

# Optimisation Water Management

## What is your water cost optimum?

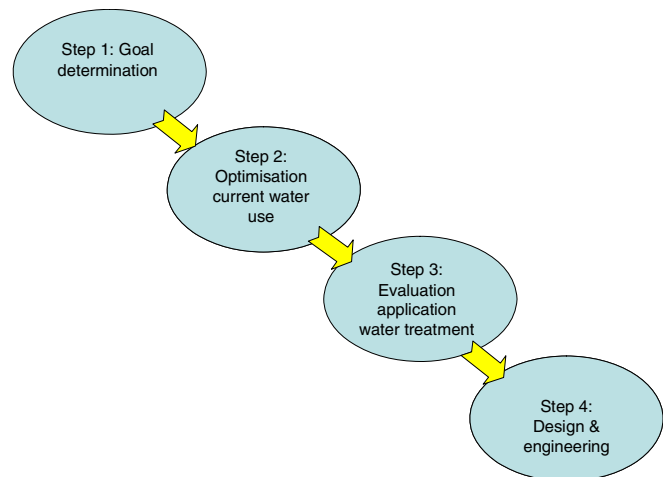
Expectations are that the discharge of industrial wastewater will become more and more expensive. In the near future considerably more will be paid for the discharge of a wastewater with a given composition as compared with today. Therefore, it becomes interesting to consider the possibilities to reduce the discharge of wastewater. One of them is the optimisation of water housekeeping. Royal Haskoning has all the expertise needed to support companies in finding the current cost optimum and to prepare companies for the future cost optimum.

### General

Water is used in many production processes. Consequently, water is taken in to serve as raw or auxiliary material. A common way of dealing with wastewater is discharging it onto the sewerage system so that it is treated in an industrial or public waste water treatment plant (WWTP). A fee needs to be paid and thus, water may contribute in many ways to production costs:

- Costs for water intake;
- Costs for water treatment - (e.g. water softening);
- Costs for wastewater treatment and discharge.

Water is turning more and more into a scarce commodity. This will probably lead to increasing water prices and discharge fees. Therefore, it becomes increasingly interesting to carry out a thorough analysis to



optimise the water management and make a clear picture of the current and the future cost optimum.

This may lead to:

- Reduction of water intake;
- Reduction of wastewater discharge;
- And thus to cost reduction.

#### **The Royal Haskoning approach**

To achieve the best result, Royal Haskoning uses the following stepwise programme:

##### *Step 1: Goal Determination*

An estimation of future operational costs at the current water use is made. This will show whether or not it is interesting to carry out further research on water housekeeping and water treatment.

##### *Step 2: Optimisation*

Optimisation of water use can be achieved by rearranging internal water flows. A constructive analysis of the internal water flows is performed in which e.g. reuse of water from one unit operation is considered for another. Furthermore, advice on good housekeeping is generated. This analysis may lead to reduction of water intake and discharge.

##### *Step 3: Evaluation*

A feasibility study of the possibilities wastewater treatment has to offer is carried out. The goal is further cost

-reduction by closing the water cycle: Upgrading of used water so that it can be used again in the production -process. This does not imply an --end-of-pipe wastewater treatment for water reuse from the start of the process on. Starting point is cost reduction. Thus, in process water treatment so that it may be used elsewhere is more than a possibility. In this way the most efficient way of treating water is determined, leading to optimum operational costs. It will lead to the actual cost optimum. Furthermore it prepares for the future cost optimum. In this way it becomes clear what investments have to be done in the future to ensure a cost effective watermanagement.

##### *Step 4: Design*

Design and engineering of the chosen optimisation. The design is -determined by measures following from Steps 2 and 3.

#### **The role of Royal Haskoning**

Royal Haskoning has built up extensive expertise on water management. Therefore, Royal Haskoning is the ideal partner to guide any company through above mentioned steps and come to optimum water management. World renowned companies have used our expertise to optimise their water management.

A few recent reference projects:

- Corus, IJmuiden, The Netherlands: Water management optimisation study for a steel producing company. Possible water savings and thus cost reduction possibilities have been shown for several -production units;
- NFI (Dutch Non-Alcoholic Beverages Industry), The Netherlands: Water management optimisation study for nine soft drink producing companies in The Netherlands. Total water savings of up to 14% have been shown possible by optimising water use and promoting good housekeeping.
- DSM/Chemelot, The Netherlands: Water management optimisation study for 25 Plants at the Geleen chemical production site. Finding possibilities to ensure a more reliable operation of the waste water treatment plant has been the main goal.
- NV Organon, The Netherlands: Water management optimisation study on pharmaceutical production plants. Finding possibilities to reduce wastewater production has been the main goal.

**Contact:** **Gert Stam, Head Advisory Group Industrial Water, [g.stam@royalhaskoning.com](mailto:g.stam@royalhaskoning.com)**  
**Jan Appelman, Project Manager Wastewater and Industry, [j.appelman@royalhaskoning.com](mailto:j.appelman@royalhaskoning.com)**

Barbarossastraat 35, P.O. Box 151, 6500 AD Nijmegen, The Netherlands. Phone +31 24 328 42 84. Fax +31 24 323 93 46  
 Internet: [www.royalhaskoning.com](http://www.royalhaskoning.com). E-mail: [info@nijmegen.royalhaskoning.com](mailto:info@nijmegen.royalhaskoning.com)