
THE POLLUTION OF SURFACE WATERS ACT IN THE NETHERLANDS: A STORY OF SUCCESSFUL ENFORCEMENT

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SUMMARY

Water Boards carry responsibility for water defenses (flood control) and water volumes in the Netherlands. They share responsibility for water quality with the Department of Water Management and Traffic.

There has been a significant reduction in the pollutant load on surface waters since 1970. The same applies to industrial emissions. This article describes the success achieved in enforcing the Pollution of Surface Waters Act.

1 THE NETHERLANDS -- WATER, WATER EVERYWHERE

Central Government, the provinces and local authorities are well-known Government bodies and many people understand more or less what they do. The Water Board (the oldest democratic form of administration in the Netherlands) is less well known. Nevertheless, Water Boards, along with the Department of Water Management and Traffic, perform indispensable work in maintaining the quality of life in the Netherlands.

More than 50% of the Netherlands, an area in which more than eight million people live and work, would be flooded if there were no dunes or water defenses. The numerous dykes, locks, retaining dams, canals and ditches keep the country habitable.

Water Boards carry this responsibility. Apart from looking after water defenses and water volumes, the Boards share responsibility for water quality with the Department of Water Management and Traffic. They are continuously active countering pollution and improving the quality of the surface water.

2 WATER CONTROL

Protecting man, animals, land and property against flooding is the oldest task of the Water Boards. They were set up hundreds of years ago to perform this role. Work still goes on today throughout the country in further reinforcing sea and river dykes, taking due account of falls in ground levels and rises in the water level. The major floods of 1995 revealed that the river dykes also merit greater attention.

3 WATER QUANTITY MANAGEMENT

The Netherlands has a comprehensive system of watercourses (streams, ditches and canals). In the high parts the Water Boards ensure effective drainage to avoid any water overload. In dry periods water is retained or fed in using retaining dams and pumps. Water is also stored temporarily in special buffers. In the low parts of the country the water is kept at the required level using pumps, for example in polders.

4 QUALITY MANAGEMENT

Water Boards share responsibility with the Department of Water Management and Traffic for the quality of surface water in the Netherlands. In the past this meant that the water had to be clean enough for the preparation of drinking water, for agriculture and horticulture, as a raw material for products, etc. Nowadays that has been expanded to include the entire ecosystem: water has to be clean enough for the plants and animal life to which it plays host.

One important element of quality management is the treatment of waste water. Treatment underwent rapid development with the arrival of the Pollution of Surface Waters Act. The Act prohibits the discharge of polluting or harmful substances into surface waters without a license. The discharge license is an important instrument in the battle against water contamination, giving the Water Boards a means of controlling discharges of waste substances. Requirements may be laid down in the license governing the nature and volume of the substances to discharge. Such requirements may demand that companies modify their production process or pretreat the waste water. This may also prove an attractive option financially as a levy is linked to the license which is lower if the waste water is less polluted.

The Act also gave a major boost to the construction and expansion of sewage treatment plants. This move, combined with improved techniques, has doubled the Netherlands' treatment capacity in recent years. Nowadays there are some 500 sewage treatment plants handling more than 90% of the sewage from domestic households and industry. As a result of the stringent requirements again being set for treated sewage, Water Boards are having to make major investment in building new treatment plants or modifying existing ones. One of the targets is a drastic reduction in phosphates and nitrogen in the years ahead.

When sewage is treated by a biological process, a residual product remains: sewage sludge. This contains heavy metals and pesticides, which renders it unusable as an agricultural fertilizer. Now it is dried and incinerated or composted.

5 THE POLLUTION OF SURFACE WATERS ACT: THE MOST SUCCESSFUL PIECE OF ENVIRONMENTAL LEGISLATION

In 1995 the Pollution of Surface Waters Act celebrated its twenty fifth birthday. Without question, it can be qualified as the most successful piece of environmental legislation. Its introduction enabled the task of improving the quality of surface water to be tackled in a systematic manner from 1970 onwards. Spectacular results have been achieved in virtually every part of the country. The total discharge of oxygen-binding substances has been reduced by over 80% in 25 years thanks to all the measures adopted (Table 1). To some extent this has been achieved by building sewage treatment plants in municipalities and on company sites. Over and above this, industry has adopted cleanup and preventive measures. The oxygen content in the major Dutch surface waters can be described as good in most cases nowadays.

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1. Production of oxygen-binding substances (10⁶ pollution per capita) and the surface water load

Year	1970	1980	1990	1995
Companies	33,0	13,7	9,8	10,2
Households	12,5	14,3	14,9	15,3
Removed in sewage treatment plant	5,5	12,6	17,0	18,6
Discharged to surface water	40,0	15,4	7,7	6,9

Source: Policy Document on Water Management (3rd)

When it comes to other substances such as nitrogen, phosphate and heavy metals, much remains to be done. Large volumes of surface water have also been contaminated with pesticides, even though there has been a 40% reduction in their usage. The switch to phosphate-free washing powders and measures taken at sewage treatment plants, along with other factors, has achieved a 65% reduction in the discharge of phosphates. The results with nitrogen are less rosy. Open sewers have all but disappeared from the Netherlands, and nowadays only around 0,7% of the country has open sewerage.

Positive results can also be reported on the cleanup of industrial emissions, which has been helped by the level of the levies. Table 2 shows the picture for zinc and cadmium.

Table 2. Clean-up of industrial emissions (tons/year)

Year	1975	1985	1990	1995
Zinc	1260	160	100	60
Cadmium	30	15	6	3

Source: Brochure on Integrated water management, Department of Water Management and Traffic

6 LICENSING AND ENFORCEMENT

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- All companies (and households as well) that discharge their effluent directly into surface water.
- Many companies (notably the larger ones with harmful substances in their effluent) who are connected to a sewage treatment plant via the sewerage system.

The license is granted by the water quality boards (Water Control Board, Ministry of Transport, Public Works and Water Management).

Licenses for major dischargers stipulate which substances may be discharged and which not, the quantities permitted, the preliminary treatment for the effluent that is to be discharged, etc. Conditions may also be set in the license governing the effluent temperature.

In the case of small-scale dischargers, such as households, an instruction on the means to be used will usually suffice. If households have a septic tank with appliances, notification will usually suffice.

The time spent by the Water Control Board in granting a license has to be reimbursed by the company itself in the form of fees. The company also has to pay a levy if the license is used. The company pays for the amount of pollution that may be discharged under the license.

The licensing process is characterized by intensive consultation between the Water Control Board and the company. The entire production process is reviewed to ascertain which modifications can be made and at what times to reduce the quantity and harmfulness of the substances. In a number of cases, the Water Control Board does not allow any direct discharge of particular substances. The company then has to adapt its production process accordingly. In some cases, consultation with the local authority for connection to the sewerage is the solution. In other cases the company has to build its own treatment unit. The latter option may even be an attractive one, as the levy to be paid may fall significantly if less polluted sewage is discharged.

The Water Control Board is also responsible for enforcement. Licensing and enforcement are organizationally separate within the Water Control Board. There are three important areas in enforcement:

- There is ongoing monitoring as to whether companies have acquired a license in good time. Effective consultation with such bodies as local authorities ensures that companies working without a license are soon detected. The Police have an important part to play here in acting as the eyes and ears. Companies may not initiate or modify their activities without the required environmental licenses (Environmental Management Act, Pollution of Surface Waters Act).

- Companies with a license are periodically visited and checked to ensure that they are complying with the regulations in the proper manner. The Water Control Board assesses whether the measures agreed have been carried out. Effluent samples are also taken and examined in the Water Control Board's own laboratory. In some cases the license stipulates that the company itself must periodically analyze the effluent and submit the results to the Water Control Board. The Board then performs random checks on the results using its own samples. In a limited number of cases the Water Control Board positions sealed measuring equipment to continuously measure the quality of the effluent. The Board's preferred approach is to perform frequent checks with a view to preventing offenses. Major dischargers are generally visited several times a year.
- If offenses are detected, appropriate sanctions will have to be applied. Measures under administrative law and/or penal law may be applied. The following graduated structure is usually adopted as a guide:

Minor offenses:

- Consultation with the company to end the infringement as quickly as possible. The situation is reviewed together with the company to ascertain what technical measures can be taken.

More serious infringements:

- The Water Control Board may then deploy sanctions under administrative law such as: total withdrawal of the license, a penalty (for example, a large fine for every day of infringement of the license) and/or administrative coercion (the Water Control Board obliges the company to cease the infringement with immediate effect or does so itself at the company's expense; in such emergencies, the consequences of the infringement can quickly be reversed).

Severe and/or recurring offenses:

- Apart from the sanctions under administrative law, a report is drawn up in consultation with the Public Prosecutor. The Public Prosecutor has the backing of penal law which allows him to act swiftly and at the appropriate level. In many cases, the Public Prosecutor will bring proceedings.

In recent years, there has been a great deal of interest in enforcement in practice. Additional enforcement officers have been appointed everywhere, enforcement programs have been drawn up, and cooperation between the various enforcement authorities has improved markedly. A great deal of consultation between enforcement officers at the Water Control Board and the Public Prosecutor has resulted in the scope available under administrative law and penal law being exploited to best effect and with mutual reinforcement.

7 SUCCESS FACTORS

The success in enforcing the Pollution of Surface Waters Act of Surface Waters Act can be attributed to various factors:

- Organization is clear and simple. The Water Boards and the Department of Water Management and Traffic handle licensing and enforcement. The license sets forth the requirements for waste water in unambiguous terms. The measures that the

company is able to take, or indeed must take, are discussed with the company. The licensing agent regularly checks whether the company is still complying with the requirements (the enforcement angle).

- The cleaner the waste water, the less the company itself has to pay. There is therefore a major financial incentive to take action at source. To put it another way: the measures to be taken can pay for themselves.
- The Water Board uses the revenues (from companies and households) to build and run sewage treatment plants. There is therefore a direct relationship between the funds obtained from contaminated waste water and efforts to tackle the problem.
- The organization of the Water Board ensures that the polluters (those paying) are involved in the general council of the Board.

8 ORGANIZATION OF THE WATER BOARDS

The Water Board should be seen as a government body which differs in three ways from provinces and local authorities:

- A Water Board has only one task: to look after the water system (water control, water quantity and water quality).
- The council of a Water Board is made up entirely of representatives of groups that have an interest in how it operates. The main groups are land owners (mainly farmers), owners of buildings and companies that make payments to the Board via the levy on contaminated waste water. In addition, households have an interest in the Board's work (for without them a large part of the country would be under water). They are also represented in the council.
- The Board is paid for in its entirety by all the interested players (owners of land and buildings, polluters, households). The greater your interest in the operations of the Board, the more you pay. And the more contaminated waste water you produce, the more you pay as well.

These three characteristics based on the 'interest-pay-say' principle make the Water Board a special, functional tier of administration, and one which is able to operate very effectively. The Board's work, which naturally has to be conducted within national and provincial frameworks, is very much focused on implementation. This form of organization could well prove its value in other parts of the world. The basis for setting up a Board is soon created if similar interests are pooled.

9 WATER DETERMINES THE QUALITY OF LIFE TO A LARGE DEGREE

Too much water is not a good thing. If we fail to provide sufficient protection against the threat of floods, we will regularly have to face disasters of varying scale, which often totally disrupt life in a particular area for quite some time. Everything built up with a great deal of effort over a period of years can be totally destroyed in a very short space of time.

Too little water is just as bad. Drought can make large areas uninhabitable. Famine, the population moving out, disease etc. are unfortunately still frequent occurrences nowadays. Such situations are not always avoidable. Not all climatological situations are amenable to human influence. Nevertheless, with our knowledge nowadays we are in a position to build hydraulic works which enable us to assume better control of water management. This means we can avoid situations of water excesses or shortages.

It is not just the amount of water but also the quality that has an important part to play. We in the Netherlands do not fully realize that the majority of the world does not have access to clean drinking water, let alone that it comes from a tap in unlimited supply in every home. In many places what little water exists is severely contaminated, posing an ever-present threat to public health and food production.

