

**SPECIAL FEATURE**

**Coastal dynamic lowlands - the role of water  
in the development of The Netherlands: past, present, future**

**Guest Editors:**

**Jan Visser & Robbert Misdorp**

This Special Feature is based on contributions presented at the 28th International Geographical Congress held by the Ministry of Transport, Public Works and Water Management in The Hague, The Netherlands from 4-10 August 1996

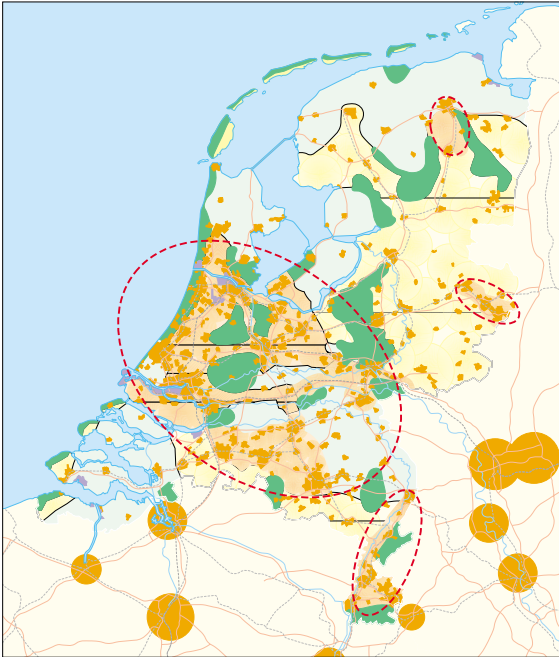
**Contents**

Visser, J. & Misdorp, R. — Coastal lowlands - the role of water in the development of The Netherlands: past, present, future. Introduction	106
Borger, G.J. & Ligten dag, W.A. — The role of water in the development of The Netherlands – a historical perspective	109
Waterman, R.E., Misdorp, R. & Mol, A. — Interactions between water and land in The Netherlands	115
de Ruig, J.H.M. — Coastline management in The Netherlands: human use versus natural dynamics	127
Colijn, C.J. & Binnendijk, A.C. — Physical planning in the coastal region of Zeeland, The Netherlands	135
Tromp, D., Zevenboom, W. & Stolk, A. — International cooperation around the North Sea basin	143
Scholten, H.J., LoCashio, A. & Overduin, T. — Towards a spatial information infrastructure for flood management in The Netherlands	151
van den Bergh, J. & Nijkamp, P. — Economic aspects of global change impacts and response strategies in the coastal zone of The Netherlands	161

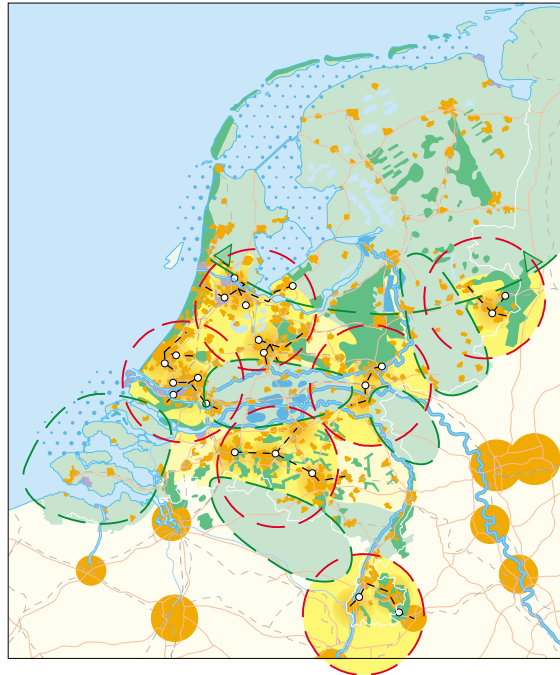


The publication of this Special Feature in *Coastal Conservation* has been made possible by:  
Netherlands Ministry of Transport, Public Works and Water Management  
Directorate-General of Public Works and Water Management  
National Institute of Coastal and Marine Management, The Hague  
North Sea Directorate, Rijswijk  
Road and Hydraulic Engineering Division, Delft

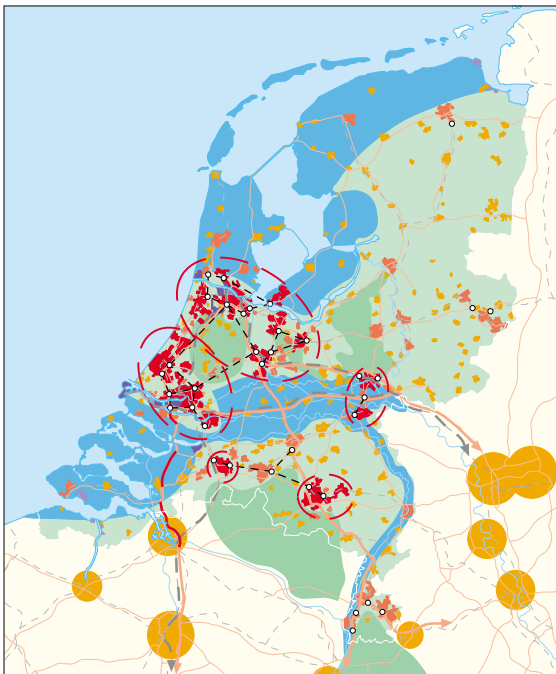
Palette



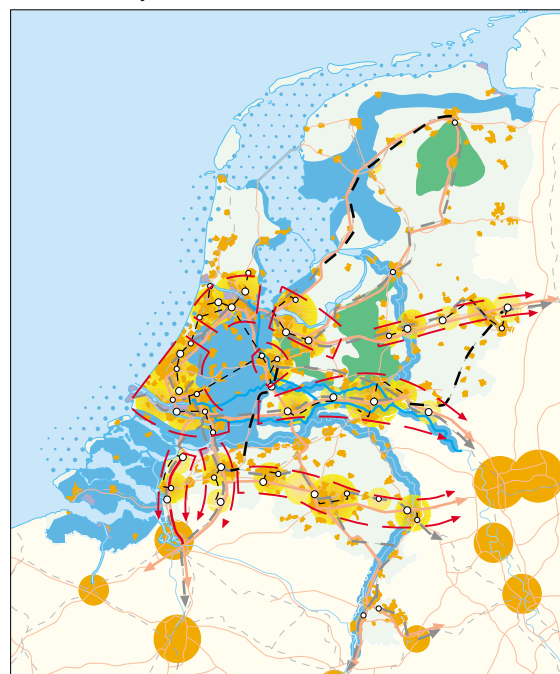
Park landscape



City land



Flow Country



Future national development patterns in four scenarios (source: Ministry of Housing, Spatial Planning and the Environment: 'Netherlands 2030 - Discussion Document - An exploration of spatial scenarios' - Summary - March 1998).

## Coastal lowlands - the role of water in the development of The Netherlands: past, present, future. Introduction

Visser, Jan<sup>1</sup> & Misdorp, Robbert<sup>2</sup>

<sup>1</sup>Road and Hydraulic Division, Ministry of Transport, Public Works and Water Management, P.O. Box 5044, NL-2600 GA Delft, The Netherlands; Fax +31 15 2518555; E-mail j.visser@dww.rws.minvenw.nl;

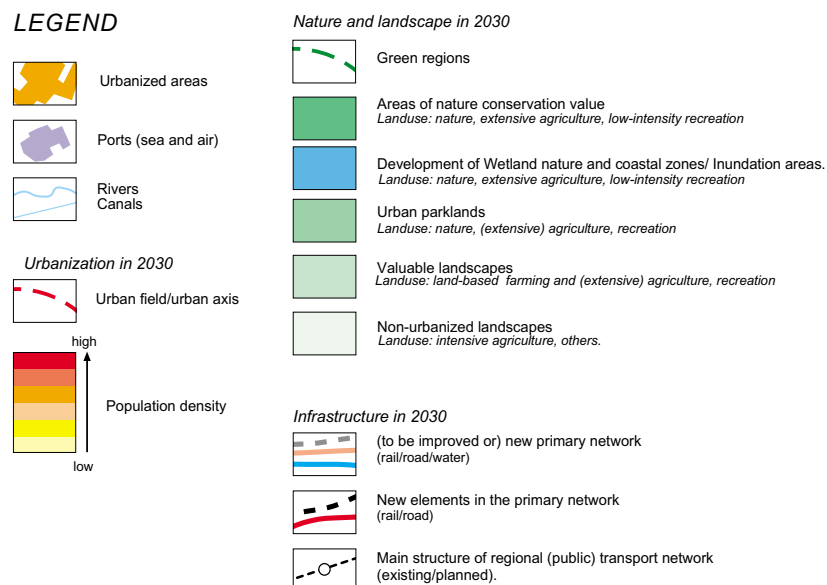
<sup>2</sup>Coastal Zone Management Centre, National Institute for Coastal and Marine Management, Ministry of Transport, Public Works and Water Management, P.O. Box 20907, 2500 EX The Hague, The Netherlands; Fax +3170 3114380

The low-lying coastal areas of the world account for less than 15% of the Earth's land surface, but provide homes and working place for about half of the world population. Highly dynamic natural processes and rapid socio-economic developments are characteristic of the coastal zone; they confront mankind with a multifaceted challenge at global, national and local levels. Balancing the needs of economy and ecology in order to sustain further development is the principle aim of societies world wide, but most particularly of vulnerable coastal nations.

The Netherlands is such a vulnerable coastal nation, densely populated (450 inhabitants/km<sup>2</sup>), highly industrialized, easily accessible, and with a high standard of living. About two-thirds of the country's 15 million inhabitants live below mean sea level, while being protected by dikes and dunes. The largest cities, notably, Amsterdam and Rotterdam, are situated in this

low-lying part of the country, where the population density amounts to 2500 inhabitants/km<sup>2</sup>. The complex mosaic of the Dutch landscape is the result of human activities: digging canals for transport and drainage, reclaiming land from the sea for agriculture, building large urban agglomerations in the west, where major ports lie at the mouths of rivers discharging into the North Sea. The main regulating agents are man and water.

Many centuries of human effort have shaped the country in its present form. The coastal environment offers rich resources: fertile soils, fresh water, fishing grounds, waterways for transport, building materials, groundwater, oil and gas. Exploitation of these coastal resources generates wealth but at the same time contributes to threats such as flooding, erosion, congestion, degeneration of natural habitats and of fishing grounds, and pollution of the water, soil and air. In addition, the



low-lying Netherlands are vulnerable to the impact of climate change through the anticipated accelerated rise in sea level, changes in the frequency and intensity of storms and increased river discharges, also caused by changes in land cover in the river basins.

The survival prospects of vulnerable coastal areas appear to depend on the degree of coherence that can be achieved between:

- science: understanding natural and socio-economic systems and processes
- technology: making and using tools to fulfil human wishes
- policy-making: organization, collaboration, coordination and planning.

The course of history shows an increase in complexity due to the growing population pressure and subsequent pressure on the available space, which in its turn leads to an increasing number of user conflicts. People are increasingly recognizing, both nationally and internationally, the need for cooperation and integrated approaches to policy, science and technology. They are moving from reactive to anticipating approaches. They are feeling the need for long-term, large-scale strategic responses using predictive models and integrating information systems within the framework of scenarios for the future. New concepts of coastal resilience and living rivers are a recent sign of changing attitudes: a recognition of the need to return space to natural processes in order to create a greater buffer capacity and diminish the country's vulnerability to future developments.

An example of exploring the future of The Netherlands, based on approaches of this kind, was published in 1998 in the form of a national government policy document: *'Netherlands 2030 - discussion document - an exploration of spatial scenarios'* This document illustrates the potential of spatial planning to integrate provision and stimulate sustainable development in a densely populated coastal country.

The main theme is how The Netherlands will likely have evolved by 2030, in response to competing demands for space and resources. The document identifies six categories of issues: (1) demand for space; (2) traffic and transport; (3) environment and economy; (4) life-style and housing; (5) nature and landscape; and (6) relations between government and individuals. The following four scenarios were widely discussed in The Netherlands (see figures on p. 106):

- The Palette Scenario: freedom for individuals and companies to choose where to live or have their premises;
- The Flow Country Scenario: homes and company premises concentrated along waterways;
- The Park-landscape Scenario: a mixture of town and country;
- The City-Farmland Scenario: compact residential and business development separates cities from farmland.

The papers in this special JCC-Feature are based on contributions presented during the International Geographical Congress held in The Netherlands in August 1996. They are not meant to be read as self-contained scientific papers, but as part of a coherent series illustrating the role that water has played in the development of The Netherlands, particularly its coastal parts. Each contribution focuses on a particular aspect of that role. This special JCC-Feature demonstrates that 'conservation' is not a static approach but an ongoing process designed to achieve the goal of sustainable development in low-lying coastal areas.

We would like to thank the authors for agreeing to transform their oral presentations during the Congress into papers, and also to thank the referees for reviewing the manuscripts. Finally, we are grateful to our colleague Andre Akkerman for preparing the illustrations which form an essential part of this Special Feature.

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Caption of coverpage/satellite image:

The Netherlands is a low lying country situated at the end of the large European rivers Rijn, Maas and Schelde and bordering the North Sea, an international shelf sea.