



Environmental Report 2000

SAS Danmark A/S • SAS Norge ASA • SAS Sverige AB
www.scandinavian.net

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SAS environmental report 2000

SAS has published its environmental report every year since 1995. The report plays a central role in SAS's efforts to intensify its dialogue with an increasingly wide range of stakeholders. In this context, it is vital to provide information about the company's environmental impact, environmental performance and the regulatory framework in which the airline industry operates. The environmental report also serves as a tool for following up environmental performance at the strategic level.

The environmental report is designed so that the different sections are largely independent of one another and can be read separately.

One new feature this year is a more detailed section on environment and economy. Here, the environmental parameters are linked to SAS's key financial ratios.

The reporting principles have been further developed to increase comparability and clarity in the reported data.

SAS has a wide range of stakeholders: Employees, stockholders, financial analysts, public authorities, policy-

makers, the general public, students, the media and customers. In order to reach them all, we structure our environmental information and deliver it through a variety of channels aimed at the different reader groups.

Aside from the environmental report, environmental data is presented in SAS's financial annual report. The environmental section of SAS's web site, www.scandinavian.net, contains the full environmental report and a dynamic pdf version, supplementary data and in-depth environmental information for those with a special interest. SAS also presents its environmental work and a summary of the airline industry's environmental impact in a booklet that is placed in the seat back pockets on the aircraft.

As usual, we are grateful for your feedback and comments on this environmental report and our environmental activities in general. Addresses and telephone numbers are listed on the inside of the back cover.

This is SAS

Scandinavian Airline Systems, SAS, is an airline with its main market in Scandinavia and northern Europe. SAS's mission is to offer competitive flight connections within, between, to and from each of the Scandinavian countries under its own management or in association with selected partners.

SAS may be one of the world's smaller airlines in terms of turnover, but the number of daily departures places SAS in the global elite. In 2000, the SAS business area's total operating revenue was MSEK 44,481 (40,868).

With the help of 185 aircraft, SAS carried 23.4 (22.2) million paying passengers to 92 destinations in 2000. SAS Cargo transported 287,000 (285,000) tonnes of freight and mail, either on SAS's own aircraft or in leased cargo capacity.

SAS's operational base is Scandinavia, with the main airports in Copenhagen, Oslo and Stockholm. The bulk of maintenance and service on SAS's aircraft fleet takes place in the company's workshops in Oslo. Altogether, the SAS business area has around 28,000 employees.

The SAS Group consists of the two business areas SAS and SAS International Hotels (SIH). The SAS business

area includes SAS airline operations, cargo transports (SAS Cargo), and retail sales at airports (SAS Trading) and a number of strategic business units. SAS has a few large subsidiaries, of which Air Botnia and Widerøe's Flyveselskap are airlines and Scandinavian IT Group and SMART have computer and IT-related operations. The subsidiary SAS Flight Academy is a training company.

Overall goals

SAS prioritizes safety, optimal punctuality and excellent personal service. SAS designs its products and services to satisfy both the market's needs and the individual customers' preferences and freedom of choice.

SAS strives to maintain adequate profitability to meet the stockholders' yield requirements and ensure that SAS is perceived as an attractive investment.

SAS is strongly committed to minimizing the environmental impact of the airline industry, and supports social development through sponsorship of cultural and sporting events and educational programs.

Highlights of 2000

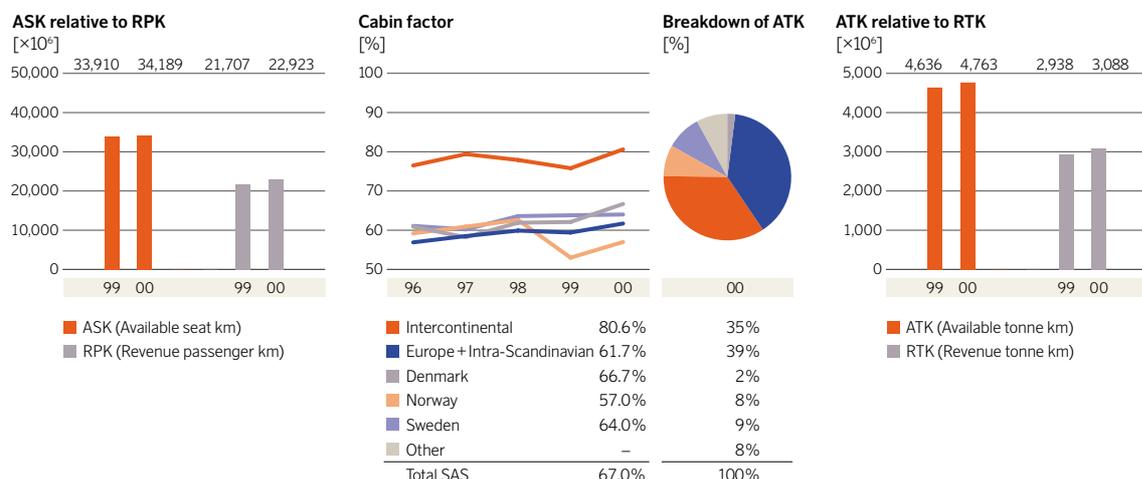
- **SAS's environmental index** improved by 6 points to 82.
- **SAS decided to modernize the aircraft fleet** by purchasing 12 Airbus A321s and increased its order for Boeing 737s to 58 aircraft.
- **Fuel costs rose** by 73% to MSEK 3,959 as a result of higher oil prices and strengthening of the U.S. dollar.
- **Fuel consumption** decreased by 1.6% overall and by 6.9% per passenger kilometer.
- **SAS's investments in energy-saving equipment** and purification plants in its facilities at the airports in Copenhagen and Oslo will reduce total operating expenses.

- The Board of Directors' environmental report was approved by the Board of SAS on February 13, 2001, and its members studied the other information in the environmental report in connection with the board meeting on March 8, 2001.
- Deloitte & Touche has examined the contents of SAS's environmental report for the financial year 2000.
- The next environmental report is scheduled for publication in March 2002.

Key performance indicators

Production and traffic

The graphs below describe the results of, and relationship between, various production parameters. ATK is a measure of total capacity, while RTK is the proportion of total capacity that is utilized (sold). With regard to the cabin factor, it should be noted that 70% is the ideal for most commercial airlines.



Environment and economy

Below is a summary of development for a number of key performance indicators for both environmental and economic performance.

	1996	1997	1998	1999	2000
Operating revenue [MSEK] ¹	33,480	36,769	38,211	40,868	44,481
Income before tax [MSEK] ¹	1,746	2,067	2,588	1,307	2,168
Investments [MSEK] ¹	4,132	2,938	5,554	5,832	9,578
Number of employees ¹	21,348	22,524	23,992	27,201	27,767
Cash Flow Return On Investments (CFROI) [%] ²	26	25	22	15	19
Return On Capital Employed (ROCE, market-based) [%] ²	18	24	18	10	18
Environmentally related taxes and charges [MSEK], approx.	600	482	872	1,096	914
Environmentally related taxes and charges in relation to operating revenue [%]	1.8	1.3	2.3	2.7	2.1
Income in relation to CO ₂ emissions [SEK/tonne]	460	510	620	314	529
Environmental index [1996=100] ³	100	97	96	88	82
Proportion of chapter III aircraft in traffic [%]	81	88	89	100 ⁴	100⁴
Fuel efficiency [kg/100 RPK]	6.1	6.2	6.2	6.1	5.7
Cabin factor [%]	63.6	64.9	65.7	64.0	67.0⁵
Emissions of carbon dioxide (CO ₂) [1,000 tonnes]	3,815	4,021	4,167	4,164	4,095
[g/RTK]	1,540	1,517	1,510	1,470 ⁶	1,447⁶
Emissions on nitrogen oxides (NO _x) [1,000 tonnes]	14.4	14.8	15.3	14.5	14.3
[g/RTK]	5.8	5.6	5.6	5.1 ⁶	5.1⁶
Unsorted waste from aircraft cabins and aircraft cleaning [tonnes]	8,377	8,168	8,002	8,514	-⁷
Newspapers in cabin operations [g/passenger]	239	210	225	222	228
Aluminum cans [tonnes]	47.0	42.9	41.8	35.1	19.0⁸
Collected aluminum cans [tonnes]	32.3	30.5	21.4	20.8	14.4⁸
Energy consumption in managed facilities [kWh/m ²]	452	409	354	349	345
Unsorted waste from ground operations [tonnes]	2,829	3,140	3,308	2,347	3,055

¹ Refers to the SAS business area as of 1999. See page 44 for definition.

² Refers to the SAS Group. See page 44 for a definition.

³ The lower the index, the better the ecoefficiency. As of 2000, SAS's environmental index is calculated according to new principles.

The environmental indexes for earlier years have been recalculated according to the new grounds for the sake of comparability.

⁴ The figure for the entire SAS fleet is 96 (94)%. However, none of the nine (eleven) remaining chapter II aircraft are used in SAS Airlines' own traffic. Six of these are on lease to Air Botnia.

⁵ The figure includes paying passengers over a certain payment limit ("revenue passengers"). The total number of passengers is approximately 9% higher. Including all passengers, SAS's cabin factor for 2000 was 73.3%.

⁶ Not including the RTK purchased from Lufthansa Cargo.

⁷ Data not available.

⁸ Refers to data from Norway only.

The ins and outs of our operations

For the sake of clarity, this environmental balance sheet includes only material and energy flows with a significant environmental impact. For a more in-depth account, see the environmental balance sheets for the respective areas of operation on SAS's web site, www.scandinavian.net.

Flight

IN

SAS's responsibility

- Fuel
- Engine oil



Average distance flown per day: 732,000 km

SAS's responsibility

- Carbon dioxide (CO₂)
- Nitrogen oxides (NO_x)
- Hydrocarbons (HCs)
- VOCs
- Water vapor
- Oil aerosols
- Jettisoned fuel
- Noise



Flight operations account for around 90% of SAS's environmental impact

OUT

Cabin

IN

SAS's responsibility

- Food
- Beverages
- Packaging
- Disposable items
- Semi-disposable items
- Articles for sale
- Newspapers
- Chlorinated water
- Germicides



Average number of meals served per day: 75,000

SAS's responsibility

- Organic wastes (food residue)
- Packaging (glass, plastic, cardboard, aluminum, paper)
- Unopened beverages
- Articles for sale
- Solid waste (plastic, paper, cotton, aluminum)
- Wastewater (drainage and transport)
- Lavatory waste (drainage and transport)

Airport owner's responsibility

- Wastewater (treatment)
- Lavatory waste (treatment)



Cabin operations accounts for around 5% of SAS's environmental impact

OUT

Ground

IN

SAS's responsibility

- Glycol
- Water
- Halons
- Freon
- Maintenance materials (components, chemicals, etc.)
- Energy (oil, electricity, diesel, gasoline, biofuel, gas)
- Office supplies

Airport owner's responsibility

- Urea/Acetate



Average number of takeoffs per day: 956

SAS's responsibility

- Solid waste
- Hazardous waste
- Wastewater (drainage and transport)
- Halons, freon
- Sulfur dioxide (SO₂)
- Carbon dioxide (CO₂)
- Nitrogen oxides (NO_x)
- Hydrocarbons (HCs)
- VOCs
- Soot/particles
- Noise

Airport owner's responsibility

- Glycol
- Urea/Acetate
- Wastewater (treatment)



Ground operations accounts for around 5% of SAS's environmental impact

OUT

Emissions and resource consumption

The tables below illustrate the past year's development for some key environmental performance indicators. The results are adjusted to production growth. The green bars show the relative improvement and the red bars show relative changes for the worse. For more in-depth information and details about the absolute change, see the section "Environmental accounts" on pages 34–41.

Environmental aspect	Change after adjustment for production growth ¹			Absolute change			
	 ←	Negative, %	0	Positive, %	⇒ 	1999	2000
Flight							
Fuel consumption					6.4	1,673	1,646 [1,000 m ³]
Carbon dioxide					6.4	4,164	4,095 [1,000 tonnes]
Nitrogen oxides					6.0	14.5	14.3 [1,000 tonnes]
Hydrocarbons					19.8	1.8	1.5 [1,000 tonnes]
Water vapor					6.6	1,636	1,610 [1,000 tonnes]
Noise impact					20.1	4.06 ²	3.41 [km ² /85dB(A)]
Cabin							
Discarded aluminum cans						35.1	– ³ [tonnes]
Collected aluminum cans						20.0	– ³ [tonnes]
Unsorted waste						8,758	– ³ [tonnes]
Collected newspapers						1,512	– ³ [tonnes]
Ground							
Glycol consumption					11.7	4,952	4,597 [m ³]
Diesel for ground vehicles					12.1	3,954	3,652 [m ³]
Gasoline for ground vehicles					17.4	2,792	2,426 [m ³]
Unsorted waste	23.9					2,347	3,055 [tonnes]
Hazardous waste	26.5					983	1,306 [tonnes]
Heavy metals (cadmium, chromium)						4.7	– ³ [kg]
Water consumption in buildings					14.2	215	194 [1,000 m ³]
Energy consumption in buildings					15.9	220	195 [GWh]
Relative energy consumption in buildings					5.9	349	345 [kWh/m ²]
Production in revenue tonne kilometers (RTK)					5.1	2,938	3,088 [×10 ⁶]

¹ See also "Reporting principles".

² The underlying data has been adjusted.

³ Data not available.

Fuel consumption and emissions in relation to production

Comparison with other airlines

[g]

Fuel consumption	British Airways 99/00	Lufthansa 99/00	KLM 99/00	Swissair 98/99	Finnair 99	SAS 99
<i>Environmental report</i>						
Per ATK	214	246	226	241	–	294
Per RTK	321	–	292	333	384	467
Per RPK	43	52	–	–	43	61
Carbon dioxide						
Per ATK	673	776	713	771	–	925
Per RTK	1,011	–	921	1,065	1,200	1,470
Per RPK	136	164	–	–	134	192
Nitrogen oxides						
Per ATK	3.2	3.5	2.7	3.8	–	3.2
Per RTK	4.8	–	3.5	5.2	5.1	5.1
Per RPK	0.7	0.7	–	–	0.6	0.7
Average distance flown per passenger						
<i>Annual report</i>						
km/passenger	99	99	98/99	–	98/99	99
	2,796	1,928	3,812	–	1,760	977

The average size of SAS's aircraft fleet, flight patterns and average number of km per passenger differ from the other airlines. Compared with the competitors, SAS has a higher number of shorthaul flights due to a high proportion of inter-Scandinavian traffic. Since takeoffs are most fuel-intensive, SAS's fuel-efficiency is somewhat lower than the other airlines'. The data used for the various airlines may be based on different calculation methods, which affects comparability.

For SAS's definitions of ATK, RTK and RPK, see page 20.

Management

President's statement
SAS and the world around us
Organization and operations



SAS wants to take responsibility

President's statement

At SAS, environmental work is a top priority for two reasons. The first is that we want to take our responsibility as a participant in an industry associated with considerable environmental impact – and by that I don't mean civil aviation in particular but the transportation sector in general.

Secondly, I believe there is a direct link between our competitive strength and our ability to satisfy market demand for improved environmental performance. In a deregulated market with free competition, customers will choose the airline that best meets their expectations for overall social responsibility.

Our strategy is to consider the environmental consequences of every decision, however small. This means everything from investments in new aircraft to waste management routines. It's about technology and functionality, but in equal measure also the attitudes of our employees. Each of us can make a valuable contribution by showing where we stand on environmental issues as individuals and together as a company.

Investments enhance environmental performance

Over the past three years we have undertaken the most ambitious investment program in SAS's history. We are currently phasing in a new mediumhaul fleet of 59 Boeing 737s equipped with engines using double annular combustor (DAC) technology that dramatically reduce nitrogen oxide emissions. Although they cost MSEK 5 more per aircraft, the decision is in line with our policy to always use the best available environmental technology (BAT). The new longhaul fleet of ten Airbus A330s and A340s will have a significantly higher capacity than our old Boeing 767 fleet. And since the new aircraft are more fuel-efficient, they will provide a 10–20% reduction in emissions per seat and passenger kilometer.

However, I want to underline that these investments have been made primarily to improve SAS's competitiveness and exploit the potential of this growing market. The environmental gains are an added, and very valuable, bonus that I believe will enhance our image and highlight our role in the Scandinavian tradition of conserving nature.

Technological limitations

When it comes to technology, we are completely in the hands of aircraft and engine suppliers. At present there is no commercially viable alternative to today's fossil fuel powered combustion engines. While it is possible to achieve limited, gradual improvements, no significant advances can be made. The UN's Intergovernmental Panel on Climate Change (IPCC) predicts that global passenger air travel will grow by an average of 5% annually to the year 2015, whereas total fuel consumption and emissions are expected to increase by 3% per year. This means that fuel efficiency will show a relative improve-

ment of around 2% per year. I believe that SAS can achieve an improvement of 3%, significantly better than the industry average. Against this background, it is vital that the airlines take every opportunity to decrease their environmental impact. Consequently, I am highly disappointed that no other airline has followed our example of choosing DAC engines for the Boeing 737. A few competitors are using this engine in Airbus models, but none of the major players seem interested in DAC as a concept. We were pioneers in making this choice and I had hoped that other airlines would follow our lead. This was not the case, and virtually all of the aircraft now on order by other airlines use traditional combustion technology.

Political stance

The aviation industry has always had a controversial position in transportation policy. On one hand, air transportation has obvious advantages over road, sea and rail travel when it comes to covering long distances. The longer the distance, the greater the competitive edge. On the other hand, its emissions, noise and environmental impact are often seen as major drawbacks. Air transportation is an integral part of modern infrastructure, but it has not enjoyed the same degree of popular support as cars and trains. Consequently, it has been politically acceptable to impose air travel with various types of environmental levies. I believe there is a real risk for continued discrimination against the aviation industry unless we can join forces to bring about improvements and measures that generate positive attitudes towards air transportation as an indispensable and desirable part of modern society.

Competition between transportation sectors

According to the IPCC, the transportation industry currently accounts for around 25% of total greenhouse gas (GHG) emissions. Of this 25%, air transportation is responsible for 12–14%, or 2–3% of total emissions.

The EU has expressed explicitly that every transport sector should pay for the costs of the environmental damage it causes. All government subsidies and taxes on individual transportation sectors contribute to an undesirable distortion of competition.

In 1999 the Danish consulting firm COWI presented a study, commissioned by SAS, on the regulatory conditions and environmental impact in the various transportation sectors. The study weighed in all costs, including accident risks and local environmental impact. The report indicates that the Scandinavian aviation industry is paying for its own environmental and infrastructural costs in its home markets.

We support the EU's view that all types of transportation should compete on equal terms, which is not the case today. According to the COWI report the airline industry is paying its costs, in contrast to the railway industry which is heavily subsidized in Scandinavia. We are willing to assume our share of the total costs, but no additional fees and taxes.

Congested airspace

Both international and national efforts are underway to improve and simplify conditions in the aviation industry. One example of this is the straightening of flight routes, where the Scandinavian countries have been forerunners. Being able to take the shortest path from A to B means lower fuel consumption, better flight economy and lower environmental impact.

Another important area is improved air traffic management (ATM), particularly over continental Europe. Civil and military aviation is coordinated in the Scandinavian countries, which we see as a clear advantage. In many other parts of Europe, sovereignty over domestic airspace takes precedence over the need for effective air traffic management, giving rise to detours, delays, long waits for takeoff and landing and subsequent negative effects on the environment.

A third problem is insufficient airport capacity. The majority of airports in and around large cities are not equipped to cope with the traffic growth generated by this expanding market and enlargement of airports will not be permitted due to negative environmental consequences. In the case of Frankfurt, permits have been granted for construction of an additional taxiway but there are severe restrictions – including a ban on takeoffs and landings between 10 p.m. and 5 a.m. every day of the year.

The general growth in demand is creating a shortage of airport capacity and a pressing need for new solutions. In the future, it is likely that military air bases will be used for civil aviation, that cargo and charter flights will be relegated to airports outside metropolitan areas and that traffic between secondary airports will increase. This, in turn, will intensify the need for connections in the form of roads, express trains, parking, etc. The urgent nature of environmental concerns related to airports is demonstrated by the heated debate surrounding the future airport infrastructure in the greater Stockholm area.

What is the conclusion?

Air travel is a vital aspect of our infrastructure, today and in the future. It has become a means of transportation for everyone, not just business travelers and the wealthy. Liberalization and sharper competition, greater diversity and a wide range of alternatives have both threatened



the airlines' profitability and created a growing need for profiling through soft values such as environmental, ethical and social accountability.

For SAS, it is urgent to pursue these soft values and set a good example. For example, we are playing an active role in international and national organizations and forums to reduce environmental impact in the aviation industry.

On the home front, we are continuing to develop effective environmental systems that incorporate the ISO 14001 standards as minimum requirements. We have chosen to integrate environmental management into our TQM program because we see environmental issues not as a separate phenomenon but a central element of every function and decision. It is therefore highly satisfying to note that our efforts have borne fruit. In 2000 we succeeded in improving our environmental index by 6 points. Starting in 2001, SAS's long-term goal is to improve this index by 3 points annually.

To a large degree, environmental improvements are achieved through technological advances and decisions with technical overtones. But an equally important aspect is the willingness of every SAS manager and employee to take personal responsibility for the environment. For me, environmental issues are a natural priority with enormous strategic importance for the future.

Jan Stenberg
President and Chief Executive Officer

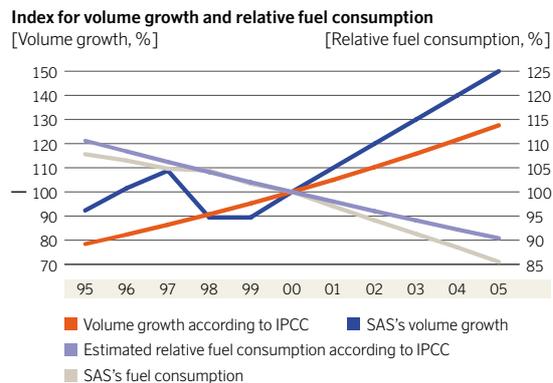
SAS and the world around us

All forecasts indicate continued growth in air traffic, which means an increasing burden on the environment. Airlines can help to alleviate the effects by modernizing their fleets, urging forward technological developments in the aviation industry, working for more effective air traffic management and participating in emissions trading of carbon dioxide quotas when a system for this has been established.

An expansive market

In 1999, the UN's *Intergovernmental Panel on Climate Change (IPCC)* published a study on the effects of civil aviation on the global climate. The report predicts that global passenger air travel will grow by about 5% per year to the year 2015. At the same time, the IPCC also believes that the industry's increase in emissions of CO₂ – the most significant greenhouse gas – can be limited to 3% per year through a gradual transition to modern aircraft with more efficient engine technology.

SAS and the aviation industry in general, including engine manufacturers, support the IPCC's projections to the year 2015. However, there is less consensus in a longer perspective due to considerable uncertainty about the assumptions underlying the IPCC's projections to the year 2050.



The figure above illustrates the increase in traffic and fuel consumption anticipated by the UN climate panel IPCC. It is compared with SAS's anticipated volume growth and fuel consumption for the same period.

IT intensifying the need for air travel

The rapid development of information technology is increasing the opportunities to build both private and commercial networks. At the same time, it has become easier to work in real-time global networks and to sell products and services over the Internet.

Paradoxically, these opportunities seem to be heightening, rather than alleviating, the need for air travel. Surfing on the Internet breeds a desire for real-life experiences and interpersonal contact.

The Internet has spawned a number of cheaper and more efficient airline travel booking systems. For example, one of the world's largest airlines recently spun off its online reservation system as an independent listed subsidiary and shortly thereafter it represented half of the airline's market capitalization.

IT and the Internet have also contributed to the birth of a whole new airline market – discount fares. This market has grown dramatically in recent years, but without stealing market shares from SAS or other traditional airlines. Today, 50% of all discount fares are sold over the Internet, making it possible to maintain both low prices and acceptable profitability.

Air travel and national economy

In the global economy the aviation industry, and therefore also SAS, is a vital communication link that generates value for both individual companies and SAS's three home countries. In Denmark, SAS is one of the country's largest employers.

SAS and the aviation industry improve quality of life in a number of ways, such as increased social interaction among residents, the potential to unite divided families



A new generation of environmental advocates

"I hope to work as an environmental director for a company. Otherwise, I'll probably be a consultant. But one thing is certain, that I'm going to work with environmental issues in the business sector," says Maria Eriksson, a 21 year-old nearing the end of the 3-year environmental science program at Linköping University's Norrköping campus.

After a few years of liberal arts, Maria chose to major in environmental management. Like most of her fellow students, Maria will add a fourth year to earn a Masters degree.

Her classmate Johanna Eriksson is in her second year of



and the capacity to rapidly deliver emergency supplies in the event of accidents and natural disasters.

The economic aspects of the aviation industry's advantages to society are obvious. Companies are working with shorter lead times and production on demand. The products they manufacture are increasingly knowledge-intensive, making slow and unreliable transports a risky business for both suppliers and customers. As a result, they are increasingly choosing air transports for travel, cargo and delivery.

Another effect of the global economy is that companies are widening the geographic boundaries of their operations to several countries, augmenting the need for physical travel, mainly by air.

Aviation industry paying its costs in Scandinavia

The Scandinavian airlines are paying their own costs for infrastructure, social and environmental damage. This was the conclusion of the report "The Conditions for Civil Aviation in Scandinavia" that was published in the spring of 1999. On behalf of SAS, the Danish consulting firm COWI has conducted a comparative study in association with the Norwegian Institute of Transport Economics and Swedish InRegia.

In the summer of 2000, its findings were confirmed by a widely publicized study in Norway carried out by the Norwegian Institute of Transport Economics at the request of the country's Communications and Fisheries Departments and Directorate of Roads. The resulting report will provide a basis for the Norwegian parliament's decision on a new national transportation plan in the spring of 2001.

The report compares the different transportation sectors' impact on society in the form of environmental pollution, noise, accidents, traffic congestion, and infrastructural damage. This impact is then contrasted with the taxes and charges paid by the respective sectors.

The conclusion is that civil aviation is the only transportation sector that is paying for more than its share of environmental damage – to be precise, twice the amount in levies that it generates in costs to Norwegian society.

It also shows that owners of compact and mid-sized cars are doing their share. The scenario is less positive for rail, bus and streetcar traffic, which according to the

Institute of Transport Economics are only paying 10% of their costs to society. Including the subsidies these traffic sectors receive, this percentage would be even lower.

Sustainable development – higher expectations from companies

The UN Conference on Environment and Development in Rio de Janeiro in 1992 adopted Agenda 21, a global action program for the 21st century. It was resolved that sustainable development is possible only if a balanced and integrated approach to environmental protection, economic growth and social equity is taken.

In pace with deregulation and globalization of the world's economies, the influence of governments and nations has decreased. Parallel to this, there is a growing expectation for major companies to shoulder a greater social responsibility. At the same time, there are rising doubts about the business sector's sincere desire to do so. This has triggered the formation of new international organizations that are highly critical of the global economy and multinational corporations in particular.

Environmental and human rights organizations are continuously monitoring the actions of the business sector, and information about any inequities is spread at lightning speed over the Internet. Today, a reputation for environmental or social wrongdoing has immediate and tangible repercussions on a company's business.

All in all, this has increased the need for companies to maintain a dialogue with a wide range of stakeholders and to openly report its achievements, not least in the environmental area.

The business sector has taken various measures to meet society's demands, among other things by forming coalitions such as the *World Business Council for Sustainable Development* (WBCSD). The *Global Reporting Initiative* (GRI) was created by the United Nations Environment Program UNEP in partnership with the non-profit organization CERES. Many proactive companies are participating in the GRI's work to develop guidelines for voluntary corporate reporting of the environmental, economic and social dimensions of sustainable development.

SAS is following developments in both the WBCSD and GRI with keen interest. In addition, the philosophy



the environmental science program. She plans to choose environmental administration as her specialty.

"Most of all, I'd like to work with environmental, ethical and social issues in a non-profit organization. Or I might look for something in the public sector," says Johanna.

Both are student representatives to the program council, which includes members from all sectors of the labor market – the financial market, the central and local gov-

ernments, environmental organizations, public utilities, listed companies (SAS), universities and research institutes.

"The program council serves as a guarantee that we're getting the expertise needed in the market, and it gives us a sounding board when we start looking for jobs. We need to promote the environmental science program, since no one seems to know what it is yet," says Maria Eriksson.

Continued on next page →





behind the WBCSD's ecoefficiency project is reflected in SAS's environmental index. In structuring its environmental report, SAS has adopted GRI guidelines for disclosure of environmental information.

SAS has an ongoing dialogue with a variety of stakeholders that includes customers, suppliers, the financial sector, policy-makers, public authorities, environmental and human rights organizations.

The Global Compact

At the 1999 *World Economic Forum* in Davos, UN Secretary-General Kofi Annan presented *The Global Compact* – an agreement between the UN and the business sector

– which was manifested in 2000 when some 50 major corporations publicly declared their support for the initiative. The Compact is based on nine principles aimed at promoting human rights, improving labor conditions and protecting the environment. The principles derive from international conventions on human and democratic rights, as formulated in a number of UN documents that were originally intended for national governments. But as companies grow so large and influential that their turnover exceeds the GNP of entire nations, it has become increasingly vital that they take greater responsibility for the social dimensions of their operations.

Although SAS is not among the original founders of The Global Compact, the SAS Group supports this initiative. We believe that SAS meets the criteria for all nine principles, which are mirrored in the Group's environmental policy and the ethical principles expressed in SAS's internal strategy manual – The Blue Book.

Customer requirements

Price inquiries from major customers often include requests for information about SAS's environmental performance, but there are considerable differences in the scope of information requested. While some customers are satisfied to know that SAS has an ambitious environmental program, others want detailed information. This is particularly true of customers who have ISO 14001 certified their environmental management systems or have registered their operations according to the EU's Eco-Management and Audit Scheme, EMAS.

One of SAS's largest customers has gone so far as to audit its travel suppliers to ensure compliance with the environmental assurances made in their offers.

The same customer has drawn up an internal list ranking the environmental and quality performance of all travel service providers, including airlines, car rental firms and hotels.

In the customer's most recent audit, SAS was ranked number five in a group of 25 suppliers considered best from an environmental standpoint.

Global climate

The objective of the UN Convention on Climate Change in



Both women are enthusiastic about the program, which is based on the tradition of multi- and interdisciplinary research at Linköping University that was established through the creation of the Water and Environmental Studies department. Maria entered the environmental science program directly after high school, where she completed the social studies program. Johanna has a similar background, but also has a half-completed teaching degree in

Swedish and social studies and a year of studies in theology.

Both found the first year of the program, which is dominated by natural sciences, a challenge.

“Especially chemistry. But the point wasn't just to earn credits. Instead, the focus of the first course was ‘what is an environmental problem?’. The entire program is problem-oriented and we work in groups to find answers and solutions”, says Maria Eriksson, and



1992, which resulted in the Kyoto Protocol in 1997, is for all industrialized nations to reduce their emissions of greenhouse gases to less than 95 % of the 1990 level by 2012.

The transport sector is often the focus of discussions about climate change, for the obvious reason that it uses predominantly fossil fuels. The aviation industry's share of total global greenhouse gas emissions is 2–3%.

In the Nordic countries, domestic transports account for 23% of total energy use, whereas the industrial sector accounts for 38%. Within the EU, the transportation sector is responsible for 26% of carbon dioxide emissions, of which the aviation industry's share is 12%, or approximately 3% of total CO₂ emissions in the EU.

Emissions trading

The Kyoto Protocol refers to “flexible mechanisms”, of which the most important is emissions trading, or quotas. The idea is to allow countries whose CO₂ emissions are lower than permitted by the protocol to sell their quotas to another country. The intention is for this trading to take place across both industrial and national boundaries.

A system based on open trading of emissions quotas is widely supported by the business sector. However, it will require comprehensive political decisions on emissions limits.

In November 2000, a conference of the parties to the Climate Convention was held in The Hague, Netherlands. One of the objectives was to finalize guidelines for implementation of flexible mechanisms and emissions trading, but the negotiations failed and the Hague talks ended in chaos.

However, political negotiations will resume. The most interesting development is that the business sector is taking its own initiatives to establish a market-based scheme for emissions trading. Discussions have been started and experiments with both industry-affiliated and open systems are underway.

Aviation sector's environmental committee advocates emissions trading

The UN's International Civil Aviation Organization (ICAO) has had a working group under the environmental committee CAEP to investigate various market-based solu-

tions for reducing the effects of aviation on the global climate. This was undertaken in response to pressure from countries lobbying for implementation of environmental taxes, such as a CO₂ tax on jet fuel.

The CAEP analyzed the effects and limitations of various market-based solutions, including charges, taxes, voluntary agreements and two different systems for emissions trading – one closed system for the aviation industry and one system of trading across national and industrial boundaries.

The analysis considered three different goals, of which the most ambitious is for the aviation sector to meet the Kyoto Protocol's imperative for a reduction in CO₂ emissions.

The CAEP claims that fuel prices must be increased ten-fold if this goal is to be met. High taxes and charges that make flying too costly are expected to dramatically reduce air travel, and thereby also emissions. At present, it is not technologically feasible to meet this goal any other way.

The CAEP conducted a pilot study on the effects of a significant increase in fuel prices on civil aviation. It indicates that a large share of air travelers would choose road and rail traffic, thereby leading to an increase in aggregate emissions, particularly NO_x, and CO₂. Under the present conditions, an overall reduction in transports is necessary to meet the environmental goals, i.e. to reduce both CO₂ and NO_x emissions. All things considered, a shift from air to road traffic would provide no overall environmental gains.

The CAEP therefore recommends a system of open emissions trading as a significantly more efficient means for society to meet its environmental objectives, since other sources of CO₂ emissions can be reduced more cost-effectively. In this scenario, the aviation industry would be a net buyer of emissions permits into the foreseeable future.

Policy, laws and regulations

Civil aviation is regulated mainly through international agreements, primarily within the framework of the UN's International Civil Aviation Organization, ICAO. These agreements deal with matters such as noise standards and norms and emissions of CO₂. Aside from these, there are various national and regional regulations.



adds that by the time they're done, she and her classmates will be full-fledged problem-solvers and communicators.

Johanna agrees and points out that the program is based on an approach to environmental problems that has become prevalent – that they are caused not only by emissions from individual companies but are a product of consumption and lifestyle patterns. The program therefore integrates philosophy and behavioral science courses.

And since environmental problems are often global in nature, IT studies are included, partly in English.

“The term ‘holistic approach’ may be overused, but that’s exactly how I would describe the environmental science program”, concludes Johanna Eriksson.



Within the ICAO, which is composed of national representatives, decisions are based on consensus. As a result, the lowest common denominator often prevails and the EU member states feel that environmental proposals in the organization have become all too feeble.

EU

Due to the lack of international progress, at the end of 1999 the European Commission published a so-called white book. The document outlines new certification rules that can quickly phase out the noisiest aircraft and proposes stricter noise regulations in sensitive areas. It also promotes tighter restrictions on NOx emissions and the introduction of a fuel tax.

Taxes and charges

Jet fuel is tax exempt, as stipulated by a long-standing ICAO policy adopted in the early 1950s. Many countries, mainly European, have questioned this policy and there is a growing desire, or rather demand, in Europe that a CO₂ tax be levied on jet fuel.

However, that doesn't mean airlines are exempt from all forms of environmental charges. Countries like Sweden, Switzerland, Norway, Denmark and the U.K. have instead chosen to implement environmentally-based passengers charges.

As a rule, environmental charges greatly outnumber environmental taxes with respect to air transportation. (For more information about taxes and charges, see "Environment and Economy" on page 28).

Congestion in the air and on land

Steady growth in air traffic is creating problems. Shortfalls in capacity have already arisen at several major airports, especially in Europe and North America.

The results are congested airspace, delays and significantly higher fuel consumption due to lengthy airborne holding patterns.

A shortage of land and closeness to residential areas make expansion of existing major airports difficult or impossible. Operational restrictions have already been imposed at large airports near European cities, often in the form of a total ban on takeoffs and landings at night.

Certain airports are also nearing their ceilings for environmentally damaging emissions such as NOx.

In Sweden and other parts of Europe, particularly the U.K., a trend towards the establishment of secondary airports has been noted. These are often former military airports otherwise threatened with closure, or smaller airports further from population centers. They offer lower charges and are attracting cargo, charter and discount traffic.

SAS is coping with the capacity shortage by modernizing its fleet with new aircraft that meet stringent noise requirements. In order to overcome congestion problems and satisfy growing demand for air travel, in 2001 SAS will purchase new and larger airliners (Airbus 321) to traffic mediumhaul routes in Europe.

Ineffective air traffic management

Several airlines, including SAS, have invested in systems that keep flights safely separated despite heavy traffic in the airspace, but these systems cannot be fully utilized since many continental airports lack sufficiently advanced technology. More effective air traffic management could provide fuel savings of 10–18%.

Another problem is a lack of coordination in European air traffic management. So far, all discussions about joint regulation of European airspace have met with opposition due to conflicts of interest between civil and military aviation and the fact that many countries are unwilling to relinquish sovereignty over their domestic airspace – despite membership in the EU.

Technology and development

Aircraft have a long service life and tie up a considerable amount of capital – an average sized longhaul carrier costs around MSEK 1,000. This should be kept in mind when discussing the best available technology (BAT). In many cases, the new aircraft and engine technologies on the drawing board in 2001 will not be in traffic until mid-century. The time scale for aircraft development is between 5 and 10 years and the average service life of an aircraft today is around 30 years.

The aircraft and aircraft engine industry is dominated by relatively few large companies, such as the European



"I have to fly to do my job"

Anders Wijkman has a complex, even conflicting, relationship to air travel. Twenty years ago, flying was an exciting novelty. Today it's a necessary evil, and for the most part an annoyance.

"I'm over two meters tall, so even in business class it's hard to find a seat with leg room. The aircraft cabins have become more and more cramped", he says, but stresses that delays and airborne holding

patterns are a bigger problem.

"Air traffic management in Europe has serious shortcomings. Today, you can pretty much expect to get stuck in holding patterns, burning unnecessary fuel while waiting to land", says Anders Wijkman, who commutes between Stockholm, Brussels and Strasbourg every week in his duties as the Swedish Christian Democratic Party representative to the EU Parliament.



Airbus consortium and American Boeing, and in the market for smaller aircraft, Canadian Bombardier, Brazilian Embraer and German Fairchild Dornier. The leading engine manufacturers are General Electric, Rolls Royce and Pratt & Whitney, in addition to joint ventures such as CFMI, owned by General Electric and SNECMA of France, and International Aero Engine (IAE), owned by Rolls Royce and Pratt & Whitney.

The airlines play a vital role when it comes to development and environmental improvement of aircraft and engines. SAS's requirements were a driver for development of the so-called DAC engine for the Boeing 737s ordered in 1995.

Surprisingly few airlines have chosen to invest in environmentally optimized engines, which has dampened the interest of aircraft and engine manufacturers in devoting their resources to environmental improvements.

SAS is currently negotiating with three engine manufacturers to develop solutions for the Airbus 330s to be delivered starting in summer 2002. With all three, there are continuous discussions to find ways to reduce noise, emissions and fuel consumption.

In collaboration with aircraft manufacturers, SAS is exploring the potential to improve fuel-efficiency. One solution is to equip the aircraft with winglets, or turned up wing tips, that decrease air drag and consequently also fuel consumption. Certain aircraft have winglets as standard equipment, while Boeing offers them as option on certain 737s for an additional price.

Fuels

Although electric and biofuel-powered cars are already available on the market, the aviation industry will continue to be dependent on fossil fuels into the foreseeable future.

For civil aviation there are no commercially viable alternatives to fossil fuels, though research and development projects have been underway for some time. In one such project, the feasibility of powering aircraft with hydrogen is being studied.

Several research groups are investigating the potential to derive synthetic aircraft fuel from biomass, but the



projects are still in the laboratory or pilot stages. SAS is closely monitoring a project conducted by a small Gothenburg-based company in association with researchers from Chalmers University of Technology.

Noise

There is a growing awareness of aircraft noise as an environmental problem. Airports in heavily populated areas of Europe and North America are therefore implementing noise tariffs, takeoff and landing restrictions and bans on the noisiest aircraft.

The ICAO has developed a certification system of standards for aircraft noise performance. At present, the system has three levels: non-certified, chapter II and chapter III. All jet aircraft built today must fulfill the criteria for chapter III. The system is currently under revision.

The CAEP has proposed a new certification standard (chapter IV) for newly produced aircraft that is 10 EPNdB lower than for chapter III. It is proposed that chapter IV be applied for certification of new aircraft as of 1 January 2006.



"Without air travel, I wouldn't be able to do my job", he adds.

"It's unfortunate that the European railway industry has such an antiquated structure. If it were more market-oriented, rail travel would be a viable alternative even on medium-haul distances. I would choose rail travel because it offers greater comfort, convenience and relaxation, but the environmental benefits would also weigh heavily."

Environmental issues are a priority for Anders Wijkman, former Secretary-General

of the Red Cross and the Swedish Society for Nature Conservation. At one point in time, he also headed the development assistance and research institute Sarec.

With a background like that, he's fully aware of the benefits and necessity of flying.

"The Red Cross couldn't function without air travel. It's not just a matter of quickly delivering supplies to those in distress, but also a lack of alternatives. There are simply no roads"; says Anders Wijkman.

Continued on next page →





The EU and individual European countries have urged the ICAO to tighten certification requirements for noise. The EU has also requested that the ICAO implement a program for phasing out the noisiest aircraft.

However, it is highly unlikely that this will happen. When this matter was taken up by the CAEP in January 2001, no consensus was reached. The question was instead relayed to the meeting of the ICAO's general assembly in September 2001 where representation from the non-industrialized nations is higher than in the CAEP, further reducing the odds of reaching an agreement.

If the ICAO fails to reach consensus on the phase-out, the EU is expected to issue a phase-out directive that applies throughout the Union, as has been done earlier.

The EU has an ordinance that bans operation of chap-

ter II and certification of hushkitted chapter III aircraft (chapter II aircraft with engines that have been hushkitted to meet the minimum criteria for chapter III) with effect from 2002.

The U.S. has protested on the grounds that this ordinance is a trade barrier, but the EC has been relatively unmoved by this claim.

SAS is not affected by the EU's current noise ordinance, since the Group has modernized its aircraft fleet and no longer uses any chapter II or hushkitted aircraft in its own traffic.

If the new chapter IV standard is adopted, the repercussions for SAS are more difficult to assess. Although the requirements apply only to new aircraft certified after 2006 and will not affect existing aircraft, in reality a decision on chapter IV as worded in January 2001 could lead to lower resale values for certain aircraft in the SAS fleet.

Chapter IV will alleviate aircraft noise only in a very long-term perspective. Furthermore, it could compel the EU or individual airports, which already have a difficult noise situation, to introduce even tighter restrictions on the noisiest aircraft during certain hours of the day. Many airports already have operational restrictions on chapter II and hushkitted chapter III aircraft, but these measures are considered inadequate in the most noise-sensitive areas. As a result, it is likely that noise restrictions will be tightened.

This will limit the scope for SAS and other airlines to utilize their entire fleets with optimal economy. The possible consequences are that certain aircraft types could be banned locally, diminishing their usefulness and forcing the airlines to purchase new aircraft at a considerable extra cost. In addition, it could impair the resale value of aircraft with narrow margins for meeting Chapter IV criteria, which in a worst-case scenario could affect SAS's MD-80 fleet.



As a politician with a deeply rooted environmental commitment, it's second nature to advocate taxation of jet fuel. "It's tragic that we haven't succeeded in establishing international regulations for fuel tax, or rather, carbon dioxide tax. I would also add that it's both unjust and wrong that the aviation industry is the only transportation sector that is normally exempted from CO₂ tax", he remarks.

"Air transportation may be responsible for a relatively small share of global CO₂ emissions – compared with road traffic – but I feel that the

industry should do its part to reduce greenhouse gas emissions. What's more, the volume of air traffic and related emissions is growing continuously," he points out, and adds that he wouldn't be opposed to a CO₂ tax on all inter-European air traffic.

"I also think we need to consider whether it hasn't become too cheap to take charter flights to exotic places to the extent we're doing today. It's a radical idea, I know, but there are limits to what nature can tolerate."



Organization and operations

Environmental activities are a fully integrated aspect of SAS's operational management. SAS's goal is to further develop its environmental management into a documentable system incorporating the criteria in the international ISO 14001 standard as minimum requirements. A new web-based environmental training program will be launched during the spring of 2001 and will eventually be completed by all employees.

SAS's core activity, airline services, is governed by stringent national and international regulations with regard to quality and safety. In order to meet the applicable requirements, SAS has a special organization for systematic quality control and follow-up. As a rule, the environmental and quality systems used by SAS are far more rigorous than the more general standards in ISO 9000 and 14000.

SAS conducts environmental work as a fully integrated aspect of *Total Quality Management* (TQM), and consequently has no separate environmental management system. Every manager with budget responsibility is obligated to include an environmental impact assessment in the grounds for decision-making.

SAS's goal is to develop its environmental management into a documentable system with the international ISO 14001 standard as a minimum requirement. The decision to apply for ISO 14001 certification is made by the respective manager with regard to the established business strategy.

Basis for SAS's environmental operations

The environmental goals and strategies are adopted yearly by the SAS Management Team as part of their TQM work. Aside from business strategies, their decisions are based on assessment of the significant environmental aspects of the Group's operations.

SAS's environmental vision, policy, goals, and strategies are described on this page.

Follow-up of environmental operations

Environmental activities are followed up every year, particularly in connection with compilation of data for the environmental report. Starting in 1999, this data is collected in a database that facilitates comparisons between years.

SAS's environmental indexes are reviewed twice yearly by the *SAS Management Team* (SMT) and *Production Management Board* (PMB) in order to review progress, discuss environmental management and ensure thorough follow-up.

No separate environmental audits are carried out, but environmental aspects are included in SAS's regular internal audits. Planning, implementation, reporting and follow-up are handled by SAS's Health, Environment and Safety departments (HES).

The overall goals are broken down into subgoals targeting operations in the respective divisions. In addition, every year SAS draws up an environmental program cov-

ering the objectives that are prioritized for the next two years. When the new program is adopted, a report on activities and achievements during the past year is presented.

The divisions are responsible for reviewing their own environmental goal attainment.

SAS's environmental vision, policy, goals and strategies

Eco-political vision

SAS's eco-political vision is for all four transport sectors (road, rail, sea and air) to pay for both investments in, and use of, their infrastructures, other costs to society (e.g. accidents) and environmental damage according to the "polluter pays principle", after which they should compete in a uniform and competitively neutral transport system.

Policy

- SAS will develop profitably in free competition, with optimal utilization of resources and minimum environmental impact, in order to contribute to environmentally sustainable development of society.

Overall goals

- Within the framework of SAS's financial and qualitative goals, all operations shall be conducted so as to cause the least possible environmental impact.
- SAS shall have one of the airline industry's most ambitious environmental programs.
- SAS shall have environmental standards equivalent to the foremost competitors in the industry.
- SAS's environmental goals and measures shall be coordinated and harmonized with other production, qualitative and financial goals.

Communication goals

- SAS shall provide an account of its environmental performance in a separate environmental report.
- SAS shall promote an understanding of the role and environmental impact of civil aviation among external stakeholders.

Strategy

- Environmental activities shall be conducted at all levels and within all units, thus increasing environmental awareness throughout the organization.
- Environmental aspects shall be included in the grounds for all decisions in the line organization.
- SAS shall utilize/implement the methods that result in the lowest possible environmental impact.

The eco-political vision, policy, goals and strategies were originally adopted by the SAS Management Team in 1995 and have been revised thereafter according to plan. The Board of SAS has most recently reviewed the environmental policy and strategy at a board meeting in early March 2001.

SAS's environmental organization

SAS's environmental activities are led by the SAS Management Team, SMT. Overall responsibility for environmental issues lies with SAS's information director, whose official title is *Senior Vice President, Public Relations and*

Government Affairs. Reporting to him is the Environmental Director, who coordinates the activities of the Group's environmental staff.

The Environmental Director also oversees the activities of the SAS Environmental Forum, made up of repre-

SAS's environmental program				
	Program 2000	Achieved	Program 2001	Program 2002
Development of the aircraft fleet	<ul style="list-style-type: none"> Ongoing environmental modification of SAS's aircraft fleet. 	✓	<ul style="list-style-type: none"> SAS continues to phase in new Airbus, Boeing and Bombardier aircraft that reduce relative environmental impact. SAS conducts a dialogue with engine and aircraft manufacturers on further development and environmental modification of new aircraft models. 	<ul style="list-style-type: none"> SAS continues environmental modification of the aircraft fleet by phasing in new Airbus models and phasing out F-28s and hushkitted DC-9s. SAS intensifies its dialogue with engine and aircraft manufacturers to achieve further environmental improvements.
Framework and collaboration	<ul style="list-style-type: none"> SAS continues to develop its work on the regulatory framework of the airline industry. SAS collaborates with its partners to increase environmental benchmarking.¹ 	✓	<ul style="list-style-type: none"> SAS advances its work on the regulatory framework of the airline industry. SAS works with selected partners to improve environmental performance and facilitate environmental benchmarking in the airline industry. 	<ul style="list-style-type: none"> SAS prioritizes work on the regulatory framework of the airline industry. SAS continues to work with selected partners to improve environmental performance and facilitate environmental benchmarking.
Process and organization	<ul style="list-style-type: none"> SAS continues to develop its environmental management system towards ISO 14001. SAS further develops its examination of environmental data towards more conclusive verification and validation.² 	✓	<ul style="list-style-type: none"> SAS evaluates and possibly seeks environmental certification of prioritized parts of its operations. SAS improves its environmental index by 3 points from the 2000 level to 2001. 	<ul style="list-style-type: none"> SAS continues to develop its environmental management system towards ISO 14001. Parts of Scandinavian operations certified according to ISO 14001. SAS improves its environmental index by 3 points from 2001 to 2002.
Training	<ul style="list-style-type: none"> SAS develops the environmental elements that are integrated in the Group's other management training programs. Environmental elements are integrated into SAS's employee training as a separate computer-based course.³ SAS develops an environmental training program for its operations.⁴ 	✓	<ul style="list-style-type: none"> 15% of SAS's employees have received environmental training according to the criteria in ISO 14001. 	<ul style="list-style-type: none"> 30% of SAS's employees have received environmental training according to the criteria in ISO 14001.
Communication and image	<ul style="list-style-type: none"> SAS directs its communication about resource consumption and environmental impact to various target groups with the help of additional media and channels. SAS conducts planned and systematic market communication about the environmental aspects of its operations.⁵ SAS achieves a significant improvement in its environmental image compared with 1997 and is perceived as one of the leaders in the airline industry, also by the general public. 	✓	<ul style="list-style-type: none"> SAS further develops its communication about resource consumption and environmental impact for various target groups via additional media and channels. SAS develops the environmental report to include ethical/social issues. Environmental information is effectively integrated into the annual report. Distribution via the Internet is also developed. SAS further develops planned and systematic market communication about the environmental aspects of operations. SAS's environmental image is improved in SAS TOTQ.⁶ SAS is perceived by the general public as a leading airline in the environmental area. 	<ul style="list-style-type: none"> SAS systematizes environmental communication for various target groups and increases the availability of information via additional media and channels. SAS continues to develop its environmental report towards sustainability reporting, which also includes the social aspects of operations. SAS's improves its environmental image via SAS TOTQ by 2% from 2001 to 2002.⁶

¹SAS has not achieved the desired effect.

²Achieved already in 1999.

³Development of a web-based environmental training program was started in 2000, but the program will not be ready for use until 2001.

⁴Preparation of an environmental training plan has been moved forward and will not be completed until the web-based training program can be used.

⁵Efforts to reinforce environmental market communication have not progressed as far as anticipated, since the new environmental communicator was on maternity leave for most of the year.

⁶TOTQ is SAS's method for measuring how SAS is perceived by the general public.

representatives from SAS's various areas of operation. Their task is to ensure that environmental activities are integrated into the line organization and that SAS complies with internal and external environmental requirements. The heads of the Health, Environment and Safety departments (HES) in Denmark, Norway and Sweden appoint a member of their respective staffs to coordinate environmental activities at the national level. The national environmental coordinators also participate in the environmental forum and meet with the Environmental Director when the need arises.

To deal with activities related to SAS, the aviation industry and society, a cross-functional working group was established several years ago. The group's primary task is to handle contacts with public authorities and other stakeholders in matters related to taxes, levies, regulations and the eventuality of emissions trading, areas where environmental aspects have become increasingly prominent.

Information and training

All managers and key staff within SAS are given environmental training, since environmental competency is one of the cornerstones of the company's basic training and expertise development.

SAS is developing its own web-based environmental training program that will be launched on the intranet during 2001. In time, all employees will participate, but the short-term goal is for 15% of the personnel to have completed the program by the end of 2001.

SAS's environmental report is as a vital source of information about environmental conditions and achievements for all employees. SAS's staff magazines and intranet are other channels for environmental communication.

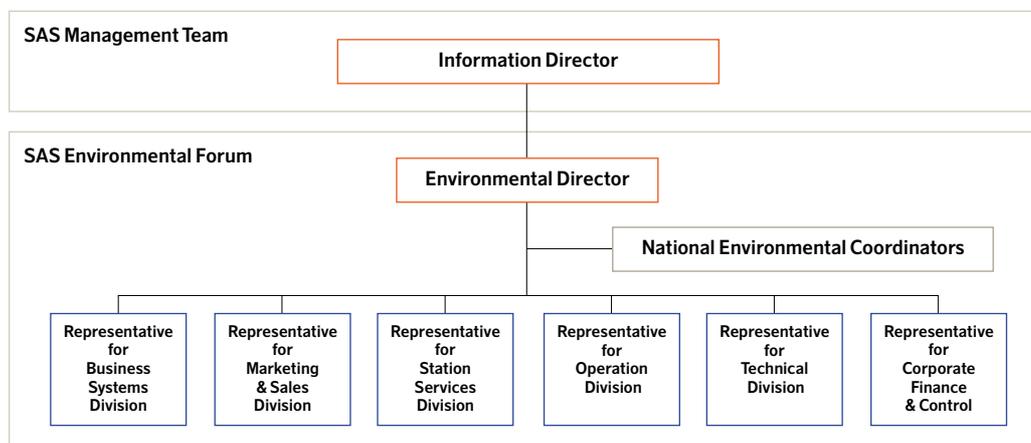
Information and initiatives from the organization are assimilated through the TQM process, the national health, environment and safety units and suggestion boxes.



Subcontractors and other external contacts

SAS's purchasing manual stipulates that all suppliers must meet SAS's environmental requirements in both negotiation of new contracts and renewal of existing ones. In general, SAS demands that its suppliers have an environmental policy and action program for environ-

SAS's Environmental Organization



mental work, can document environmental data for the goods and services SAS buys and that their own suppliers can meet the same criteria.

The greatest environmental advances are achieved through the specifications SAS makes when ordering new aircraft. During the negotiation process, SAS deliberates with several aircraft and engine manufacturers. SAS's policy is for the new aircraft to have a superior environmental performance to the aircraft they will replace, and to always use the best commercially available environmental technology.

Other stakeholders

SAS has an ongoing dialogue with a variety of stakeholders other than the company's own partners and suppliers, such as influential environmental organizations in Europe. The purpose of these discussions is to increase awareness of the external demands on SAS as a good corporate citizen and to inform these organizations about the regulatory framework for the airline industry. The goal is to find common ground in issues affecting development towards a sustainable society.

Since 1998, SAS collaborates actively with Save the Children in Denmark, Norway and Sweden. Within the framework of B7, an environmental project conducted by the Norwegian environmental foundation Bellona in collaboration with SAS and 24 other private and public enterprises, the objective is to agree on effective long-term environmental requirements for the business sector to promote new environmental technology and sustainable development.

Collaborations and industry organizations

SAS is part of Star Alliance, the world's largest airline network, whose members include SAS and 14 other major airlines. Star Alliance has an environmental committee in which SAS is an active participant. Star Alliance has a joint Environmental Commitment Statement in which the airlines pledge to work for continuous environmental improvements and to promote development of environmental technology in their procurements.

SAS also participates in the environmental programs of the three national industry organizations Flyselskaperens Landsforening in Norway, Föreningen Svenskt Flyg in Sweden and Dansk Industri in Denmark.

SAS has a long-standing dialogue about environmental issues with the national environmental and communications departments in the three Scandinavian countries.

SAS also works closely with the airport operators, above all at the three main airports in Copenhagen, Oslo and Stockholm.

In the international arena, SAS is active in central agencies such as the International Civil Aviation Organization (ICAO), where SAS represents the International Air Transport Association (IATA) in the ICAO expert group CAEP. SAS is also part of the IATA's Environmental Task Force (ENTAF) and plays an active role in environmental projects and committees in the Inflight Catering Association (IFCA) and the Association of European Airlines (AEA).

SAS is also active in the Nordic working group for environmental issues in aviation (N-ALM), to increase awareness of the Scandinavian perspective in international organizations such as the ICAO.

Research and development

SAS engages in a continuous and systematic dialogue with aircraft and engine manufacturers to promote development of more environmentally adapted technology. The SAS Group conducts basic research and studies on the airline industry's environmental impact through organizations such as the ICAO, IATA and AEA, and has been actively involved in the EU-funded project AERO-CERT, which follows up how actual operating emissions correlate to the data used for certification.

SAS maintains vital contact with Scandinavian universities and colleges and provides opportunities for academic thesis research. SAS is a contributor to the Environmental Science program at Linköping University's campus in Norrköping.

Environmental profiling and sponsorship

Strategic target groups for SAS's environmental communication include customers, suppliers, employees, the general public, the mass media and public authorities. As a result, SAS participates in seminars and debates and holds lectures at universities and colleges.

The motive for these activities is the conviction that a well developed environmental dimension in a corporate brand maximizes its commercial potential and provides the company with new opportunities for business development.

In addition, SAS has chosen to sponsor a number of different environmental projects.

Together with Coca-Cola, SAS manages a foundation to improve the aquatic environment in the Nordic region. The foundation awards five grants every year.

SAS is head sponsor of the newly established Sofie Award in Norway and the environmental award instituted by the crown princes of Denmark and Spain, the *Princes' Award*.

SAS is a partner in the independent environmental organization *Worldwatch Institute* and a long-standing corporate partner of the World Wildlife Foundation, WWF.

SAS provides funding for projects aimed at environmental education for children, such as the "Nature and Environment" folder that is given to schoolchildren in Sweden. SAS has financed this folder for children in the municipality of Sigtuna, where Arlanda airport is located. SAS supports publication of "The Environmental Book" – a teaching aid funded by the business sector and distributed free of charge to elementary schools in Sweden and Norway. In Norway SAS also sponsors Blekkulf's Miljø-detektiver, an environmental program directed to children.

Reporting

Board of Directors'
environmental report
Environment and economy
Environmental index
Environmental accounts
Auditors' statement



Board of Directors' environmental report

SAS's overall ecoefficiency is measured with the help of an environmental index. In 2000 this index improved by 6 points, mainly thanks to the phase-in of 19 new Boeing 737s – which is reflected in decreased fuel consumption, reduced emissions of HCs and NO_x, and therefore also lower environmental charges.

Flight operations

Flight operations account for 90% of SAS's total environmental impact. On a global scale, aircraft emissions of CO₂ affect the climate and stratospheric emissions of NO_x contribute to depletion of the ozone layer. At the local level, the environmental impact of flight operations is associated with noise during takeoff and landing. Furthermore, local emissions of NO_x cause acidification and eutrophication.

In 2000, SAS's production increased by 2.7% to 4,763 (4,636) MATK. At the same time, production increased by 5.1% to 3,088 (2,938) MRTK. The most significant

improvements were noted in relation to passengers, where ecoefficiency increased by 5.6% expressed in RPK.

In 2000, SAS recorded its highest cabin factor since 1992. Compared with 1999, it increased by over 3 percentage points to 67%, or 73% including passengers paying less than 25% of the regular ticket price.

Fuel consumption and emissions

At the same time that SAS's total production increased, fuel consumption fell by 1.6% to 1,645,739 (1,673,265) m³. In relation to the number of tonnes transported and distance flown, SAS's fuel-efficiency improved to 45.9 kg (46.7) kg/100 RPK, corresponding to 5.7 (6.1) kg/100 RPK. This calculation does not include the cargo capacity SAS Cargo has leased from Lufthansa for the past 18 months. The aircraft type used is the MD-11, a cargo carrier with good environmental performance.

In 2000, SAS's total emissions of CO₂ and NO_x continued to decrease. The year's fuel consumption corresponds to emissions of 4,095 (4,164) ktonnes of CO₂, 14.35 (14.52) ktonnes of NO_x and 1.55 (1.84) ktonnes of HCs. The reductions are mainly due to the phase-in of new aircraft that started in 1998 and will be completed in 2004.

Development of the aircraft fleet

SAS's total fleet increased by 13 aircraft during 2000 and amounted to 203 aircraft at year-end. Of the 18 aircraft not operated by SAS, 8 were leased to other airlines. A total of 32 aircraft were phased in during the year, while 19 were phased out. Aside from three F-28s that were sold, all of the phased-out aircraft were operated on lease to other airlines. All hushkitted DC-9-21s have been phased out of SAS's fleet and the last F-28s will be

ATK, RTK, ASK and RPK are production factors

ATK – Available Tonne Kilometers, available (offered) capacity for passengers and cargo expressed in metric tonnes, multiplied by the distance flown (Great Circle Distance – GCD) in km for every individual flight. GDC is the shortest flight distance between two points, taking the curve of the earth's surface into account.

MATK – Million ATK.

RTK – Revenue Tonne Kilometers, utilized (sold) passenger and cargo capacity expressed in tonnes (metric tons), multiplied by the distance flown (GDC) in km for every individual flight.

MRTK – Million RTK.

ASK – Available Seat Kilometers, the available (offered) number of passenger seats multiplied by the distance flown (GDC) in km for every individual flight.

RPK – Revenue Passenger Kilometers, utilized (sold) capacity for passengers expressed as the number of sold seats multiplied by the distance flown (GDC) in km for every individual flight.

Speed and punctuality are decisive

"As the value of goods increases, you see a systematic shift from rail and sea to truck and air transports," says Åke E Andersson, professor of infrastructural economics at the Royal Institute of Technology in Stockholm. "This is also true for passenger transportation", he adds.

"You don't send 200-dollar-an-hour consultants from Stockholm to Copenhagen by train. You send them by air. The same rule applies to valuable spare parts, expensive products and life-saving medical equipment. Speed and punctuality are decisive, not ticket price", he says.



phased out in 2001. Since the end of October, SAS operates two Embraer 145s from Skyways on a “wet lease” basis. Fuel consumption and emissions from these aircraft are included in the reported data.

SAS took delivery of 19 Boeing 737s during 2000. At year-end, SAS’s order was for 58 Boeing 737s, of which 48 have been delivered so far. During the year, Bombardier delivered 11 de Havilland Q400 turboprop aircraft to SAS Commuter.

The Boeing 737s, which will primarily replace Fokker F-28s and McDonnell Douglas DC-9s, are equipped with DAC engines that consume 20% less fuel than their predecessors, providing a 20% reduction in carbon dioxide emissions. Furthermore, the DAC engines produce 40% lower nitrogen oxide emissions than those being replaced.

The phase-in of Boeing 737s into Swedish domestic traffic during 2000 reduced emissions charges by MSEK 11 compared with the cost for the old aircraft fleet.

In 2000 SAS launched the “*Configuration 2000*” project to reconfigure 73 MD-80s and MD-90s to seat 8–9% more passengers, thus reducing relative environmental impact still further.

SAS has signed an agreement with Airbus to purchase a total of 22 aircraft. The agreement includes 10 aircraft for SAS’s intercontinental routes and 12 airliners for SAS’s leading European routes in order to satisfy rising traffic growth in Europe. SAS has a further option for an additional 15 Airbus aircraft.

Airbus A330-330s and A340-300s will replace the Boeing 767-300ERs that have been used in SAS’s fleet since 1989 for intercontinental traffic. Four A340-300s will be delivered in the second half of 2001 and the first is expected to go into traffic during September.

Both the A330s and A340s will have 40% more seats than the Boeing 767-300ERs they are to replace – 261 seats instead of 189. Cargo capacity will also increase when the old 767s are replaced. The effective increase in most cases will be 40–45%. Compared with the earlier aircraft, the new ones consume less fuel per seat and have a substantially higher load factor that reduces relative emissions by 10–20%.

With regard to the A330, SAS is discussing with several engine manufacturers to ensure access to the best

available environmental technology. The final engine selection will be made in April 2001.

For traffic on European routes, SAS chose to order 12 Airbus A321s fitted with 184 seats, compared with the 147 seats in the MD-90. Three A231s will be phased into the fleet during late autumn 2001.

In the A321, SAS had the option of choosing a CFM56 engine from the same family as that in the new Boeing 737. The CFM engine is also available in a DAC version. However, to attain the best total economy another engine was chosen – a V2500 from International Aero Engine (IAE) – the engine used in SAS’s MD-90s. Both engines have similar fuel economy, but one key reason for choosing the V2500 is that it has the best noise performance in its class. This is an important criterion for aircraft in European traffic, where noise restrictions and charges are increasingly common.

During the year SAS had certain technical difficulties with the DAC engines in the new Boeing 737s. These did not lead to any incidents and the problems were detected by SAS’s technical inspections. The performance of the engines was not affected, but they had to be replaced to a greater extent than anticipated. The engine manufacturer CFM is working to improve the parts that failed to meet normal durability standards.

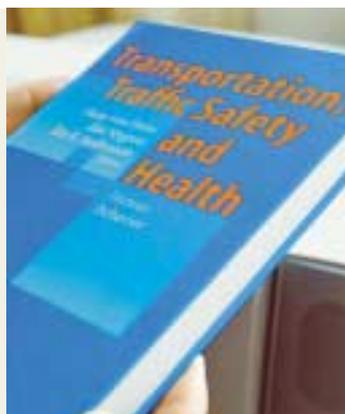
Delivery of the de Havilland Q400s has been delayed and certain technical problems have arisen, for which reason SAS has received financial compensation following negotiations with Bombardier.

Cabin operations

In August 2000, SAS changed to a new caterer for inflight food service. The new caterer – Lufthansa-owned LSG Skychefs – had start-up problems (see under Permits, infringements and disputes).

LSG Skychefs works according to SAS’s requirements for continuous improvement, focusing on energy and water consumption and waste volumes per meal served. LSG’s environmental objectives are well matched to SAS’s goal to reduce energy and water consumption by 20% and waste volumes by 30% per meal by 2001, compared with 1997.

Due to the change of caterer, there is no data for meas-



Åke E Andersson, former director of the Institute for Future Studies, and, in the early eighties, originator of the expression “the C society”, where C stands for creativity, communication and culture.

The C society is often described as an urban phenomenon. In the spontaneous interactions sparked in a teeming urban environment – close to airports, traffic thoroughfares and universities – creativity arises and flourishes.

Information technology plays a central role in the C society. Åke E Andersson says that IT is a paradox in that it influences both supply and demand.

Continued on next page →



uring goal attainment. SAS has not received any data from the former supplier and the data from LSG covers too short a period to provide an accurate picture of the full-year results.

During the year, the Products & Services department, which deals with all services customers meet from lounge to gate to cabin, conducted a large-scale survey among the employees. The results of the survey will provide a basis for formulating the department's strategic and operational perspective.

Ground operations

The volume of pre-sorted paper and cardboard decreased by 1.2% to 825 (835) tonnes.

The total waste volume in ground operations rose by 24% to 4,064 (3,281) tonnes (not including hazardous waste). The volume of hazardous waste increased by 33% to 1,306 (983) tonnes. The increase is explained by a temporary capacity shortage in the purification plant at Gardermoen during 2000, when water had to be transported as hazardous waste at a cost of more than MSEK 2.

The ongoing efficiency program reduced SAS's energy consumption in ground operations to 345 (349) kWh/m², a decrease of 1.1%.

SAS's water consumption in ground operations during 2000 was 194,359 (215,476) m³, a decrease of 9.8%.

Analyses at Copenhagen Airport revealed the presence of heavy metals, mainly cadmium and chromium, in water from airplane washing. The county of Copenhagen has ordered both the airport and airlines to take corrective measures by mid-year 2001, at the latest.

In late 1999, SAS began planning a new wastewater purification plant adjacent to its hangars at Copenhagen Airport. However, this work was suspended in 2000 pending the results of a study on the potential for setting up a joint facility for several users. The estimated cost for the purification plants at SAS's hangars is MSEK 6.

In 2000, SAS Commuter paved the way as the first airline operator at Copenhagen Airport to open a purification plant for wastewater treatment at the company's new hangar, where heavy metals, oil and detergents are separated and disposed of appropriately. The investment cost for the facility was MSEK 3.3.

At Gardermoen, SAS's Technical Division started construction of a large-scale purification plant for process water. The new plant, with a projected investment cost of MSEK 7.3, will be completed in April 2001.

SAS has obtained an environmental permit to begin building a manned waste recycling station at Copenhagen Airport. The goal is to raise the quality of pre-sorted material and thereby facilitate recycling. The sorted waste fractions include plastic, paper, cardboard, fluorescent lamps, PVC, aluminum, electronic scrap and miscellaneous.

In 2000 SAS changed over to a triazol-free deicing fluid at the Scandinavian airports. Triazol is a non-degradable and long-lived organic compound, attributes so alarming that SAS has decided to phase out this substance even though the authorities have not made any such demands.

The technical division at Gardermoen has started a changeover from solvent-based to water-based paints.

SAS's joint Scandinavian database for chemical products, which includes some 1,000 chemicals, was further developed. Product fact sheets are posted on SAS's intranet and are accessible to all employees. The fact sheets focus mainly on protection and safety aspects related to handling of chemicals.

In 2000, SAS's property department in Copenhagen conducted an energy-saving campaign. Two older buildings were connected to the district heating network. In order to meet the network requirement that the water be cooled to 32°C, SAS installed accumulator tanks through which the water circulates before returning to the heating plant. This has improved the heating plant's operating economy and has given SAS lower energy costs and a lower overall environmental impact.

The property department in Copenhagen conducted a pilot study in which control units were installed to optimize operation of gas and oil-fired boilers that heat an area of approx. 36,000 m² in two terminal buildings. The supplier of the control system promises annual energy savings of at least 12%. Measurements of energy use in the third quarter of 2000 showed a full 40% reduction in energy consumption. However, it is still too early to assess the total energy savings.



"Today, air travel without IT is inconceivable. In the aviation industry, information technology is fully integrated into everything from ticket reservations to air traffic control. But it also affects demand for transports. Since e-commerce, particularly B2B, has made it possible to shop across long distances, there is a growing demand for rapid transports."

There is a widespread misconception that telecommunication will replace real-life interaction between people. According

to Åke E Andersson, studies show that this is true when it comes to trivial matters such as banking transactions or routines contacts.

"But you can't generalize this to unique events. While the industrial society was largely focused on the routine, the information and communication society is more oriented towards the unique. Competition is intensifying in creative fields such as R&D, marketing and design, raising the frequency of non-routine contacts."



Due to the new bridge with faster train connections over the Öresund Sound, SAS discontinued boat traffic across the sound at the end of August 2000. During the period January–August, the catamaran consumed 1.7 million liters of fuel.

Permits, infringements, incidents and disputes

In relation to the size of the SAS Group, the total number of environmental permit infringements, incidents, disputes and complaints during the year was low and of minor environmental and economic significance.

Permits and reporting

Flight operations as such are not regulated by environmental permitting requirements, but must comply with the terms for the various airport operators. In certain cases, government rules and regulations apply to operators with flight operations in that country.

However, every aircraft model must be environmentally certified. It is the responsibility of the aircraft manufacturer to ensure that all aircraft meet the certification standards for noise and that the engines satisfy the emission certification requirements established by the UN's civil aviation organization ICAO. Before a new aircraft type is introduced into traffic in a country, it must be registered by the national civil aviation authority, a process that also includes environmental approval.

Cabin operations are not environmentally regulated, but collaborate with suppliers who are subject to national or local permits and regulations, such as veterinary and public health ordinances related to handling of food products and organic waste.

At certain airports with extensive activity, such as Arlanda, ground operations are regulated by environmental permits. SAS's Technical Division has operations at Arlanda that require permits according to the Swedish environmental code. These workshop operations are conducted on a floor space of around 56,000 m², corresponding to 24% of SAS's total floor space at Arlanda of around 256,000 m², where SAS has worked under provisional conditions for several years while awaiting final terms. The matter was to be resolved by the Stockholm

district court by April 1, 2001, but has been delayed for close to a year due to a case pile-up.

With effect from 1 July, 1999, all potentially polluting operations at Copenhagen Airport must submit environmental and technical descriptions of their operations. After an approved deferral, the vehicle maintenance and tool department submitted its environmental-technical report in 2000 and is now awaiting comments and final conditions from the authorities. The hangar area is also awaiting conditions from the authorities.

Apart from the above, SAS has no operations that require reporting or permits according to the applicable environmental legislation.

Infringements

In 2000, SAS essentially complied with all permits applying to its operations. However, in a few isolated cases SAS deviated from approach and departure routes or violated noise-related time restrictions during landing, which increased landing charges by approx. MSEK 1.

Incidents

On four occasions in 2000, SAS jettisoned fuel for safety reasons. 15.2 tonnes were jettisoned in the Copenhagen area in January, 18 tonnes were jettisoned near Chicago in July and 0.1 tonne of fuel was jettisoned over the airport in Montreal on two separate occasions.

In January, glycol was overfilled at Östersund airport. The incident was investigated and documented. No damage was reported at the municipal wastewater treatment plant.

During a violent storm in December 1999, 20 m³ of glycol leaked from a tank at Landvetter airport. The incident was the object of a police investigation during 2000 in which SAS's role was also examined. The conclusion was that the leak caused minimal environmental damage. The Swedish Civil Aviation Authority has taken responsibility for any decontamination costs.

In September, the Danish food and drug administration carried out a routine inspection of LSG Skycheffs' facilities at Copenhagen Airport. In connection with the inspection LSG was cited for numerous infractions and was ordered to pay fines, mainly related to hygiene. LSG



“Every creative and intellectual process is aimed at convincing and negotiating, a context where IT is not an effective tool. You need personal contact and interaction.”

Åke E Andersson refers to a study by George Mason University in Washington D.C. on the correlation between the use of information technology and passenger transports. In rough outlines, it showed that in the states with low technological development, e.g. agricultural states like

Arkansas, the number of passenger transports tends to decrease in pace with growing use of IT. But the opposite is true in high-tech states like California, with a high concentration of knowledge-based industries and where passenger transports, especially air travel, are increasing.





Skychefs is SAS's new caterer, and SAS has assured that LSG has corrected all deficiencies.

In 1999, soil contamination was discovered near SAS's head office in Copenhagen. The source of contamination was a neighboring site. The issue was resolved when the site was paved over and converted into a parking lot, a measure deemed adequate by the Danish authorities. SAS has not borne any costs for this.

To SAS's knowledge, no other significant incidents have occurred.

Legal disputes

A complaint filed by the Danish Civil Aviation Authority in 1997 claims that SAS has violated local regulations on braking with the help of jet engines at Copenhagen Airport. The case was dismissed when the reliability of the evidence, i.e. the recorded noise data, was questioned. As a result, the Danish Civil Aviation Authority has proposed that a committee be established to promote noise-reduction measures around the airport. SAS will be an active member.

The Danish Supreme Court has settled a dispute between SAS and another party regarding a land clean-up at Copenhagen Airport, where SAS has built a new component workshop. The dispute between SAS and the earlier landowner concerns responsibility for necessary decontamination measures. SAS's opponent lost the case in the High Court in 1999. The Supreme Court upheld this decision in 2000. Apart from this, no environmental disputes related to SAS's operations are in progress.

Changes in environmental regulations

In October 2000, the Swedish Civil Aviation Authority

introduced new regulations for noise charges. Aircraft were previously classified as chapter II or chapter III according to the ICAO's scheme, whereas the new system, developed by the European Civil Aviation Coalition, ECAC, is based on the individual noise certification values of each aircraft.

The system will enable airports to impose varying tariffs depending on the severity of local noise problems. For example, Arlanda applies a noise charge that varies between SEK 30 and SEK 600 per landing. More and more airports in Europe are expected to implement systems of this type.

Noise restrictions in Amsterdam will be tightened in March 2001, after which the noisiest aircraft will not be allowed to take off or land at night. SAS will adjust its aircraft fleet in Amsterdam to meet these requirements.

At Zurich airport, the implementation of a SEK 20 noise charge on every departing passenger is under discussion. This system does not take aircraft noise performance into account. The purpose of the charge is to cover costs amounting to nearly MSEK 3,000 for noise insulation of properties close to the airport, which is a prerequisite for airport extension. The charge is expected to be effective as of April 2001.

Insurance, preparedness, preventive measures

Due to the nature of SAS's operations, the possibility of accidents with a negative impact on the environment cannot be ruled out. SAS's insurance covers the company's financial liability for environmental damage in the event of accidents and unexpected occurrences. SAS has organizational resources, contingency plans and preparedness for action in the event of crashes, accidents and incidents that can lead to contamination, in certain cases jointly with the airport operator.

Other environmental matters

The Norwegian Pollution Control Authority, SFT, has given Oslo Lufthavn (OSL) new limit values for acetate, glycol and formiat concentrations in areas close to surface water reservoirs. According to OSL, SFT's criteria will make it impossible to keep runways at Gardermoen ice and skid-free during certain periods, which could lead to disruptions in air traffic for SAS. OSL has considered appealing the decision to the Ministry of the Environment.

Environment and economy

In 2000 environmentally related charges decreased in comparison with earlier years – by 17% to MSEK 914 (1,096). In relation to operating revenue, these charges dropped to 2.1% from 2.7% the year before.

One explanation for the reduction is that the Norwegian civil aviation authority changed its former seat fee to a terminal charge with no environmental connection.

The considerable decrease compared with earlier years is also due to the fact that SAS paid significantly lower charges for NOx emissions in Sweden during 2000. Aside from Switzerland, Sweden is the only country with emissions-related landing charges. Following

SAS's phase-in of 19 new Boeing 737s during the year – with 40% lower NOx emissions than the aircraft they are replacing – emissions charges have decreased by MSEK 11, corresponding to 3% of the total landing fees SAS pays in Sweden.

Since most of the aircraft were phased in at the end of 2000, the full effects will not be visible until 2001 when landing charges in Sweden are expected to decrease by MSEK 22 thanks to SAS's introduction of aircraft with low-emission DAC engines.

With effect from 1 October 2000, the Swedish airports apply a new system for noise-related landing charges. Now that the noisiest aircraft have been replaced with models that are among the quietest on the market, SAS's noise-related charges in Sweden are expected to decrease by MSEK 4 in 2001.

Norway is the first and, so far, the only country to impose a combined charge on CO₂ and sulfur emissions. SAS sees this charge, which applies only to domestic traffic, as competition-distorting. In 2000 SAS's CO₂ charges in Norway amounted to MSEK 40.3, approx. MSEK 8 less than in 1999 due to lower production and reduced fuel consumption owing to the phase-in of new aircraft.

Gardermoen airport has introduced a 50% surcharge on flights landing between 11 p.m. and 6 a.m. The night charge is considered environmentally motivated. In 2000 SAS paid MSEK 1.1 in night charges, compared with MSEK 1.7 the year before.

In December 1999 EFTA's surveillance authority, ESA, ruled that the Norwegian system of differentiated seat charges was contrary to EU law. As of 2001, Norway has introduced a uniform charge of SEK 133 per passenger on domestic and international flights, with the exception of flights within northern Norway. Here, all flights except those between Oslo–Tromsø and Oslo–Bodø are exempt from this charge.

SAS has been in dispute with the Norwegian Pollution Control Authority, SFT, and the Customs and Tariffs Directorate, TAD, over charges for aluminum cans. The dispute was settled in 2000 and SAS has been ordered to collect 80% of all aluminum cans and pay 20% of the full environmental fee for all cans. The sum for 2000 was MSEK 1.8.

TQM and environmental management

SAS's environmental management is a natural part of its Total Quality Management (TQM) activities.

Following a decision in 2000, SAS's environmental index is reviewed twice yearly by the SAS Management Team and Production Management Board. The goal is to strengthen environmental management and ensure follow-up of environment objectives in the organization.

In 2000, SAS Cargo obtained ISO 9002 certification for all North American operations and its cargo terminals at Landvetter, Arlanda and parts of Gardermoen. The cargo terminal at Copenhagen Airport is expected to receive certification in early 2001. Efforts are underway to develop an environmental management system adapted to the criteria for ISO 14001 that will be integrated with the quality management system. According to plans, opera-

tions in Scandinavia will be certified according to ISO 14001 in late 2001 or early 2002, at the latest.

Employees at SAS Cargo will be the first to use SAS's new web-based environmental training program, which will be launched in the spring of 2001. The program will be available on SAS's intranet.

Due to reorganization, the Technical Division has been delayed in its work to implement ISO 14001. In spring 2001 a gap analysis will be carried out to determine the division's position in relation to ISO 14001 and which measures must be taken to meet all criteria.

The employee survey conducted by Products & Services during autumn 2000 will provide a platform for decision on a new strategy for the department's environmental program. However, it has already been decided that parts of the staff will receive environmental training in spring 2001 in order to raise environmental competency in the company.

Ethics and social issues

Matters of ethical and social significance for SAS are pursued as part of the company's strategic focus. SAS supports UN Secretary-General Kofi Annan's appeal to the commercial sector, *The Global Compact*, and feels that the company meets the requirements it advocates. The Global Compact encompasses nine principles aimed at promoting human rights, labor standards, and protecting the environment, among other things.

Stakeholder dialogue

SAS conducts a continuous dialogue about its environmental conditions with a wide range of stakeholders, such as corporate partners, suppliers, owners and other financial stakeholders, customers, public authorities, policy-makers and environmental organizations. In order to further improve communication with stakeholders, in 2000 SAS hired an external consultant to carry out a stakeholder analysis. The consultant has interviewed key persons in





different target groups in the three Scandinavian countries and the EU. The analysis has not yet been completed.

SAS has also been involved in two other projects aimed at measuring how its environmental activities affect society's and the stakeholders' trust in the Group. One of these projects, which will continue in 2001, is focused on developing a method to determine the value of this social trust, a *Social Trust Index*.

Internal information

In 2000 SAS used a variety of communication channels to discuss and promote environmental issues with the employees. Apart from the printed environmental report, more detailed environmental information has been posted on SAS's web site in the form of a dynamic pdf file.

Furthermore, environmental issues have been regularly covered in the staff magazines and the internal training program.

Profile and image

In 2000 SAS employees participated in debates and held lectures on civil aviation and environmental topics in various contexts, for example at Swedish and Norwegian universities and colleges. SAS's environmental coordinators have also participated in meetings with policy-makers, public authorities and environmental organizations, including a meeting with the Swedish Minister of the Environment Kjell Larsson. During the year, discussions were conducted with The Natural Step and the Norwegian Environmental Protection Agency.

SAS's environmental work has been featured in the staff magazines *Scanorama* and *SAS Magasin*, as well as Russian and Chinese TV and periodicals like *Global Market Review*, South Africa's *Eagle Bulletin* and *Magma*, the newsletter of the Norwegian Civil Economists' Association (NSF).

At an environmental summit in Warsaw during March 2000, SAS was presented with Poland's *Green Business Club Award*.

SAS's environmental report for 1999 was the winner in its category in the Swedish Environmental Report of the Year competition, and received an honorable mention in the Norwegian competition. It was also chosen by the Swedish Financial Accounting Standards Council (FAR) as one of two Swedish contestants in the European Environmental Reporting Awards, which will be presented in spring 2001.

Like several of its predecessors, SAS's environmental report for 1999 received the top points in the accounting and consulting firm of Deloitte & Touche's ranking of Swedish companies' environmental reports. Deloitte & Touche has rated it as the most advanced in the Swedish market.

Sponsorship commitments

SAS has several sponsorship commitments. New for 2000 is the Norwegian Sofie Award, where SAS contributes airlines tickets to the winner. The award, established by Jostein Gaarder, author of the best-selling novel *Sofie's World*, went to a Chinese environmental advocate.

As an incentive for increased environmental awareness among future civil economists, SAS, in collaboration with NSF, has instituted a grant to be awarded to the instructor who best succeeds in integrating environmental aspects into the curriculum. The grant was awarded for the first time in 2000.

Collaborations

SAS works actively with environmental issues in Star Alliance. The Alliance's Environment Advisory Group (EAG) held two meetings during the year. In 2001, SAS will take over chairmanship of the EAG.

As part of the agreement and choice of the V2500 engine in the A321, SAS and the engine manufacturer IAE are collaborating to develop an improved combustor for the V2500, in order to reduce NOx emissions. Current partners within IAE already have technology and applications in place. A decision on commercial launch and production will be made in the first half of 2001.

Within the framework of the AEA, the cooperative body for European airlines, SAS has headed a working group to improve waste management and environmental conditions in cabin operations.

Personnel from SAS has been active in a "future" group within the Swedish Environmental Research Institute, IVL, and has participated in joint EU research and development projects – mainly related to development of aircraft engine technology.

Health and safety

Health and safety operations are carried out within the framework of SAS's business strategies and national regulations in the countries where SAS operates. Activities are governed by a special strategy. Ensuring a safe work environment is the responsibility of every line manager. For a more detailed account of SAS's health, work environment and safety activities, see the financial annual report.

Subsidiaries

SAS Flight Academy and *SMART*, like *Scandinavian IT Group* (former *SAS DATA*) are computer and office operations that have no appreciable environmental impact compared with SAS's other activities. Certain operations are conducted in premises managed by SAS, for which reason a share of resource consumption and waste is included in SAS's other data in this environmental report. Apart from that mentioned here, no environmental data from the following companies has been included in this report.

Air Botnia

Air Botnia is a subsidiary that conducts scheduled traffic in Scandinavia and the Baltic region from a base in Finland. The company's fleet consists of 11 aircraft (6 Fokker F-28s and 5 SAAB 340As). As of May 2001, the F-28s will be replaced with AVRO RJ 85s, which have significantly better environmental performance. As of early March, the SAAB 340As will be replaced with SAAB 2000 – also an aircraft with better environmental characteristics than its predecessor.

In 2000 Air Botnia's fuel consumption amounted to 35,386 (17,400) m³ and CO₂ emissions to 88.1 (43.3) ktonnes. The sharp increase is attributable to powerful growth in production. In 2000 the number of passengers rose by 109%. Measured in ASK the increase was 115%, while the increase in RPK was 150%. This represents an improvement of 23% in fuel-efficiency.

On two occasions, Air Botnia violated the applicable time restrictions for landing chapter II aircraft at Gardermoen, resulting in penalties or discussions with the relevant authorities. In 2000, Air Botnia's chapter II aircraft were replaced with models offering better noise performance. There were no other known infringements.

Widerøe's Flyveselskap

SAS is the majority owner (63.2%) of Widerøe, Norway's largest regional airline. Widerøe has a fleet of 26 aircraft and flies to 31 Scandinavian destinations and to Scotland and Germany. All aircraft are of the Dash 8 model.

Fuel consumption amounted to 39,214 m³, generating 97 ktonnes of CO₂ emissions. Widerøe has recorded a 0.6% increase measured in available passenger kilometers (ASK), while the total number of passengers fell by 4.2% during the year. Measured in

RPK, the decrease was 3.5%. The decrease is mainly due to the loss of several so-called tendered routes, for which the Norwegian government pays a certain compensation and allocates between various airlines. On other and open regional routes, Widerøe recorded passenger growth of 12.8%. Measured in ASK, the increase was 5.9%.

Widerøe has a newly adopted environmental policy and goals, but has not yet implemented these.

On four occasions, Widerøe was reported to the Danish Civil Aviation Authority for flying over noise-restricted zones.

SAS International Hotels

SAS International Hotels (SIH) conducts hotel operations under the name of Radisson SAS Hotels & Resorts. In December 2000, SIH operated 140 hotels on a management or franchise basis, of which only 2 in owned properties – one in Oslo and one in Manchester, England.

The significant environmental impact factors in hotel operations are energy and water consumption. SIH has implemented a 24-point environmental program in all hotels. The program contains specific demands on energy and water conservation, pre-sorting of waste and environmentally related purchasing policies. SIH reports yearly on the program's progress.

So far, SIH has carried out environmental audits in 21 of the hotels. During the period 1993–1999, this led to a significant reduction in water and energy consumption and consequently also CO₂ emissions.

In 2000, SIH decided to reinforce the environmental competency of its management and to accelerate integration of environmental issues into their business processes. Consequently, an environmental advisor will be assigned to the central staff in March 2001.

SIH complies with national laws, rules and regulations, and had no significant environmental incidents to report. SIH has no knowledge of any environmental damage to land or other property that could have financial consequences for the company.

No significant environmental incidents occurred during 2000. The company has no knowledge of any environmental disputes or complaints related to the company.

(For more information, see the subsidiaries' own annual reports and the SAS Group's annual report).

Environment and economy

To a large degree, environmental operations are aimed at minimizing the company's costs through more efficient utilization of resources. In other words, there is a direct link between environmental activities and the company's financial results. In order to highlight this connection, this year SAS has for the first time attempted to correlate environmental parameters with the company's key financial ratios.

Income, costs and investments

SAS has no directly reportable environmentally related revenue in its income statement. But since environmental activities enhance the value of the brand, they are considered to have a positive impact on revenue. In order to highlight the effects of environmental activities, a table of the most important effects on the income statement and balance sheet during 1997–2000 is provided on page 32. In this table, the year's cost reductions attributable to environmental work are defined as "revenue".

SAS's costs for environmental work consist of internal costs for activities such as waste management and environmental administration, and external costs related to political decisions, such as environmentally related taxes and charges.

The environmentally related taxes and charges are designed to reduce the environmental impact of the airline industry according to the Polluter Pays Principle.

In recent years the share of environmentally related charges has increased in the airline industry, including SAS. However, this trend was broken in 2000 when visible environmentally related charges decreased by 17% to MSEK 914 (1,096), corresponding to 2.1 (2.7) % of operating revenue. The main explanation for the decrease is that in 2000 the Norwegian civil aviation administration converted a previous seat charge of approx. MSEK 180 to a general terminal fee of around MSEK 180 per passenger.

The main objective of SAS's environmental operations, aside from contributing to more efficient resource utilization, is to urge forward technological development and encourage investment in new, more eco-efficient aircraft. Emissions from flight operations account for 90% of SAS's aggregate environmental impact.

International taxes and charges

According to an ICAO policy from the 1950s, aircraft fuel is tax exempt. However, there are growing demands, above all in the EU, that aircraft fuel be imposed with a carbon dioxide tax, since this tax would be a clear indication of the urgency of reducing CO₂ emissions from a climate perspective. At the same time, the EC has expressed its support for taxation of aircraft fuel, and stressed that they want to see an international solution so that European airlines are not put at a competitive disadvantage.

In flight operations, environmental charges are far more common than environmental taxes. Charges are normally attached to real costs – e.g. that the airport operator uses this revenue to finance measures to protect the local community from noise. Today there are several

airports, mainly in Europe, that either impose special environmental charges or allow other charges – normally the landing fee – to vary in proportion to the environmental performance of the aircraft that takeoff or land. Noise-related charges are the most prevalent, but Sweden and Switzerland also levy a charge on aircraft emissions of nitrogen oxides.

National charges

Since Sweden introduced nitrogen oxide charges in 1998, SAS has replaced its aircraft in domestic traffic and now uses only low-emitting Boeing 737s. This led to a 3% reduction in emissions charges from MSEK 50.5 to MSEK 49 in 2000. If the aircraft fleet had been unchanged in 2000, total landing charges would have been MSEK 11 higher than they were.

Sweden's 3% discount on the noise charge for chapter III aircraft was revoked in October 2000 when new noise regulations were introduced. SAS's noise related charges in Sweden are expected to decrease by a total of MSEK 4. In 2000, SAS's carbon dioxide charges in Norway dropped 16% to MSEK 40 (48) thanks to lower fuel consumption.

In 2000 the passenger charges SAS pays in Denmark were unchanged at MSEK 209 (208).

Key performance indicators

The guiding principle for SAS's choice of environmental performance indicators is that they are closely linked to SAS's overall financial or environmental goals and can be used for internal planning, management and follow-up, and/or external evaluation and analysis of SAS's environmental goal attainment. The most important gauge of environmental performance is SAS's environmental index, which measures changes in ecoefficiency (see page 33). Aside from the environmental index, SAS has chosen to report the following environmental statistics (based on data with the same limitations as in the table on page 2):

- The effects of environmental activities on SAS's image
- CFROI and ROCE before and after environmentally related charges
- Environmentally related charges relative to operating revenue
- Environmentally related charges per RPK

The effects of environmental work on SAS's image

SAS's environmental undertakings enhance the company's environmental and overall images and, in a longer

Environmentally related business risks and opportunities

Environmental aspect	Business risks	Business opportunities
Fuel consumption	<ul style="list-style-type: none"> • Sensitivity to market-based and politically motivated changes in oil prices 	<ul style="list-style-type: none"> • Better technological performance of aircraft and engines leads to reduced fuel consumption
Air, soil and water emissions and noise	<ul style="list-style-type: none"> • More stringent emissions and noise regulations in the future • Investments required to meet tighter emissions and noise regulations 	<ul style="list-style-type: none"> • Better technological performance by SAS's various assets leads to higher efficiency in production and reduced emissions and noise
Waste	<ul style="list-style-type: none"> • Sensitivity to new legal or tax regulations and subsequent investment requirements 	<ul style="list-style-type: none"> • Investments and better routines for efficient utilization of resources and/or recycling systems can reduce waste volumes and waste management costs
Structure of the aircraft fleet	<ul style="list-style-type: none"> • Due to new certification standards, parts of the aircraft fleet may have to be phased out faster than planned or may only be used in certain destinations. There is a risk for investment requirements and/or write-downs 	<ul style="list-style-type: none"> • An aircraft fleet with a low average age presumably has a high technical performance that can more easily live up to future environmental standards, taxes and regulations
Contamination of the soil and water	<ul style="list-style-type: none"> • Contamination of the soil and water can result in a liability for SAS to carry out remediation measures 	
Local impact such as noise, regional and global impact such as carbon dioxide	<ul style="list-style-type: none"> • Local noise restrictions at various airports can have a negative effect on average capacity utilization in the aircraft fleet • International climate conventions can affect SAS's investment requirement 	<ul style="list-style-type: none"> • An aircraft fleet with a low average age presumably has a high technical performance that can more easily live up to future environmental standards and regulations
Environmentally related investments		<ul style="list-style-type: none"> • SAS can gain a competitive advantage by anticipating legal or tax-related requirements
Insurance against environmental damage	<ul style="list-style-type: none"> • Reduced financial risk exposure in the event of environmentally related incidents 	
Compliance with laws and regulations	<ul style="list-style-type: none"> • Violation of environmentally related laws and regulations that govern operations increases the risk for criticism from the market and media, as well as the risk for damage claims 	<ul style="list-style-type: none"> • Credible information about the company's ability to comply with laws and regulations enhances the market position and image
Ongoing and previous environmentally related lawsuits, damage claims and injunctions	<ul style="list-style-type: none"> • Can generate negative publicity and undesirable market reactions if information is not disclosed in an open and credible manner 	<ul style="list-style-type: none"> • Consistent disclosure of significant information to the market
Market position with regard to the environment	<ul style="list-style-type: none"> • SAS's ambition to be a leader in the airline industry must be supported by credible internal environmental activities, otherwise there is a risk that external observers will question SAS's external communication 	<ul style="list-style-type: none"> • By working systematically towards the goal of being a leader in the airline industry, the company improves its market position and thereby creates a favorable platform for future value growth
The management's approach to environmental issues	<ul style="list-style-type: none"> • If the company's management fails to communicate its environmental commitment (internally and externally), the credibility of SAS's environmental operations may suffer 	<ul style="list-style-type: none"> • The management's commitment is crucial for making the advances needed for SAS to take advantage of the business opportunities generated by effective and systematic environmental activities
Organizational support for environmental responsibility	<ul style="list-style-type: none"> • Gradually declining interest in environmental issues within the company 	<ul style="list-style-type: none"> • Through the TQM process and other regular reviews by the management, suggested improvements are better assimilated and the risk of accidents and incidents is reduced

perspective, also its market value. The goal of this key statistic is to illustrate to what extent SAS's environmental activities have enhanced of SAS's image. Measurement of SAS's image incorporates seven subfactors – high safety, professional, successful, customer-driven, active, environmentally aware and positive contribution to the Scandinavian image.

Diagram 1 shows that the environmental image has outpaced SAS's overall image over time, indicating that SAS's environmental activities made a positive contribution to SAS's overall image. In 2000, both the environmental image and overall image declined somewhat and an analysis is underway to identify the reason for this.

Measures to improve SAS's environmental image include both better environmental communication in this environmental report and distribution of additional environmental information through other channels such as the seat back pockets on the aircraft and the Internet.

CFROI and ROCE before and after environmentally related charges

The SAS Group's overall objective is to generate a competitive return for its shareholders. The target is a 14% total return over a business cycle, which has been translated into two internal financial goals, CFROI and ROCE. The targets for these have been set at:

- CFROI 17–20%
- ROCE minimum requirement 12%

CFROI is a measure of cash flow from operating activities in relation to capital employed. ROCE is a measure of profit in relation to capital employed.

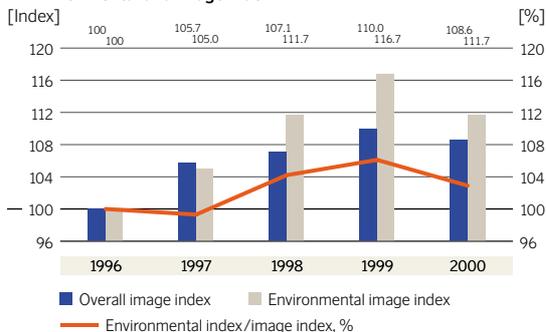
The purpose of the environmental performance indicators linked to CFROI and ROCE is to illustrate how SAS's environmental charges affect CFROI and ROCE.

During part of the period 1996–2000, both CFROI and ROCE fell below SAS's targeted levels. Diagrams 2 and 3 show the maximum amount of environmentally related charges for attainment of the established goals.

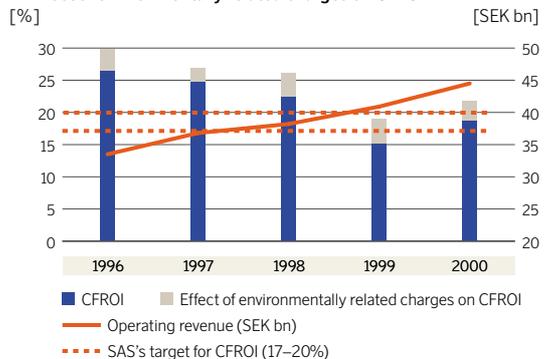
Environmentally related charges relative to operating revenue

This key statistic illustrates how SAS's environmentally related charges have developed relative to operating revenue. As shown in diagram 4, these charges have increased throughout the period with the exception of 2000. The main explanation for the decrease in 2000 is the conversion of an environmentally related seat charge in Norway to a terminal fee with no environmental connection. If this had not taken place, environmental charges in 2000 would have been roughly equal to 1999. As shown in the diagram on the next page, environmentally related charges consist predominantly of seat charges in Norway and Denmark.

1. Environmental and image index



2. Effect of environmentally related charges on CFROI



Definitions of CFROI and ROCE

CFROI

Calculated as income before net financial items and taxes, adjusted for income items not included in cash flow from operating activities, divided by average market-adjusted capital employed.

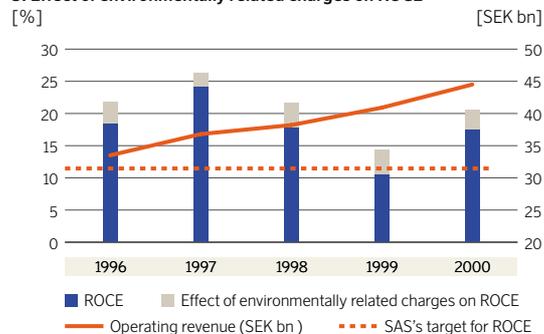
The items that are not included in cash flow from operating activities, and which are therefore eliminated, are: depreciation, amortization of goodwill, capital gains and costs for operational aircraft leasing.

Market-adjusted capital employed is the sum of the book value of assets plus revaluation surpluses in SAS's aircraft, plus the present value of operational leasing contracts, minus interest-bearing assets and noninterest-bearing liabilities.

ROCE

Calculated as income before net financial items and taxes, adjusted by the interest portion of costs for operational aircraft leasing and the year's change in the aircraft fleet's revaluation surplus divided by average market-adjusted capital employed.

3. Effect of environmentally related charges on ROCE



Environmentally related charges per RPK

The key performance indicators in diagram 5 show how much an airline passenger pays in average environmental charges per kilometer flown. The trend for environmental charges is clear. Several studies indicate that the paid charges cover society's costs for the airline industry's environmental impact and use of infrastructure.

Sensitivity analysis

To show how the reported results are affected by the input data, here are a few illustrative examples:

- A 1% change in fuel consumption corresponds to approx. 41,000 tonnes of CO₂ and an income effect of around MSEK 40.
- A 1% increase in the cabin factor leads to a 19% improvement in fuel efficiency to 48 g/ RPK.
- SAS's net income for 2000 was MSEK 2,168. If SAS were to buy emissions rights for its total emissions, net income would be more than halved at a cost of SEK 300 per tonne CO₂. Diagram 6 shows the percentage effect of a hypothetical emissions quota price on SAS's net income.

Comments on the environmental effects on the income statement and balance sheet

Environmentally related earnings and cost reductions

Environmentally related earnings and cost reductions increased in 2000. The reduced noise-related landing charge refers to the chapter II aircraft that have now been phased out of SAS's utilized aircraft fleet.

A NOx-related cost reduction in Sweden arose

through reclassification of parts of SAS's aircraft fleet.

The discount on landing charges is calculated on total landing charges, and is therefore not directly comparable to the environmental performance of the aircraft. The background for the discount is that the Civil Aviation Administration must take an income-neutral stance to the NOx charge, since they have no related costs.

Environmentally related costs

Environmentally related costs have decreased by half. The additional cost for noise charges was eliminated through the phase-out of all remaining chapter II aircraft from SAS's utilized fleet.

Separate costs for environmental activities have been added for the entire period (1997–2000).

Environmentally related charges and taxes

Environmentally related charges and taxes have decreased through the conversion of a former environmentally related seat charge in Norway to a terminal fee with no environmental connection.

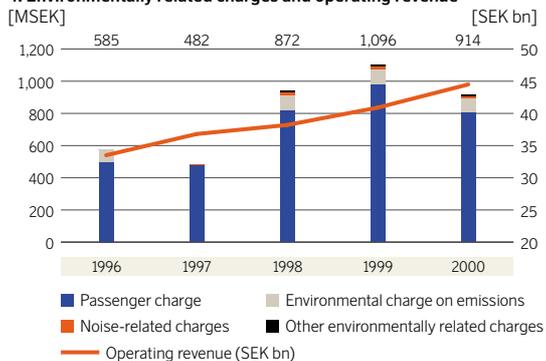
Environmentally related investments

In 2000, SAS took delivery of 19 of its ordered Boeing 737s. The extra environmentally related costs for their DAC engines amount to MSEK 5 per aircraft.

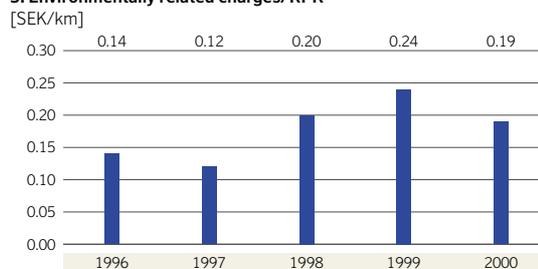
Compared with earlier years, investments in construction and ground operations were halved to a normal level after completion of the substantial environmental investments at Gardermoen.

For definitions, see reporting principles on page 46.

4. Environmentally related charges and operating revenue

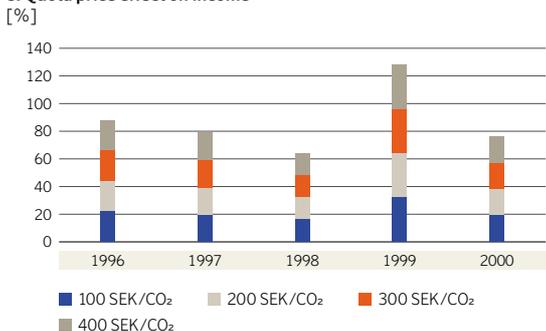


5. Environmentally related charges/ RPK



In 2000 SAS paid SEK 0.19 in environmentally related charges per RPK, corresponding to SEK 102 for a flight between Oslo and Copenhagen.

6. Quota price effect on income



Environmental effects on the income statement and balance sheet

Key items

Items affecting the income statement

[MSEK]

<i>Environmentally related earnings and cost reductions</i> ¹	1997	1998	1999	2000
Decrease in landing charges due to phase-out of chapter II aircraft	25	11	6	33
Decrease in costs due to reduction in waste volumes, improved pre-sorting and increased recycling ²	15	8	8	8
Discount on landing charge (Sweden)	–	–	42	44
Reduction in NOx charge (Sweden)	–	–	–	11
Reduction in CO ₂ charge (Norway) ⁸	–	–	–	8
Total	40	19	56	104

*Environmentally related costs*¹

Extra costs in the form of noise charges for use of remaining chapter II aircraft	50	39	33	–
Management of waste and hazardous waste, operation of purification plants, oil separators, etc.– environmentally related share	17	19	21	21
Separate costs for environmental work (environmental staffs, permits, consultants, environmental reporting, profiling, sponsorship)	6	7	8	9
Total	70	65	65	30

*Environmentally related charges and taxes*¹

Passenger charge (Denmark)	–	215	208	209
Passenger charge (Norway)	475	601 ³	768 ⁴	593
Environmental charge on emissions (Sweden) ⁵	–	49	51	49
CO ₂ charge (Norway)	–	–	48 ⁶	40
Noise charges	6	7	14 ⁷	13⁸
Night charge (Norway)	–	–	2	1
Environmental charge on energy (Denmark)	–	–	4	7
Charge on aluminum cans (Norway)	–	–	1	2
Total	482	872	1,096	914

Items affecting the balance sheet

[MSEK]

*Environmentally related investments*¹

Boeing 737	–	40	65	95
Investments in construction and ground operations – environmentally related share	25 ⁹	72 ⁹	27	15
Total	25	112	92	110
Environmental investments as a percentage of SAS's total investments (%)	0.9	2.0	1.6	1.1

*Environmentally related provisions*¹

	–	–	–	–
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*Environmentally related contingent liabilities*¹

	–	–	–	–
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¹ For definition, see page 46.

² The full agreed charge reduction was made in 1995–98 despite the fact that SAS failed to meet the Norwegian authorities' required 90% return rate for aluminum. In 1999 this requirement was lowered to 85% and a 15% environmental charge will be paid.

³ In 1998 the passenger charge was replaced by a differentiated seat charge.

⁴ In 1999 the seat charge was raised in order to compensate the Norwegian government for revenue lost when the CO₂ charge was revoked on international traffic. With effect from July 1, the fiscal environmentally related seat charge was changed to a fiscal environmentally related passenger charge.

⁵ Since the Swedish environmental tax on domestic air traffic was found to conflict with EU Law, in 1996 SAS filed a legal claim for recovery of the tax paid in 1995 (MSEK 102) and 1996 (MSEK 116). This matter was essentially resolved on June 10, 1999, when the EU court established that the Swedish legislation was in contravention of EU Law. However, the case has not yet been tried

in a Swedish county administrative court and no refund has been made. Consequently, the amount paid has not yet been reversed in the accounts.

⁶ As of January 1, 1999, Norway is the only country to impose a CO₂ charge on airline traffic. The charge originally applied to both domestic and international flights, but in May 1999 the Norwegian parliament decided that it would apply only to domestic traffic.

⁷ The figures for 1999 are not directly comparable to those for earlier years.

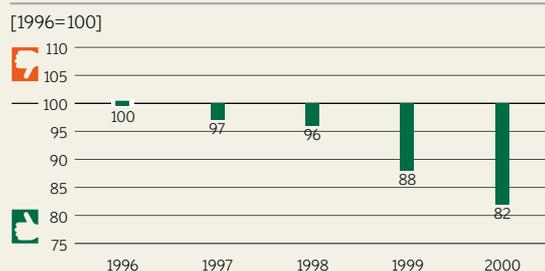
⁸ In October 2000, the system of noise charges in Sweden was changed. The figures for 2000 are therefore not comparable to those for earlier years.

⁹ 1997 refers only to Oslo's new Gardermoen airport and environmentally related investments in ground operations. 1998 includes half of the environmentally related investments in SAS's own construction projects at Gardermoen, since these were divided between two years, and other environmental investments in ground operations.

Environmental index

SAS's overall ecoefficiency is measured with the help of an environmental index. In 2000 the index for total SAS improved by 6 points, mainly thanks to modernization of the aircraft fleet. The environmental index has been adjusted somewhat compared with earlier years to better reflect the proportion of SAS's overall environmental impact arising in flight operations. For the sake of comparability, the environmental indexes for earlier years have been recalculated according to the new principles.

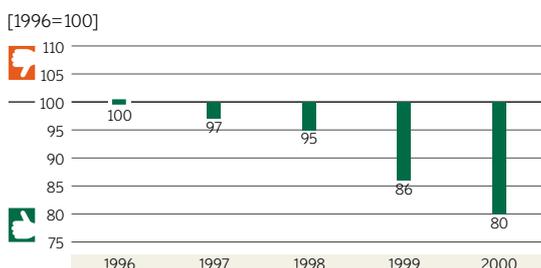
SAS total



For weighting of the environmental input factors and calculation formulas, see "Reporting principles", page 44.

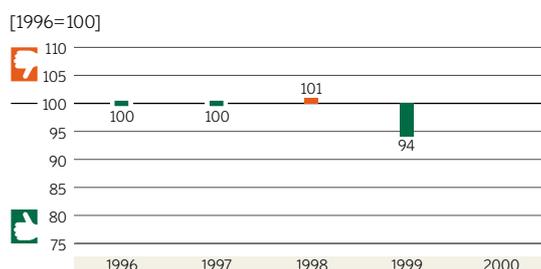
SAS's development: SAS's environmental index uses 1996 as the base year. The total index essentially reflects the environmental index for flight operations since these have been given the highest weighting, 90%. The improvement in 2000 is mainly attributable to a higher proportion of eco-compliant aircraft and improved efficiency in flight operations. The total environmental index showed favorable development despite a slight negative trend in the index for ground operations. Cabin operations account for the same share of the index as in 1999, as a result of the changeover to a new caterer for inflight meals. See also page 38. As of 2000, SAS's environmental index is calculated according to new principles. The indexes for earlier years have been recalculated for the sake of comparability.

Flight operations



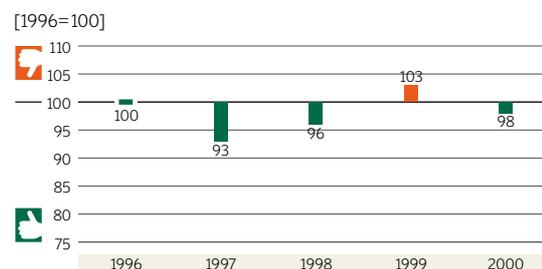
SAS's development: The relative improvements up to 1998 are the result of efficiency improvements, while the dramatic improvement in 1999 is due partly to higher efficiency in cargo operations and partly to the phase-in of new, eco-compliant aircraft. 19 new Boeing 737s (30 during 1999) provided a reduction in NOx emissions, which have a 40% weighting in the index. General efficiency improvements and lower noise values due to a newer aircraft fleet were also instrumental (see the noise index on on page 34).

Cabin operations



SAS's development: In 2000 SAS changed over to a new caterer of inflight meals. This has made the data for cabin operations so unreliable that we chose not to calculate a cabin index for 2000. The cabin index for 1999 has been used in calculation of the total index.

Ground operations



SAS's development: The negative trend in 1999 is explained by increased energy and glycol consumption due to severe weather conditions, but also to the fact that a large quantity of contaminated water at Gardermoen had to be collected and destructed. The latter problem remained during the past year and has thus reduced the index for 2000.

Environmental accounts

On pages 34 to 41, we take a closer look at SAS's environmental impact and how it has developed over the past five years, in both absolute and relative terms. Comments on SAS's development are provided in connection with each diagram. For more details, see SAS's web site, www.scandinavian.net.



Flight operations

Flight operations are where the absolute bulk of SAS's environmental impact arises. Flight operations alone account for more than 90% of SAS's total emissions into the air.

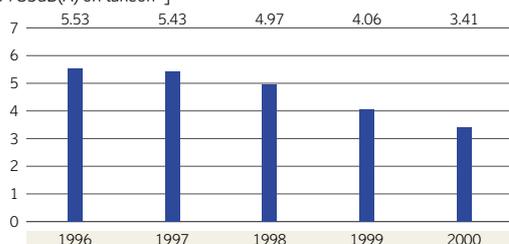
The significant environmental impact factors in flight operations are consumption of non-renewable fuel, emis-

sions of carbon dioxide and nitrogen oxides and noise. All quantitative data used in SAS's environmental indexes for flight operations is presented on the following pages.

Noise, emissions into the air

Noise impact

[km²/85dB(A) on takeoff¹]

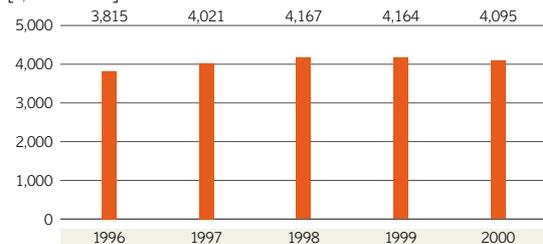


¹ Weighted noise contour taking into account the number of takeoffs per day using each aircraft type in SAS's traffic system.

SAS's development: SAS's aggregate noise impact is decreasing through the ongoing phase-in of quieter aircraft. At year-end, SAS Airlines used only low-noise chapter III aircraft. SAS predicts that noise impact will be reduced by more than 50% by the year 2003 relative to 1995. Adjustments have been made for inconsistencies detected in the underlying data from 1999 and earlier.

Carbon dioxide (CO₂)

[1,000 tonnes]



	1996	1997	1998	1999	2000
g/RPK	192	194	196	192	179
g/RTK	1,540	1,517	1,510	1,470 ¹	1,447¹
g/ASK	123	126	129	123	120

¹ Not including the RTK purchased from Lufthansa Cargo.

Background: The airline industry's carbon dioxide emissions are estimated based on fuel consumption (3.15 kg carbon dioxide per kg of fuel burnt).

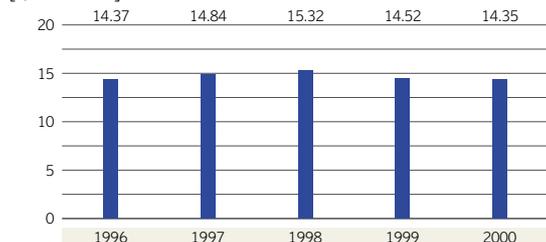
SAS's development: SAS works continuously to reduce relative fuel consumption, for both economic and environmental reasons. Fuel is a significant cost item, and CO₂ emissions are directly proportionate to fuel consumption. In 2000 overall fuel consumption decreased at the same time that production increased per both RPK and RTK. The subsequent decrease in CO₂ emissions relative to production is attributable to substantial efficiency improvements and a higher proportion of new aircraft. See page 4 for a comparison between SAS and other airlines.

Calculation of CO₂ emissions per flight

SAS uses an average of 0.057 kg of fuel per revenue passenger kilometer (RPK) at a cabin factor of 67%, producing an average of 179 grams of CO₂ per kilometer and passenger. For a detailed

description of how to calculate the CO₂ emissions generated by a flight, see SAS's web site.

Nitrogen oxides (NOx)
[1,000 tonnes]



	1996	1997	1998	1999	2000
g/RPK	0.73	0.72	0.72	0.67	0.63
g/RTK	5.8	5.6	5.6	5.1 ¹	5.1¹

¹ Not including the RTK purchased from Lufthansa Cargo.

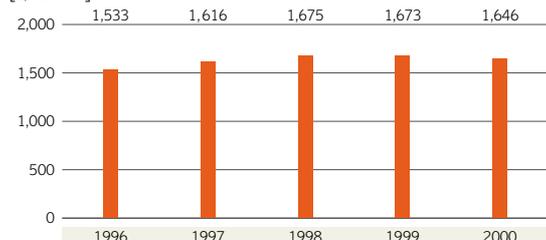
Background: The aircraft engines' nitrogen oxide emissions are restricted through the ICAO's certification requirements, which will be tightened after 2004.

SAS's development: SAS's nitrogen oxide emissions are calculated based on the distance flown with a coefficient of 0.0537 kg/km. This factor is specific to SAS based on the composition of the aircraft fleet and patterns of operation. The NOx factor for 2000 is 1.5% lower than in 1999, due to modernization of the aircraft fleet. The new Boeing 737s reduce emissions by 40% compared with the older aircraft. Emissions of NOx have decreased despite an increase of more than 0.3% in the distance flown to GCD 267 (266) Mkm. See page 4 for a comparison between SAS and other airlines.

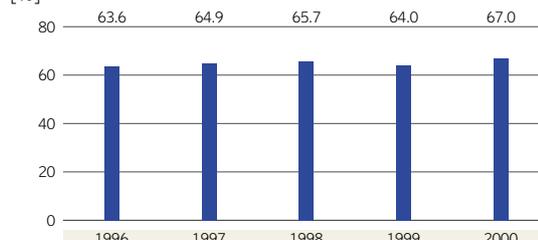
Fuel efficiency

SAS's development: Despite a substantial increase in production during 2000, fuel consumption decreased by 1.6%. Relative fuel consumption per RTK improved by 6.9%. The improved ecoefficiency is mainly attributable to modernization of SAS's aircraft fleet, but also to a higher cabin factor. This means that SAS improved its capacity utilization in 2000. See page 4 for a comparison between SAS and other airlines.

Fuel consumption · SAS total
[1,000 m³]

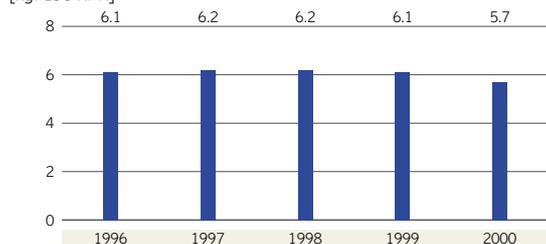


Cabin factor¹ · SAS total
[%]



¹ The figure includes paying passengers over a certain limit ("revenue passengers"). The total number of passengers is approximately 9% higher. Including all passengers, SAS's cabin factor for 2000 was 73.3%.

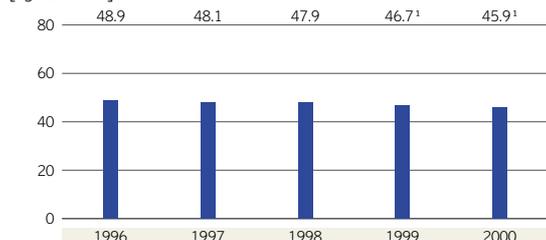
Fuel consumption/100 RPK · SAS total
[kg/100 RPK]



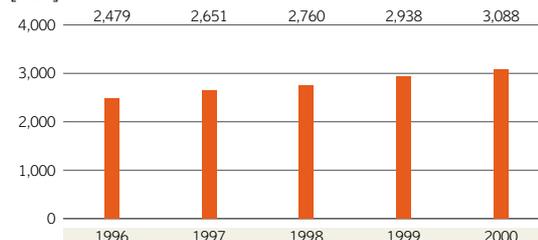
RPK · SAS total
[×10⁶]



Fuel consumption/100 RTK · SAS total
[kg/100 RTK]



RTK · SAS total
[×10⁶]



¹ Not including SAS Cargo's leasing from Lufthansa Cargo.

SAS Airlines' aircraft fleet

The chart below describes the entire SAS fleet, with a total of 203 aircraft. Of these, SAS operates 185 and the remaining aircraft are on lease to other airlines or are grounded while awaiting sale. SAS has grouped the aircraft in the categories Domestic, Europe and Intercontinental. In each category, there are models with varying cabin configurations and ranges.



Boeing 737-600/700/800

Domestic

Number of aircraft	10/6/10
Max. takeoff weight [tonnes]	57.6/61.7/70.5
Number of seats	116–123/131/179
Engine type and number	2 CFM56-7B20/P2/7B20/P2/7B26/P2s
Max. drag [kN]	91.6/91.6/117
Range [km]	2,000/2,200/2,000
Fuel consumption, [l/ASK]	0.048/0.045/0.034
Engine emissions data according to ICAO certification requirements	
Nitrogen oxides NO _x [g/kN]	30.6/30.6/36.2
Hydrocarbons HC [g/kN]	14.6/14.6/12.2
Carbon monoxide CO [g/kN]	108.6/108.6/81.4
Noise contour [km ² /85 dB(A)]	1.2/1.5/2.0



Boeing 737-600/800

Europe

Number of aircraft	20/3
Max. takeoff weight [tonnes]	57.6–59.9/75.1
Number of seats	91–103/134–151
Engine type and number	2 CFM56-7B20/P2/-7B26/P2s
Max. drag [kN]	91.6/117
Range [km]	1,900–2,400/3,700
Fuel consumption, [l/ASK]	0.048/0.034
Engine emissions data according to ICAO certification requirements	
Nitrogen oxides NO _x [g/kN]	30.6/36.2
Hydrocarbons HC [g/kN]	14.6/12.2
Carbon monoxide CO [g/kN]	108.6/81.4
Noise contour [km ² /85 dB(A)]	1.2/2.6



Boeing 767-300 ER

Intercontinental

Number of aircraft	13
Max. takeoff weight [tonnes]	186.9
Number of seats	188–204
Engine type and number	2 P&W 4060s
Max. drag [kN]	267
Range [km]	10,500
Fuel consumption, [l/ASK]	0.038
Engine emissions data according to ICAO certification requirements	
Nitrogen oxides NO _x [g/kN]	52.7
Hydrocarbons HC [g/kN]	2.2
Carbon monoxide CO [g/kN]	27.1
Noise contour [km ² /85 dB(A)]	3.9



Douglas DC-9-41

Europe / Domestic

Number of aircraft	16
Max. takeoff weight [tonnes]	51.7
Number of seats	105/122
Engine type and number	2 P&W JT8D-11s
Max. drag [kN]	67
Range [km]	2,600
Fuel consumption, [l/ASK]	0.054/0.060
Engine emissions data according to ICAO certification requirements	
Nitrogen oxides NO _x [g/kN]	57.6
Hydrocarbons HC [g/kN]	39.5
Carbon monoxide CO [g/kN]	139.8
Noise contour [km ² /85 dB(A)]	–



Douglas MD-81/82/87

Europe

Number of aircraft	19/22/18
Max. takeoff weight [tonnes]	63.5/67.8/61.2
Number of seats	130/130/110–125
Engine type and number	2 P&W JT8D-217Cs
Max. drag [kN]	89
Range [km]	2,600/3,200/3,500
Fuel consumption, [l/ASK]	0.046/0.046/0.047
Engine emissions data according to ICAO certification requirements	
Nitrogen oxides NO _x [g/kN]	64.6
Hydrocarbons HC [g/kN]	10.1
Carbon monoxide CO [g/kN]	34.8
Noise contour [km ² /85 dB(A)]	4.7/4.1



Douglas MD-83/82

Europe / Domestic

Number of aircraft	2/6
Max. takeoff weight [tonnes]	72.6/67.8
Number of seats	136/156
Engine type and number	2 P&W JT8D-219s
Max. drag [kN]	93
Range [km]	4,300/3,200
Fuel consumption, [l/ASK]	0.045/0.047
Engine emissions data according to ICAO certification requirements	
Nitrogen oxides NO _x [g/kN]	63.3
Hydrocarbons HC [g/kN]	9.9
Carbon monoxide CO [g/kN]	33.5
Noise contour [km ² /85 dB(A)]	7.9/5.2



Douglas MD-90-30	Europe
Number of aircraft	8
Max. takeoff weight [tonnes]	70.8
Number of seats	141
Engine type and number	2 IAE V2525-D5s
Max. drag [kN]	111
Range [km]	2,800
Fuel consumption, [l/ASK]	0.039
Engine emissions data according to ICAO certification requirements	
Nitrogen oxides NOx [g/kN]	48.5
Hydrocarbons HC [g/kN]	0.3
Carbon monoxide CO [g/kN]	24.9
Noise contour [km ² /85 dB(A)]	1.7



deHavilland DASH 8-Q400	Europe
Number of aircraft	11
Max. takeoff weight [tonnes]	29
Number of seats	72
Engine type and number	2 P&W 150As
Max. shaft horse power [shp]	3,071
Range [km]	1,000
Fuel consumption, [l/ASK]	0.045
Engine emissions data according to ICAO certification requirements	
Nitrogen oxides NOx [g/kN]	Not certified
Hydrocarbons HC [g/kN]	Not certified
Carbon monoxide CO [g/kN]	Not certified
Noise contour [km ² /85 dB(A)]	0.5



Fokker F-50	Europe / Domestic
Number of aircraft	16
Max. takeoff weight [tonnes]	20.8
Number of seats	46/50
Engine type and number	2 P&W 125Bs
Max. shaft horse power [shp]	2,500
Range [km]	1,400
Fuel consumption, [l/ASK]	0.038
Engine emissions data according to ICAO certification requirements	
Nitrogen oxides NOx [g/kN]	Not certified
Hydrocarbons HC [g/kN]	Not certified
Carbon monoxide CO [g/kN]	Not certified
Noise contour [km ² /85 dB(A)]	0.8



SAAB-200	Europe
Number of aircraft	3
Max. takeoff weight [tonnes]	22.8
Number of seats	47
Engine type and number	2 Allison AE2100As
Max. shaft horse power [shp]	4,152
Range [km]	1,600
Fuel consumption, [l/ASK]	0.049
Engine emissions data according to ICAO certification requirements	
Nitrogen oxides NOx [g/kN]	Not certified
Hydrocarbons HC [g/kN]	Not certified
Carbon monoxide CO [g/kN]	Not certified
Noise contour [km ² /85 dB(A)]	0.4

Embraer 145	
Number of aircraft	2
Max. takeoff weight [tonnes]	22
Number of seats	48
Engine type and number	2 AE3007As
Max. drag [kN]	33.7
Range [km]	2,852
Fuel consumption, [l/ASK]	0.044
Engine emissions data according to ICAO certification requirements	
Nitrogen oxides NOx [g/kN]	46.3
Hydrocarbons HC [g/kN]	6.65
Carbon monoxide CO [g/kN]	43.15
Noise contour [km ² /85 dB(A)]	–

Other aircraft	
SAS's total fleet includes another 18 aircraft. Those that are not on lease to other airlines will be sold or returned to their owners.	
F-28 (of which 6 on lease)	9
F-50 (of which 2 on lease)	3
DC-9-21	2
DC-9-81	1
DC-9-41	3
Total	18

Cabin operations

Although cabin operations account for only an estimated 5% of SAS's total environmental impact, they are nonetheless important since this is the aspect customers and cabin staff have the most tangible contact with. The significant environmental impact factors in cabin operations consist of different types of waste and consumption of resources related to the meals served on board.

SAS changed to a new catering supplier in August 2000, which led to difficulties in compiling reliable environmental data for the full year. Since SAS received no environmental data for the first seven months.

All quantitative data used in SAS's environmental indexes for cabin operations is presented on the following pages. Supplementary data can be found on SAS's web site, www.scandinavian.net.

LSG Skychefs has ambitious recycling goals

The Lufthansa-owned catering company LSG Skychefs took over catering of inflight meals in August 2000. At the same time, six new or remodeled kitchens were opened in Copenhagen, Stockholm, Malmö, Gothenburg, Bergen and Oslo. In connection with building of the kitchen facili-

ties, LSG used computer simulations to optimize workflows in the kitchens and surrounding areas. The goal was to minimize floor space and therefore also energy consumption.

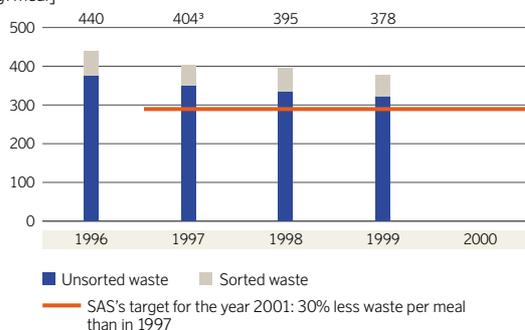
In addition, the kitchen at Copenhagen Airport was equipped with an extra system of water mains to transport secondary water to the dishwashing facility. This water comes from the airport's purification plant and is of the same quality as drinking water. By using purified secondary water, it is possible to save 4,000 m³ of pure drinking water every year, a valuable advantage in Denmark where drinking water is drawn from groundwater reserves.

In procurement of catering services, SAS made specific environmental demands such as compliance with its continuous improvement requirement and the specific goal for cabin operations – to reduce energy and water consumption by 20% and waste volumes by 30% per meal served between 1997 and 2001.

These goals are in line with LSG Skychefs' own environmental objectives. Furthermore, LSG is working to increase the share of input materials that can be recycled.

Waste

Catering · Total¹ per meal served²
[g/meal]



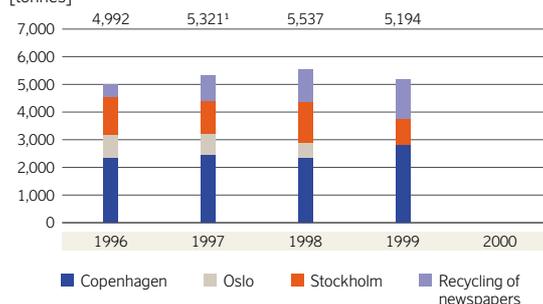
¹ Excluding newspapers.

² The meals SAS's receives from its suppliers in Copenhagen, Oslo and Stockholm.

³ New grounds for calculation are used as of 1997, which means that the figures for the different years are not directly comparable.

SAS's development: Due to a change to a new catering supplier, it has not been possible to obtain reliable environmental data for the full year 2000. See text above.

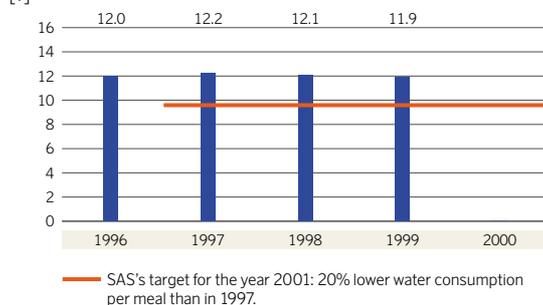
Aircraft cleaning · Total cabin operations [tonnes]



¹ As of 1997, the statistics include data from the Scandinavian field stations. The figures are therefore not directly comparable with earlier years.

Consumption of raw materials

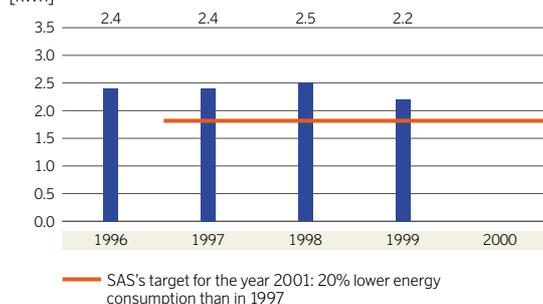
Water · Per meal served¹ [l]



¹ The meals SAS receives from its suppliers in Copenhagen, Oslo and Stockholm; as of 1997 also including Gothenburg and Malmö.

Energy consumption

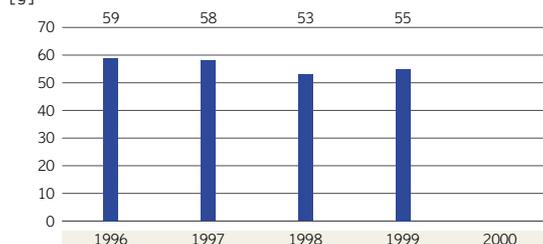
Electricity, gas and heating · Per meal served¹ [kWh]



¹ The meals SAS receives from its suppliers in Copenhagen, Oslo and Stockholm; as of 1997 also including Gothenburg and Malmö.

Packaging

Per passengerare [g]



SAS's development: The decrease starting in 1999 is attributable to the fact that Oslo is no longer included in the underlying data. Since a new waste system with central collection of all waste, from both aircraft cabins and terminals, was introduced at Gardermoen, it is no longer possible to quantify cabin waste separately.

SAS's development: Due to a change to a new catering supplier, it has not been possible to obtain reliable environmental data for the full year 2000. SAS's goal to achieve a 20% reduction from the 1997 level by 2001 stands firm.

SAS's development: Due to a change to a new catering supplier, it has not been possible to obtain reliable environmental data for the full year 2000. Several ongoing environmental projects are aimed at further reducing energy consumption despite increased washing of non-disposable articles. The goal for the year 2001, to reduce consumption per meal served by 20% compared with 1997, stands firm.

SAS's development: Overall figures for 2000 are not available due to the change to a new catering supplier. Collection of aluminum cans from domestic flights for recycling is carried out in Norway (statutory) and in Sweden (aluminum beverage cans are prohibited in Denmark). In 2000, 14.4 tonnes of aluminum were collected in Norway. This represents a collection rate of 76 (69)% for aluminum.

Ground operations

Ground operations account for around 5% of SAS's aggregate environmental impact. However, they are of major importance for the local environment around airports, the local community and the work environment for SAS's employees.

The most significant impact in ground operations is caused by emissions in the form of carbon dioxide, nitrogen oxides and hydrocarbons from the vehicles SAS uses

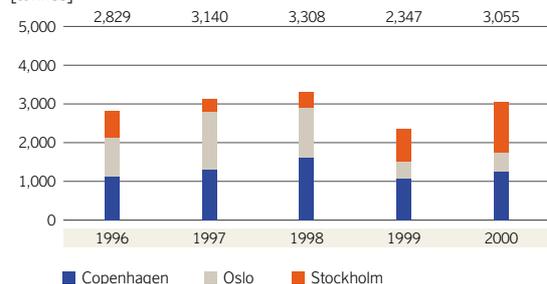
for transportation both within and to/from the airports. Other significant impact factors are the use of deicing fluids on the aircraft, hazardous waste and consumption of chemicals in the maintenance workshops.

All quantitative data used in SAS's environmental indexes for ground operations is presented on the following pages. Supplementary data can be found on SAS's web site, www.scandinavian.net.

Waste

Unsorted waste

[tonnes]



Background: All waste is collected by approved contractors for sorting and partial recycling.

SAS's development: The volume of unsorted waste has increased, which is attributable to general growth in production during 2000.

Hazardous waste

[tonnes]

Year	1996	1997	1998	1999	2000
	513.9	445.9	485.0	982.6	1,306.2

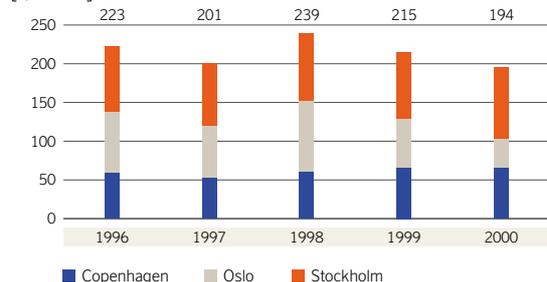
Background: Hazardous waste is generated mainly in the workshops. It comprises waste from chemicals that cannot be deposited on municipal waste deposits but must be disposed of according to special procedures. SAS delivers all of its hazardous waste in Denmark, Norway, and Sweden to approved contractors for processing, recycling or destruction, and submits reports to the relevant authorities.

SAS's development: The bulk of the increase is attributable to destruction of 528 (285) m³ of contaminated wastewater at Gardermoen. The increase is otherwise due to production growth.

Consumption of raw materials

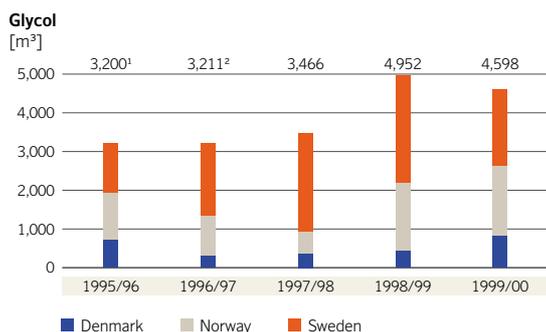
Water

[1,000 m³]



SAS's development: Aggregate water consumption has decreased at all three main airports. This is mainly attributable to a sharp decrease in Oslo (Gardermoen) due to measures taken after problems in 1998 with recirculation of cooling water to SAS's electroplating workshop at Fornebu led to abnormally high water consumption. In Copenhagen and Stockholm, water consumption was on a level with 1999.

Consumption of chemicals



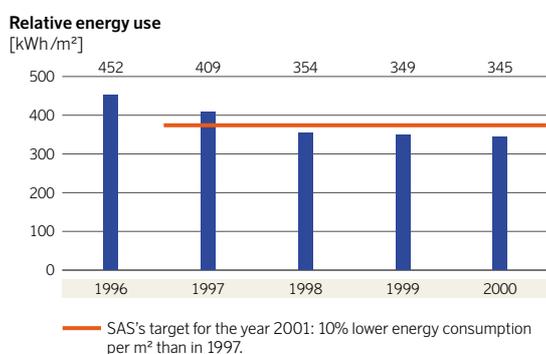
¹ Until 1995/96, domestic field stations were reported only in Norway, while the figures for Denmark and Sweden referred only to Copenhagen and Stockholm.

² As of 1996/97, domestic field stations are reported in all of the Scandinavian countries.

Background: Glycol is sprayed on the aircraft wings in order to prevent ice formation in cold weather. Two mixtures are used, with varying glycol concentrations for different temperatures. Here, these have been calculated as 100% glycol.

SAS's development: The considerable increase from the winter of 1997/98 to 1998/99 is attributable to a season with weather conditions that required more deicing in both Norway and Sweden and the relocation of Oslo's airport from Fornebu to Gardermoen, which has a much harsher local climate. The changes recorded between the seasons 1998/99 and 1999/00 are entirely attributable to weather conditions.

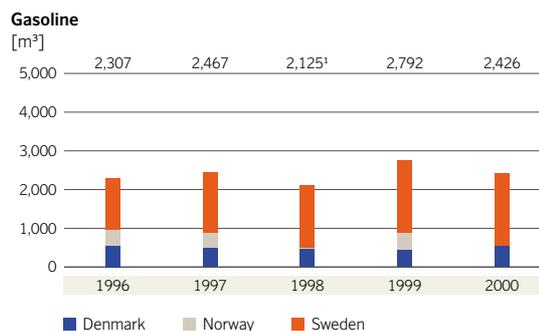
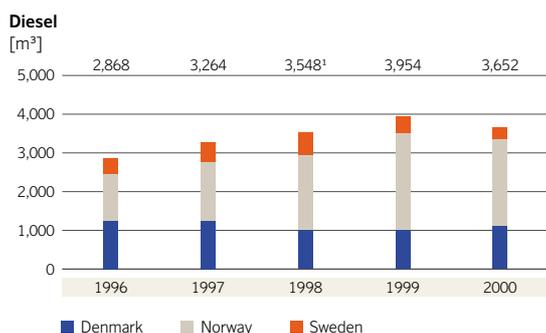
Energy consumption



Background: In order to calculate SAS's ecoefficiency, registered resource consumption is compared with the total SAS-owned floor space where resource consumption takes place. 1999 was the first year of use for SAS's new facilities – the cargo terminal in Copenhagen and facilities at Gardermoen – and they have been included in the relative calculations since then.

SAS's development: SAS attained the goal to reduce energy consumption per m² by 10% compared with 1997 already in 1998.

[number]	1996	1997	1998	1999	2000
Electricity and heating [GWh]	215	194	193	220	195
Floor space used [1,000 m ²]	475	475	545	631	565



¹ Starting in 1998, all values are reported including the field stations. Consumption in Denmark and Sweden is therefore not comparable to the preceding years', while Norway already included the field stations.

Background: SAS strives to use only diesel of the highest environmental quality in each respective country.

SAS's development: The higher consumption in 1999 is mainly attributable to significantly longer driving distances between Oslo

and Gardermoen compared with Fornebu. Aside from the reported volumes, SAS used 1,700 (1,960) m³ of diesel in catamarans between Malmö and Copenhagen. The catamarans were withdrawn from traffic in August 2000 when the Öresund Bridge opened.

Environmental auditors' report

To the readers of SAS's environmental report for the financial year 2000

We have examined the contents of SAS's environmental report for the 2000 financial year.

SAS's Board of Directors approved the Board of Directors' Report in the environmental report on February 13, 2001. Furthermore, the Board studied the other information in the report at the Board meeting on March 8, 2001. The Group's executive management (SAS Management Team, SMT) is responsible for organizing and integrating environmental work with the day-to-day operations of the Group. Our task has been to examine the reporting of environmental activities.

The audit was conducted during the period February – March 2000 and was carried out parallel to production of the environmental report. Since there are no generally accepted standards for the contents and structure of an environmental report, neither in Scandinavia nor internationally, SAS has continuously discussed with us which information should be disclosed. As a basis for making this selection we have used Deloitte & Touche's "Checklist for preparation and evaluation of environmental reports", December 2000 edition. This checklist incorporates a number of principles from Sustainability Reporting Guidelines on Economic, Environmental and Social Performance (GRI, June 2000), Social Accountability 8000 and Accountability 1000.

Our audit has included:

- Discussions with SMT on the environmentally related operational risks, and disclosure thereof.
- Discussions with SMT on the contents of the environmental report and the results of our review.
- An assessment of the contents, scope and application of the company's principles for reporting of environmental information.
- A review of the report on completed, ongoing and planned environmental projects.
- A review of the report on environmentally related taxes, charges and investments.
- A review of the report on goal fulfillment relative to the established action plans.
- A review of the Group's systems and routines for registration, accounting and reporting of environmental data.
- A review of the documentation on which the information in the environmental report is based.
- A review on the report on compliance with laws, permits and conditions.
- A review of the report on the scope and limitations of the content of the environmental report.
- A control of the supplementary data on SAS's web site (www.scandinavian.net) that is referred to in the environmental report.
- A review to ensure that the contents of the environmental report do not contradict the information in SAS's audited financial annual report for the 2000 financial year.
- A control to ensure that SAS's annual report and this environmental report, with supplementary data on SAS's web site (www.scandinavian.net), together satisfy the requirements for environmental disclosure in the Board of Directors' Report according to Norwegian, Swedish and Danish law.

Based on the above reviews, it is our opinion that the data and information in the environmental report is supported by data obtained with due care from the operating units, and that the reports on environmental conditions and goal fulfillment relative to the established action plans provide an in all material aspects true and fair view of the reported parts of the Company's operations.

Stockholm, March 8, 2001
Deloitte & Touche AB

Svante Forsberg
Authorized Public Accountant

Elisabeth Werneman
Master of Economics

Reference section

Reporting principles

A word from the
Environmental Director

Words, expressions and
abbreviations

Contact SAS



Reporting principles

Scope of the environmental report

SAS's ambition is for the environmental report, with supplementary data on the web site, www.scandinavian.net, to include all significant conditions required to provide readers with an accurate picture of SAS's environmental impact and its commercial consequences.

In accordance with generally accepted accounting practices, SAS also reports significant events occurring after the end of the financial year and before completion of the environmental report.

The SAS Group consists of the business areas SAS and SAS International Hotels. Aside from the SAS Consortium, the SAS business area includes the subsidiaries Scandinavian IT Group, SMART, SAS Flight Academy, SAS Media and the airlines Air Botnia and Widerøe's Flyveselskap, as well as SAS Commuter Consortium.

When used in this report, the term "SAS" refers to the SAS business area with the exception of Air Botnia and Widerøe's Flyveselskap.

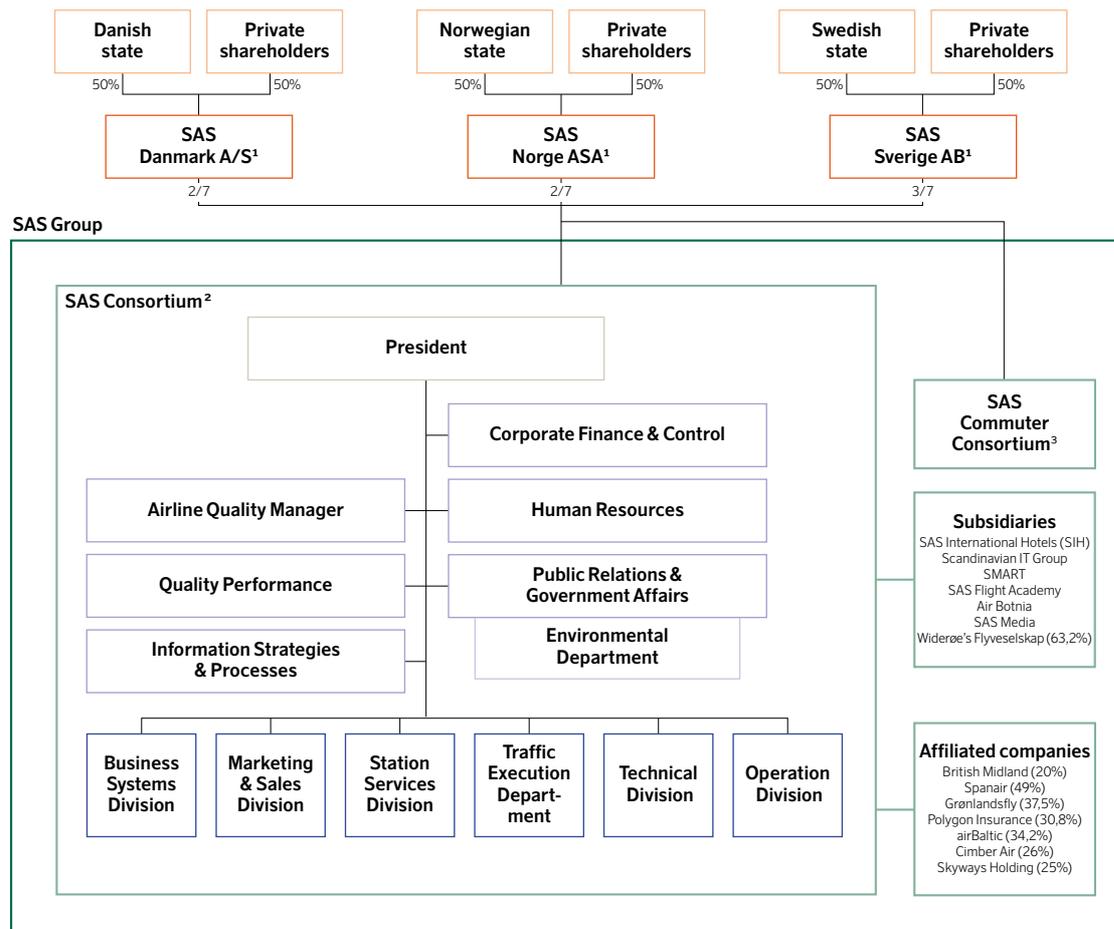
SAS's environmental report for 2000 includes significant environmental impact from the subsidiaries. This is of a lesser importance and is therefore reported only as a summary. See page 27.

Leased aircraft are covered in the report, but not the SAS cargo carried on Lufthansa's MD11s.

In certain cases, data referring to the same area differs between the environmental and annual reports. The differences, which primarily refer to production and traffic data, are attributable to the fact that the reports have different operational boundaries.

In cases of divergence from the specified boundaries for reporting of environmental data, information about

Ownership and organization



¹ Listed companies.

² The SAS Consortium comprises SAS Airline and SAS Trading, and is owned by the three parent companies SAS Danmark A/S, SAS Norge ASA and SAS Sverige AB.

³ The SAS Commuter Consortium is strictly a production company that supports SAS with feeder service in competition with other regional airlines.

the deviation is provided in direct connection with the affected data, table or chart.

SAS's environmental report is published in Danish, Norwegian, Swedish and English. The Swedish version is considered to be the original.

Division of environmental data between the annual report and the environmental report

The SAS Group's annual report for 2000 provides a general account of the Group's environmental conditions, according to Norwegian and Swedish legal requirements regarding disclosure of environmental information in the board of directors' report. Supplementary and more in-depth information than that in the annual report is provided in this environmental report and related parts of SAS's web site, www.scandinavian.net.

The board of directors' report in this environmental report was approved by the Board of SAS on February 13, 2001.

The Board has not examined the detailed information reported on SAS's web site.

Reporting principles

The principles applied for reporting financially-related information in SAS's environmental report for 2000 are identical to those used in the SAS's Group's financial annual report. By "the SAS environmental report for 2000" we refer to the environmental data in this environmental report and supplementary data on SAS's web site, www.scandinavian.net.

Changed reporting and calculation principles

The following changes have been made in reporting and calculation methods compared with earlier years.

- Hazardous waste is classified according to the European Waste Code (EWC), a system used to describe the type of waste and to which industry it is attributable.
- The environmental performance indicators have been more closely correlated with the financial key ratios used in SAS's annual report. The following key ratios have been added:
 - The effects of environmental activities on SAS's image
 - CFROI and ROCE before and after environmentally related charges
 - Environmentally related charges relative to operating revenue
 - Environmentally related charges per RPK
- The weighting in the total index has been adjusted to better reflect flight operations' actual share of SAS's total environmental impact. The data for earlier years has been adjusted for the sake of comparability.

Coefficients and calculation principles

The following coefficients have been used in the environmental report:

- The formula for distance flown used in calculation of the production ratios ATK, RTK, ASK, APK and RPK is based on the distance between SAS's destinations, expressed

as GCD (the shortest distance between two points), multiplied by the number of flights between them. But since the flight distance increases when aircraft are stuck in holding patterns and the flight path does not always follow the shortest distance between two points, the actual distance flown is approx. 10% longer than GCD.

- Calculation of RTK is based on the weight of paid cargo, the number of paying passengers and the average passenger weight including baggage. As of November 1, 2000, the three standard weights have been raised by 2 kg each. This has been applied for load calculation in SAS's flight operations, but for practical reasons not in this environmental report. Standard weights in the environmental report will be adjusted as of January 1, 2001.

The following standard weights have been used in SAS's environmental report for 2000:

- Standard weight, intercontinental routes: 99 kg
- Standard weight, European routes: 97 kg
- Standard weight, domestic routes: 95 kg

Otherwise, the following coefficients have been used:

- Weight of 1 liter jet fuel: 0.79 kg
- Emissions of CO₂: 3.15 kg per kg jet fuel burned
- Emissions of NO_x: 53.7 g per km flown *)
- Emissions of HCs, excluding VOCs: 5.8 g per km flown *)
- Emissions of water vapor: 1.238 kg per kg jet fuel burned
- 1 kg LPG: 12.8 kWh
- 1 kg fuel oil: 12.0 kWh, 3.17 kg CO₂, 5 g NO_x, 0.09% S
- Average density of solvents: 0.8 kg/l
- The calculations are based on 365 days per year.

*) Factors that are specific to each airline based on the composition and patterns of operation in the aircraft fleet.

Calculation of environmental indexes

The environmental index for total SAS is a weighted average of the indexes for the three areas of operations. The index is a method for describing SAS's ecoefficiency.

	Weighting
• Flight operations	90%
• Cabin operations	5%
• Ground operations	5%

Flight operations account for the bulk of SAS's environmental impact and have therefore been given a higher weighting. Flight operations are responsible for an estimated 90% of the total environmental impact from reported operations. The remaining 10% is divided equally between cabin and ground operations.

The environmental index (ecoefficiency) for the areas of operation is calculated in two stages:

$$\text{Environmental impact} = a \times \frac{\text{Variable 1}_{\text{current year}}}{\text{Variable 1}_{\text{base year}}} \dots + n \times \frac{\text{Variable Z}_{\text{current year}}}{\text{Variable Z}_{\text{base year}}}$$

Where a...n is the assigned weighting (see below) and 1...Z is the significant environmental aspect in question.

$$\text{Environmental index} = \frac{\text{Environmental impact}}{\text{Production}} \times \frac{\text{Production}_{\text{base year}}}{\text{Production}_{\text{current year}}}$$

The lower the value, the lower the environmental impact per unit produced.

Flight operations

<i>Environmental aspect</i>	<i>Weighting</i>	<i>Production factor</i>
• Carbon dioxide	50%	Revenue tonne kilometers (RTK)
• Nitrogen oxides	40%	
• Weighted noise contour	10%	

The high weightings for carbon dioxide and hydrocarbons are based on the scientific findings summarized in the IPCC report on aviation and the global atmosphere.

Cabin operations

<i>Environmental aspect</i>	<i>Weighting</i>	<i>Production factor</i>
• Unsorted waste	50%	Number of meals produced
• Energy consumption	30%	
• Water consumption	20%	

The weighting for unsorted waste is motivated by the fact that waste volumes affect the total load weight of a flight and therefore also fuel consumption. The weighting for energy consumption is based on an average electricity mix in Scandinavia, with a large proportion of hydropower relative to the rest of Europe. The weighting for water consumption is also based on conditions in Scandinavia, where the supply of water is comparatively good.

Ground operations

<i>Environmental aspect</i>	<i>Weighting</i>	<i>Production factor</i>
• Energy consumption	40%	Weighted landings
• Fuel for ground vehicles	20%	
• Glycol consumption	20%	
• Unsorted waste	10%	
• Hazardous waste	5%	
• Water consumption	5%	

Energy consumption has been given the highest weighting, since SAS is a major consumer of electricity. Consumption of glycol and fuel for ground vehicles have been given relatively high weightings since they give rise to direct emissions into the environment.

Terms and definitions**Weighted noise contour**

The weighted noise contour is calculated based on the number of takeoffs per day at a given airport, with regard to the aircraft types the airline uses at that airport. The weighted noise contour defines the area in km² that is subjected to a noise footprint of 85 dB(A) or more in connection with takeoff.

Revenue passengers

Passengers who pay at least 25% of the regular ticket price.

Adjustment for volume growth

The change in the absolute value of a specific parameter, from year to year is assumed to be attributable partly to a change in the operating volume and partly to improved technology or a change in efficiency, etc. In this environmental report, "Adjustment for volume growth" means that the effects of the increased operating volume have been eliminated. This is done by adjusting the preceding year's figures by an amount equal to volume growth. The change in the parameter in question is then calculated.

Environmentally related earnings and cost reductions

The change in earnings and costs compared with the preceding year is related to measures to prevent, reduce or correct environmental damage arising from operations.

Environmentally related costs

Cost related to measures to prevent, reduce or correct environmental damage arising from operations.

Environmentally related taxes and charges

Costs for levies associated with operations related to the environment – both extra costs for taxes and charges imposed on SAS when the best commercially available environmental processes or equipment have not been used and costs incurred even when they have been used.

Environmentally related investments

Investments in assets to prevent, reduce or correct environmental damage arising from operations which are not profitable on their own financial merits or are aimed at meeting upcoming, more stringent environmental requirements.

Environmentally related provisions

Reserves for liabilities and allocations for known undertakings and requisite measures to prevent, reduce or correct environmental damage arising from operations.

Environmentally related contingent liabilities

Contingent liabilities pertaining to possible future costs for measures to prevent, reduce or correct environmental damage arising from operations.

Quality assurance

Every member of the SAS Environmental Forum is responsible for supplying the Environmental Advisor with environmental data, which is then entered into a database. In connection with this, the data is evaluated, analyzed and compared with data in the database from earlier years. Before new data goes into the database, the underlying information is examined. SAS's external environmental auditors examine the materiality of the information in the database against the underlying documentation and assess whether the presentation in the environmental report provides an essentially accurate picture.

While waiting for an industry index...

A word from the Environmental Director

Like our environmental activities, SAS's sixth annual environmental report is characterized by continuous improvement. We have advanced both our environmental performance and the way we report it. Above all, we have made an effort to further highlight the connection between environment and economy, all to give the financial markets a relevant basis for analysis and evaluation of SAS's operations. We have also continued developing our reporting principles to enhance comparability and clarity in the reported data. This should make it easier for the readers to evaluate SAS's environmental data.

Our environmental index, where we gauge the company's ecoefficiency, is an important indicator. In a single number, it describes the overall results of our environmental activities.

For several years we have worked to establish good environmental reporting standards and were the first to have our environmental report examined, verified and validated by an external auditor. We have also striven to find industry-wide performance indicators to facilitate comparisons between airlines. And in the hope that others would follow our lead, we have openly disclosed our calculation methods. So far, no competitor has followed our example.

In spite of this, we are relentless in our efforts to encourage followers, especially among our partners in Star Alliance, because we are firmly convinced that many stakeholders in the market want the chance to compare the airlines' environmental performance. We also believe the use of benchmarking to measure our performance against other leading airlines would be an effective stimulus.

The information we publish in the environmental report has a strong influence on SAS's environmental activities. The environment report is a central element of the Group's internal environmental management, provid-



ing all employees with a summary of the year's accomplishments and showing us how we should move forward.

Just as all of the company's operations should be permeated by continuous improvement, the same applies to the environmental report. During the year we carried out a stakeholder analysis to identify how we can improve the quality and structure of our environmental information. In addition, we are eagerly following the development of so-called "Triple Bottom Line" or sustainability reporting – an accounting method that describes a company's overall

environmental, economic and social performance.

Previously, we found the sustainability reporting model somewhat excessive. As a Scandinavian company, we have taken issues like democracy, equality and the right to unionize for granted. But in light of the increasing globalization of the world's economies, we now realize that it's meaningful even for SAS to begin reporting our progress in the areas of corporate ethics and social responsibility.

We promise to continue pursuing this matter, and at the same time urge all readers to submit their views on this report and SAS's environmental work in general!

Niels Eirik Nertun
Environmental Director

Words, expressions and abbreviations

AEA (Association of European Airlines), cooperative body for European airlines.

ASK (Available Seat Kilometers), the available (offered) number of passenger seats multiplied by the distance flown (see also ATK, RPK, RTK).

ATK (Available Tonne Kilometers), available (offered) capacity for passengers and cargo expressed in metric tonnes, multiplied by the distance flown (see also ASK, RPK, RTK).

Cabin factor Percentage of available passenger capacity that is utilized during a flight. Normally, only "revenue passengers", i.e. passengers paying at least 25% of the normal ticket price, are included in calculation of the cabin factor.

CAEP (Civil Aviation Environmental Protection), technical committee of the ICAO (see definition) charged with developing and establishing rules and recommending measures to reduce the environmental impact of aviation.

Carbon dioxide (CO₂) A colorless gas formed in combustion of all fossil fuels. The airline industry's CO₂ emissions are being reduced through a changeover to more fuel-efficient, something that is also desirable from a financial standpoint since lower fuel consumption automatically means lower costs.

Carbon monoxide (CO) Toxic and combustible gas formed by incomplete burning of substances containing carbon, e.g. fossil fuels.

Certification requirements The ICAO's minimum requirements for certification of aircraft types, such as limits for noise and emissions of carbon dioxide, nitrogen oxides and hydrocarbons (see chapter II, III).

Chapter II, III Certification standards for noise according to the ICAO's document Annex 16. Specifies the maximum permitted noise levels. Chapter III means a lower noise level than chapter II, and the coming certification standard chapter IV denotes a lower noise level than chapter III.

DAC (Dual Annular Combuster), a technology that reduces nitrogen oxide emissions from aircraft engines.

ECAC (European Civil Aviation Conference), a forum for cooperation and coordination between European national authorities in matters related to civil aviation.

ENTAF (Environmental Task Force), a work group within the IATA that deals with environmental issues.

EPNdB (Equivalent Perceived Noise level), a unit commonly used in an aviation context to express the average perceived noise level. (See also Noise, dB.)

GCD (Great Circle Distance), definition of the shortest flight distance between two points, taking the curve of the earth's surface into account.

Germicides Chemicals used to kill or prevent growth of hazardous microorganisms such as bacteria, viruses and fungi. Added to the sanitizing liquid in aircraft lavatories to reduce the risk of infection.

Glycol A relative of alcohol that is sprayed on the aircraft in cold weather to prevent ice formation. Today, a non-toxic propylene glycol is used. Some 80% of the glycol runs off the air-

craft when applied, and seeps into the ground unless collected. A further 15% is emitted into the air and is thus dispersed in the vicinity of the airport. The airports are responsible for collecting the glycol runoff for re-use.

Greenhouse effect Carbon dioxide and other gases trap incoming solar radiation that would otherwise be deflected back into space. The problem is that emissions of greenhouse gases have increased. Most scientists agree that heavy human use of fossil fuels is causing global warming. Carbon dioxide is formed in combustion of all fossil fuels, but burning of biofuels only emits an amount of carbon equal to that absorbed during growth, producing no net emissions. However, use of coal, oil and natural gas produce a net increase, since they release carbon that has been bound in the earth's crust. The freon substitute HFC, methane and nitrous oxide are other powerful greenhouse gases.

IATA (International Air Transport Association), the UN cooperative body for around 270 of the world's airlines.

ICAO (International Civil Aviation Organization), the UN's agency for international civil aviation. One of its functions is to develop internationally binding norms for commercial aviation.

IFCA (Inflight Catering Association), an organization in which airlines collaborate with catering companies and other suppliers to the airline industry's catering operations. Has 600 member companies worldwide.

IPCC (Intergovernmental Panel on Climate Change), an expert panel established by the United Nations Environment Program UNEP and the World Meteorological Organization WMO to assess the consequences of human-induced climate change.

N-ALM (The Nordic Working Group for Environmental Issues in Aviation), composed of civil aviation, environmental and communication authorities, and airlines.

Nitrogen oxides (NO_x) Formed in all combustion in aircraft engines since the high temperature and pressure cause atmospheric nitrogen and oxygen to react with each other, mainly during takeoff and ascent when the engine temperature is at a maximum. With effect from 1996 the ICAO has tightened the requirements for nitrogen oxide emissions, and these are expected to be made even stricter.

Noise Environmentally detrimental, often undesirable sounds. The environmental impact of air traffic in the form of noise is primarily of a local nature. (See also EPNdB, Chapter II, III.)

Oil aerosols Oil emitted from the aircraft engines during operation under high pressure. Upon contact with air they form a fine mist, which is then broken down primarily into carbon dioxide.

Ozone layer 90% of all atmospheric ozone is found in the stratosphere at an altitude of between 10 and 50 km above the earth's surface, where it forms a protective layer that deflects ultraviolet radiation. Use of halogenated hydrocarbons such as freon lead to depletion of the ozone layer. Aircraft emissions of nitrogen oxides in the strato-

sphere also contribute to this depletion.

Route sector Classification of flights according to different types of traffic – such as scheduled or charter flights – and geographic orientation, e.g. Scandinavia or Europe.

RPK (Revenue Passenger Kilometers), utilized (sold) capacity for passengers expressed as the number of seats multiplied by the distance flown (see also ASK, ATK, RTK). Revenue passengers include only those paying at least 25% of the regular ticket price.

RTK (Revenue Tonne Kilometers), utilized (sold) passenger and cargo capacity expressed in metric tonnes, multiplied by the distance flown (see also ASK, ATK, RPK). Revenue passengers and cargo over a certain payment limit.

Slot The time allotted for takeoff or landing at an airport.

Star Alliance Commercial alliance between the airlines Air Canada, Air New Zealand, ANA – All Nippon Airways, Ansett Australia, Austrian Airlines, British Midland, Lufthansa, Mexicana de Aviación, SAS, Singapore Airlines, Thai Airways International, Tyrolean, United Airlines and Varig Brazilian Airlines.

Sulfur dioxide (SO₂) Formed in combustion of fossil fuels. A colorless gas with an acrid odor that is toxic when inhaled in large quantities. Jet fuel contains a minute proportion of sulfur, and, accordingly, causes only minor emissions of this substance. The same applies to the "green" diesel used in ground vehicles. In the airline industry, as in many others, sulfur dioxide emissions come largely from oil-fired heating.

TQM (Total Quality Management), a management philosophy in which a company or organization strives to exceed the customers' expectations by continuously improving its competitiveness through the efforts of the employees.

Triazol Organic aluminum compounds, often used as additives to glycol to prevent corrosion and as a fire retardant. Triazols are long-lived and non-degradable, and are absorbed by living organisms.

Volatile organic compounds (VOCs) Emitted during incomplete combustion of fossil fuels – in aviation mainly when the engine is run at low speed and the temperature in the combustion chamber is low. This category also includes all types of solvents that evaporate from detergents and paints, among other things. As of April 1, 2002, only aircraft with low VOC emissions will be permitted in the EU.

Weighted landings A term used to express work input per departure, depending on the aircraft type and route sector. Based on SAS's most common aircraft type (MD-81), which has been assigned a weighted landing value of 1.0. A smaller aircraft that requires a lower work input will have a lower value and a larger aircraft will have a higher weighted landing value.

Wet lease When airlines lease in aircraft including personnel for operation in scheduled traffic. The flights are made using the leased airline's flight numbers. A *dry lease* is the other version, where only the aircraft are leased in.

Contact SAS

We would like to know what you think of our environmental activities and our environmental report. Feel free to send your comments by letter, fax or the environmental section of our web site. You can also order copies of current or previous environmental reports, the year's annual report and other material from SAS's environmental program.

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