Leading the way

Leaving room

Adaptiveness in the Dutch Delta Programme - a critical reflection
Adaptiveness requires:

1. Freedom of movement
2. Tailored agility
3. Informed alertness

How were these conditions met in the Dutch Delta Programme?

What are the remaining challenges?

Staff Delta Programme Commissioner
• Floodsafety and freshwatersupply
• Delta Act and Delta commissioner
• Delta Fund; 1 billion euro/year
• 5 Delta Decisions
• 6 Regional strategies
• 2 Delta Plans
• Adaptive Delta Management
Adaptive Deltamanagement

**Prepare structural alternative supply**

Bubble-screen PLUS + measures in regional watersystem and by freshwater users

- 2020
- 2050
- 2100

**Structural alternative supply of fresh water to West NL. + regional measures and freshwater use**

- KWA + step 1 en 2 **
- step 1: 15 m/s
- step 2: 24 m/s
- step 3: > 24 m/s

- KWA+ step 3** +regional measures and freshwater use *

- Accept shortage + regional measures and freshwater use *

**Water conservation, more crop per drop etc.**

** Possibly in combination with temporary closure of Hollandsche IJsselkering (in situation of storm or low river discharge rates)**

Staff Delta Programme Commissioner
Long term options (> 2050) that are kept open:

**Little effort to keep open**
1. When replacing *storm surge barrier* Rotterdam additional *design* requirements will be included related to reducing salinisation
2. An additional freshwater *buffer* in the IJssel-lake of 20-30 cm
3. In case of drought: increase water *discharge* from Rhine to IJssel and / or organise transport of water from Waal to Meuse

**Considerable effort to keep open**
1. Change the discharge *distribution* across the Rhine branches
2. Large *retention area* Rijnstrangen
3. Allow winter water *level IJssel-lake* to rise with sealevel (<30cm)
How was this condition met in the Delta Programme?

2. Tailored agility

Delta Decisions
- Safety flooding
- Freshwater
- Spatial adaptation
- Rijn-Maas Delta
- IJssel-lake area
- Decision Sand

Preferred regional strategies
- Rijnmond-Drechtst.
- IJsselmeergebied
- Zuidwestelijke delta
- Rivieren - Rijn
- Rivieren - Maas
- Kust
- Wadden
- Hoge zandgronden

Delta Plans
- Open for adjustment
- Safety flooding
- Freshwater

Staff Delta Programme Commissioner
2. Tailored agility

- Monitor Delta Decisions
  - Elaboration and implem. Delta Decis.
  - Signals and advices on adjustment goals, instruments and actions
- Monitor Preferred regional strat.
  - Elaboration and implem. Pref. r. str.
  - Signals and advices on adjustment strategies en LT options
- Monitor Deltaplans
  - Elaboration and implem. Deltaplans
  - Signals and advices on adjustment measures en speed realisation (ST)

Strgrp DP / BO DP
PO / Reg strgrp / Strgrp DP
Implem. organ. / PO / Strgrp DP
How was this condition met in the Delta Programme?

Flood Safety Standards: “Signal Standard” in new law

Increasing water levels due to climate change and decreasing strength levees due to aging

**Preparations** have to start as soon as the Signal Standard is reached

**Work** on the levee starts

Plus: every 12 years check on height Lower Limit ("planned adaptation")
1. Freedom of movement

- Sluice HVliet
- VZM fresh
- Bubble-screen

** Possibly in combination with temporary closure of Hollandsche IJsselkering (in situation of storm or low river discharge rates)

** KWA + step 1 en 2 **
- Regional measures and freshwater use*
  - step 1: 15 m/s
  - step 2: 24 m/s

** KWA + step 3 **
- Regional measures and freshwater use *
  - stap 3: > 24 m/s

Accept shortage + regional measures and freshwater use *

The freedom of movement you organized can be claimed by others
What are remaining challenges?

Short term: choice for incremental measures
- Invest in resilience of present system

Medium term: prepare the transformation of the system
- Tune investments to the planned transformation

Long term: choice for transformational measures
- Invest in resilience of new system
What are remaining challenges?

3. Informed alertness

Measured sealevel

Measured riverdischarge
Thanks for your attention
1. Connecting short-term decisions (in broad physical domain) with long-term tasks (related to flood safety and fresh water supply)

2. Thinking in adaptation-pathways instead of endsituations

3. Looking for and ‘rating’ flexibility

4. Linking with other investment-agenda’s (aging infrastr., nature,..)
1. Freedom of movement

2. Tailored agility

3. Informed alertness