



Climate Change Adaptation activities in Norway

Therese H. Karlseng, senior adviser Section for Climate Science and Adaptation - 16.2.2016



Outline

- «The Norwegian history»
- Organization, roles and responsibilities
- The white paper and follow up activities in Norway
- Challenges and success factors



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The road towards the white paper

2007: Norwegian
Climate
Adaptation
Programme

- Headed by the Ministry of the Environment
- 10 ministries
- Programme secretariat

The Cities of the Future
Continuous research, i

The White Paper and National goal

- Norwegian society will prepare for and adapt to climate change



Challenges to be met in Norway



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Foto: Håkon Storheim



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Foto: Line Fjellvær



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Guidelines and plans in the White Paper

- Guidelines:
 - Everyone shares the responsibility
 - Sectoral responsibility
 - «Precautionary »approach
- The Government plan to:
 - Strengthen the knowledge base
 - Develop central planning guidelines
 - Appoint a committee assessing urban runoff water



Storting (Parliament building) in Norway. Photo: Håkon Storheim

Emphasis on regional and local level

- White Paper states:
 - the municipalities is in the front line
 - planning activities, municipal services, civil protection and nature management etc.
- Municipalities are obliged to:
 - take consideration of climate change
 - provide knowledge and competence
 - assess risk and vulnerability (ROS)
 - loss and damage



Foto: Kristin Karlsen, Miljødirektoratet



Foto: iStockphoto.com

Organization, roles and responsibility

- Ministry of Climate and Environment - overarching responsible ministry
- Sectorial responsibility
- Local implementation:
 - County governors
 - Municipalities
- Norwegian Environment Agency supports the Ministry of Climate and Environment

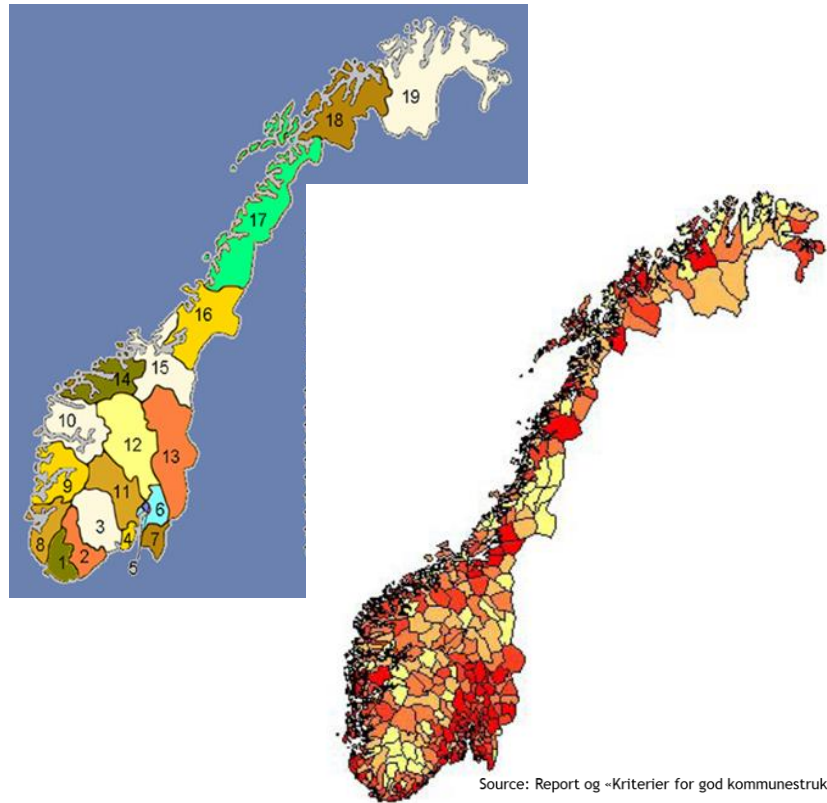


Major actors on national level

- Norwegian Environment Agency
- Directorate for Civil Protection (DSB)
- Norwegian Water Resources and Energy Directorate (NVE)
- Norwegian Public Roads Administration
- Norwegian Building Authority

- Research center: Norwegian Climate Service center (NCSS)

- The Norwegian Association of Local and Regional Authorities (KS)
- Finance Norway (FNO)



The Environment agency's roles

- National coordinator
- Climate change adaptation in the agency's own tasks



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What lies in the role of a national coordinator?

- Ensure an updated and strong knowledge base
- Stimulate cooperation
- Communicate knowledge and experience
- Report, both nationally and internationally
- Support international work, like IPCC and UNFCC

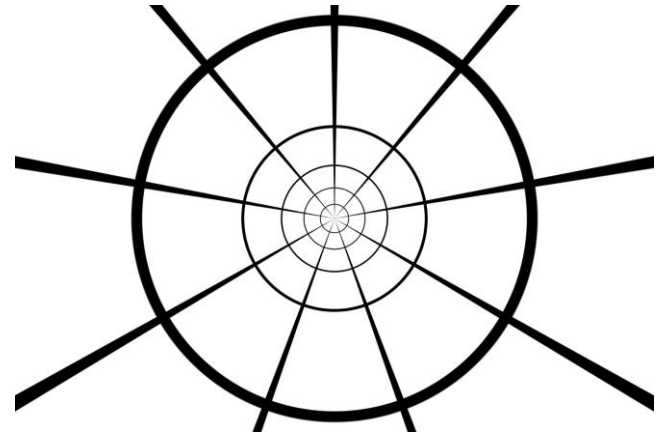


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Activities in Norway on Climate Adaptation

1. Strengthening the knowledge base
2. Central Planning Guidelines
3. Urban - runoff water
4. Capacity building
5. Communication - www.klimatilpasning.no
6. Other activities
7. International activities

1. To strengthening the knowledge base we need:

- A strong common physical science basis
- Regular updates of knowledge on impacts and vulnerability, and assessments of adaptation needs
- More knowledge about consequences and adaptation measures



Climate Norway 2100 - Major findings

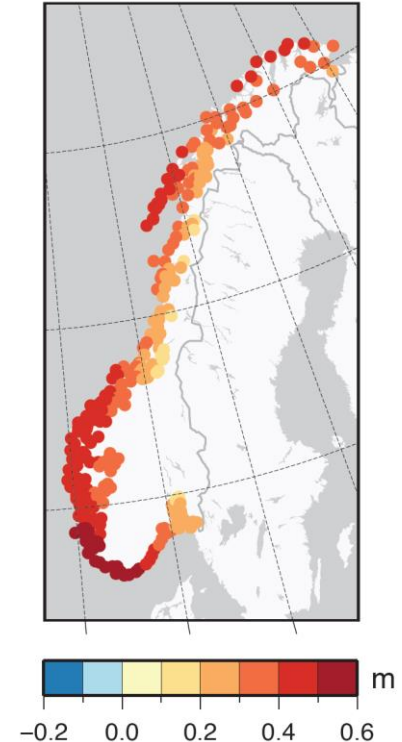
Under RCP8.5 (most likely values relative to present time) Norway will experience:

- temperature increase (4,5 °C)
- precipitation increase (18 %)
- large loss of snow in low-lying areas
- fewer glaciers
- sea level increases



Sea level change- Major findings

- observed significant increase in the rate of change
- general pattern governed by the vertical land motion
- sea level increases between 15 and 55 cm depending on the localization and scenario
 - RCP2.6 -0.10 and 0.30 m
 - RCP4.5 0.00 and 0.35 m
 - RCP8.5 0.15 and 0.55 m
- storm surge level of most importance



Strong focus on research in Norway

- Norwegian Research Council: Large-scale Programme on Climate Research (KLIMAFORSK)
 - Long-term program for research and higher education (Official Norwegian report 7 (2014-2015))
 - Prioritized research needs for environmental management



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2. Central planning guidelines

- according to the Plan and building Act
- describing how municipalities and counties can incorporate climate change adaptation work into their planning activities



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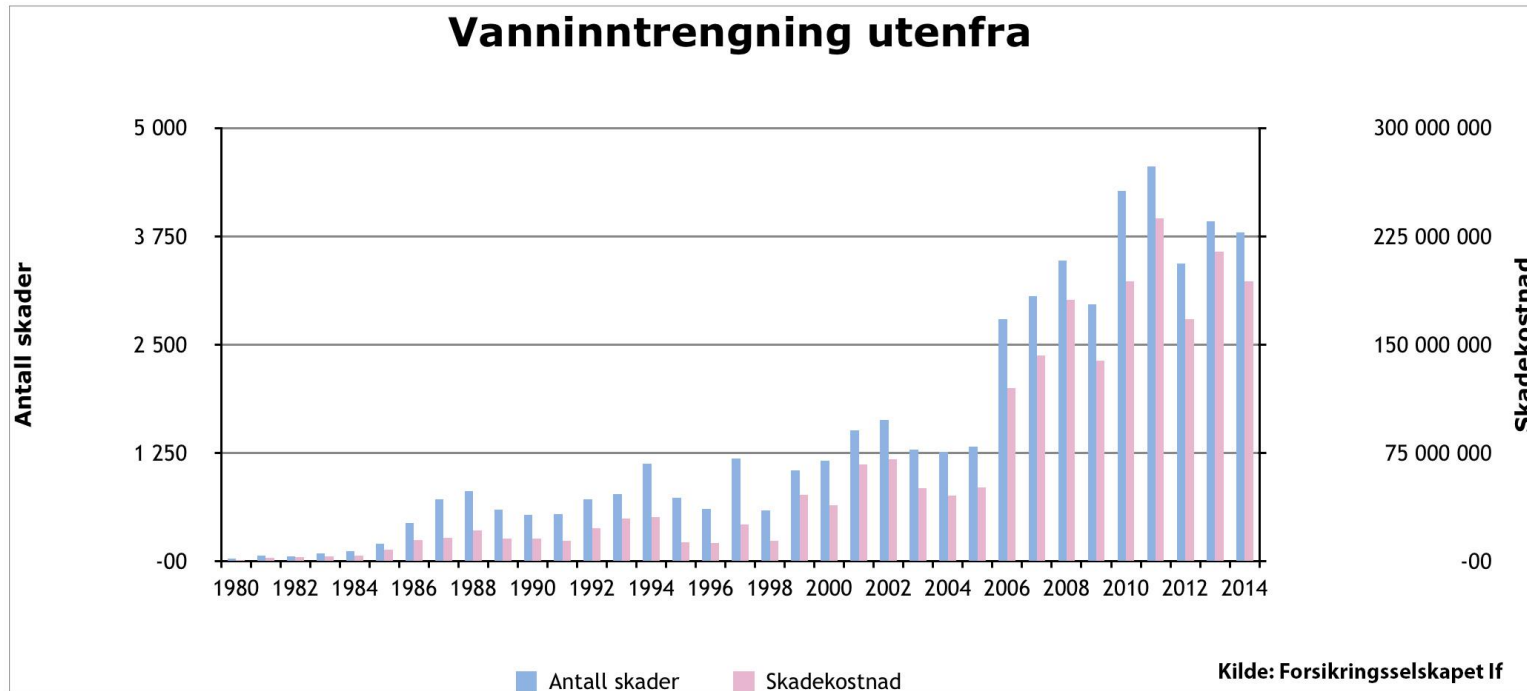
2. Central planning guidelines

- provide general, overall directions and indicate national policy
- clear and coordinated directions
- make room for local adaptation



Lørenskog September 2015.
Foto: Harald Henden, NTBScanpix

3. Urban runoff water



Green paper on urban runoff water

- committee was appointed to evaluate the current framework on urban runoff water
 - Green Paper in December 2015
- current legislation and framework have been summarized and published
- developing a template to help cities making their own urban runoff water strategies



Kværnerdalen 2. september 2015.

Foto: Stein J Bjørge, NTBScanpix

4. To build capacity we ...

- support county governors
- host network on local level
- administrate grants for activities on local level



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Capacity building - County governors

- give tasks to county governors
 - implement new relevant knowledge
 - build competence
 - identify local and regional needs
 - coordinate
 - assist and guide the municipalities
- support projects and activities (pilots)
- reference group

County governors – joint activities/pilots

- training course for municipalities
- cross-sectorial projects
 - Forest roads
 - Waste disposal site
 - Nature management
- develop guidelines on how to incorporate climate change issues into municipalities' planning

Climate change adaptation network

- Frontrunner network
 - 11 major cities with extensive experience on climate change adaptation
 - hosted by the Norwegian Environment Agency
- Municipality network
 - 22 municipalities
 - hosted Norwegian Association of Local and Regional Authorities (KS)

The frontrunner network should contribute to:

- increased competence, shared knowledge and lesson learned
- practical implementation of new solutions
- developing national climate change adaptation work

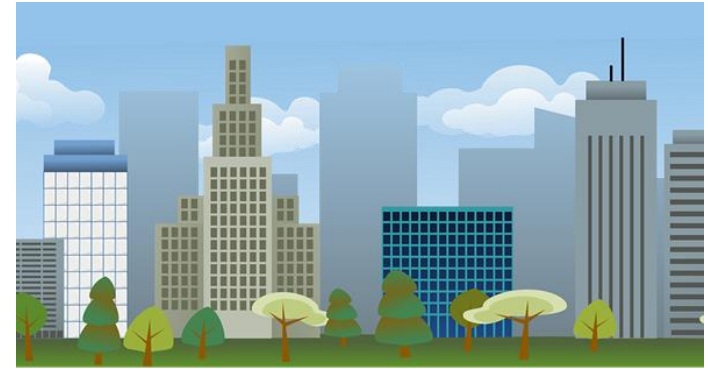


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Risk and
vulnerability
assessment

Insurance
claims

Blue-green
solutions

Grants for climate change adaptation

- Support adaptation activities on local scale
- Support assessments on:
 - how climate change impacts municipalities` tasks and exercise of authority
 - which adaptation measures are needed in order to be come climate-resilient



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5. The Norwegian climate adaptation portal- Klimatilpasning.no

- Gather knowledge, guidances and lessons learned
- Stimulate to actions
- Stimulate to collaboration
- Meet the users where they are



Strategy on climate communication

- Adaptation plays an important role in the agency's climate communication strategy (2015-2020)
 - Close to “home”
 - Concrete solutions
 - Increase awareness
- Ongoing projects:
 - Short movies
 - Campaign reaching house owners



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6. Other activities - Monitoring and reporting

- Have assessed how to develop indicators
- Assessed activities in EU and European countries
- Support EEA in an expert group

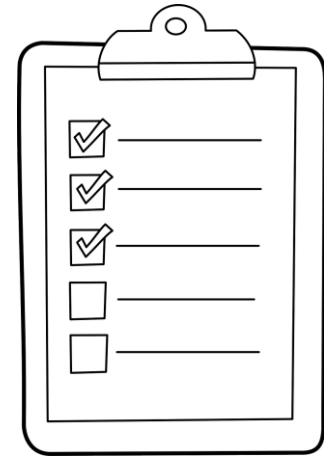


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Green roofs; from southern to northern Norway

- Assess the green roof potential in Norway
- Analyze across various climate zones and combination of vegetation and growing medium
- 7 roofs from southern to northern Norway



Photo: Einar Flaa, Miljødirektoratet

7. International activities

- Support the Ministry of Climate and Environment
- Take part in networks and bilateral cooperation
- Artic council
- EEA - activities



Challenges and success factors

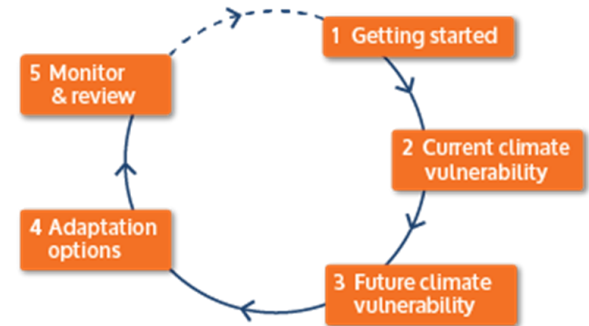
Challenges and barriers

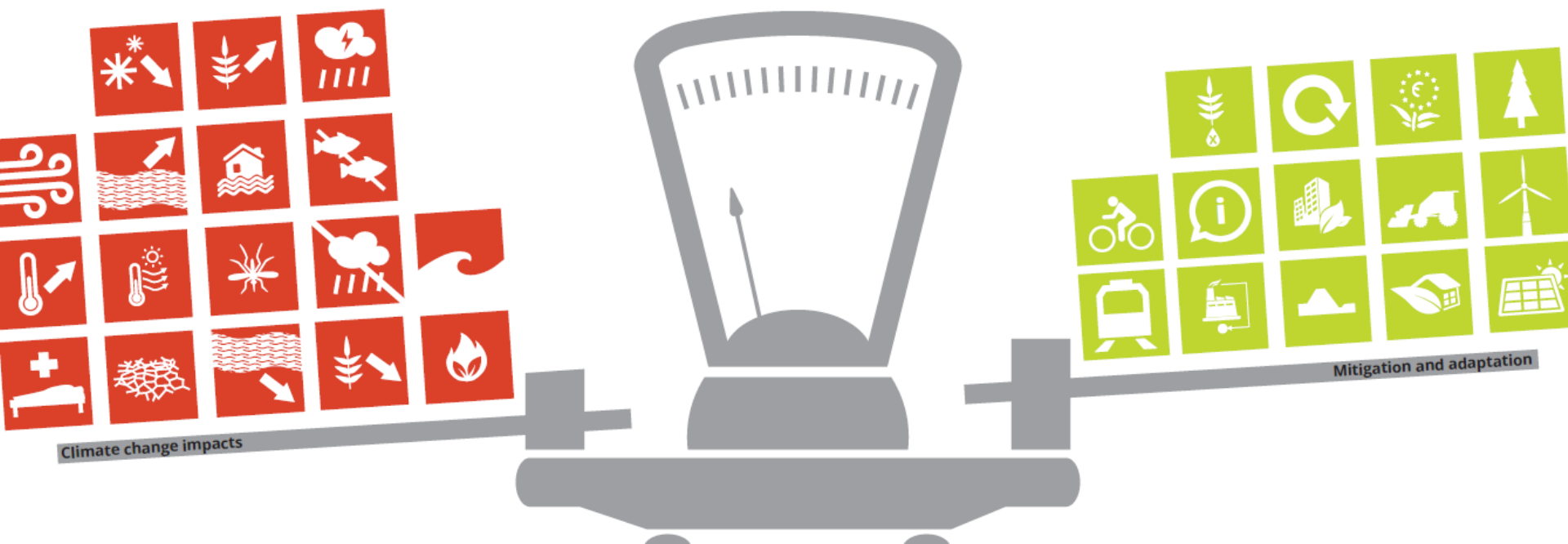
- Consequences are in the “future” - expensive right now
- Cross-sectoral and has implications in most sectors and businesses
- Relatively new issues, both in research and especially for governance
- Need to plan and make decisions under “uncertainties”



Success factors - cooperation and learning by doing!

- Cooperation across sectors and levels
- Getting all actors involved
- Increase and maintain capacity building at various level
- Increase and share knowledge, lessons learned are extremely valuable - also the ones that failed





Grafikk: EEA, 2015



www.miljodirektoratet.no