

IPCC Special Report: “Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation (SREX)”

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Norwegian Climate
Adaptation Programme



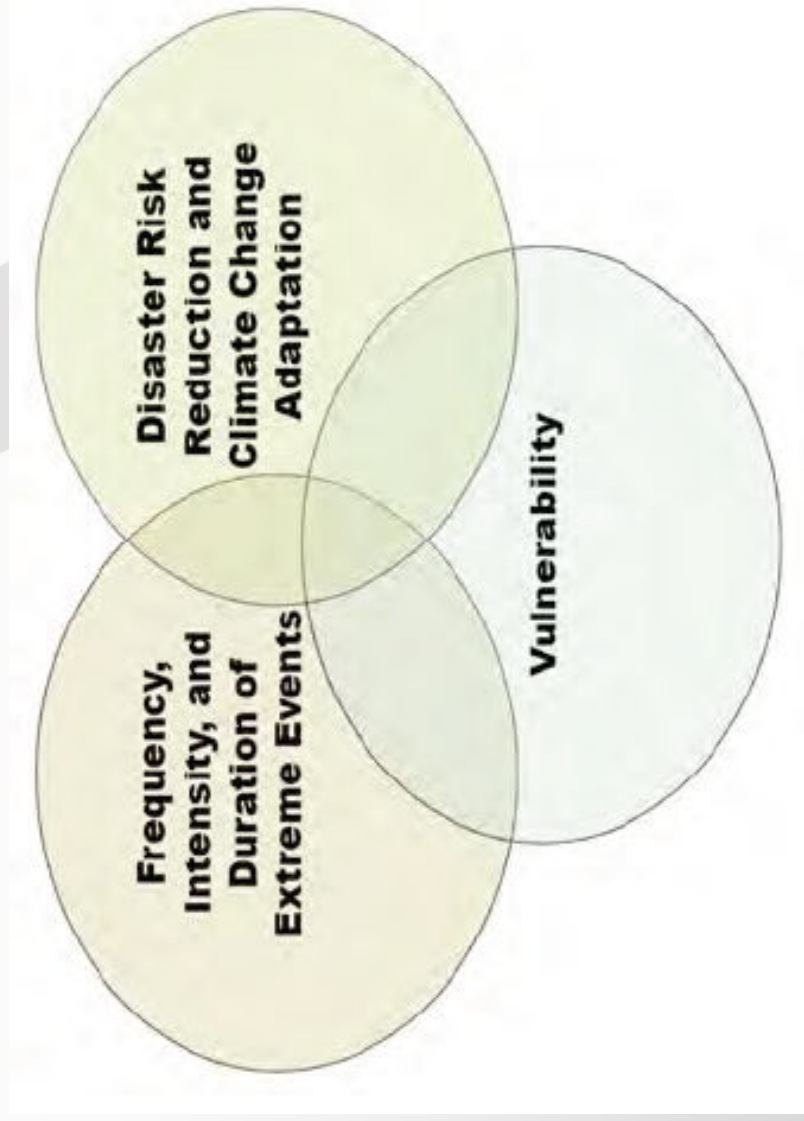
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Possible linkages between climate change and frequency of extreme events

- the IPCC Fourth Assessment Report (AR4 - 2007) stipulated possible linkages to the predicted increase in intensity and frequency of extreme events,
- The Report stated that “...the type, frequency and intensity of extreme events are expected to change as Earth’s climate changes, and these changes could occur even with relatively small mean climate changes. Changes in some types of extreme events have already been observed, for example, increases in the frequency and intensity of heat waves and heavy precipitation events” (Summary for Policy Makers, WG I, FAQ 10.1, p. 122).

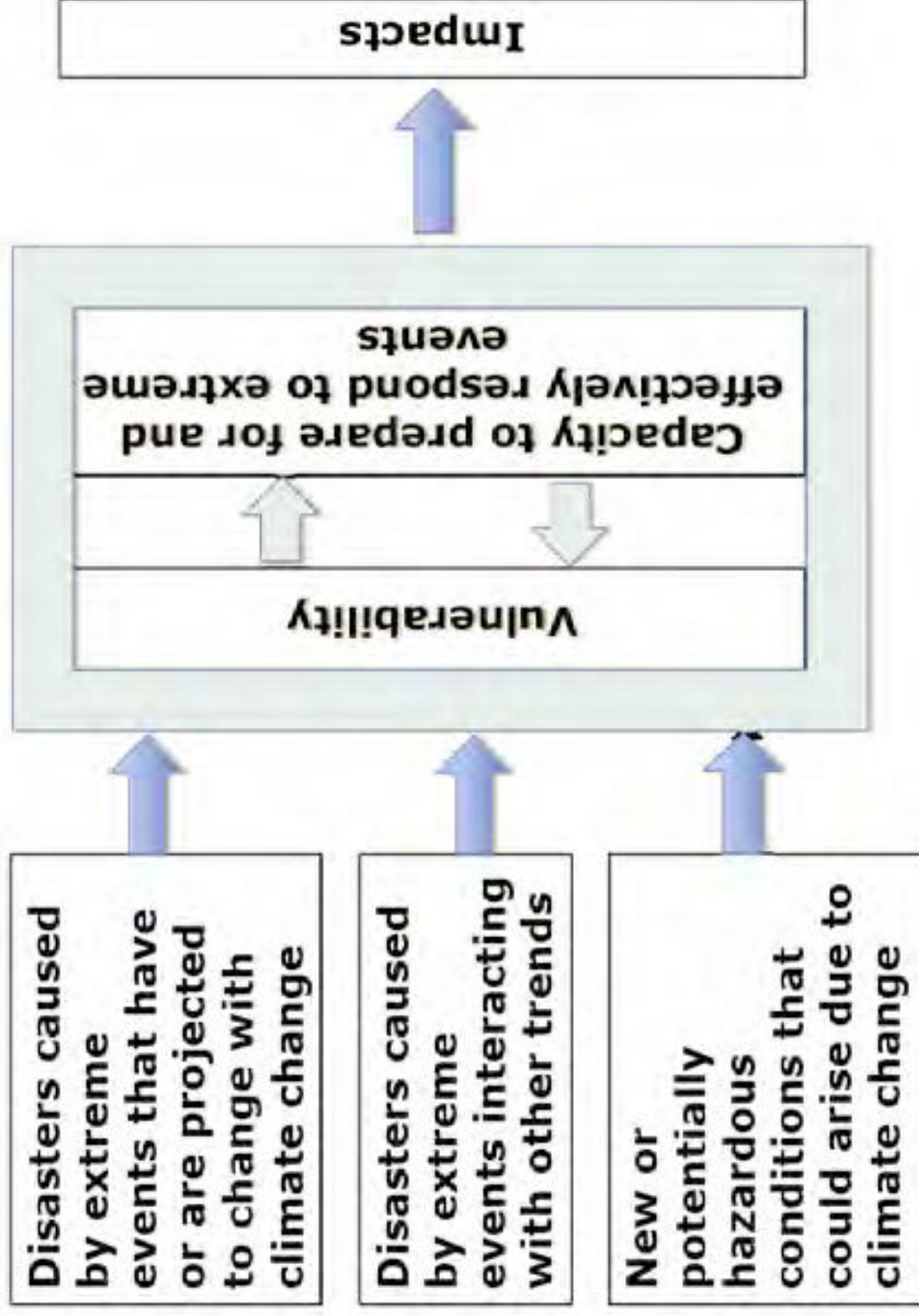
The rationale for proposing a Special Report

- **AR4.** Increasing the need for adaptation.
- At the same time, changes to ecosystems and natural resources, increasing urbanization and vulnerability further increase the consequences of extreme weather events.
- The AR4 recognized that reducing vulnerability to current climatic variability can effectively reduce vulnerability to increased hazard risk associated with climate change.
- **However, the AR4 reviewed policies and measures that were specifically identified as adaptation and not the full range of activities undertaken to reduce the risks of extreme events and disasters.**



Conceptual model of the topics to be assessed in the SREX and of the links among them. The focus will be on the part of the domain where all three spheres overlap.

Links between CC and DR to be assessed



Background: Key Dates

November 2008: 29th Session of the IPCC

IPCC considers Norway's submission of a proposal for a special report on managing risks of extreme events to advance climate change adaptation

March 2009: Scoping Meeting

Experts develop a structure and annotated outline for the proposed Special Report using the Norwegian proposal as a starting point

April 2009: 30th Session of the IPCC

IPCC agrees to prepare a Special Report on the proposed topic

May 2009: Call for Lead Author nominations

IPCC convenes a steering group to consider nominations; selected Lead Authors were notified on 10 September 2009

European / Europe-Based Lead Authors

Maarten van Aalst — *Red Cross/Red Crescent Climate Centre*
Joern Birkmann — *United Nations University Institute for Environment and Human Security*
Maureen Fordham — *Northumbria University*
Lisa Schipper — *Stockholm Environment Institute*
Sonia Seneviratne — *ETH Zurich*
Clare Goodess — *University of East Anglia*
Markus Reichstein — *Max Planck Institute*
Asgeir Sorteberg — *Geophysical Institute, University of Bergen*
Zbigniew Kundzewicz — *Polish Academy of Science*
Nigel Arnell — *University of Reading*
Gerardo Benito — *Spanish Research Council*
Pascal Peduzzi — *UNEP-GRID/Europe*
Boris Sherstyukov — *All Russian Research Institute of Hydrometeorological Information*
Tom Mitchell — *Overseas Development Institute*
Reinhard Mechler — *IIASA*
Andrew Dlugolecki — *University of East Anglia*
Diarmid Campbell-Lendrum — *WHO*
Ian Davis — *Cranfield University*
Richard Klein — *Stockholm Environment Institute*
Ferenc Toth — *IAEA*
Karen O'Brien — *University of Oslo*
Stephane Hallegatte — *CIREN and Meteo-France*
Andrew Maskrey — *UNISDR*
Mark Pelling — *King's College London*

Virginia Murray — *Health Protection Agency (UK)*
Silvia Llosa — *UNISDR*
Sergey Borshch — *Hydrometeorological Centre of Russia*
Farrokh Nadim — *International Centre for Geohazards (Norway)*

Approved Chapter Outline

1. Climate change: new dimensions in disaster risk, exposure, vulnerability, and resilience
2. Determinants of risks: exposure and vulnerability
3. Changes in impacts of climate extremes: human systems and ecosystems
4. Managing the risks from climate extremes at the local level
5. National systems for managing the risk from climate extremes
6. Managing the risks: international level and integration across scales
7. Towards a resilient and sustainable future
8. Case studies

Special Report Production Schedule

November 2009: First Lead Authors Meeting (Panama City, Panama)

February 2010: Zero-Order Draft completed, circulated for informal peer review

March 2010: Second Lead Authors Meeting (Hanoi, Viet Nam)

July 2010: First-Order Draft completed, circulated for first expert and government review

~~October 2010:~~ ~~Third Lead Author's Meeting (Geneva, Switzerland)~~

February 2011: "Second-Order Draft" to be completed, circulated for second expert and government review

May 2011: Fourth Lead Authors Meeting (Gold Coast, Australia)

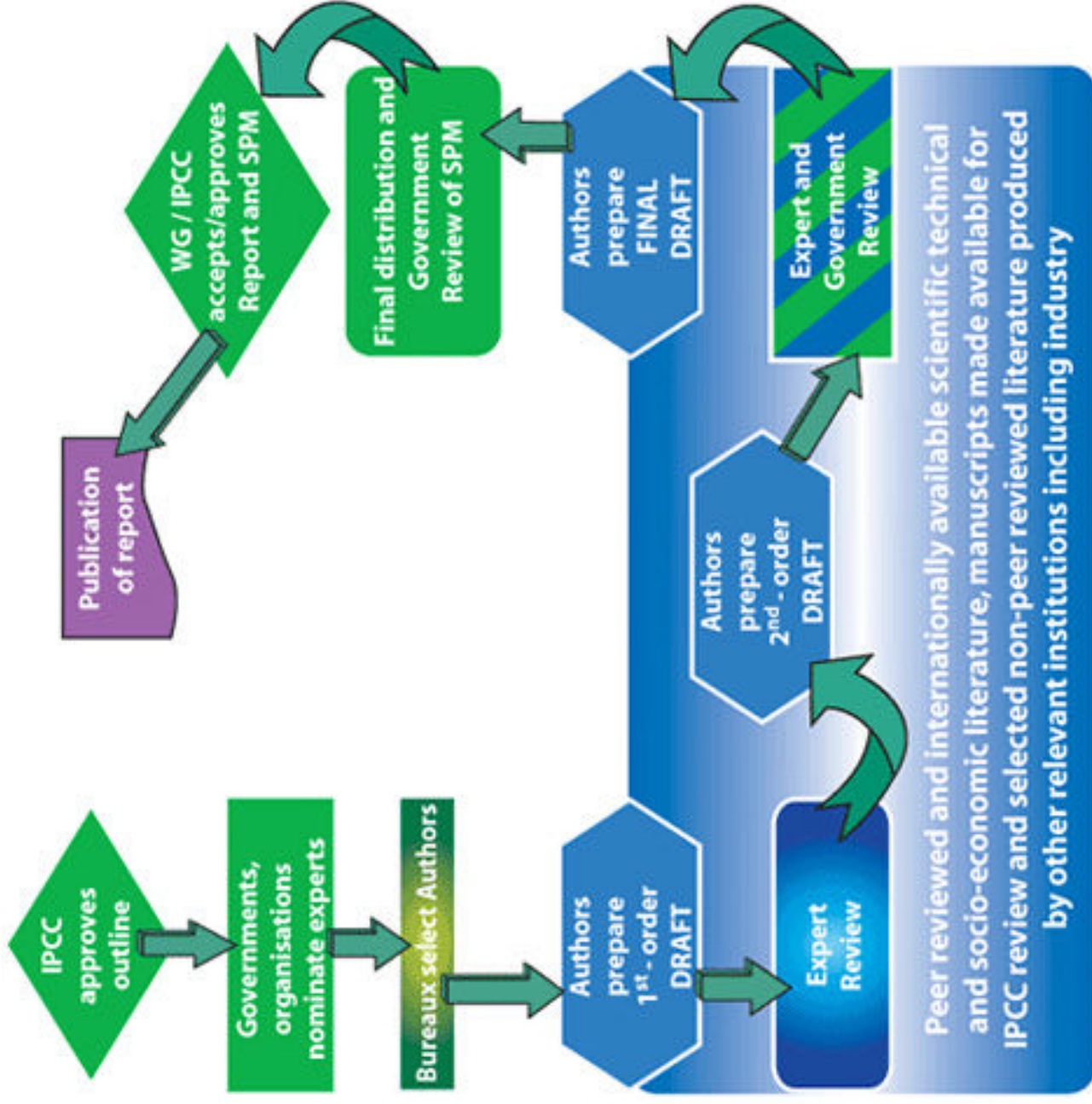
August 2011: Distribution of Final Draft to Governments

November 2011: Session to approve the Summary for Policymakers and to accept underlying document



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The IPCC process



Objectives

The Special Report will help Governments learn to adapt to climate change by drawing upon the long experiences in managing and reducing the risk of extreme climate events such as floods, droughts, storms and extreme temperatures.

The Special Report will provide the first systematic assessment of Governments' experience in risk reduction practices for climate change adaptation by reviewing the guides, frameworks and tools used by various institutions, organizations and communities to:

- build the institutional basis for reducing vulnerability and risk;
- develop early warning systems;
- strengthen community capacity and social resilience, particularly among the most vulnerable;
- improve construction practices; and
- establish preparedness to respond to inevitable climate impacts.

Main message 1/3

- Managing climate-related disaster risks is everyone's business—from national and sub-national governments, private sector, research, civil society and community-based organizations and communities working in partnership to ultimately help individual households to reduce their risks and vulnerabilities. In an effective, efficient national system for managing climate-related disaster risks these actors would ideally play differential but complementary roles according to their accepted functions and effectiveness across geographical scales, time and levels of society, supported by relevant scientific and traditional knowledge.
- That said, *national governments have the moral and legal responsibility to ensure economic and social well being, including safety and security, of their citizens from national disasters. It is the government's responsibility to protect the poorest and most vulnerable citizens from disasters, and to implement disaster risk management that reach all, especially the most vulnerable.*



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Main message 2/3

- There is a strong prima facie case to be made for bringing disaster risk reduction and climate change adaptation closer together in a more integrated and synergistic approach. They have much to learn from each other. It is also the case that successful disaster risk reduction and climate change adaptation cannot be achieved in isolation from other institutions and management capacities and that much depends on development choices and pathways.
- A common key challenge to both disaster risk reduction and climate change adaptation is to strengthen institutions and governance arrangements (and create synergies across scales) and to increase access to information, technology, resources and capacity in countries and localities with the highest climate related risks and weak capacities to manage those risks.

Main message 3/3

- A key challenge is to address and incorporate uncertainty into planning and implementing response. Adaptive risk management strategies are helpful in responding in the presence of uncertainty and complexity.
- There is no single approach, framework or pathway to a sustainable and resilient future; a diversity of responses to extremes taken in the present can contribute to future resilience in situations of uncertainty.
- Disasters can be considered both a problem of development, and an opportunity for development. Disaster risk reduction and climate change adaptation strategies must address both underlying problems of development, and emerging implications for development.

Norwegian Climate Adaptation Programme

- Established 2007
- Interministerial committee
 - Headed by Ministry of the Environment
 - Secretariat: Directorate for Civil Protection and Emergency Planning (links DRR and CCA)
- Provide knowledge, exchange of experiences, competence building
- No changes in responsibilities – municipality/county levels



Climate changes in a Norwegian perspective

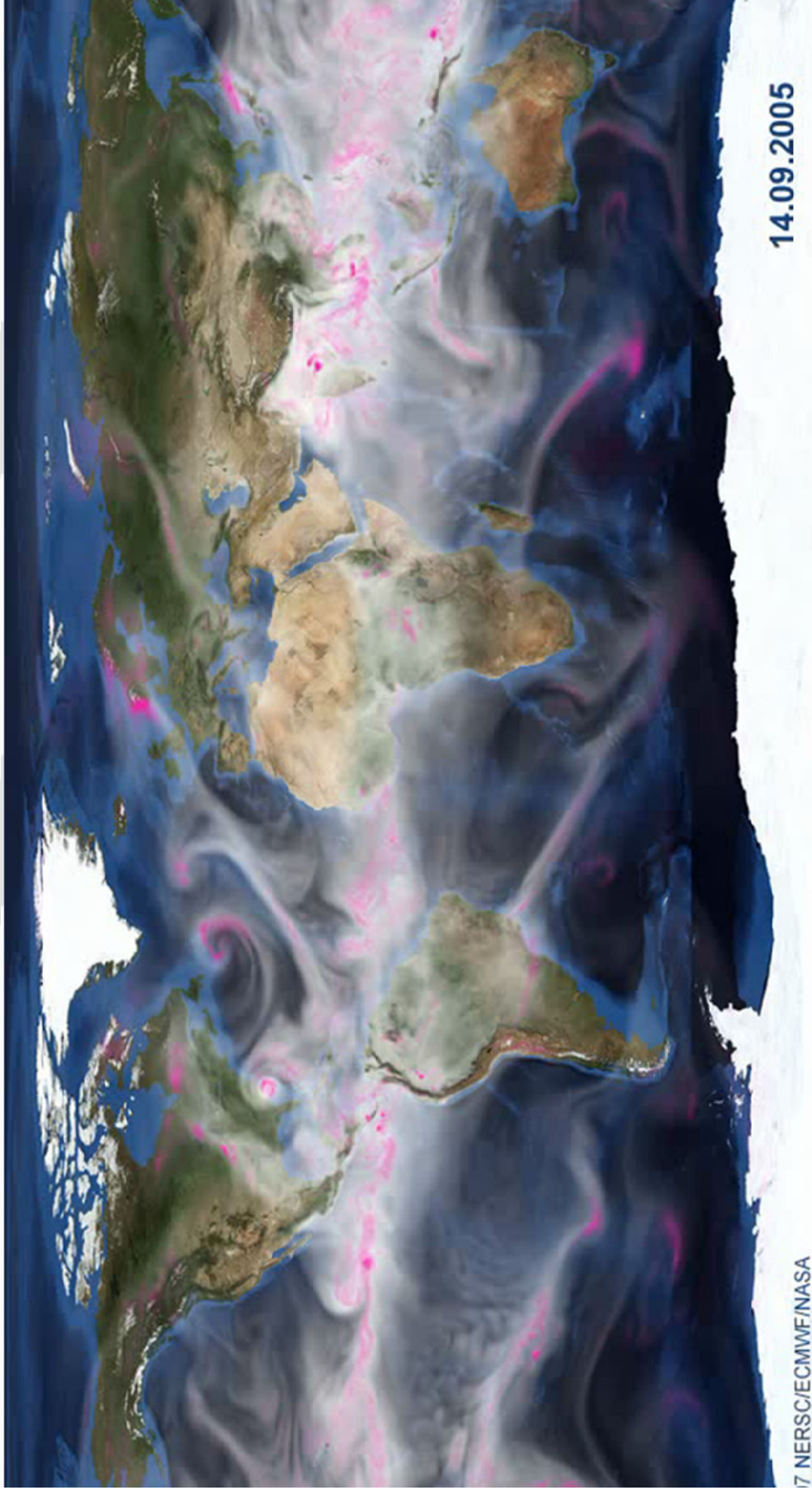
- Increased temperatures (2-4.5°C)
- More precipitation and more extreme rainfalls
 - Floods and slides
- Sea level rise
- Melting of ice and snow cover
- Ecosystems
 - New species, displacement of cold species





A snap shot from the hurricane season 2005:

- 16th of Aug – 14th of Sept 2005
- White: clouds
- Pink: precipitation



Bergen 14th of September 2005



The storm Loke, 11th of November 2005



Activities

- Website launched March 2009
- 'Future Cities' project – 13 of the largest municipalities (50 % of total population)
- 3-day course *Adaptation to climate change in societal planning* for development/emergency planners and decision-makers at local level
- Climate change maps
- Handbook (guidelines)
- Official Norwegian Report (2009-2010)
- Linking DRR and CCA



Norwegian Climate
Adaptation Programme

Adaptation to climate change in societal planning

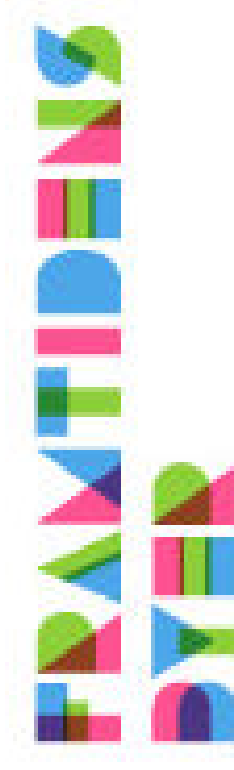
- A separate 3-day course at the National Emergency Planning College
- Aims
 - To increase the knowledge and understanding of vulnerability to climate change and viable strategies for adaptation.
- Target groups
 1. Local leaders (political and administrative)
 2. Local and regional planners
 3. Other governmental officers
 4. Private actors and business

Course: Adaptation to climate change in societal planning

- Themes / issues
 - IPCC, AR4, natural vs. human induced climate change
 - Scenarios for regional climate change.
 - Impacts on ecology, health, society and economy.
 - Vulnerability to climate change.
 - Impacts for area planning.
 - Climate vulnerability analysis.
 - Climate change, flooding and landslides.
 - Adaptation, flood mapping and area planning.
 - Impacts on buildings and infrastructure.

Cities of the future

- Collaboration between the Government and 13 of the largest cities in Norway
- Runs from 2008-2014
- 4 areas of focus
 - Land use and transport
 - Consumption and waste
 - Energy and buildings
 - **Climate change adaptation**



Website – klimatilpasning.no

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MINISTRY OF THE ENVIRONMENT



Norwegian Climate Adaptation Programme

The climate is changing, and as a result, climate adaptation is necessary. The work to adapt to climate change involves all administration levels and most sectors of society. A challenge in the climate change adaptation process will be to gain better knowledge through research, mapping and practical experience. Klimatilpasning.no is an online portal which collects this knowledge.

[Read more about the Norwegian Climate Adaptation Programme](#)

What's new

Better prepared after the storm

As the extreme weather system Loke wreaked havoc in November 2005, inhabitants experienced the mighty forces hidden in the otherwise idyllic Fiskånå River. If a new extreme weather system should visit Jærpeland, the residents along the river are now far better protected.

Municipality of Strand, 28/08/2009



Levies become recreational favourite

Many people opposed the plans for levies along the Trysil River as it would separate the town from the water. The opposition has now turned to joy over a new and attractive recreational area stretching a kilometre along the river.

Municipality of Trysil, 28/08/2009



Risk and vulnerability analysis in GIS format

In 2005, when Bergen municipality commenced work on its risk and vulnerability analysis, a decision was made to base the analysis on more than just historical data. Estimates for climate change were also included. The results are now available through the municipality's Geographical Information System and can be used in administrative processes and planning.

Bergen Municipality, 27/08/2009



We have to prepare for more landslides

Sectoral Responsibility

- Building and construction
- Private Sector
- Energy sector
- Fisheries and Coastal Sector
- Agriculture and Forestry
- Reindeer Husbandry
- Tourism and Leisure
- Health
- Natural and Cultural Management
- Natural Hazards
- Transport and Communications
- Water Supply and Sewerage

Counties

Select county

Click on map to select county:



Climate Impacts

- Precipitation
- Temperature
- Floods
- Sea level/rise
- Slides and Avalanches
- Wind

Library

- Best Practices
- General Issues
- Maps

Information sharing:

- Experiences
- Best practices
- Research
- Specific issues
- Guidelines
- [Climate maps](#)

Target groups:

- Local/regional planners
- Decision-makers

Guidelines – Climate start



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[Hvem har ansvaret?](#)

[Oversikt: Hva du bør vite](#)

Slik kommer du i gang

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[Oversikt: Hvordan du kommer i gang](#)

Veien videre

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[Oversikt: Veien videre](#)

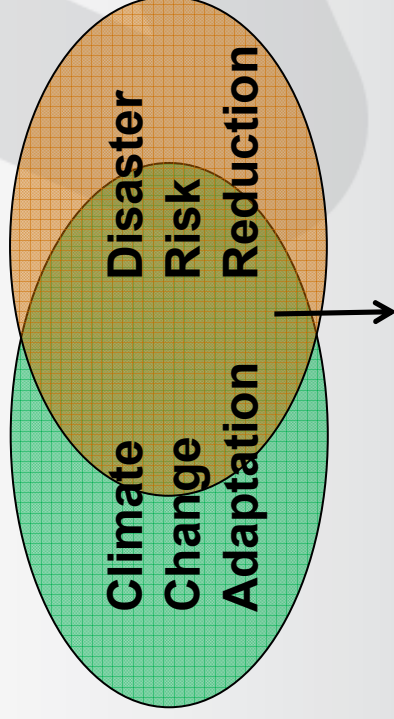
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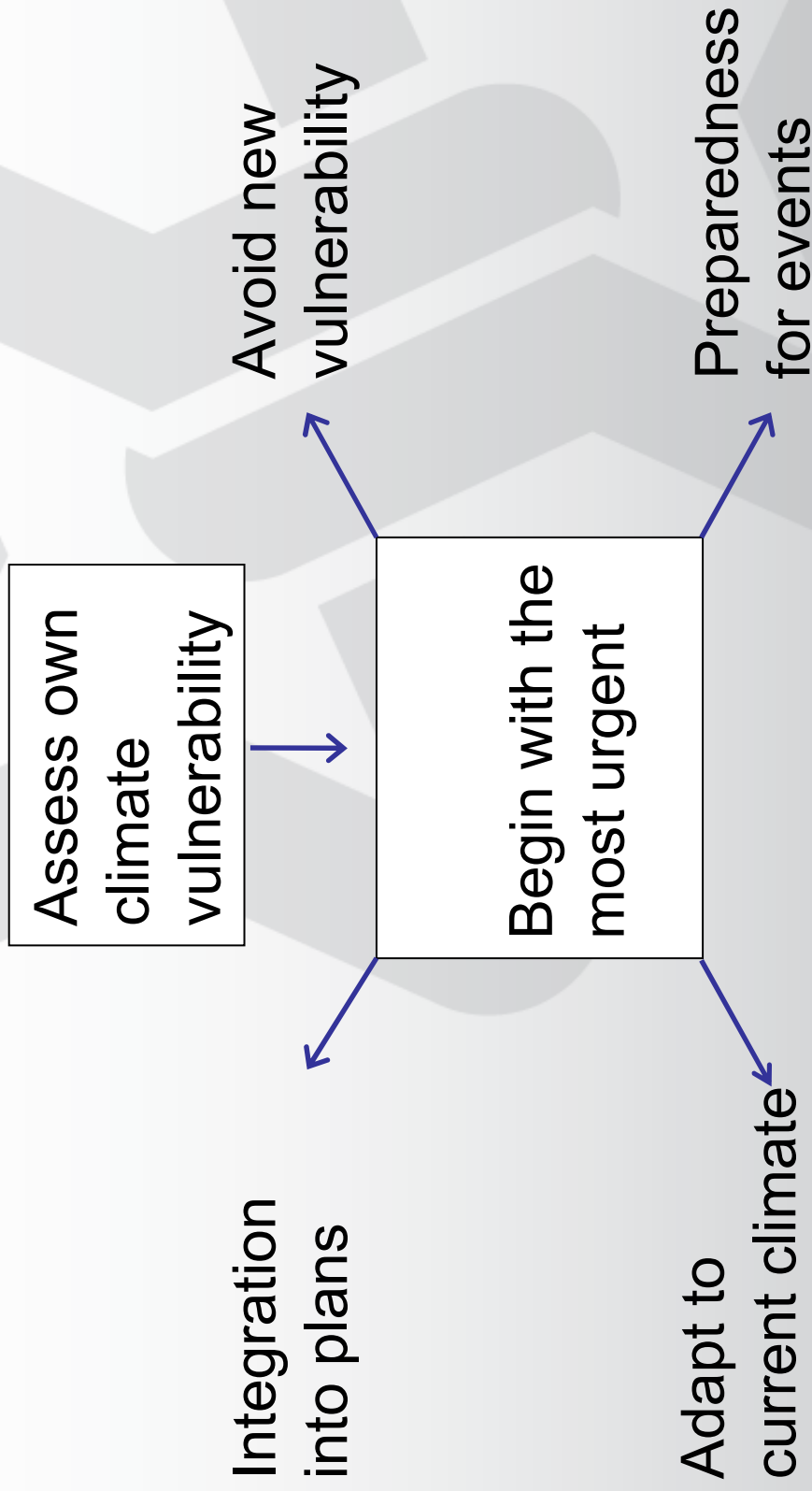
Principles for climate change adaptation

- Climate change affects all levels and all sectors – must be handled by all levels and sectors
- Not a sector on its own – must be integrated into existing organization
- Adaptation is about planning – those responsible for planning are responsible for adaptation to a changing climate



Integration into
local development
planning

What is urgent – what can wait?



Local institutional capacity and knowledge



Rajendra Pachauri, Bergen, 12.05.09

Thank you

