

Climate Change and Territorial Effects on Regions and Local Economies

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Quotation from the EU white paper on
climate change adaptation

“... even if the world succeeds in limiting and then reducing GHG emissions, our planet will take time to recover from the greenhouse gases already in the atmosphere.”

Shifts in European climate zones

Source:

E.-W. Gerstengarbe • P. C. Werner

Climatic Change (2009) 92:99–107
DOI 10.1007/s10584-008-9430-0

Observed CO2 emissions versus IPCC scenarios

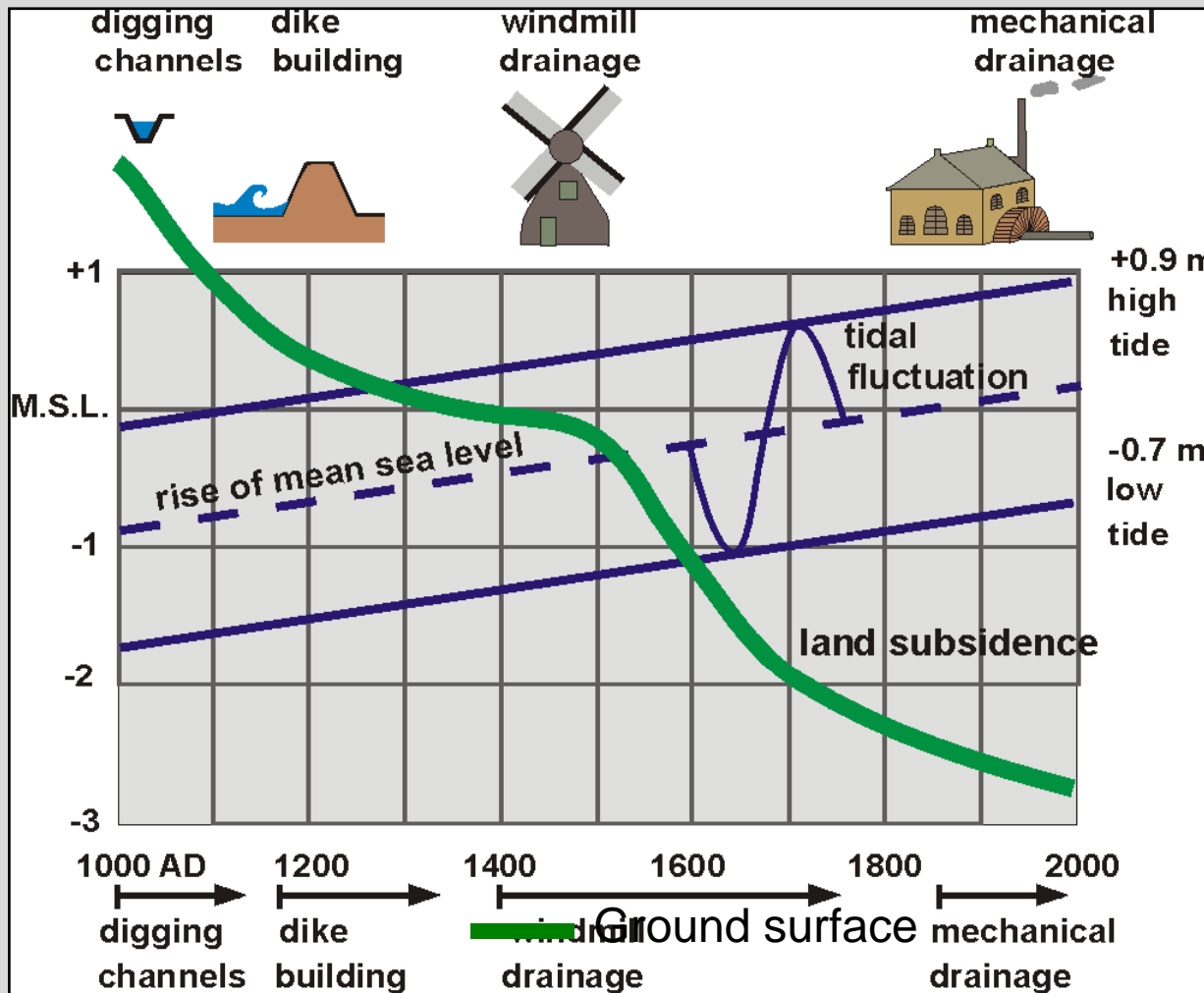
Reading about climate change leads to the impression that we will experience:

- More floods...
- More droughts...
- More forest fires...
- More storms...
- More storm surges...
- More landslides...
- More diseases, rising death tolls, rising costs, etc...

- Question 1: If everything was to be bad in the future, does this imply that everything is good right now...?

- Question 2: Which impacts are caused by predominantly by climate change and which by human behavior / vulnerability?

Climate change related problem example 1: sea level rise

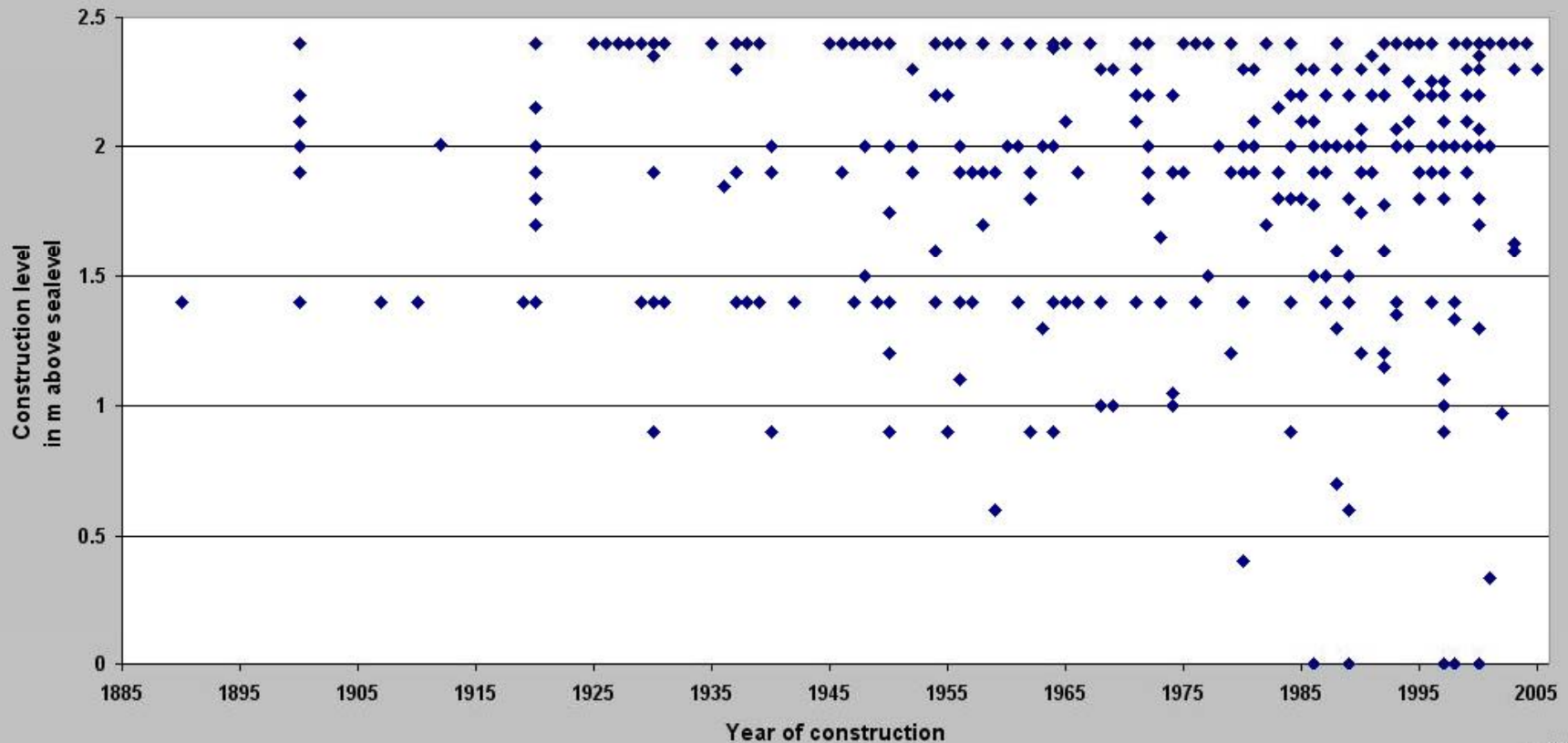


Source: Oude Essink (Deltares), modified after: Atlas van Nederland, Deel 15 Water, (in Dutch), Ven, G.P., van de et al. (eds), Staatsuitgeverij, 's-Gravenhage, 1986

Climate change related problem example 2: buildings in flood prone areas

www.baltcica.org

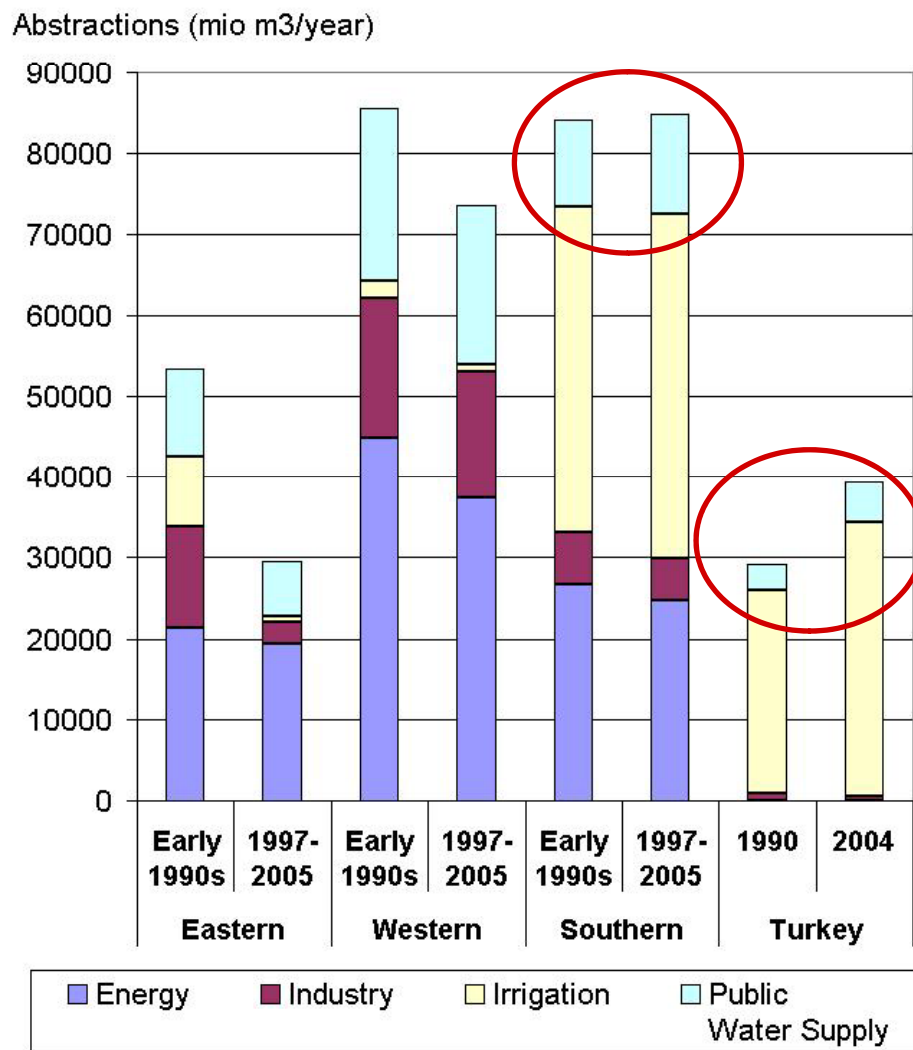
Buildings in flood prone areas along the coast in Espoo



n=391

Source: Johannes Klein, Geological Survey of Finland, www.astra-project.org

Climate change related problem example 3: Water stress



Source: EEA 2009

Possible effects of the economic crisis on climate change implementation measures and policies

- Effects on climate change **mitigation** depend on the duration of the crisis. So far:
 - Electricity use faces first fall since 1945
 - Strongest decline in oil demand since 28 years
 - The CO₂ emission rate is currently decreasing in many several countries.
- After the crisis: If industries focused purely on economic recovery the average effect could be +/- 0 or even negative
- Is it possible to keep emissions low based on political consequences drawn from the crisis (i.e. support for low energy use industries)?
- Effects on **adaptation** also depend on the duration of the crisis (planning time scales vs. short term economical decisions). Also relevant: Local structures

ESPON Climate project partners

1	TU Dortmund University	Germany
2	Geological Survey of Finland	Finland
3	Norwegian Institute for Urban and Regional Research	Norway
4	Newcastle University	United Kingdom
5	Potsdam Institute for Climate Impact Research	Germany
6	Helsinki University of Technology	Finland
7	Budapest University of Technology and Economics, Department of Environmental Economics	Hungary
8	VATI Hungarian Public Nonprofit Company for Regional Development and Town Planning	Hungary
9	National Institute for Territorial and Urban Research Urbanproiect	Romania
#	Agency for the Support of Regional Development Košice, n.o.	Slovakia
#	Autonomous University of Barcelona	Spain
#	The Netherlands Environmental Assessment Agency	The Netherlands
#	Swiss Federal Research Institute WSL	Switzerland

Concept of the ESPON climate change project

- Climate change impacts depend on the *exposure* and the *sensitivity* to climate stimuli
- Sensitivity to climate change is a key factor in the climate change vulnerability assessment framework
- Sensitivity and vulnerability constantly evolve, **even in the absence of climate change**
- The ESPON climate change project has identified 6 sensitivity dimensions:
 1. physical
 2. social
 3. economical
 4. environmental
 5. cultural
 6. institutional

Methodology

- For each dimension of sensitivity, indicators will be defined for both aspects: long-term changes (temperature) and extreme events.
- The matrix enables a factor and cluster analyses
- In case of no data, use of dummy indicators
- Identification region types on NUTS 3 level.
- Exploration and mapping of various regional classes
- Case studies
 - Opportunity to cover those dimensions of sensitivity with appropriate indicators and data where data for the whole ESPON area might not be available (especially cultural and institutional vulnerability).

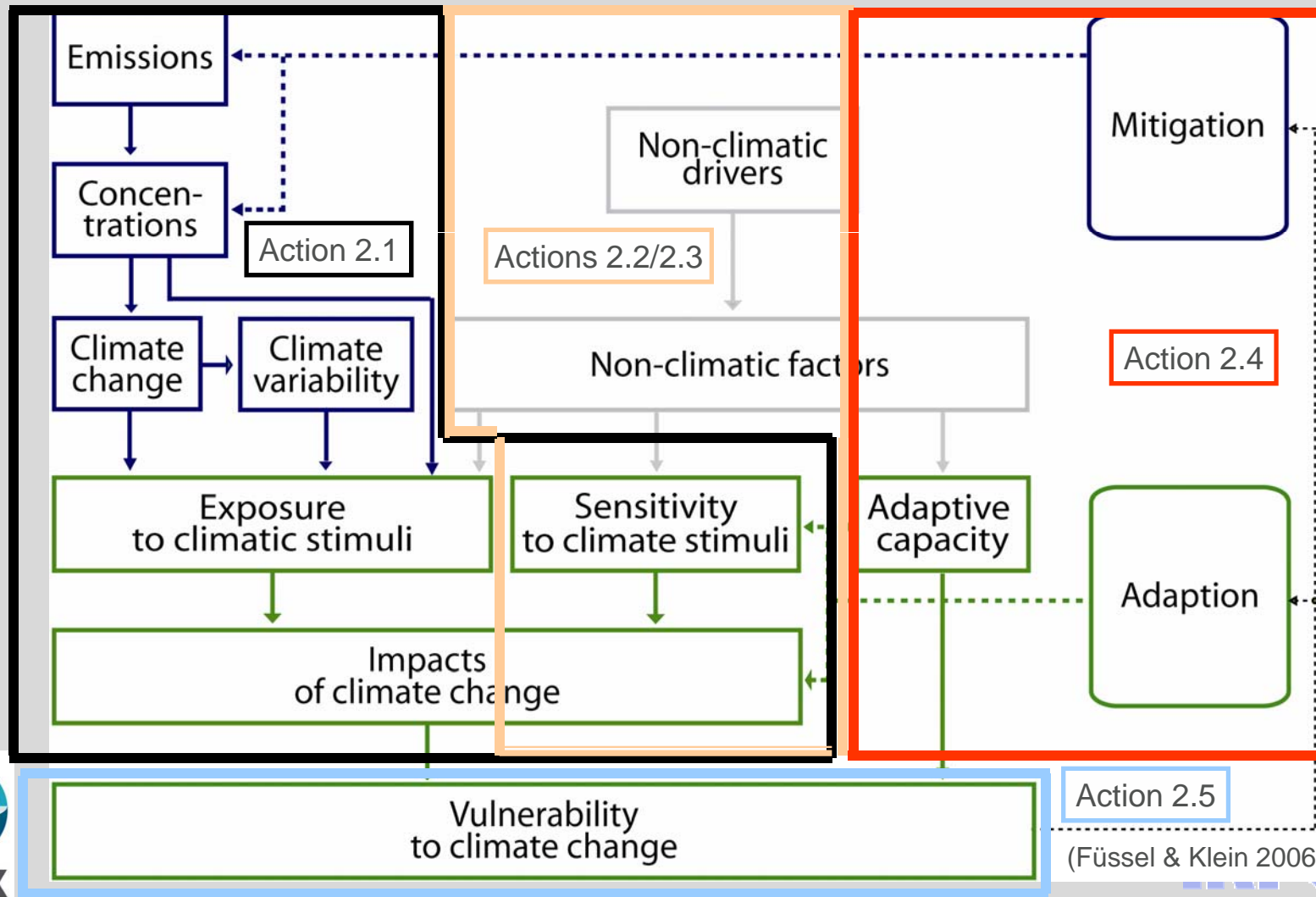
Actions of the project

- 2.1 climate change effects and regional exposure + sensitivity dimension assessment for
 - *physical*
 - *social*
 - *environmental*
 - *cultural*
 - *institutional*
- 2.2 impact assessment on *economic* dimension (e.g. manufacturing, tourism, agriculture, energy, etc) and cost-benefit analysis
- 2.3 impact assessment on regional economies (no cost-benefit analysis)

Actions of the project (continued)

- 2.4 Regional adaptation and mitigation capacity analyses - including the role of non climatic drivers such as demography and economic change.
- 2.5 vulnerability analysis to climate change as a product of the impact and adaptive capacities.
- Case studies (action 2.6)
 - Complementation of EU approach in two way approach (more detailed info on local case study level and feedback to EU level)
 - Particularly cultural and institutional vulnerability have to be addressed.
 - represent European territory, i.e. the physical, geographical and socio-economic perspectives.

Methodological framework of the ESPON Climate project



Reports

- 23 June 2009: Inception report
- 23 Dec 2009: Interim report
- 23 Dec 2010: Draft final report
- 23 April 2011: Final report
- Dissemination has started and will continue beyond 2011

Thank you very much for your attention!

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