New approaches to sustainable urban water management in the Netherlands

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GRONINGEN
FRISE
DRENTHE
OVERIJSSEL
HOLLANDE
UTRECHT
GUELDRE
ZÉLANDE
DUCHÉ DE CLÈVES
ÉVÊCHÉ
DE LIÈGE
DUCHÉ DE LUXEMBOURG
Campagnes de Guillaume d'Orange en 1568
Villes où a débuté le soulèvement de 1572
Campagnes des armées espagnoles en 1572-74
Domaine de l'Union d'Utrecht, 1579
Région ayant fait partie de l'Union d'Utrecht entre 1579 et 1589
Union catholique d'Arras en 1579
Évêché de Liège
Batailles
République des Provinces-Unies en 1648
Pays de la Généralité rattaché aux Provinces-Unies en 1648
Pays-Bas espagnols en 1648

water disaster 1953, 1500 people died

Objectives

- Understand the general relation between water, urban development and climate change, floods, droughts, quality, sanitation, availability, resources, political dimensions/conflicts and gain insight in the multidimensional aspects of water management in cities
- Foster an understanding about different approaches and trends in dealing with water management in cities.
- Develop analytical understanding and ability to diagnose wicked problems related to water in cities and identify possible solution strategies
- Conduct empirical case studies and provide an academic reflection on the context specific issues of urban water management by using various conceptual approaches.

Map Zeeland with Deltaworks

Expected learning outcomes

- Being able to understand, analyze and describe the multi-dimensionality of water related urban development issues, in particular the intricate relation of water issues, climate change and urban development
- Be able to describe and distinguish between various approaches to deal with water management in cities
- Applying of concepts and tools related to approaches to SUWM in reflecting on practical decision-making and planning situations concerning water management and urban development

Delta works

Introduction to Sustainable Urban Water management

Understanding the relation between water, urban development, sustainability and climate change

- Introduce the concept of SUWM
- Describe the intricate relation between urban development, sustainability & climate change as well as the various urban challenges that relate to water
- Linkages are made with practical examples of such approaches in the form of case studies

Stormvloedkering Oosterschelde

Challenges of urban water management:
floods, droughts, availability, sanitation, conflicts

- aimed at providing insight in the approaches to urban water management
- Both in term of the approaches to the physical challenges and opportunities for water management in terms of design and planning, as well as the approaches to decision-making and governance that are underlying the complex management of urban water

Stormvloedkering Oosterschel seaside

Different approaches

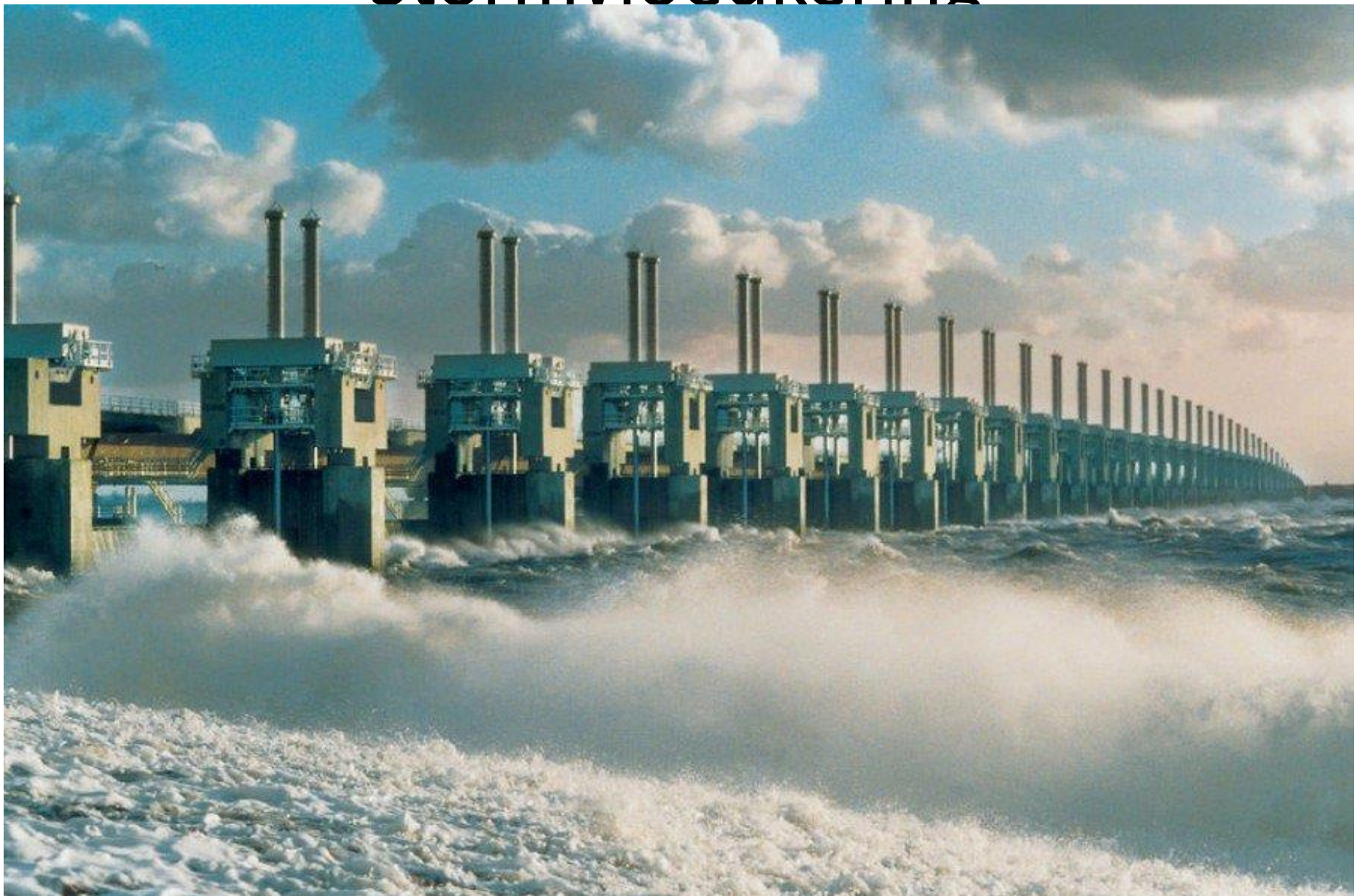
Approaches to the physical challenges and opportunities for water management in terms of design and planning, as well as the approaches to decision-making and governance that are underlying the complex management of urban water, or:

a) Approaches to physical management: cities as water catchments, water in integrated urban planning

b) Governance approaches: complexity, connective capacity, self-organization

c) From integrated water management to adaptive eco water management

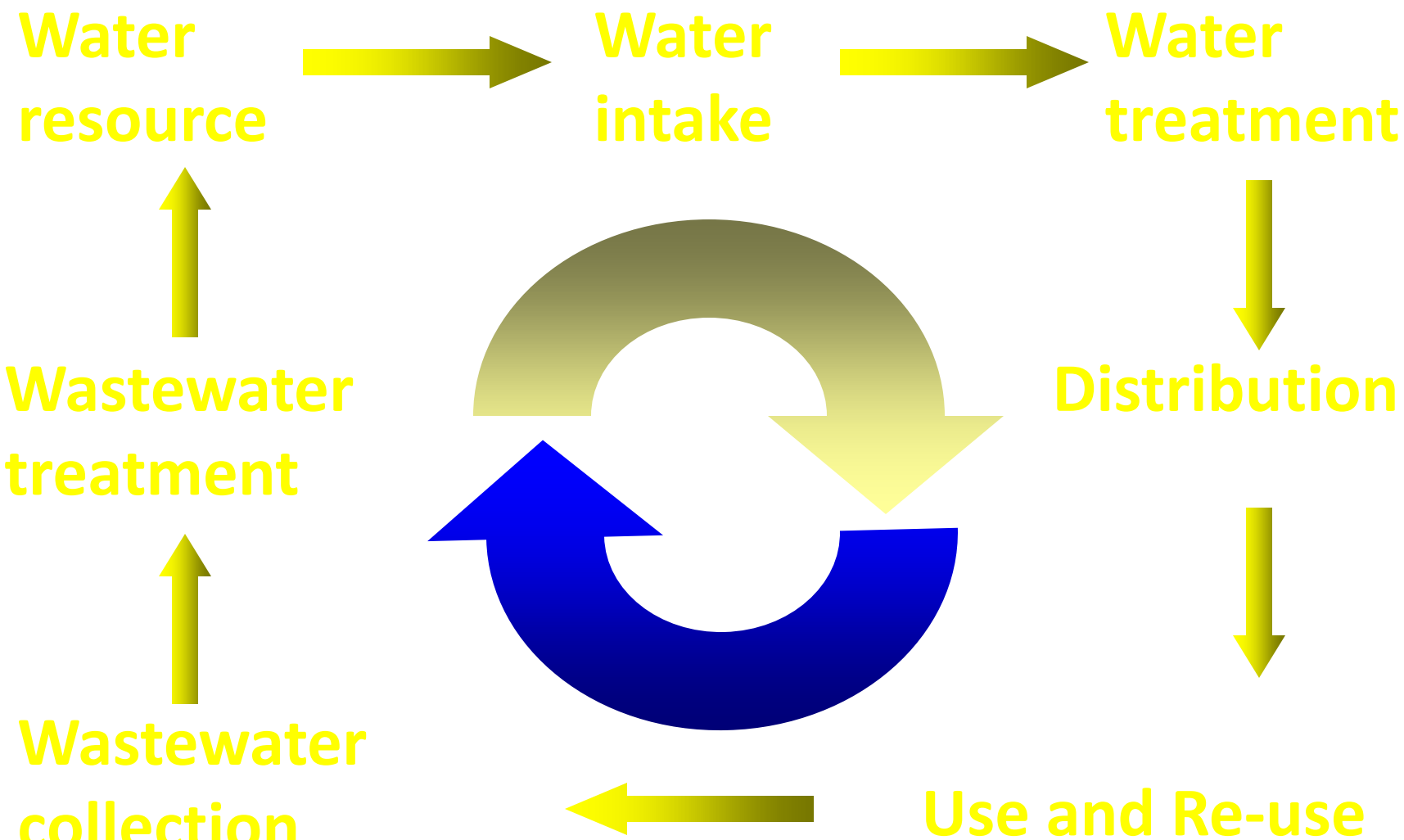
Stormvloedkering



Introduction to Sustainable Urban Water management

- Understanding the relation between water, urban development, sustainability and climate change
- Global challenges such as climate change and volatility of rain, urbanization and industrialization, population growth, urban sprawl, rural-urban migration put pressure on cities
- The Switch project emphasizes the importance of integrated urban water resource management
- The approach is very much focused on closing the urban water cycle, defined as the link between the resource, its use for drinking water and the eventual reuse to allow the water to flow back in the resource

Urban water cycle management



Integrated urban water cycle management (IWRM)

- For integrated urban water cycle management the available water resources, the required drinking water supply and proper waste water treatment are three important moments, with each its specific problems
- The essence of Integrated Urban Water Management (IUWM) is to deal with some of the most difficult water challenges by developing a truly integrated approach: water is seen as just one element of a challenge and other sectors are engaged in developing solutions
- Finally it means mainstreaming water in other sectors (for example mining, energy and agriculture)

Maaslandkering

Challenges of urban water management: floods, droughts, quality, sanitation, water availability and conflicts and what this means for cities

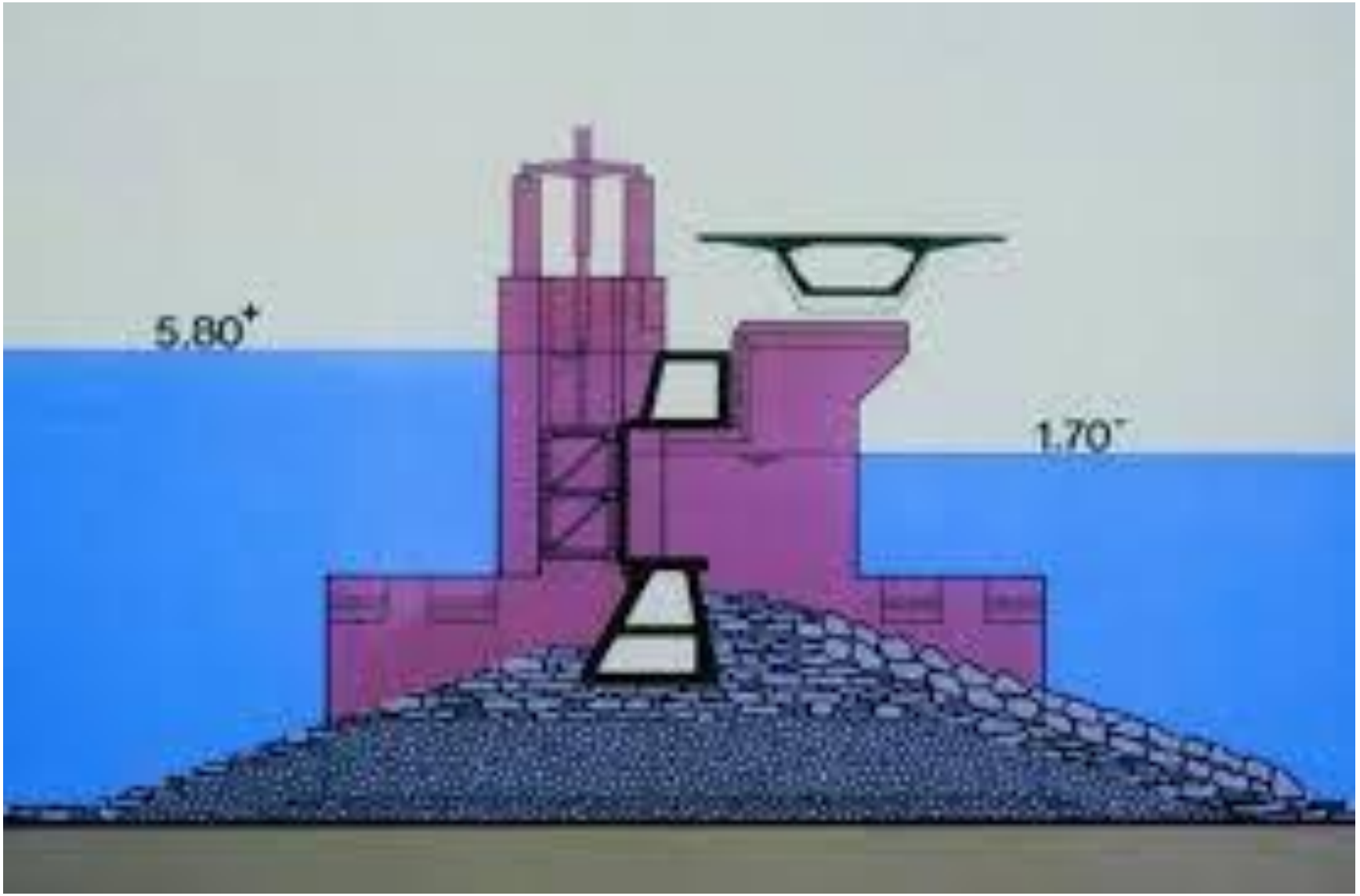
- requires a programmatic approach to better manage water-hazard related exposure and vulnerability of cities
- improve the quality and effectiveness of water hazard-related disaster risk management by mainstreaming existing research and vulnerability knowledge
- The Cities and Climate Change Project of the World Bank finances a feasibility study for rehabilitation of the drainage system in the City of Beira in Mozambique, one of the most vulnerable countries to climate related impacts
- Climate change related activities are needed, because there is a demand for robustness-based approaches to address climate change uncertainty and its potential impacts on water resources infrastructure planning and design

Construction stormvloedkering

Sustainable Urban Water Management, while more & more people live in cities

- The explosive growth of urbanization is resulting in a growing pressure on resources, especially water
- Most cities and high density population areas are situated in deltas which are vulnerable areas in case of flooding
- Many water related problems arise such as sanitation issues, water scarcity, decline of water quality
- Climatic changes enlarge these effects even more

Design stormvloedkering



Sustainable water management is a core issue of urban development and urban management

- It touches upon many aspects and challenges of living in cities
- Using this context as a starting point we aim at analyzing the multidimensional issues of urban development that relate to urban water cycles or urban water in general in the context of climatic change
- We will provide knowledge and insights about new approaches to managing these issues and subsequently of their solution strategies
- Through analytical understanding and the building up of expertise we aim to provide insights in the focal points for the building of effective and integral strategies of sustainable and climate proof water management for urban development

Institutional Aspects and Stakeholder Participation

- Water management is a multidimensional governance issue
- Dealing with such complexity requires integrative forms of steering, participative approaches, multi-stakeholder management and connective capacity

Conclusions for the Netherlands

positive

- A long history of water management
- The institutions and plans are there
- Government & the public are aware of the importance of water issue
- No one wants to repeat the 1953 disaster

negative

- How to deal with sea water rise?
- How to deal with climate change?
- How to finance the necessary investments?
- Link up with international initiatives?