

The environment in the Rotterdam region 2003

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 2003". 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)".

With this appendix together with 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.

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General

The cover of this report has a red 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, which is determined principally on the basis of the various indexes, with only a slight downturn in 1997. For the last two years the overall environmental quality in the Rijnmond region is virtually unchanged: the red dot on the spine therefore remains at the same level as the previous two years.

A few highlights:

- * The number of complaints regarding aircraft noise nuisance, industrial noise, odour and particulates has decreased;
- * There has been a further reduction in environmental pressure from major industry. This is due to a decrease in emissions to air. The decline in emissions from road traffic is the main reason for the reduction in environmental pressure caused by road traffic;
- * The remaining indexes: for air quality, the quality of national waterways and inland waters, and for air quality, remain virtually unchanged;
- * Traffic infrastructure continues to cut up nature conservation areas to an unacceptable degree;
- * Although households are producing less waste, the downside is that at the same time they are making less effort to separate their household waste.

Environmental monitoring correlates, where possible, indicators and policy objectives to show whether the policy is on track: 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 gives a general picture of the areas where the policy is on course, and if so whether its pace is adequate, and points out those areas where the policy is not on course.

For the first time trend analysis has been carried out for a number of themes in this report. This provides a more in-depth look at one or more aspects of an indicator or subject belonging to a particular theme. A brief summary of these analysis can be found at the end of this chapter.

In Chapter 12 we will briefly address the special theme for MSR 2003: 'Air quality and Health in Rijnmond'. It is generally known that a relationship exists between air pollution and health. What though, is the situation in Rijnmond?

ON COURSE

Social context

Absolute uncoupling in the refineries

Environmental policy is aimed at the uncoupling of economic growth and environmental pressure. When economic growth in an industrial sector is accompanied by a reduction in the environmental pressure exerted, this is termed absolute uncoupling. When economic growth in an industrial sector is taking place at a faster rate than the environmental pressure exerted, this is termed relative uncoupling. In the refineries absolute uncoupling has been achieved.

NOT ON COURSE

Environmental pressure road traffic remains high

There has been only a slight reduction in environmental pressure exerted by road traffic despite the decrease in emissions to air from hydrocarbons, fine particulates and nitrogen dioxide. There are two reasons for this: CO₂ emissions continue to rise in accordance with the number of kilometres driven and the number of fauna bottlenecks remains too high.

ON COURSE

Air

Emissions of acidifying substances decreasing

Emissions to air of acidifying substances are still decreasing. This decrease is primarily due to a reduction in SO₂ emissions from the refineries. NO_x emissions are decreasing far more slowly. In 2002 the target for 2000 was achieved.

Noise

Fewer complaints about aircraft noise

The downward trend in the number of complaints regarding aircraft noise, which started in 1998, has continued up to 2002 apart from a slight hiccup in 2001. This is due among other things to a tightening of the night flight regulations.

Soil

Soil quality on the map

By 2005 every municipality must have a soil quality map. It looks as if nearly every municipality will meet this target: eleven have already drawn up a soil quality map, five are in the process of developing one. Bernisse intends to develop a soil quality map. Bleiswijk however, has decided not to develop a soil quality map.

Water

Nearly all discharges meet the targets

The amount of polluting substances in national waterways continues to decrease. The 2010 targets for oil, PAHs and most heavy metals have already been met. For the remaining substances, the targets for 2000 have definitely been met.

NOT ON COURSE

Air quality still demands attention

Ambitious targets have been set for air quality. Although, after several years of stagnation, the general air quality showed a slight improvement in 2002 compared to 2001, the target for 2010 is still far from being achieved. Fine particulates comprise the main stumbling block; at every sampling point the concentrations were higher in 2002 than in 2001.

Number of houses due for insulation slowly decreasing

In 1993 an inventory was conducted of housing which was exposed to received noise levels of over 65 dB(A) from road or rail traffic and where only insulation measures could offer any solution. These houses were placed on the "A-list" and the "rail list". In 2002, of the more than 8,000 houses on these lists, there were still 5,000 where insulation measures had not yet been implemented.

Too little progress in the cleanup of gaswork sites

The momentary speed of the soil cleanup operations is low. The sites that yet need to be cleaned up have both in financial and quantity terms a great impact. This is the reason why it's uncertain if the target for 2023 will be met.

Quality of dredging sludge decreasing

Since 1994, the quality of the sludge dredged from the Rotterdam harbour area has been steadily improving but the figures for 2002 show that the percentage of sludge which can be utilised without restraint has declined and is now comparable to 1998 levels.

ON COURSE

Natural areas

Population of summer migratory birds still increasing

For a number of years, the combined index value for all the animal species mentioned in this report has remained around 70. The 1% norm for the common tern, redshank and gadwall has continued to be exceeded in recent years in the Voordelta and the Nieuwe Waterweg. For this reason these areas have been designated Wetlands of International Importance. The strikingly positive trends, which have been evident since 1998 for all the summer visiting birds included in this report, appear to have continued in 2001.

Waste

Domestic waste decreasing

The total amount of waste generated by households decreased in 2002 compared to 2001 and has returned approximately to 1999 levels. In 2002, the total waste production per resident amounted to approximately 490 kilograms.

Energy

Municipalities go over to Eco-electricity

The number of municipalities that has changed over partly or entirely to using Eco-electricity has risen from three in 2001 to five in 2002. Due to contracts that have already been entered into, this number will increase to a minimum of eleven in 2003 and of these, eight will have gone over entirely to Eco-electricity.

Environmental management

Municipal Environmental Policy Plan (MEPP) still being introduced

Ten municipalities in Rijnmond have a MEPP and eight are in the process of developing one. A number of those in development will be formalised in the course of 2003.

Environmental permits and General administrative orders

Number of checks exceed targets

Each year, targets are set for the number of preventive checks to be carried out at companies for which the municipality acts as the competent authority. The number of preventive checks in 2002 has been approximately 13% higher than the target.

NOT ON COURSE

No reductions in fauna bottlenecks

The number of fauna bottlenecks has remained virtually unchanged since the inventory in 1993. The target for 2000 was nowhere near achieved in 2002 and at the present rate it looks as if the target for 2010 will certainly not be met either. Roads cause the majority of bottlenecks.

Separation of waste still remains below target

The proportion of waste that is collected separately at regional level is insufficient. In 2001, 32% of waste was separated for collection but in 2002 this has decreased to 28% whereas the target for 2006 is 48%.

Households continue to use more energy

Households use more electricity every year because both the number of electrical appliances and the intensity of their use is increasing.

Environmental management by municipalities a cause for concern

Since 1998 it has been compulsory for every municipality to have its own environmental management system (EMS). In 2002 this is still not yet the case in the Rijnmond area. In fact, only eight municipalities have an EMS at present.

Refineries have not achieved 'adequate level of measures'

Every (major) company must have 'state of the art' emission-reducing facilities installed. Since 2002, the provincial policy for refineries has been that emissions must be reduced to the level of a gas-fuelled power plant. Only 40% of the companies comply with this.

Trend analyses

Environmental reports received by Rotterdam-Rijnmond police

The Rotterdam-Rijnmond police regularly receive reports relating to the environment. These are entered into the Flexible Incident Room System under a number of main categories such as waste, car wrecks, water and soil pollution and noise nuisance from pubs. Over the period between 1998 and 2002 there has been a reduction in the total number of complaints from 3,066 in 1998 to 1,396 in 2002. The complaints regarding noise nuisance from pubs form the largest part and have also clearly risen over that period, increasing from 42% to 68%.

Air quality

Fluctuations in the concentrations of sulphur dioxide (SO₂) and nitrogen oxides (NO and NO₂) in the air were studied for the period between 1970 and 2002. In addition, a connection was established between the concentrations measured at living environment level and the emissions of these substances by industry which have been known since the early eighties.

For SO₂ there has been a sharp reduction in both the concentrations measured and the emissions. The connection between the reduction in emissions by industry and the concentrations measured at living environment level can also be clearly seen.

The concentrations of NO₂ fluctuate over the whole period in spite of the fact that the emissions of nitrogen oxides by industry have decreased sharply since the early '90s. This can be accounted for by the fact that traffic makes a significant contribution to the NO₂ at living environment level. The emissions by industry are released from high emission points and thus have virtually no impact on the concentrations measured at living environment level. However this does have a positive effect on the general background level.

Complaints regarding noise

The number and nature of complaints received by the DCMR incident room regarding noise nuisance have been analysed. After 1994 a sharp rise can be seen which continued up until 1997 (approx. 14,000 complaints) and this can be attributed to complaints about aircraft noise. Partly due to a policy introduced to ban noisy planes the number of complaints since 1998 has once again decreased to less than 8,000 in 2002.

The number of complaints caused by industry has remained more or less constant at around 1,100 per year. The complaints about pub noise, however, have risen sharply from over 500 in 1995 to 1,300 in 2002.

Soil

The national policy is aimed at the cleanup before 2023 of all locations where soil pollution is both serious and urgent. Legislation and regulations in this area has been revised several times and is generally perceived to be complicated. This has led among other things to delays occurring in the implementation of the cleanups. However, a large number of locations in the region, mainly those which are only moderately polluted and which represent an economic value, have already been cleaned up. The remaining sites are chiefly those where there is a substantial degree of soil pollution and consequently the cleanup costs involved would be considerable. In the absence of external funding sources for these locations, it looks as if cleanup before 2023 is not feasible.

Waste

For this theme an analysis has been made of the collection and level of separation of household waste. The most important trends for both Rotterdam and the other Rijnmond municipalities are shown below.

Rotterdam

In recent years, the city of Rotterdam has opened four waste recycling sites where residents can bring their waste. As a result, the amount of collected 'bulky household waste' has decreased and there has been a corresponding increase in the amount that is brought to the recycling sites. The advantage of the latter is that the waste streams can be more efficiently separated into the different categories and are thus more likely to be suitable for recycling purposes than mixed streams. The amount of separated vegetable, fruit and garden waste remains fairly constant whereas paper and glass show a slight 'dip' in 2002 compared to 2001. One reason for this could be that people are not yet used to the new collection system comprising underground containers. Old clothing and textiles are largely collected by various charities so that no exact figures are available. In 2002, the amount of separately collected household waste increased to 20.7% compared to 17.4% in 2001. The target for 2006, however, is 43%.

Other municipalities

This analysis focuses mainly on the differences in collection results for the various waste categories across the Rijnmond municipalities. Due to the standardised method of glass collection through bottle banks, little internal variation was evident for this category. As regards paper and cardboard, Capelle aan den IJssel has the best track record. This can be attributed to the systematic placing of additional paper bank containers at 'waste collection sites'. It is difficult to obtain reliable figures for vegetable, fruit and garden waste and for old clothing and textiles. In the case of the former this is because public parks waste is sometimes seen as vegetable, fruit and garden waste. In the case of old clothing and textiles, sporadic collections made by a variety of charitable agencies make it difficult for the municipality to gain a clear picture of this particular stream. Generally speaking, it may be concluded that reliable figures are essential for making effective policy choices. In addition, conducting sorting analyses of the residual waste is seen as an important instrument for monitoring waste separation.

Environmental care

In 1995 a declaration of intent was signed by the government and the metal and electrotechnical industry in order to reduce the environmental pollution caused by the sector. The result to be achieved was laid down in the Integral Environmental Target (IET). The instrument chosen was the corporate environmental plan. (CEP). The state of affairs in 2001 revealed that only 40% of companies in that sector were aware of the declaration of intent, 10% had taken measures to achieve the IET and 4% had drawn up a CEP.

The most important reason for this 'poor' result appears to lie in the fact that within the sector there are a lot of small companies each causing a relatively minor amount of pollution and for whom a CEP is not the appropriate instrument. This is why a dual policy approach has been adopted whereby the large companies are encouraged to draw up a CEP and the smaller companies are compelled to take relevant measures by means of conditions included in their licence.

Storage of hazardous substances

Partly in response to the fire at CMI (Container Masters International B.V.) in 1996 in which toxic substances were released, stevedore, transport and freight forwarding companies now receive special attention regarding the enforcement of compliance with the Environmental Management Act (EMA).

As regards the storage of hazardous substances, a number of specific guidelines drawn up by the Disasters Prevention Committee (DPC) apply. Since 1996 checks are carried out more systematically and more frequently. The option offered by the EMA (section 8.23) to revise licence conditions has also been utilised.

The company is awarded a rating according to its degree of compliance with the safety regulations on a scale ranging from 'inadequate', 'poor' and 'adequate' to 'quite good' and 'good'.

It may be concluded that the more systematic and coercive approach has borne fruit. Since 1997, no companies have been awarded the 'inadequate' rating, and a clear shift is taking place away from 'poor' and 'adequate' towards 'quite good' and 'good'. In 2001, 38% were rated 'quite good' and 45% 'good', whereas in 1996 only 26% of companies fell into either of these two categories.

Public authorities, companies and households, in their own way, all have a responsibility 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.

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 which, certainly at regional level, must be seen as important data.

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, the Rotterdam-Rijnmond police and the DCMR incident room. In chapter 3 (air) and chapter 4 (noise) you will find detailed information about the complaints received by DCMR. The number of complaints received by DCMR in 2002 regarding odour, noise and particulates has dropped in comparison to 2001. It is not known, however, whether this has had any impact on the perception of the residents. This should become apparent in the next environmental perception study (MBO) conducted in a two-yearly cycle, the last of which was carried out in 2001. The MBO also addresses how safe or unsafe residents feel and is conducted on behalf of the Province of South Holland. Details regarding external safety can be found in chapter 11 of this report.

Environment and economics

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 increases at a faster rate than environmental pressure (relative decoupling).

Once again this year we have examined the degree of decoupling between environmental pressure and economic development for five target groups: refineries, the chemical industry, power stations, storage and transshipment and road transport. These target groups are responsible for roughly 80% of the environmental pressure in the region.

For each target group we make the environmental pressure, the economic development and the environmental intensity (EI) visible. We calculate the environmental intensity by dividing the index for the environmental pressure by the index for the economic development; this environmental intensity is thus a gauge for the degree of decoupling: the further from 100 the environmental intensity is, the greater the decoupling. If the intensity climbs above 100, this indicates a situation of coupled growth of economic activity and environmental pressure.

At the refineries there is once again absolute decoupling for the first time since 1998 but in the case of road traffic the absolute decoupling of recent years was not maintained in 2001. The reason for this is that a sharp drop in the weight transported corresponds to only a marginal decrease in environmental pressure.

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. 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. The development of the index shows that there has been virtually no reduction in the environmental pressure caused by road traffic.

In contrast to previous reports, we have included in this edition a number of indicators which specifically relate to public transport and the choice of transport. In the chapter on "air" we have incorporated indicators about the emissions from road transport and in the chapter on "noise" we address the subject of received noise levels. Information about reduced car access areas (30 km/hr zones and car-restricted residential areas) and 60 km/hr zones can be found in chapter 10.

The presence of polluting substances in the air forms an important indicator for the quality of this environmental compartment. The emission of polluting substances from numerous sources and the possibilities of reduction continue to be important areas of attention. Since 2002 various partners have been cooperating on the Air Quality Master Plan: the Ministry of Public Housing, Spatial Planning and the Environment, the Province of South Holland, the Rotterdam regional council, ROM Rijnmond (regional development area), DCMR and the region's councils. The first phase consists of drawing up an inventory of the bottlenecks and their sources. Then the most favourable options and their anticipated effects are outlined. It is expected that the Master Plan will be completed in 2003.

In 2001 the European regulations for a number of substances was laid down in the Air Quality Decree. This mentions limit values which in some cases do not have to be met until 2005 (fine particulates) or 2010 (NO₂). Plan thresholds for these substances have also been defined and these are tightened each year. If the concentration of a substance lies below the plan threshold it is assumed that, despite autonomous developments, the limit value in the year in question will not be breached.

On the basis of this decree it has become compulsory for municipalities to make an inventory every three years of the potential bottlenecks within the built environment and to report on these to the Province. The first inventory will be drawn up in 2002 (reporting on 2001). For those substances which breach the plan threshold in the year in question, municipalities must indicate in a Plan of Approach how the bottlenecks will be tackled.

For benzene and benzo(a)pyrene, the EU directive on benzene/CO only came into force on 13 December 2002. This is why in this report we have used the relevant 'old' Dutch terminology: 'limit value', 'target value' as long-term objectives and 'guidance value' as the interim objective on which policy should temporarily focus.

Quality

The air quality in Rijnmond is measured, principally by DCMR, at a large number of sampling points. The RIVM (National Institute of Public Health and Environmental Protection) also has a number of sampling points in this region. As indicator for the (general) air quality we have calculated an index by combining measurement data for the most representative indicators.

The index (MI_9003) shows that the general air quality has improved over the last decade and that in 2002 this rising trend has continued.

The concentrations of sulphur dioxide (SO₂), benzene and benzo(a)pyrene no longer cause problems anywhere in Rijnmond. At the sampling points, nitrogen dioxide (NO₂) and fine particulates continue to just breach the limit values. In particular along busy arterial roads higher concentrations of NO₂ and fine particulates occur and limit values are sometimes well-over the maximum. In a trend analysis at the end of this chapter we take a closer look at the developments of the measured concentrations of sulphur dioxide and nitrogen dioxide.

The complaints about odour and particulates which are received by DCMR's incident room provide information on how the quality of the air is experienced. We have also included indicators relating to this. With regard to the number of complaints about odour, the line is chiefly determined by complaints about industry. In the period between 1997 and 2002 there has been a clear reduction in the number of complaints. The incident room not only records complaints but also has a preventive function. When certain weather conditions prevail which could cause persistent air pollution it issues warning codes to industry. This should lead to a cut in emissions. The report contains indicators about how frequently this occurs and about the prevention of smog.

Chapter 12 of this report addresses the relationship between air pollution and its adverse effects on health. We have used a model to calculate these effects for the year 2001. From a survey extending to the year 2010 it is apparent that both NO₂ and fine particulates will continue to require attention.

Sources

Following a standstill in 2001, emissions to air of acidifying substances once more showed a downward trend in 2002. In particular SO₂ emissions from the refineries decreased. There has hardly been any reduction in NO_x emissions by large companies. Emissions of particulates and hydrocarbons are also decreasing extremely slowly. However, for the first time in a number of years there has been a drop in CO₂ emissions.

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 CO₂ have risen, however, because the emission factor for CO₂ has hardly decreased at all.

The total acid deposition in Rijnmond depends to a large extent on activities which occur outside the region and even outside the Netherlands. Precipitation from acidifying substances can therefore only be influenced to a limited degree in the region itself. The objective for 2000 was not met despite the decrease which was started in 1999.

Noise is one of the most important sources of nuisance and can even cause illness. Thus rules exist regarding the construction of housing in the vicinity of companies and for the amount of noise which companies are allowed to produce. In this chapter among other things indicators are shown about dwellings which need remediation because of noise nuisance, for discretionary permits issued for new housing developments and the zoning of industrial estates.

The studies entitled 'The Existing Rotterdam Region' (by DCMR Environmental Agency) and 'Delta Plan Noise' (by ROM Rijnmond) have shown that unless the present policy is changed, noise nuisance in the Rijnmond area will rise sharply. This is why in 2001 DCMR, the Municipal Port Management and the South Holland Department of Public Works and Water Management set up the Centre for Noise Studies (KCG). The KCG is aimed at offering measures targeting the sources. The emphasis is not so much on the development of new techniques as on assessing and broadening existing knowledge and overcoming obstacles which stand in the way of effective implementation.

In late 2002 the first phase was completed in which the available and most favourable measures were categorised. The measures involved are aimed at 'containers', 'process industry', 'road traffic', 'rail traffic', and 'transport and logistics'. More in-depth studies and elaboration of the proposed measures will take place in a phased programme which should lead to actual implementation and embedding.

Quality

The complaints about noise form an important instrument in localising the source of the nuisance and subsequently taking action to combat it. In this report you will find the trend in the number of complaints, broken down into various categories of sources. The 2002 division of complaints across the various municipalities and Rotterdam districts is also shown. It has been found that while the amount of aircraft noise is decreasing that of pub noise is on the increase. More details can be found in the trend analysis that is included at the end of this chapter.

In 1997 a project was launched to enable an automatic correlation between reports of aircraft noise, measured noise levels and aircraft data. In 2001, the RANOMOS system (Rotterdam Airport Noise Monitoring System) came into operation.

Measuring posts have been placed at six points around the airport (two in Schiedam and one each in Overschie, Schiebroek, Bergschenhoek, and Berkel en Rodenrijs). By correlating the noise measurements with information about the flight path of the aircraft flying overhead at that moment, the location of the complainant and the exact time of the noise nuisance, the probable causer of the aircraft noise can be pinpointed. Since there is no legal limit set for the noise that a single aircraft is allowed to make, it cannot be simply claimed that the aircraft in question is making too much noise. There are rules, however, about deviating from the route and here RANOMOS performs an important warning function for the competent authority, the Committee for the Environmental Protection of Rotterdam Airport. In the long run the system could possibly be deployed as an enforcement instrument.

Sources

In order to monitor the received noise level of industrial sites, zone control /investigation points have been determined at which the permitted received noise level is fixed. If this limit value is breached, the received noise level must be reduced by implementing remediation programmes. An indicator with regard to the 2002 situation in Rijnmond has been included.

Efforts

Road traffic nuisance can be tackled for example by taking transfer measures such as noise-proof barriers and 'quieter asphalt'. Noise-proof barriers against road traffic noise are placed in particular along national arterial roads. In the 1990s 65 kilometres of noise-proofing barrier was erected in Rijnmond. No information is available for subsequent years. 85% of the 2002 target that was set for 'quieter asphalt' has been achieved. Noise-proof barriers have also been erected along railway lines in order to combat noise nuisance. The length of noise barriers placed along railway lines in the period between 1993 and 1998 increased from 1,445 to 4,969 metres. Between that time and 2002 there has been no further increase in the placement \number of metres of noise barriers.

A recent experiment conducted on the A13 where the maximum speed limit has been reduced to 80 kilometres per hour, has led to a considerable reduction in the received noise levels for residents in the area. In the meantime, the government is considering adopting this measure on other national trunk roads.

Dwellings which lie so close to main roads or railway lines that noise levels exceed 65 dB(A) and where measures targeting the sources are not feasible, remediation measures must be taken to insulate the dwellings themselves. These dwellings have been placed on the "A-list" (road traffic) or the "rail list". Of the more than 8,000 dwellings which were placed on these lists in 1993, there were still almost 5,000 left in 2002. Major efforts will be needed, therefore, to achieve the target set.

A good overview of soil quality will not be available until 2005 when all the soil cleanup locations within the framework of the 'Focus on Soil' project will have been examined. This is why this chapter does not contain any indicators for soil quality. We place emphasis on the efforts to examine locations and where necessary to clean them up.

The policy area 'soil' is characterised by a multitude of rules and financing instruments which are integrated into other policy areas. In this introduction, therefore, we first focus on the most important changes in the financing structure and executive powers. These two points return in the trend analysis although in a more historical context.

Following the introduction of the Urban Renewal Act large portions of the national budget for soil cleanup was transferred to the Urban Renewal Investment Budget (ISV). As a result of the differentiation between rural and urban areas, a fundamental amendment in the division of the soil budgets was created. Powers and tasks were decentralised to local authorities. In addition to the provinces and major cities, 'direct councils' now also form /constitute a competent authority under the Soil Protection Act. Schiedam will become one of these as from 2004. Furthermore, there are 'programme councils' which will undertake the programming and implementation of soil surveys as well as cleanup operations but which have to apply for a budget from the province per programme period. The municipalities concerned are Capelle aan den IJssel, Ridderkerk, Spijkenisse and Vlaardingen. The remaining 'project councils' can apply for and be granted a budget per project. On behalf of the Province of South Holland, DCMR examines how many third parties invest in the improvement of soil quality compared to contributions furnished by government for programme and project councils. The first cleanup operations within the ISV period have taken place in Schiedam, Vlaardingen and Hellevoetsluis.

House-building on contaminated sites is threatening to grind to a halt because of the complexity of rules and the cleanup costs which put pressure on plan development. This is why within the region it has been decided to contribute towards the soil cleanup costs for contaminated sites where house-building occurs within the Vinex period from regular Soil Protection Act funds and extra funds for bottlenecks.

In addition, the competent authority under the Soil Protection Act has entered into specific agreements regarding the conditions under which costs must be deducted in order to simplify the complicated regulations relating to this particular area.

Households

Information regarding the cleanup of underground oil storage tanks at private homes is no longer included in this report. Most municipalities have carried out a (final) 'tank battle campaign' so that the emphasis now lies far more on the monitoring and enforcement of the BOOT 1998 (Underground Tanks (Storage) Decree 1998) than on cleanup operations. Both the city of Rotterdam and the municipalities on the island of Voorne-Putten and Rozenburg have therefore transferred the monitoring of private and industrial tanks to DCMR.

Companies

In contrast to private homes, a large number of the underground storage tanks on industrial premises remain in use. The number of tanks declines every year but in some sectors, such as petrol stations, underground tanks will always remain in operation. It is difficult to assess how many there are. Monitoring compliance with the BOOT 1998 in the region is a task performed by DCMR.

On 11 June 2001 a Covenant on soil cleanup for industrial sites operational both currently and in the future was signed between the Ministry of Public Housing, Spatial Planning and the Environment, the Ministry of Economic Affairs, the IPO (Interprovincial consultation board) representing the Provinces, the VNG (Association of Dutch Municipalities), and the interest groups VNO/NCW and MKB-Nederland. This covenant forms the basis of the Industrial Regulations Soil Cleanup which is designed to grant government subsidies to companies which carry out soil cleanup operations at their site. The subsidy percentage depends on the point in time when the contamination occurred and the date when the site was acquired. The regulation will be promoted among industry by the BSB South Holland Organisation. The number of companies with an agreement decreased in 2001 because a number of companies which had joined ultimately failed to submit a site report. By the end of 2002 more than 2,500 companies in the region had signed an agreement with the BSB South Holland Organisation which is a 10% increase compared to the situation at the end of 2001.

Local government authorities

All competent authorities under the Soil Protection Act should have systematically categorised their stock of work by no later than 31 December 2004. Since the majority of municipalities now have a soil information system or a soil zone chart on the basis of which soil movement may take place outside the cleanup locations and since the competent authorities are examining the cleanup locations, it is expected that the region will be able to meet the national requirements on time.

The impact of the European Union on legislation and regulations is increasing in nearly every environmental area. For the policy area 'water' the framework directive on water was laid down on 22 December 2000 and 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.

The framework directive on water is intended for 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 for each area measures must be elaborated into a river catchment area management plan. The measures should ultimately result in the water being in good condition by 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.

In the discussion on organisational changes the division into river catchment areas also played a role. First we will review the current situation. At present, there are four bodies in Rijnmond which monitor the water quality. The Department of Public Works and Water Management is responsible for national waterways (roughly speaking, these are the waters which are open to the sea). The high council of landholders of Schieland and Delfland together with the Hollandse Eilanden en Waarden water treatment board monitor the quality of the remaining waters, i.e. the inland waters. The Water Boards of Brielse Dijkkring and IJsselmonde are responsible for the water quantity management of the inland waters on the islands of Voorne-Putten and Rozenburg and on the island of IJsselmonde respectively. Finally, the high council of landholders of Schieland and Delfland deal with both the quality and the quantity of the water in their area.

The Province of South Holland decided back in January 1999 to reorganise the water boards in South Holland. Provincial States of South Holland completed the decision making on the reorganisation of the water boards on 19 February 2002.

For this area this means that in the south from 1 January 2005 the Hollandse Delta water board will be formed. The following water boards will merge into it: the Brielse Dijkkring, IJsselmonde, Goeree-Overflakkee, Groote Waard and the Hollandse Eilanden en Waarden water treatment board. This new water board will also be temporarily entrusted with the water quality management in the Alblasserwaard and the Vijfheerenlanden polders. In the northern part of Rijnmond, the high council of landholders of Schieland and the Krimpenerwaard will merge as per 1 January 2005. The water quality management in the Krimpenerwaard, that at present is carried out by the Hollandse Eilanden en Waarden water treatment board will then be transferred to the newly merged high council of landholders. As far as the High Council of Landholders of Delfland is concerned, there will be no change. Before matters reach that point, however, the Province of Utrecht has to take part in the decision making with regard to the formation of the Hollandse Delta water board.

Quality

In this report we show the quality of the national waterways and the inland waters in two separate indexes. To create these indexes we collate a number of characteristic indicators to produce one figure. Each year, for each indicator we calculate the distance (as a percentage) from the objective; the average of these distances provides the index for that year.

As an index for the quality of the national waterways, we present in this report the ecotoxicity conservation level regarding exposing aquatic organisms to concentrations of toxic substances. The indexes for the Noordrand (including Nieuwe Maas, Oude Maas and Nieuwe Waterweg) and the Zuidrand (including Spui and Haringvliet) have been calculated separately because they are separate water systems.

In determining the conservation level we use two terms: maximum permissible risk level (MTR) and negligible risk level (VR). Consistent with policy an MTR has been selected per toxic substance so that 95% of a potentially present species within an ecosystem is protected. In addition, a VR is laid down per toxic substance so that 100% of a potentially present species within an ecosystem is protected. In the third National Environmental Policy Plan it was laid down that the MTR level must be met by 2000 and the VR level by 2010.

Since 1992, there has been a slight increase in the percentage of protected species of aquatic organisms found in both the Noordrand and the Zuidrand. The water quality of the Noordrand has improved considerably over the years and at present is at a comparable level to that of the Zuidrand. The objective for 2000, whereby 95% of the species are protected, has not yet been achieved due to high concentrations of copper (MI_9002).

A new form of assessment, the STOWA method, has been adopted for inland waters. At a national level assessment systems are developed for the various types of water, such as ditches, canals and deep wells. In the assessment of a particular water type, a selection is made of characteristics which are considered important for that type of water. The old method did not take account of the water type and ditches were assessed in the same way as natural and manmade lakes.

In 1999, in consultation with water quality boards in South Holland and the province, it was agreed to assess canals and deep wells following the STOWA method after which there would be a phased transition to the STOWA assessment method for the other water systems. The STOWA method assesses the surface water by listing a number of different aspects called "characteristics". Based on the result of the assessment, an indication can be given of areas which need to be tackled in order to bring about improvement. In the assessment each characteristic is awarded a score on a scale of 1 to 5 where 1 is 'Below lowest level' and 5 is the 'Highest level'. At present, the STOWA method merely provides a temporary diagnosis of the water quality and draws no final conclusion. A separate quality level is indicated for a number of characteristics of the water system. As an initial impetus for a standardisation the makers of the system have assumed that the median level for each characteristic which the system looks at corresponds to the level of the general environmental quality. The outcome of this change in assessment method for inland waters is that a number of indicators which described the quality of the inland waters have been discarded and been replaced by three new indicators. Thus for three types of water, the quality of the inland waters has been described as the situation as per 2002. Because of this it is not possible to draw any conclusions about the general trend in the quality of the inland waters.

Sources

The large companies have already met virtually all targets for discharges. Incidentally, the figures relate to 2001 since more recent figures are not available. For discharges of the eutrophication elements phosphate and nitrogen the objective for 2000 has been reached. This is favourable because the figures for 2000 showed that the objective for nitrogen had not yet been met. For the remaining discharges, heavy metals, PAHs, (polycyclic aromatic hydrocarbons), EOCi (extractable organic chlorine), benzene and oil, the objectives for 2010 have already been met. The only exceptions to this are the heavy metals copper and zinc.

Efforts

Most municipalities either have a valid municipal sewerage plan (GRP) or are in the process of updating one in consultation with the water quality board. The GRP includes the municipality's proposals to improve water quality, for example to provide sedimentation storage facilities, to take care of the connection of premises up to the sewage main and the remediation of hazardous discharges to open waters. There are virtually no more hazardous discharges to open waters in the region and solid progress is being made in the connection of premises to the sewage main. So things are improving. We have not provided an indicator for the sedimentation storage facilities. An effective comparison is not possible since facilities of this sort are not relevant for every municipality. To what extent all the efforts will help to improve water quality remains to be seen over the coming years. After all, there are countless factors that affect water quality.

A number of municipalities, e.g. Barendrecht, Hellevoetsluis, Krimpen aan den IJssel, Ridderkerk, Rotterdam and Spijkenisse have an urban water plan. Some Rotterdam districts, including IJsselmonde and Hoogvliet, have also set up a district water plan. This is closely linked with an 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. In Spijkenisse, for example, an angling club and a local environmental organisation were closely involved in the planning process.

In the Netherlands a large number of organisations and volunteers at national, regional and municipal level are engaged in spotting and counting birds, reptiles, butterflies and plants among others. In this report we devote attention to just a small selection of species which are representative for the region or indicative of certain types of habitat. First we describe the quality characteristics of the wildlife habitats whereby we focus in some detail on the monitoring systems which were used in the making of this report. This is followed by an overview of the efforts which have been made to ensure that the wildlife continues to thrive.

Quality

In the Zoute Delta water birds are counted in the context of the Biological Monitoring Programme for national salt waters. The counting is conducted by the National Institute for Coastal and Marine Management (RIKZ) in close cooperation with other organisations and volunteers. The entire area comprises the Voordelta, the Grevelingenmeer, the Eastern Scheldt, the Veerse Meer and the Western Scheldt.

From the count data it emerges that in Rijnmond, the Voordelta and the Nieuwe Waterweg qualify as 'Wetlands of International Importance' due to the fact that they exceed what is termed the "1% norm" for redshanks and gadwalls. This norm refers to the fact that an area can qualify as a 'Wetland of International Importance' if more than 1% of the total Northwest-European population of a particular species occurs in that area in a season. In order to determine the population of the common tern, for example, in 1979 the RIKZ set up the Delta Coastal Summer Birds Programme. Since 1990 this programme has been part of the biological monitoring programme of national waterways implemented in the framework of the MWTL (Monitoring the National Water Situation). In this programme, the RIKZ looks at both the salt waters and inland waters such as the Haringvliet. The figures presented in this report relate to birds counted in areas which border or on lie within the Voordelta/Haringvliet.

For its data on butterflies, the Butterfly Foundation uses its National Butterfly Database. Individual sightings received from all over the Netherlands are documented here. The data is revised each year because an increasing number of observations are incorporated into the system. The first analysis, for 1999, was made based on 990 observations; in 2000 this figure had already risen to 2,448, in 2001 there were 2,761 and the present database contains 3,321.

Since 1984, the counting of common and rare summer birds has been monitored by the Summer Bird Monitoring Project (BMP) organised by SOVON in cooperation with the Central Statistical Office (CSO). Annually, in a large number of random (sample) survey areas a fixed selection of species is listed with the aid of extensive habitat mapping. For this report the variations in the numbers of blackbirds, plovers, willow warblers and reed warblers have been analysed.

Just as in the previous report, we have in this report once again compiled a wildlife index on the basis of the abovementioned counting data for all indicator species. The wildlife index shows that the quality of wildlife in the region has remained stable.

Efforts

The (provincial) ecological structure is still being cut up in 66 places. The problem is caused by infrastructure barriers chiefly in the form of roads, buildings and canals. The target is to ensure that in 2010 only seven of these obstacles remain. The connecting of natural areas is of great importance for the interchange of flora and fauna populations. Setting up these connections, however, is an uphill struggle due to technical difficulties and lack of funds. Since the 1993 inventory, only seven of the then 73 obstacles have been removed and it is clear that if things continue at the present rate the target will definitely not be met.

Based on the living environment objective, in the context of ROM-Rijnmond it has been agreed that in the Rotterdam region 1,750 hectares of wildlife and recreation areas must be realised. 750 of the total number of hectares reserved for wildlife and recreation were linked to the construction of the second Maasvlakte. One of the conclusions reached by the Rotterdam regional council from an evaluation of its green policy is that due to a lack of adequate funding progress here has ground to a standstill. Further details of this can be found in MC_5037.

In this chapter we describe the waste collection and waste production in the region. Where the waste originates, households or companies, forms the basis for this. In the case of household waste we first take a close look at the national policy amendments and their consequences for the local authorities. The two trend analyses which are shown at the end of this chapter deal with the collection of household waste in Rotterdam and in the other municipalities in Rijnmond.

Households

On 4 December 2002 the parties in the Consultative Committee on Waste (AOO) laid down the new municipal targets for waste separation. These targets are broken down according to the degree of urbanization and take account of what is feasible for the various types of municipality. The new guidelines for the various components are included in the table below. Although the 'disaggregation' of amounts to be collected has changed, the basic principle of the national policy, as expressed in the National Waste Management Plan 2002-2012 which came into effect on 3 March 2003, is still to achieve the original targets in terms of percentage. The most important of these targets is the percentage of waste that is collected separately. This emphasises the importance of sorting analyses conducted by municipalities.

On the basis of the results of sorting analyses, an insight can be gained into the degree of success in collecting the various components and their corresponding optimisation options.

In order to achieve a comparison, this report looks at the extent to which the municipalities meet these differentiated targets. In the trend analyses we focus in more detail on the development of separated waste collection, and a two-way split is made between the city of Rotterdam and the remaining municipalities. We will therefore confine ourselves here to the observation that the results for 2002 demonstrate clear differences between the various municipalities and that although in most municipalities the collection of glass and vegetable, fruit and garden waste is going reasonably well, the collection of paper and cardboard, old clothing and textiles and small-scale chemical waste is lagging.

Companies

In 1998 the Western Agriculture and Market Gardening Organisation (WLTO) in Rijnmond among other parts of the Netherlands held a collection campaign for free-lying asbestos ("loose asbestos") from farmers. Over the whole region during this campaign a total of 204 tonnes of asbestos was collected from 324 companies.

Guidelines for source division per component						
Kilo/resident/year						(%)
Urban classification*	Vegetable, fruit and garden waste	Paper	Glass	Old clothing and textiles	Small-scale chemical waste	Separated
Intensely urbanized	35	60	20	5	2	43
Highly urbanized	85	75	23	5	2	53
Moderately urbanized	105	85	23	5	2	56
Slightly urbanized	125	90	23	5	2	60
Non-urbanized	140	95	23	5	2	60

- * Intensely urbanized Rotterdam, Schiedam and Vlaardingen
- Highly urbanized Capelle aan den IJssel, Maassluis, Ridderkerk and Spijkenisse
- Moderately urbanized Barendrecht, Hellevoetsluis, Krimpen aan den IJssel and Rozenburg
- Slightly urbanized Albrandswaard, Bergschenhoek, Berkel en Rodenrijs, Bleiswijk and Brielle
- Non-urbanized Bernisse and Westvoorne

In 2001, as a follow-up to this, the WLTO launched a pilot scheme in West Friesland to also remove building asbestos (asbestos that is attached to other materials). The campaign turned out to be so successful that it was decided to expand it to South Holland. In mid-September 2002 the organisation which the WLTO had set up especially for this purpose, arranged a meeting for the municipalities involved in South Holland. This was followed by information events to put farmers and growers in the picture about the campaign. It is expected that the removal of building asbestos will not start until mid-2003. This is because the permitting process, in contrast to that for the previous loose asbestos campaign, is a very time-consuming procedure.

In this chapter we deal with the efforts made in the field of (green) energy by households, companies and the various provincial and local authorities. The targets that the regional energy company, ENECO Energie, has set for itself can be found in section dealing with companies. Before we focus on these target groups we will take a detailed look at the liberalisation of the energy market, its possible impact on monitoring and therefore also on the policy development in this area.

Liberalisation of the energy market

The continuing liberalisation of the energy market which is taking place is causing dramatic changes. At an early stage this liberalisation affected the country's 650 largest energy consumers. On 1 July 2001 all the green energy consumers were incorporated into this. In addition to the traditional energy companies, various commercial energy companies started to offer green energy via the internet and via new distribution channels such as the AH supermarket chain, Shell and Postbank. Since 1 January 2002 the tens of thousands of medium-sized businesses and organisations, the "mid-segment", can choose their own energy provider. At a national level, this means 64,000 users on the electricity market and 2,700 users on the gas market. The target date from which everyone, including private individuals and small businesses, can buy gas and electricity when and from whom they choose, is 1 January 2004. This target date is currently under discussion, however.

As far as the representativeness of the energy data is concerned, this liberalising trend can certainly cause serious problems. The fact is, it looks as if the energy companies which are at present still operating more or less regionally, are going to go increasingly national. This will cause some 'contamination' of the data. The data in this report at present comes 'only' from ENECO Energie and the ONS (mainly operating in Schiedam), but at the same time other energy providers in the region are playing an increasing role. This problem is not only relevant in Rijnmond but also on a national scale and, although to a lesser degree, in the public transport sector. It is therefore essential for national policy-makers to ensure that in the coming years the relevant data is made available. They will need to make effective agreements with energy distribution companies, the net manager and other stakeholders involved. Municipalities (and housing associations) can of course also lay down agreements in their contracts regarding the provision of data.

Households

In 2002, just as in 2001, the amount of green energy used by households has shown a substantial increase. Approximately 20% of the total electricity need is filled by green energy. In fact, this amount is probably even higher because data is only available from the ONS and ENECO Energie.

Companies

ENECO Energie's various activities to reduce carbon dioxide (CO₂) emissions have been weighed up and it emerges that total emissions of nearly 2,500 tonnes of CO₂ have been prevented. There is no data available on the use of green energy by companies.

Local government authorities

At the beginning of 2003, the Rijnmond area launched a regional Renewable Energy (DE) Scan. The seven municipalities involved want to use this scan to map the various renewable energy options in the region (wind energy, bio-energy, solar energy, energy storage, heat pumps, earth heat and energy from asphalt). Participants include Berkel en Rodenrijs, Hellevoetsluis, Maasluis, Ridderkerk, Rotterdam, Spijkenisse and Vlaardingen. The province is project coordinator. Furthermore, the NOVEM has provided a subsidy for this and will act, together with the Rotterdam regional council and DCMR, as adviser. The municipalities will first make an inventory of the possible options and will then look at the regional possibilities. The project will run until June 2003.

Municipalities are not only stimulating others to use or produce renewable energy but are also changing over (in part) to the use of green energy themselves in order to thus make their own contribution to a sustainable society. Five of the eighteen municipalities are now using green energy. Furthermore, on 15 April 2003 all the municipalities on the islands of Voorne-Putten and Rozenburg, and the municipality of Maasluis signed a contract with ENECO Energie for the provision of green energy for one year for all municipal purposes including the town hall, other municipal buildings, street lighting and sewage pumping-stations. Eleven of the eighteen municipalities are thus using green energy.

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 result in a reduction in the pressure put on the environment and which are not regulated through legislation and regulation, but are the result of 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. In the trend analysis at the end of this chapter we focus on the results which a declaration of intent by the metal and electro-technical industry has produced.

Households

The best way that local government can achieve desired environmental behaviour is to increase the involvement of citizens and private initiatives. The number of EcoTeams is an indication of this involvement. These are supported by the Global Action Plan (GAP). Since the current contract with the GAP has been terminated, the participation of new households is no longer supported. In the meantime, the emphasis is on neighbourhood campaigns in which residents get together to actively contribute to and develop activities for achieving a more environmentally sound neighbourhood. In 2002 the first major campaign of this type was started in the Zevencamp neighbourhood of the Prins Alexander district.

Companies

At the end of 2001, in the municipalities of Schiedam, Vlaardingen and Ridderkerk, the 'Monitoring of environmental performance by companies' project was launched. The project involves the development of a structural approach to the expanded scope of the Environmental Management Act as it relates to companies. The central focus here is to stimulate companies to pay attention to prevention and environmental care; this occurs by offering them an instrument, the MKB Environmental Barometer developed by Stimular, and to provide them with initial prevention advice free of charge. In their Environmental Barometer companies record data about their energy and water consumption, waste production, emissions and, if relevant, traffic and transport activities. This simple method gives them an insight into their environmental performance and they can ascertain the impact of proposed measures.

80 companies in three municipalities have been selected based on a number of criteria.

It has been agreed with the participating municipalities that the preference is for a stimulating approach towards the companies. Companies which ultimately do not participate will end up in a regulatory scenario. Of the 80 companies, around 70 have indicated that they are willing to use the Environmental Barometer. 55 of these companies have now sent a complete environmental record to DCMR. There are five companies where the municipality will launch a regulatory scenario in order to compel the use of an environmental record. This data will provide municipalities with greater insight into pollution caused by companies' activities so that they can pursue and monitor environmental policy more specifically. Over the coming period a more detailed discussion regarding possible indicators will be explored with the participating municipalities.

In 2003 the municipalities will pay special attention to the prevention advice and possibilities for the companies to reduce the pressure they put on the environment. It will also be clear by then to what extent companies have set to work to take voluntary steps to reduce their environmental impact and ensure their environmental record is up to date. In 2003 a similar project was launched in the municipality of Maassluis.

Companies can also introduce an extensive corporate environmental care system (BIM). Using such a system, environmental care becomes part of the normal company process. This report incorporates two indicators regarding the degree to which the large companies have their own BIM. Generally speaking, this method is not practicable for smaller companies and this also emerges from the trend analysis on the implementation of corporate environmental plans (BMPs) in the metal and electro-technical industry.

Companies can work on sustainability not only within their own company processes but also on the scale of industrial sites. In Rijnmond a number of municipalities are already working on making their industrial sites more sustainable. Good examples of this are the Nieuw Mathenesse site and the Bedrijvenpark Prisma (previously Hoefweg Noord) site. The Nieuw Mathenesse site located in the municipalities of Schiedam and Rotterdam is an existing dilapidated site while the Prisma site in Bleiswijk is an area which has yet to be developed. The commercial sector, the Chamber of Commerce, municipalities, province and DCMR cooperated closely in the development and implementation of the plans for these industrial sites.

Local government authorities

Sustainable building is no longer quite the hot item it was a few years ago. This is apparent, among other things, from the fact that records are no longer kept of the degree of compliance with the regional covenant. This does not mean, however, that municipalities are not developing any more new activities in this area. For example, just recently four 'eco-homes' were built in the Noordse Molenweg in Hellevoetsluis. Ecological building involves minimising pressure on the environment in the construction, use and demolition phases and goes one step further than 'just' sustainable development.

Ecological building involves, for example, ensuring the homes fit into their environment, supporting ecological processes in and around the house, using recyclable and environmentally friendly materials, south-facing orientation with appropriate architecture, good insulation and active use of solar energy. This project is not a one-off but represents the start of the execution of other sustainable building projects.

Riederhoek is a project comprising 40 homes which have been specially built for families with asthma sufferers. The project is located in the Carnisseland district in Barendrecht where 122 homes have already been completed. Extra care has been taken to minimise damp conditions and dust in which allergens thrive. Examples of allergens are the house dust mite (and its droppings), mildew and skin flakes. In the construction of the low-allergen homes, a healthy indoor environment is the primary goal. Furthermore, additional sustainable building measures are applied. This results in combined quality, such as good insulation together with draught-proofing, water saving measures and the use of products such as whitewash and products which do not contain organic solvents. In order to gain an insight into the effects of the homes on the health of the asthma sufferers the project is being monitored by the Rotterdam Municipal and Regional Health Services.

Since 1998, it has been compulsory for every municipality to have its own environmental management system (GIM) but in a large number of cases this has not yet been achieved. For the last three years Stimular has been coordinating the regional GIM network which serves to give the regional municipalities an impetus to implement their GIM. In 2002 Stimular received a contribution from the participants and the Rijnmond area to function as a driving force.

In 2001, Rozenburg drew up an Environmental Management Handbook and Stimular is now assisting the municipality in implementing its environmental care system. In 2002, the city of Rotterdam, in cooperation with Stimular, launched a regeneration campaign to breathe new life into the environmental care systems in the municipal services.

Drawing up environmental policy plans is, like monitoring, part of the cycle in which environmental policy is initiated, laid down and implemented. Nearly every municipality now has a Municipal Environmental Policy Plan or is in the process of developing one. Although there is a good deal of correspondence between the basic components of the various plans, there are some significant differences in emphasis, objectives and layout between the various municipalities. For example, when the municipality of Hellevoetsluis set up its environmental policy plan in 2002, it not only compiled it in an interactive way together with residents, nature conservancy and environmental organisations among others, but also chose a neighbourhood-specific approach. This is in stark contrast to most other municipalities which tend to choose a thematic approach.

The existence of environmental policy plans means that municipalities will want the environmental monitoring reports to correspond to these. A consequence of this is that the present uniformity is increasingly making way for tailor-made solutions. This not only completes the environmental policy cycle but the relationship between policy plan and environmental monitoring report is made clearer. There is now an even greater need to make such reports as a consequence of the dual political system in the municipalities. Due to this, environmental monitoring has now become an important control instrument for the municipalities and Rotterdam districts administration. This is why virtually all the municipalities in Rijnmond now draw up an environmental monitoring report as a regular part of their activities. As a rule, these reports are published every other year. The drawing up of environmental monitoring reports of this sort are the result of close cooperation between the municipalities and Rotterdam districts, DCMR and a large number of other organisations. The first example of a 'tailor-made report' in which the layout of the monitoring report was customized to meet the requirements of its environmental policy plan is that of the municipality of Spijkenisse. This report was published in 2002.

In 1997, the Ministry of Transport, Public Works and Water Management signed the Covenant on sustainable safety with the Association for Dutch Municipalities (VNG), the Interprovincial Consultation Board (IPO) and the Union of Water Boards. Concrete measures include the setting up of 30 and 60 km/hr zones. The ministry has made a subsidy available for the implementation. Partly as a result of these measures, the number of road traffic accidents has decreased. The environment also benefits from these measures through the reduction in road traffic noise. In areas with a 30 km/hr zone or in a car-restricted residential area, the assumption is that the noise level immediately outside the house will not be too high. Information about noise nuisance can be found in chapter 4.

Licensing

Before a company is allowed to commence activities which could put pressure on the environment, it is compulsory for it to apply for a licence under the Environmental Management Act (Wm) or to give notification on the basis of an order in council (AMvB). An AMvB lays down the environmental regulations for a whole sector. The government is switching over increasingly to this method of regulation which implies a corresponding increase in a company's own responsibility. This policy, which was initiated in 1995, is termed 'market orientation, deregulation and quality of legislation' (MDW).

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 boards are responsible for monitoring compliance with the Wvo.

In this chapter we present two indicators which provide an insight into the number of licences issued and the number of AMvB notifications accepted under the Wm. In addition, we focus on the enforcement campaigns which have been carried out at companies under the Wm and the Wvo. For the major industrial companies, which fall under provincial authority, a breakdown has been made according to sector. We have also included an indicator for these sectors which reflects the degree to which companies comply with what is termed an adequate level of measures for emission-restricting facilities.

Enforcement

In order to better streamline and coordinate the implementation of enforcement activities, the Enforcement Service Unit (SEPH) has been in operation since 1999. All the provincial and local authorities in Rijnmond that are involved in environmental enforcement participate in this.

They draw up an 'Enforcement Implementation Programme' on an annual basis and nominate a number of projects to be achieved during that year. At the same time, indicators are fixed to monitor whether a project has achieved its aim. The projects concern concrete problems, subjects and objectives. In 2002, in cooperation with the province, a computer program was developed to plot the progress of the projects.

In the framework of the MSR 2002 report, a special theme report for that year, 'Manoeuvring towards tailor-made enforcement', was set up.

In the present report, enforcement becomes part of the policy life-cycle in which environmental policy is developed on the basis of the (desired) quality of the living environment and in which environmental policy must subsequently be achieved using financial and legislative instruments.

From the 'Manoeuvring towards tailor-made enforcement' report it is apparent that enforcement requires a systematic and programmed approach. Choices must be made and priorities have to be set. In this approach the process of enforcement is broken down into four steps: identification, prioritization, implementation and reporting. Furthermore, in Rijnmond we want the enforcement bodies to work towards improving the monitoring process. In order to make this possible, an indicator for compliance behaviour (the compliance index) is currently being developed. This indicator for compliance behaviour will draw a clear link between compliance, environmental risks and environmental consequences. Subsequently, a score card will be developed per sector so that the violations can be mapped in a quantitative way. By comparing the total scores per sector priorities can be set in an objective way.

The water quality boards within the region have been working for a number of years on a compliance index in order to measure the results of checks carried out under the Wvo. In 2002 a pilot project was launched to examine whether this method can also be used for enforcement of the Wm. It is expected that implementation will be able to take place in 2003 within the framework of making enforcement more professionalized. In fact the results from the 'Manoeuvring towards tailor-made enforcement' report are closely linked to the keynote underlying the national scenario which calls for a more professionalized approach. This scenario also makes the stipulation that enforcement should take place as a process with predetermined targets.

At the same time, the idea is to monitor the effect and results of enforcement and to use this to evaluate policy. This evaluation should result in solid and professional policy choices for enforcement.

In addition to preventive (planned) inspections, repressive inspections take place in response to incidents.

A complaint regarding environmental nuisance received by the DCMR incident room always leads to an inspection visit (complaints are also dealt with in chapters 2, 3 and 4). Since one incident can lead to more than one follow-up inspection, the graphs just show the number of incidents. If any violations are found an official warning may follow. If the company in question does not come up with an satisfactory response, sanctions may be imposed in the form of an official report or a pecuniary penalty.

The police also carry out enforcement activities in the event of environmental violations. For the more minor offences they make use of the mini official report (a fine) for which an indicator is also included.

The public authorities thus not only compel the minimising of the environmental pressure exerted by company processes by means of enforcement but also seeks to emphasise each company's own responsibility in this matter. We focus on this subject in chapter 10 (Environmental Management).

External safety

With regard to the risks which are linked to the storage of hazardous substances on company premises, DCMR carries out the implementation under the Hazard of Major Accidents Decree 1999 (BRZO 1999) that came into effect on 19 July 1999. This decree is the Dutch implementation of the European Seveso II directive which is intended to prevent serious accidents involving hazardous substances as far as possible and to limit their consequences. The BRZO 1999 lays down which requirements a company must meet if threshold values for certain substances are exceeded. Companies which exceed the threshold defined as 'low' must develop a policy to prevent accidents and specify this in a document entitled 'Serious Accidents Prevention Policy' (PBZO document). In this context these are also referred to as PBZO companies. They should also have an operational safety management system in which relevant safety aspects are guaranteed by means of procedures. If a company exceeds the 'high' threshold value it also has to draw up a safety report (VR) (the so-called VR companies).

Since in 2002 all companies which fall under the BRZO should either have a VR or a PBZO document, this has become an enforcement priority in terms of time and capacity. These involve intensive inspections of approximately thirty VR and eight PBZO companies. These inspections are carried out jointly by DCMR, the Directorate General for Public Works and Water Management, the fire services and the labour inspectorate and take between five to fifteen days. This meant that less time was available for conventional preventive inspection activities. These 'audits' (inspections of VR and PBZO compliance) are always accompanied by an inspection of the safety regulations under the Wm and in this sense can be considered as a form of preventive inspection. For the purposes of the indicators, however, these are not included in the figures.

In the trend analysis at the end of this chapter we take a closer look at the developments in compliance behaviour of companies which are involved in the storage and transshipment of hazardous substances.

'The environment in the Rotterdam region 2003'

Overview indicators per page

Indicator	page	chapter	type	name
MG_8016	24A	2	line	Inhabitants in Rijnmond
MD_7004	24B	2	line	Handling of environmental complaints by Municipal Health Services
MD_7076	24C	2	bar	Environmental complaints police
MB_3085	24D	2	line	Complaints about odour, dust and noise
MI_9005	25A	2	line	Index environmental pressure road traffic
MB_3028	25B	2	line	Number of car kilometres driven
MB_4024	25C	2	map	Modal split
MB_4021	25D	2	bar	Travellers by RET
MB_4020	26A	2	bar	Travellers by rail (stations)
MB_4022	26B	2	bar	Travellers by train (motivation)
MI_9010	26C	2	line	Refineries (environment and economy)
MI_9014	26D	2	line	Road traffic (environment and economy)
MI_9011	27A	2	line	Chemical industry (environment and economy)
MI_9012	27B	2	line	Power plants (environment and economy)
MI_9013	27C	2	line	Storage and transhipment (environment and economy)
MI_9004	27D	2	line	Index environmental pressure major industries
	28A	2	bar	Environmental complaints police (total)
	28B	2	bar	Environmental complaints police (excluding hotel and catering)
MI_9003	30A	2	line	Index air quality
MB_3075	30B	2	line	SO ₂ in air, 99.2-percentile daily averages
MB_3072B	30C	2	line	NO ₂ in air, 99.8-percentile hourly averages
MB_3079	30D	2	line	Fine suspended particles
MB_3067	31A	3	line	Benzene
MB_3049	31B	3	line	Benzo(a)Pyrene
MB_3073	31C	3	line	Ozone
MB_3001B	31D	3	line	Odour, complaints
MB_3087	32A	3	map	Odour, complaints per municipality
MB_3088	32B	3	map	Dust, complaints per municipality
MB_3083	32C	3	bar	Signalling codes
MB_3082	32D	3	bar	Smog
MB_3090	33A	3	pie	Comparison of emissions of target groups
MB_3006	33B	3	line	Emission CO ₂
MB_3009	33C	3	line	Emission hydrocarbons
MB_4002	34A	3	line	Emission carcinogenic compounds
MB_3025	34B	3	line	Emission particles
MB_4001	34C	3	line	Emission acidifying compounds
MB_3092	34D	3	line	Emission heavy metals waste incinerators

MB_3094	35A	3	line	Emission dioxins waste incinerators
MB_3086	35B	3	line	Emission factors road traffic
MB_3046	35C	3	line	Emissions road traffic (CO ₂ , NO _x , hydrocarbons, particles)
MB_3027	35D	3	line	CO ₂ -emission consumers
MCB_5054	36A	3	line	CO ₂ -emission agriculture and horticulture
MCB_5051	36B	3	line	Acidic deposition
	37A	3	line	SO ₂ in Rijnmond
	38A	3	line	NO ₂ in Rijnmond
MB_3003	40A	4	line	Complaints about noise
MB_3089	40B	4	map	Noise, complaints per municipality
MB_3035	40C	4	map	Acoustic load by industry
MB_3004	40D	4	line	Noise abatement measures to be implemented
MB_4019	41A	4	line	Allowed higher noise levels houses (sources)
MB_4023	41B	4	line	Allowed higher noise levels houses (noise levels)
	42A	4	line	Complaints about noise
MCB_5061	44A	5	bar	Cleanup of underground tanks (companies)
MCB_5048	44B	5	bar	Soil cleanup of industrial sites
MCB_5058	44C	5	bar	Soil protection act
MCB_5049	44D	5	bar	Soil cleanup former gas work sites
MCB_5050	45A	5	bar	Soil cleanup former petrol stations
MCB_5060	45B	5	pie	Use of soil cleanup possibilities
MCB_5041	45C	5	pie	Destination of contaminated soil
MG_8004	45D	5	map	Availability of soil quality map
MI_9002	49A	6	line	Index quality national waters
MI_9007	49B	6	line	Eutrophication of surface waters
MI_9008	49C	6	line	Heavy metals in surface waters
MA_1039	49D	6	line	Heavy metals in sludge, national waters
MA_1040	50A	6	line	Organic micro pollutants in sludge, national waters
MA_2022	50B	6	bar	Quality inland waters (canals)
MA_2023	50C	6	bar	Quality inland waters (ditches)
MA_2024	50D	6	bar	Quality inland waters (lakes)
MA_1028	51A	6	line	Quality in relation to function inland waters
MA_1025	51B	6	bar	Intake stops Meuse water (drinking water production)
MA_1030	51C	6	line	Discharges heavy metals by major industries
MA_1031	51D	6	line	Discharges PAH and pesticides
MA_1032	52A	6	line	Discharges benzene and chlorides
MA_1007	52B	6	line	Discharges oil
MA_1004	52C	6	line	Discharges phosphate and nitrogen
MCB_5053	52D	6	bar	Discharge of eutrophication substances by agriculture and horticulture

MA_2020	53A	6	line	Use of groundwater (total)
MB_1046	53B	6	line	Use of groundwater by major industries
MG_8014	53C	6	map	Buildings without sewerage per municipality
MA_2021	53D	6	map	Buildings without water meter per municipality
MA_2018	54A	6	map	Hazardous points of overflow of water per municipality
MA_2016	54B	6	bar	Quality underwater soil/sludge harbours Rotterdam
MC_5014	54C	6	line	Quality and quantity of sludge
MI_9015	56A	7	line	Index nature quality
MCB_5055	56B	7	line	Number of butterflies
MA_1049	56C	7	bar	Number of seals
MA_1050	56D	7	bar	Number of common terns
MA_1052	57A	7	bar	Number of redshanks
MA_1051	57B	7	bar	Number of water birds
MB_3030	57C	7	line	Number of summer birds
MB_3016	57D	7	line	Ecological bottlenecks
MC_5037	58A	7	bar	Nature reserves
MB_3031	58B	7	bar	Urban green in Rotterdam
MC_5010	60A	8	bar	Domestic waste
MC_5004	60B	8	line	Separated collected domestic waste
MCA_6006	60C	8	map	Separate waste collection per municipality (paper)
MCA_6007	60D	8	map	Separate waste collection per municipality (organic)
MCA_6008	61A	8	map	Separate waste collection per municipality (glass)
MCA_6009	61B	8	map	Separate waste collection per municipality (textile)
MCA_6010	61C	8	map	Separate waste collection per municipality (small chemicals)
MCA_6011	61D	8	map	Separate waste collection per municipality (separated)
MC_5027	62A	8	line	Ships' waste inland shipping (deliveries)
MC_5028	62B	8	line	Ships' waste sea shipping (deliveries)
MC_5042	62C	8	line	Ships' waste inland shipping (quantities)
MC_5043	62D	8	line	Ships' waste sea shipping (quantities)
	64A	8	line	Separated collected domestic waste
MD_7081A	66A	9	line	Electricity use consumers
MD_7081B	66B	9	line	Natural gas use consumers
MD_7092	66C	9	bar	Use of green power (households)
MD_7082	66D	9	line	CO ₂ -reduction through energy saving
MD_7083	67A	9	bar	CO ₂ -reduction through sustainable energy
MG_8012	67B	9	map	Use of green power per municipality
MD_7053	71A	10	line	Households in EcoTeams
MD_7095	71B	10	bar	Environmental care projects (small industries)
MD_7031	71C	10	bar	Implementation internal environmental care in industries
MD_7100	71D	10	bar	Corporate environmental plan (CEP) in industries

MG_8015	72A	10	map	Municipal Environmental Policy Plan per municipality
MD_7079	72B	10	map	Implementation internal environmental care per municipality
MG_8013	72C	10	bar	Education of nature and environment in Rotterdam
MB_4017	72D	10	map	Car restriction zones per municipality
MB_4018	73A	10	bar	60 km/hr zones
MD_7102	77A	11	line	Licenses municipal industries
MD_7103	77B	11	line	Licenses provincial industries
MD_7080	77C	11	bar	Effective level of measures (major industries)
MD_7024	77D	11	line	Enforcement municipal industries
MD_7072	78A	11	line	Enforcement refineries
MD_7075	78B	11	line	Enforcement process industry
MD_7073	78C	11	line	Enforcement storage and transshipment
MD_7091	78D	11	line	Enforcement power plants
MD_7090	79A	11	line	Enforcement waste processing plants
MD_7086	79B	11	line	Enforcement cattle farms
MD_7087	79C	11	line	Enforcement cultivation under glass
MD_7094	79D	11	bar	Enforcement by police
	80A	11	bar	Hazardous substances (storage)
	81A	12	line	SO ₂
	82A	12	line	Lead
	82B	12	line	Benzene
	82C	12	line	NO ₂
	83A	12	line	Fine suspended particles
	84A	12	line	Death statistics and fine suspended particles
	86A	12	line	Premature deaths caused by cardiovascular diseases due to SO ₂
	86B	12	line	Premature deaths caused by cardiovascular diseases due to NO ₂
INWON_03	89	BY1	map	Municipality borders and number of inhabitants