

# Climate adaptation services for the Netherlands: the power of visualization

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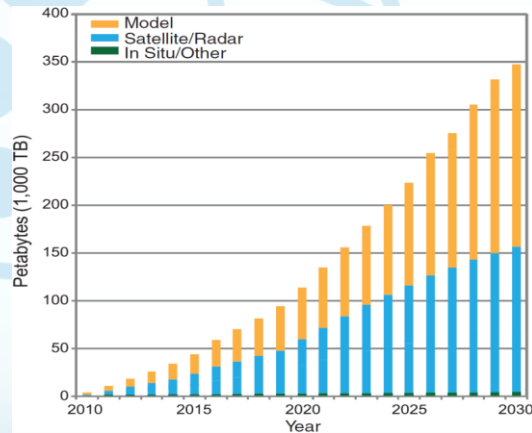
[www.climateadaptationservices.com](http://www.climateadaptationservices.com)

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## From climate services to *adaptation* services

- Local governments play a crucial role in adaptation
- *Climate Services* do not reach local stakeholders (World Meteorological Organization, 2011)
- *Adaptation services* to bridge the gap between the climate data the spatial planning community
- Spatial planners communicate through maps

## Abundant climate data

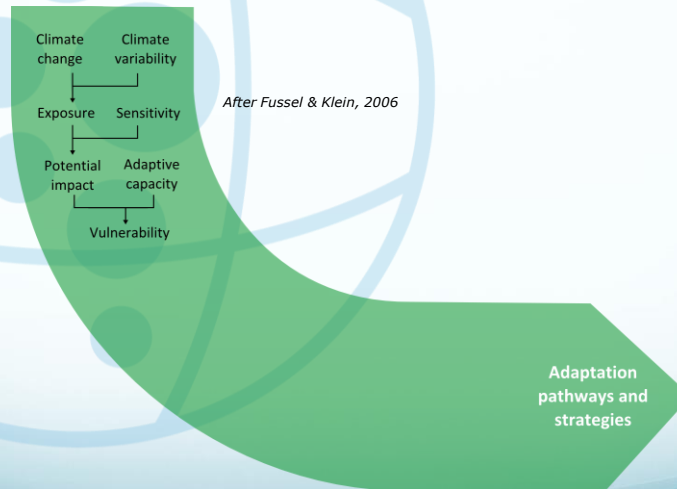


The expected exploding volume of climate data (Overpeck et al. 2011)

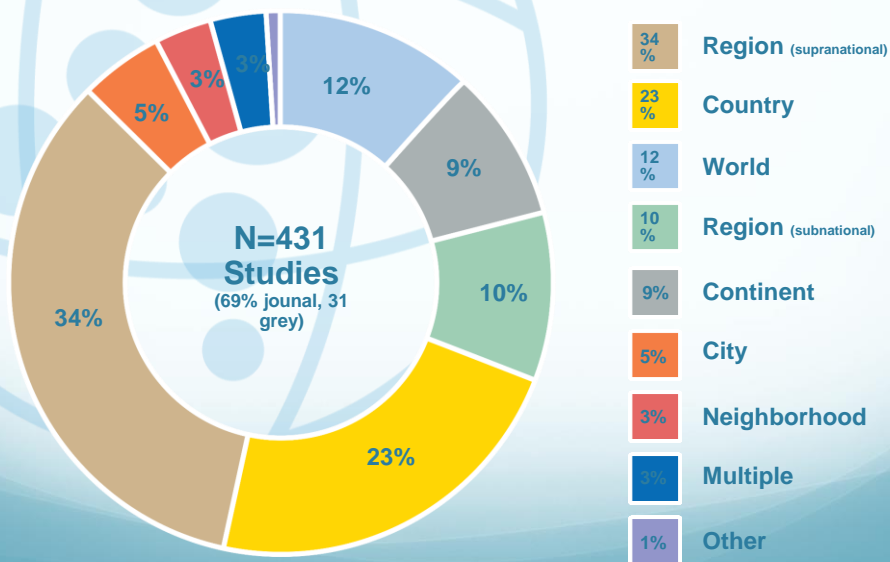
## But limited policy relevant information for adaptation

Tool	Organization	Scope	Primary maps	Secondary maps	Tertiary maps
Canadian Climate Change Scenarios Network	Environment Canada	Canada	Yes	No	No
Caribbean Climate	Caribbean Community Climate Change Centre	Caribbean	Yes	Yes	No
Cl:grasp	PIK Germany	Emerging economies	Yes	Yes	Limited
Climate Change Country Profiles	UNDP	Developing nations	Yes	No	No
Climate Change in Australia	CSIRO	Australia	Yes	Yes	No
Climate Change Knowledge Portal	World bank	Global	Yes	Yes	Limited
Climate Service Center	Helmholz-ZentrumsGeesthacht	Germany	Yes	No	No
CLIMATE-ADAPT	European Commission	EU nations	Yes	Yes	No
Ilmasto-Opas	Finnish Meteorological Institute	Finland	Yes	No	Limited
Klimatilpasning	Task Force on Climate Change Adaptation	Denmark	Yes	Yes	No
KlimatilpasningNorge	Ministry of Environment	Norway	Yes	No	No
RegionalerKlimaAtlas Deutschland	HelmholzGemeinschaft	Germany	Yes	Yes	No

## Vulnerability assessment approach



## Vulnerability assessments (maps) - Focus



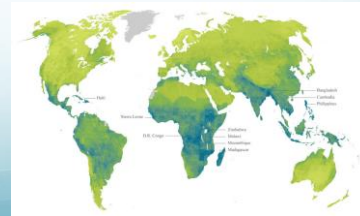
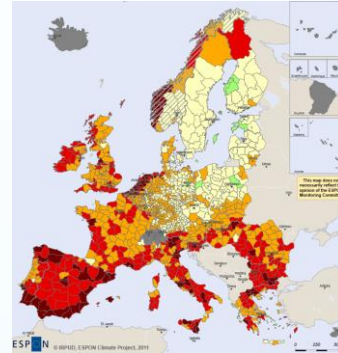
De Groot Reichwein and Masselink in prep.

## Vulnerability assessment studies – research purpose

31% Method evaluation

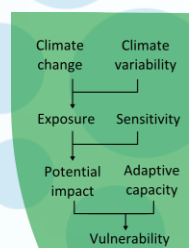
19% To identify hotspots

13% Used/evaluated by policy makers



De Groot Reichwein and Masselink in prep.

## Vulnerability assessment at local level?

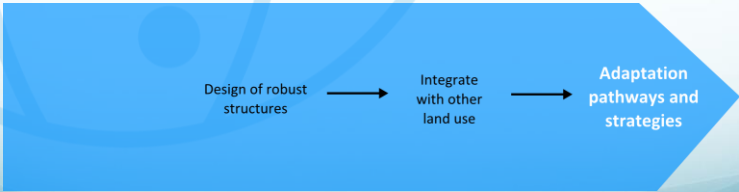


- High level of complexity
- Political complexity
- Long time horizon
- Mismatch in scales
- Expensive
- Not urgent, not important

?

Adaptation  
pathways and  
strategies

## Spatial planning approach

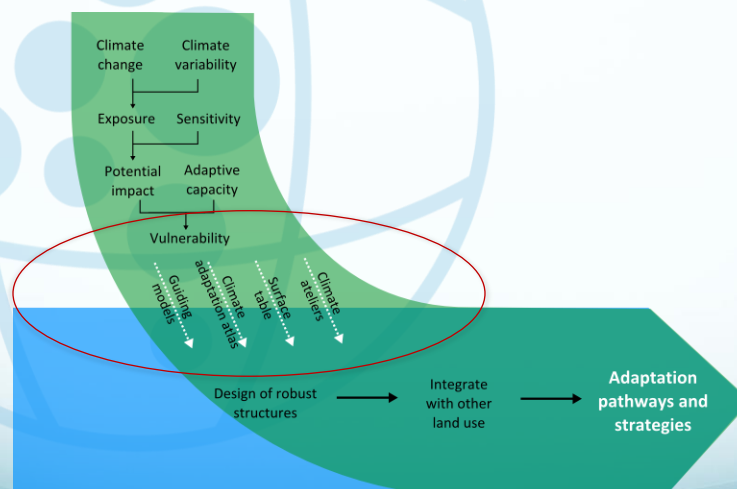


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graph LR
    A[Design of robust structures] --> B[Integrate with other land use]
    B --> C[Adaptation pathways and strategies]
  
```

Design of robust structures → Integrate with other land use → Adaptation pathways and strategies

## Adaptation services



## A computational vs inspirational approach

Scientific uncertainty	Political complexity		
		Low	High
	Low	Well structured problems ➤ Computational strategy	Moderately structured ➤ Compromise strategy
	High	Moderately structured ➤ Judgemental strategy	Unstructured complex problem <b>Adaptation Services</b> ➤ Inspirational strategy

(After Hisschemoller, 1993; De Boer & Wardekker, 2010)

## Adaptation Services

- Climate Adaptation Atlas → climate impact visualization
- Vulnerability map
- Climate Ateliers / Touchtable
- Adaptation Guiding Models as a planning tool



## Climate Adaptation Atlas

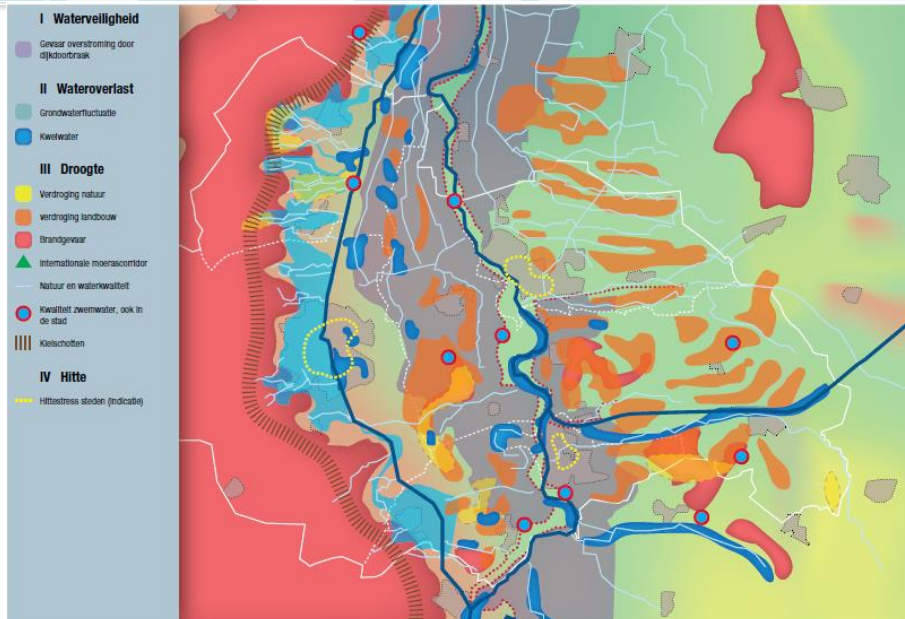
### Involvement of end users

- In defining the indicator & in selecting the best way to visualize the indicator

M.A.M. de Groot – Reichwein et al (submitted), **Urban heat indicator map for climate adaptation planning**, J. Reg Env Ch



## Bottom up vulnerability mapping approach

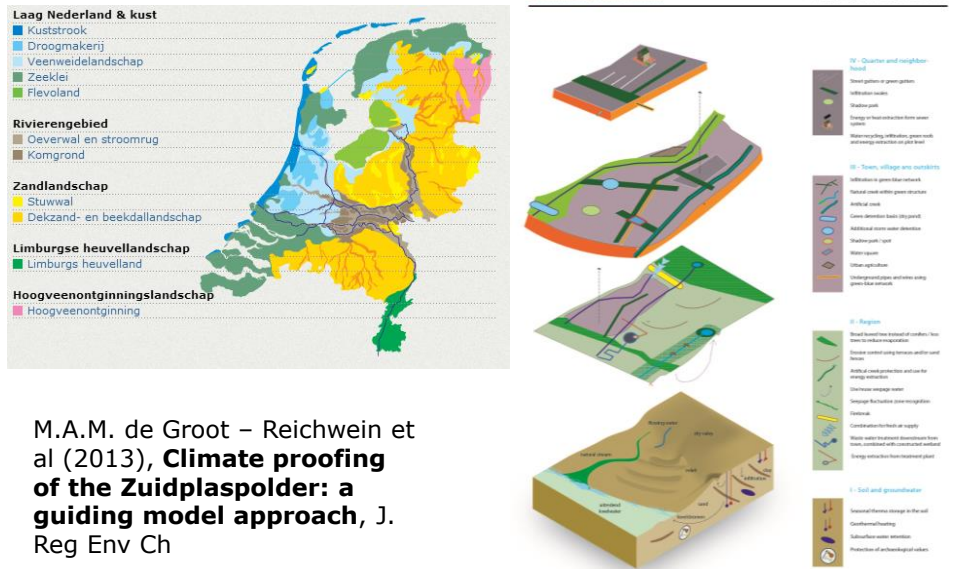


## Delta Ateliers





# Adaptation planning using guiding models



M.A.M. de Groot – Reichwein et al (2013), **Climate proofing of the Zuidplaspolder: a guiding model approach**, J. Reg Env Ch

Ruimtelijke Adaptatie

WATER TOOLS STRATEGIES NEWS ABOUT US Search

## Spatial Adaptation Knowledge Portal

Prepare your area for floods, extreme precipitation, drought and heat with the guide and tools

Why Spatial Adaptation?

Start using the guide. Follow the Analysis, Ambition and Action steps for water resilient and climate proof planning. Or go directly to the [tools](#).

**ANALYSIS**  
Analyse your area  
[Lees meer](#)

**Vulnerability**

**Opportunities**

**AMBITION**  
Formulate your ambition  
[Lees meer](#)

**Objectives and challenges**

**Strategies**

**ACTION**  
Application in policy and regulations  
[Lees meer](#)

**Policy Assurance**

**Implementation**

## Key findings

- Visualisation research can improve communication of climate data
- Keep it simple
- Use commonly used tools in spatial planning rather than developing new tools from a climate perspective
- Adaptation is triggered by inspirational solutions and not only by computational assessments

## Thanks for your attention!

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**More info:**

**<http://www.climateadaptationservices.com>**