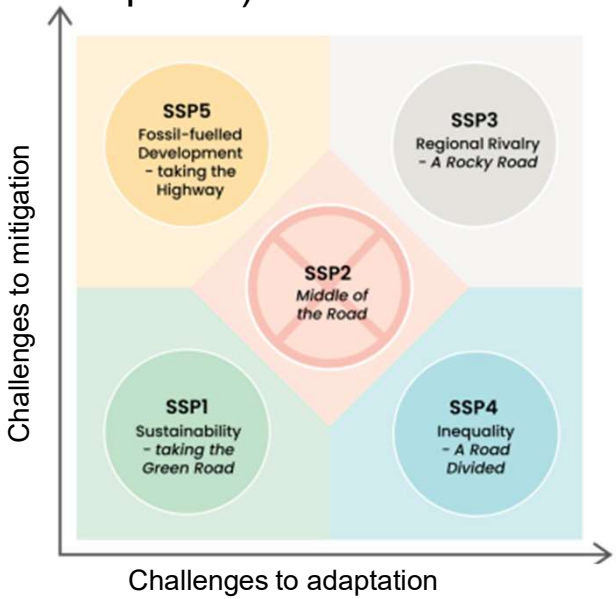


Source; Carter et al. 2025, http://hdl.handle.net/10138/603119



Source: Simpson et al. 2021, with modifications

Non-climatic impact drivers (vulnerability, exposure, response)



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Non-climatic impact drivers

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SSP1 Sustainability – Taking the Green Road

Sustainable development in North Karelia is promoted through education and research. Societal change is built on social justice. Regional cooperation is increasing and demand for ecological products growing, while consumption is being channelled in a sustainable direction. Sustainable lifestyles and better access to nature increase citizens' health and well-being. Joensuu's role as the Eu… Forest Capital is strengthening the region's contribution to the green transition. Ho… some resistance to change and conflicts do still occur.

SSP3 Regional Rivalry – A Ro…

North Karelia faces significant challenges as internat… tres are shrinking and wealth is increasingly concentr… Confrontation, distrust and xenophobia are becoming … community structures is becoming more important. Tra…

SSP4 Inequality – A Road Divi…

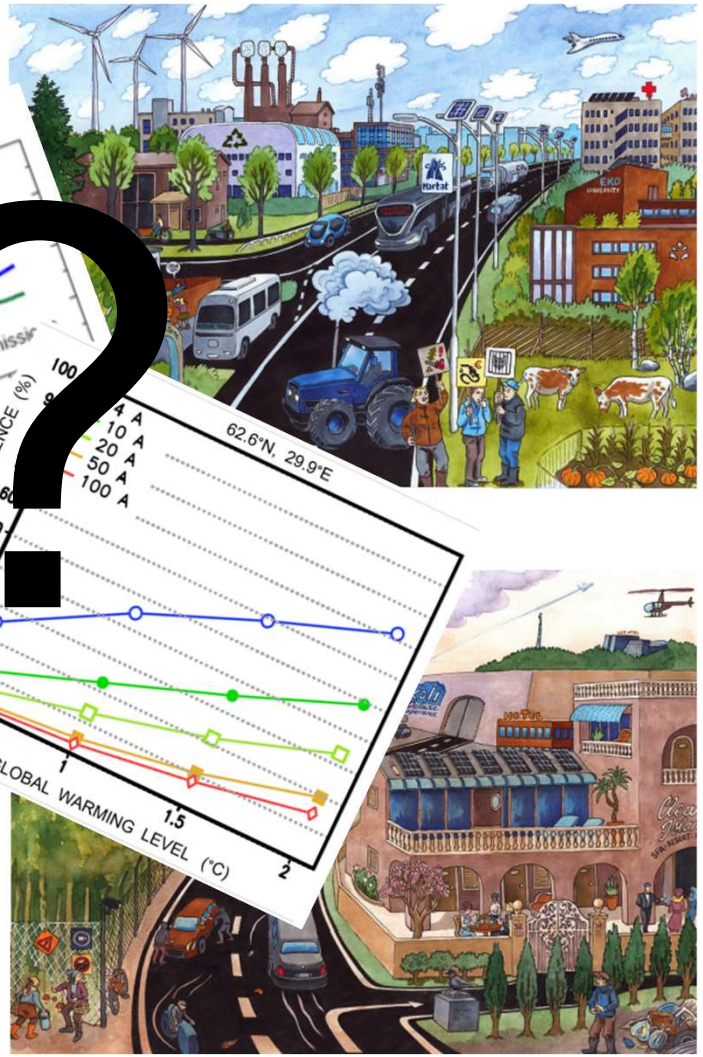
In an increasingly unequal world, North Karelia is also sufferi… wealth are increasingly concentrated in the hands of the few, … increasingly unequal. Healthcare provision is polarising, with lif… in poor areas, while the wealthy enjoy high quality services. Rura… tion as urbanisation accelerates. Social tensions are rising as peop… to influence their own lives. Trust in society is declining among a la… …jority of citizens, wh… ings of insecurity are growing.

SSP5 Fossil-fuelled Development – Taking the Highway

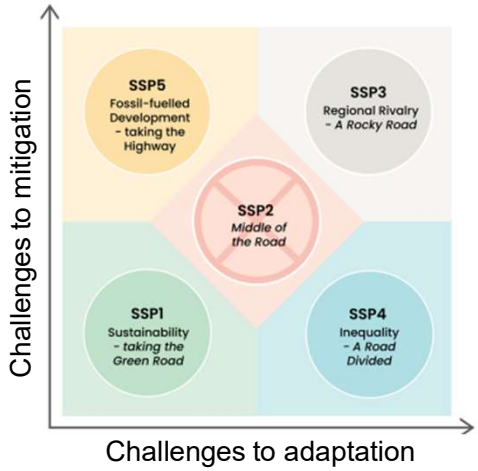
The development of North Karelia is based on the use of fossil fuels, which together with a strong forestry sector supports the economic vitality of the region. Society benefits from energy intensity, which enables widespread consumption and strengthens the economy. Lifestyle diseases associated with overconsumption place a strain on health care. This is being addressed, for example, through the privatisation of healthcare. Natural values and sustainable activities are being neglected as people become alienated from nature.

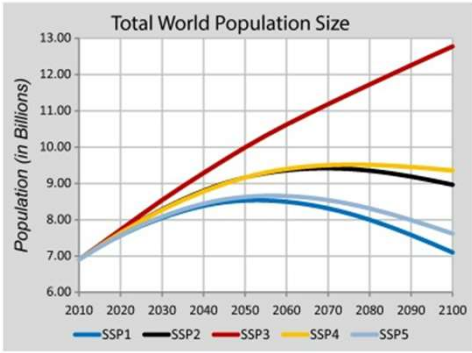
Source; Carter et al. 2025, http://hdl.handle.net/10138/603119

SSP1



Non-climatic impact drivers





Source; KC & Luz 2014

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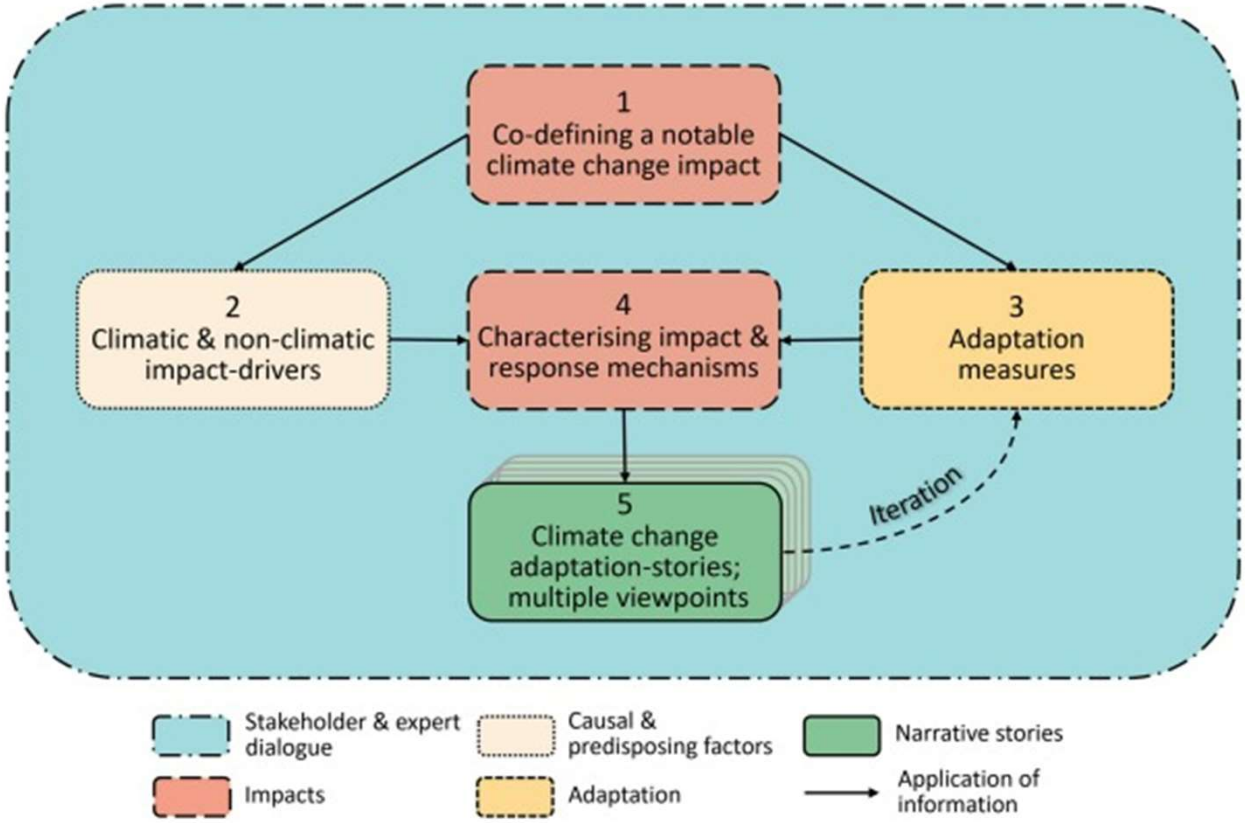
Climate change adaptation-stories – Participatory process

- Climate change adaptation-stories offer a science-based way to envisage adaptation from the perspective of a chosen topic
- Focus is on **climate change impacts perceived notable by local actors on a given topic**
- Co-created with local stakeholders
- Summarize projected impacts of climate change and capture viewpoints of local actors regarding potential adaptation measures
- Concrete and lively stories that are tailored to the values and interests of the target audience



Source: Adaptation-stories for imagining futures adjusting to a changing climate
Pirttioja et al. 2025 https://doi.org/10.1016/j.crm.2025.100785

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Climate change adaptation-stories – Characteristics of an effective story

Table 1 Characteristics of an effective story and how each aims to aid understanding of information

Characteristic	Aim
Action-based conceptualisation[a]	Promote social learning, agency and, hence, action in real life
Certainty language[b]	Aid assimilation of knowledge
Concreteness[c]	Pave the way for a reader's imagination to aid understanding
Human scale[c]	Facilitate manageable treatment of global scale issues
Interesting content[c]	Catch a reader's attention so they may leave with useful knowledge
Positive messaging[d]	Promote proactive and constructive action
Present tense[e]	Avoid future discounting
Relatedness[c]	Allow new information to resonate with existing beliefs and relate to daily experiences
Truth (vs fact)[f]	Encourage an understanding of truth via one's own imagination rather than through acceptance of received facts

[a]Meyer et al. (2020); [b]Budescu et al. (2014); [c]Kearney (1994); [d]O'Neill & Nicholson-Cole (2009); [e]Hill et al. (2008); [f]Harris (2020)

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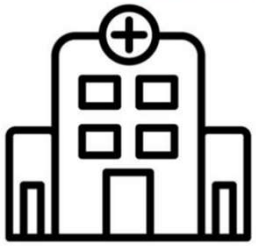
Climate change adaptation-stories – Hospital stories



Adaptation to heat-related climate change impacts at Seinäjoki Central Hospital, Finland – Different viewpoints to same impact – "Future we want"

Nurse Saarni in 2040

"What a relief to be heading to work during this heatwave! Apparently, this year's is likely to be another record-breaker. The dry and hot weather has occasionally been interrupted by intense thunderstorms and heavy rains, leaving the air warm and humid, like a cow's breath. In other words, it's been extremely uncomfortable – at least outside of work. Inside the hospital, however, the conditions are quite comfortable; so comfortable, in fact, that some of us actually prefer to work in July rather than take a vacation. I'm one of them. Even though the workload and number of patients increase during these heatwaves, it's still manageable to work here.

We always get a surge of patients during heatwaves, particularly older adults with chronic illnesses. Most of them are women suffering from cardiovascular and respiratory symptoms. Many people also experience disruptions in their fluid and electrolyte balance during extreme heat, which can then affect their kidneys. Various infections tend to heal more slowly and may even require extended care. That said, the heat takes a toll on working-age people as well—we see them as patients, too. Thankfully, we have contingency plans in place for different weather conditions, each with clear, concrete instructions that everyone knows how to follow. Heat warnings and impact forecasts are monitored closely.

Hospital engineer Sari in 2040

Phew it's hot! As the years go by it's become increasingly demanding to climb the hill up to the hospital on a bike that relies solely on traditional muscle power. But these summer heatwaves have also grown more oppressive during the more than twenty years I've worked at this hospital. The hospital campus has changed considerably in that time, with many new buildings appearing in the area. Nonetheless, I have to admit that I'm full of admiration for how well the new unit that was built in 2032 fits into its surroundings, both in terms of its form and façade. What's this though - the hospital's wind turbine doesn't appear to be turning today, even on top of the hill —oh no! The same is probably true for most of the other turbines in the region too. Well, there's a clear sky, so even with no wind hopefully there'll be ample solar power to compensate. No real need for concern then.

Now I need to hurry to inspect the monitors for checking that all hospital buildings are functioning correctly. According to these readings the solar panels on the new building are generating electricity for the hospital at nearly full capacity. Those panels don't overheat because the green roof helps regulate the temperature. However, the panels on the roofs of older buildings have apparently overheated and are not generating at the same level as those on the new building.

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Climate change adaptation-stories – Dairy stories

Adaptation of dairy production to heat-related climate change impacts – alternative futures

Fictional accounts set in the 2040s/2050s, reflecting social, ecological and economic perspectives

SSP1

A dairy farm in Lieksa is adapting to climate change by combining traditional expertise with technological innovations

...But back to the present. The cows that grazed outside during the night are now queuing their way back to the barn. It's certainly more comfortable inside, where the automated system adjusts ventilation based on the temperature. This ensures the cows have the best possible conditions during the hottest parts of the day. Fortunately, electricity prices in Finland have remained reasonable, so all the technology we use doesn't cause extra worry. After all, as the newspapers have written, Finland has managed to stabilise electricity prices by investing over the decades in renewable and self-sufficient energy production...

SSP4

Locality is favoured and self-sufficiency strengthened on a farm in Lieksa

...When the local dairy farms began shutting down, multinational companies started appearing in the area. They aggressively sought to make contracts with local milk producers. While these new players bring stability and jobs to the region in these uncertain times, Venla and I didn't want to get involved in that. Profitability tends to decline even further when working with multinational companies, and their operations often leave much to be desired in terms of ethics. Most of the remaining farms here have become large-scale intensive production units. However, we wanted to focus on socially and environmentally sustainable dairy farming. That's why we made a contract with a local dairy, which produces high-quality products. Especially during holiday seasons, well-off people from the cities come here who are willing to pay for cleanly produced food and quality services...

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Stakeholder Views on Adaptation-Stories

They are applicable for diverse target groups in seminars and workshops, adaptable to social media and blogs, and can be enriched through visual illustrations.

Adaptation stories can be used to stimulate future-oriented thinking and discussion, helping participants to conceptualize possible future scenarios.

They require clear framing of their purpose; the stories are not meant to function as guidelines or formal scenarios.

They help make complex topics more accessible and engaging while offering practical examples and inspiring learning experiences.

Those who favor data-driven and analytical approaches may not strongly identify with storytelling methods.

Illustrations can attract attention but may also distract if they conflict with participants' own mental imagery.

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Thank you!

nina.pirttioja@syke.fi

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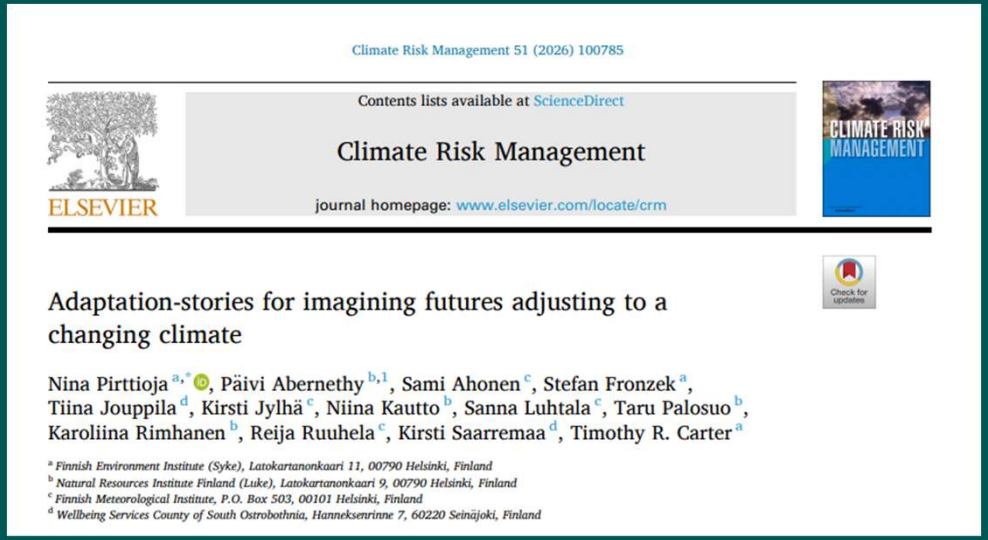

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Nina Pirttioja [a,*], Päivi Abernethy [b,1], Sami Ahonen [c], Stefan Fronzek [a], Tiina Jouppila [d], Kirsti Jylhä [c], Niina Kautto [b], Sanna Luhtala [c], Taru Palosuo [b], Karoliina Rimhanen [b], Reija Ruuhela [c], Kirsti Saarremaa [d], Timothy R. Carter [a]

[a] Finnish Environment Institute (Syke), Latokartanonkaari 11, 00790 Helsinki, Finland
[b] Natural Resources Institute Finland (Luke), Latokartanonkaari 9, 00790 Helsinki, Finland
[c] Finnish Meteorological Institute, P.O. Box 503, 00101 Helsinki, Finland
[d] Wellbeing Services County of South Ostrobothnia, Hanneksenrinne 7, 60220 Seinäjoki, Finland

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