

## THE WATER DIALOGUE

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### Introduction

We live in an age of increasing of information supply. And we are confronted with that item every day. Via on-line literature listing, internet and many other sources we have a lot of information at our disposal. But sometimes we are overwhelmed by it. And in my opinion it will get worse in the near future.

In the Netherlands we have the same problem with water management. There is so much information and water related data that it takes a lot of time and energy to pick out the specific information we need.

In order to solve this problem, a computer program, to combine data into useful information the Water Dialogue has been developed.

In the early sixties data-overload was not a problem at all. Especially in water management the problem was quite simple, the oxygen household of the Dutch rivers was very bad, most of the surface waters had a terrible smell and look and there was hardly any aquatic life possible. Things were so simple in those days. The Dutch Government started a chemical monitoring program that consisted of 4 locations and 5 different variables. A policy maker who needed information got all the data and could draw his own conclusions.

Nowadays water management is much more complicated. There is enough oxygen in the surface waters, but the rivers are polluted with pesticides, we have an eutrofication problem in our lakes and our sediments are polluted with PCB, PAH and heavy metals. In our chemical monitoring program we have 26 location and twice a month we analyse 200-300 different variables. And we realised that water problems cross administrative borders. It is impossible for policy makers to solve these problems without taking into account the issues of other departments, like agriculture, nature and physical planning.

Now that integral water management has become common practise, the demand for integral information has become greater than ever. When making policy choices a decision maker needs a lot of water-related data but also information about functions of the watersystems and economic data. He would like to know effects of his choices, possible measures, costs and other relevant information. In other words he will spend a lot of time and energy extracting accessible information from raw data. Unfortunately, he has no time for this. The Water Dialogue will give him a hand.

### The Aquatic Outlook

The third Dutch policy document on water management focused on the water system approach and formulated target values for long term water management. As a result there is now a requirement for information that quantifies and defines those target values. The Aquatic Outlook project provides the initiative for this. In this project relevant variables for water system characteristics and human activities have been selected for all Dutch surfacewaters. The enormous quantity of data collected in this project has been recorded in numerous reports, documents and in the Water Dialogue.

### What is the Water Dialogue?

The Water Dialogue is a PC program designed to offer a quick and easy way of converting a mass of water-related data into useful information.

Dutch policy is aimed at ensuring that all water systems meet specific quality and other standards and benchmarks. These standards therefore provide the basis for the Water Dialogue. The water systems are described in terms of a number of target variables: measurable characteristics which are important to the quality of water and to its human uses. These target variables are stored in the Water Dialogue database. It is possible to make all possible choices in target variables or water systems, or a combination of the two. The Water Dialogue can manipulate the figures in the database and convert them into precisely the tailor-made information.

#### Calculation method and interpretation

The Water Dialogue can combine different types of data to produce integrated information and presents it in a comprehensible way. It combines relevant data from the past, present and future.

Combining a great quantity of data in the Water Dialogue can lead to one overall assessment regarding the functioning of the watersystems. Calculation methods have been designed for clustering target variables and aggregating the water systems into a higher level. The extend of exceeding or failing to meet standards, i.a. the typical ratio is calculated for each individual target variable. The average standard exceedance rate is then calculated from these typical ratios in a number of intermediary stages, and for the benefit of presentation expressed as one colour. A blue colour indicates that the target variables meet the standards against which they were assessed. The colours change from blue to green, yellow, orange and finally to red in relation to the extend of the exceedance rate from the standard.

The calculation procedures for aggregation are established in the Water Dialogue. In principle on the basis of the calculation method described every form of aggregation is possible. A condition however is that standards or calibrated reference points are available for the target variables to be combined.

#### Presentation methods

The Water Dialogue offers five alternative methods of presenting information.

The first one is the so called Water Mondriaan. The Water Mondriaan is a highly abstract map of the Netherlands which in terms of design is very similar to the well-known paintings by the artist Piet Mondriaan. The water systems are represented as blocks; the result of the data assessment are expressed as colours. Using this method of presentation a vast quantity of data can be converted into conveniently arranged and aggregated information in a relatively simple manner. In this way it is possible to identify the particular water management problems and make these visible at a glance.

The score list enables to explore the information underlying the Water Mondriaan. It is a matrix which you can use to break down the colour coding given for each water system in the Water Mondriaan into more detailed information on groups of target variables.

By zooming in on the radial diagram it is possible to determine the cause of the deviation. The radial diagram is a kind of pie diagram illustrating the deviation between the value and the standard for one or more target variables.

The Water index is a measure of the average number of times by which the selected target variables and water systems exceed the relevant standards. The water index plot shows the trend of the selected target variables of groups of target variables over time.

The time plot is the lowest level at which information can be displayed. It shows the trend in a single target variable in a single water system in the past, the present and the future. The diagram presents the assessed value for the target variable in the original units.

In the Water Dialogue the target variables can only be clustered on the condition that the standards and the calibrated reference points are comparable. If for example the standards for ecology and economy are not consistent it is not worthwhile providing an integrated illustration of those elements.

The Same applies if water systems are aggregated. If for example salt and fresh water watersystems are aggregated, it would only be ultimately worthwhile if the standards applicable to them remained consistent.

The Water Dialogue system will be updated yearly and be accessible for both governmental and non-governmental organisations. In principle anyone who wants to verify progress made in water management and who wants to compare results with policy objectives will have access to the information system.