



Climate Change Adaptation Statistical Challenges

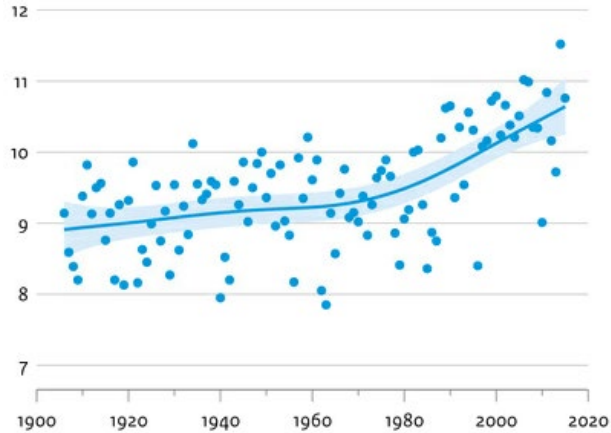
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UNECE Expert Forum for producers and users of climate change-related statistics
3-4 October 2019, Geneva, Switzerland

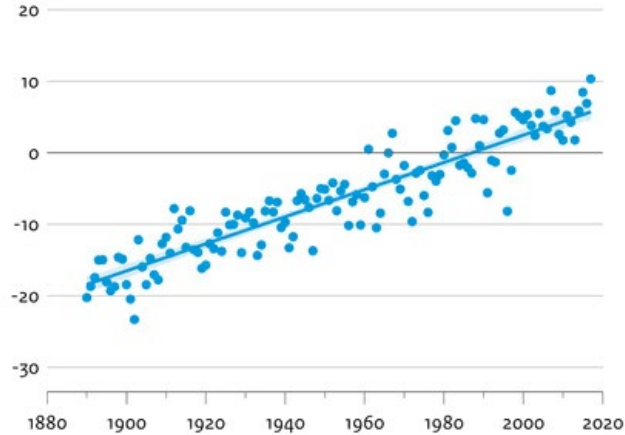
Climate change in the Netherlands

Temperature (°C)



1,9 °C increase
since 1906

Sea level rise (cm)

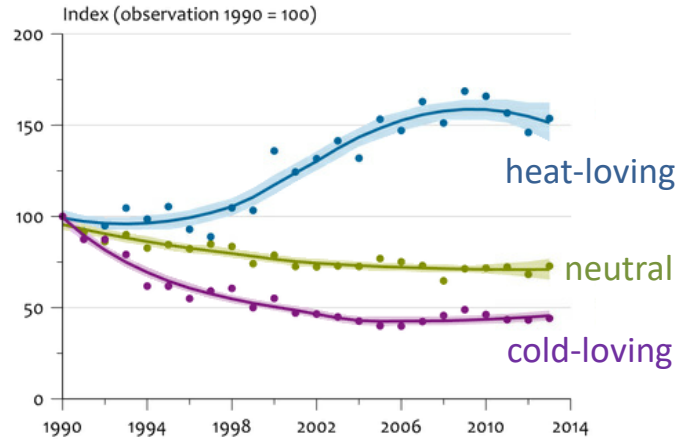


24 cm increase
since 1890



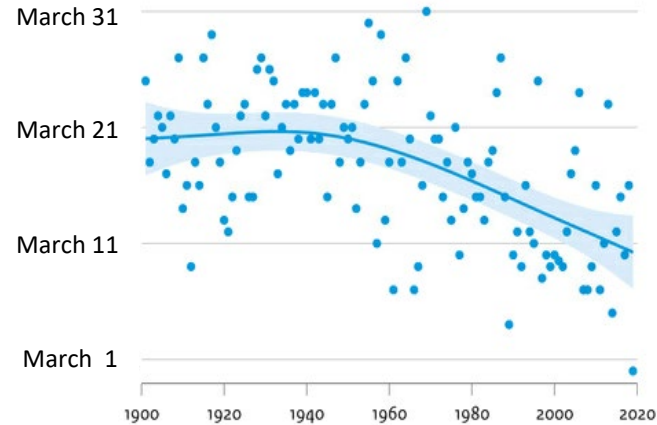
Signals of climate adaptation (in NL fauna)

Numbers of species
(birds, butterflies, amphibians)



Structural change

First spotted lapwing
egg in Fryslân



Activity change



Official statistics (economy, society, environment, nature, ...) are needed to track structural and activity changes.

National climate adaptation strategy



4 climate trends and their effects on 9 sectors

All kinds of measures will be implemented at a local level

Strong need for water statistics (annual, but also on monthly basis)



National conceptual diagrams

It is becoming warmer



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It is becoming wetter



[Download document \(pdf, 888 kB\)](#)

It is becoming drier



[Download document \(pdf, 893 kB\)](#)

The sea level is rising



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For downloads go to:

<https://ruimtelijkeadaptatie.nl/english/policy-programmes/nas/nas-adaptation-tool/>

However, the local needs differ enormously!

Therefore, also a tool available to construct your own diagram.



Data inventory by two students in 2018

<https://www.cbs.nl/en-gb/corporate/2018/28/climate-change-is-firmly-on-the-agenda-in-zwolle>

Climate change is firmly on the agenda in Zwolle

24/08/2018 11:00 / Author: Jaap van Sandijk



What existing data can be used to adapt to climate change, and what new data in this field does the region of Zwolle need most? These were the questions that two students at the Windesheim Honours College had to answer for their graduation thesis. The study, which yielded interesting insights, was given a flying start by the Climate Campus and the CBS Urban Data Centre, both based in the Hanseatic town of Zwolle.

Local data requirements based on top five most urgent effects on agriculture, water, and space.

'Microdata is becoming more and more important. Just think about the weather: precipitation can vary hugely from one square kilometre to another'

Reports can be found at:

<https://statswiki.unece.org/display/GPCCS/6.+Developing+new+statistics>

A more active role for National Statistical Institutes to share microdata.



10 years ago (!): news release on flooding

<https://www.cbs.nl/en-gb/news/2009/47/one-third-of-dutch-economy-in-jeopardy-in-case-of-flood-disaster>

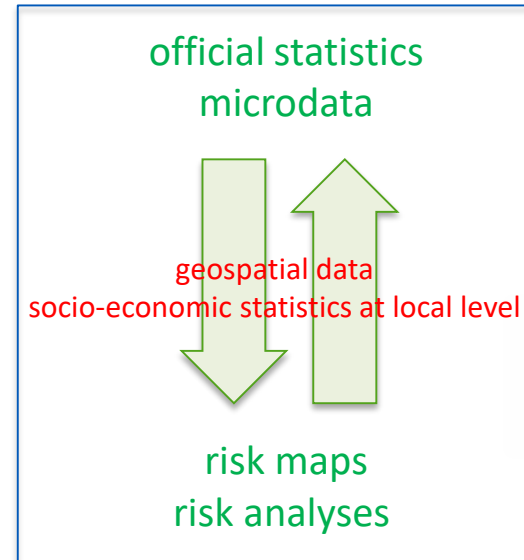
Risk map, floods

Non-flood-prone area
Flood-prone area



One third of Dutch area, population, GDP, employment, and real estate in flood-prone area.

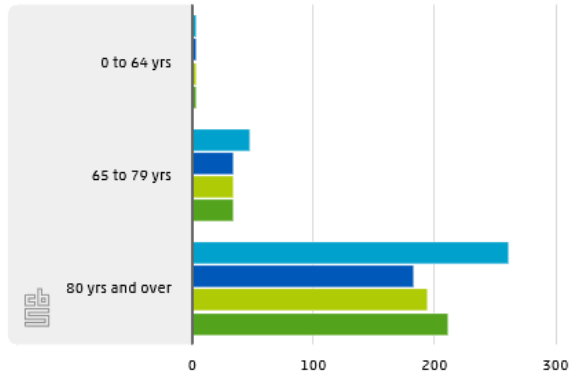
Statistics Netherlands not really involved in flooding protection activities. Also no explicit role foreseen in nearby future.



A recent example: heat wave casualties (current past)

<https://www.cbs.nl/en-gb/news/2019/32/more-deaths-during-recent-heat-wave>

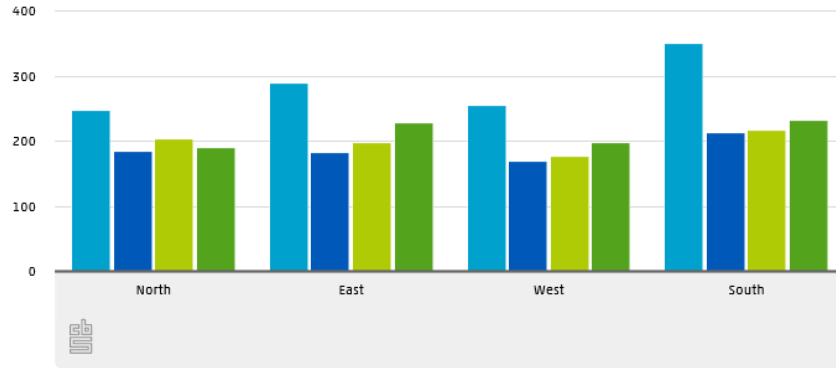
Deaths per 100 thousand inhabitants



- 2006 (week 27, 29, 30)
- Average 2015/16/17 (week 29, 30, 31)
- 2018 (week 29, 30, 31)
- 2019 (week 30)*

*provisional figures

Mortality among over-80s per 100 thousand inhabitants



- 2006 (week 27, 29, 30)
- Average 2015/16/17 (week 29, 30, 31)
- 2018 (week 29, 30, 31)
- 2019 (week 30)*

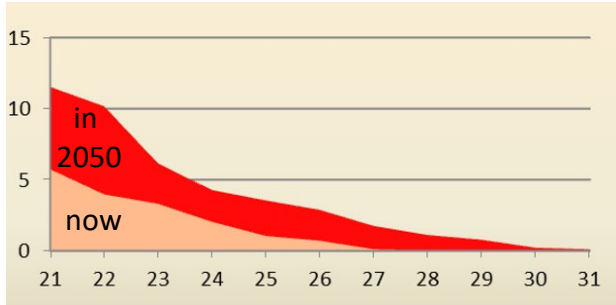
*provisional figures



News releases on climate change effects, like on the increased mortality due to heat waves, increase awareness and may lead to new adaptation measures.

A recent example: heat wave casualties (in 2050)

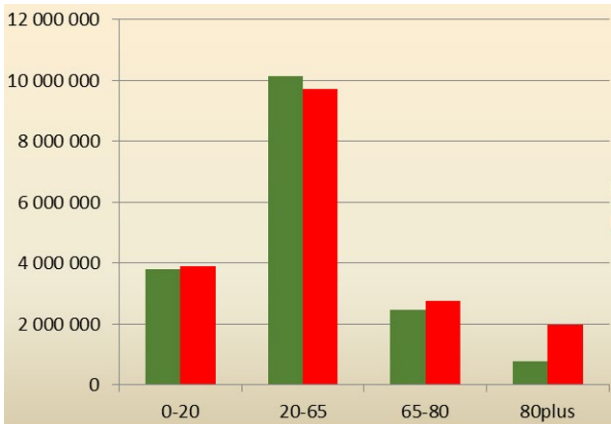
Occurrence of warm days



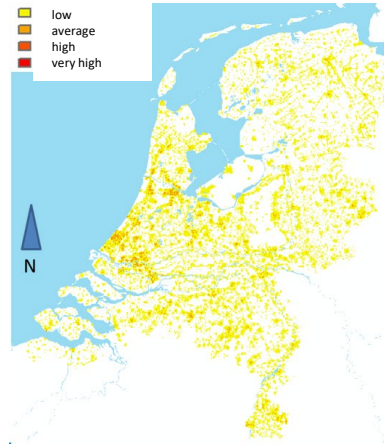
Average number of heat casualties

Now 300 a year
In 2050 1500 – 3000 more warmer days
more elderly people

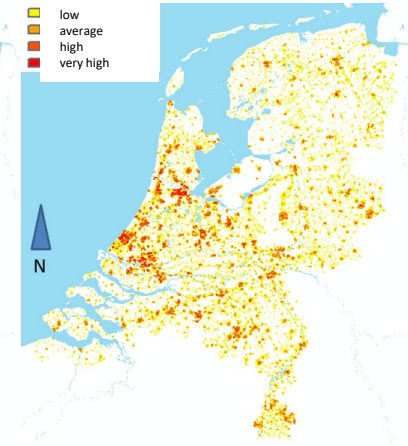
Population; now (green) and in 2050 (red)



Heat casualties now



Heat casualties in 2050



National Statistical Institutes are normally not involved in such future scenarios.



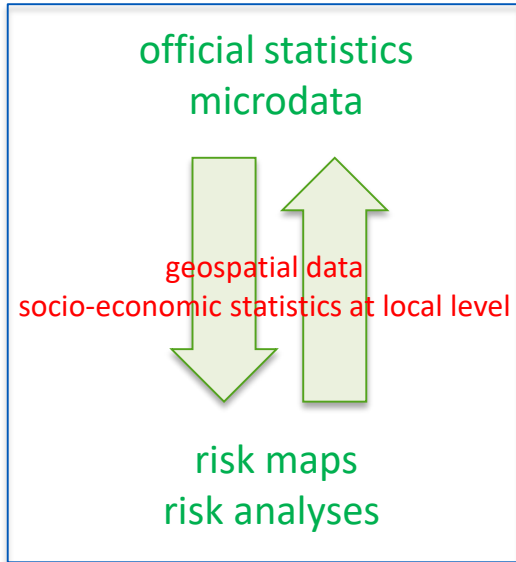
Climate change adaptation indicators

- Heat -> living conditions of the population at risk (80+)
- Flooding -> characteristics of the risk region
- Other ->
- sales of air conditioners and inflatable boats
 - share of climate-resilient housing
 - share of green area in urban regions
 - government expenditure on water management
 - insurances against extreme weather (hail storms)
 - expenditure on climate change adaptation

To decide which indicators are relevant a consistent framework, with clear concepts and scope, needs to be constructed.



Statistical Challenges



A more active role for National Statistical Institutes to share (open) **microdata**.

Strong need for **water statistics** (annual, and on monthly basis).

Focus on **flooding!**
Make use of disaster-related statistics framework.

