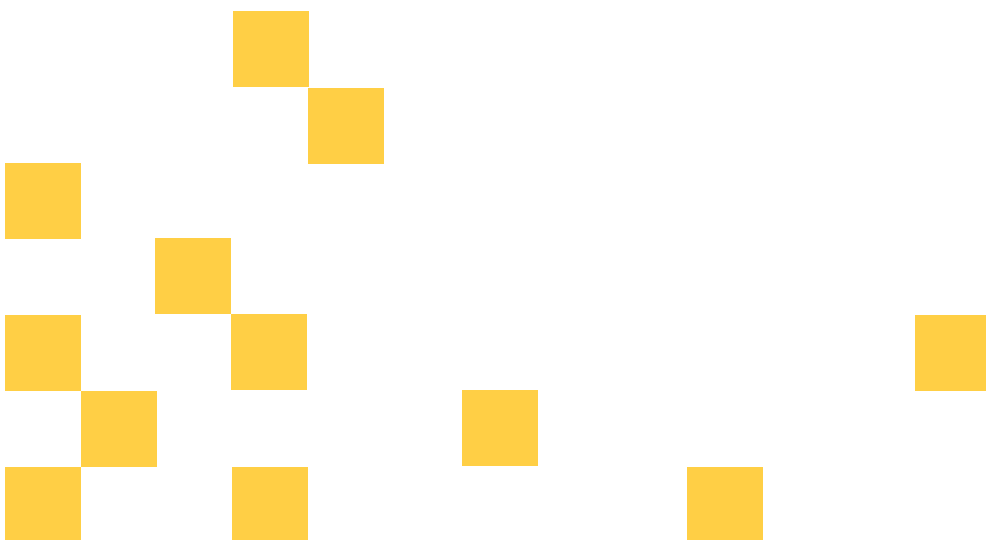


# English appendix

het milieu in de regio Rotterdam **2005**





# The environment in the Rotterdam region 2005

This appendix contains the English translation of the summary and the introductory paragraphs of the chapters of the report called "HET MILIEU IN DE REGIO ROTTERDAM 2005". We have also included a translation of the graph titles and the unique indicator numbers, referring to the page numbers in the main report. The report is a result of a co-operation of regional environmental authorities. This co-operation is called "Milieumonitoring Stadsregio Rotterdam (MSR)".

Together with this appendix and the graphs in the report itself, we hope to give a good insight into the environmental quality in the Rotterdam area and of the efforts that are being made to improve this quality.



---

## Contents

Foreword.....	7
Introduction.....	9
1. Summary .....	10
2. Social context .....	17
3. Air .....	19
4. Noise.....	21
5. Soil .....	23
6. Water .....	25
7. Wildlife and green spaces.....	27
8. Waste.....	29
9. Energy .....	31
10. Environmental care.....	33
11. External safety and environmental licences .....	35
12. MSR theme Environment and Space .....	39
Overview of indicators per page .....	41



---

## Foreword

From an economic viewpoint, Rijnmond is an ambitious region. This has made Rijnmond the engine of the Dutch economy. In the National Spatial Strategy (2004) the Cabinet once again confirmed the national interest of Rijnmond's mainport function and its further expansion.

The region's ambitions are not only of an economic nature, however: the region also wants to provide a good quality living environment. After all, a good quality living environment is a prerequisite for economic growth. The business sector recognises this and it is partly for this reason that the 'Vision and daring' covenant was drawn up. In this covenant the business sector, relevant authorities and interest organisations agree, based on the principle of compensation, not only to invest in opportunities for new business locations by constructing the second Maasvlakte, but at the same time to put effort into the creation of wildlife and recreation areas.

In order to make the right choices between an optimal quality living environment and the desired economic growth, the environment, the economy and spatial planning must be geared to one another. This is only possible, however, if there is sufficient knowledge about the current situation and about future developments. The cooperative body for environmental monitoring in the Rotterdam regional council of governments (MSR) makes an important contribution to this.

In the Rijnmond region in particular the desired results can only be achieved when there is effective cohesion. We've come a long way since the days when the various policy fields all worked separately from each other. Increasingly often environmental regulations, for example regarding air quality and noise, determine the possibilities for building. And if there is no building, economic growth also comes to a standstill.

The challenge is thus to achieve the dual objective: to enable a further growth in the economy while at the same time finding solutions for the quality of life issue. Moreover, in accordance with the principle of the compact town, we want to build as far as possible within the existing built environment. In this way we can spare our scarce open spaces which are important for wildlife and recreation. The question of how the region's building programme should be specified is more topical than ever. This is because the regulations have been tightened up, residents are making increasingly high demands on the quality of their living environment and new plans have been drawn up for the development of the region, such as the Spatial Plan for the Rotterdam Region (RR2020). The majority of the environmental regulations have been imposed by Brussels and can therefore only be influenced to a limited extent by regional authorities. However, the environmental regulations do not form the only solid point of departure: apart from the legislation, provincial and local authorities, the business sector and interest organisations in the Rijnmond region are working together on improving the living environment in combination with economic growth. Moreover, the environmental rules are not so much a limiting factor but provide, rather, an impetus to make optimal use of the available opportunities.

This year is the eleventh time that the environment in Rijnmond has been reflected in the MSR. The MSR Report forms a stable and reliable source of information for the Rijnmond administrators, their advisers and anyone who is interested in the environment in this region. With its detailed look at the theme 'Environment and Space' MSR 2005 offers specific information about monitoring the effects of spatial plans on environmental quality. In this way, MSR contributes to the choices which have to be made about solving the dilemmas in this field and thus to the development and the quality of the living environment in the Rijnmond region.

M.A. Bakker

Chairman of the Rotterdam Regional Council of Governments Environmental Monitoring Steering Group

June 2005



---

## Introduction

### Background

As far back as 1994 the provincial and local authorities in Rijnmond had already realised that joint monitoring of the regional environmental situation was essential to an effective environmental policy. Since then, eleven MSR reports on the Rijnmond region have been published. In the early years the environmental quality appeared to improve visibly. More recently, however, on balance no further progress has been made. The explanation for this is that in the nineties, the 'easy' environmental problems were able to be solved through stringent source policy; the initiative at that time lay with the major polluters. As a consequence of this the difficult problems remained, problems which were mostly caused by diffuse sources. For example noise nuisance is caused, among other things, by road traffic, air traffic and industry.

Since there are usually a number of authorities responsible for tackling these diffuse sources, effective cooperation between these authorities is a prerequisite. Thus within MSR the most important authorities in the Rijnmond environmental field are represented. By jointly sketching an integral picture of the environmental situation in the region in MSR, these authorities can also jointly take those measures which are necessary in order to tackle the diffuse sources.

Many of the difficult environmental problems in the region are related to spatial planning. This is why the theme Environment and Space was chosen for the 2005 Report.

### Goal

The goal of MSR is twofold. In the first place MSR aims at tracking the progress of environmental policy in the region and indicating new developments relating to environmental quality, free from value judgements. In this way MSR contributes to the policy cycles of the authorities which work together in MSR. Administrators and their staff thus obtain information which enables them to place, evaluate and, if necessary, adjust their policy in a broader context. On the basis of this information they can also formulate new policy or speed up its implementation. In appendix 3 of this report you will find an overview of the most important policy documents from which the goals that are monitored are derived. Where no verifiable policy objectives are available, indicators in any case perform a warning function so that timely adjustments are still possible.

In the second place, MSR informs residents and the business sector about the state of the environment in the

Rijnmond region and its recent developments. In this way MSR fulfils the obligation that authorities have, in the framework of the Aarhus treaty, to supply environmental information to their residents. Furthermore, MSR responds to the societal need for transparent government.

### Results

The three most important results of MSR 2005 comprise the present main report, the accompanying theme report and the symposium on 16 June 2005 at which the reports will be presented.

The *main report* provides a complete overview of the environmental situation in the Rijnmond region and the developments within it. In addition to the indicators, the main report contains trend analyses in which bottlenecks and causes of policy developments are looked at in more detail than in the ordinary indicators. Trend analyses have become a regular feature of the report. In a number of cases future developments are also described and broad policy recommendations are made.

In the *theme report* a closer look is taken at the monitoring of an actual subject. The theme report 2005 'Environment and Space' offers a tool for monitoring the RR2020 (Spatial Plan for the Rotterdam Region 2020) which, in the first half of 2005, was in the public participation phase. In addition the theme report responds to the need for regional monitoring of the National Spatial Strategy, passed on 23 April 2004 by the Cabinet.

The *symposium* provides an important opportunity for communicating about the content of the outcomes. At the symposium, politicians and other experts amplify on the outcomes based on their own responsibility, vision and expertise. The experts can then use the outcomes and the most important of these get due attention in the media.

### Organisation and mode of operation of MSR

MSR is a cooperation initiative between DCMR Environmental Agency, the Province of South Holland, Rotterdam regional council of governments (partly on behalf of the eighteen regional municipalities), the city of Rotterdam, the Directorate-General for Public Works and Water Management (South Holland department), the high councils of landholders of Delfland, Schieland and the Krimpenerwaard and the Hollandse Delta water board, the Rotterdam regional Municipal Health Service, the Rotterdam-Rijnmond police and the Rotterdam Port Authority NV.

The division of tasks is as follows. A large proportion of the necessary data is provided by the representatives of

---

the participants in the working groups. The coordination, secretarial tasks and compiling of the report take place at DCMR. The management and assessment are carried out by the steering group and the project group. In addition, the working group of the same name advises on communication and a theme supervision group oversees the elaboration of the theme Environment and Space by the Engineering agency of the Rotterdam Public Works Department.

Reports are made annually based on the monitoring system. The origin of all data is traceable through systematic registration. Each indicator has a unique number. That number refers to the background documentation on data source, contact person, foundation in figures and relevant policy reports. In principle, an indicator is made up of a description in figures of the status and/or the development of environmental aspects and their accompanying policy goals or norms. Most indicators show a picture of the past ten years.

In addition, MSR utilises the advantages of the internet to present information. On our MSR internet site [www.hetmilieuinderegiorotterdam.nl](http://www.hetmilieuinderegiorotterdam.nl) you will find not only the background figures for all indicators but also more detailed information about, for instance, the calculation method used. For a large number of indicators, moreover, a further breakdown can be seen by, for example, municipalities. Not only the data, but also the text and even the individual graphs are available for further use. In the coming years the site will be further improved. The way in which this will be done, and the shape it will take, will depend to a great extent on the reactions and wishes of the visitors. An additional option for the future is that we might offer data on the internet which does not appear in the printed report.

### **Overview of contents**

The first chapter is entitled 'social context'. It contains disparate indicators which are presented together and should be considered more or less as facts because either they are very difficult to influence at regional level or their placing in the chapter is necessary due to the links that need to be drawn between them. This chapter is followed by the thematic chapters, i.e. 'air', 'noise', 'soil', 'water', 'waste', 'energy', 'environmental care', and 'environmental licensing and enforcement'. One or more trend analyses have been appended to the chapters. These can be found at the end of the chapter in question.

Each indicator comprises a graphic representation and a brief explanation. This facilitates a search for the desired

information and at the same time ensures that the coherence is maintained. Whenever possible, we offer this information at the level of indexes (red boxes) which show the situation for a theme in its entirety. Then we also describe the compiling indicators individually (green boxes).

In principle, the indicators in this report provide an account of the situation up to and including 2004. Sometimes, however, data is only available up to 2002 or 2003. This data has only been included in this report when it yields new facts. More information about the indicators may be found on the internet site: [www.hetmilieuinderegiorotterdam.nl](http://www.hetmilieuinderegiorotterdam.nl)

Appendix 1 contains an overview of complaints about odour and noise nuisance per Rotterdam district. Appendix 2 provides a list of documents that were consulted. At the back of the report there is an index of keywords.

## General

The cover of this report has a dot on the spine. This dot has appeared on each of the MSR reports ever since 1995. If all the MSR reports which have been published to date are stood side by side the dots will be seen to show a steady upward trend in environmental quality until 2000, with only a slight downturn in 1997.

The last five years the dot on the spine of the MSR report remained stable. Some successes have been achieved, but in addition there are also areas still requiring attention. In the field of air pollution improvements are visible – partly as a result of improved meteorological circumstances. More electricity is being generated using wind energy, in many areas extra attention has led to extra information on the basis of which measures can be developed. In addition, many successes of recent years have been consolidated. There are of course still areas requiring attention. These include CO<sub>2</sub>, hydrocarbons, the still increasing environmental pressure from traffic, the cutting up of nature areas by infrastructure and the lack of natural habitats and recreational areas.

Environmental monitoring correlates, where possible, indicators and policy objectives to show whether the policy is on track. In deciding that, the following questions have been asked. Have the objectives already been met or will they be if developments continue along their present trend? And are these developments taking place at the desired rate? This summary highlights those elements in each area where the policy is on course or not.

Just as we did last year, we have conducted a trend analysis for a number of themes. We examine in detail one or more aspects of an indicator or subject relating to the theme in question. At the end of this chapter you will find a short summary of this.

### ON COURSE

#### Social context

The use of park+rail sites (P+R) improved again in 2004 compared to the already high use in 2003. The total number of parking places available has increased.

#### Air

Emission of many polluting substances has diminished (NO<sub>2</sub>, BaP, SO<sub>2</sub>), there were less days on which ozone and smog occurred, less warning codes were issued and the number of complaints received regarding odour decreased. Many of these results are related to the weather conditions in 2004.

#### Noise

The number of houses where insulation measures need to be implemented as a result of road and rail traffic because cleanup at source is not possible, is slowly decreasing.

### NOT ON COURSE

The number of travellers using public transport (bus, tram, metro and train) is decreasing. The number of kilometres travelled on public transport has declined proportionately. The number of road traffic kilometres has risen.

CO<sub>2</sub> emissions from traffic are still too high in relation to the targets.

The number of complaints relating to noise, particularly aircraft noise, has shown a sharp increase. The number of complaints regarding aircraft noise has almost doubled compared to 2003.

---

## ON COURSE

## NOT ON COURSE

### Soil

The Subat operation (soil cleanup of former petrol stations) has been completed. The soil cleanup of former gasworks sites in the region is making good progress. Nearly every municipality in the area will have a soil quality map in 2005.

The soil cleanup of new cases of soil contamination is lagging behind. At the present rate, the target to complete cleanup operations of all long-standing cases of soil contamination by 2030 will not be met. Companies are making insufficient use of the Orders on Soil Cleanup of Industrial Sites.

### Water

The ecological quality of the major inland waterways is steadily improving. The discharges of heavy metals, chlorous substances and oil into national waterways are decreasing. The use of groundwater is declining; the proportion of groundwater that is used for hot/cold energy storage is increasing.

The collection of Maas water for the drinking water supply in 2004 was stopped more often and for longer periods than in 2003. The amount of sludge dredged from the Rotterdam Harbour which has to be dumped is increasing; releases of more heavily polluted sludge have risen.

### Natural areas

Many species of birds are flourishing. The importance of the Nieuwe Waterweg, Caland Canal and Haringvliet for overwintering birds has been demonstrated. The spoonbill is also being found in increasingly large numbers in those areas. Bats are flourishing as well.

The acreage of natural habitats and recreation areas in the region is too small to meet the recreational needs of the residents.

### Waste

The proportion of waste that is collected separately has risen from 31% in 2003 to 36% in 2004.

The total amount of waste generated by households in 2004 has increased. The targets for separated collection per waste stream are rarely achieved.

### Energy

The amount of electricity generated by windmills has increased considerably. Thirteen Rijnmond municipalities are now entirely or partly using Eco-electricity.

The subsidy scheme for energy performance advice for homes has come to an end and has not yet been replaced by a new scheme. As a result of the liberalisation of the energy market, it is difficult if not impossible to gain information about energy use.

### Environmental management

Eleven municipalities now have a Municipal Environmental Policy Plan. Three municipalities are still in the process of devising one.

Only seven municipalities have their own environmental management system.

---

**ON COURSE****NOT ON COURSE****External safety and permits**

The extra attention devoted to external safety in recent years is starting to pay off. There is increasing insight and overview. Compliance has improved at the refineries and in the glass horticulture sector.

Compliance in a number of other sectors has decreased (processing industry, storage and transshipment, large energy generators, waste processors and the general public).

The adequate level of measures laid down in permits for which the province acts as the competent authority has not yet been reached.

---

## Trend analyses

### Contribution from sources to the air quality

The air quality in Rijnmond is influenced by very many sources and categories of sources, both near to home and further afield. The most important source categories comprise road traffic, shipping, industry and households.

With the aid of a computer model, the contribution made by the separate source categories can be shown. Input information includes emission data, the environmental reports published by major industry, research into emissions from shipping traffic, from the regional traffic environmental map and data from the national road network. With the aid of models, the concentrations can be calculated at certain points for each of the source categories. The contribution from sources outside the Rijnmond region (including those outside the Netherlands) can be calculated in this way.

The data is presented as a west-east cross-section and north-south cross-section in which the annual average concentration of NO<sub>2</sub> is shown. In the north-south section, the contribution made by the A15 is clearly visible, as is the contribution made by shipping traffic in the area near the Waalhaven. In the centre of Rotterdam it is clearly road traffic that is once again responsible for a major contribution. At Rotterdam airport the peak of concentration coming from the A20 is visible.

From west to east it is the peak caused by industry around the Botlek area that is first noticeable as well as the substantial contribution from shipping traffic in the harbour and industrial area. In the east, the contribution from road traffic dominates.

### Noise

Calculations have been made for the noise nuisance caused by road traffic, rail traffic, air traffic and industry both for 2002 and for 2010. The following developments have been anticipated up until 2010.

Between 2002 and 2010 the number of residents that will be exposed to noise from road traffic, rail traffic and industry will rise. This means a further deterioration of the acoustic living and residential climate in Rijnmond, particularly given the increases in the higher noise levels. The increases are caused by:

- \* road traffic: a general increase in road traffic.
- \* rail traffic: a general increase in rail traffic. Locally, in Barendrecht, the noise nuisance will fall as a result of noise barriers built between 2002 and 2010 and a 1,500 metre stretch of roofed in railway line.

On balance, however, the number of residents in Rijnmond exposed to rail traffic noise will increase.

- \* industry: the fact that in 2002, in particular at the Waal-Eemhaven and Maasvlakte-Europoort industrial sites, the statutory noise limits had not yet been reached. For 2010 it is assumed that these limits will have been reached which means that the noise nuisance near these industrial sites will continue to increase until 2010.
- \* more residents: the number of residents themselves is increasing.

With regard to air traffic noise, it is assumed for 2010 that the situation will remain the same as in 2002 because the plans for extending the operating hours had not yet been implemented.

Until 2010 the number of residents exposed to overall noise will increase. For the anticipated (calculated) nuisance and serious nuisance, incidentally, this has no consequences. Rounded off to whole figures, residents experiencing nuisance in 2010 will remain at 28 percent and those suffering from serious nuisance at 12 percent. This percentage is higher than the national averages.

### Groundwater

The use of groundwater shown by the drinking water supply and industry target groups has remained at a fairly constant level over the years. Within the industry target group an increasing amount of water is used for hot/cold energy storage. This is – certainly in the context of aiming at sustainable energy – a favourable development. The use of groundwater for building activities demonstrates a direct relationship with major infrastructural works and building projects. The drop in groundwater for use in soil and groundwater cleanup shows that less activities have taken place in that area in recent years. The amount of groundwater used for watering and irrigation has risen. The disadvantage of this is that the water that is put back into the soil (salt discharge) results in salinisation of the groundwater.

### Bats

There are seven types of bat which occur in the Rijnmond area. The common pipistrelle, Nathusius' pipistrelle and the Serotine bat are species which are found in buildings both in summer and winter. Since these three types are the best adapted to the human environment they are also the most numerous and least threatened species.

---

It's a different story for those types which need special circumstances to hibernate. In the Rijnmond area these are Daubenton's bat, the whiskered bat and the brown long-eared bat. They need dark, damp, subterranean spaces with a constant low temperature (usually 6 to 8 degrees centigrade) which are seldom used. For example, bunkers, old forts, icehouses and cellars in buildings. In these habitats small numbers of the pipistrelle are also found but this is only a small fraction of the population in the area; this is why this tiny number has not been included in the calculations.

Two of the three hibernating types of bat are doing well. The number of whiskered bats is not increasing.

Between 1995 and 2004 the number of hibernating bats doubled. Nothing has changed as regards the hibernating locations (these are being successfully protected) so the explanation for the increase has to be sought in improved living conditions for bats during the summer period. This is a positive development.

Hibernation is a very vulnerable and essential element in the life of bats. That is why it is important that there are sufficient hibernating locations which are also well protected against human interference.

#### **Collection of vegetable, fruit and garden waste**

Vegetable, fruit and garden waste is collected separately and turned into compost. In the early nineties, the separated collection of vegetable, fruit and garden waste was brought into operation throughout the country. One important reason for this was that the separated collection and composting of the vegetable, fruit and garden components would lead to less organic material needing to be landfilled.

In an Environmental Impact Statement it was concluded that incinerating vegetable, fruit and garden waste in a waste incineration installation was certainly no worse than composting from an environmental viewpoint. This means that the environmental argument for the separated collection of vegetable, fruit and garden waste is no longer valid. In September 2004, the State Secretary for the Environment, on the basis of recommendations from the Consultative Body on Waste, a collaboration between central government, municipalities and provinces, decided to allow municipalities to liberalise their permitting options for the collection of vegetable, fruit and garden waste. This gives municipalities more policy freedom to organise up the collection of this type of waste at their own discretion.

The collection of vegetable, fruit and garden waste in the Rijnmond region has shown a slight downward trend in recent years. This is partly due to the urban character of this area. In less urban areas the collection of vegetable, fruit and garden waste has shown a slight drop, but the number of kilos of collected waste of this kind per resident is still high. The trend of less vegetable, fruit and garden waste being collected is, with the exception of a couple of municipalities, visible across the whole region. It is expected that the trend will continue due to the (partial) discontinuation of compulsory vegetable, fruit and garden waste collection.

As regards trying to maintain motivation for the separated collection of other waste streams, like paper and glass, a good communication programme is vital if it is decided to stop the separated collection of vegetable, fruit and garden waste.

#### **Fireworks**

Since the firework disaster in Enschede on 13 May 2000, there has been a tightening of the regulations with regard to fireworks. On 1 March 2002, the new decree on fireworks came into force. The tightening of the regulations is focused in particular on fire safety installations and internal and external safety zones. The decree includes interim rules regarding existing firework sales outlets; these covered the period until 1 March 2004. From this date every sales outlet had to comply with the new regulations.

In spite of the significant drop in the number of sales outlets, there has been no corresponding decrease in the number of official reports drawn up. A closer analysis shows that in the municipalities outside Rotterdam there has even been a rise compared to 2003. This may possibly be attributed to sharper controls on the new regulations and the lack of familiarity with these regulations. This rise cannot simply be linked to poorer compliance. The violations in 2004 in Rotterdam are primarily related to behavioural regulations. In the other municipalities in the Rijnmond area they relate the both the building and behavioural regulations contained in the decree.



Public authorities, companies and households all have a responsibility - in their own way - as far as caring for the environment is concerned. The nature, extent and the development of environmental pressure depends in part on economic activities and social developments in the region. In this chapter we focus on the indicators which sketch a picture of those activities and developments in particular. These indicators must be regarded more or less as autonomous because they are very difficult to influence at regional level. A second argument for presenting a number of indicators in this particular chapter consists in the links which must be established between them.

## Population

The growth of the number of people living in the region and - perhaps even more important - the corresponding number of households, form important social indicators.

What do the residents themselves think about the environment in the region? Reports and complaints constitute a good way of measuring this. Residents can bring their complaints, reports and questions about environmental matters to a large number of municipal, regional and national bodies. In this report we will deal with the reports and complaints which have come in to the joint Municipal Health Service and the DCMR incident room. In addition to these bodies, from 2003 road users can air their questions, irritations and tips about road works and other matters to do with the Dutch motorways on the Directorate-General of Public Works and Water Management's national information line. This line can also be used for environmental complaints. Information regarding the complaints which are received by the inland waters authorities have been included in the chapter on Water (chapter 6).

Another instrument is the two-yearly environmental perception study conducted by the Province of South Holland. This study was not carried out in 2004 however. The corresponding indicators have therefore not been included in this chapter either although the complaints received by DCMR's incident room concerning odour, particulates and noise are presented. In the chapters on Air (chapter 3) and Noise (chapter 4) these complaints have been split up according to the relevant subjects.

We also look at the factors which influence the living environment. The quality of the living environment affects the health of the population. This subject is not specifically addressed in this chapter. In the chapter on Air (chapter 3), however, health indicators are incorporated

which relate to the emissions of air polluting substances. The quality of the living environment is in turn affected by spatial developments. This is discussed in detail in the theme report Environment and Space. A summary of this can be found in chapter 12. It is the intention to include indicators which are developed within the framework of this theme in a subsequent report.

## Traffic and transport

Road traffic is a diffuse source of pollution which makes it difficult to tackle; what is more, social resistance forms a complicating factor. Recently, however, legislation, has been more stringently applied. Based on European legislation, licensing systems and source-based measures are possible. Nevertheless, the National Institute of Public Health and Environmental Protection expects that mobility will increase by 40% in the coming years. This year, the environmental pressure exerted by passenger and goods vehicles has once again been "encapsulated" in an index which is composed of a number of indicators.

Regional policy as described in the Regional Traffic and Transport Plan 2003-2020 (RVVP) addresses itself to promoting an integral policy on vehicle use. This means that the policy is no longer directly aimed at restricting the number of kilometres driven or promoting alternative forms of transport to the car, such as the bicycle and public transport but focuses rather, for example, on improving the traffic flow. There has thus been a shift from source-based measures to enhancing the quality of mobility.

In the chapter on Air (chapter 3) we have incorporated indicators about the emissions from road transport and in the chapter on Noise (chapter 4) we address the subject of received noise levels. This report does not contain information about reduced car access areas (30 km/hr zones and car-restricted residential areas) and 60 km/hr zones; the reasons for this are that the targets have been met and there have been no new developments. Figures relating to public transport use are no longer broken down according to transport company but to mode of transport.

## Environment and the economy

Environmental policy is aimed at decoupling economic growth and environmental pressure. This is evident when economic growth is accompanied by a reduction in environmental pressure (absolute decoupling) or when economic growth increases at a faster rate than environmental pressure (relative decoupling). We can show the degree of decoupling by dividing the index for

---

environmental pressure by the index for economic development. The resultant figure is termed environmental intensity. The more sharply the line drops, the greater the degree of decoupling that has been achieved. If the line rises, this indicates a situation of coupled growth. In this chapter, the indicators for refineries and power stations are presented from which it should become apparent whether the desired decoupling has been achieved.

How are things on the air quality front? How does the air quality affect the health of the residents of Rijnmond? And what influence do traffic and companies have on the air quality? Since 2001 the Air Quality Decree, in which the European regulations are laid down, has applied to a number of substances. This Decree contains limit values for, among other things, fine particulates (PM<sub>10</sub>) and nitrogen dioxide (NO<sub>2</sub>) which have to be met by 2005 and 2010 respectively. The presence of these and other polluting substances in the air forms an important indicator for the quality of this environmental compartment. At the end of this chapter you will find the usual indicators.

### Air quality

The air quality in Rijnmond is measured at a large number of sampling points in the region. Following on from 2003 which was, in meteorological terms, a bad year, all the concentrations measured in 2004 were once again lower.

The limit values for NO<sub>2</sub> and *fine particulates* have not been exceeded at any of the sampling points; however, the concentrations along busy arterial roads are certainly higher and it is likely that limit values there will at times be well over the maximum. A separate problem is posed by the norm for the daily value for fine particulates. This norm is exceeded over the whole country and for the time being it is expected to remain that way. In the meantime, however, it is generally recognised that this norm came about based on faulty assumptions; for this reason the evaluation process may look at modifying it. For the present, however, the norm remains unchanged and assessments will have to continue to be carried out in the light of it.

The *concentrations of ozone* fluctuate erratically. Last year this report included an overview of the trend in emissions of hydrocarbons in the framework of the VOTOB covenant. This covenant was entered into in order to reduce the emissions of hydrocarbons. After all, hydrocarbons play an important role in the formation of ozone in the atmosphere and it would therefore be excellent if we were able to see a decrease in not only the emissions of hydrocarbons but at the same time a reduction in the ozone concentrations. This is not the case, however, and the reason for this is that the formation of ozone is also dependent on a whole range of other factors (temperature, sunlight, concentrations of NO and NO<sub>2</sub>). The concentrations of ozone might have been higher if there had not been such a sharp decrease

in the emissions of hydrocarbons but this remains just guesswork.

The concentrations of SO<sub>2</sub>, benzene, lead and benz-a-pyrene no longer cause problems anywhere in Rijnmond.

### Air quality and health

In 2002 in the framework of MSR an extensive study was carried out into the relationship between air quality and health in Rijnmond. It is an established fact that nitrogen dioxide, fine particulates and ozone in the air can have a negative effect on the airways and the cardiovascular system. Due to their tiny diameter, fine particulates can penetrate deep into the airways causing a range of health problems. Particulates in exhaust fumes from diesel engines are particularly damaging.

In this report an indicator has once more been included for the relationship between premature death and the concentrations of fine particulates and ozone in the air. A distinction may then be made between effects which occur during or shortly after exposure to high concentrations and effects which occur after long-term exposure to low concentrations.

- \* The effects from short-term exposure are usually of a temporary nature, but for people who are already in a weakened state of health due to lung or heart disease, even short-term exposure can result in premature death. In other words, these people die a few weeks or months earlier than they would have done if they had not been exposed in this way. This has emerged from numerous studies carried out over the last decades in which this dose-effect relationship has been established. On the basis of this it has been calculated that in Rijnmond between 400 and 500 people per year die prematurely.
- \* In addition, people also die prematurely as a result of prolonged exposure to average concentrations of fine particulates. Through aggravation of the existing lung or heart disease, life expectancy may be shortened by a few months up to a maximum of two years. It is estimated that in Rijnmond this involves between 1,200 and 1,500 people per year.

### Sources

#### *Large companies*

For years now, emissions to air by large companies of most substances have shown a downward trend and this trend continued in 2004. For a number of substances the current source policy has been so successful that the emission data is no longer given in this report; examples

---

of these are heavy metals and dioxins, a total overview of which was provided last year. This does not mean, of course, that emissions of these substances are no longer monitored. The companies' licences contain stringent emission requirements and they (or DCMR) regularly check whether these are being met. If this is not the case, as happened in 2004 with emissions of dioxins from a waste incineration plant, proper measures are immediately taken to counteract the excessive emissions.

#### *Traffic*

Although car use continues to increase, the total emissions of hydrocarbons, fine particulates and nitrogen oxides have dropped significantly. This is due to the fact that cars have at the same time become less polluting. Emissions of CO<sub>2</sub> have risen, however, because the emission factor for CO<sub>2</sub> has hardly decreased at all. Although cars have become less polluting they have not become more energy-efficient.

#### *Contribution from sources to the air quality*

A separate section at the end of this chapter examines the impact of various source categories on the concentrations at different places in Rijnmond. A few cross-sections of the region have been made which provide an insight into the size of the contributions made by industry, road traffic, shipping traffic and other sources.

#### **Indicators**

In the framework of monitoring the relationship between air quality and health, for the first time in this report indicators have been included for the number of hospital admissions as a result of exposure to ozone and fine particulates. Seen in connection with the indicator for premature death, this relationship is becoming increasingly clear.

Noise is one of the most important sources of nuisance in the Rijnmond region. People do not die as a direct consequence of noise. However, noise *does* form an important stress factor. It leads, in addition to nuisance and sleep disturbance, to people experiencing health problems which may ultimately even result in premature death; the noise level and frequency of exposure obviously play a role in this. How the disturbance is experienced, incidentally, depends not only on the noise level but also on the nature of the noise. For example, aircraft noise is experienced as more disturbing than noise caused by road traffic, and continuous noise caused by industry and rail traffic is experienced as less disturbing.

We will examine the policy, sources and efforts being made; this will be followed by the indicators and a trend analysis.

## Policy

An overview is given below of the most important policy instruments; for a number of these we present the outcomes as well.

### *Study commissioned by the Ministry of Public Housing, Spatial Planning and the Environment (VROM)*

In view of the nuisance aspects, regulations exist regarding the construction of housing in the vicinity of companies and for the amount of noise which companies are permitted to produce. Statutory limits have also been set on road and rail traffic as important sources of noise nuisance. These do not solve the problems, however.

This is why MSR has conducted a study for the Ministry into the relationship between noise and health. This edition of the annual MSR report describes a number of outcomes of this study. For the complete report on the study, you can visit the following internet site: [www.hetmilieuinrotterdam.nl](http://www.hetmilieuinrotterdam.nl) The results of this study indicate that more than a quarter of the population in Rijnmond experiences noise nuisance and that more than 10% experiences excessive nuisance. These percentages are considerably higher than the national average. The most important source of nuisance is road traffic noise.

From the results it is clear that the number of houses and people subject to noise nuisance will continue to rise until 2010. This is not in itself odd. First of all, at present there are still unused sites which between now and 2010 will probably be developed for industrial purposes. An increase in the amount of train and road traffic is also visible. In the last 25 years there has been a rapid growth

in the number of passenger vehicles in this country and as of 2005 these amounted to approximately 7 million. This growth should slow down over the next decades but forecasts show that in 2020 there will be between 8.5 and 9 million passenger vehicles in this country. Moreover, the number of kilometres driven by both goods vehicles and passenger vehicles has risen sharply in the last decades (see also chapter 2, Social context) and nothing indicates that this growth will come to an end. Growth in road traffic means that more noise will be generated.

If proper measures are not taken both at source and at the receiving end, or in the transition area (noise barriers), then the number of people subject to noise nuisance is bound to increase. Additional effort regarding road traffic noise is therefore desirable.

## Sources

### *Use of measuring instruments*

The complaints about noise form an important instrument in localising the source of the nuisance and subsequently taking action to combat it. The classification according to type gives an impression of the most important sources. The number of complaints about noise has risen. This year, 11,661 complaints about noise were submitted and this is well over 65% of the total number of complaints. In 2003, the percentage of complaints relating to noise (8,300) amounted to only 44% of the total number of complaints. The considerable difference is chiefly caused by the sharp increase in the number of complaints about aircraft to and from Rotterdam Airport. There has been a visible increase in the number of flights made by large passenger planes. This means that the downward trend of the last few years has now been followed by a sharp rise. Incidentally, in 2003 there was also a slight increase in complaints about aircraft. In addition, an increase in the number of complaints about pub noise is also evident.

Another measuring instrument is the environmental perception study which the Province of South Holland carries out among its residents every two years, in May. Eight locations in the Rijnmond area which lie in the neighbourhood of major industrial companies are involved in the study. The percentage of residents who experience noise nuisance from industry and from traffic, was markedly higher in 2003 than it was in 2001. In 2005 a study will once again be conducted and this will focus particularly on the subject of noise.

---

### *Noise-sensitive areas*

Within the Rijnmond area there are three noise-sensitive areas: Voorne's Duin, Rhoon Zuid-Oost and Beninger Slikke. The 2004 report showed where the 40 dB(A) limit is exceeded as a result of traffic or industry noise. Beninger Slikke is the only area where this is not the case. There have been no relevant changes to this data and so it has not been included in this report.

### **Efforts**

#### *Noise indication charts*

In 2004, noise indication charts were drawn up for the region which provide an insight into those areas where new housing can be built right away, those areas where new housing may only be built under stringent conditions and those areas where house building is virtually impossible. The charts form a rough picture on the basis of which it can be decided whether further, more detailed investigation should take place.

At five zoned industrial sites in the region (Botlek/Pernis, Maasvlakte/Europoort, Waal/Eemhaven, Noordwest docks, Maas-Rijnhaven and Schiedam-Zuid) the received noise levels are measured and monitored at a number of locations. The number of locations where the limit values are exceeded has continued to decrease. Where limit values are still being exceeded this is due to the fact that industrial noise abatement operations have not yet been completed.

The RANOMOS system (Rotterdam Airport Noise Monitoring System) measures the noise level at six points around Rotterdam Airport. The noise measured can be correlated with information about the flight path of the aircraft flying overhead at that moment and with any complaints that may have been received regarding this flight. In this way the probable causer of the aircraft noise can be pinpointed and it can also be ascertained whether this aircraft has deviated from its route. The RANOMOS system performs an important warning function for the competent authority, the Committee for the Environmental Protection of Rotterdam Airport. In addition, it has also proved to be a useful and objective instrument in the framework of the plans for extending the airport's opening times.

In 2004 the I<sup>2</sup> (I squared) – the registration system for noise data – was renewed and modified so that it could link with GIS software. This means it is now possible to present noise data in the form of charts as can be seen in this chapter.

Finally, this year work was also done with noise charts. The noise charts in this chapter show the average received noise levels for 2002 ( $L_{den}$ ) from road traffic, rail traffic, aircraft and industry. In addition, the total received noise level is shown in which the noise from the various sources is weighted according to their degree of nuisance ( $L_{den,v}$ ), before the received noise levels are added together. These charts indicate that aircraft noise is experienced as more disturbing than noise caused by road traffic, and continuous noise caused by industry and rail traffic is experienced as less disturbing. The charts do not sketch contours but show the received noise level for each postal code; in this way, only the received noise levels in places where people live are included and thus not the noise at industrial sites and business locations.

In calculating  $L_{den}$  5 dB is added to the received noise level of the evening hours and 10 dB is added to the received noise level of the night hours; this allows for the fact that noise during the evening and night hours is experienced as more disturbing than during the day.

The policy area 'soil' is characterised by a multitude of rules and those rules change constantly. In this introduction, therefore, we first focus on the most important changes in the rules. We then examine the efforts made by the parties involved. Finally we once again look at the indicators.

## Policy

### *Policy letter on Spatial planning regarding subsoil*

In November 2004, the Minister of VROM presented the Policy letter on Spatial planning regarding subsoil to the Dutch Lower House; in this letter she outlines shifts in the soil policy in relation to spatial planning. For example from now on, in drawing up their local land use plans, municipalities will have to work in accordance with a layered approach. In addition, they must further improve and expand the soil layer test for local land use plans and specify these in a Manual. The government will issue rules for underground cables and pipes with a view to better guaranteeing safety for people and the environment. Via a decree on underground pipes, the government will make safety zones and monitoring programmes (wear and tear and soil contamination) compulsory. Finally, the government will streamline the licensing process regarding soil energy systems.

### *Urban renewal and soil cleanup in Rotterdam*

In the ISV period 2005-2010 (ISV = Urban Renewal Investment Budget), the government will cut back 30% on the Urban Renewal Investment Budget which is allocated to the municipalities of Rotterdam and Schiedam and the Province of South Holland. This will cause major problems in Rotterdam because the municipality wants to give priority to maintaining and, if possible, increasing the annual house building programme. In the remaining municipalities in the Rijnmond region the problem is either less significant or absent.

Due to a lack of funds, the implementation of soil cleanup programmes will come under great pressure. The municipality of Rotterdam will look for solutions to this problem, for example through extra financial contributions from the market, by building chiefly on clean soil, by using cheaper cleanup techniques or by setting less ambitious cleanup targets.

## Efforts

### *Households*

As regards any underground oil storage tanks that have not been cleaned up as part of a 'tank campaign' (the

last one was completed in 2003), owners usually deal with this as part of the sale of their house and/or renovation work on their house carried out in the context of urban renewal. The latter also forms the framework for tackling diffuse, severe cases of soil contamination such as occur particularly in the old city areas of Rotterdam, Schiedam and Vlaardingen.

### *Companies*

The soil cleanup operations which were agreed in the framework of the Covenant on soil cleanup for industrial sites currently in use (BSB) seem to have ground to a halt. As yet, little use is being made of the Industrial Regulations on Soil Cleanup which are designed to speed up this process; from small and medium sized enterprises in particular hardly any applications are coming in. The competent authorities need to consider how participation from businesses can be increased. For the port area where a complex large-scale soil cleanup problem exists, the companies are negotiating with the Ministry of VROM on a collective application of the Industrial Regulations.

The SUBAT operation has now been virtually completed although five years later than planned. This operation was started in 1993 to finance the cleanup of petrol filling stations which were unable to meet the environmental requirements and were therefore closed down. A few locations still remain; these will be closed down in the first quarter of 2005.

The majority of petrol stations still in use now also meet the environmental requirements as laid down in the order in council concerning filling stations. However, a few petrol stations have not yet been cleaned up and this is usually because of specific agreements with the municipality.

Finally, it is noticeable that the companies in the port area show poor compliance with the duty of care laid down in the Soil Protection Act. Too often they neglect to report new cases of contamination brought about by incidents, mistakes made during transshipment and/or production processes, or leakage from faulty seals, etc. In addition, they generally either do not undertake cleanup measures or carry them out too late or inadequately. The competent authorities need to increase enforcement efforts on this issue.

### *Government*

The government has installed numerous new policy instruments in order to accelerate the soil cleanup operations; examples of these include the future

---

function-related soil cleanup policy, an ISV (Urban Renewal Investment) budget for soil cleanup linked to urban renewal and the implementation of the Industrial Regulations on Soil Cleanup. And yet for years now this acceleration has failed to get off the ground. What is clear is that at the present cleanup rate the objectives will not be met even though the time limit for cleaning up all the environmentally urgent cases has been extended from 2022 to 2030 as a result of cutbacks in state funding.

Looking at the number of licences issued under the Soil Protection Act we may conclude that there is evidence of a gradual downward trend. In addition, however, we should bear in mind that in 2004 there were approximately 45 cleanup plans on which no decision was taken, either because these derive from a “site management plan” (port area) or “framework cleanup plan” (major renovation sites) which was decided on previously, or concern new cases of cleanup plans that have not yet been decided on.

2004, the final year of the first ISV budget period, was characterised by a lack of funds for local government cleanup operations. Priority was given to keeping up the house building production. The soil cleanup operations necessary for this turned out in the first period to not be fully fundable from the available ISV budget. This is why the municipality of Rotterdam was forced to prefinance operations.

The 75% financial participation by market parties (technically termed ‘multiplier of 4’) desired by the Ministry of VROM turns out in practice not to be feasible. For Rotterdam in 2004, this factor has been calculated at 2.6 and in the region for 2002-2004 at approx. 2.2. Thus less money is being made available from the market than is needed to finish off the soil cleanup operations on time. Owing to the dwindling government budgets, the multiplier will rise further in the coming years.

But there is also good news. The Nationwide picture, which shows all possible cleanup locations, has been finished on time in accordance with the agreements made with the government. This information partly determines the budget to be allocated by the Ministry of VROM for the second ISV period. In the framework of the nationwide picture all the municipalities in the Rijnmond region will subsequently have to make soil quality charts after which a regional Soil Quality Chart can be compiled. On the basis of this it will be possible to develop a regional soil streams policy.

In the longer term the municipal authorities will incorporate other themes (groundwater, subsidence, geological values) in addition to soil contamination into the soil quality charts. On the basis of this, it will be possible to improve the planning and facilitating of soil management which will in turn improve regional development. They will also be able, in the context of spatial planning, to anticipate potential soil contamination and might thus save on soil subsidence and costs.

Another positive development is that the soil cleanup operations at former gasworks sites appears to be slowly starting to run on schedule. A lot of projects at small coal gasworks were able to be rounded off because these small gasworks generally did not cause any soil contamination. As regards a number of large gasworks in the region, agreements have now been made with the municipalities concerned and the Ministry of VROM regarding the time frame and the funding. This soil cleanup operation is therefore pretty much on course.

The redevelopment of old industrial sites because of soil contamination is slowly grinding to a halt. The most important reason for this is that insufficient money is available for the – usually expensive – soil cleanup operations. Examples of such ‘rotten apples’ are the EMK site in Krimpen aan den IJssel, the former Albatros site at Kralingseveer, the old industrial strip along the Schie canal in the Spaanse Polder and the De Lickebaert wharf along the Nieuwe Waterweg in Vlaardingen and Maasluis.

In the coming years attention will be chiefly focused on improving the soil layer test in the framework of spatial planning. In the context of the revision of the Rotterdam Soil Quality Chart, the municipality will work on new pictorial charts for groundwater management, the subsidence behaviour of the soil, and geological value (archaeological remains, valuable old landscape features, original soil types). In addition, the municipality will look at how the registration of underground infrastructure can be improved. In this framework, participation in the development process of the Decree on underground pipes is also important.

#### **Indicators**

The implementation of the Business Regulation in the region is shown in this report for the first time.

The impact of the European Union on legislation and regulations is increasing in nearly every environmental area. For example, for the policy area 'water' the Framework Directive on Water (KRW) was laid down on 22 December 2000; this must subsequently be converted into national legislation in every country by 2004. Another important development is that the organisation of both water quality and water quantity management in Rijnmond in the coming years is going to change dramatically. We will discuss these changes and then focus on water quality, sources and efforts to improve the quality of the water.

## Changes

The Framework Directive on Water covers the protection of the quality and quantity of surface water, groundwater and seawater. Before this directive was initiated, the European policy took the form of a great many separate guidelines; these will now be largely revoked. Broadly speaking, the directive means that the Netherlands must be divided into river catchment areas and that measures must be elaborated into a river catchment area management plan for each area by the end of 2008. The measures should ultimately result in the water being in good condition by the end of 2015. The directive also states what is meant by 'in good condition' for the various categories of water, i.e. for groundwater or for surface water in rivers, in lakes etc.

The Framework Directive on Water requires that the groundwater should be in "good (chemical) condition". However, since the only directive available to this end was from 1979, and this directive did not tie in with the Framework Directive on Water (KRW) system, in 2003 the European Commission presented a proposal for a new water directive. The intention is to conclude negotiations on this in 2006 so that the river catchment area management plans which must be ready in 2009 will be able factor in the directive.

In the discussion on organisational changes, the division into river catchment areas also played a role. We will summarise the current situation. The water authorities in South Holland South area, as was already mentioned in the 2004 MSR Report, were reorganised on 1 January 2005. At present, there are four bodies in Rijnmond which implement water management. The Directorate-General of Public Works and Water Management is responsible for national waterways (roughly speaking, these are the waters which are open to the sea). To the north of the Nieuwe Maas and Lek, the high council of landholders of Delfland and the high council of landholders

of Schieland and the Krimpenerwaard (previously two separate high councils of landholders) carry out the management of the remaining waters, i.e. the inland waters. Management of the inland waters to the south of the Nieuwe Maas and Lek is carried out by the Hollandse Delta water board. This water board was formed when the Brielse Dijkkring, IJsselmonde, Goeree-Overflakkee, Groote Waard and the Hollandse Eilanden en Waarden water boards were amalgamated.

## Quality

The 'Water Test' forms an important instrument for complying with the obligations of the European Union's framework directive on water that all waters must be in good condition by the end of 2015 at the latest. The Water Test was embedded in the Decree on spatial planning of 3 July 2003 and involves all water management aspects being considered in spatial planning and subsequent decisions. Water management aspects include such things as safety, sewerage, water supply, public health, soil subsidence, excessive groundwater levels, surface water quality, groundwater quality, drought and wet habitat. This means that the author of a spatial plan has to involve the water authorities at an early stage in the planning. It is expected that the additional attention will have a positive impact on the water quality in the area in question.

Various indicators give an impression of the quality of the water in the region: ecological quality of major inland waters, the amount of pesticides in the water, meeting the requirements for the various functions of the water, and reports received by the Hollandse Delta water board and the high council of landholders of Schieland and the Krimpenerwaard.

## Sources

In this chapter you will find indicators for discharges of various substances to water. We also once more present information about the periodic freezing of the abstraction of water for drinking purposes as a result of pollution, and the use of groundwater. The trend analysis this year addresses the use of groundwater and its consequences.

## Efforts

Due to the extra efforts which the Hollandse Delta water board put into the amalgamation, this year no survey was carried out among municipalities into the state of their municipal sewerage plan. We are thus unable to report on the most recent state of affairs.

---

A large number of the municipalities and also some of the Rotterdam districts have an urban water plan. This is closely linked with a Municipal Sewerage Plan (GRP). A municipal water plan is concerned with an integral approach to the surface water inside the municipality's built-up area. The parties involved in the planning process are not only the municipality, the water quality board and the water quantity board but also other stakeholders. Incidentally, the nature of the water plans has changed over the years. Whereas the first water plans were mainly concerned with improving water quality through a combination of emission-restricting measures, the goals of the recent water plans are more diverse (no longer just water quality, for example, but also water quantity, recreation and wildlife), the type of measures have become broader and the scale of the projects is increasing.

A final effort concerns dredging in the Rotterdam harbours. This occurs on a regular basis. The quality of the dredge spoil indicates how clean the harbour bed is now. In addition, we only show the amount of spoil from the Rotterdam harbour that has been transferred to the Slufter basin. In previous years the total amount of dumped spoil was given.

In 2004, wildlife and green spaces have been the focus of attention in three different ways. Firstly, it is becoming increasingly clear that the new nature legislation makes it necessary to take plants and animals into account more than at present because otherwise plans are liable to be called off. Sand lizards, spined loaches and brooding birds have regularly been in the news for this reason. Secondly, there is growing dissatisfaction about the fact that the creation of wildlife areas in the region that can also be used for recreation has ground to a halt. Nature conservancy organisations have brought this to people's attention under the slogan: 'you can't go for a walk in plans'. Finally, attention was directed towards the fact that an increasing number of animals, both indigenous and exotic, are discovering the town as a new habitat. In this chapter, we zoom in on these three ways. We conclude the chapter with the indicators and a trend analysis.

## **Biodiversity and nature**

The European and national legislation is aimed at the conservation of biodiversity. The Rotterdam region contains a number of wildlife areas of international importance and also various protected plant and animal species. Policy and legislation are aimed at preventing damage to protected areas and safeguarding the sustainable conservation of protected species. In order to be able to assess whether these goals are being met, requirements are imposed on drawing up inventories of ecological values and research into effects and compensating measures. The most important wildlife areas have been incorporated into the national ecological network. Slowly but surely, missing pieces of the chain in the network are being joined up.

## **People and nature**

A study by the Health Council has revealed that there is a connection between green spaces and health. Children need green spaces to play in and adults need green spaces in order to find some peace and quiet in their hectic lives, and everyone needs green spaces to exercise in and to be able to feel close to nature. In the Rijnmond region there are relatively few green spaces but chiefly there is also a lack of suitable and accessible green spaces for meeting these needs. A study carried out by the Alterra research bureau shows, for example, that there is a severe shortage of walking routes around the town. Further study into the availability of suitable green spaces is needed, especially into green spaces in the town. But the main thing is to actually carry through the many plans for wildlife and green recreation areas.

## **Towns and nature**

An increasing amount is being learnt about flora and fauna in the town. A lot of volunteers are helping to ascertain which ecological values exist in the town by, for example, following butterfly routes and conducting bird counts. In the framework of the new legislation on nature a lot of inventories are also being carried out in order to be able to determine the effect of plans. It appears that many plants and animals have discovered the town as a suitable habitat. Some species which are decreasing rapidly in agricultural areas, such as lady's smock, are found in abundance in parts of the town. Parts of the urban green structure are ecologically managed and are rich in unusual plants and animals. But the built-up parts of the town also harbour unusual and sometimes protected inhabitants. For example, unusual rock plants grow on quay-walls and all over the town bats can be found which shelter by day in hollow trees and in buildings. The town has actually become a new, valuable wildlife area with distinctive species which deserve our attention.

## **Indicators and trend analysis**

This chapter includes a lot of indicators for the various animal species that tell us something about the quality of the green spaces in the region. In addition, a look is taken at the number of green spaces and recreational opportunities in the region. In the trend analysis we take a closer look at the incidence of bats.



In this chapter we briefly outline the policy and the efforts made in the field of waste by households, companies and local authorities. At the end of this chapter you will find the indicators and a trend analysis on vegetable, fruit and garden waste (GFT).

### Policy

The organisation of national waste tasks has been drastically revised this year. In the first place, the Ministry of VROM transferred its implementation tasks in the field of waste and soil to SenterNovem, an agency of the Ministry for Economic Affairs. The task of SenterNovem is to implement a number of statutory duties on behalf of the Minister of VROM, to support the provincial and local authorities in the implementation of the Ministry's policy and to link back the practical experiences to the Ministry. Secondly, the Consultative Committee on Waste (AOO) has been disbanded. The tasks of this body have also passed to SenterNovem. Thirdly, the provinces will transfer the National Reporting Agency for Waste Substances (LMA) to SenterNovem; the fact is, the LMA has been appointed as the national body dealing with the receipt and disposal of industrial waste substances and hazardous substances. Finally, the Soil Service Centre (SCG) will also be placed under SenterNovem.

One or two things stay as they were. InfoMil, a division of SenterNovem, remains the contact point for local government regarding the implementation of those aspects of the government's environmental policy relating to industry. Infomil's helpdesk function will also carry on.

### Households' efforts

The Netherlands continues with the separate collection of vegetable, fruit and garden waste. However, municipalities will be given more freedom as to how they do this (for more details, see the trend analysis at the end of this chapter). At national level, the targets are not being achieved, because the total amount of household waste has risen. However, the amount of waste not collected separately has remained the same. This means that households are separating more of their waste for collection. The amounts of old paper and cardboard, and old clothing and textiles collected separately have risen in relation to 2003 levels.

### Companies' efforts

#### *Consequences of the decree on packaging*

In early 2005, the Cabinet approved the decree on packaging. The decree is intended to ensure that a steadily decreasing amount of packaging ends up in

household refuse and street litter. This decree means that from 2006 producers and importers will be made individually responsible for the financing and organising of the collection of used packaging. By means of this decree, the government wants to bring about a situation in which companies are no longer able to shirk their responsibility with regard to packaging they have produced. Any company that brings packaged products onto the market must have a plan for how they will take back this packaging.

Producers can organise the collection of this packaging in two ways: individually or in cooperation with other companies. It is anticipated that most companies will join together as a collective as happens in most other countries in Europe. Provided that it is properly collected, most packaging can be recycled. The order in council concerning packaging, packaging waste, old paper and cardboard, states that in 2010 at least 70% of packaging must be reused.

Up to now, the municipalities paid for the collection of packaging, old paper and cardboard. From now on, however, the bottle banks must be paid for by the companies who bring glass bottles and jars onto the market. Effective agreements with the municipalities are important to this because the municipalities continue to be responsible for public order, management of public spaces, public health and the environment. Incidentally, companies will probably pass on part of the costs they incur to the consumer, so consumers will be faced with price increases.

#### *Deposit money*

Another Cabinet decree is to enable the government to introduce compulsory deposits on more packaging than is at present the case. By the end of 2005 it will be decided whether this system will also apply to deposits on the small size of soft drink bottles and cans. This will depend on the results of collection trials carried out by the business sector and the reduction in the number of bottles and cans in street litter in the Netherlands.

#### *PET bottles*

Finally, the Ministry of VROM has reached agreement with the business sector about an alternative for the current system of refillable PET bottles for soft drinks and water. The refillable large PET bottles will be replaced by non-returnable bottles but these will be collected separately. For the small PET bottles a collection system will be introduced. This means that fewer small bottles will end up in street litter and the remaining waste

---

fraction. The changes in policy have been caused by the European Commission, among others, with a view to European competition opportunities. Calculations have shown that multiple use of PET bottles is slightly more environmentally-friendly than one-off use.

The business sector in this context first conducts pilot studies. The basic principles are that the environment must not deteriorate, that there is greater producer responsibility, and that the costs of the remaining waste fraction and street litter are not passed on to the municipalities. If it looks as if these basic principles have been satisfied, the system will be introduced on 1 January 2006. This is because the Packaging Covenant III that was entered into by the government and the business sector in 2002 will terminate at the end of 2005. Until the end of 2005 the present system of refillable PET bottles will remain unchanged. In 2005 in Rotterdam a trial will be conducted in which small PET bottles will be collected at schools and clubs for a small refund.

#### *Joint venture AVR-Chemie*

In 1984 the Ministry of VROM and AVR set up the joint venture AVR-Chemie. The core activity of this company is the storage and processing of hazardous substances. Initially, an increasing amount of hazardous waste was coming into the company to be processed. At the basis of this was economic growth, increased environmental awareness and improved supervision of the way in which waste is dealt with. From the mid-nineties, however, the supply started to drop. Investments in cleaner production techniques and the use of different and less polluting raw materials and auxiliary materials meant that less of this type of waste was being produced. In addition, due to the waste policy pursued and the way in which the regulations have been interpreted, alternative processing options have become available in the form of recycling and using high calorific waste substances as fuel in, for example, cement ovens.

Partly owing to the sharp drop in the supply of hazardous waste substances and to sufficient processing capacity in the surrounding countries, AVR and the Ministry of VROM took a decision to discontinue the incineration of hazardous waste substances as of 1 January 2005.

#### *Stibat*

The Battery Organisation (Stibat) takes care of the removal and recycling of empty batteries outside the municipal boundaries. Within the municipal boundaries the Stibat is now setting up an additional collection structure. In this way it wishes to contribute to achieving the target that in 2007 80% of all discarded batteries will

be collected separately. The subsequent removal for recycling is carried out by Stibat. The target was and still is to achieve a network of easily accessible collection points. Nationwide, batteries are collected in approx. 6,500 shops and in 4,500 primary schools.

#### **Local government efforts**

In June 2005 a government-sponsored media campaign (Postbus-51) about waste separation will be launched. The campaign's slogan is 'More separation, less waste'. The aim of the campaign is to focus attention on the subject once more and to motivate residents to separate more of their waste.

Until 2007, Implementation of Waste Management (part of SenterNovem) has been commissioned by the Ministry of VROM to lend support to municipalities in optimising their municipal waste management. The objective is more waste separation and prevention, and less street litter. In order to achieve this objective, each year Implementation of Waste Management determines the Programme for Stimulating waste separation and Reducing household waste (STAP) and implements the SAM subsidy regulation (for reducing environmental pressure) for the household waste and street litter components.

There are two important questions relating to the theme of energy. First of all: how can we meet the demand for energy, now and in the future? The second question follows directly on from this: how can we ensure that the use of this energy is not accompanied by too many undesired or even unacceptable consequences? We will first examine the policy and then the efforts being made; this will be followed by the indicators.

## Policy

From the policy area 'environment' there is substantial societal pressure to ensure that the use of energy is not accompanied by too many undesired side effects. These include the effect of energy use on the local air quality (fine particulates,  $\text{NO}_2$ ) as well as unacceptable changes in the global climate which can be attributed to the energy-related emissions of greenhouse gases ( $\text{CO}_2$ ).

This societal pressure is converted via energy policy, climate policy and air policy into concrete consequences for living, working and transport in the Rijnmond region. It looks as if this societal pressure is intensifying. For example, on 16 February 2005 the Kyoto climate treaty came into effect. The amount by which the emissions of greenhouse gases will have to be reduced by 2020 still has to be determined. The probable outcome of these talks will be a mandatory reduction of 15-30%. In order to achieve this we will all not only have to make strenuous efforts in the industrial sector ( $\text{CO}_2$  emission trade system) but also in the greenhouse horticulture, traffic and transport, and built environment sectors. For the latter sectors we must make increasing use of peremptory instruments (fuel levies, energy tax, more stringent norms) to curb the use of energy and thus the emissions of  $\text{CO}_2$ .

Shifts in energy trade streams and changes in the way in which energy is used for living, working and transport, also offer opportunities. After all, curbing emissions of greenhouse gases often goes hand in hand with a positive effect on the local air quality ( $\text{NO}_x$  and fine particulates). A lot of measures which are taken based on the climate policy also contribute directly to the certainty of energy supply.

Improved air quality is a condition for urban development (houses and other buildings) and economic development (preservation and growth of commercial enterprise and its innovation, knowledge development, new products and companies). At the same time, the way in which the region organises its energy supply – in view of the increasing shortage of raw materials such as

oil and natural gas, and rising prices – is increasingly important for ensuring a healthy competitive position for the region and for determining spatial development.

## Efforts

On the basis of this realisation, the region is emphasising the development of projects and activities which make a difference. A large number of municipalities in the Rotterdam region are already cooperating in the fields of wind energy, less polluting transport and heat provision. The combination of individual and joint efforts is vital in order to continue the trend towards low carbon energy supply. These efforts are taking place both on a relatively small scale (a lot of municipalities in the Rotterdam region are now using green energy) and on a larger scale. A good example of the latter is the initiative to put the heat in the port and industrial complex to good use in the urban areas. For instance, in June 2005 Rotterdam will take a decision regarding a heat supply company which is to be set up; in addition, heat supply to areas in Maassluis and Spijkenisse is being discussed.

Another development is the replacement of an old, oil-fired furnace at one of the refineries by a gas-fired combined heating and power plant. In this way, not only is steam produced but electricity is also generated. This results in a reduction in the emissions of  $\text{SO}_2$  and  $\text{NO}_x$  and also  $\text{CO}_2$ .

## Indicators

The number of indicators in this chapter is smaller than in previous years. This is due to the liberalisation of the energy market: because of the great diversity of providers it is no longer possible to acquire information directly from the energy companies.



Just as in the previous chapters (Waste and Energy) we will again be looking at the efforts in the field of environmental care by households, companies and the provincial and local authorities. Environmental care involves activities which reduce the pressure put on the environment and which are not regulated through legislation and regulation, but via covenants and self-regulation. Partly due to this, most of the indicators in this chapter have a broader perspective than the indicators in the other chapters. Since initiatives are often involved which do not apply to the entire region or the whole country, it is not easy to come up with clear-cut and prominent indicators for these. However, there is plenty to report about the developments in the field of environmental care, as shown, for example, by the indicator for nature conservation and environmental education activities in Rotterdam.

### **Households' efforts**

There are many ways in which households can help to reduce the pressure put on the environment. For example, they can purchase energy-efficient appliances and solar panels, separate waste and use public transport. Information about these subjects may be found in the relevant chapters above. In addition, they can change over to green savings and investments, and use green energy. We do not report on the degree to which households participate in this because there is no data available on this point.

### **Companies' efforts**

Stimular has developed the Environmental Barometer for the MKB. In their Environmental Barometer, companies record data about their energy and water consumption, waste production, emissions and, if relevant, traffic and transport activities. Subsequently, each year they send the data which they have input to the municipalities (i.e. the DCMR Rijnmond Environmental Agency). In the municipalities of Schiedam, Vlaardingen and Ridderkerk there are 49 companies which use the Environmental Barometer and voluntarily send their data to DCMR. In 2003, the municipality of Maassluis started using the Environmental Barometer; in 2005, twenty companies are participating in this.

Companies can also introduce an extensive corporate environmental care system (BIM). By using such a system, environmental care becomes part of the normal company process. Last year this chapter of the report included an indicator regarding the degree to which the large companies have their own BIM. Having a BIM has now become an element in determining the adequate

level of measures as shown in indicator number 7080 in the chapter on External safety and environmental licensing; this is why we have not dealt with it in a separate indicator in this chapter.

Companies do not only work on sustainability within their own organisation. This also happens on the scale of industrial sites. In various municipalities in the Rijnmond region the business community and local government are working together on making their industrial sites more sustainable. These efforts are aimed at improving both the environment and the investment climate. For example, through sustainable building and regeneration of industrial sites they are attempting to remedy the shortage of industrial sites in the Rijnmond region. The Province of South Holland is now also cooperating on the Sustainable Industrial Sites project. It is creating a database in which, among other things, the total area of sustainable industrial sites is input as well as those aspects where sustainability has been achieved.

The Rotterdam Port Authority NV is also active. For example, it is conducting a feasibility study into the possibilities of supplying moored ships with energy from the shore. If ships in port do not have to use their generators to produce electricity, this will limit the amount of air pollution. In the chapter on Air you will find more information on air pollution.

### **Local government efforts**

By 1998 every municipality should have had its own environmental management system (GIM) but in a large number of cases this has not yet been achieved. Stimular now functions as coordinator and driving force for the GIM network in which all the regional municipalities participate. In this network, the municipalities exchange expertise, experience and materials and may also develop joint activities with other participants. The network thus provides a stimulus for GIM activities in the participating municipalities. Something that has resulted from these activities is the website for environmental management systems by and for municipalities, [www.gimnet.nl](http://www.gimnet.nl). The Rotterdam regional council of governments funds this site.

The Ministry of VROM is initiating a 'location's sustainability profile' (DPL). Sustainability here comprises the three P's: people, planet and profit, in other words quality of life, environment and the economy. This instrument can help in the realisation of sustainable districts. Using this computer model, municipalities can work out the sustainability profile of a district on their

---

own, compare it with a different, randomly chosen district, and thus reveal the strong and weak points of a district's profile. In this way DPL with the aid of indicators creates a concrete image of what is deemed a sustainable district. Municipalities can base their policy on this when developing new districts or carrying out urban renewal.

The Province of South Holland has a Sustainable Development programme. In the framework of this it has conducted research into a system of sustainability scales. This involves finding an integral approach in order to determine the extent to which sustainability has been achieved in the Province; for example, integration of environment with spatial planning and the economy, but also with culture, social provisions and so forth.

At municipal level there is also a lot happening.

- \* Since 1999, the Rotterdam district of Hoogvliet has been working on a restructuring programme. The process must be finished by around 2015. The restructuring is taking place at the level of the whole district which makes it one of the first on such a scale within Rotterdam. Approximately 5,000 houses are being demolished. In particular, there is a thinning out of the built-up areas on the northern edge of Hoogvliet where the environmental pressure is greatest. New housing is planned in the period between 2003 and 2014 and will involve over 4,600 houses. This could tie in with the Heat Company which is being set up.
- \* The municipality of Hellevoetsluis has plans to build four eco-houses. The land is expected to be made available in 2005 after which the building plans can be realised. This project could perform an exemplary function for other new house-building projects in the municipality.
- \* In 2003 in Rotterdam a route test was carried out for the Coolsingel-Schiebroek main cycle route. In 2004 it worked on sorting out the bottlenecks which emerged from the test and will complete this work in 2005. In 2005 the route will then be tested again using the measuring bicycle audit to see whether the bottlenecks have been adequately removed. Both in 2004 and in 2005 the municipality carried out regular countings to determine the actual amount of use made of the cycle route.
- \* On the island of Voorne a cycle route has been laid out: the Voorne circuit. This is primarily a tourist route but it is expected that the circuit will also affect the use of the bicycle for cycling to work and back.

Since the firework disaster in Enschede a lot has happened in the sphere of external safety. An overview of the developments in that sphere is given below. We then take an in-depth look at the state of affairs regarding environmental licences and enforcement, although most of the changes here are not a direct result of the firework disaster in Enschede. The chapter concludes with the indicators and a trend analysis for fireworks.

## External safety

External safety means: 'the safety risks which a company or transport route causes outside the premises or transport route'. These risks are determined by the substances which are found on industrial premises and the processes which the company carries out, or by the substances which are conveyed along the transport route.

What has been happening on a national scale 'since Enschede'?

- \* In order to gain an insight into the existence of hazardous activities, a Decree on the registration of hazardous activities has entered into force. This decree regulates the registration of all hazardous activities in the Netherlands in a database at the National Institute of Public Health and Environmental Protection (RIVM). Every municipality and province has to make an inventory of the hazardous activities taking place in their municipality/province and subsequently to report these to the RIVM.
- \* In addition, statutory norms regarding the quality of external safety aspects are laid down in the external safety of industrial premises Decree (BEVI) and the Orders on external safety of industrial premises (REVI). This legislation also creates the link between spatial planning and external safety. In specifying local land-use plans and in issuing licences in the framework of the Environmental Management Act, the aspect of external safety must be tested again these norms.

In addition to this, the Hazard of Major Accidents Decree (BRZO) has been in force since 1999 and imposes requirements on the acceptability of the risks posed by industrial premises containing large quantities of hazardous substances. A chart in this chapter shows all the companies in the Rijnmond region which fall under the BRZO 1999.

In the Rijnmond region itself there has also been a lot happening. In order to gain an insight into the external safety situation of the companies in the Rijnmond region,

an indicator chart has been developed which shows the risk contours of companies holding hazardous substances. This chart serves as a preliminary check on the presence of risks at a particular location.

Another initiative in Rijnmond was brought about with government funds. In the framework of the so-called Programme Financing, the Ministry of VROM has allocated a total of € 20 million to provinces and municipalities to give an impetus to the implementation of the external safety policy. In 2004 DCMR, the Regional Support Agencies for the Rijnmond Region (RHRR) and the Rijnmond municipalities drew up a programme and submitted it via the Province to the Ministry of VROM. 20 projects from that proposal have been approved, amounting to a total of € 3 million. These projects will be implemented in 2004 and 2005, the duration period of the Programme Financing.

The spearheads of the Rijnmond programme are:

- \* information and communication about safety;
- \* environmental licences and enforcement;
- \* staff training;
- \* spatial planning and safety;
- \* vision forming.

In July 2004 the Ministry of VROM formally approved the Rijnmond programme. The preparations were completed at the end of 2004. At that time, a number of projects were already being implemented; the majority could not actually start until early in 2005. The government has now made funds available for a second period, up to 2010. At present it is not known which projects will be implemented in the Rijnmond region during this second period.

A final development within the region concerns the addition of the so-called BEEP system to the Central Registration Point for Hazardous Substances (CRP). The CRP is a database containing up to date information about hazardous substances which are being stored on premises in the region. This system is of great importance to the fire services because they can see in advance which substances there are at a particular location, where they are stored and whether they pose any danger to the surrounding area. The municipality of Rotterdam wanted DCMR to have access to this data too, so that safety can be monitored. In order to be able to monitor effectively, the BEEP system (not an acronym) has been added to the CRP. If the data input by the companies remains within the limiting conditions set, nothing will happen. As soon as anomalies are noticed, the system sends a warning (beep) to the

---

enforcing agency which can then undertake steps if necessary.

### **Environmental licences**

#### *Tasks in the framework of the Environmental Management Act and the Pollution of Surface Waters Act*

Before a company is allowed to commence activities which could put pressure on the environment, it must apply for a licence under the Environmental Management Act or give notification on the basis of an order in council (AMvB). An AMvB lays down the environmental regulations for a whole sector. Sometimes the company - depending on the proposed activities - also has to apply for a licence under the Pollution of Surface Waters Act (WVO).

Once a licence or notification has come into effect, the company is regularly monitored for compliance with the regulations. Highly complex companies, including major industries, and sectors which exert significant environmental pressure, are monitored more frequently than the smaller companies which exert less pressure on the environment.

DCMR Rijnmond Environmental Agency carries out the tasks under the Environmental Management Act on behalf of the municipalities in the region, and for the Province of South Holland for those companies which come under provincial authority. The Directorate-General for Public Works and Water Management and the water authorities are responsible for monitoring compliance with the WVO.

#### *IPPC directive*

Since 24 September 1996 the European directive on "Integrated Pollution Prevention and Control" (IPPC) has been in force. This directive relates to major industry in Europe and is intended to create equality in Europe as regards the environmental pressure which these companies cause. To this end, the European Union has drawn up reference documents per sector which contain all the technology used in Europe. From these applied technologies the 'best available technical means' has been chosen. By 31 October 2007 at the latest all installations which fall under the directive must apply this best available technical means for the given installation. The competent authority has the task of monitoring compliance with the directive; this takes place via assessment of and if necessary modifications to the licence issued.

In the Rijnmond region 66 companies fall under the IPPC directive. From the point of view of available and necessary man hours, revising the licences for all these companies before 31 October 2007 is not feasible. This is why, following on from an inventory of the companies which come under the directive, the DCMR Rijnmond Environmental Agency, in consultation with the Directorate-General for Public Works and Water Management, has drawn up a plan. What it boils down to is that a number of the companies will enter into a licence revision procedure and will be tested against the best available technical means. This assessment will be laid down in the licence. DCMR requires the remaining companies to draw up an information document in which each company makes an inventory of its installations and tests them against the best available technical means named in the reference documents. The competent authority will subsequently test the information documents against the IPPC directive. For some of the companies it will, if necessary and if only minor alterations are needed, officially modify the licence to ensure compliance with the IPPC guideline by 31 October 2007. For other companies the content of the information document will still result in a licence revision because major modifications in their licences are required in order to comply with the IPPC directive.

#### *Expanded scope of the Environmental Management Act*

In 1993 the so-called 'expanded scope' principle was incorporated into the Environmental Management Act. This implies that it is not only the immediate nuisance and emissions that should be considered; in addition, such matters as energy saving, waste prevention and water saving must also be addressed. In recent years, a lot of experience has been gained in implementing the expanded scope principle. Experience has also been gained with the MKB Environmental Barometer developed by Stimular as an instrument to stimulate companies to provide more insight into their environmental pressure and performance and to encourage them to get to work on prevention.

In 2004 an implementation strategy was drawn up to provide a more structural approach to the expanded scope principle. This method will be introduced within DCMR in 2005. Moreover, reports from the Ministry of VROM regarding tax reductions for the business community and the redefining of the VROM licence will be taken into account. The expanded scope principle remains a highly topical subject, particularly as a statutory and stimulating instrument for achieving climate objectives and for improving poor air quality

---

resulting from traffic and transport and the use of non-sustainable energy sources.

#### *Pollution of surface water*

The water authorities, the Directorate-General of Public Works and Water Management and district water boards, have the task of combating the pollution of surface water. Pollution is caused, among other things, by the discharging of waste water by companies (both industrial and agricultural), provincial and local authorities and private individuals. Efforts are mainly focused on preventing discharges of waste water as far as possible. Environmental licensing, based on the Pollution of Surface Waters Act, regulates the discharging of waste water.

The district water boards carry out the following activities:

- \* they issue and enforce surplus discharge licences;
- \* they issue and enforce municipal connection licences;
- \* they actively promote the reporting and enforcement of these in the field of:
  - order in council concerning open-air agriculture and livestock breeding;
  - decree on the protection of soil and surface waters;
  - order in council concerning fixed objects;
  - council concerning domestic waste water/IBAs (individual treatment of waste water);
- \* they tackle diffuse sources.

In all these cases, enforcement involves both the monitoring of licences and reporting as well as tracking down illegal situations.

#### **Enforcement**

Companies are regularly monitored for compliance with the regulations. Highly complex companies, including major industries, and sectors which exert significant environmental pressure, are monitored more frequently than the smaller companies which exert less pressure on the environment.

The professionalization of environmental enforcement scenario was started back in 2003. A national zero measurement was determined and an improvement plan was drawn up for those components which did not yet meet the specified quality criteria. In 2004, DCMR further elaborated the improvement plans. For example, in this context it worked on a closed policy framework which comprises tightly-meshing goals, strategies, working methods and monitoring aspects. It has also developed a compliance strategy and an indicator to gain an insight into compliance behaviour. This provides

a further elaboration on what was launched by the policy document 'Manoeuvring towards tailor-made enforcement'.

The indicator, which is intended to provide an insight into compliance behaviour, will be brought into operation as soon as possible within DCMR. To enable application of this indicator for MSR, coordination will take place between DCMR and the water quality authorities. The indicator is composed of a compliance indicator, a complaints indicator and an environmental burden indicator. In order to make proper use of this indicator, a number of modifications in the automated system are needed. It will then be possible to compare sectors and companies in a particular area with regard to their compliance with the legislation laid down in the Environmental Management Act. It will also be possible to compare companies as regards a particular theme, such as safety, soil or air.

#### *Sanction strategy*

In 2004 the DCMR Rijnmond Environmental Agency's sanction strategy was agreed upon. It concerns the procedures for taking action against the various types of violation and the coordination of criminal law and administrative law. This strategy is coordinated with and tested against the National Environmental Enforcement Strategy. The strategy does not contain any clear policy changes with regard to the existing Regional Enforcement Strategy. However, a number of items have been added which were laid down in the order in council concerning quality requirements for environmental management.

#### *Cooperation*

In 2004 cooperation within enforcement took place on various fronts. An overview of the Enforcement Service Unit shows that there are diverse periodical consultations in which representatives from various enforcement organisations exchange information and experiences. A number of organisations perform an active and passive watchdog role for each other. Every year the Enforcement Service Unit draws up a regional implementation programme containing projects which have a regional scope or which require extra regional support. In the framework of this programme, for example, a joint training calendar was devised and a workshop on product lifecycle monitoring was held. In addition, in 2004 the regional administrative agreement was extended; arrangements regarding regional cooperation are laid down in this document. Work was also carried out on an approach which should ensure that the cooperation becomes even more effective. In this

---

framework the cooperation structure has been reassessed. Among other things, new agreements have been made regarding the consultation structure.

#### *Police policy*

The Rotterdam-Rijnmond police policy and its environmental ambitions will be evaluated and reassessed in 2005. Starting in 2005, an Interregional Environment Team (IMT) and a Regional Environment Team (RMT) will be active. The RMT will focus particularly on the serious or major environmental criminality in the region. In addition, the regular police tasks in the sphere of safety-related environmental criminality (e.g. the dumping of waste and noise nuisance) will be implemented in the districts. Product lifecycle agreements have been made with the Public Prosecutions Department.

#### *Enforcement in the framework of the Pollution of Surface Waters Act*

In order to be able to properly implement the enforcement of the Pollution of Surface Waters Act, water authorities have started to professionalize enforcement. As of 1 January 2005 the criteria for this, as laid down in strategies, protocols and working instructions, must be met. Moreover, it is important that enforcement takes place on the basis of an analysis of the environmental problems, the effects of non-compliance, and the chances of non-compliance; this makes it possible to steer the enforcement efforts. In this way, monitoring officers are not only deployed as effectively and efficiently as possible in enforcement but also play an important role in tracking down illegal discharge situations.

Also for the Directorate-General for Public Works and Water Management South Holland (RWS) the year 2004 was characterised by the professionalization project. Partly from the point of view of efficiency, within the Directorate the project was put into operation on a national scale. The implementation of the project is a landmark that was achieved for the most part in 2004 with only a slight extension into 2005.

In 2004 priority was given to about 30 licence holders on the basis of their environmental relevance or compliance behaviour. In these cases the monitoring programme was fully implemented. The implementation of the monitoring programme for the remaining 100 or so licence holders did not come up to the mark. It was not possible to respond adequately to confirmed breaches by these companies.

#### **Indicators**

A number of indication charts regarding external safety are a new feature of this chapter.

The Rotterdam region is a highly urbanised area with a major port and large-scale industrial complex. In addition to the urbanised area the region also contains a number of open, more rural areas. The environmental pressure in the region is high, chiefly due to emissions of noise and air polluting substances by industry and traffic. There is also further pressure on the living and residential environment due to a shortage of accessible recreation areas and to run-down, rather unvaried living and working areas.

So there are plenty of reasons for doing something about the environmental pressure. To this end, first of all the Draft Spatial Plan for the Rotterdam Region 2020 (Draft RR2020) was published. In this plan the Province of South Holland and the Rotterdam regional council of governments present their vision of the desired developments in the region, under the motto 'More quality, more variation, more urgency'. In addition to space for economic developments, the quality of life in the region is high on the agenda. Moreover, a number of relevant sectoral policy documents have been published such as the Regional Traffic and Transport Plan, the River Section Catchment Area Midden-Holland and the Regional Green Structure Plan.

The Draft RR2020 is innovative in a number of ways. It is at the same time a regional spatial plan and a regional structure plan and it places strong emphasis on 'urban and rural planning development'. In other words, devising plans with the firm intention of implementing them; this is in sharp contrast to urban and rural planning authorisation in which plans indicate what is permitted to happen, but not that it must also be implemented. The plan contains many elements which improve the quality of the living environment but it also includes developments which can lead to increased environmental pressure. This is why the plan itself incorporates a proactive environmental strategy to enable the desired developments. In the strategic environmental assessment (SMB) which was carried out regarding the Draft RR2020, these developments were broadly tested against consequences for the environment. The conclusion was that the plans appear feasible, but that when working them out in detail attention must be expressly paid to various environmental aspects.

Given the need for environmental monitoring, not only must the implementation of RR2020 be tested to see whether the various plan components are being implemented but also whether in addition it succeeds in

improving the quality of the living environment in the region.

In the context of MSR the environmental quality has been monitored for more than ten years now but so far few connections have been sought with spatial developments. This is why MSR will explore the options in order to devise a monitor for environment and space (M&R monitor) for the region. With such a monitor we can track the positive and negative consequences of the implementation of spatial policy on the quality of the living environment in the region. On the basis of this, administrators will be able to refine policy and plans in time. The proposed monitor examines the themes of use of space, traffic and transport, green-blue network and nuisance (noise, air and external safety). These subjects together provide a good picture of the environmental aspects of the quality of the living environment. The social and economic side of the quality of the living environment do not fall within the scope of the monitor.

The M&R monitor includes both regional and local indicators. After all, the monitor has to fit in with the objectives formulated in the policy. The Draft RR2020 mentions regional objectives (intensive use of space, functional green-blue network, promoting public transport and improving environmental quality), but chiefly emphasises a region-specific programme approach. The environmental goals vary per sub-area. For example, at major transport junctions there is less emphasis on environmental quality but more on intensive use of space and promoting public transport. Ultimately it is all about the overall environmental quality providing an insight into whether the goals that were set have been met, both at the local and regional level.

In addition, inventive indicators are being sought which tie in with the policy goals and which can establish a link between local and regional environmental effects. For example, in order to reduce the nuisance from traffic the policy has opted for bundling, arranging and tying in of traffic bundles. Although this leads to increased local pressure along the bundles, on a regional scale less people are affected. An effective distribution of traffic and proper implementation measures ensure that the environmental quality can be optimised.

Monitoring and modelling make it possible to spot problems in time. At the local level it must be ascertained whether the local goals are being met (environmental perception research is also important here) and whether the increased pressure does not lead to environmental

---

norms being exceeded; at the regional level the question is whether we can succeed in minimising the total number of people in the region severely affected by nuisance.

In the theme report, a proposal is made to set up a monitor for the various themes. In the course of 2005 the diverse participants must make agreements about this M&R monitor. In addition, they must establish in a concrete way how the themes will be monitored and which surveys must be conducted.

Finally, it is vital when drawing up a spatial plan such as RR2020 that proper agreements should be made on the subject of monitoring. After all, an effective monitor provides important steering information for the implementation of the spatial policy. This proposal for an M&R policy gives the initial impetus for this.

## 'The environment in the Rotterdam region 2004'

### Overview indicators per page

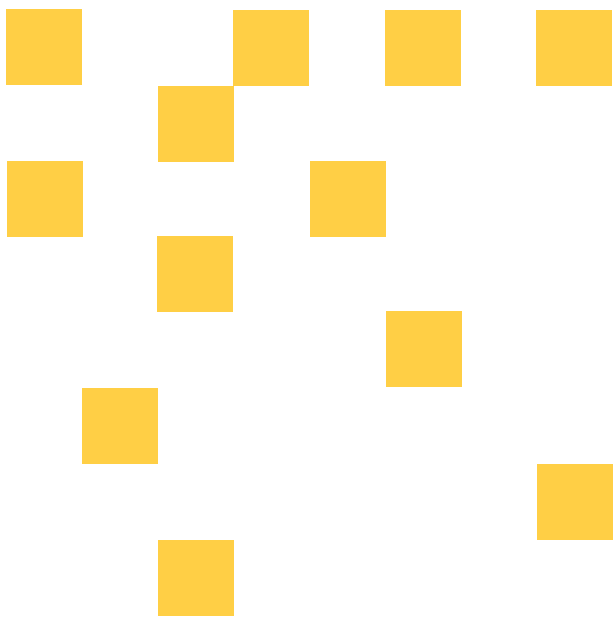
Indicator	page	chapter	type	name
8016	24A	2	line	Inhabitants in Rijnmond
7004	24B	2	line	Handling of environmental complaints by Municipal Health Services
3085	24C	2	line	Complaints about odour, dust and noise
9005	24D	2	line	Index environmental pressure road traffic
4024	25A	2	map	Modal split (choice of transport)
4025	25B	2	map	Modal split (motivation)
3028	25C	2	line	Number of car kilometres driven
4021	25D	2	bar	Kilometres travelled by public transport passengers
4036	26A	2	bar	Number of users public transport
4020	26B	2	bar	Rail passengers (stations)
4022	26C	2	bar	Travellers by train (motivation)
4028	26D	2	map	P+R-terrain (occupation)
4027	27A	2	bar	P+R-terrain (parking places)
9004	27B	2	line	Index environmental pressure major industries
9010	27C	2	line	Environment and economy (power plants)
9020	27D	2	line	Environment and economy (refineries)
9003	31A	3	line	Index air quality
3075	31B	3	line	SO <sub>2</sub> in air
3072	31C	3	line	NO <sub>2</sub> in air
3079	31D	3	line	Fine suspended particles
3067	32A	3	line	Benzene
3049	32B	3	line	Benzo(a)Pyrene
3073	32C	3	line	Ozone
3083	32D	3	bar	Signalling codes
3082	33A	3	bar	Smog
3001	33B	3	line	Odour, complaints
3087	33C	3	map	Odour, complaints per municipality
3088	33D	3	map	Dust, complaints per municipality
3020	34A	3	line	Premature deaths (by ozone and fine suspended particles)
1058	34B	3	line	Hospitaladmissions caused by fine suspended particles
1059	34D	3	line	Hospitaladmissions caused by ozone
3006	34C	3	line	Emission CO <sub>2</sub>
3009	35A	3	line	Emission hydrocarbons
4002	35B	3	line	Emission carcinogenic compounds
3025	35C	3	line	Emission particles
4001	35D	3	line	Emission acidifying compounds
5051	36A	3	line	Acidic deposition

3086	36B	3	line	Emission factors road traffic
3046	36C	3	line	Emissions road traffic (CO <sub>2</sub> , NO <sub>x</sub> , hydrocarbons, particles)
4043	36D	3	bar	Comparison of emissions SO <sub>2</sub> of target groups
4040	37A	3	bar	Comparison of emissions NO <sub>x</sub> of target groups
4041	37B	3	bar	Comparison of emissions CO <sub>2</sub> of target groups
4042	37C	3	bar	Comparison of emissions hydrocarbons of target groups
9537a	38A	3	map	Air pollution by several sectors
9537b	38B	3	?	North-south
9537c	38C	3	?	West-east
1053	41A	4	map	Acoustic load by road-traffic
1054	41B	4	map	Acoustic load by rail-traffic
1055	41C	4	map	Acoustic load by air-traffic
1056	41D	4	map	Acoustic load by industry
1057	42A	4	map	Average total acoustic load, weighted for nuisance
3003	42B	4	line	Complaints about noise
4035	42C	4	map	Noise, complaints per municipality (excluding Rotterdam Airport)
4034	42D	4	map	Noise, complaints per municipality (Rotterdam Airport)
3004	43A	4	line	Noise abatement measures to be implemented
4019	43B	4	line	Permitted higher noise levels houses (sources)
4023	43C	4	line	Permitted higher noise levels houses (noise levels)
4032	43D	4	map	Environmentally protected area's (noise)
9538	46A	4	map	Average total acoustic load, weighted for nuisance (sources)
5061	51A	5	bar	Clean-up of underground tanks (companies)
5048	51B	5	bar	Soil cleanup of industrial sites (agreements)
5046	51C	5	bar	Clean-up of new contaminated soil
5058	51D	5	bar	Soil protection act
5049	52A	5	bar	Soil clean-up former gas work sites
5050	52B	5	bar	Soil clean-up former petrol stations
5060	52C	5	bar	Use of soil cleanup possibilities
5041	52D	5	bar	Destination of contaminated soil
8004	53A	5	map	Availability of soil quality map
1036	53B	5	bar	Soil clean-up subsidy scheme for companies
1041	57A	6	bar	Ecological quality large inland waters
1045	57B	6	bar	Herbicides in surface waters
1028	57C	6	line	Quality in relation to function inland waters
4013	57D	6	bar	Complaints inland waters
4046	58A	6	pie	Complaints inland waters
1030	58B	6	line	Discharges heavy metals by major industries
1032	58C	6	line	Discharges benzene and chlorides
1007	58D	6	line	Discharges oil

1025	59A	6	bar	Intake stops Meuse water (drinking water production)
1004	59B	6	line	Discharges phosphate and nitrogen
5053	59C	6	bar	Discharge of eutrophication substances by agriculture and horticulture
8018	59D	6	map	Municipal Water Plan per municipality
8014	60A	6	map	Buildings without sewerage per municipality
2021	60B	6	map	Buildings without water meter per municipality
5014	60C	6	line	Quantity of sludge
2016	60D	6	bar	Quality underground soil/sludge harbours Rotterdam
9533a	61	6	line	Use of groundwater per purpose
9533b	62	6	line	Use of groundwater by agriculture and horticulture
9015	64A	7	line	Index nature quality
5055	64B	7	line	Number of butterflies
1049	64C	7	bar	Number of seals
1050	64D	7	bar	Number of common terns
1052	65A	7	bar	Number of redshanks
1051	65B	7	bar	Number of water birds
4045	65C	7	bar	Qualifying species Haringvliet
3030	65D	7	line	Number of summer birds
4026	66A	7	line	Number of sand lizards
1034	66B	7	map	Available walking capacity
5037	66C	7	bar	Nature reserves
8023	66D	7	map	Ecological structure
3031	67A	7	bar	Urban green in Rotterdam
9534a	68A	7	line	Whiskered bat and brown long-eared bat
9534b	68B	7	line	Daubenton's bat
8019	73A	8	map	Municipal Waste Plan per municipality
8020	73B	8	map	Municipal waste analyses per municipality
5010	73C	8	bar	Domestic waste
5004	73D	8	bar	Separated collected domestic waste
6006	74A	8	map	Separate waste collection per municipality (paper)
6007	74B	8	map	Separate waste collection per municipality (organic)
6008	74C	8	map	Separate waste collection per municipality (glass)
6009	74D	8	map	Separate waste collection per municipality (textile)
6010	75A	8	map	Separate waste collection per municipality (small chemicals)
6011	75B	8	map	Separate waste collection per municipality (separated)
5027	75C	8	line	Ships' waste inland shipping (deliveries)
5028	75D	8	line	Ships' waste sea shipping (deliveries)
5042	76A	8	line	Ships' waste inland shipping (quantities)
5043	76B	8	line	Ships' waste sea shipping (quantities)
9535	77	8	line	Separate organic waste collection

8022	80A	9	bar	Energy Achievement Advice
2011	80B	9	bar	Energy use by several sectors
8021	80C	9	map	Wind energy (placing)
8028	80D	9	line	Wind energy (production)
8012	81A	9	map	Use of green power per municipality
7079	85A	10	map	Implementation internal environmental care per municipality
8013	85B	10	bar	Education of nature and environment in Rotterdam
8015	85C	10	map	Municipal Environmental Policy Plan per municipality
8003	85D	10	map	Availability monitoring reports per municipality
1033	91A	11	map	Indicating map company risks
2026	91B	11	map	Risk contour pipelines
2027	91C	11	map	Risk contour roads
2028	91D	11	map	Risk contour railways
1060	92A	11	map	Hazard of Major Accidents Decree
2012	92B	11	map	Carriage of Dangerous Goods Act
7105	91D	11	pie	Company categories licensed under the Environmental Management Act
7102	92A	11	line	Licenses municipal industries
7103	93A	11	line	Licenses provincial industries
7080	93B	11	bar	Effective level of measures (major industries)
7024	93C	11	line	Enforcement municipal industries
7072	93D	11	line	Enforcement refineries
7075	94A	11	line	Enforcement process industry
7073	94B	11	line	Enforcement storage and transshipment
7091	94C	11	line	Enforcement power plants
7090	94D	11	line	Enforcement waste processing plants
7086	94B	11	line	Enforcement cattle farms
7087	94C	11	line	Enforcement cultivation under glass
7094	94D	11	bar	Enforcement by police
9536a	96A	11	line	Number of firework companies
9536b	96B	11	line	Enforcement firework companies
INWON_05	99	BY1	map	Municipality borders and number of inhabitants





Dit rapport beschrijft het milieu op regionaal niveau, waarbij sommige indicatoren zijn uitgesplitst voor de afzonderlijke gemeenten en deelgemeenten in Rijnmond. Het rapport is gemaakt door het samenwerkingsverband Milieumonitoring Stadsregio Rotterdam (MSR), bestaande uit:

DCMR Milieudienst Rijnmond

Gemeente Rotterdam

GGD Rotterdam en omstreken

Hoogheemraadschap van Delfland

Hoogheemraadschap van Schieland en de Krimpenerwaard

Politie Rotterdam-Rijnmond

Provincie Zuid-Holland

Rijkswaterstaat Zuid-Holland

Stadsregio Rotterdam

Waterschap Hollandse Delta

