

# Copenhagen Airports A/S

Environmental Report 2001



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# Management statement

The Environmental Policy of Copenhagen Airports A/S (CPH) stipulates the general framework under which environmental activities in the company is carried out. The policy has been changed in 2001 as part of an ongoing process.

The Environmental Policy establishes the fact that, as an environmentally responsible company, Copenhagen Airports A/S operates and develops in a way that improves its environmental results. In order to meet policy goals, the company continually monitors the airport's environmental impact.

The international air traffic crisis following the terrorist attack in New York on September 11, 2001, has had an impact on traffic at Copenhagen Airport and subsequently on those environmental parameters that are determined by traffic developments.

One of the most significant environmental impacts of air traffic is noise. Calculations show that noise

impact in the residential areas around Copenhagen Airport has declined compared with 2000. In addition to the development in traffic, this decline is due to the out-phasing by airlines of older and noisier types of aircraft.

In order to evaluate air quality in Copenhagen Airport, the company has established permanent air quality monitoring. This was initiated in the middle of 2000. The results of the first year show that air pollution does not show the same variation as air traffic. Fuel combustion, accordingly, does not contribute significantly to air pollution in the area around the airport.

A number of environmental impacts are related to meteorological conditions. One example of this is de-icing of aircraft and runways. De-icing can affect the surface water that is discharged into Øresund. A focused use of new, environmentally friendly de-icing products and methods over the past few years has significantly reduced the

environmental impact of wastewater discharge, despite harsh weather in December 2001.

Copenhagen Airports A/S has published an environmental report for the past four years. In 2001, the structure of the report has been changed, primarily in order to achieve a clearer understanding of the complex interaction between the companies that contribute to the airport's overall environmental impact. The report has also been extended with data on air quality.

The Environmental Report 2001 contains an auditors' report that is included at the end of the report.

Copenhagen, March 7, 2002



Peter Rasmussen

Deputy Chief Executive Officer

# Environmental policy

As an environmentally responsible company, Copenhagen Airports A/S is operated and developed with a view to improving environmental results.

Improvement is provided through

- environmental considerations in all decisions
- preventive action and the use of cleaner technology
- increased environmental awareness by employees and partners
- an open dialogue on the environmental state of the airport

## Environmental organisation

Environmental activities form an integral part of the activities of Copenhagen Airports A/S. Each individual department is responsible for observing current legislation and conditions in environmental approvals. The employees are involved in environmental activities in order to ensure that environmental considerations are included in the work-planning stage.

Environmental Affairs develops the corporate environmental policy and offers consultation to departments. In addition, Environmental Affairs handles all contacts with environmental authorities and co-ordinates the airport's internal control measures.

# Key figures for Copenhagen Airports A/S

Copenhagen Airports A/S is responsible for the operation and development of the airports at Copenhagen and Roskilde. In addition to the Danish airports, Copenhagen Airports A/S owns shares in nine airports in Mexico, Newcastle International Airport in the United Kingdom, and Rygge in Norway.

Copenhagen Airports A/S posted a pre-tax profit of DKK 490.3 million in 2001. This was a decline of DKK 99.8, representing a 16.9% fall, compared with the 2000 figure of DKK 590.1 million.

Until the terrorist attacks on September 11, the year 2001 saw continued growth in international traffic and a drop in domestic traffic. After September 11, there has been a general decline in

traffic so that altogether, the total number of passengers at Copenhagen Airport rose 0.1%, after adjustment for the catamaran traffic to Malmö that was discontinued in 2000. The total number of passengers was 18.1 million in 2001.

The number of takeoffs and landings at Copenhagen Airport fell by 4.9% to 288,739 operations compared with 303,713 in 2000. The number of operations at Roskilde Airport was 98,039 in 2001 compared with 97,165 in 2000. This is an increase of 0.9%. The airport in Roskilde is reserved for small aircraft and training flight traffic.

In 2001, the number of cargo operations increased by 0.9%. The takeoff weight for cargo operations increased by 0.4% compared with 2000.

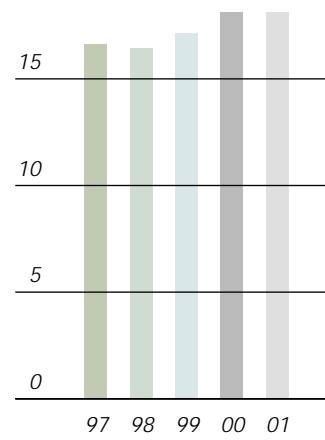
Copenhagen Airports A/S had an average of 1,388 employees in 2001, or 11 less than in 2000, representing a 0.8% decline.

The company's capital investment is carried out on the basis of a regularly adjusted ten-year rolling investment plan. Total investment during the year amounted to DKK 448.9 million compared with DKK 785.6 million in 2000. The lower investment level was attributable to the ongoing adjustment of the investment plan, including the completion and commissioning of Hilton Copenhagen Airport in the beginning of 2001.

Major construction projects in Copenhagen Airport in 2001 included the establishment of a new aircraft stand in the western part of the

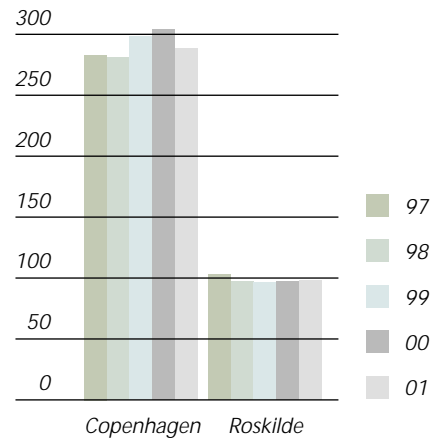
### Passengers

(mio.)



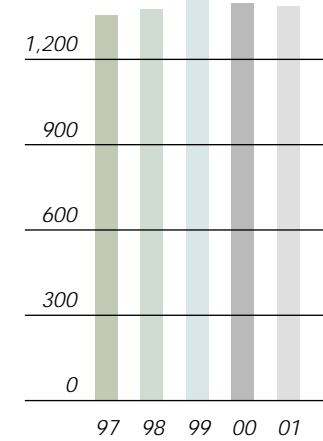
### Aircraft operations

(1,000)



### Employees

(No.)



airport at the Vilhelm Lauritzen terminal in Maglebylille. The stand is to be used for VIP reception. CPH has established a noise screen in the area consisting of three hangars and connecting walls.

CPH has established a parking structure at the Hilton Copenhagen Airport and a path connecting the hotel and Terminal 3.

Major projects also include an extension of LSG Sky Chefs' flight kitchen in the eastern area of the airport.

# The environmental impact of the airport

## Aircraft activities

Aircraft arriving at the airport emit noise and affect air quality. Once an aircraft is parked at a stand, it needs to be emptied of passengers, luggage and cargo and then be cleaned. The airlines are responsible for these activities, including the disposal of food and toilet waste. In the period during which the aircraft waits for the next departure, a whole range of activities take place. Several facilities, including maintenance and engine testing facilities, take care of these activities. Prior to departure, passengers board, luggage is loaded, and the aircraft is fuelled and possibly de-iced with de-icing agents.

Aircraft activities may involve noise nuisance and impact on air quality, soil and water.

## Activities on runways, aprons and other areas

Maintenance of the three runways, aprons and other airport areas requires a series of activities,

which impact the environment. The runway system must be maintained and cleared of ice and snow in the winter. Grass-covered areas must be nursed and pavements must be cleaned.

The airport also has numerous technical plants that may affect the environment. These plants include tanks for aircraft fuel, maintenance facilities, energy supply for runway lights and location for fire drills.

The activities can impact on air quality, soil and rainwater that is discharged into Øresund.

## Terminal activities

The servicing of the airport's passengers involves the consumption of energy and water for heating, cleaning and other activities in the three terminals. The terminal activities also produce waste that needs to be removed.

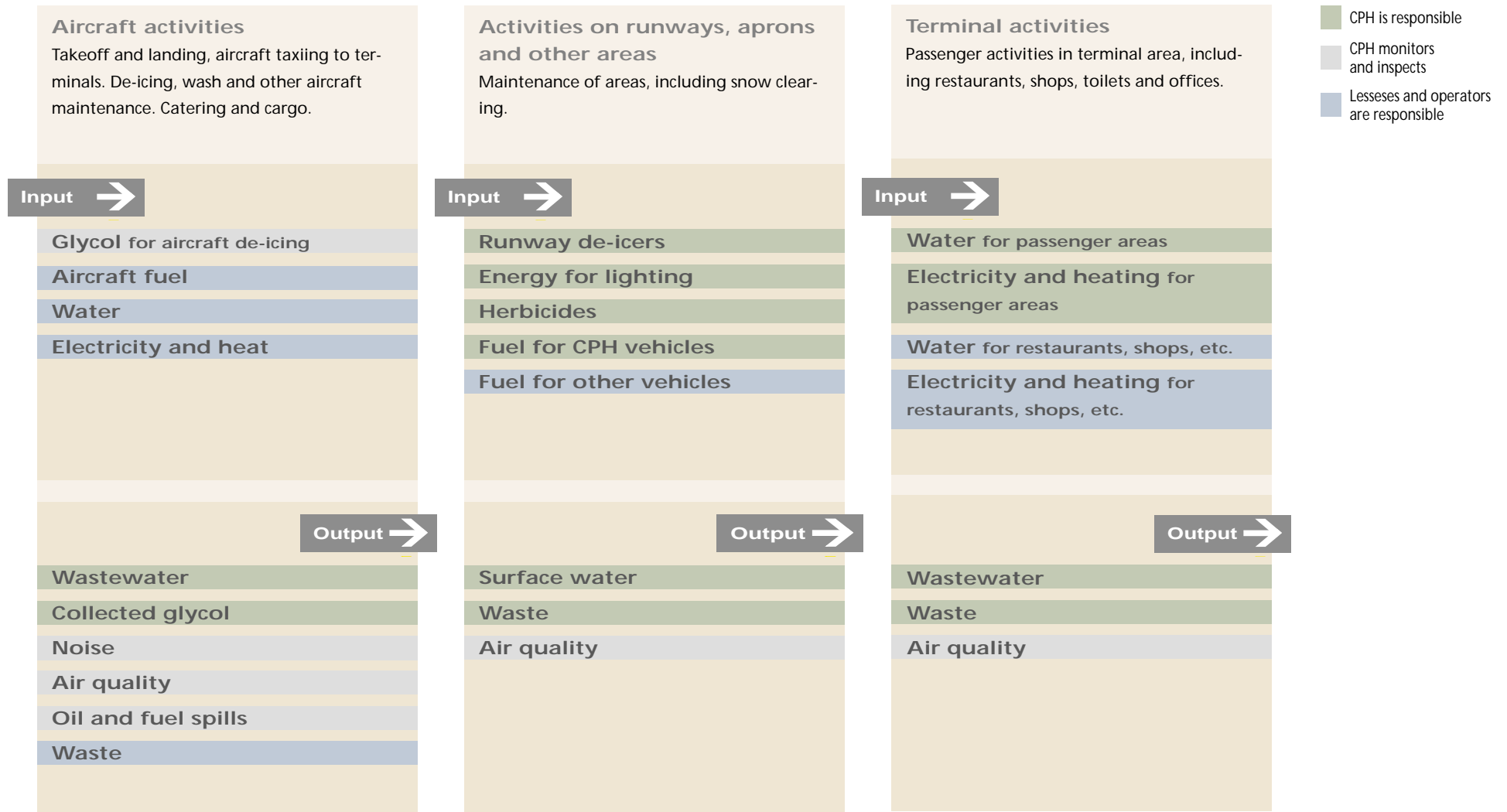
## Scope of Environmental Report 2001

The Copenhagen Airports A/S Environmental Report describes the environmental impact of airport operations at Copenhagen and Roskilde. The environmental impact of Roskilde Airport is described on page 20.

The figure on the next page illustrates the interaction between CPH and the other companies represented at the airport. The environmental report describes the development of the environmental impact for which CPH is responsible and the impact that is monitored and controlled by CPH.

On the following pages you will find the development of the environmental impact, which primarily stems from aircraft activities, activities on runways, aprons and other areas, and terminal activities respectively.

## Scope of Environmental Report 2001



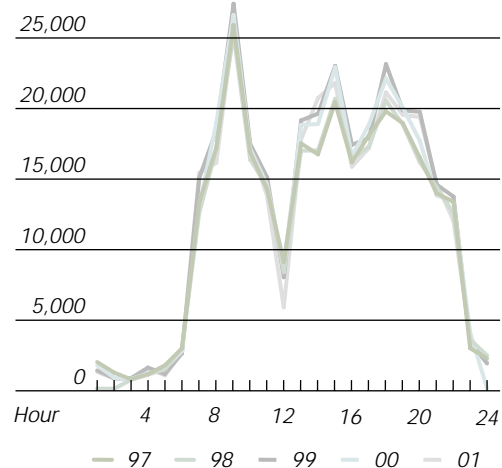
# Aircraft activities

## Noise

Noise is a primary factor in the total environmental impact of air traffic. Noise impact mainly occurs on takeoff and landing, but noise from aircraft on the ground also impacts on residential areas around Copenhagen Airport. Several measures have been introduced at Copenhagen Airport aimed at limiting noise in residential areas.

## Aircraft operations

(No. over 24 hrs.)



Aircraft taking off must follow certain routes to limit noise nuisance. CPH's noise monitoring system logs takeoffs and the Danish Civil Aviation Administration assesses whether there is any infringement on aviation legislation.

The regulations for the use of the runways at Copenhagen Airport specify that, whenever possible, aircraft should avoid passing over residential areas unless required to do so for safety reasons during special weather and wind conditions. The distribution of traffic on runways did not change significantly in 2001 compared to previous years. In 2001, 97.5% of all takeoffs and landings took place on the two main runways (04L-22R and 04R-22L). Runway 12-30 in the northwesterly direction was used for only 0.3% of departing aircraft and 1.0% of landing aircraft.

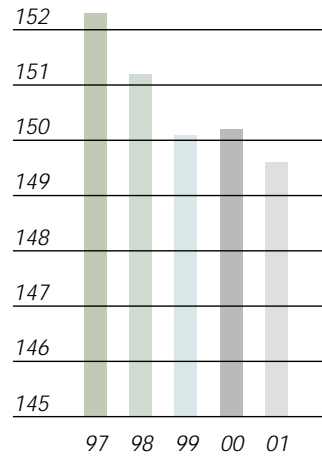
Nocturnal takeoffs and landings (23:00-06:00) may not exceed a maximum noise level of 85 dB(A) in six measuring points in residential areas around the

airport. The noise monitoring system registers all noise events above 85 dB(A) during the night period. On the basis of information on each single operation, the Danish Civil Aviation Administration assesses whether any infringement of aviation legislation has taken place. In 2001, 15,405 operations took place during the night period. 13 noise events were found to exceed 85 dB, seven of which caused a noise level of 86 dB(A). This is an increase in comparison with 2000, in which eight events were registered.

A number of rules must be observed when aircraft engines are tested at Copenhagen Airport since engine testing may involve noise nuisance in the residential areas. In 2001, engine testing occurred 1,604 times, including 936 instances of idling. Eight violations of the engine testing rules were reported to the Danish Environmental Protection Agency. CPH will continue to monitor the development in the number of violations.

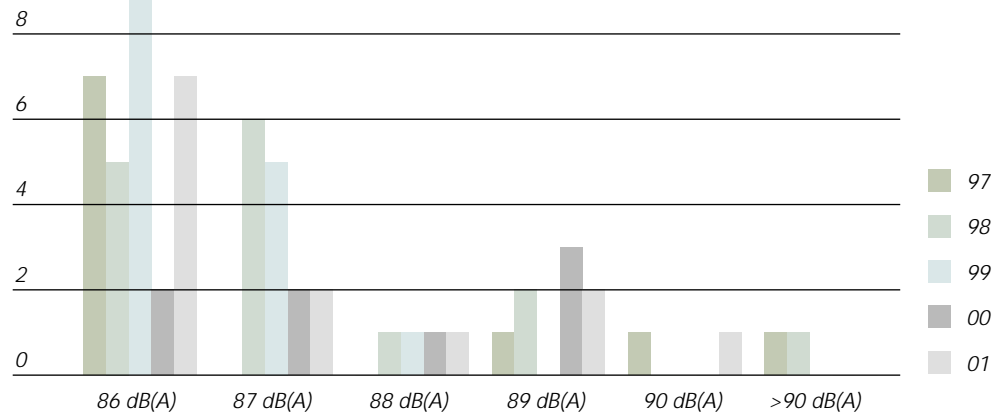
### Noise impact

(TDENL in dB)

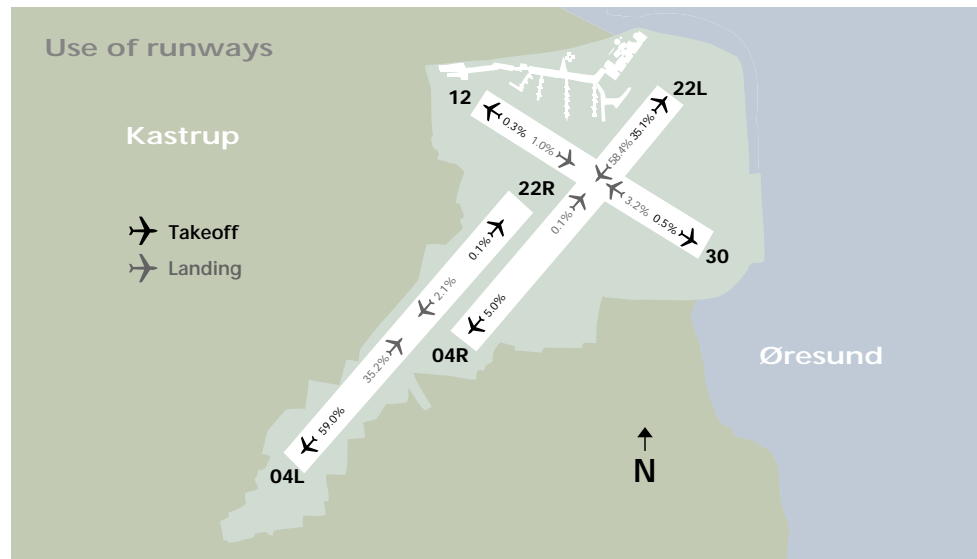


### Infringements of maximum night-period noise levels

(No.)



Copenhagen Airports A/S continually establishes noise screening in order to limit noise in residential areas. In 2001, CPH continued to develop noise-screening measures in the western section of the airport. Instead of continuing the already established noise barrier, CPH chose to build three hangars with connecting walls. The hangars are built in a style that matches the surrounding areas, in particular the 1939 airport terminal designed by the architect Vilhelm Lauritzen, which was moved to the area in 1999.



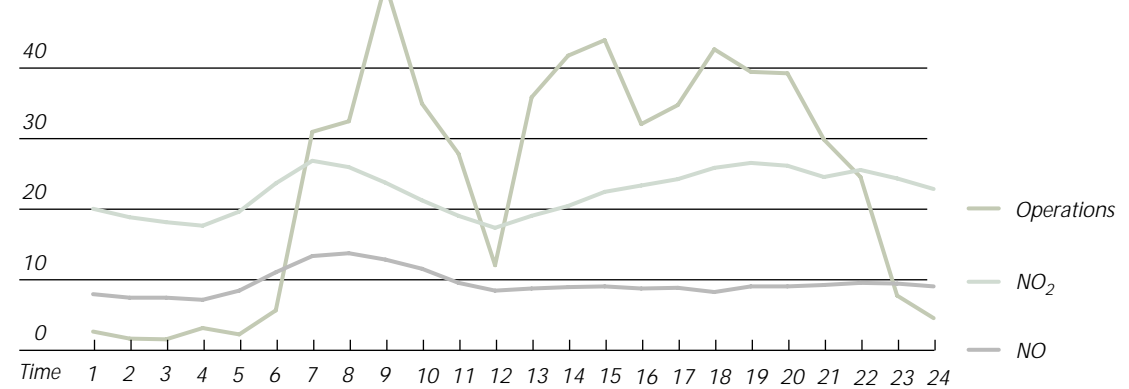
The environmental authorities require a general 5 dB reduction in noise impact in the 1996-2005 period when measured according to the TDENL method (Total-Day-Evening-Night-Level). The result is an expression of the total noise impact on the surroundings. The calculation is carried out on the basis of individual operations, incorporating data on aircraft type and time of day. TDENL calculations show that noise impact was down 0.6 dB compared to 2000. This is mainly a result of the development in number of operations and airline out-phasing of the noisiest aircraft.

### Air quality

In the middle of 2000, CPH established permanent air quality monitoring on the basis of an expected increase in emissions from airport activities and the traffic at Amager.

The system consists of three logging stations distributed across the airport area. The following pollutants are measured: nitrogen oxide (NO),

**Aircraft operations in relation to NO and NO<sub>2</sub>**  
( $\mu\text{g}/\text{m}^3$ )



nitrogen dioxide (NO<sub>2</sub>), sulphur dioxide (SO<sub>2</sub>), ozone (O<sub>3</sub>), particles (PM<sub>2.5</sub> and PM<sub>10</sub>), toluene and benzene. In the environmental report, CPH has chosen to focus on NO, NO<sub>2</sub> and PM<sub>10</sub>, which are the parameters with the greatest local impact.

The results of loggings show that the levels of NO<sub>2</sub> and PM<sub>10</sub> are around half of the limit values established by the EU. Once data from several years is available, the development of air quality can be described more accurately.

A comparison of the number of operations and the logged levels of NO and NO<sub>2</sub> distributed over day and night shows that the logged levels do not

show the same variation as the air traffic. On the basis of existing data, it can already now be deducted that air traffic does not significantly contribute to air pollution in the area. PM<sub>10</sub> is not a part of the figure as it is logged as an average day and night value.

### Oil and fuel spill

Aircraft fuel is stored in storage tanks, which is operated by Brændstoflageret, Københavns Lufthavn I/S. The total storage capacity is 4,140 m<sup>3</sup>. Brændstoflageret receives jet fuel via an underground pipeline from the company's own pumping station at Prøvestenen. From the storage tanks, jet fuel is distributed to aircraft stands

primarily via pipelines to pit wells from which the aircraft can be refuelled with a hose.

In 2001, 130,000 fuelling operations involving a total volume of some 900 million litres of fuel took place at Copenhagen Airport. CPH cleans all oil and fuel spills when aircraft and vehicles are refuelled. In connection with cleaning, the spills are logged in order to achieve a total picture of volume and number of spills.

A total of 271 spills were logged in 2001, and the total volume of the spills was 10,201 litres, compared with 4,691 litres in 2000. Of the total number of spills, 98 were spills with a total of 8,448 litres and the remaining 173 are oil spills (hydraulic and engine oil) of 1,753 litres. The volume and number of spills should be seen in relation to the total consumption of some 900 million litres of fuel. This means that the volume of spills was one litre per 88,000 of fuel used.

The major increase in the volume is the result of a large spill of 7,000 litres at the end of the year. The spill took place at Brændstoflageret and was caused by a faulty valve. The spill was picked up in Brændstoflageret's oil separator.

There was a major increase in the number of spills below ten litres, while the number of larger spills is low compared with the average since 1997. This is due to the fact that during 2000, CPH changed its procedure for logging oil spills so that the volume of the spill can be registered more accurately.

### **Aircraft de-icing**

In the winter period and under certain meteorological conditions, aircraft need to be de-iced before takeoff. Temperatures and air humidity are essential factors, but jet fuel, which can be extremely cold inside the tank of a landing aircraft, may also cause ice on the wings. This ice also needs to be removed.

Handling companies perform de-icing immediately before takeoff. Aircraft are sprayed with a mixture of hot water and glycol to prevent ice formation that would affect the control of the aircraft and increase its weight.

Weather conditions in the period between Christmas and New Year 2001 were plagued by lengthy periods of frost and heavy snowfall. This resulted in a major increase in glycol consumption for de-icing, and contributed significantly to an increased glycol consumption of 763 m<sup>3</sup> in 2001 compared with 294 m<sup>3</sup> in 2000.

CPH has established special platforms for de-icing where the remaining glycol is collected in an environmentally acceptable way. Excess glycol is transported to the municipal purification plant where it is re-used to accelerate biological decomposition. A total of 444 m<sup>3</sup> of glycol was collected in 2001.

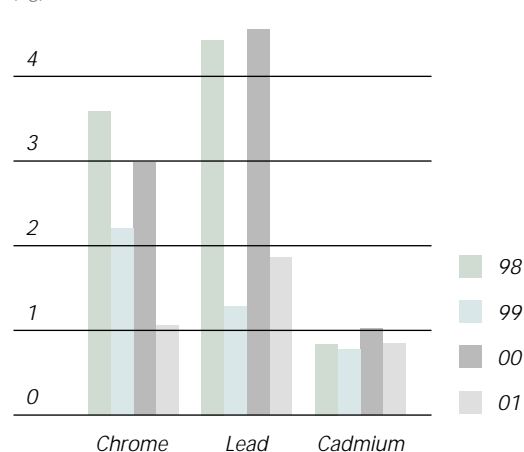
# Activities on runways, aprons and other areas

## Surface water

Rainwater from paved areas is discharged into Øresund through the surface water system. As owner of the system, Copenhagen Airports A/S is responsible for discharge of surface water. The discharge can carry pollutants from paved areas, and in larger amounts these can impact the environment of Øresund. 12 measuring stations monitor surface water, and every month samples are analysed for certain pollutants.

The results of the analyses show that concentrations of the measured pollutants in the surface water are at low and homogenous levels. In accordance with CPH's environmental policy of applying cleaner technology, the past few years' determined use of new environment-friendly products and methods for de-icing runways and aircraft has significantly reduced the environmental impact of the airport's discharge of surface water.

Surface water - substances discharged (kg)



In particular, the amount of heavy metals and detergents in the surface water shows a declining tendency in 2001. Environmental authorities require that airlines must have established systems for collecting water from aircraft washing no later than by June 2002. This water contains, among

other pollutants, heavy metals and detergents, and the collection is expected to further reduce the amounts of these substances.

## Runway de-icing

Treatment for icy runways and taxiways at Copenhagen Airport can be applied within 25 minutes, and the airport can be open under all weather conditions. When it is snowing, eight specially built snowploughs and sweepers in a staggered column clear a 3.6 km by 45 m runway. While the runways are cleared of snow, other vehicles clear the other airport areas, providing a safe route for aircraft all the way to the terminal.

CPH has established an early ice warning system that can predict snow, sleet and glaze with great precision. This means that the need for preventive de-icing can be predicted one hour before precipitation sets in. Only 50% of the amount of

de-icer, which must be used after the glaze has formed, is used as a preventive measure.

Road salt is unsuitable for ice prevention at an airport as salt makes the aluminium parts of the aircraft rust. The airport currently uses sand and a formate-based de-icer for runway de-icing. Less than 5% urea is added to the sand in order to increase the effect.

The consumption of runway de-icer is naturally dependent on the weather situation in the individual years. The hard weather in December had a major effect on the consumption of runway de-icer in 2001. 1,195 tonnes of formate and 120 tonnes of sand were used, compared to 270 and 101 tonnes respectively in 2000.

### **Fuel consumption**

Fuel is primarily consumed by vehicles used for area maintenance, including the de-icing and cleaning of runways. CPH has a total of 364 vehicles, 115 of which are part of the airport's snow-clearing equipment.

The consumption of petrol rose 6% from 67 m<sup>3</sup> in 2000 to 71 m<sup>3</sup> in 2001. The consumption of diesel rose by 18% from 597 m<sup>3</sup> in 2000 to 703 m<sup>3</sup> in 2001. The rises are primarily due to increased consumption in connection with runway and taxiway de-icing .

### **Herbicides**

CPH uses herbicides only in areas where machines cannot be used, and where weed control is

necessary for safety reasons. One area is along the security fence, where the grass cannot be mowed without damaging the fence.

In 2001, 40 litres of herbicides were used on CPH's total area of 11.8 km<sup>2</sup>. This represents a significant decline compared with previous years in which consumption was at about 100 litres. The decline is the result of an increased focus on minimising consumption. The 2001 experience, however, indicates that it is difficult to maintain the necessary standard, and CPH expects an increase in consumption in the next few years.

# Terminal activities

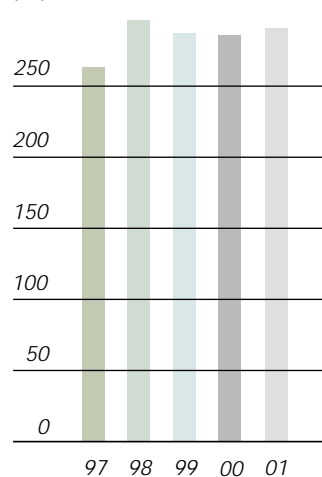
## Energy consumption

Energy consumption at Copenhagen Airport comes from lighting in buildings, at aprons, stands, taxiways and runways and from the heating of buildings. Heating is primarily based on district heating and natural gas.

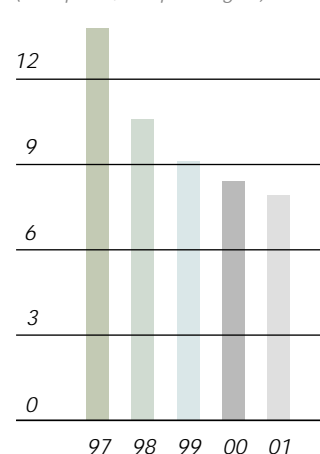
Energy consumption increased 1.9% compared with 2000. Energy consumption declined in terms of degree-day figures, primarily as a result of an increased focus on control and monitoring. CPH has installed electricity, heat and water meters in all airport buildings. The meters are connected to a central monitoring and logging system, and the development of the individual meters is monitored

regularly in order to introduce energy-saving measures wherever necessary. Over the next few years, CPH will concentrate more on energy with a view to further reducing consumption.

**Energy consumption**  
(TJ)



**Water consumption**  
(m<sup>3</sup> - per 1,000 passengers)



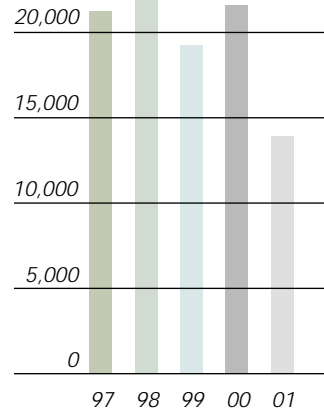
## Water consumption

A broad range of different activities consumes water. Airlines, catering companies and other lessees at the airport are responsible for their own water consumption. CPH's water consumption mainly comes from the three passenger terminals, which are frequented by 50,000 people on a daily basis.

In 2001, CPH used a total of 143,112 m<sup>3</sup> of water, representing consumption per 1,000 passengers of 7.9 m<sup>3</sup>. An ongoing focus on water saving has meant a reduction in water consumption, relative to the number of passengers, of 43% over the past five years.

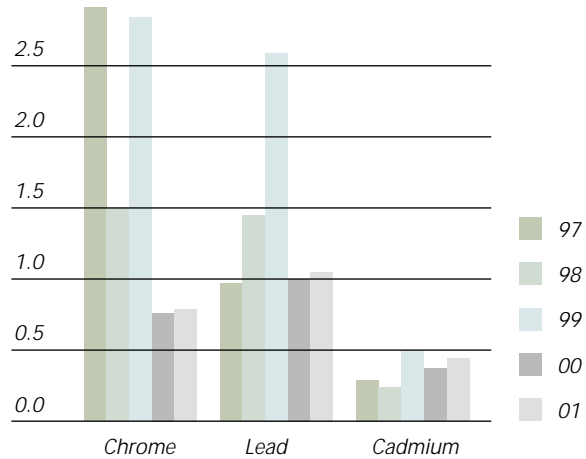
### Wastewater

(litres - per 1,000 passengers)



### Wastewater - substances discharged

(kg)



### Wastewater

Copenhagen Airports A/S is responsible for the discharge of wastewater from the airport's terminal and maintenance facility areas and from other lessees. The wastewater is discharged to purification plants in the municipalities of Tårnby and Dragør. Each month, CPH takes wastewater samples that are analysed for the content of several substances.

The analyses show that the amount of heavy metals slightly increased in 2001, and that

detergent content continues to decline. The results also show that the content of oil/grease and nitrogen declined in 2001. CPH will continue studies to trace the sources of these pollutants with a view to minimising the content of the substances in wastewater.

The amount of wastewater has fallen from 21.5 m<sup>3</sup> per 1,000 passengers in 2000 to 13.9 m<sup>3</sup> in 2001, representing a drop of 36%.

## Waste

At Copenhagen Airport, waste is generated from two main areas: waste from aircraft and waste from the ground. Airlines are responsible for waste from aircraft while CPH is responsible for removing waste from the three passenger terminals, CPH's maintenance facilities and administration buildings. CPH has established a container area for waste sorting in fractions.

The total amount of waste fell by 10% compared with 2000. The amount of waste per 1,000 passengers dropped from 160 kg to 144 kg.

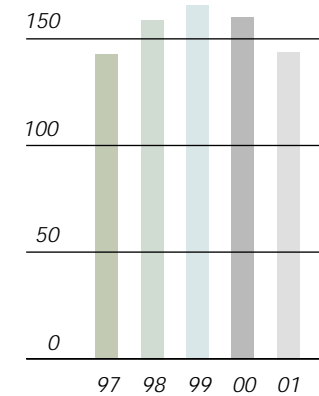
The proportion of recyclable waste declined compared with 2000. The increase of the past few years has not been continued in 2001 despite increased paper collection in the terminal piers and the establishment of an additional cardboard

collection area. CPH has initiated an investigation to discover the cause of the lower percentage of recycling.

As a result of lower building activity in 2001, the proportion of waste to be disposed has declined. The proportion of waste for disposal has declined by 34% compared with 2000. The amount of waste for incineration has risen by 1% in the period.

A purification plant in the fire drill area has been optimised so that the residual products from fire drills, consisting of oil, water and detergent, are now purified using a coal filter. This involves a lower amount of oil waste for special treatment. This amount has fallen by 55% compared with 2000.

**Waste volumes**  
(kg - per 1,000 passengers)



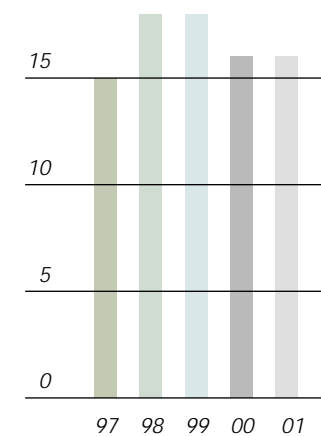
# Working environment

The frequency of industrial accidents has stabilised at the 2000 level. In 2001, 16 per one million working hours were reported. The figures are based on the number of reported industrial accidents involving one or more days of sick leave.

In 2001, 18% of industrial accidents were caused by collisions with objects. 13% were caused by strain, while falling or crushing caused 36%.

Contact with sharp objects or chemicals caused 23% of accidents and, finally, 10% resulted in burns or other injuries.

**Industrial accidents**  
(per million working hours)



# Roskilde Airport

## Noise

In 2000, there were 98,039 operations at Roskilde Airport. The number of aircraft operations was lower than the 200,000 operations projected when the airport was opened. CPH and the Roskilde County authorities have carried out a study of the noise impact from 200,000 operations corresponding to full utilisation of the airport. The study showed that the phasing out of older aircraft types and their replacement by new, quieter aircraft has considerably reduced the noise impact in the area around the airport.

## Consumption of energy and water

Water consumption at Roskilde Airport rose from 8,687 m<sup>3</sup> in 2000 to 9,500 m<sup>3</sup> in 2001, representing an increase of 9%. Electricity consumption increased by 10%, while energy consumption rose by 19%. Variations in the consumption of energy for heating over the past five years are primarily due to differences in outside temperatures since no significant changes have been made to the buildings at the airport.

## Waste

The waste from Roskilde Airport primarily consists of ordinary household-like refuse. The estimated annual volume is below 50 tonnes.

## Working environment

No industrial accidents have been reported at Roskilde Airport in 2001.

# Accounting policies

The selection of data assessed to be of significance for the environment has been made on the basis of the 1996 environmental impact assessment (EIA) and the 1997 environmental approvals of Copenhagen Airport.

The data in the report is based on regular compilation from the individual departments at the airport. They have been collated in a central database for further calculation. Data is provided in one of the following ways:

- Externally documented loggings
- Internal loggings
- Calculated data
- Estimated data

The environmental report has been prepared in accordance with the following accounting policies:

## Traffic development and noise

The number of passengers is adjusted for the catamaran traffic to Malmö that was discontinued in 2000. Traffic growth is calculated on the basis of data in CPH's traffic statistics system and includes all operations by aircraft type, takeoff weight, use of runway and time. Total noise impact at the airport from takeoffs and landings is calculated using the TDENL method and is calculated on the basis of each operation including aircraft type and time of day.

The number of noise events resulting from nocturnal flights to and from Copenhagen Airport is monitored and logged by CPH's noise monitoring system. The number of engine testing incidents, including the number of engine idling incidents and violations of rules on engine testing, is stated in this environmental report on the basis of reports received from the airlines.

## Air quality

The air quality at Copenhagen Airport is monitored and logged by CPH's air quality monitoring system. The system also collects meteorological data.

## De-icing of aircrafts and runways

The volume of glycol used for de-icing aircraft is calculated by the companies handling de-icing. The content of collected glycol is registered for each removed truckload. The consumption of de-icers for runways and taxiways is calculated based on the volumes consumed.

## Oil and fuel spill

The number of oil and fuel spills is calculated as the number of reports filed by CPH's security, fire service and other in-house and third party sources. The calculation of the volume of spills is subject to uncertainty as it is rarely possible to measure the exact volume of a spill.

### Surface water

The volume of surface water discharged is calculated on the basis of the effect of CPH's pumps for outlet U5 and from the volume of precipitation reported by the Danish Meteorological Institute (DMI) for other discharges. The water quality is determined on the basis of analyses of monthly water samples carried out by a third-party laboratory.

### Herbicides

The consumption of herbicides is calculated on the basis of volumes purchased.

### Water and energy consumption

Each type of consumption is calculated on the basis of volumes purchased/registered, less quantities sold to other companies at the airport. From 1999, electricity production from emergency power generating units is included in the consumption of electricity. Electricity production is calculated as the effect per fuel unit delivered by

the generator as compared with fuel consumption. The heated area is estimated at the end of the calendar year.

Energy and water consumption has not been regularly registered at Roskilde Airport for 2001. This means that 2001 calculations are subject to greater uncertainty than previously. The regular registrations have been resumed in 2002.

### Wastewater

The volume of wastewater discharged is registered by means of online meters connected to CPH's central tracking system (CTS). Water quality is determined on the basis of analyses of monthly water samples carried out by a third-party laboratory.

### Waste

Most data on waste is collated from weighing slips or monthly statements from recipients of the waste. In some cases it is not possible to calculate

the quantity of the waste since the weight or volume is not registered. In both cases, the weight is estimated.

### Working environment

The number of industrial accidents is the number of accidents reported per year causing one or more days of sick leave. Up to and including 1998, the number of industrial accidents was calculated on the basis of the date of the accident. The change in practice does not change the number of industrial accidents materially, and the comparative figures have not been restated.

# Auditors' report

Copenhagen Airports A/S has entered into an agreement with PricewaterhouseCoopers for a review of its Environmental Report for 2001.

## Basis of opinion

We have planned and performed our work with a view to establishing whether the data presented correlates with the company's activities for the financial period, whether the data presented has been documented and stated in accordance with the accounting policies, and whether monitoring and reporting procedures have been organised in an adequate manner.

Our work has comprised accounting analyses, inquiries and testing of data for 2001 and underlying documentation, including verification of compliance with the selected accounting policies and correlation between such policies and the company's activities.

Furthermore, in the area "Working Environment" selected by us, we have reviewed the internal control and registration system with a view to establishing its supporting capability of ensuring reliable reporting.

The scope of the work performed is not as extensive as that of an audit and, accordingly, does not provide the same level of assurance to the user of the report that any material misstatements or omissions in the report are disclosed, as would an audit. An audit would have to be based upon generally accepted guidelines for the compilation and presentation of an environmental report, which have not yet been established in the environmental area.

## Opinion

In our opinion, the Environmental Report for 2001:

- correlates with the company's activities for the

financial period as described in the Environmental Report;

- presents documented data stated in accordance with the guidelines described under significant accounting policies; and
- is in general based on satisfactory monitoring and registration procedures in relation to ensuring reliable reporting on regulated environmental issues.

Copenhagen, March 7, 2002

PricewaterhouseCoopers



Jørgen Torp

State Authorised  
Public Accountant



Birgitte Mogensen

State Authorised  
Public Accountant

# Glossary

## **Acetate**

Chemical used for de-icing runways and taxiways.

## **COD**

Chemical Oxygen Demand, a method of analysis to determine the content of organic matter in water.

## **CPH**

Copenhagen Airports A/S.

## **dB**

Decibel, logarithmic unit of sound measurement.

## **Degree days**

The degree-day figure for the year is the sum of all degree days of the year. The degree-day figure for a day is calculated as 17 degrees centigrade less the mean temperature of the day if less than or equivalent to 17 degrees centigrade. Otherwise the degree-day figure is 0.

## **De-icing**

Removal of ice and snow from paved areas at the airport or removal of ice from aircraft wings.

## **Detergents**

Added to washing and cleaning agents to lower the surface tension of water.

## **Engine testing**

Testing of aircraft engines during inspection and repairs.

## **Formate**

Chemical used for de-icing runways and taxiways.

## **GJ**

Giga Joule,  $10^9$  Joule.

## **Glycol**

Agent used for de-icing aircraft. Copenhagen Airport uses propylene glycol.

## **Handling**

The handling of passengers, luggage, cargo etc. Three handling companies operate at Copenhagen Airport: SAS, Novia and Servisair.

## **NO**

Nitrogen oxide.

## **NO<sub>2</sub>**

Nitrogen dioxide.

## **Operation**

Term used in airport statistics to designate a takeoff or landing.

## **Particles**

Carbon in emission gases from diesel engines.

## **PM<sub>10</sub>**

Particles with a maximum diameter of 10  $\mu\text{m}$ .

**Stands**

Aircraft parking spaces during stays at the airport, with or without passenger loading bridges.

**Taxiways**

Paved stretches between runways and aircraft stands.

**TDENL method**

Total-day-evening-night level; the method is used by the Danish Environmental Protection Agency to calculate noise. Based on calculation of LDEN (an average A-weighted sound pressure level (day-evening-night-level) calculated on a 24-hour basis with the addition of 5 dB for noise events between 19:00 and 22:00 and 10 dB for noise events between 22:00 and 07:00).

**TJ**

Tera Joule,  $10^{12}$  Joule.

**Total N**

Total nitrogen content.

**Total P**

Total phosphate content.

**Urea**

Nitrogen-based de-icer.

# Environmental data

Environmental data	Unit	1997	1998	1999	2000	2001
<b>Key figures</b>						
<b>Passengers</b>	No.	16,623,404	16,368,038	17,050,629	18,119,742	18,136,274
<b>Aircraft operations</b>						
Copenhagen	No.	283,621	280,788	298,533	303,713	288,739
Roskilde	No.	102,948	97,422	96,214	97,165	98,039
<b>Employees</b>	No.	1,356	1,378	1,449	1,399	1,388
<b>Aircraft activities</b>						
<b>Noise impact</b>	TDENL in dB	152.3	151.2	150.1	150.2	149.6
<b>Infringements of maximum nightperiod noise levels</b>						
86 dB(A)	No.	7	5	10	2	7
87 dB(A)	No.	0	6	5	2	2
88 dB(A)	No.	0	1	1	1	1
89 dB(A)	No.	1	2	0	3	2
90 dB(A)	No.	1	0	0	0	1
>90 dB(A)	No.	1	1	0	0	0
<b>Use of runways</b>						
04L Takeoff/Landing	% distribution		0.0/28.6	0.0/29.4	0.0/25.2	0.1/35.2
04R Takeoff/Landing	% distribution		32.7/3.4	31.7/2.2	25.0/0.1	35.1/0.1
22L Takeoff/Landing	% distribution		7.1/62.2	6.1/62.4	4.9/69.0	5.0/58.4
22R Takeoff/Landing	% distribution		59.8/1.5	61.5/2.4	69.4/2.9	59.0/2.1
12 Takeoff/Landing	% distribution		0.3/0.4	0.1/0.3	0.2/0.4	0.5/1.0
30 Takeoff/Landing	% distribution		0.1/3.9	0.6/3.3	0.5/2.4	0.3/3.2

<b>Environmental data</b>	<b>Unit</b>	<b>1997</b>	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>
<b>Weight distribution of aircraft types</b>						
0-29 tonnes	No.	101,343	100,006	108,070	107,199	93,883
30-49 tonnes	No.	23,329	17,156	20,119	18,943	14,275
50-69 tonnes	No.	117,358	119,958	128,081	135,038	137,287
70-119 tonnes	No.	27,138	28,850	27,268	27,457	28,259
120-299 tonnes	No.	13,641	13,860	13,598	13,273	13,599
> 300 tonnes	No.	812	958	1,397	1,803	1,436
<b>Engine testing</b>						
Engine testing	No.	1,972	1,827	1,801	1,865	1,604
Of which idling	No.	1,180	1,044	1,015	1,000	936
Violations	No.	3	8	31	23	8
<b>Air quality</b>						
NO <sub>2</sub>	µg/m <sup>3</sup>					22
PM <sub>10</sub>	µg/m <sup>3</sup>					19
NO	µg/m <sup>3</sup>					9.7
<b>Oil and fuel spill</b>						
0-9 litres	No.	68	60	118	149	152
10-49 litres	No.	103	106	117	106	103
50-249 litres	No.	52	44	32	17	15
> 250 litres	No.	3	4	5	2	1
<b>Aircraft de-icing</b>						
Glycol consumption	m <sup>3</sup>	351	555	586	294	763
Collected glycol	m <sup>3</sup>	176	270	331	144	444

Environmental data	Unit	1997	1998	1999	2000	2001
<b>Activities on runways, aprons and other areas</b>						
<b>Surface water</b>	m <sup>3</sup>	2,264,359	2,435,026	2,417,840	2,204,550	2,475,828
<b>Surface water - substances discharged</b>						
Total-N	kg		16,591	11,303	11,408	11,463
Total-P	kg		677	792	773	877
BI <sub>5</sub>	kg		56,491	144,218	178,943	73,046
Detergents	kg		282	218	150	103
Oil and grease	kg		977	52	133	160
Zinc	kg		165	95	160	89
Chrome	kg		3.6	2.2	3.0	1.1
Copper	kg		9	24	33	21
Nickel	kg		12	7	7	9
Lead	kg		4.4	1.3	4.6	1.9
Cadmium	kg		0.8	0.8	1.0	0.9
<b>Consumption of runway de-icers</b>						
Acetate	kg	264,671	190,720	0	0	0
Formate	kg	0	77,380	784,546	270,000	1,195,000
Sand	kg	0	140,460	237,750	101,000	120,000
Urea	kg	284,600	93,520	0	0	0
<b>Fuel Consumption</b>						
Petrol	m <sup>3</sup>	83	79	76	67	71
Diesel	m <sup>3</sup>	527	598	673	597	704
<b>Consumption of herbicides</b>	litres	300	105	90	100	40

<b>Environmental data</b>	<b>Unit</b>	<b>1997</b>	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>
<b>Terminal activities</b>						
<b>Wastewater</b>	m <sup>3</sup>	351,761	364,101	327,298	390,317	251,558
<b>Wastewater per 1,000 passengers</b>	m <sup>3</sup>	21.2	22.2	19.2	21.5	13.9
<b>Wastewater - substances discharged</b>						
Total-N	kg	16,964	19,475	24,475	23,688	21,857
Total-P	kg	2,398	2,595	3,343	3,010	3,432
COD	kg	182,384	199,788	236,316	189,519	180,176
Detergents	kg	3,357	1,864	2,315	1,564	1,358
Oil and grease	kg	7,078	8,816	11,381	17,493	15,891
Zinc	kg	56	34	89	73	86
Chrome	kg	2.9	1.5	2.8	0.8	0.8
Copper	kg	12	8	13	13	16
Nickel	kg	1.3	1.3	2.9	1.2	1.4
Lead	kg	1.0	1.5	2.6	1.0	1.1
Cadmium	kg	0.3	0.2	0.5	0.4	0.4
<b>Electricity consumption</b>	TJ	151	164	175	186	173
<b>Energy consumption for heating</b>	TJ	113	132	113	100	118
<b>Energy consumption per 1,000 m<sup>2</sup></b>	TJ	0.77	0.65	0.59	0.49	0.58
<b>Water consumption</b>	m <sup>3</sup>	229,397	174,280	155,964	152,641	143,112
<b>Water consumption per 1,000 passengers</b>	m <sup>3</sup>	13.8	10.6	9.1	8.4	7.9

<b>Environmental data</b>	<b>Unit</b>	<b>1997</b>	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>
<b>Waste volumes per 1,000 passengers</b>	kg	143	159	166	160	144
<b>Removed to:</b>						
Recycling	tonnes	335	344	405	507	426
Incineration	tonnes	1,460	1,657	1,739	1,782	1,804
Disposal	tonnes	399	411	558	471	312
Special treatment	tonnes	179	196	128	148	66
<b>Working environment</b>						
<b>Industrial accidents</b>	per million working hours	15	18	18	16	16
<b>Roskilde Airport</b>						
<b>Weight distribution of aircraft types</b>						
0-999 kg	No.	16,857	13,231	9,158	6,541	5,896
1000-1999 kg	No.	77,802	77,006	80,050	83,503	84,378
> 2000 kg	No.	8,289	7,185	7,006	7,122	7,765
<b>Electricity consumption</b>	GJ	1,663	2,532	2,475	2,509	2,763
<b>Energy consumption for heating</b>	GJ	3,083	3,220	3,284	2,712	3,228
<b>Water consumption</b>	m <sup>3</sup>	8,003	7,964	8,432	8,687	9,500
<b>Industrial accidents</b>	per million working hours	20	0	19	0	0



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