



Netherlands Environmental Assessment Agency (PBL)

## ***Adaptation indicators and their application***

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## ***Outline***

- ❖ Why ?
- ❖ How ?
- ❖ Application to biodiversity
  - general
  - Thames Estuary



## Why adaptation indicators?

3

Adaptation indicators are needed to:

- ❖ *Target & monitor* adaptation policies, measures & actions
- ❖ *Communicate* adaptation  
(to policy & decision-makers, other stakeholders)
- ❖ *Compare* adaptation achievements  
(across sectors, regions & countries)

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## Communication: Political perspective

4

*“The climate is changing and we have to make our country climate-resilient. Not only the government, but jointly with science and society”*

Prime Minister Balkenende  
November 2005



nature

COMMENTARY

HOW?

### Climate proofing the Netherlands

Regional climate change should not be seen only as a threat; changes to weather patterns could generate opportunities for large-scale innovations, say Pavel Kabat, Pier Vellinga and their colleagues.

Indicators needed

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## How developed?

5

4 steps:

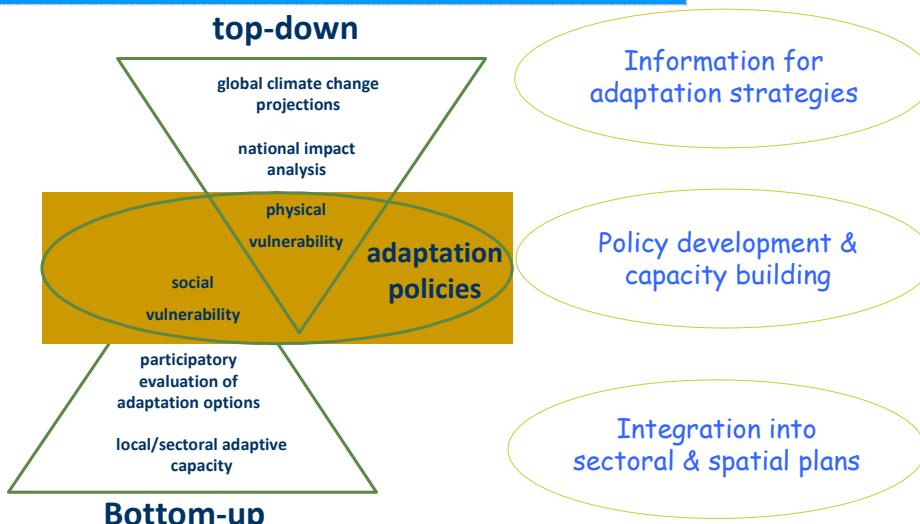
- ❖ Assessed drivers of adaptation (top down/bottom up)
- ❖ Adaptation indicators (conceptual framework)
- ❖ Adaptive management (multi-decadal planning)
- ❖ Sectoral & regional application (biodiversity/Thames)

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## How developed? Drivers of adaptation

6

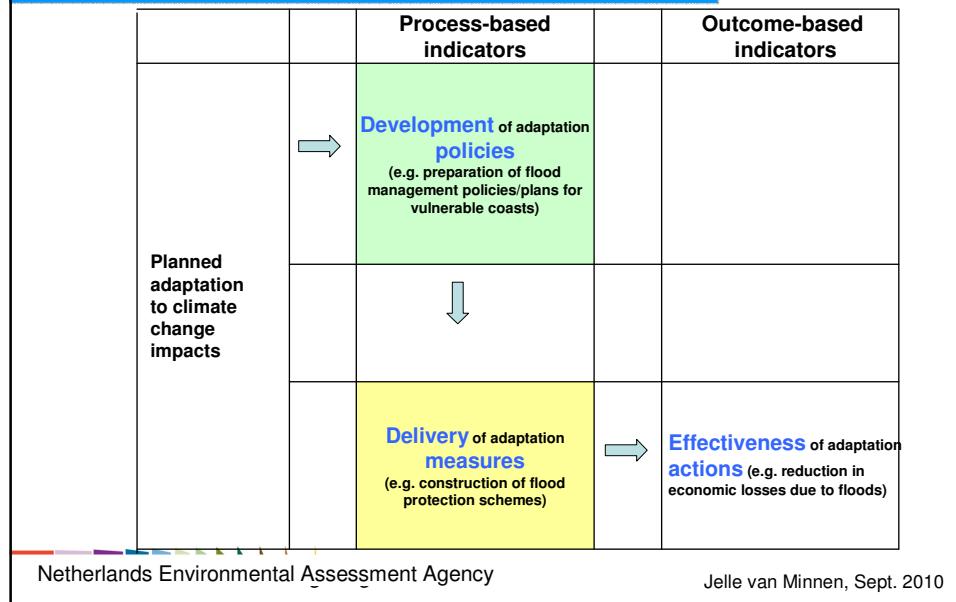


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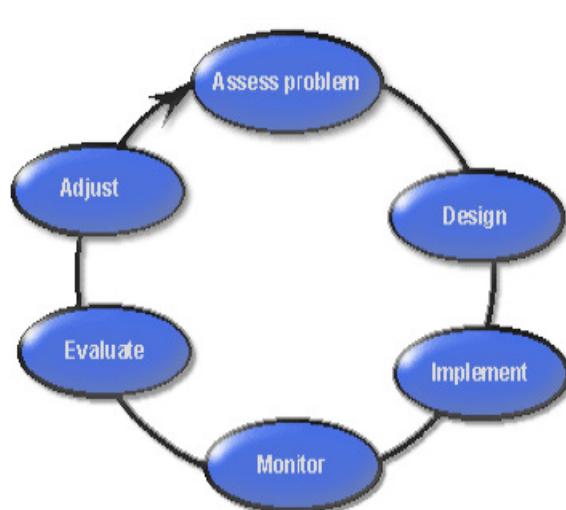
## How developed? Adaptation indicators

7



## How developed? Adaptive management

8



- Indicators provide evidence to reassess policies, measures, actions & long-term vision – which should be revised as process enters successive cycles

## **Application (i) Biodiversity**

9

### ❖ *Key threats to biodiversity of Thames Estuary*

- Sea level rise, water quality
- (Thames Gateway development)

### ❖ *Process-based indicators for adaptation policies*

- Initiate integration of adaptation into sectoral & spatial policies?
- Amend biodiversity policies, programmes & agreements to reflect climate change

## **Application (ii)**

10

### ❖ *Process-based indicators for adaptation measures*

- Plan new conservation areas to protect vulnerable species, habitats & ecosystems (e.g. to coastal erosion/squeeze & saline intrusion into freshwater systems)
- Enhance protective services provided by coastal ecosystems (e.g. natural defence against sea level rise)

### ❖ *Outcome-based indicators*

- Habitats & ecosystems maintained, restored & recreated
- Interconnected networks of protected areas & intervening habitat established

## In summary

11

- ❖ Conceptual framework to monitor & evaluate development, implementation & effectiveness of adaptation policies, measures & actions
- ❖ Framework applicable both regionally & sectorally (e.g. biodiversity of Thames Estuary)
- ❖ Current issues:
  - Extent of development of regional/sectoral adaptation strategies & policies
  - Availability of data required for use of adaptation indicators
  - Engagement of stakeholders in the process

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12  
*Thank you*

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**Climate & Adaptation Nature**

- Exchange on national information: e.g. NL

