The Dutch Delta Programme
50 year Jubilee Symposium CHR
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Delta commissioner
The Netherlands, a delta country
A history of water management

around 1580

around 1700

2000
20th Century: flooding and protection

- 1916 floods (North)
  Damming off the Southern Sea, creation of Lake IJssel (1931)

- 1953 flood disaster (South-West)
  Civil engineering solutions with dams and barriers
  First Delta Programme, the Delta Works, shortening our coastline

- 1993/1995 high water levels (rivers)
  New concepts: Room for the River and Building with Nature
21st Century water management challenges NL

- More/extreme storms?
- Sealevel rise (20 cm-> 100 cm/100y)
- Increased erosion
- Spatial developments
- More/intense rainfall
- More summer drought
- Increased invested value
- Increased river discharge + 10%
- Decreased river discharge - 60%
- Salt intrusion
- Subsidence 10 cm/100yr

- More/intense rainfall
2nd Delta Programme

2008 2nd Delta Committee advice
2010 Delta Commissioner
2011 Delta Act, Delta Fund (1 Bln/yr)
2011-pres. Annual Delta programme:
  • Flood protection
  • Fresh water availability
  • Spatial Adaptation
2014 Delta decisions & strategies
2017 New safety standards
2020 first 6yr Recalibration
THE NATIONAL DELTA PROGRAMME INVOLVES US ALL

NATIONAL AND REGIONAL GOVERNMENTS
DELTA PROGRAMME COMMISSIONER COORDINATION
BUSINESSES AND NGOS
RESEARCH INSTITUTES
RESIDENTS
Long-term thinking: lessons from the Delta approach

- Time scale 2020-2050-2100
  #AdaptNow!
- Integrated approach
- National & regional orientation combined
- Political-administrative, legal and financial conditions are key
- Values: Solidarity, flexibility, sustainability
- Create a Delta community (communication, annual conference, social media)
Uncertain future → calls for adaptive strategies

- Climate change
  - sea level rise,
  - discharge,
  - rainfall,
  - Evaporation

- Socio-economic developments
  - population,
  - economy,
  - land use/urban development
  - fresh water demand
HIGH AND LOW RIVER DISCHARGE
High discharge – July 2021

- Meuse basin
- Rhine basin
- Severe floods
- Evacuations

Rainfall
July 14-15 2021

Extremes rain
July 2021 (Ahrtal, Wallonia, Limburg)
Delta decision flood security

The essence of the delta decision on flood risk management is that by no later than 2050, the probability of individual fatality due to flooding will be reduced to 1 in 100,000 per annum ($10^{-5}$ or 0.001%) for every resident living behind the dykes.
Strategy: strengthen flood infrastructure & give room to the river, resilient spatial planning and evacuation.

2050:
1500 km flood protection
500 locks and pumping stations
Low discharge
Delta decision fresh water supply

By 2050, the Netherlands must be resilient against freshwater shortages.

Drought of 2018, 2019, 2020
Strategy: efficient distribution of water from Rhine and Meuse, reduce and prioritize use and abstractions

Preventing salt water intrusion by flushing

Managing reservoirs
July 2021: lessons (to be) learned

In the Netherlands a **national evaluation** has been commissioned. Aspects to be considered:
- “Unprecedented” weather conditions (area, rain intensity, season)
- Coinciding high water levels during summer with summer land use
- Connecting scales (continental, national, regional, local)
- International dimension including crisis management
- Relation water - land use (water retention, spatial planning, building and infrastructure guidelines)
Thank you for your attention

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