

Socioeconomic scenarios for health and social welfare in a changing climate

Progress since the PLUMES Scenarios Workshop, May 2019

The RCP-SSP scenario framework. Uncertainties associated with future climate change and its consequences limit the possibilities to predict future developments. However, we can still explore possible outcomes by using *scenarios* (plausible representations of future developments).

In high latitude regions like Finland, climate changes are projected to be greater than the global average¹. However, their risks and consequences for society depend on how exposed and vulnerable people are to those changes, which in turn is related to patterns and trends of socioeconomic conditions. Hence, for investigating the possible implications of climate change it can also often be useful to apply scenarios of future socioeconomic conditions in addition to climate scenarios.

A new global scenarios framework for climate change analysis was introduced in 2010². The so-called RCP-SSP scenario framework is designed around projections of global forcing of the climate (representative concentration pathways – RCPs) combined with projections of social and economic development (shared socioeconomic pathways – SSPs). We focus here on SSPs.

Shared socioeconomic pathways. SSPs were developed at global scale and offer five very different visions of future society and economic development, which comprise narrative descriptions and quantification of these for large world regions. SSPs are positioned with respect to socio-economic challenges for mitigation and adaptation (Figure 1). They cover many important socio-economic and sustainability issues and drivers, including those related to consumer behaviour, attitudes to health, well-being and related services, sustainability awareness, directions of technology development, international cooperation and trade.

SSP workshop for the Finnish health and social welfare. In May 2019 a PLUMES³ stakeholder workshop was held in Helsinki at the Finnish Environment Institute (SYKE) aiming to construct national-scale narratives of how the Finnish health and social welfare (HSW) sector could look in the context of these global SSPs. The workshop considered the four SSPs positioned at the corners of Figure 1, omitting SSP2, which is an intermediate case. Insights gained from a few earlier exercises to develop SSP narratives for the health sector globally⁴ and for multiple sectors in Europe⁵ were used as a starting point.

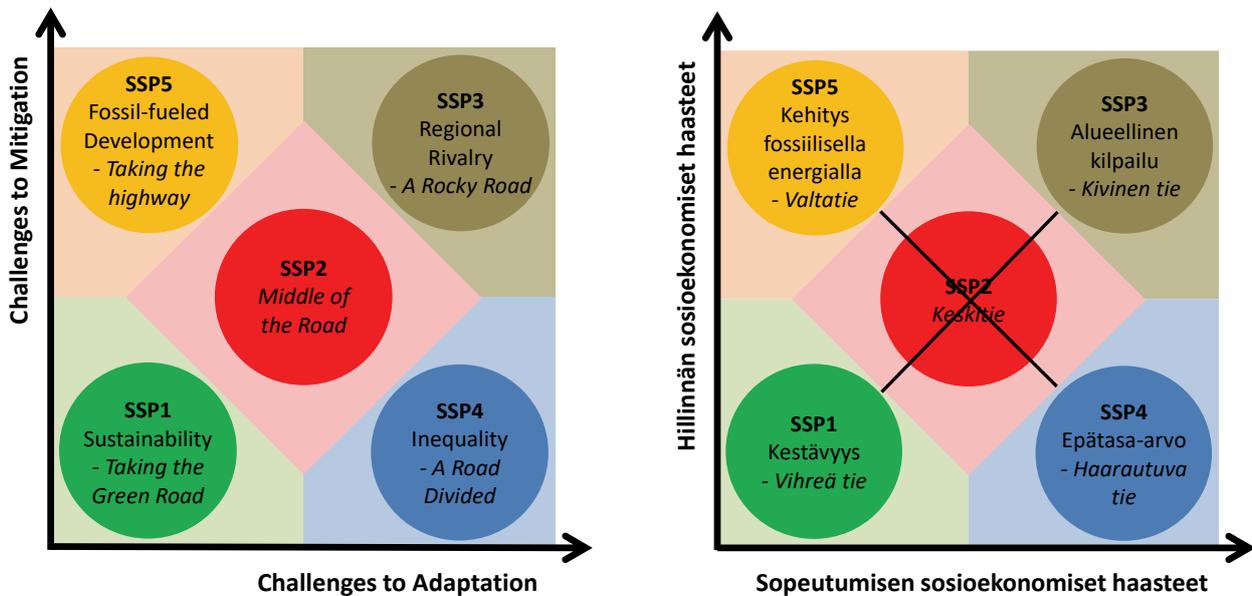


Figure 1. Shared socioeconomic pathways (SSPs) characterising challenges to mitigation and adaptation. Left: Original SSPs⁶ Right: SSPs with Finnish labels – SSP2 was not considered in the PLUMES Workshop

Stakeholders were invited to consider what are the most important nationally-specific issues and conditions in the four SSP worlds that are likely to influence the evolution of the Finnish HSW sector out to 2050 and beyond. About 40 stakeholders participated in the workshop, drawn from a broad spectrum of expertise and experience in the HSW sector including public and private healthcare providers, ministries, municipalities, insurers, care organisations, employment representatives, researchers and NGOs.

Workshop discussions were organised around five themes: a) society and lifestyle, b) healthcare system, c) research and technology, d) education and information and e) environment. These were discussed for each of the four SSP worlds from the perspectives of: 1) citizens, 2) service providers and 3) decision-makers.

Initial results. The results of the workshop are currently being analysed with an aim to create narrative scenarios for the HSW sector in Finland. In Table 1 we offer a flavour of how participants characterised the development paths in Finland for each of the four SSPs.

These are only brief snapshots, meant for illustration. More complete narratives are being developed that account for the full results and are designed to:

- explore uncertainties in future HSW variables of relevance in the context of climate change
- provide input assumptions for models used to investigate climate change and health

- offer future context for adaptation and mitigation decisions
- form a basis for developing quantified HSW indicators
- complement projections of future climate (based on RCPs, mentioned above)

Table 1. Sample characterisations of the Finnish health and social welfare sector in the four contrasting SSP worlds considered at the PLUMES workshop and organised to be consistent with Figure 1

<p>SSP5 (Fossil-fuelled development)</p> <p><i>... technological development plays a major role in solving societal issues and while overall welfare is increasing, its distribution is uneven ... digitalisation, self-help and new methods of measuring one's own health are enhancing health services ... lower priority is accorded to health education with greater reliance placed on commercialization and market orientation ...</i></p>	<p>SSP3 (Regional rivalry)</p> <p><i>... population growth declines, due in part to the deterioration of health services and of health in general and to the prevalence of various preventable diseases ... the education system is in decline, general sentiment is dominated by a strong sense of nationalism and even populism ... inequality and polarization are in the ascendancy, as Finland turns in on itself, following the pattern of an introverted world ...</i></p>
<p>SSP1 (Sustainability)</p> <p><i>... there is an emphasis on science-based decision making and service provision, with citizen involvement in all aspects of societal and individual well-being ... a diverse and inclusive lifestyle is supported in Finland in which research and education are appreciated and inequality has been tackled ... health care is comprehensive, preventative and accessible to all ...</i></p>	<p>SSP4 (Inequality)</p> <p><i>... with society fragmenting and polarizing in many dimensions, democracy and institutions are under threat in Finland ... with a gradually growing elite but thinning of the middle class, inequality has risen at all levels of society ... public health services are still made available to the most vulnerable groups through a diminished model of the Nordic welfare state ...</i></p>

The narratives, which will be ready in draft form (pending peer review) by late 2020, should additionally offer an opportunity to align scenario studies of health and climate change in Finland with many other studies around the world that also use the SSP framework, providing a consistent basis for inter-comparison.

Participant feedback on the workshop. Responses by 20 participants to a survey conducted after the event revealed a general sentiment that the workshop had been important. They also found it necessary for opening a conversation about climate change issues with different health sector stakeholders, though some found the scenario world to be somewhat complicated and too sharply differentiated.



”Paras anti oli näkemyksen laajeneminen, mikä saattaa tulevaisuudessa tuoda uusia oivalluksia! Lisäksi verkostoituminen on aina hyödyllistä.”

[...] ”Skenaarioiden taustaoletusten avaaminen olisi ollut hyväksi, väestö- ja bkt-ennusteiden perusteet eivät tulleet esille eivätkä olleet kaikilta osin uskottavat ainakaan saamamme taustatiedon puitteissa.”



“[...] terveystyö on tähän asti ollut varsin hiljaa ilmastonmuutokseen sopeutumiseen liittyvissä kysymyksissä. Tämä avasi nyt laajan keskusteluyhteyden monien terveysalan eri edustajiin.”

”On toiveikkuutta herättävää nähdä, että THL ja ympäristöalan toimijat tekevät yhteistyötä ilmastonmuutoksen hyvinvointiriskeihin liittyen [...] Suuri kiitos järjestäjille. Päivä oli tiivis, mutta onnistunut. Tunnelma oli myös lämmin, hyvin työpajan osallistujat huomioiva sekä avointa ja välitöntä vuorovaikutusta tukeva ja ruokkiva.”



The general feedback was positive, and participants hoped that the health and climate change theme along with scenario development would continue to be addressed and communicated amongst stakeholders in the future. There is a clear opportunity to build on the groundwork initiated in the PLUMES project during the ongoing Academy of Finland Programme on Climate Change and Health (CLIHE)*.

¹ Ruosteenoja et al. (2016) Climate projections for Finland under the RCP forcing scenarios. *Geophysica* 51:17–50.

² Moss et al. (2010). The next generation of scenarios for climate change research and assessment. *Nature* 463:747–56

³ Academy of Finland-funded project: Pathways linking uncertainties in model projections of climate and its effects (PLUMES)

⁴ Sellers S, Ebi KL (2017) Climate Change and Health under the Shared Socioeconomic Pathway Framework. *International Journal of Environmental Research and Public Health* 15, 3

⁵ Mathijs E, et al. (2017) Scenarios for EU farming. H2020 SURE-Farm (Sustainable Resilient EU Farming Systems) Project, Deliverable D1.2, 60 pp. [link](#)

Rohat G (2018) Projecting Drivers of Human Vulnerability under the Shared Socioeconomic Pathways. *International Journal of Environmental Research and Public Health* 15, 554

⁶ Based on: O’Neill et al. (2017) The roads ahead: Narratives for shared socioeconomic pathways describing world futures in the 21st century. *Global Environmental Change* 42:169–180.

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