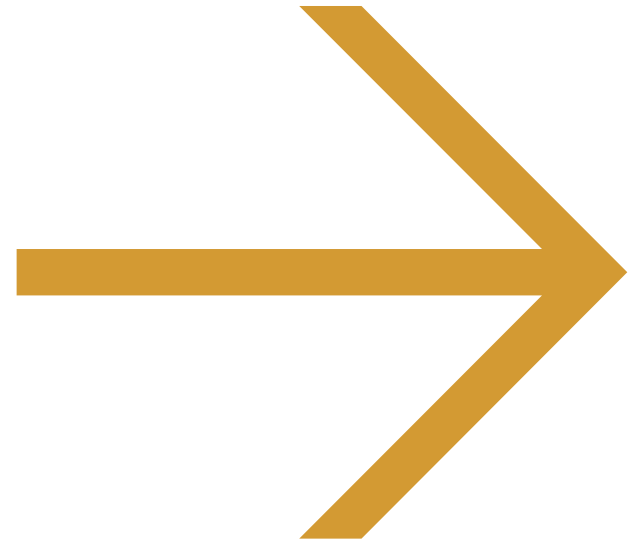


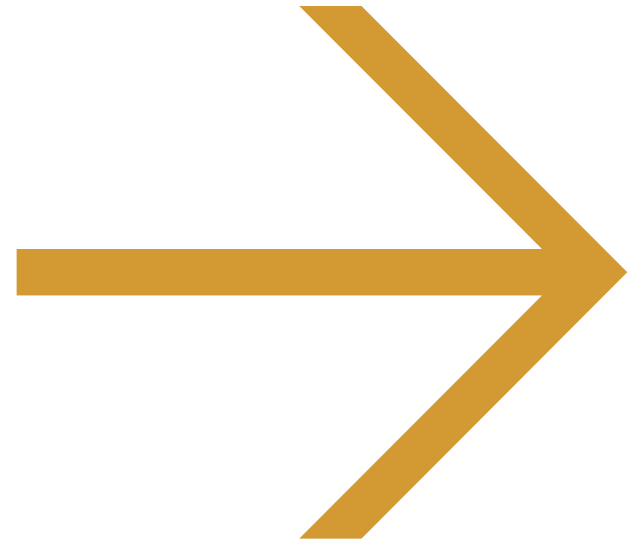
# Soil Pollution in the Netherlands

a refocused policy on soil and  
the strategy of the public and private sector



# Ruud Cino

Head of the Soil Remediation Department  
Ministry of Housing, Spatial Planning and Environment





# Outline of the presentation (1)

**In two decades time a marked shift took place as a result of changing policy and legislation**

- New targets
  - **from** removal of all pollution
  - **via** multi-functional, unless ...
  - **to** **suitable for use**
- New executors
  - **from** authorities
  - **via** polluters, users and owners
  - **to** **stake holders**






# Outline of the presentation (2)

## Triptych for legislation, resulting from changing policy

Soil  
Clean-up  
Interim Act



1983

Soil  
Protection  
Act



1987 & 1994

Soil  
Protection  
Act\*



1997 & 1999





# The Lekkerkerk Affair (1)

**Village near Rotterdam**

**± 6.500 inhabitants (1980)**

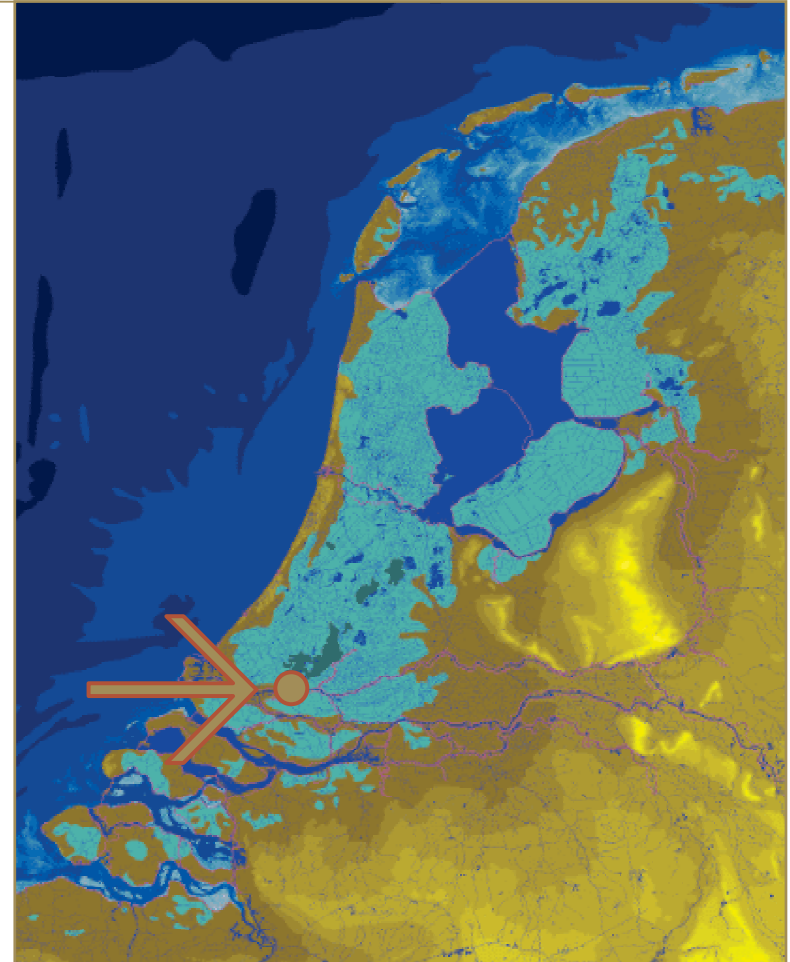
**Residential area of 8,9 ha**

**257 Homes**

**11 Bungalows**

**1 School**

**1 Gymnasium**

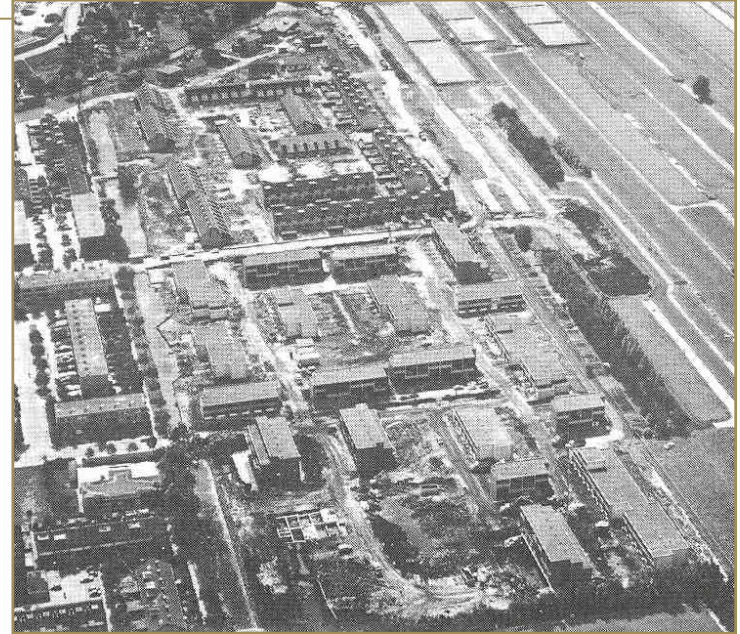




## The Lekkerkerk Affair (2)

**Built in the late 1960s  
and early 1970s on  
*ditches filled with waste***

- domestic waste
- industrial waste



**1979: Soil pollution was discovered**

- aromatic hydro carbons (AHC)

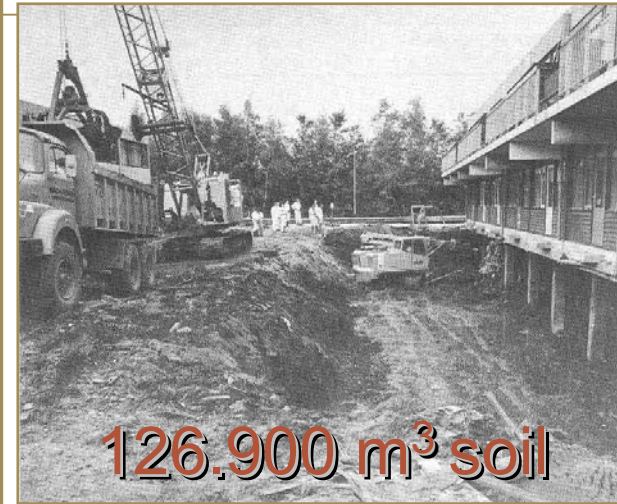
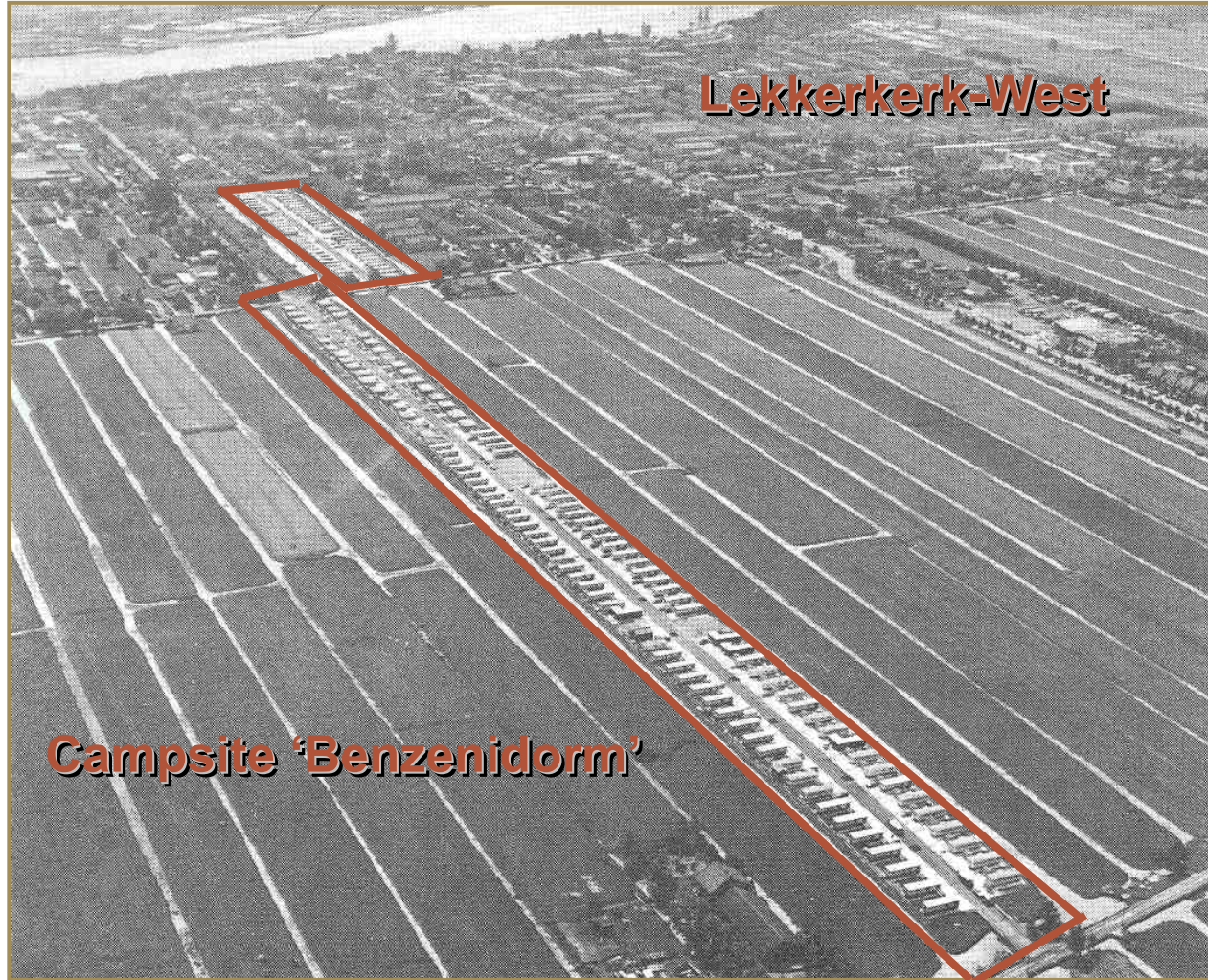


# The Lekkerkerk Affair (3)

## 1980: Hollands first soil remediation

- **Evacuation of the area**
  - residents rehoused in temporary prefabricated homes and caravans
- **Decontamination of soil and groundwater**
  - dig and dump for soil
  - pump and treatment for groundwater

# → The Lekkerkerk Affair (4)





# → General Response

1983

1987 & 1994

1997 & 1999

<b>Awareness</b>	<b>of the existence of the problem</b>
<b>Initiative</b>	<b>by the authorities</b>
<b>Target</b>	<b>removal of all pollution</b>
<b>Financing</b>	<b>by the authorities</b> <b>“the pollutor pays”</b>
<b>Legislation</b>	<b>Soil Clean-up interim Act (1983)</b>





# Property Market Response

1983

1987 & 1994

1997 & 1999

**Initially no effect on the property market because the initiative was taken by the authorities.**

**Therefore no costs were taken into account.**



# Inventory of Polluted Sites

## **Early 1980s: 350 sites**

- e.g. residential areas like Lekkerkerk & landfills
- costs: unknown

## **Mid 1980s: 100.000 sites**

- e.g. small and medium sized industries
- costs: € 45 billion

## **Late 1980s: 175.000 sites**

- costs: € 45 billion
- prioritized companies € 5 billion

# General Response

1983

1987 & 1994

1997 & 1999

<b>Awareness</b>	<b>of the size of the problem</b>
<b>Initiative</b>	<b>by private parties</b>
<b>Target</b>	<b>multifunctional, unless ...</b>
<b>Financing</b>	<b>by polluters, users and owners</b> <b>“unjustifiable benefits”</b>
<b>Legislation</b>	<b>Soil Protection Act (1987 &amp; 1994)</b>



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# Property Market Response

1983

1987 & 1994

1997 & 1999

**Anxious for costs and effects on property value because of the size of the problem**

**Demand for 'clean soil certificates'**

**Emphasis on liabilities**

**No initiative from the real estate market**

**Ignorance is a blessing**





# Policy & Legislation

## Preferred sequence of decontamination

1. **Pollutor**
2. **Land Owner** and **Lease Holder**
3. **Authorities** (“safety net”)

**NB Survey & Clean-up order !**

# → BSB & Industrial Sites in use (1)

## BSB-operation

- 'voluntary' soil remediation of industrial sites in use
- small and medium-sized businesses

## Participants

- Chambers of Commerce and Factories
- Dutch employers' organizations
  - MKB Nederland
  - VNO/NCW



# → BSB & Industrial Sites in use (2)

## Within 10 years time

- 200,000 addresses processed
- 120,000 notifications
- 30,000 participants

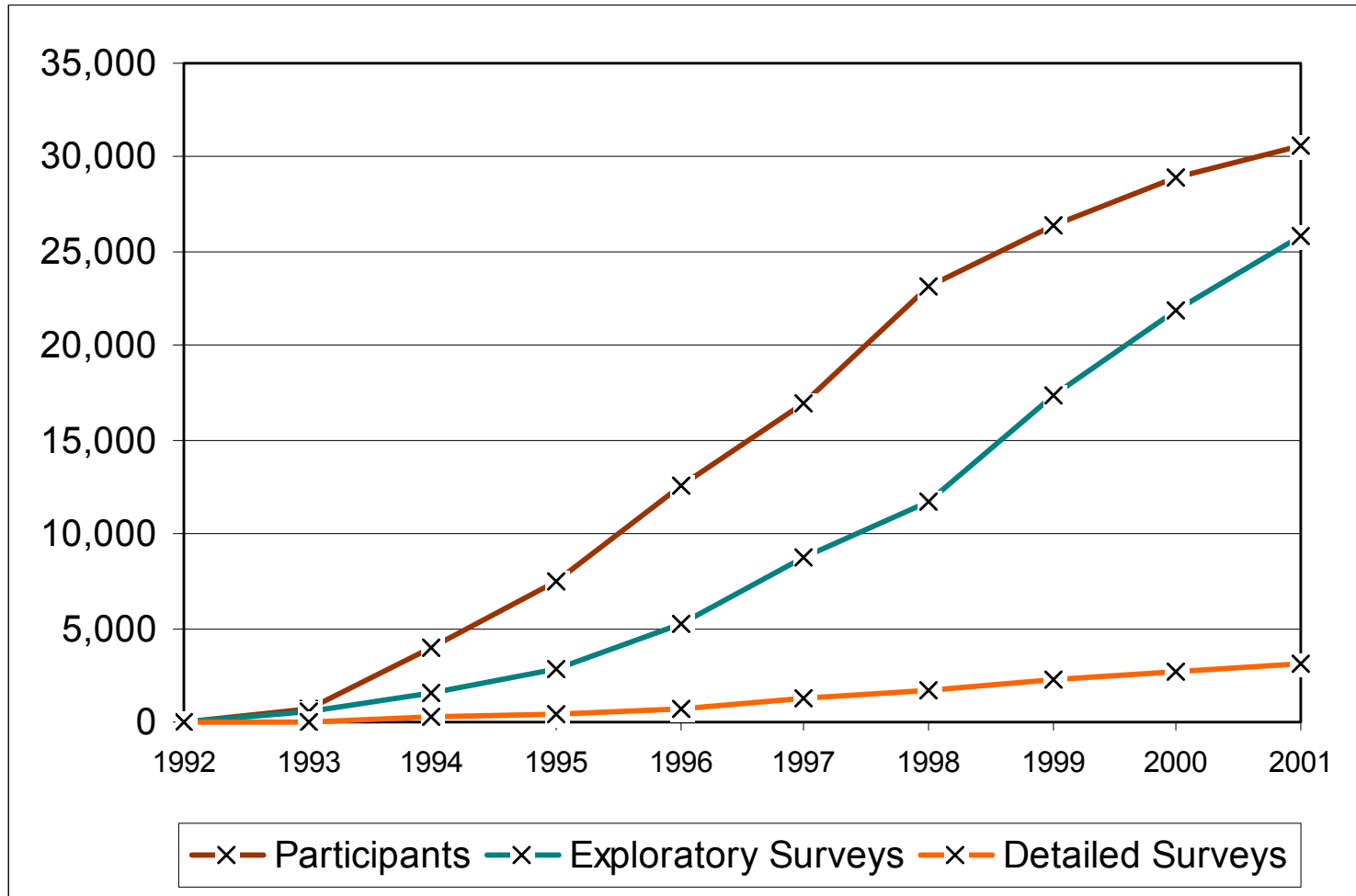


## Annual expenses (2000)

- exploratory surveys € 10 million
- detailed surveys € 3 - 3.5 million
- remediation plans € 50 - 75 million
- actual remediation € 125 - 150 million

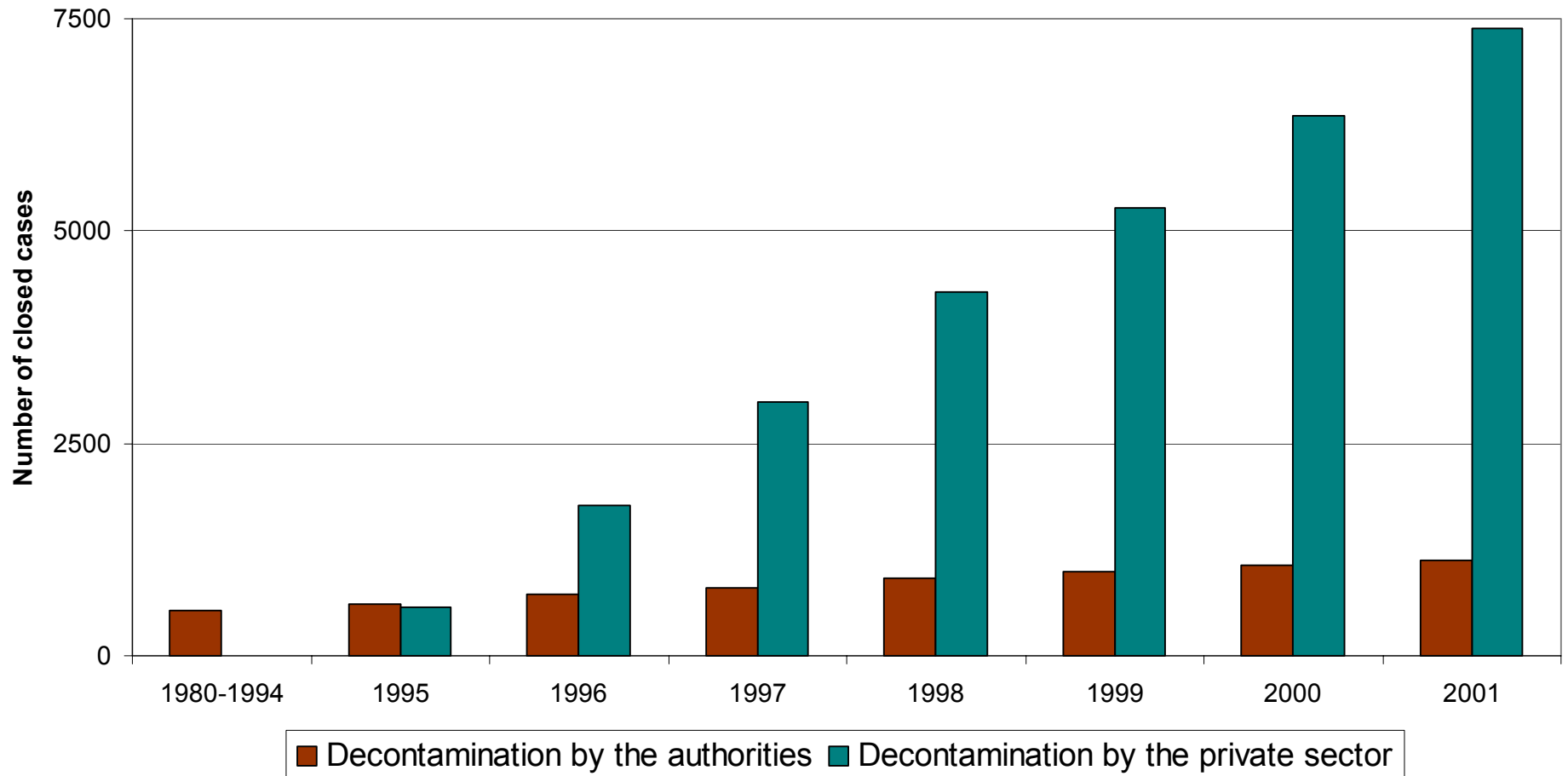


# BSB & Industrial Sites in use (3)





# Accent Shift in Decontamination





# Re-orientation on the policy

## Early 1990s: environmental oriented thinking

- too few cases of soil pollution tackled
- soil remediation too expensive
- stagnation of spatial and economic development

# General Response

1983

1987 & 1994

1997 & 1999

<b>Awareness</b>	<b>of stagnation of spatial and economic development</b>
<b>Initiative</b>	<b>by private parties</b>
<b>Target</b>	<b>suitable for use</b>
<b>Financing</b>	<b>by stakeholders</b> <b>“self interest”</b>
<b>Legislation</b>	<b>Soil Protection Act* (1997 &amp; 1999)</b>



# Property Market Response

1983

1987 & 1994

1997 & 1999

**Soil contamination**

**not only a threat but also an opportunity**

**Soil remediation & Urban redevelopment**

**hand-in-hand (two-in-one approach)**

**Cost/Benefit-analysis**





# Modernisation of the policy

## Late 1990s: market oriented thinking

- **solution-driven**
- **integral**
- **pragmatic**



# New Policy & Remediation Targets

## Higher return of the decontamination operation

- **function-oriented remediation**
  - introducing a suitable for use approach
  - aftercare: proven decrease in contamination
- **multiplier effect**
  - increasing private investment in soil remediation
- **external integration**
  - stimulating market dynamics
  - public and private co-operation





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# SBNS & Railway Yards (1)

## 1995 Netherlands Railways privatized

- Estimated sites 11,000
- Estimated costs € 1.5 billion

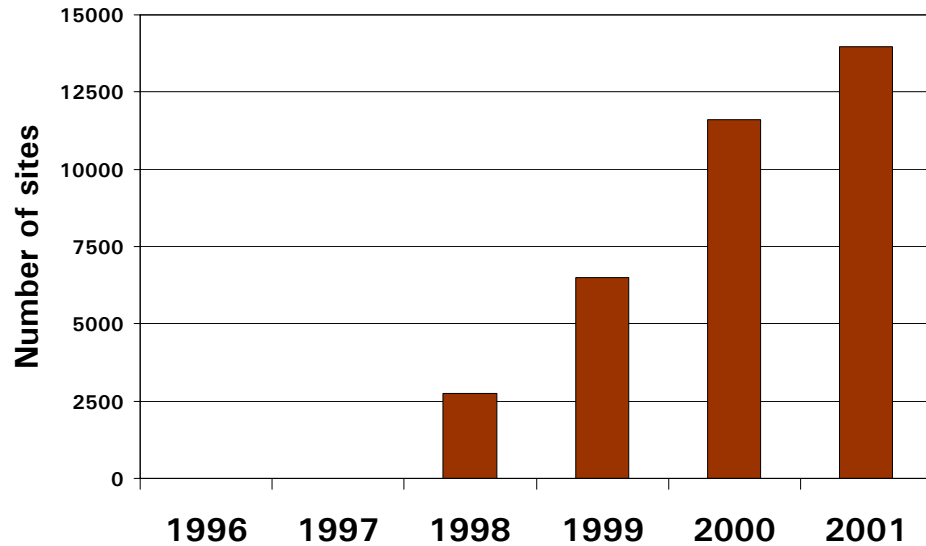


## 1996 SBNS founded

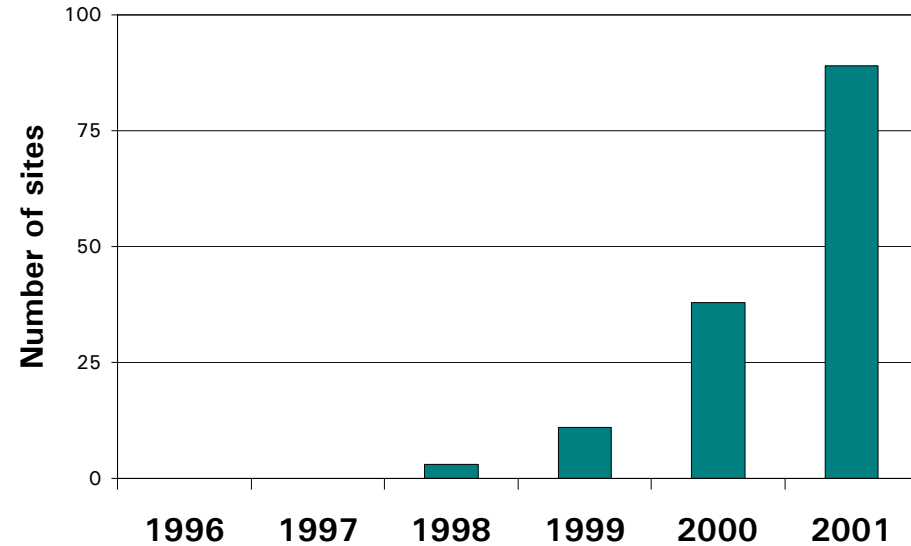
“Survey and remediation of seriously polluted sites with an urgent need for clean up and caused before privatization”



# SBNS & Railway Yards (2)



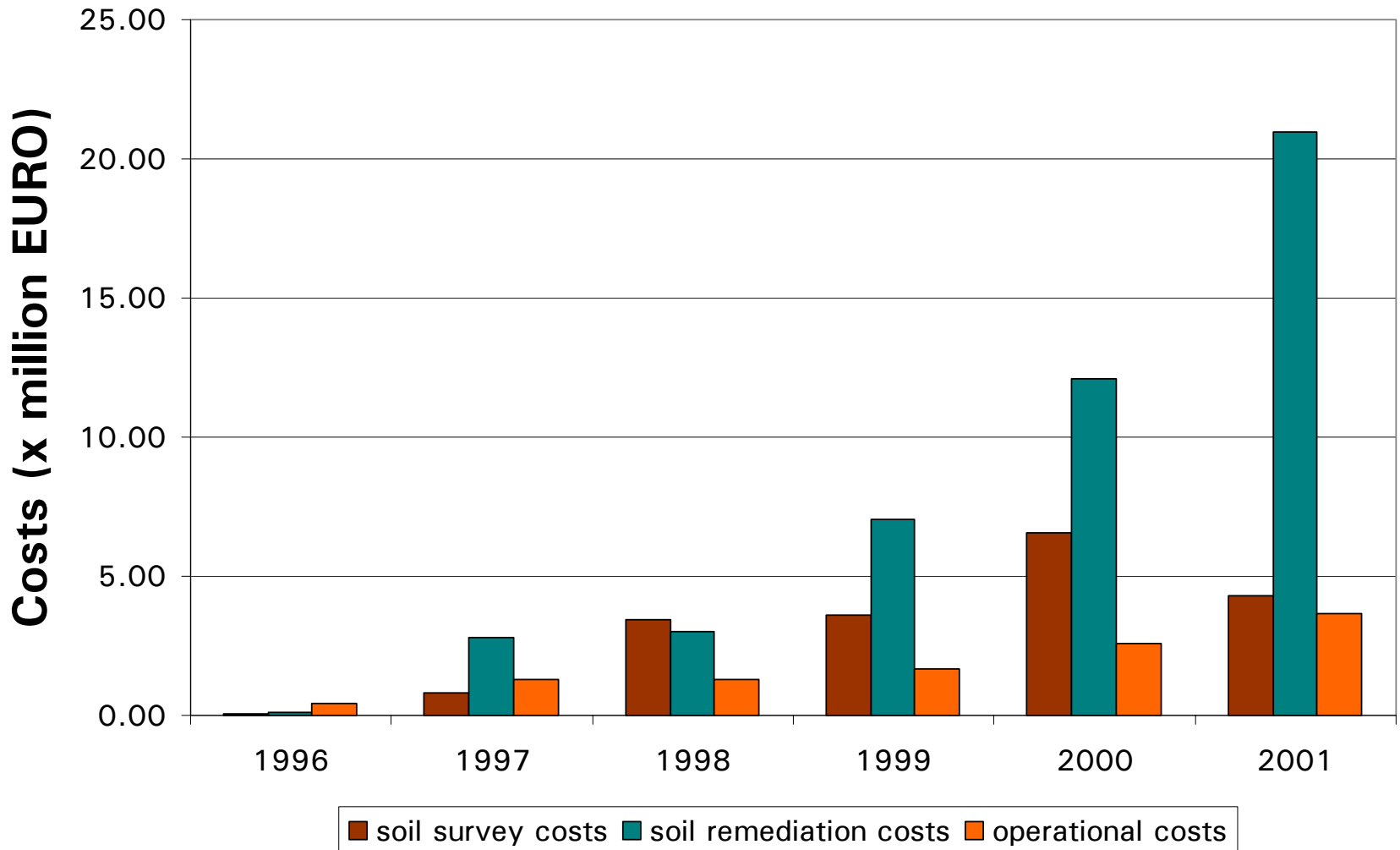
No. of Surveyed Sites



No. of Remediated Sites



# SBNS & Railway Yards (3)



# → Effect of New Policy and New Techniques

## **1995 : tackling serious and urgent cases**

- estimated costs: € 1.5 billion
- estimated time: 70 years
- “restoring the multi-functionality, unless ...”

## **2000 : tackling serious and (non-)urgent cases**

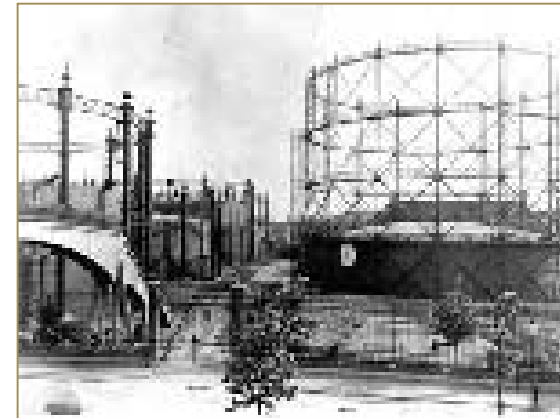
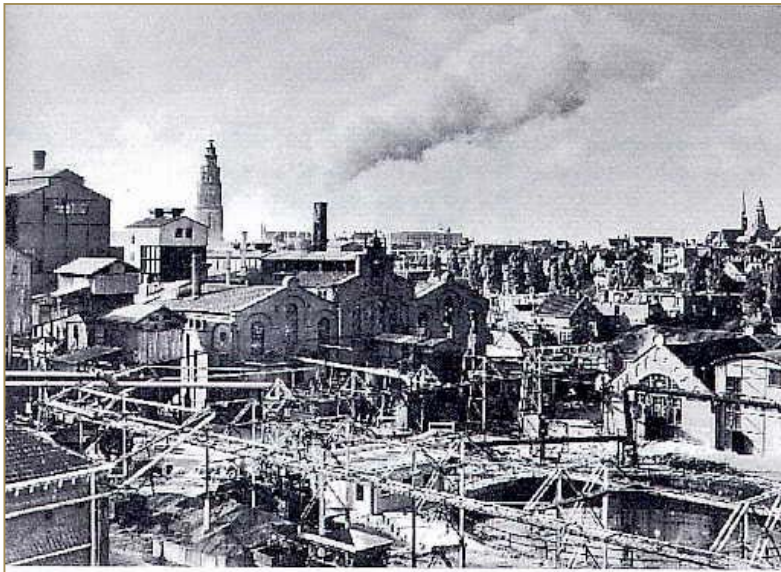
- estimated costs: € 0.75 billion
- estimated time: 35 years
- “function-oriented remediation”



# Gaswork Sites (1)

**1980: 300 former gaswork sites**

**2000: 50% remediated**



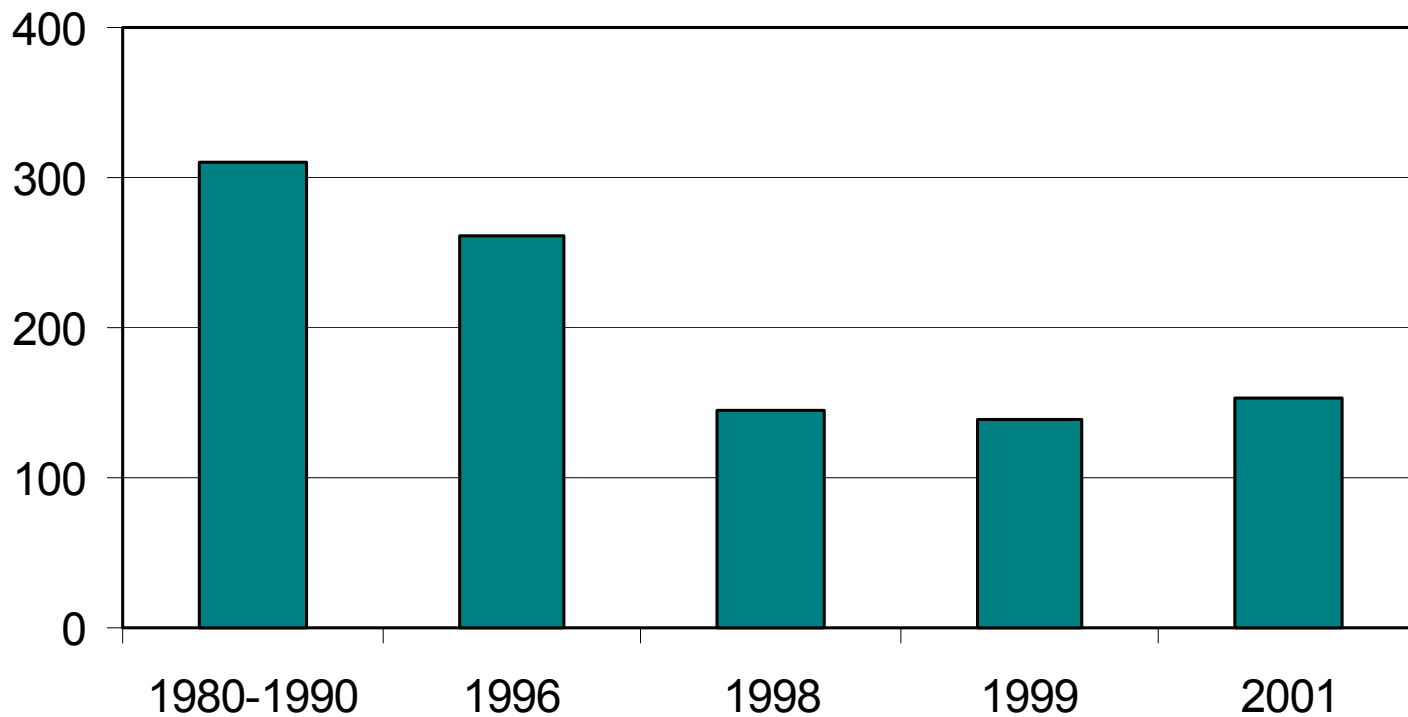




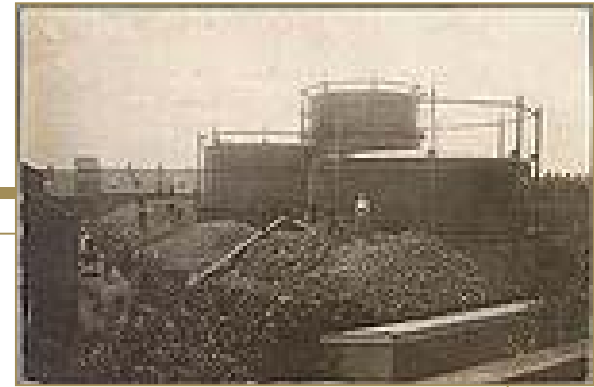
# Gaswork Sites (2)



## No. of sites to remediate



# → Gaswork Sites (3)



**150 sites remaining**

**Estimated remediation costs:**

- 2000 - 2005: € 190 million
  - 2005 - 2015: € 560 million
- 
- € 750 million

**Contributors:**

- Central Government 40%
- Energy Companies & Municipalities } 60%
- Real Estate Development }



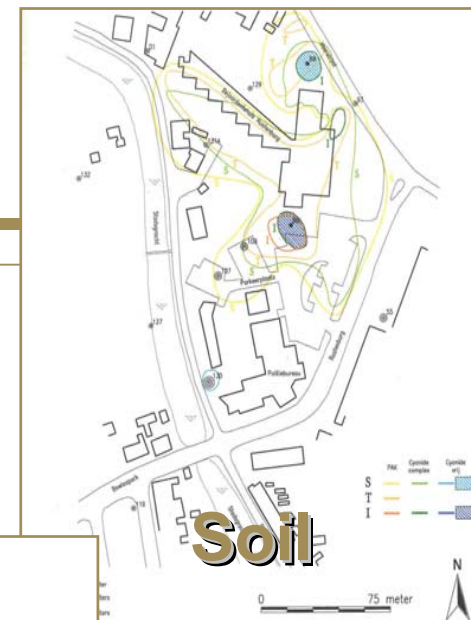
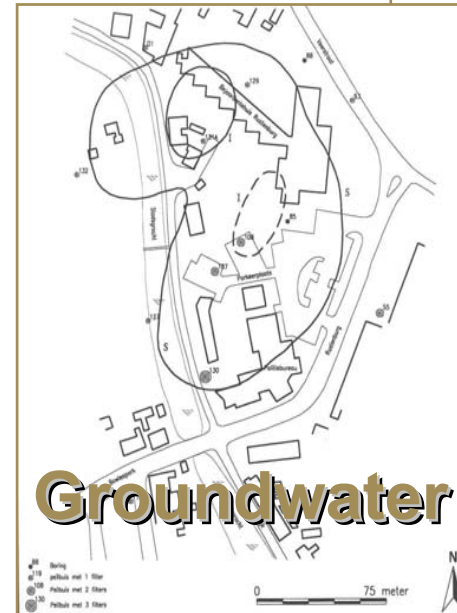
# Examples (1)

## CiBoGa Area / Groningen



# → Examples (2)

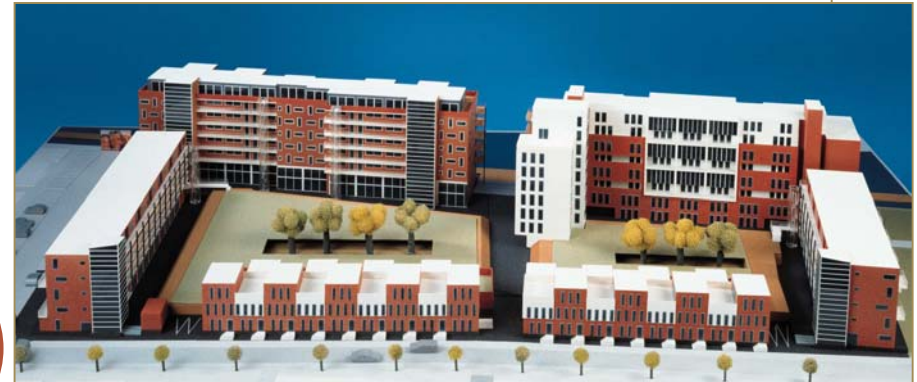
## Rustenburg / Wageningen





# Examples (3)

## Sigma Area / Zaandam



# → Final Comments (1)

**In two decades time a marked shift took place as a result of changing policy and legislation**

- New targets
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  - **to** **suitable for use**
- New executors
  - **from** authorities
  - **via** polluters, users and owners
  - **to** **stake holders**

## → Final Comments (2)

Not only **polluters**, **users** and **owners** of sites remediate soil and groundwater, but increasingly parties that in some other way have an interest in cleaning up a site

- **project developers**
- **construction companies**
- **investors**

# → Final Comments (3)

## Risk based management

- Remediation & Redevelopment **hand-in-hand**
- Environmentally **acceptable**
- Financially **feasible**

## New role for the authorities

- **Supporting** (knowledge & information)
- **Co-operating** (public-private partnerships)
- **Controlling** (monitoring & directing)





## Final Comments (4)

The economics of **self-interests**

**Adam Smith, 1776**

**The Wealth of Nations**

***“Individuals or corporate organizations  
acting in their own self-interest  
can guide society towards common goals”***



# Thank you for your attention !

More information?

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