



# KUNGL. TEKNISKA HÖGSKOLAN

## Institutionen för Mark- och vattenresurser

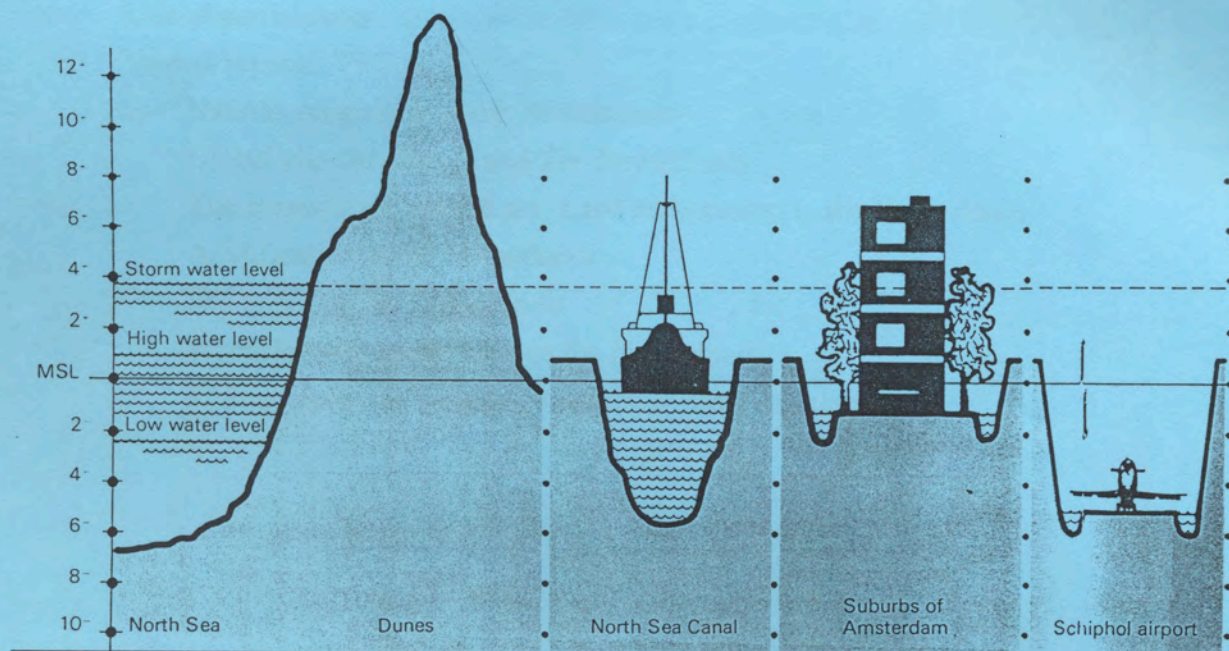
Royal Institute of Technology  
Dept of Land and Water Resources

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## ENVIRONMENTAL PROBLEMS AND MANAGEMENT OF NATURAL RESOURCES IN THE NETHERLANDS

A study tour in April 1991



Editors

Thomas Gumbrecht and Per-Olof Johansson

COURSE REPORT

STOCKHOLM 1991



ROYAL  
INSTITUTE OF  
TECHNOLOGY

Dept of Land and Water Resources

## Environmental problems and management of natural resources in the Netherlands

### PREFACE

A study tour in April 1991

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Stockholm 4th April 1991

Thomas Gärdenfors  
Per-Olof Johansson



Dept of Land and Water Resources

PROGRAMME FOR STUDY TOUR TO THE  
NETHERLANDS 22-30 APRIL 1991

PREFACE

This report contains literature reviews of different environmental problems in the Netherlands. To set the proper background the report starts with a brief description of natural geography. The chosen areas of study cover global to local problems as well as problems specific for the Netherlands and more general problem. Global climate change is a general problem that can have severe effects on the Netherlands. Not least since large parts of the country is situated below the sea level. The Dutch management, or struggle, for keeping the sea away is thus taken up in a separate study. Acidification is an environmental problem on a regional, European scale, with the Netherlands situated close to large emission centres. The major Dutch acidification problem, however, is largely dependent on their own intense agriculture, which also threatens the ground water resources. Not only nitrogen levels but also pesticides are severe threats. These problems are discussed in two of the studies. Finally it is easy to understand that Dutch surface water resources are vulnerable. A large part of the Netherlands is built on the delta's and former floodplains of the Rhine, the Meuse and the Scheldt rivers. To solve the problem of water supply, different large scale solutions, all encompassing as large safety margins as possible, have been chosen, this is the theme of the last report.

The studies have been carried out by 4th-year-students as an exercise in the course Planning and Management of Natural Resources during spring term 1991. The project studies will be followed by a field tour to the Netherlands 22 - 30 April 1991.

We express our gratitude to our Dutch friends and hosts for their help in creating a good programme for our study tour.

Stockholm 4th April 1991

Thomas Gumbricht  
Per-Olof Johansson

Fri	26/4	09.00	Short excursion through the city of Delft. Bus tour through the built-up areas.
			Afternoon programme open.
			Accommodation at Royal Tropical Institute, Amsterdam.
Sat	27/4		Free day in Amsterdam. Accommodation at Royal Tropical Institute.
Sun	28/4	09.00	Visit to Polder area and wetlands. Accommodation at Royal Tropical Institute.
Mon	29/4	08.00	Departure Amsterdam.
		09.00	Visit to provincial water supply of Noord-Holland. Wetlands and duneserve - Mr C. Smit.
		22.30	Ferry Travemünde-Trelleborg.
Tue	30/4	17.00	Arrival at Stockholm.



Dept of Land and Water Resources

PROGRAMME FOR STUDY TOUR TO THE  
NETHERLANDS 22-30 APRIL 1991

<u>Day</u>	<u>Date</u>	<u>Time</u>	<u>Programme</u>
Mon	22/4	10.00	Departure by bus from Stockholm. Ferry Trelleborg-Travemünde.
Tues	23/4	14.00	Arrival Dutch boarder. Lunch. Excursion through the Netherlands with focus on landscape (types and development) - Dr Willem van De Westeringh.
		18.00	Arrival Wageningen. Dinner at NJHC-herberg De Zilverberg.
		19.30	Visit to ISRIC - Dr Hans van Baren. Accommodation at De Zilverberg.
Wed	24/4	08.30	Staring Centre, room 360: Geology of the Netherlands - Dr Rob Felix. Introduction to Staring Centre - Ir A. Reijmerink. Groundwater vulnerability - Dr A. Breeusma.
		11.00	Lunch
		12.00	Departure Wageningen.
		13.30-	Arrival at De Biesbosch.
		17.00	Lecture and film about watersupply and nature conservation at De Biesbosch - Dr J Volz. Boat trip through De Biesbosch.
		20.00	Accommodation at August Reitsmahuis, Hoek van Holland.
Thur	25/4	09.00	Lecture about the Delta works and the sea level rise - Prof.dr.ir. J.K. Vrijling, Delft university.
		10.30	Excursion to the Delta works and estuaries south of Delft. Lunch and film at Neeltje Jans. Accommodation at August Reitsmahuis, Hoek van Holland.
Fri	26/4	09.00	Short excursion through the horticultural area near Delft. Bus tour through the bulb growing district. Afternoon programme open Accommodation at Royal Tropical Institute, Amsterdam.
Sat	27/4		Free day in Amsterdam. Accommodation at Royal Tropical Institute.
Sun	28/4	09.00	Visit to Polder area and exhibition. Accommodation at Royal Tropical Institute.
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