The Dutch Delta Approach

Introduction and background to the national programme for flood safety and freshwater supply

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The Dutch Delta

- 59% liable to flooding
- Dedicated governance structure
  - Strong administrative bodies
    - Central: ministries/Rijkswaterstaat
    - Regional: water boards, municipalities, provinces
  - Legal obligation to protect against floods (Water Act)
- Protection level 1/10,000
- Work is never finished
The past...

Large plans implemented as response to disaster:

• 1916 floods (North)
  ý Structural solutions with dams and barriers (Afsluitdijk dam to create IJsselmeer)

• 1953 flood disaster (South-West)
  ý First Delta Committee
  ý Structural solutions with dams and barriers (Delta Works)

• 1993/1995 high water levels (Rivers, large evacuations)
  ý Also spatial solutions: Room for the River/Meuse Projects
Delta under pressure: Challenges for the future

- More/extreme storms
- More/intense rainfall
- Spatial developments
- Increased river discharge
- Decreased river discharge
- Sealevel rise
- Increased erosion
- Salt intrusion
- Subsidence
An innovative approach: Delta Programme

2008: Advice by state commission (after Katrina)
2010: DP aimed at keeping NL a good, safe and attractive place to live and work

- Two goals
  - Safe now and in the future [2050-2100]
  - Fresh water supply guaranteed also in dry periods

- Not in answer to a disaster, but in advance, to be prepared and avoid it

- Annual update to parliament
Ensuring continuity

- Delta Act for the Delta Programme:
  - Legal base established in 2011, 1-1-2012 in effect
  - Delta Fund to guarantee long term financial stability (€1 billion/year)
  - Government Commissioner for the Delta Programme (responsible for progress and coherence)

- A new approach based on integration of administrative horizontal and vertical divisions, which addresses financial and policy continuity, with participation of all stakeholders
Present – 2015: ongoing implementation

Ongoing programs under the DP umbrella:
- **Flood Protection Program / Weak Links in Coast**
  - Organizing safety on the basis of dyke inspections
- **Room for the River / Meuse Projects**
  - 90 projects along the rivers

At the same time looking further ahead:
- **Preparing Delta Decisions (2015)**
Delta decisions, 2015

- 3 national decisions:
  - Safety standards + program
  - Urban and spatial restructuring
  - Freshwater strategy + measures

- 2 regional decisions
Developing nationally optimal solutions: towards strategies and delta decisions

- Identify ‘tipping points’ by confronting scenarios with present day policy and longterm policy goals
- Adaptive delta management
- Avoid overinvestment, but do now what is necessary
Adaptive Delta Management

Angle:
Climate Change  CC
Spatial Planning  SP

Water safety Problems

Preparation time for large measure

Critical threshold

Increasing river discharge
Draught periods
Sea level rise

Tipping point

Now Decision

Time
Developing nationally optimal solutions

- Involve all levels of government in transparent decision-making process in line with their responsibilities
- Stimulate horizontal and vertical administrative co-operation
- Three values: solidarity, flexibility and sustainability
- Joint fact finding
- Collect creative and innovative ideas and combine with local developments
- Involve stakeholders and interest groups

Delta Programme Commissioner
Multi-level governance steering committees for sub-programmes
Room for Innovations

Possibilities for innovative solutions:

- Building with nature: The sand engine
- Technology/sensors integrated in dyke body
- Separating fresh and salt water (‘bubble-screen’)
To conclude: The five Dutch D’s

- Delta Programme
- Delta Decisions
- Delta Commissioner
- Delta Fund
- Delta Act

A safe and attractive country, also at the end of the century