1990 – 2010: a lot of plans
Different perspectives

Port Vision 2030

Urbanization

WWF: With Open Arms

Delta-program: water-safety and fresh water
2008: start new Delta-program

Working together with water

A living land builds for its future

Findings of the Deltacommisie 2008
Rhythms of the delta
Integration ...
Comprehending ...
A complex system

- Fishing
- Agriculture
- Environment
- Flood-defense & Water-management
- Port-economy
- Urbanization
The Dutch South-west delta – a dynamic region

South-west delta – urban patterns
The Dutch South-west delta – a dynamic region
land formation in the delta 1200 – 1800
un-going sedimentation, reclaiming and poldering
Technology of land-making and urbanization 13th – 14th century

- Ringpolders op zandplaten
- Kernen tegen de ringdijken
- Groei van havenkanalen

Figures: Strootman Landscape Architects
Colijnsplaat

Figures: TU Delft, Urbanism
Kaart van de Oud Noord-Bevelandpolder, 1598 (A.R.A. VTH 2803).
L. Capitaine - Noord Beveland 1789
Colijnsplaat

Voorstraat (‘Frontstreet’) perpendicular to the dike

Wedding ceremony, Colijnsplaat 1938

Figures: TU Delft, Urbanism
Colijnsplaat
‘Integrated area-development’ in the delta
1200 - 1800

Figures: TU Delft, Urbanism
Reclaiming the land
‘silt-cities’ & ‘wear-cities’
projects and unforeseen effects

Natural dynamics: currents, sedimentation

→ silting up processes

→ integrated projects: dikes/polders/cities/harbours

→ new silting up processes

→ new dikes, new polders

→ canals

→ changing hierarchies
understanding the behaviour of the system

New canalizations 1870s

Cargo transhipment 1850

Urban patterns 1850

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DE STORMVLOED
van 1 Februari 1953

[Map of coastal flooding in the Netherlands on February 1, 1953]
projects and unforeseen effects

River canalizations

- expansion Port of Rotterdam
  - rapid urbanization Rotterdam region
    - marginalization SW delta
      - bad maintenance dikes
        - flood disaster 1953
Closing the estuaries 1960s – 1980s: Delta works

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Damming the delta

‘Delta-works’: Damming the Rhine-Meuse Delta (1950’s – 1980’s)
The Netherlands as a *Modern Project*

Drain, dredge, reclaim
The Netherlands as a *Modern Project*

Making new land = making new society

Attempts to synchronize different domains

Increasing productivity agriculture

Industrialization

Creating social and spatial cohesion

Restrain the power of nature
1960 - 1980 - attempts to synchronize different domains
However...

Coastal erosion

land-subsidence; increasing rainstorm-floods

Environmental decay

Climate change
The delta as a layered system; working with water
The delta as a layered system; different rhythms of the layers
The delta - a *Complex Adaptive System*
The delta - a *Complex Adaptive System*

2013

**Retrospective**

What is the **behaviour** of the system

**Prospective**

how can we **accommodate the behaviour** of the system
Rhythms of the delta

50 AD

Land & Water

1300

Dikes and polders

1750

Ports

1900

Urban patterns

© IPDD TU Delft Urbanism / MUST Stedebouw
Rhythms of the delta

Tijdslijn deelsystemen

Ontwikkeling van de deelsystemen door de tijd heen

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Design & Science: Forecasting the behaviour of the system

Prospective

Future discharges?

12,000 m³/sec?
16,000 ?
>18,000 ?
Design & Science: Understanding the behaviour of the system

Current land-use claims

Local scale: many different initiatives
Design & Science: Understanding the complexity of the system

How to combine small scale, short term initiatives with large scale, long term processes
Delta Envisioning System (DEnviS)

‘I-MAPS’
Delta Envisioning System (DEnviiS)
‘In-between dikes’ zones
‘In-between dikes’ zones

Delta program:
Speed and depth in case of flooding
(source DP Rijnmond-Drechtsteden)
Preliminary result:

a ‘Robust Adaptive Framework’
Towards a ‘Community of Research & Practice’
Rhythms of the delta

Integration ...???

Comprehending ...???

It is about creating space for combining different systems with different rhythms
Integrated Planning and Design in the Delta (IPDD)
Integrated Planning and Design in the Delta (IPDD)