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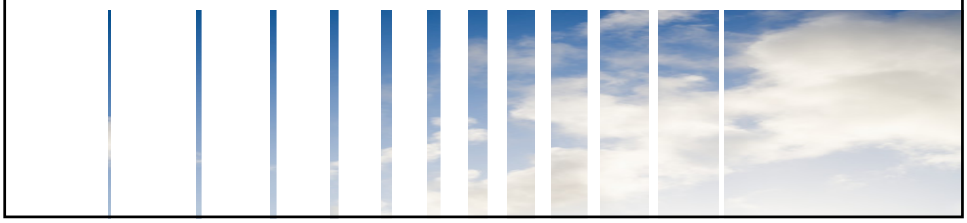
Dealing sensibly with climate change

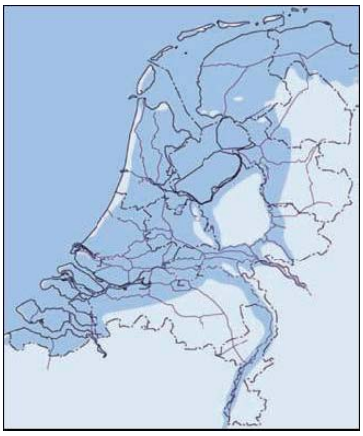
from options to strategy

Leendert van Bree

with many thanks to the project team



The Netherlands – adaptating delta through spatial planning



- Densely built and populated
- Lack of space, but high spatial demands
- 'Adapting to water' for ages
- Large economic, landscape, nature, social, and health values to protect
- Transition from sectoral policies towards integrated and sustainable policies and multilevel governance

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Netherlands Environmental Assessment Agency (PBL)

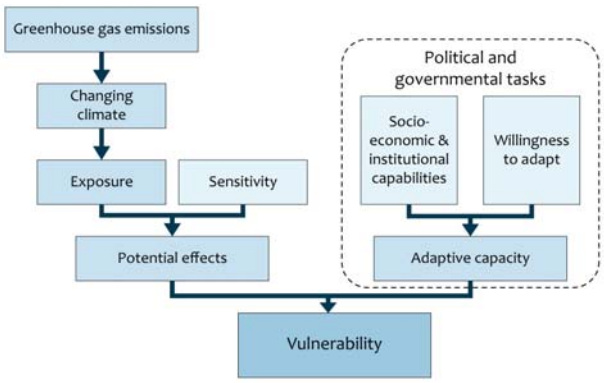
PBL is the national agency for integral and strategic policy analysis for environment, nature and spatial planning, advising government, parliament, and ministries.

Ministry of Housing, Spatial Planning, and the Environment (2008):

- *Does adaptation to climate change effects have consequences for spatial planning?*

PBL outlook '*Roadmap to a climate-proof Netherlands*', in collaboration with many other institutes (2008-2011).

Assessment Framework



PBL outlook

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Using the following approach:

- Update of (projected) climate change
- Close look at potential effects (exposure and sensitivity)
- Adaptation options and strategy criteria
- Uncertainty-proof and flexible (spatial) adaptation strategy

Strategic themes and multilevel governance:

- Water (*sea, lakes, rivers*)
- Agriculture and nature (*including fresh water supply*)
- Urban regions (*including inner cities and urban-rural transition zones*)
- Health

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Roadmap to a climate-proof Netherlands

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1. **Roadmap to climate-proof Netherlands (2009) (see www.pbl.nl)**
2. **Update of (projected) climate change effects (2011)(*update from 2005*)**
3. **Adaptation options, strategy criteria, technical and spatial measures, governance scales, and adaptive policies (2009-2011)**
   - mainly through background documents prepared by partners and subcontractors (2009/2010):
   - collaboration with national programmes'Climate changes Spatial Planning', 'Knowledge for Climate', DELTARES, UNESCO-IHE, Wageningen University, University of Utrecht, and Vista
   - collaboration with WHO for 'Climate change and health adaptation strategy'
4. **'Dealing sensibly with climate change' strategy (2011)**
   - Basis for the Minister of Infrastructure and Environment to inform the parliament on climate change adaptation policy
   - Input for national DELTA Programme

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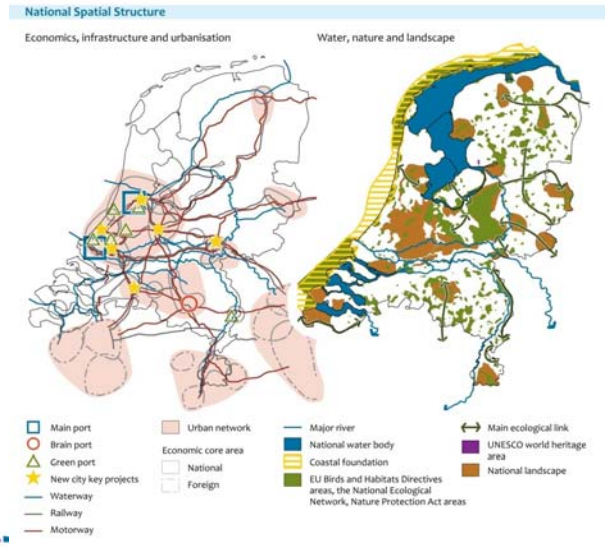
Does adaptation force spatial planning to change?



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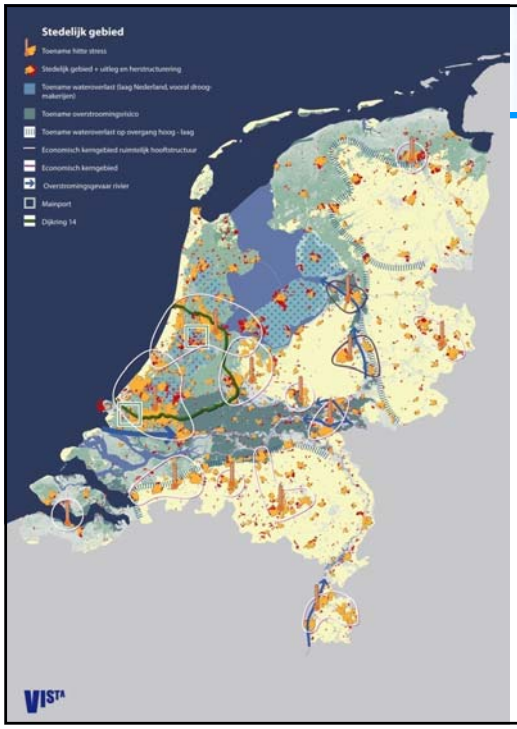

Incremental and flexible urban adaptation governance

- **Water nuisance**
- **Water safety (flooding)**
- **Heat stress**
- **Drought**

- **Air pollution**

Adaptation in urban regions

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Potential effects (exposures and sensitivity)

- **Modeled national maps (with fine scale of cities and neighborhoods) of water nuisance, flooding, heat stress, and drought.**

Large list of adaptation options, categorized for buildings, infrastructure, and public space

Strategy criteria and options

[DELTARES / UNESCO-IHE study]

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Water nuisance (water on the street)

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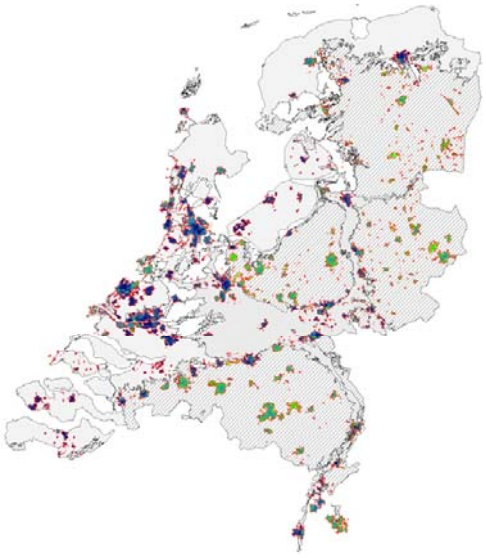

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Heat stress

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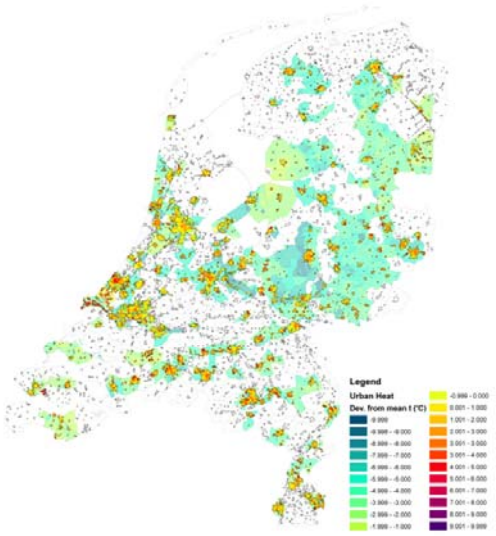

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Urban adaptation strategy in general

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Adaptability

- Large number of adaptation measures, mostly ‘no-regret’ or ‘low-regret’
- Always tailor-made solutions needed
- Additional challenges in (more) compact (inner) cities, with coupling /synergy with mitigation and quality of life policies, also in urban-rural transition zones
- In 2060 ~80-90% of the urban regions can be made climate-proof, but one has start now!

Strategy

- Adaptation early in planning processes; coupling with existing policies
- Many technical measures possible, plus
- Timely coupling with urban (re)structuring and spatial planning
- ‘Market’ parties do not automatically move towards adaption
- National guidance and stimulation, but regional/local implementation
- Incremental and flexible urban adaptation governance

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Cities and adaptation

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1. Cities solving existing problems
2. Cities solving additional challenges (economy, demography)
3. Cities adapting to climate change effects
4. Cities integrating sustainable development

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Incremental and flexible urban adaptation governance

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1. **Impact** (reduction of climate effects, societal encroachment, risk of not intervening)
2. **Costs** (damage, measures, benefits of adaptation)
3. **Urgency and timing** (impact, turnover time, implementation time, adaptive management)
4. **Spatial claims and scales** (national, regional, urban, buildings, infrastructure, public space)
5. **Coupling (and synergy) with other policies** (CC mitigation, urban quality of life, regional/urban development, joining planned investments)
6. **Uncertainty proof** (robust, flexible, resistance, resilient)
7. **Governance and scale** (policy, planning, governance, national guidance, implementation in regions and cities)
8. **Short-term and long-term priorities**
9. **Incremental and flexible adaptation strategy, linked to sustainability, and regional and urban development,.**

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Adaptation strategy and uncertainty*

1. Which type of uncertainty dominates?
2. Which time horizon taken into account?
3. How robust against which (wide) range of CC scenario's?
4. How much flexibility and irreversibility can be built in?
5. How to increase adaptive capacity and response rate with 'shock' events?
6. What to do to avoid 'surprises' later on?
7. How to organise 'anticipating and learning capacity' of the system?

* From 'Uncertainty and Climate Change Adaptation - a Scoping Study', Dessai and Van der Sluijs, 2007