Climate change has significant effects around the world.

Climate change has already affected society in many ways, for example, in relation to water resources and food production, health and well-being and cities and infrastructure.

Observed impacts		Global	Europe	Arctic
Water resources and food production	Water availability	↑↓	↑↓	↑↓
	Crop production	↓	↑↓	↑↓
	Livestock health and productivity	-	↓	↓
	Fisheries yields and aquaculture production	↓	↑↓	↓
Health and well-being	Infectious diseases	↑	↑	↑
	Health and nutrition	↓	↓	↓
	Mental health	↓	↓	↓
	Displacement	↑	↑	↑
Cities, settlements and infrastructure	Inland flooding and associated damages	↑	↑	↑
	Flood/storm damage in coastal areas	↑	↑	↑
	Damages to infrastructure	↑	↑	↑
	Damages to key economic sectors	↑	↑	↑↓

Confidence:

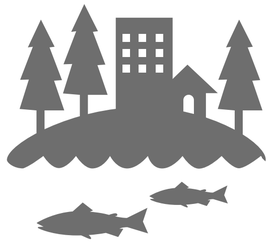
- High
- Medium
- Low

Direction of change:

- ↑ Increasing
- ↓ Decreasing
- \- Evidence limited, insufficient

To keep global warming under 1.5 °C, adaptive measures are needed in many sectors.

The feasibility of adaptation measures depends on technological, economic, socio-cultural, institutional and geophysical factors and various environmental factors.

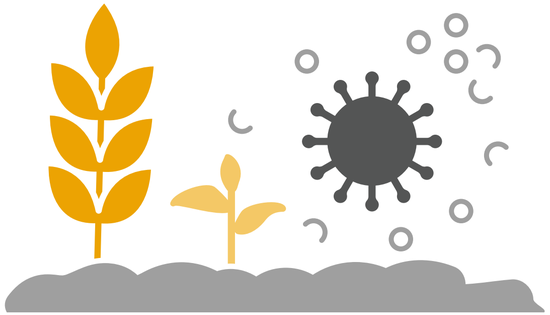
Adaptation options		Feasibility
 Terrestrial and ocean eco-system services	Integrated coastal zone management	●●
	Sustainable forest management, conservation and restoration	●●●
	Sustainable aquaculture and fisheries	●●
	Biodiversity management	●●
 Water and food security	Sustainable water management	●●
	Improved crop land management	●●
	Efficient livestock systems	●
 Urban infrastructure and services	Green infrastructure and ecosystem services	●●
	Resilient power systems	●●●
 Health, living standards and equity	Health and health systems adaptation	●●
	Livelihood diversification	●●

Confidence:
- High
- Medium

Feasibility level:
- ●●● High
- ●● Medium
- ● Low

Climate change affects food security all over the world.

The changes will affect all parts of the food production chain in a variety of ways.



Quantity and availability	Stability of supply	Access to food	Food utilisation
• Yields and productivity • Quality losses • Employee productivity • Pollination • Soil fertility and moisture • Plant pests and animal diseases	• Fluctuations in production • Pest and disease risks • Disturbances in food transport	• Resources available for food • Unstable agricultural incomes • Food price spikes	• Food safety risks • Diet diversity • Nutritional quality of food crops

Food security can be supported through various adaptive measures around the world.

Many adaptation measures have synergies with climate change mitigation and sustainable development. However, the effectiveness of the adaptation measures will be limited if global warming exceeds 1.5 degrees Celsius.

Policy measures –e.g. adaptation plans, regulation and certification

Community-based adaptation – supporting local adaptation through participatory approaches

Quantity and availability	Stability of supply	Access to food	Food utilisation
• Plant production measures, e.g. diversified cropping systems • Measures in animal production, e.g. rotational grazing • Plant breeding	• Diversification of production systems • Early-warning systems	• Insurance • Construction and strengthening of infrastructure	• Reducing food waste across different stages of the chain

Climate change also affects flooding in Finland.

Examples of impacted areas in Finland	Change 2040	Change 2080
Northern Finland and Ostrobothnia	≈ No significant change	?↓ Uncertain development or decreasing
The largest lakes in the lake district	≈↑ Inland flooding as common or more common	↑ Inland flooding increasing
Small watersheds in the South and West	≈↑ Inland flooding as common or more common	≈↑ Inland flooding as common or more common

Direction of change:

- ↑ Increasing
- ↓ Decreasing
- ≈ No significant change
- ? Uncertain development

Impacts vary from region to region, and adaptation and preparedness can affect flood risks.

Storm water floods caused by heavy precipitation will increase in urban areas.

Changes in inland flooding of rivers and lakes varies by region.

Rising sea levels and extreme weather phenomena will increase the risk of flooding on the coast of the Gulf of Finland.

Parjanne et al. 2021. SUOMI project final report, Gregow et al. 2021.