

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?

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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)

## Communication: Political perspective

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*“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



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**nature**

COMMENTARY

### 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.

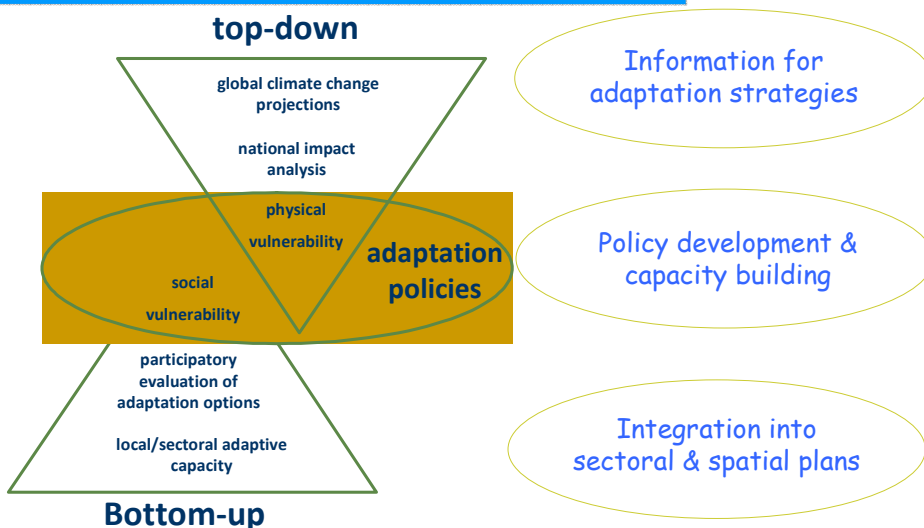
**HOW?**  
Indicators needed

## How developed?

4 steps:

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

## How developed? Drivers of adaptation



## How developed? Adaptation indicators

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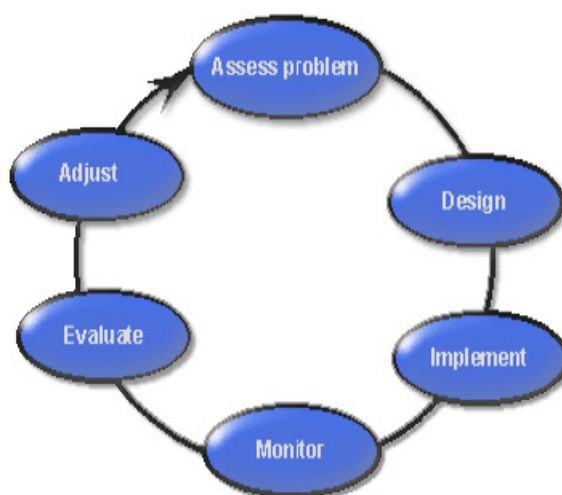
		Process-based indicators		Outcome-based indicators
Planned adaptation to climate change impacts	→	Development of adaptation policies (e.g. preparation of flood management policies/plans for vulnerable coasts)		
		↓		
		Delivery of adaptation measures (e.g. construction of flood protection schemes)	→	Effectiveness of adaptation actions (e.g. reduction in economic losses due to floods)

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## How developed? Adaptive management

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

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## **Application (i) Biodiversity**

### ❖ *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)**

### ❖ *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***

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- ❖ *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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***Thank you***

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# Climate & Adaptation Nature

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- Exchange on national information: e.g. NL

