SWEDEN'S ENVIRONMENTAL

objectives

– a shared responsibility

AN EVALUATION BY THE SWEDISH ENVIRONMENTAL OBJECTIVES COUNCIL

2004

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An evaluation by the Swedish Environmental Objectives Council

Preface

This is an abridged English version of the Swedish Environmental Objectives Council's first comprehensive evaluation of efforts to attain the fifteen national environmental quality objectives, which the Swedish Parliament adopted in 1999 and has subsequently defined more precisely by means of interim targets. As we work towards the goal of sustainable development, the environmental quality objectives are being used to lend visibility to the ecological dimension of the process. The present report is one of several documents that will form a basis for the Swedish Government's Environmental Objectives Bill in 2005.

On 1 January 2002 the Government set up the Environmental Objectives Council to promote consultation and cooperation in implementing the environmental quality objectives laid down by Parliament. The Council is made up of representatives of central government agencies, county administrative boards, local authorities, non-governmental organizations and the business sector. Its principal functions are:

- to monitor and evaluate progress towards the environmental quality objectives,
- to report to the Government on how efforts to achieve the objectives are advancing and what further action is required,
- to coordinate the information efforts of the agencies responsible for the objectives,
- to ensure overall coordination of the regional application of the objectives, and
- to allocate funding for monitoring of progress towards the objectives, environmental monitoring, and some reporting at the international level.

Under the terms of Government Bill 2000/01:130, 'The Swedish Environmental Objectives – Interim Targets and Action Strategies', a more in-depth evaluation of the environmental quality objectives is to be undertaken every four years. The aim is to establish whether the policy instruments used or the objectives themselves need to be revised. The evaluation report should describe progress towards the objectives and include proposals on such matters as appropriate measures, instruments, resources, organizational arrangements and, where relevant, changes to interim targets or monitoring systems.

The task of preparing this in-depth review has been coordinated by the Environmental Objectives Council through its Secretariat. The agencies and organizations represented on the Council have drawn up reports on the individual objectives. These documents are the responsibility of the bodies concerned and have been submitted to the Government together with the Swedish version of this report. The annual progress reports presented to date have also provided background material, as have a number of other recent submissions to the Government in other contexts, chiefly proposals for new objectives and interim targets requested by the Government. The reports on individual objectives, most of which include English summaries, and the annual progress reports, of which English versions are also available, can be found on the Environmental Objectives Portal, miljomal.nu.

February 2004

Jan Bergqvist, Chairman, Environmental Objectives Council

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Executive summary

The Swedish Parliament has adopted fifteen objectives relating to the quality of Sweden's environment, most of them to be achieved by the year 2020. The task of monitoring and evaluating progress towards these goals has been entrusted by the Government to the Environmental Objectives Council. In this report, the Council presents a detailed review of the action taken to realize the objectives, based on some twenty individual reports from different bodies represented on the Council.

This first in-depth evaluation of the process of implementing the environmental quality objectives shows that, as a result of their introduction, new ideas, new partnerships and new forms of collaboration have emerged. Many bodies and organizations in Swedish society are playing significant roles in securing progress towards the goals. Cooperation between authorities has been strengthened and is continuing to develop. It is still difficult to gain a clear overall picture of all the important details which together make up the wide-ranging process of applying the environmental objectives at the regional and local levels, taking steps to achieve them and monitoring progress towards them.

The environmental objectives are a way of lending visibility to the ecological dimension of sustainable development. To achieve sustainable development, we need to ensure that environmental goals and other policy objectives go hand in hand. For most of the objectives, action taken as a result of decisions at the EU level or under international conventions crucially affects the chances of success. It is therefore important that Sweden remains an active member of the EU and continues to exert an influence in different international forums.

Four objectives particularly difficult to achieve

The Council judges four of the fifteen environmental objectives to be particularly difficult to achieve. In the case of the goals Sustainable Forests and Zero Eutrophication, pressures on the environment are admittedly easing, but the natural systems concerned will take a long time to recover. As regards A Non-Toxic Environment, a major problem is that releases of toxic substances are diffuse and difficult to deal with, at the same time as many of the substances in question are persistent. As for the objective Reduced Climate Impact, far-reaching international agreements are essential, the Kyoto Protocol being no more than a first step.

The Council notes that economic growth is a necessary condition for successful environmental protection, but that it is also essential to 'decouple' such growth from pressures on the environment. In Sweden, this has been achieved with regard to greenhouse gas emissions from sectors other than transport, but it needs to be done in more areas. The Council therefore stresses the importance of international cooperation and of Sweden giving a lead in the EU.

Further action is needed

Sweden needs to take tangible action in three areas if it is to make rapid progress towards solving its major environmental problems. The key concerns are to achieve more efficient energy use and transport, non-toxic and resource-efficient cyclical systems, and wise management of natural resources and the built environ-

ment. The Environmental Objectives Council proposes a range of measures to help attain the different objectives, including the following:

VEHICLE TAXES BASED ON ENVIRONMENTAL PERFORMANCE

The Council calls for a differentiated vehicle tax on heavy vehicles, based on the environmental class to which they are assigned; a kilometre-based road tax on freight transport to replace the existing road charge; and incentives to speed the introduction of low-emission mobile machinery. The vehicle tax system should be developed to take account of carbon dioxide emissions.

IMPROVEMENTS IN ENERGY EFFICIENCY

The Council proposes that the authorities should have greater scope to impose standards on existing buildings, for example to improve their indoor environment or save energy. Action to reduce atmospheric emissions of particulates from small-scale burning of wood is also proposed.

ENHANCED SYSTEM OF DIFFERENTIATED FAIRWAY CHARGES

To reduce sulphur and nitrogen oxide emissions from shipping, the Swedish Maritime Administration should continue its efforts to develop the system of differentiated fairway charges and seek to promote the introduction of similar arrangements in other countries.

ALL CHEMICAL SUBSTANCES TO BE REGISTERED

In the area of non-toxic and resource-efficient cyclical systems, the Council proposes that all chemical substances covered by the EU's new rules should be registered no later than 2010. Authorizations should be required for particularly hazardous substances and should be issued only for limited periods. The same requirement should apply to substances that disrupt the endocrine system or are highly allergenic.

ACTIVE NATURE CONSERVATION MEASURES TO PROMOTE SUSTAINABLE FORESTS

Efforts to protect forests by designating nature reserves and habitat protection areas and establishing nature conservation agreements need to be stepped up. The Forestry Act should be amended to allow felling to be carried out in order to preserve and develop the nature conservation interest of sites – primarily with a view to creating more favourable conditions for mature forest with a large element of deciduous trees.

Sweden's environmental objectives

The overall goal of Swedish environmental policy is to hand over to the next generation a society in which the major environmental problems currently facing the country have been solved. It is a matter of ensuring that the next generation – our children and grandchildren – and generations to come are able to live their lives in a rich natural environment, free from toxic substances, and in a society based on sustainable development. In 1999 the Swedish Parliament adopted fifteen national environmental quality objectives, the majority of which are to be attained by the year 2020 (in the case of Reduced Climate Impact, by 2050 as a first step). Subsequently, in a series of decisions, Parliament has laid down 71 interim targets. These targets flesh out the environmental quality objectives, which refer to states of the environment that we wish to achieve. The interim targets are also 'staging posts' to be reached by certain dates, often 2010.

Sweden's political goal for global development is to help ensure that it is equitable and sustainable. Trade, agriculture, the environment, security, migration and economics are some of the policy areas in which measures need to be designed in such a way as to promote global development. In the endeavour to achieve sustainable development, the links between its three components – social, economic and ecological – are of great importance. The environmental quality objectives are a way of lending visibility to the ecological dimension.

The fifteen environmental quality objectives and the interim targets associated with them create a clear and stable framework for environmental programmes and initiatives, and serve to guide such efforts at various levels in society. The Government has designated nine central government agencies as authorities responsible for the environmental objectives and related issues. Their functions include proposing necessary measures and monitoring changes in the state of the environment. The Swedish Environmental Protection Agency is responsible for nine of the fifteen objectives, while the National Chemicals Inspectorate, the Swedish Radiation Protection Authority, the Geological Survey of Sweden, the National Board of Forestry, the Swedish Board of Agriculture and the National Board of Housing, Building and Planning are each responsible for one. In addition, four broader issues cutting across the different objectives have been identified: the natural environment (with the Environmental Protection Agency as the responsible central authority); land use planning and wise management of land, water and buildings (National Board of Housing, Building and Planning); the cultural environment (National Heritage Board); and human health (National Board of Health and Welfare). Another key aspect of the system is that regional authorities are responsible for developing regional goals and action programmes, while municipal authorities elaborate local objectives. Cooperation between different stakeholders in society – individuals, companies, organizations and authorities – is also seen as very important in achieving the objectives.

As a basis for measures to attain the environmental objectives, three action strategies have been adopted. One aim of these strategies is to provide an overview of different measures and of how they can interact with or counteract one another:

A. A strategy for more efficient energy use and transport – in order to reduce emissions from the energy and transport sectors.

B. A strategy for non-toxic and resource-efficient cyclical systems, including an integrated product policy – in order to create energy- and material-efficient cyclical systems and reduce diffuse emissions of toxic pollutants.

C. A strategy for the management of land, water and the built environment – in order to meet the need for greater consideration for biological diversity, the cultural environment and human health, wise management of land and water, environmentally sound land use planning and a sustainable built environment.

This report examines progress towards the fifteen environmental quality objectives, but for further information on the 71 interim targets readers are referred to the Environmental Objectives Council's annual report *de Facto*. The most recent edition, from 2003, is available in English: *Sweden's Environmental Objectives – will the interim targets be achieved?* This year's annual report will be published in Swedish in June and in English in July 2004.

Will the objectives be achieved?

THE ENVIRONMENTAL OBJECTIVES COUNCIL'S ASSESSMENT:

Our assessment is that eleven of the fifteen environmental quality objectives can be achieved within the defined time-frame, provided that additional action is taken. The other four, though, will be very difficult to attain. As regards the interim targets, it is our view that the measures already decided on and introduced will be sufficient to achieve twenty-five of them, while further action will be needed for another thirty-two. Twelve of the interim targets are not expected to be met by the stated dates, even if measures going beyond those already decided on are implemented. Progress towards the remaining two targets, which were adopted in October 2003, has yet to be assessed.

Note: Progress towards the environmental objectives is evaluated annually. The next assessment will be published in the annual report *de Facto 2004*.

The Environmental Objectives Council reports annually to the Government on progress towards the enviromental quality objectives, basing its assessment on the decisions currently in place. In its annual report *de Facto 2003*, the Council expresses the view that four of the fifteen objectives will be very difficult to achieve within the defined time-frame. The remaining eleven are judged to be achievable, provided that additional action is taken. Two of the four objectives that will be difficult to deliver are Sustainable Forests and Zero Eutrophication. Regarding these goals, however, it is noted that pressures on the environment are easing; one of the reasons they will nevertheless be hard to achieve is the long timescale of recovery in the natural environment.

The two objectives that are judged to be genuinely difficult to realize are A Non-Toxic Environment and Reduced Climate Impact. In the case of the former, the principal obstacles are diffuse emissions of toxic substances from products and buildings; the fact that toxic chemicals will continue to be formed unintentionally; and the problem of persistent substances already released into the environment remaining there for a long time to come. To reduce the human influence on climate, global agreements providing for vigorous action are necessary, and so far such agreements have proved elusive. Implementing the Kyoto Protocol would be a significant first step along the way.

Among the interim targets associated with the environmental quality objectives, there are many which we consider attainable without additional decisions having to be taken – provided that the measures already decided on are actually implemented. This is true, for instance, of targets relating to emissions of sulphur, volatile organic compounds and ammonia. Other examples are interim targets relating to action in the forestry sector, the environmental impacts of energy use in homes, or the conservation and use of the cultural heritage of archipelago areas.

Further action is needed

If the fifteen environmental quality objectives and all of the interim targets are to be achieved, further action is necessary. In a later chapter of this report we present what we consider to be some of the most important tangible measures on which Parliament and the Government need to reach decisions. Here, we give a brief survey of the environmental situation and the action required with regard to each of the objectives.

 This symbol means that current conditions, provided that they are maintained and the decisions taken are implemented in all essential respects, are sufficient to achieve the environmental quality objective within the defined time-frame.

 This symbol means that the environmental quality objective can be achieved to a sufficient degree/extent within the defined time-frame, but that further changes/measures will be required.

 This symbol means that the environmental quality objective will be very difficult to achieve to a sufficient degree/extent within the defined time-frame.

REDUCED CLIMATE IMPACT

RESPONSIBLE AUTHORITY: SWEDISH ENVIRONMENTAL PROTECTION AGENCY

The UN Framework Convention on Climate Change provides for the stabilization of concentrations of greenhouse gases in the atmosphere at levels which ensure that human activities do not have a harmful impact on the climate system. This goal must be achieved in such a way and at such a pace that biological diversity is preserved, food production is assured and other goals of sustainable development are not jeopardized. Sweden, together with other countries, must assume responsibility for achieving this global objective.

The process of climate change now under way is so pronounced that it is without parallel since the last ice age. Reaching global agreement on and implementing worldwide the deep cuts in emissions needed to achieve this environmental quality objective represent a huge challenge. It is difficult to judge how international co-operation on the climate issue is likely to develop in the long term. It is important to persuade more countries than have so far ratified the Kyoto Protocol to become involved in ongoing cooperation in this area.

The most recent projection of Swedish greenhouse gas emissions, from the year 2000, predicts only a slight increase up to 2010. Compared with 1990, emissions are expected to rise by 0.5%. Since that forecast was made, Parliament has adopted a climate strategy, and new national targets for emissions of greenhouse gases have been set. A comprehensive forecast is to be drawn up in 2004, and the need for measures to attain the interim target under this objective will then be reassessed. The most obvious need is for further action in the sectors that are responsible for a large share of emissions, and in which emissions are continuing to rise. In Sweden, the transport sector is of particular relevance in this regard.

CLEAN AIR

RESPONSIBLE AUTHORITY: SWEDISH ENVIRONMENTAL PROTECTION AGENCY

The air must be clean enough not to represent a risk to human health or to animals, plants or cultural assets.

This objective is intended to be achieved within one generation.

Good progress has been made towards the interim targets under this objective. However, in a few places, including Stockholm and Göteborg, the target for nitrogen dioxide levels in air will be difficult to meet if planned measures are not carried out. Particulates in air are a major health concern. Action at both a local and a European level is urgently needed to get to grips with this problem. As long as particulate concentrations remain unacceptable from a health point of view, this environmental quality objective will not be achieved, even if satisfactory progress is made towards the interim targets.

NATURAL ACIDIFICATION ONLY

RESPONSIBLE AUTHORITY: SWEDISH ENVIRONMENTAL PROTECTION AGENCY

The acidifying effects of deposition and land use must not exceed the limits that can be tolerated by soil and water. In addition, deposition of acidifying substances must not increase the rate of corrosion of technical materials or cultural artefacts and buildings.

This objective is intended to be achieved within one generation.

Acidification affects both surface waters and soil and groundwater. Measured against the Environmental Protection Agency's environmental quality criteria, 10% of Sweden's lakes (not treated with lime) with an area of more than four hectares were acidified in 2000, a decrease compared with 1995. The trend towards more severe acidification of forest soils has probably been reversed. To meet the interim target for nitrogen oxide emissions, further measures will be needed to reduce emissions from vehicles, ships and mobile machinery.

A NON-TOXIC ENVIRONMENT

RESPONSIBLE AUTHORITY: NATIONAL CHEMICALS INSPECTORATE

The environment must be free from man-made or extracted compounds and metals that represent a threat to human health or biological diversity.

This objective is intended to be achieved within one generation.

The prospects of reducing the environmental impacts of chemicals in Sweden depend to a very significant degree on the chemicals policy adopted by the EU. Negotiations are currently in progress within the EU Council on new legislation to introduce a system known as REACH (Registration, Evaluation and Authorization of Chemicals). To achieve the targets concerning data on properties of chemical substances, health and environmental information, and the phase-out of particularly hazardous substances contained in products, Sweden must play an active role in that context.

Through both food and drinking water, the population is continuously exposed to low concentrations of a range of substances with proven adverse effects on health, including heavy metals (cadmium, mercury etc.) and persistent organic compounds (PCBs, dioxins, brominated flame retardants etc.). To what extent this exposure affects people's health is impossible to assess at present, but estimates suggest that, for some of the substances concerned, the margins between current exposure and adverse effect levels are small or non-existent. Assessing the impacts of environmental factors on human health is generally difficult, owing to the very limited data available in most cases, regarding both causal links and exposure levels.

As for remediation of contaminated sites, it has taken a long time to develop the necessary procedures and expertise in Sweden, and it will be very difficult to achieve the pace of remediation needed to meet the interim target.

A PROTECTIVE OZONE LAYER

RESPONSIBLE AUTHORITY: SWEDISH ENVIRONMENTAL PROTECTION AGENCY

The ozone layer must be replenished so as to provide long-term protection against harmful UV radiation.

Thanks to international agreements to phase out ozone-depleting substances, adverse pressures on the ozone layer, which protects the earth from harmful ultraviolet radiation, have been reduced. Sweden has also made considerable progress in phasing out these substances. To achieve the interim target for emissions, however, further decisions are needed concerning the use and handling of ozone depleters, combined with an information campaign on existing and future bans. According to international scientists working for UNEP/WMO, we will not begin to see a recovery of the ozone layer until 2020 at the earliest.

A SAFE RADIATION ENVIRONMENT

RESPONSIBLE AUTHORITY: SWEDISH RADIATION PROTECTION AUTHORITY

Human health and biological diversity must be protected against the harmful effects of radiation in the external environment.

We currently lack an overall picture of the radiation environment and its effects on people and natural ecosystems. Several types of activity that can give rise to radiation as an unintended side effect of the processes involved have been identified. It is important to establish where these activities are taking place and to investigate the radiation doses they produce. There has been a growing awareness in recent years of the need for a regulatory framework for the management and disposal of non-nuclear radioactive waste and 'orphan sources'. Another challenge is to build a safe permanent repository for spent nuclear fuel and other radioactive waste. At the international level, work is now in progress to broaden the scope of radiological protection to include animals and plants.

Regarding exposure to electromagnetic fields, the research undertaken to date has not shown that base stations or mobile phones cause ill health. Further

efforts in the areas of research, environmental monitoring and information are essential if we are to be able to assess and attain the target relating to electromagnetic fields.

Exposure to ultraviolet radiation is a major risk factor for skin cancer. The amount of this radiation to which people are exposed depends primarily on their outdoor recreational habits. Over the last ten years, the increase in skin cancer incidence has been less marked than before, but it is still too early to say whether this represents a trend break. If planned long-term measures are implemented, the assessment is that the interim target regarding skin cancer can be met.

ZERO EUTROPHICATION

RESPONSIBLE AUTHORITY: SWEDISH ENVIRONMENTAL PROTECTION AGENCY

Nutrient levels in soil and water must not be such that they adversely affect human health, the conditions for biological diversity or the possibility of varied use of land and water.

This objective is intended to be achieved within one generation.

Despite a reduction of emissions, the Baltic Sea remains severely eutrophicated. In the Baltic Sea proper, levels of phosphorus have continued to rise since 1995, while nitrogen concentrations are largely unchanged. Eutrophication is also a problem in the Skagerrak and Kattegat, but there the situation has improved somewhat in recent years. Many lakes, too, are suffering from eutrophication, with phosphorus and nitrogen levels unchanged or showing a slight decrease.

Swedish inputs of nitrogen and phosphorus to the sea areas around its coasts fell somewhat over the period 1995–2000. In the case of nitrogen, sewage treatment plants were responsible for the biggest reduction. In agriculture, nitrogen emissions remained unchanged, while emissions of phosphorus decreased. Since 2000, nitrogen losses from agriculture have declined. Single-household sewage systems (septic tanks etc.) account for 10% of Swedish phosphorus emissions, and if more second homes not served by municipal treatment plants are converted into year-round residences there is a risk of these emissions increasing. Further action is needed to reduce emissions from single-household treatment systems and leaching from farmland.

FLOURISHING LAKES AND STREAMS

RESPONSIBLE AUTHORITY: SWEDISH ENVIRONMENTAL PROTECTION AGENCY

Lakes and watercourses must be ecologically sustainable and their variety of habitats must be preserved. Natural productive capacity, biological diversity, cultural heritage assets and the ecological and water-conserving function of the landscape must be preserved, at the same time as recreational assets are safeguarded.

This objective is intended to be achieved within one generation.

To attain the interim targets concerning the protection of valuable natural and cultural environments, more knowledge and a stepping up of conservation efforts are needed. To enable different interests to be taken into account when rivers and streams are restored, better coordination is called for. In addition, the costs of restoration need to be shared. In general, greater care should be taken in the agriculture and forestry sectors to avoid damage to lakes and streams. More information and closer supervision are needed to reduce the risks associated with stocking non-native species for fishing.

Long-term protection should also be put in place for surface waters that are of importance for drinking water supplies.

GOOD-QUALITY GROUNDWATER

RESPONSIBLE AUTHORITY: GEOLOGICAL SURVEY OF SWEDEN

Groundwater must provide a safe and sustainable supply of drinking water and contribute to viable habitats for flora and fauna in lakes and watercourses.

This objective is intended to be achieved within one generation.

The status of groundwater is generally good over large areas of the country. Compared with most other countries, Sweden has a plentiful supply of good-quality groundwater. Some groundwaters, though, are affected by pollution, impairing the quality of water from private wells in particular, but also of raw water for public supplies. In the agricultural regions of southern Sweden, elevated nitrate levels often occur, while in urban as well as farming areas pesticide residues have been found. In coastal areas, salt-water intrusion can be a problem. Salt also finds its way into groundwater as a result of de-icing of roads, chiefly in

the south of the country, but also along the coast of northern Sweden. In the south, shallow groundwaters are affected by acidification, and recovery is slow. Urbanization is having an increasingly marked impact on groundwater bodies, at the same time as there is a growing need to make use of them for water supplies. Spillage of contaminants as a result of accidents is another risk factor.

Steps need to be taken to provide long-term protection for groundwaters, so as to safeguard future as well as current supplies of drinking water. This will require amendments to the Environmental Code. To permit more reliable assessments of groundwater quality, more extensive monitoring is needed.

A BALANCED MARINE ENVIRONMENT, FLOURISHING COASTAL AREAS AND ARCHIPELAGOS

RESPONSIBLE AUTHORITY: SWEDISH ENVIRONMENTAL PROTECTION AGENCY

The North Sea and the Baltic Sea must have a sustainable productive capacity, and biological diversity must be preserved. Coasts and archipelagos must be characterized by a high degree of biological diversity and a wealth of recreational, natural and cultural assets. Industry, recreation and other utilization of the seas, coasts and archipelagos must be compatible with the promotion of sustainable development. Particularly valuable areas must be protected against encroachment and other disturbance.

This objective is intended to be achieved within one generation.

By 2008, according to one of the interim targets, catches of fish are not to exceed rates of recruitment. The recent reform of the EU's Common Fisheries Policy paves the way for improved management of fish resources, but the decisions taken on catches make it clear that the policy changes have yet to produce results. It is therefore uncertain whether this interim target will be met by 2008. To tackle the problem of bycatch of marine mammals (e.g. porpoises), too, further action is necessary: for example, it is possible to develop fishing gear that is selective for target species.

To achieve the interim targets concerning protection of cultural or natural environments, a combination of measures is required. For one thing, more resources need to be made available for establishing and managing marine reserves. The targets relating to the cultural environment also presuppose that environments and landscapes are used and managed with care. In the long run, therefore, complementary approaches, in addition to protection, need to receive more attention.

THRIVING WETLANDS

RESPONSIBLE AUTHORITY: SWEDISH ENVIRONMENTAL PROTECTION AGENCY

The ecological and water-conserving function of wetlands in the landscape must be maintained and valuable wetlands preserved for the future.

The Mire Protection Plan for Sweden is not being implemented at a sufficiently rapid pace. One reason for this is that county administrative boards and local authorities have been unable to allocate sufficient staff to the task of designating reserves. Progress is also too slow when it comes to establishing new wetlands on agricultural land. Incentives for landowners to create or restore wetlands need to be improved. To achieve the interim target concerning the problems associated with building forest roads across wetlands, it is important to develop closer cooperation among the parties involved.

SUSTAINABLE FORESTS

RESPONSIBLE AUTHORITY: NATIONAL BOARD OF FORESTRY

The value of forests and forest land for biological production must be protected, at the same time as biological diversity and cultural heritage and recreational assets are safeguarded.

This objective is intended to be achieved within one generation.

The interim targets relating to protection of cultural or natural environments require a combination of measures. The pace of progress in terms of safeguarding forest areas is not fast enough. As for the target that calls for forest land to be managed in such a way as to avoid damage to ancient monuments and other cultural remains, knowledge about where such remains are located is of crucial importance. At present, the majority of ancient remains on forest land are unidentified. Measures to protect threatened species also need to be further developed.

A VARIED AGRICULTURAL LANDSCAPE

RESPONSIBLE AUTHORITY: SWEDISH BOARD OF AGRICULTURE

The value of the farmed landscape and agricultural land for biological production and food production must be protected, at the same time as biological diversity and cultural heritage assets are preserved and strengthened.

This objective is intended to be achieved within one generation.

The area of pasture and especially meadow land contracted sharply down to the 1990s, but since then the trend has been more encouraging. This has created better conditions for conserving both cultural heritage assets and a range of different species. The fact that farmland is being taken out of production in certain parts of the country makes it difficult to achieve this objective at a regional level. Measures outside the sphere of agricultural policy are also necessary. To be able to preserve natural and cultural heritage assets in the long term, we need a better understanding of what these assets comprise, how they can best be conserved, and how progress in this area can be monitored. As far as preserving the condition and long-term productivity of arable land is concerned, existing measures in the agricultural sector are judged to be sufficient. The development of the farmed landscape depends to a large degree on the present structure and future reforms of the EU's Common Agricultural Policy.

A MAGNIFICENT MOUNTAIN LANDSCAPE

RESPONSIBLE AUTHORITY: SWEDISH ENVIRONMENTAL PROTECTION AGENCY

The pristine character of the mountain environment must be largely preserved, in terms of biological diversity, recreational value, and natural and cultural assets. Activities in mountain areas must respect these values and assets, with a view to promoting sustainable development. Particularly valuable areas must be protected from encroachment and other disturbance.

This objective is intended to be achieved within one generation.

In mountain areas, combinations of grants for cultural heritage conservation and agri-environment payments to support the environments on which reindeer herding relies have produced good results, in the form of well-preserved overall environments. However, we do not know how the different types of pressures have changed in recent years; this is the case, for example, as regards the Sami cultural heritage, reindeer grazing and tourism. What we can say, though, is that tourism, reindeer herding, stocking of fish, and atmospheric deposition of pollutants are factors which affect the recreational value and natural and cultural assets of mountain regions. Noise from snowmobiles, all-terrain vehicles and aircraft in mountain settings appears to be an intractable problem.

A GOOD BUILT ENVIRONMENT

RESPONSIBLE AUTHORITY: NATIONAL BOARD OF HOUSING, BUILDING AND PLANNING

Cities, towns and other built-up areas must provide a good, healthy living environment and contribute to a good regional and global environment. Natural and cultural assets must be protected and developed. Buildings and amenities must be located and designed in accordance with sound environmental principles and in such a way as to promote sustainable management of land, water and other resources.

This objective is intended to be achieved within one generation.

Some of the interim targets under A Good Built Environment will be difficult to meet by the target dates, more specifically the ones relating to built environments of cultural heritage value, noise, and the indoor environment. There is therefore considerable uncertainty as to whether the environmental quality objective as a whole can be achieved within one generation. Several of the interim targets relate to infrastructure and supply systems, e.g. those concerning traffic noise, natural gravel, waste, and energy use in buildings. Other dimensions than these also need to be taken into account if the objective is to be attained. Security, accessibility and participation, for example, are important in shaping people's perceptions of their built environment.

To achieve this environmental quality objective, increased resources and/or a reordering of priorities at the local and regional levels are essential.

Can efforts to attain the objectives be made more effective?

THE ENVIRONMENTAL OBJECTIVES COUNCIL'S ASSESSMENT:

Economic growth is a powerful driving force with an important bearing on progress towards the environmental quality objectives. It has, for example, led to better health, increased consumption, improved standards of housing and greater access to transport. Growth of the economy has put us in a position to solve many of the environmental problems currently known to us, using advances in technology and new methods of working. At the same time, though, it has given rise to new environmental problems which need to be addressed.

Over the years, many decisions have been taken in both the private and the public sector without sufficient regard for their impacts on the environment. If the environmental quality objectives are to be achieved, the decisions taken at different levels in society must be preceded by analyses of the consequences they may have in terms of promoting or obstructing progress towards these goals.

Sweden's county administrative boards, and many local authorities, have actively sought to ensure that the environmental objectives have an impact on their actions as authorities, on the physical planning in which they are involved, and on their own operations. Existing Agenda 21 processes may provide a useful framework for achieving further progress towards the objectives. It is important to draw attention to ways in which local authorities can use the environmental objectives, and to show that they can be of help in determining priorities in different areas.

For most of the objectives and targets, measures implemented as a result of decisions at the EU level or under international conventions crucially affect the prospects of success. Sweden must remain actively involved in decision making within the EU and different international forums.

Our evaluation of policy instruments shows that packages involving various combinations of mutually complementary instruments have been particularly effective. Emissions of substances that deplete the ozone layer, for example, have been reduced by a mix of economic instruments, legislation and information. Market pressures and innovation have also helped to drive technological progress.

Regarding the indoor environment, our review shows that although instruments do exist, in the form of powers to impose standards on both new and existing buildings under various enactments, such as the Environmental Code and the Work Environment Act, greater use needs to be made of these instruments.

Supervisory authorities in the area of environmental protection and public health are increasingly using the environmental objectives as a basis for determining needs and priorities for their work. To make supervision an effective means of promoting progress towards these objectives, it needs to be developed so as to allow the objectives to be a more powerful guiding influence.

Better coordination of the systems provided for in the Planning and Building Act and the Environmental Code for the processing of applications etc. would help to enhance the role of physical planning as an environmental tool. The link between the Environmental Code

and the physical planning process needs to be clarified, to enable planning to assume a more central role in environmental protection.

There are many central government grant schemes which local authorities can use in various contexts to fund measures to improve the environment. It needs to be clarified how these schemes together contribute to achieving the environmental objectives. We therefore propose that the Government should study ways of modifying the various forms of state funding provided to local authorities, to maximize their combined effect in terms of securing progress towards the environmental quality objectives and the associated interim targets. It is particularly important to take account of any problems which small local authorities may face.

Developments in society

TRENDS IN THE TRANSPORT AND ENERGY SECTORS

Transport

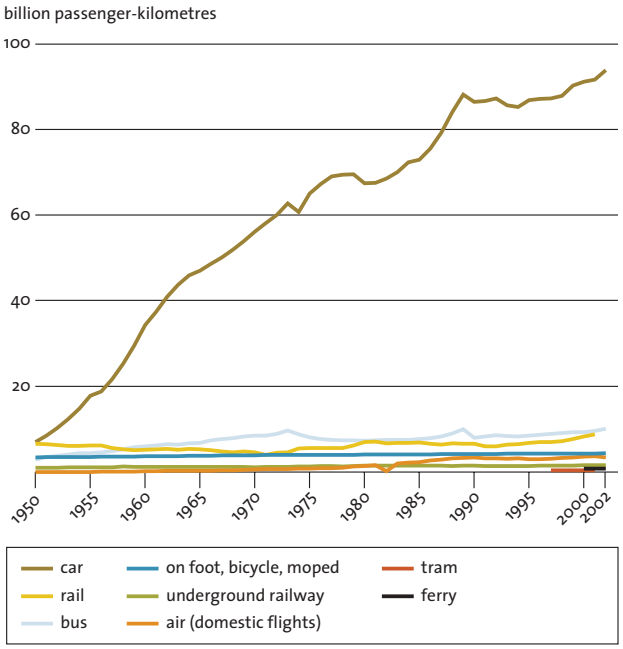
The transport sector has a significant impact on the economy, but also on human health and overall pressures on the environment. The way it is structured and operates is therefore a key issue in a discussion of how different societal goals can be attained.

Since 1975, passenger transport in Sweden has increased by 56% and freight transport by 36%, with car use and road haulage responsible for the bulk of these large rises. Air traffic has also increased, but from a lower level. The modes of transport with the greatest impacts on the environment, in other words, are expanding most rapidly. Looking at the transport sector's share of total emissions in the country, we see that road transport currently makes a major contribution to the overall air pollution load.

Technical advances are resulting in more fuel-efficient engines, but this positive trend is being offset by heavier and faster vehicles and growth in traffic. Petrol consumption for transport showed a downward trend from 1995 on, but rose again in both 2001 and 2002. Use of diesel fuel has also increased, which is a cause for concern. Many EU member states are opposed to legislation to curb carbon dioxide emissions from vehicles. However, manufacturers have made a voluntary undertaking to reduce the specific fuel consumption of new vehicles by 25% by 2008. If this commitment is to be honoured, buyers of new cars will have to choose the more energy-efficient models that have been developed.

Several international bodies, including the OECD and the EU, are now discussing how a 'decoupling' of environmental pressures from economic growth could be achieved in the transport sector.

FIGURE 1 Estimated volume of passenger transport by mode, 1950–2002



Note: 1 passenger-kilometre = 1 kilometre travelled by 1 passenger.

SOURCE: SWEDISH INSTITUTE FOR TRANSPORT AND COMMUNICATIONS ANALYSIS (SIKA)

Energy

As prosperity and consumption have increased, so too has the amount of energy we use. A major realignment of the energy system is crucial to achieving several of the environmental objectives. Currently the focus, on the supply side, is on increasing the shares of both electricity and heat production that are based on renewable sources. Use of energy is also becoming more efficient in a number of areas.

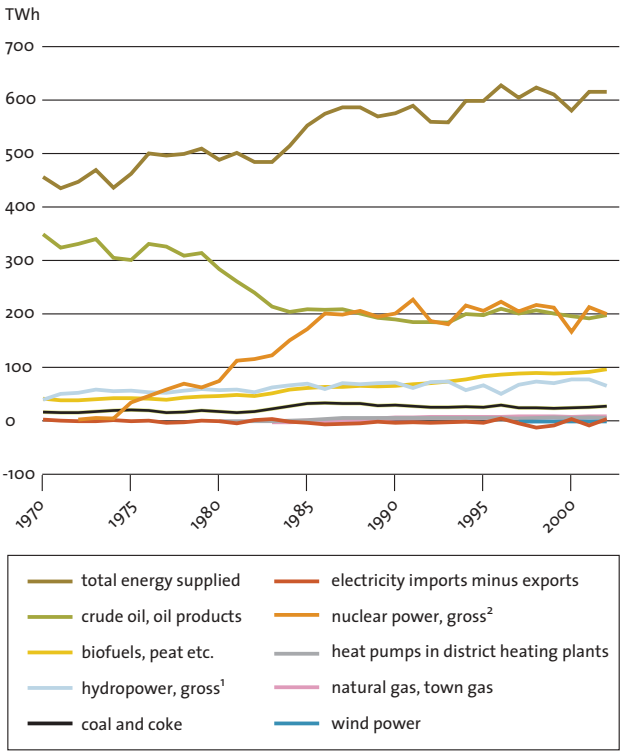
In the residential and services sector, energy use has remained relatively stable in the last few years. For heating, however, there has been a shift from oil to electricity and district heating. The number of heat pumps has risen sharply, reducing the consumption of energy for space and water heating. Energy-saving measures such as additional insulation and replacement of windows have also helped to prevent an increase in energy use in this sector. Household consumption of electricity has gone up in recent years, partly owing to a larger number of households, increased ownership of domestic appliances, installation of underfloor heating etc.

In Swedish industry, oil consumption has fallen very significantly, as a result of growth in the use of electricity and improved energy efficiency. Overall, industrial output rose by 75% between 1992 and 2002. Over the same period, energy use increased by around 15% and electricity consumption by 13%.

Electricity generation in Sweden is based primarily on hydroelectric and nuclear power, with each accounting for just under 50% of the total. The electricity market has been deregulated, and free trade in electric power is now growing between the Nordic countries and also with countries outside the Nordic region. In 2002 Sweden was a net importer of electricity, chiefly because of the dramatic fall in water levels in hydroelectric reservoirs during the autumn. Where electricity is generated from fossil fuels (e.g. at coal- and oil-fired condensing plants), its production contributes to the greenhouse effect. If imported power is of fossil-fuel origin, therefore, Sweden is adding to carbon dioxide emissions in other countries.

Wind power is an important renewable energy source that has seen rapid growth in Sweden in the last ten years. Despite this, it still provides only a modest share of the total energy produced, accounting for less than 0.4% of the electricity generated in 2002. When wind energy stations are established, a number of conflicting interests have to be reconciled. Above all, such installations affect the appearance of the landscape. In coastal and mountain settings, they can have a detrimental impact on valuable natural and cultural environments. There is also concern about how offshore wind power could affect bird and fish populations.

FIGURE 2 Total energy supply in Sweden, 1970–2002



[1] incl. wind power up to 1996
[2] according to method used by UNECE to calculate energy supply from nuclear power

SOURCE: SWEDISH ENERGY AGENCY, ENERGILÄGET I SIFFROR 2003, ENERGY AGENCY'S COLLATION OF EN 20 SM, STATISTICS SWEDEN

The supply of biomass fuels has more than doubled in recent decades, and use of wood fuels for district heating has increased roughly fivefold since 1990. Energy forestry is showing a steady rise, but from a very low level.

A transition to renewable sources of energy is necessary, but it is not without its problems. One example is the increased use of biofuels in Sweden just mentioned. In the long term, harvesting of larger quantities of such fuels from forests could leave soils depleted of nutrients, which also have a neutralizing effect on the soil. This could give

rise to conflicts with the environmental quality objectives Sustainable Forests and Natural Acidification Only. However, measures such as recycling of wood ash can be used to counteract the acidifying and nutrient-depleting effects of extracting forest-based fuels. Likewise, steps can be taken to improve conditions for biodiversity following harvesting.

In agriculture, there is considerable untapped potential to grow crops that can be used in various ways as substitutes for fossil fuels. If this could be done on a large scale, synergy effects of importance for the environmental objectives could be achieved. Fossil fuels could be replaced with other alternatives, and cultivation of perennial crops could significantly reduce leaching of nitrogen from farmland.

REGIONAL DEVELOPMENT AND TRENDS IN INFRASTRUCTURE AND THE BUILT ENVIRONMENT

The way infrastructure and the built environment are designed and used affects the prospects of achieving most of the environmental quality objectives. The extent to which individuals are able to act in environment-friendly ways is often limited by the structure of their physical environment. Indoor temperatures have risen, resulting in an increased demand for energy.

More and more people live in towns and cities – some 84% of Sweden's population at present. The urban area has increased even more than the population – by 50% in the last 40 years. The low density of urban development, combined with strong economic growth, has also contributed to a substantial increase in traffic. The car offers mobility and freedom, but the roads, car parks etc. associated with it occupy a great deal of land and create barriers between different areas, and car traffic represents a growing noise problem.

It is in the largest cities and some university towns that the population has increased most and the pressures for development are greatest. Other regions, meanwhile, are experiencing stagnation and decline. Local authorities in such areas are left with a reduced financial base for the functions they have to discharge, including education, care and environmental protection. Changes in their financial position also affect what can be done in terms of conserving and developing both cultural and natural environments. Consequently, to achieve some of the environmental objectives, action in several different policy areas may be necessary.

Natural resources that are affected by trends in infrastructure and the built environment include surface and ground waters. Developments in society can result in different interests laying claim to these resources, possibly putting pressure on them in terms of both quantity and quality.

TRENDS IN THE BUSINESS SECTOR

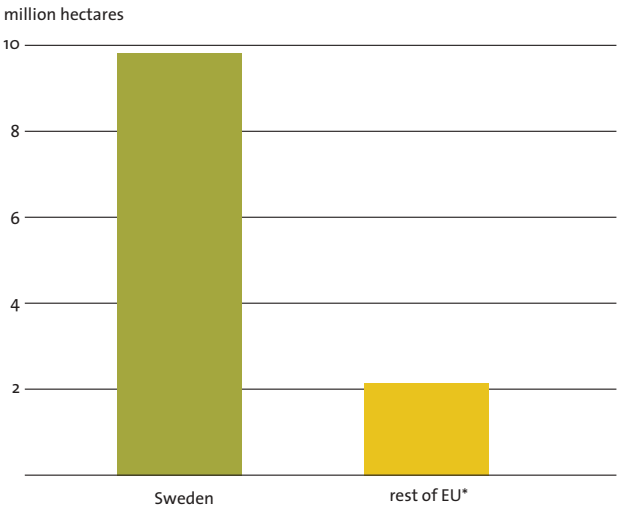
Advances in technology are of major significance for the environment and human health. They can give rise to new risks, but also provide means of solving environmental problems. When production methods and industrial processes are developed to make them more economical for companies, they can often also bring savings in energy and resources which reduce emissions to air and water.

Developments in industry have an important bearing on the prospects of attaining several of the environmental objectives. Companies' efforts to reduce emissions, choose the right chemicals and make more efficient use of energy are above all of significance for the objectives A Non-Toxic Environment, Reduced Climate Impact, Clean Air, Natural Acidification Only and Zero Eutrophication.

There are many factors which drive companies to become more sustainable. It is not enough to make a healthy profit or create jobs. Businesses also have to shoulder a greater social responsibility, protect the environment, promote integration and much more besides.

Certification schemes provide an impetus for the development of environmentally sounder companies. Some 3,000 of Sweden's businesses are currently certified to ISO 14001, while a larger number of companies have introduced environmental management systems, but chosen not to seek certification. Although the number certified is small, compared with the total number of enterprises in the country, the progress made is encouraging: many of the major companies have gained certification. Internationally, Sweden is in the forefront of efforts in this area. Another scheme is the Forest Stewardship Council (FSC) method for the certification of sustainable forestry. This method emerged in the late

FIGURE 3 FSC-certified areas of forest in Sweden and other EU countries, December 2003



* excluding Greece, Luxembourg and Portugal

SOURCE: WWW.CERTIFIED-FORESTS.ORG

1990s from a dialogue between the relevant interest groups and has been of great significance in promoting the development of sustainable forest management.

Environmental management systems are based on management by objectives, and the objectives and levels of ambition involved are determined by the enterprise concerned on the basis of the most significant environmental aspects of its operations. The areas addressed and the levels of ambition can therefore vary. The real significance of environmental management systems for long-term protection of the environment remains to be seen.

Instruments to tackle environmental problems

In the individual reports from the authorities responsible for the different environmental objectives, a wide range of environmental policy instruments are presented and their effects discussed. The following is a brief account of some examples of the experience gained and conclusions drawn in this area.

ECONOMIC INSTRUMENTS

Taxes

Emissions of sulphur dioxide fell considerably following the introduction of a sulphur tax in 1991. They are continuing to decline, though now at a slower pace. The sulphur tax applies to oil, coal, coke and peat. The most important measures resulting from the tax were a changeover to low-sulphur fuels, e.g. from heavy to light fuel oils, and the installation of flue gas desulphurization equipment at a number of large energy plants.

Other taxes introduced have for example had the aim of reducing carbon dioxide emissions. The energy and carbon dioxide taxes have been significantly increased over the last 20 years and now make up a very large share of the total price of fossil fuels. Evaluations show that the design of Sweden's energy and carbon dioxide taxes was a contributory factor behind the appreciable decrease in emissions of carbon dioxide observed in the 1990s. As currently framed, they will help to achieve further reductions in the years to come. The clearest effect of the higher energy and carbon dioxide taxes during the 1990s was a significant expansion of the use of bioenergy. Overall energy consumption, though, is continuing to rise.

By building a stronger environmental element into the tax system and by raising taxes such as the energy tax on fuels and electricity, the carbon dioxide tax on fossil fuels, the sulphur tax and the nitrogen oxides levy, the Government is seeking to curb demand in Swedish society for the resources concerned. The increases are to be offset by lowering other taxes, chiefly on labour. In 2000 it was decided that a green tax shift of the order of SEK 30 billion was to be accomplished over a ten-year period. Greater use of economic instruments can help to improve the efficiency of energy use and transport.

The tax on landfill disposal of waste, introduced in 2000, has been increased in stages. It is expected to support implementation of the bans on landfilling of different categories of waste. The tax is probably one reason for the increased interest in the forestry sector in recycling biofuel ash to forest land. It makes it more expensive to dispose of the ash to landfill, and meanwhile new methods for spreading the ash have reduced the cost of recycling.

Other charges

The nitrogen oxides (NO_X) levy applies to combustion plants with a measured useful energy output of at least 25 gigawatt-hours per year. The system is designed in such a way that companies with low emissions of nitrogen oxides per unit of useful energy produced get a larger sum back than they pay in, while those with high emissions per unit of useful energy lose out. The levy system affects less than 5% of Sweden's total emissions of nitrogen oxides, but has nevertheless contributed to a halving of these emissions.

The fairway charges payable in the shipping sector have resulted in retrofitting of nitrogen-reducing exhaust gas equipment, above all on ferries serving Swedish ports.

Nitrogen oxide emissions from domestic civil aviation have fallen from 2,700 to 2,400 tonnes over the last ten years, despite an unchanged volume of traffic, partly as a result of environmentally differentiated landing fees.

Grants

The energy policy decision taken in 1997 provided among other things for an investment support scheme to reduce electricity consumption, together with support for biofuel-based combined heat and power, wind energy and small-scale hydro. The schemes to support electricity generation from renewable sources were discontinued at the end of 2002. With the electricity market opened to competition, there is a need for more market-oriented instruments. The support schemes have therefore now been replaced with, among other things, a system of renewables certificates. The most recent review of progress covers measures introduced up to and including June 2002 and shows that financial support, conversion grants, investment grants etc. worth a total of some SEK 2.6 billion have resulted in a further reduction of carbon dioxide emissions of around 330,000–480,000 tonnes/year.

Awareness and take-up of a state grant to property owners, introduced in 1998 to cover 50% of the cost of noise reduction measures, appear to have been limited.

Over the period 1998–2002, state funding was disbursed for local investment programmes (LIPs), the aim being to encourage the conversion measures needed to achieve a transition to sustainable development. The Government made available SEK 6.2 billion, the largest investment to date to promote ecological sustainability in Sweden. As a result, over half of the country's local authorities were awarded LIP funding between 1998 and 2002 for investments in such areas as energy, waste, water and sewage, and nature conservation. Rough cost estimates suggest that many of the measures introduced under the LIPs represent a good level of cost-effectiveness, but that certain projects given LIP grants ought to have been economically viable even without such funding, owing to existing energy taxes etc.

As from 2003, the LIP scheme has been superseded by local climate investment programmes (KLIMP).

PROTECTION AND CONSERVATION

Conservation of cultural environments

As well as under the rules of the Planning and Building Act, buildings, environments and landscapes of cultural heritage value can be protected under the Act concerning Ancient Monuments and Finds and the provisions of the Environmental Code relating to cultural heritage reserves and nature reserves. Since designation of cultural heritage reserves became possible with the introduction of the Environmental Code in 1999, fifteen such reserves have been established. In addition, many nature reserves contain features of considerable cultural heritage interest. Conserving the cultural assets of nature reserves is an important aspect of their management. Most such reserves, however, lack regulations etc. regarding such matters as buildings and the management of built environments, which can be a problem. Another problem is that sites containing valuable buildings are often divided up and sold, entailing a risk of their cultural historical context being destroyed.

An appropriation for 'Cultural environment grants' is distributed every year by the National Heritage Board to county administrative boards, which can then award grants for the conservation of buildings, ancient monuments and cultural landscapes, for information activities etc. These grants are the most important economic instrument in the area of cultural heritage conservation, and are also used to establish cultural heritage reserves. The projects undertaken encourage understanding of and a sense of involvement in and responsibility for local environments, while also creating employment. The appropriation promotes progress towards several of the environmental objectives. In 2002, for example, grants

were provided for over 100 farm buildings of various types and sizes, or entire sites incorporating such buildings, contributing to the achievement of A Varied Agricultural Landscape. A special campaign in support of the Sami cultural heritage was launched in 1998, favourably affecting progress towards the goal of A Magnificent Mountain Landscape. For the financial year 2003, the appropriation amounted to some SEK 252 million.

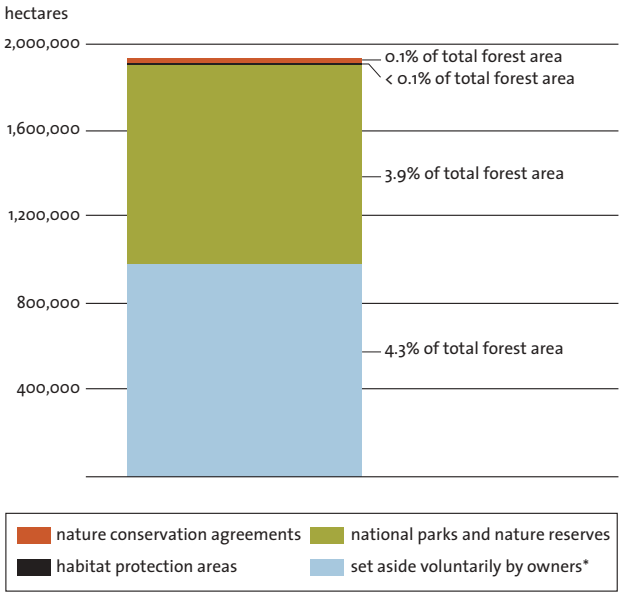
Nature conservation

Local authorities have been given and will continue to play an increasingly important role in nature conservation. With more financial support and a wider range of instruments at their disposal, including (since 1998) the right to designate nature reserves, local councils are now better placed to actively conserve nature. A greater commitment to natural areas on the urban fringe, and the significance of such areas for outdoor recreation, were also stressed in a Government communication to Parliament on nature conservation policy in 2002.

The funds for protection and management with the aim of conserving biodiversity, available under various allocations at the Environmental Protection Agency's disposal, increased substantially over the period 1999–2003, totalling SEK 995 million in 2003. The allocation for biological diversity is primarily used for site safeguard, management of reserves, and liming. Liming of surface waters is essential to achieving the objective Natural Acidification Only. The Environmental Protection Agency is the lead authority for the lake and stream liming programme, and distributes funds to the county administrative boards. The latter are in turn responsible for regional action strategies and monitoring of the effects of liming, and award state grants to the bodies that actually organize the liming, chiefly local authorities.

The funds for reserve management that are allocated to county administrative boards are mainly used for management of the land (clearance and restoration of pastures, meadows etc.), recreational facilities such as trails, information boards, parking areas, observation towers etc., general maintenance and staff costs. The resources available are not sufficient to permit an adequate level of management. Many reserves are well maintained, but considerable problems exist regarding unimproved pastures and meadows. Another concern is

FIGURE 4 Forest land excluded from production, 31 December 2003



* figure is for 31 December 2002

SOURCES: NATIONAL BOARD OF FORESTRY AND SWEDISH ENVIRONMENTAL PROTECTION AGENCY

a continued shortage of staff at county administrative boards to administer the management of protected sites.

Of the allocation for biological diversity, the majority is used for site safeguard. This funding has been shared between payments for purchases of land, compensation payments to landowners, and grants towards land purchases etc. by local authorities and foundations. Between 1999 and 2003, some 101,000 hectares of land of various types was protected by means of this allocation. Most of the money was used for different kinds of forest land. The total forest area safeguarded over the period included just over 60,000 hectares of productive forest land.

In addition, through an appropriation for habitat protection, the forestry authorities are able to safeguard small areas of land and water as habitat protection areas. This funding is also used to finance nature conservation agreements. Up to the end of 1998, the appropriation was SEK 20 million/year, but it has since increased, amounting in 2004 to SEK 150 million. From 1999 until the end of 2003, some 8,000 hectares were designated as habitat protection areas and around 19,000 hectares were

protected by nature conservation agreements. Over the same period, the area set aside voluntarily by forest owners increased by roughly 600,000 hectares. The total area of forest land thus excluded from forest production is almost 2 million hectares.

REGULATORY INSTRUMENTS

The Environmental Code and its predecessors

With the adoption of the Environmental Code, fifteen earlier environmental laws were repealed and replaced with a common system of rules. The earlier acts, including the Public Health Act, the Environmental Protection Act, the Natural Resources Act, the Nature Conservation Act and the Chemical Products Act, had been important instruments in reducing adverse impacts on the environment.

When the Environmental Code took effect in 1999, it represented a tightening up of the law in many fields. Since then, the Code has been amended several times. The current terms of reference of the Committee on the Swedish Environmental Code are to evaluate the way the Code is being applied and propose any necessary reforms. In January 2004, the Committee presented an interim report, 'More efficient consideration of environmental matters' (SOU 2003:124), which seeks to streamline processing of applications and the issuing of permits and to shorten turnround times for permit applications.

Environmental impact assessments (EIAs) are a means of describing the effects of planned projects on natural and cultural environments and human health. It is important to develop these assessments so that they can provide a basis for weighing up the different factors that need to be considered in order to reach decisions that will lead to sustainable development.

In a questionnaire survey of county administrative boards, conducted by the National Board of Housing, Building and Planning, some boards replied that it was unclear how the environmental quality objectives were to be handled in the context of planning, processing of applications and supervision under the Planning and Building Act and the Environmental Code. The EIAs carried out often have several deficiencies; for example, groundwater and cultural heritage assets receive inadequate attention, although the existing rules are beginning to be used to a greater extent.

Exhaust emissions legislation

Vehicle exhaust emissions have been dramatically reduced over the last ten years as a result of more stringent emission standards. Environmental standards for fuels have also been tightened up, and environmental classification schemes for petrol and diesel, combined with tax differentials, have led to marked improvements for the environment. Technical standards for motor vehicles, non-road mobile machinery and fuel composition are now harmonized under EC directives. Emission standards are most advanced in the case of petrol-driven light vehicles, and less so for diesel-powered cars. Least regulated are small engines used in mobile machinery (e.g. lawnmowers).

Over the next ten years, emissions of nitrogen oxides, hydrocarbons and particulates, especially from vehicles, but to a certain extent also from diesel-powered mobile machinery, will fall sharply, as new EC standards have already been agreed. More stringent limit values for vehicles are to be introduced from around 2005. New non-road mobile machinery and tractors will have to meet stricter limit values in stages over the period 2004–5, but apart from these changes no additional tightening of standards has been decided on. Rules to reduce emissions from petrol-engined mobile machinery and equipment also need to be introduced.

Buildings and the indoor environment

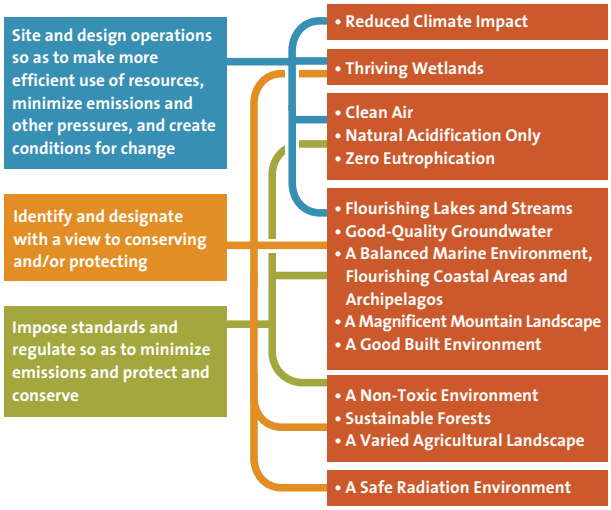
The Environmental Code, the Planning and Building Act and the Act on Technical Requirements for Construction Works etc. have an important part to play in achieving a better indoor environment. The last two of these laws stipulate what minimum standards have to be met by new buildings or when existing buildings are altered. They also require these standards to be maintained. However, the two acts provide no basis for insisting on improvements to the indoor environment of an existing building. The current building stock will remain an influential factor for the built environment for the foreseeable future. The National Board of Housing, Building and Planning does not at present have a general mandate to introduce retroactive standards for existing buildings. Under the Environmental Code and the Work Environment Act, however, it is possible to require measures to be undertaken. The Environmental Code states that property owners must plan and monitor their buildings in such a way as to avoid detriment to health.

Physical planning

As a result of the Environmental Code, physical (land use) planning has assumed growing importance as an environmental tool. Environmental issues are integrated into the planning process to a greater extent than they used to be. One overarching planning instrument is the municipal comprehensive plan, which is regulated in the Planning and Building Act. In many local authority areas, physical planning has proved an effective way of achieving various environmental objectives and wise use of resources. This is particularly true with regard to alternative sources of energy (chiefly the establishment of wind energy installations), local disposal of sewage, or the development of green spaces and natural features in conjunction with expansion of urban areas. The Planning and Building Act also provides considerable scope to protect built environments of cultural heritage interest, at the same time as it places a heavy responsibility on local authorities to safeguard valuable cultural assets.

The Planning and Building Act and the Environmental Code are not always effective instruments for achieving environmentally appropriate siting of new plants and activities, particularly not in a national perspective. Usually, financial incentives and factors such as collaboration between sectors steer the establishment of different activities towards particular areas. The concentration of activities that results can lead to an imbalance of environmental pressures, as a consequence of heavier traffic, increased demand for transport, air pollution, large-scale waste management etc. in major urban regions.

FIGURE 5 **Physical planning can help to achieve fourteen of the fifteen environmental quality objectives (not A Protective Ozone Layer)**



SOURCE: IN-DEPTH EVALUATION OF THE ENVIRONMENTAL OBJECTIVES, LAND USE PLANNING AND WISE MANAGEMENT OF LAND, WATER AND BUILDINGS, NATIONAL BOARD OF HOUSING, BUILDING AND PLANNING, OCTOBER 2003

Application processing and supervision

The environmental quality objectives, like the laws referred to above, have been adopted by the Swedish Parliament, but they have no formal legal status. Nevertheless, they do exert something of a guiding influence, although perhaps primarily in relation to authorities and other public bodies. In legal contexts, the objectives can serve as a general basis for an assessment, and in the application of the Environmental Code they provide guidance as to what constitutes sustainable development.

Several local authorities and county administrative boards find it a problem that the environmental quality objectives have no explicit formal status. This is reflected, for example, in the way the objectives are treated by the environmental courts. An important question to examine is how these objectives can best be used as a basis for permit decisions under the Environmental Code and as planning criteria in procedures under the Planning and Building Act. Methods need to be developed to ensure that supervision in these areas is as far as possible guided by the environmental quality objectives.

To be able to assess whether supervision is helping to achieve the objectives set, there need to be goals at the regional or preferably the local level, formulated in such a way that progress towards them can be measured.

In spring 2003, the EU member states submitted their reports under the EU Recommendation on minimum criteria for environmental inspections. This recommendation could be developed into a directive. Work in this area is of significance in developing training of environmental inspectors in the member states.

INFORMATION AS A POLICY INSTRUMENT

Efforts to promote wider awareness of the environmental objectives are being made, in particular, by the authorities responsible for the objectives, by county administrative boards and many local authorities, and through the Environmental Objectives Portal, miljomal.nu. More

needs to be done, however, to ensure that all concerned are familiar with what these goals entail. Knowledge about the objectives does not yet appear to have filtered through to Swedish companies to any very great extent.

In an interview survey conducted for the National Chemicals Inspectorate in January 2003, 300 environmental affairs managers (or the equivalent) in the engineering industry were asked about the environmental objective A Non-Toxic Environment. Some 30% of them stated that they had not received information about this specific objective or the environmental objectives generally. Quite clearly, the steps taken so far to disseminate knowledge about this objective have not been sufficient. A great deal of training etc. will be necessary to provide the enhanced skills in risk assessment and risk management that companies will need when the new EU chemicals legislation is introduced.

Over the last five years, the state has made available grants to enable local authorities to offer energy advice. All of Sweden's 290 municipalities now have some form of energy advisory service, laying a foundation for favourable developments in this area.

A major information effort aimed at the general public and the business sector was the 'Climate Campaign', which cost SEK 60 million over two years. According to a recent survey, the proportion of Swedes who believe that the greenhouse effect is already affecting Sweden increased from 43% to 52% between 2002 and 2003. Public understanding of the causes of climate change has also improved.

The environmental objectives – a shared responsibility

To ensure that the environmental objectives really do become a shared responsibility, there needs to be a closer dialogue with the general public. This dialogue is important both in informing people about and gaining their support for the objectives, and in implementing the measures needed to achieve them. Central government and local authorities, companies and organizations must support, help to develop and actively participate in the dialogue. A broad sense of ownership and involvement are fundamental to gaining acceptance for the necessary changes.

THE ROLE OF LOCAL AUTHORITIES

At the local level, municipal authorities have overall responsibility for achieving a good living environment, and according to a statement adopted by Parliament they also have a broad responsibility to adapt the national environmental objectives to their local circumstances. They have a significant role to play in attaining the environmental quality objectives, on the one hand through their actions as authorities and the measures they implement in their own operations, and on the other because local objectives and action strategies and municipal planning can provide a framework and a basis for wider environmental improvement efforts at the local level. It is important to draw attention to ways in which local authorities can apply the objectives in their existing activities; it is not a matter of them taking on a new function. They need to use the resources available to them in the most effective manner. In practice, the existing state grants for local climate investment programmes, nature conservation, remediation of contaminated sites etc. also constitute funding for achieving the environmental objectives.

Expectations are high when it comes to local authorities playing their part in implementing the objectives. At the same time, they have not received a general injection of extra resources to enable them to do so. Nor are they under any formal obligation to participate. The environmental objectives can be regarded as a political challenge and an invitation from the national level.

Tools that can be used to address the objectives locally include, for example, municipal authorities' comprehensive plans and environment plans. These in turn need to be linked to budgetary priorities. It is important to continue to build on the Agenda 21 process, in order to involve local businesses and communities.

In their annual report to the Government on implementation of the environmental objectives, the county administrative boards point out that, in their experience, the biggest obstacles local authorities face when it comes to pursuing the objectives are inadequate resources and insufficient time.

Agenda 21

Over the last ten years, almost all of Sweden's municipalities have developed local Agenda 21s. It is primarily the ecological dimension of such initiatives that is considered

in the present report. Agenda 21 lends political legitimacy to trying new approaches, such as involving local communities at an early stage in decision making and in implementing measures to achieve common goals in pursuit of a sustainable society. Research both in Sweden and across Europe shows that local authorities have admittedly attempted to involve members of the public in Agenda 21 projects, but when the latter have subsequently wanted to have a say in more important municipal decisions their local councillors have excluded them. Despite this, the Agenda 21 processes under way in Sweden's municipalities are in many respects an excellent foundation on which to build new decision-making structures that will enable social, economic and ecological factors to be integrated and natural resources to be used more sustainably. Consequently, they also provide a basis for further development of the process of implementing the environmental objectives.

THE ROLE OF COUNTY ADMINISTRATIVE BOARDS

The county administrative boards have overall responsibility for defining and monitoring regional goals relating to fourteen of the fifteen environmental quality objectives, while the regional forestry boards are responsible for the objective Sustainable Forests. The majority of county administrative and regional forestry boards have adopted regional environmental goals. In January 2004, four counties had yet to adopt such goals, but were expected to do so during the year. After that, the process of drawing up action programmes will begin. In 2004–5, the Environmental Objectives Council will be evaluating the county administrative boards' efforts to regionalize the objectives.

In their annual report to the Government, many county administrative boards state that, as part of the process of regionalizing the environmental objectives, they are making use of dialogue and seminars, partly to support the work of local authorities. Several of the boards point out that the formulation of regional goals has given rise to collaborative arrangements and networks and created a greater sense of participation among a wide range of stakeholders.

The boards' collaboration with the business sector

Cooperation with the business sector is gradually being developed. A positive interest in participating has been noted on the part of larger companies. Small businesses, on their own, often lack the necessary resources to become involved. For county administrative boards, programmes to implement the environmental objectives have often entailed a positive encounter with representatives of industry. They have also provided opportunities for discussions on proactive efforts to bring about a better environment. These positive experiences do not mean, though, that tensions and conflicts of interest do not exist.

When measures to achieve the environmental objectives at the regional level begin to be introduced, it will be essential to develop these collaborative arrangements further.

THE ROLE OF CENTRAL GOVERNMENT AGENCIES AND SECTORS

Authorities responsible for the objectives

The Government has designated nine central government agencies as authorities responsible for the environmental objectives and related issues. The Swedish Environmental Protection Agency is responsible for nine of the objectives, while the National Chemicals Inspectorate, the Swedish Radiation Protection Authority, the Geological Survey of Sweden, the National Board of Forestry, the Swedish Board of Agriculture and the National Board of Housing, Building and Planning are each responsible for one. In addition, four broader issues cutting across the different objectives have been identified: the natural environment (with the Environmental Protection Agency as the responsible central authority); land use planning and wise management of land, water and buildings (National Board of Housing, Building and Planning); the cultural environment (National Heritage Board); and human health (National Board of Health and Welfare). An agency entrusted with responsibility for one of the environmental objectives is responsible for monitoring progress towards, evaluating, and providing information about the objective concerned. It also has the role of proposing necessary measures and seeking in other ways to ensure that the objective is attained. This is to be done in consultation and collaboration with other relevant stakeholders. In the case of some of the environmental quality objectives, responsibility for certain interim targets rests with another agency. In such cases, it is particularly important for the authorities in question to develop arrangements for joint monitoring

and evaluation of the interim targets and for proposing new measures or instruments to achieve them.

What does a 'sectoral responsibility' entail?

In the environmental policy decision taken by Parliament in 1988, it was emphasized that all sectors of society have an environmental responsibility in their particular areas of activity. According to the decision, every sector is to be responsible for ensuring that new environmental problems are avoided and that, as far as possible, existing problems are solved. According to Government Bill 2000/01:130, 'The Swedish Environmental Objectives – Interim Targets and Action Strategies', this 'sectoral responsibility' means that authorities, enterprises and other organizations in different sectors of society assume responsibility for environmental issues in their spheres of operation.

Sectoral responsibility has also received attention at the international level. The document *Agenda 21* for example, adopted at the UN Conference on Environment and Development in Rio de Janeiro in 1992, highlighted the need for integration of environmental and other considerations in decision making at all levels of society. Within the EU, a requirement that environmental aspects be integrated in the different policy areas of the Union has been laid down, for example, in the Treaty of Amsterdam of 1997 and at the European Council meeting in Cardiff in 1998. The importance of this approach is confirmed in the EU's Sixth Environment Action Programme for 2002–12.

At the same time as there is a national body responsible for each of the environmental quality objectives, and bodies with regional and local responsibilities relating to them, the task of working towards the objectives is one that is shared by all sectors of society. Sectoral responsibility for the environment means that environmental factors are to be taken into account in the decisions reached in the sector concerned. The development of this sectoral responsibility, the introduction of environmental management systems, and efforts to achieve the environmental quality objectives are interrelated and mutually complementary. Together they provide a framework for a decentralized and systematized environmental policy based on management by objectives and results, whereby responsibility for the environment will gradually be integrated into the various sectors of society. The significance which sectoral responsibility and sectoral integration have for the environmental objectives has not been evaluated, but they are nevertheless judged to be crucial to achieving many of these goals.

In 1998 the Government gave 24 authorities a special sectoral responsibility for ecologically sustainable development. This has created considerable potential to integrate environmental issues into a social and economic context. Not least for the agencies which have a regional structure of their own, it also means that sustainability issues can begin to influence their day-to-day operations. The environmental quality objectives indicate what direction environmental improvement efforts should take in the various sectors.

The special responsibility for ecological sustainability given to these authorities involves:

- identifying the role of the sectoral authority and studying how activities in the sector affect progress towards ecological sustainability;
- developing documents setting out conceivable sectoral goals and measures, and describing the economic consequences of these measures;
- encouraging implementation of the necessary measures;
- continuously monitoring developments in the agency's area of responsibility;
- cooperating with and providing information to others active in the sector.

In recent years, several authorities have actively sought to integrate environmental issues into their regular activities. This enables them to take environmental as well as economic and social dimensions into account in the guidelines and regulations which they issue, as well as in their other activities. An integrated approach of this kind is important, not least when guidelines or regulations are to be applied by small businesses or ordinary citizens. If an authority is able to present reasonable, balanced solutions to the recipient, it has a greater chance of gaining acceptance for its message.

A review should be carried out to establish how other policy aims for different areas of society, e.g. energy, transport or food (including agriculture), relate to the environmental objectives, and what synergy effects and conflicts of goals may exist. It is particularly important that this is done prior to the in-depth evaluation of the environmental quality objectives that is planned for 2008.

THE ROLE OF INDIVIDUAL CITIZENS

Awareness among ordinary people of the need to change patterns of consumption and production is a powerful contributory factor in achieving the environmental objectives and hence sustainable development. Consumers need to be offered – and also to make use of – greater opportunities to choose environmentally sounder products and services. At present, it often works out more expensive to lead an environment-friendly lifestyle than to waste materials and energy. Different studies have produced different results, but in practice few people seem to be prepared to pay extra for a product that is equivalent to others, apart from the fact that it offers some additional 'environmental quality'. Furthermore, there is an expectation on the part of consumers that companies will make sure their products are not harmful to the environment, and that the authorities will check up on the companies.

If more consumers choose organically produced (e.g. KRAV-labelled) foods, retail demand will increase, and retailers will in turn put more pressure on producers. Organic foods currently cost somewhat more in the shops. Up to now, the scope for consumers to influence production has been partly restricted by market support for certain products under the EU's Common Agricultural Policy.

Non-governmental nature conservation organizations play a very important part in protecting cultural environments, forests, wetlands and other habitat types. They may be involved in anything from projects to acquire wetlands and national and local initiatives to establish nature reserves, to efforts to increase awareness of and interest in natural areas and their fauna and flora – and hence willingness to protect them. Local projects sponsored by local heritage associations, the Swedish Society for Nature Conservation or WWF-Sweden also mean a great deal for the management of buildings and sites of high cultural heritage and nature conservation interest. In the context of implementing the environmental objectives, it is important to harness the enthusiasm of the voluntary sector and create conditions in which it can flourish.

Adjustments to objectives and targets

THE ENVIRONMENTAL OBJECTIVES COUNCIL'S ASSESSMENT:

Part of the basic thinking behind the environmental quality objectives is that they should be easy to understand: everyone should feel that they make sense and that they matter. The number of detailed goals in the area of environmental policy has been greatly reduced compared with the 1990s.

The interim targets are intended to provide tangible guidance for environmental efforts, and to indicate the direction and timescale of the action to be taken. In our view, these targets should be formulated in such a way as to describe an effect, a result or a state of the environment, and only exceptionally the means that are to be employed to achieve those ends. Interim targets expressed, say, in terms of particular methods being used or specific measures being introduced should as far as possible be avoided. Once existing targets expressed in terms of action programmes or plans have been attained, they should in our opinion be replaced with interim targets which refer to effects, results or states of the environment. We also consider it important to keep the number of interim targets to a communicable level – that is, there should not be too many of them. Targets that have been met should be dropped, to make room for new ones in areas where action needs to be taken.

The environmental quality objectives are expressed in terms of a state, i.e. some aspect of the quality of the environment, or a pressure, i.e. a factor affecting the state of the environment. This means that the basis for assessing progress may vary from one objective to another. The intention is that the environmental quality objectives are to be achieved within one generation. For some of the goals which express a desired state, natural factors and processes relevant to the recovery of the natural environment or to attaining the desired environmental quality may mean that this state will not be brought about within a generation, even though the targets in terms of reduced pressures have been met. Even when pressures have been brought down to an acceptable level, additional and continuing measures will be required to achieve the environmental quality objective. We wish to emphasize that this needs to be taken into account when evaluating progress towards the objectives, and that each environmental objective is unique in this respect.

We propose that some of the interim targets should be revised with a view to making them more precise and easier to communicate. We also propose that a number of issues should be studied more closely to determine whether new interim targets are needed or the existing ones need to be reformulated.

Work in progress and proposals for additional measures

THE ENVIRONMENTAL OBJECTIVES COUNCIL'S ASSESSMENT:

All of the environmental quality objectives are affected by EU activities and international conventions. In some cases, success in achieving them will depend entirely on decisions taken at the EU level. Our assessment proceeds from the priorities for work within the EU presented by the Government in a communication to Parliament.

Research and the development of new knowledge as a basis for decision making are fundamental to attaining the environmental objectives. Research is needed both to determine the scale of existing problems and to design cost-effective measures that will produce the desired results in the environment. In our view, therefore, the Government should give priority to increasing resources for research and knowledge development relevant to implementing the environmental objectives. This is of importance for all the objectives.

The Swedish version of our report and the reports on the individual objectives contain a range of proposals which need to be implemented if the objectives are eventually to be achieved. Here we present a number of these proposals which we consider of particular importance. As far as possible, we have focused on measures that are economically and socially feasible and will produce clear environmental benefits. As a basis for measures to attain the environmental objectives, three action strategies have been adopted. One aim of these strategies is to provide an overview of what the different measures are and how they can interact with or counteract one another. We have chosen to group our proposals under the three strategies.

We give priority to the following proposals relevant to the strategy for more efficient energy use and transport – with a view to reducing emissions from the energy and transport sectors. This strategy is chiefly of significance in achieving the environmental quality objectives Clean Air, Natural Acidification Only and Reduced Climate Impact, as well as certain interim targets under Zero Eutrophication and A Good Built Environment.

Regarding Reduced Climate Impact, the Environmental Protection Agency and the Swedish Energy Agency will be submitting proposals in connection with the 2004 'checkpoint'.

Introduce a tax differential for heavy vehicles, based on environmental class. A reduced annual vehicle tax should apply to heavy vehicles in environmental classes 2005, 2008 and EEV (EU definition of low-emission heavy vehicles). The reduction should be in line with the tax level recommendations of the Road Traffic Taxes Committee (emission reduction 1,600–7,500 tonnes of nitrogen).

Create incentives for the early introduction of low-emission mobile machinery. In December 2002 the European Commission presented a proposal for more stringent emission standards for diesel-powered non-road mobile machinery. The new standards, which are to come into force in 2006, will reduce emissions from new diesel-powered machinery by 35%. The Environmental Protection Agency has been asked by the Government to propose incentives to encourage the early introduction of diesel-powered mobile machinery meeting the future EU emission standards.

Introduce a kilometre-based road tax on freight transport by road. The existing road charge for certain heavy goods vehicles over 12 tonnes (the Eurovignette) should be replaced with a kilometre-based road tax on heavy goods vehicles.

Develop public purchasing criteria for freight transport, mobile machinery and construction contracts. All central government agencies which commission construction work or use non-road mobile machinery should be asked to introduce environmental criteria for purchasing in these areas, in line with the proposals of the Committee for Ecologically Sustainable Procurement (now the Swedish Environmental Management Council) or the purchasing rules of the National Road Administration.

Modify the property tax system so that energy efficiency measures do not result in higher tax, or alternatively supplement the system with other instruments. The assessed value of a house for property tax purposes is based in part on an appraisal of the standard of the building and its fixtures and fittings. At present, a house is given a higher score in this respect if, for example, it has triple glazing, a heat pump system or an open fireplace, tiled stove or fireplace stove. A higher score results in a higher assessed value and hence a higher property tax bill. The property tax system should be modified, or else supplemented with other instruments, so as to encourage energy-saving measures and the use of non-fossil fuels.

Introduce measures to reduce air pollution problems due to small-scale burning of wood. The Swedish Energy Agency has proposed a number of measures to alleviate the emission problems caused by small-scale wood-fuelled heating. They include the addition of a new clause to section 40 of the Ordinance on Environmentally Hazardous Activities and the Protection of Public Health (1998:899), under the heading *Local authority regulations*. This will permit local authorities which have problems resulting from small-scale burning of solid fuels to impose emission standards or the equivalent. For example, they could require boilers that are not approved to environmental standards to be replaced. It is also proposed that steps should be taken to ensure that new boilers meet a minimum emission standard. The National Board of Housing, Building and Planning should study this question more closely. In addition, an information campaign should be launched and further applied research carried out in this area. The Energy Agency believes that a grant scheme of some kind may have to be introduced to ensure that old boilers are replaced, and such a scheme is to be examined in more detail. It is proposed that these measures should be undertaken in consultation with the Board of Housing, Building and Planning, the Environmental Protection Agency and the Swedish Association of Local Authorities.

Strengthen the system of differentiated fairway charges for shipping. In the absence of internationally agreed emission standards for ships, fairway (shipping lane) charges in Swedish waters have been differentiated since 1 January 1998 on the basis of vessels' emissions of sulphur and nitrogen oxides. To achieve the goal of reducing these emissions from shipping in Sweden, it is essential to enhance the effectiveness of the system of differentiated fairway charges as a management tool, or alternatively to ensure that similar schemes are adopted in other countries. The Swedish Maritime Administration should continue to give priority to developing the system and promoting the introduction of similar arrangements elsewhere.

Differentiate vehicle or sales taxes on the basis of carbon dioxide emissions. Taxes can be used to reinforce the effects on the Swedish market of the commitment made by EU motor vehicle manufacturers to introduce more fuel-efficient vehicles. The Government has asked the Environmental Protection Agency and the Energy Agency to prepare a joint report as a basis for the evaluation of Sweden's climate policy at the 2004 'checkpoint'. This proposal may be described in more detail in that report.

We give priority to the following proposals relevant to the strategy for non-toxic and resource-efficient cyclical systems, including an integrated product policy

– with a view to creating energy- and material-efficient cyclical systems and reducing diffuse emissions of toxic pollutants. This strategy is chiefly of significance in attaining the environmental quality objectives A Non-Toxic Environment, Zero Eutrophication, Reduced Climate Impact and A Protective Ozone Layer. It will also

help to achieve A Safe Radiation Environment and certain interim targets under A Good Built Environment.

We propose that the Government should

- seek at the EU level to ensure that all substances covered by the EU's new chemicals rules (REACH) are registered no later than 2010, and that information requirements are sufficiently far-reaching, with testing requirements that will enable particularly hazardous substances to be identified;
- work within the EU to ensure that the requirements of REACH also apply to products subject to other regulations, e.g. medicinal products;
- press for the introduction of a time limit, for example 2010, for authorization under REACH of substances known to have particularly hazardous properties. Such authorizations should be issued for a limited period and should provide strong protection for health and the environment;
- take steps to ensure that the authorization requirement also applies to endocrine-disrupting and highly allergenic substances, as well as to new substances that are covered by the criteria;
- seek to ensure that the precautionary principle and the substitution (product choice) principle are reflected in the EU's chemicals legislation and that the responsibilities of operators are made clear in the REACH system;
- promote continued regulation, in line with interim target 3 of A Non-Toxic Environment, under the Plant Protection Products Directive and the Restrictions Directive, for as long as these remain in force;
- commission a study to show how an information system for chemical substances in products could best be designed at the EU level;
- approve, in its entirety, the action programme on the use of chemical pesticides in agriculture and horticulture, proposed by the Swedish Board of Agriculture and the National Chemicals Inspectorate.

Introduce the proposed environmental quality standard for nitrates in groundwater. In January 2002 the Environmental Protection Agency and the Geological Survey of Sweden submitted a joint proposal for an environmental quality standard for nitrates in groundwater. The Government should implement this proposal, according to which the standard is to be applied in recharge zones for groundwater bodies from which there is at least one abstraction of more than 10 m^3 of water a day or at least one abstraction serving more than 50 people.

Examine the possibility of speeding the introduction of programmes of measures under the EC Water Framework Directive in areas with eutrophication problems. The programmes of measures provided for in the EC Water Framework Directive will be of decisive significance in achieving the environmental quality objectives Zero Eutrophication, Flourishing Lakes and Streams, Good-Quality Groundwater and A Balanced Marine Environment, Flourishing Coastal Areas and Archipelagos. However, these programmes do not need to be established until 2009 or to take effect until 2012. Given the timescale of recovery in the natural environment, Sweden should endeavour to introduce programmes of measures to tackle nutrient problems in areas affected by eutrophication at an earlier date than the directive requires. Whether it will be possible to conduct a study on the early establishment of such programmes will depend, though, on when the water authorities which the Government proposes to set up can begin to operate.

Additional action to reduce eutrophication is urgently required, including in the areas identified by the Government-appointed Marine Environment Commission. In agriculture, relevant measures include the growing of catch crops, spring rather than autumn tillage of arable land, and permanent fallow.

Improved knowledge about electromagnetic fields. To achieve the interim target under A Safe Radiation Environment which calls for the risks associated with electromagnetic fields to be studied on an ongoing basis, we propose that a national, multidisciplinary research programme be established to promote research and education in this area.

Further action in the field of radiological protection relating to non-nuclear radioactive waste is urgently required. The Committee on the Management of Non-Nuclear Radioactive Waste (M 2002:03) proposed in December

2003, in its report 'Radioactive waste in safe hands' (SOU 2003:122), a national system for the management and final disposal of radioactive waste from non-nuclear activities. The current legislation is inadequate, and financial resources cannot always be guaranteed for disposing of the radioactive waste that will arise in the future. The Committee's report is currently out for consultation.

We give priority to the following proposals relevant to the strategy for the management of land, water and the built environment

– with a view to meeting the need for greater consideration for biological diversity, the cultural environment and human health, wise management of land and water, environmentally sound land use planning and a sustainable built environment. This strategy is chiefly of significance in achieving the environmental quality objectives Flourishing Lakes and Streams, Good-Quality Groundwater, A Balanced Marine Environment, Flourishing Coastal Areas and Archipelagos, Thriving Wetlands, Sustainable Forests, A Varied Agricultural Landscape, A Magnificent Mountain Landscape and A Good Built Environment.

Measures to achieve A Varied Agricultural Landscape. Pending Sweden's proposals for implementing the recently agreed reform of the Common Agricultural Policy, no recommendations are made in this report.

Greater efforts to protect forests. The Government should consider making increased funding available for nature reserves, habitat protection areas and nature conservation agreements. In addition, a continued strengthening of county administrative boards' resources for reserve designation is needed. With existing funds for the protection of valuable forest areas, the relevant interim target will not be met until 2018 (target year 2010).

Implement the 'Forests and History' project. If there is to be any chance of achieving the Sustainable Forests objective, we need to know where ancient monuments in forest areas are located. The National Heritage Board and the National Board of Forestry have submitted a proposal, entitled 'Forests and History', which will solve this problem. If the measures proposed are not put into effect, ancient remains will continue to suffer major and irreversible damage in the years to come.

Implement the development phase of the action programme to prevent soil acidification and promote sustainable forest production. The National Board of Forestry has proposed an action programme to prevent soil acidification and promote sustainable use of forest land, which includes measures such as liming and recycling of wood ash to forest soils. The Environmental Protection Agency and the Board of Forestry recommend that the development phase of this programme be implemented.

Amend section 10 of the Forestry Act. The exceptions to section 10, first paragraph, of the Forestry Act should be extended to include felling carried out to preserve or develop the special nature conservation interest of a site. To achieve the increase in the area of mature forest with a large element of deciduous trees, envisaged under interim target 2 of Sustainable Forests, it may be necessary to selectively favour deciduous species at the expense of conifers in mature forests. In certain cases this may be contrary to the existing provisions of the Forestry Act. To avoid this, we propose that the range of permitted exceptions be broadened to include felling that is undertaken to preserve or develop the special nature conservation interest of a site.

The possibility of imposing standards on existing buildings needs to be studied. Many of the regulations concerning the built environment that are of significance for the environmental goals only apply to new buildings and to major alterations. However, existing buildings make up far and away the dominant share of the building stock. The National Board of Housing, Building and Planning should therefore be asked to study, in consultation with other authorities concerned, the feasibility of imposing standards on existing buildings, within the framework of existing legislation and in the context of its application. Such standards might for example relate to safeguards for features of cultural heritage interest, noise reduction measures, and ventilation in private houses. The study should also draw attention to any risks arising from the presence of hazardous and particularly hazardous chemicals.

Information and training relating to indoor environment issues. Based on an evaluation of the effects of earlier information efforts, an information campaign should be launched to create awareness of the benefits of regular maintenance of ventilation systems. Information and training relating to radon and other indoor environment issues are also needed.

It is our assessment that many of the goals can be achieved, but only if further decisions are taken to introduce new measures or policy instruments. The measures we call for here represent just some of the action that needs to be taken in the longer term to attain the environmental objectives. A wide range of measures have also been proposed in other studies and reports. The most important factor of all in achieving the objectives is that the measures decided on are actually implemented.

Research and the need for a better knowledge base

Increasingly, there are calls for broad analyses of how society and the environment interact, on different timescales and at all levels, from global to local. The Environmental Protection Agency, which has an overall responsibility for the environmental objectives, seeks to encourage research that will help to develop existing, and identify new, approaches and strategies for achieving sustainable development. Such work may for example help us to better understand the rules that shape action in the environmental sphere, or how the broader system is affected by people's attitudes to environmental policy goals. On the whole, research of this kind cannot be undertaken within individual academic disciplines, but requires collaboration across a large number of fields of knowledge, as well as the involvement of relevant stakeholders.

With good futures studies as our starting point, we are better placed to mount a more flexible and strategically more carefully conceived effort to promote sustainable development. In the process of implementing the environmental quality objectives, conflicts clearly exist, both among these objectives and between environmental and other political goals. We need a better understanding of such goal conflicts, together with models that are capable of handling them and, in the light of different priorities, identifying optimum solutions. To monitor and evaluate the environmental objectives, we need data of the highest quality, and for assessments and forecasts we require analytical models. Efficient and cost-effective environmental monitoring and data management are also essential.

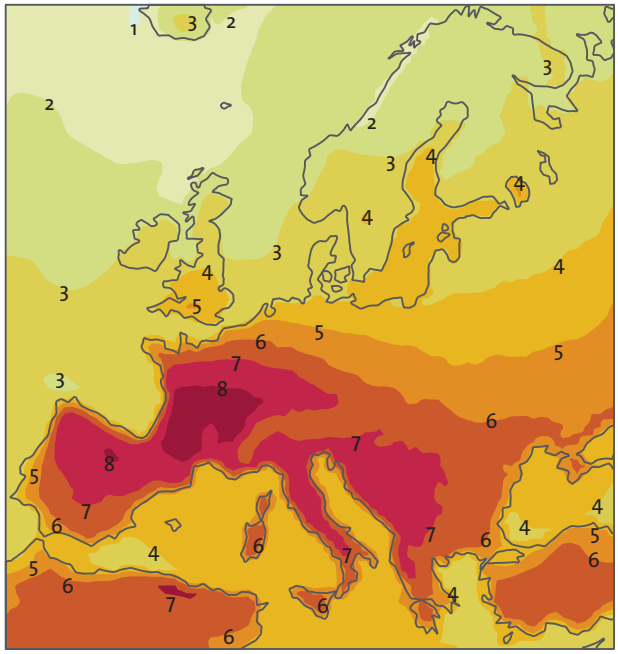
EU priorities and international efforts to achieve the objectives

Economic growth is one necessary condition for improving our quality of life and the environment in which we live. At the same time, we know that it has given rise to new environmental problems, for example as a result of unsustainable production and consumption patterns. A decisive challenge for the future, therefore, is to 'decouple' economic growth from pressures on the environment. In Sweden, this has been achieved with regard to greenhouse gas emissions, for instance, though not in the transport sector. Far-reaching cooperation involving all nations is needed to address the major environmental problems now facing the world community, such as climate change, shortages of drinking water, urban air pollution, depletion of biodiversity, and the spread of chemicals that are hazardous to health and the environment. It is therefore essential for Sweden to be actively involved in both EU cooperation and global efforts to protect the environment. At the same time, it is equally important what we as individuals do in our everyday lives, through our choices, behaviour and attitudes.

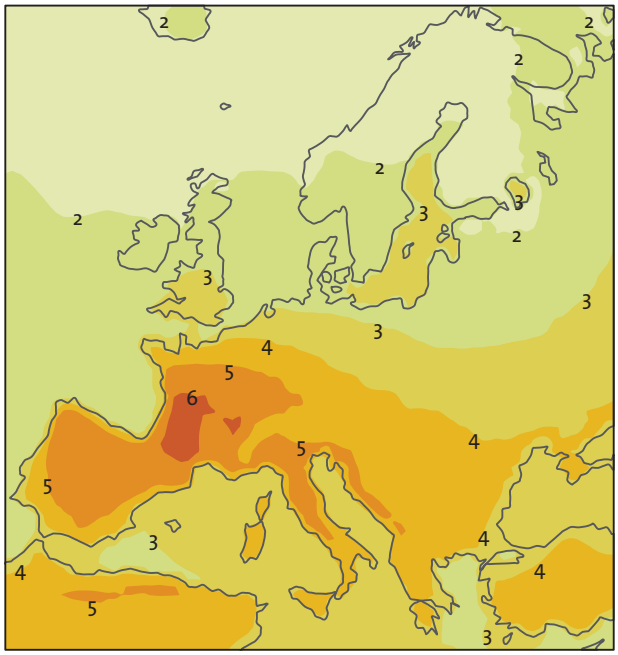
The national environmental quality objectives do not take into account Sweden's environmental impacts on other countries. When production of food and other goods is moved to other parts of the world, the environmental pressures which their production entails are also transferred to the countries concerned. In other words, our consumption of imported products has an indirect

FIGURE 6a and b Changes in summer temperatures in Europe up to 2100 under two emission scenarios

Continued rapid rise in emissions



Slower rise in emissions



SOURCES: SWECLIM AND MONITOR 18, 2003

environmental impact in other countries. But stricter rules in one state must not lead to worsening environmental problems in another. A long-term effort should be initiated to clarify how imports of goods and services affect the environment. This can be done in part by pursuing the question in the relevant international forums.

With regard both to pollutants that spread via the atmosphere and to the marine environment, international cooperation is crucial to several of Sweden's environmental objectives. No one country alone is responsible for the pressures that affect its own coastal waters or its own air quality. A large number of nations together exert a large-scale influence, and must therefore work together to take the necessary remedial action.

Sweden's membership of the European Union has radically changed the basis for our actions in the environmental arena. There are more than 200 European legislative acts relating to the environment, and they have an important part to play in achieving all fifteen of the environmental objectives. The acts in question are incorporated into Swedish legislation, which is thus increasingly shaped by Community environmental policy. EC directives on such matters as conservation of habitats and birds, air quality, water, waste, noise, strategic environmental assessments and the energy performance of buildings have a considerable influence on Swedish efforts to improve the environment. In addition to this legislation, the Sixth Environment Action Programme and the EU's Sustainable Development Strategy provide an important platform for implementing the environmental objectives. The various funds of the Union, such as the LIFE instrument and the Environmental and Rural Development Programme set up under the Common Agricultural Policy, offer additional resources for achieving the objectives. Taking all this into account, it is very important for Sweden to give high priority to the environmental action being taken within the EU and to play a proactive role in ensuring that both EU rules and programmes of various kinds incorporate a strong environmental component.

EU environment policy is based on common rules that apply throughout the Union. This is of great significance with regard to transboundary pressures on the environment and the development of environmentally sounder products, and hence for the task of realizing the environmental objectives. At the same time, it means – where rules are harmonized – that individual member states have limited

scope to blaze a trail and impose more stringent environmental standards. There is, however, an 'environmental guarantee' which, on certain defined conditions, permits a member state to apply stricter rules than are laid down in a harmonized directive. How wide the scope of this guarantee is in practice is difficult to say, as no detailed case law has yet emerged in this area. The existence of harmonized rules makes it more difficult for Sweden, for example, to take national decisions to actively prevent approval of plant protection products or to phase out those with particularly hazardous properties, if the active substances they contain have been accepted within the Community.

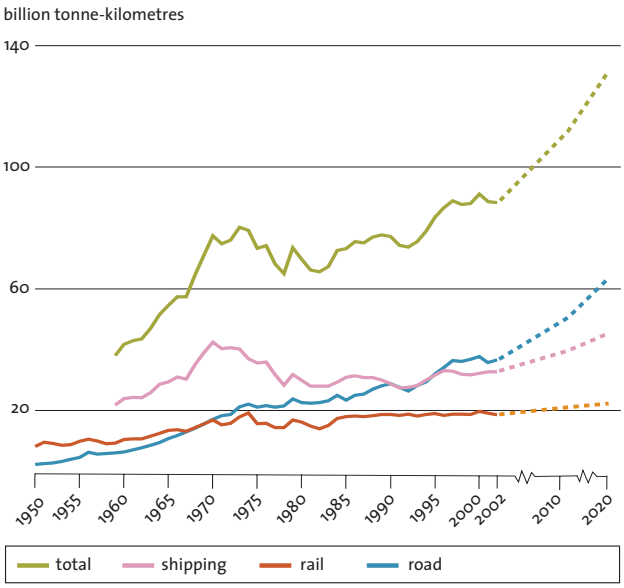
Experience shows that, if one member state introduces stricter rules on a national basis, this can raise the level of ambition of joint EU efforts. Directives of significance for A Non-Toxic Environment also include several minimum standards directives, such as those on safety and health at work and emissions of chemical substances to air and water.

Following the adoption of the fifteen environmental quality objectives and the associated interim targets, the Government decided to review the priorities agreed by Parliament for Sweden's environmental efforts at the EU level. In February 2002 it therefore commissioned the Environmental Protection Agency to analyse, in consultation with the relevant authorities, which issues Sweden has particular cause to maintain a watching brief on and seek to influence within the EU, on the basis that they are of significance for the country's environmental quality objectives. Government Communication 2003/04:9, 'EU priorities for achieving the environmental objectives', states that priority should be given to the following areas:

- climate, together with acidification and other air pollution issues,
- chemicals, including pesticides, and resource and waste issues in the context of sustainable consumption and production patterns,
- sustainable management of natural resources and conservation of biodiversity, and
- marine environment issues.

The experience gained from nine years of membership, and not least the Swedish EU Presidency, points to the benefits of early, targeted action. Furthermore, the EU is constantly changing. Its working arrangements are developing, partly to cope with the biggest enlargement

FIGURE 7 Estimated volume of freight transport 1950–2002 and forecasts for 2010 and 2020



Note: 1 tonne-kilometre = 1 tonne of goods carried 1 kilometre.
As from the year 2000, shipping includes ferries.

SOURCE: SWEDISH INSTITUTE FOR TRANSPORT AND COMMUNICATIONS ANALYSIS (SIKA)

to date, in May 2004, and a targeted approach will assume even greater importance. The implementation of EU legislation in the new member states is expected to have a beneficial effect on the Swedish environment, but at the same time the rapid growth anticipated in these countries, especially in transport, together with rapid restructuring of agriculture, could have adverse consequences for the environment.

Sweden has sought within the EU to put environmental issues as high on the agenda as economic and social development. The Government continues to give high priority to the EU's Sustainable Development Strategy, which will be important in increasing the momentum of EU environment policy and, by extension, achieving Sweden's environmental objectives.

At both the EU and the international level, Sweden has pressed for action to reduce acidifying, nutrient and air pollutant emissions, restrict the use of environmentally hazardous chemicals, halt the use of ozone-depleting substances and rein in the human influence on climate, to mention just a few examples. We judge it to be crucial to several of the environmental quality objectives that

Sweden should continue to give a lead within the EU and in the framework of international conventions.

In the EU's Sixth Environment Action Programme, which was adopted in its final form in the summer of 2002, it was announced that the Commission intended to develop seven thematic strategies as a basis for discussions with the Council and the European Parliament on environmental action over the next few years. Work is now in progress on these strategies, which relate to soil protection, the marine environment, pesticides, air pollution (CAFE), the urban environment, sustainable use of natural resources and recycling of waste, together with an eighth one on environment and health. All of these strategies are important in attaining the Swedish environmental goals.

At a global level, major breakthroughs were achieved in the climate negotiations in Bonn in 2000 and in Marrakech in 2001, when negotiations were completed on the majority of the rules to implement the Kyoto Protocol. Many countries took the view at that point that sufficient progress had been made in defining the rules to enable the Protocol to be ratified. Following the United States' withdrawal, the entry into force of the Protocol now hinges on ratification by Russia. Important EU decisions will also have a major influence on developments in this area.

A great deal of work relating to climate change is in progress within the EU. The Union has given and continues to give a lead in the international negotiations to reduce greenhouse gas emissions. Its ambitious aims in this regard are now being followed up by the European Commission in a series of initiatives in the environmental, energy and transport sectors. Many of these are based on the European Climate Change Programme (ECCP). One result of the EU's climate efforts is the new Directive on greenhouse gas emissions trading, which is to take effect on 1 January 2005. Initially, the scheme will cover carbon dioxide emissions from major industrial plants, refineries and energy installations, and it will begin to operate in 2005. More efficient energy use is to be promoted by the EC Directive on the energy performance of buildings, which is to be introduced in the member states between 2002 and 2009. Developments in EU transport policy also have a key part to play.

Transport and energy use, both in Sweden and across Europe as a whole, have an impact on the objectives Clean Air, Natural Acidification Only and Zero Eutrophication. With the measures decided on so far, these objectives will not be achieved, nor will several of the interim targets. Fundamental structural changes, for example to minimize demand for transport, take time to put in place, and the results take even longer to emerge. To attain the objectives, it is important to implement the measures proposed in Government Bill 2000/01:130, 'The Swedish Environmental Objectives – Interim Targets and Action Strategies'. A basic principle of Swedish transport policy is that all modes of transport should bear their own marginal costs to society. However, out of consideration for Swedish operators, chiefly the road haulage industry, it has not been possible to apply this principle entirely consistently. Swedish hauliers would not be able to cope with the competition from foreign operators, who are not taxed according to the same principle. At the EU level, therefore, Sweden should seek to eliminate this distortion of competition.

With a view to achieving the environmental objectives, EU programmes currently under way to reduce atmospheric concentrations of polyaromatic hydrocarbons (PAHs), and relating to acidifying emissions, require Sweden's active participation. Especially in relation to acidification, toxic pollutants and eutrophication, it is important for the country to be actively involved in international efforts, not least in the framework of the Convention on Long-Range Transboundary Air Pollution, since measures in Sweden alone will not be enough to deliver the objectives.

The environmental quality objective A Non-Toxic Environment will be difficult to achieve. The biggest difficulty is dealing with contaminants that have already found their way into the environment. An intense programme of EU legislation lies ahead over the next few years, with regard to both chemicals in general and pesticides. If the European Commission's proposals for new rules on chemicals (REACH) are adopted relatively unchanged – or are tightened up further when considered by the European Council and the European Parliament – a good foundation will be laid for significant progress towards the Non-Toxic Environment objective. Sweden should continue to actively press for even more stringent legislation, to ensure that its provisions reflect the level of ambition of this objective. The same applies to the rules on approval of plant protection products, which are to be revised. With globalization of trade and the trans-

boundary spread of toxic pollutants, many problems can only be solved at a global level. The Government and the National Chemicals Inspectorate should endeavour to ensure that the global chemicals strategy to be developed by the United Nations Environment Programme (UNEP) contributes to attaining the goal of A Non-Toxic Environment, for example in terms of information requirements relating to properties hazardous to human health and the environment, similar to the EU requirements; information on hazardous substances in products; and the phase-out of particularly hazardous substances.

Within HELCOM and OSPAR, projects are under way which also need to be closely followed with regard to Sweden's environmental objectives. These include an initiative to develop 'ecological quality objectives' and measures based on an ecosystem approach, i.e. one which considers the effects of policy decisions on the marine ecosystem as a whole, and not just on certain components of it. Commercial fisheries, for example, not only affect the populations of fish concerned, but also the structure and functioning of the entire ecosystem.

As regards the EC Water Framework Directive, its implementation in Sweden will be a decisive factor in attaining several of the environmental objectives. Sweden must for example play an active part in the process of drawing up guidance documents for implementation of the directive. Other documents that will guide the efforts of the member states in this area include the forthcoming daughter directive on groundwater and instructions on how priority substances are to be measured.

In view of the immense effort that will be required, at both the national and the international (primarily the EU) level, if the goal of Zero Eutrophication is to be achieved, it is important to analyse what additional action is needed to implement this objective. To reduce nutrient loadings to levels which do not cause eutrophication, changes in our lifestyle will also be necessary. A decrease in meat consumption, for instance, would achieve an appreciable reduction of loadings. Efforts within the EU should be given priority, since most of the countries which affect Sweden in this respect will be joining the Union in 2004.

The UN Convention on Biological Diversity (CBD) and other international conventions are also important. The ecosystem approach given prominence in the CBD as central to the conservation and sustainable use of biological diversity is also crucial in several respects when it comes to realizing Sweden's environmental quality objectives. Under the EU Biodiversity Strategy and in the Natura 2000 framework, for example, projects are under way which will help to achieve success with regard to these objectives. Within HELCOM and OSPAR, too, cooperation is in progress to protect threatened marine habitats and species.

The structure and substance of the Common Fisheries Policy (CFP) are of great significance. It is difficult for a single nation to bring about changes in the area of fisheries. Sweden can introduce technical controls for its own territorial waters, but for fisheries in open sea areas regulatory measures have to be introduced by the EU, in negotiation with non-EU nations. The same applies to catches in Swedish waters of species subject to quotas. The reform of the CFP decided on in December 2002 paves the way for improved management of fishery resources, but the actual decisions taken on catches make it clear that the reform has yet to produce practical results.

The design of the Common Agricultural Policy (CAP) affects progress towards several of the environmental quality objectives, chiefly A Varied Agricultural Landscape, A Non-Toxic Environment and Zero Eutrophication. The environmental effects of market price support measures have still to be elucidated. However, these mechanisms do favour the production of certain crops. Area payments have made it more profitable to cultivate autumn-sown cereals, and less so to grow forage crops. Autumn-sown cereals often require larger amounts of pesticides. In short therefore, though the effects are difficult to measure, area payments have not been good for the environment. The general components of the CAP have had a limited impact on nitrogen leaching, but losses of this nutrient are expected to decrease as a result of the targeted environmental measures introduced under Sweden's Environmental and Rural Development Programme (ERDP). The fact that the area of managed meadow and pasture land has once again increased is largely due to agri-environment payments under the ERDP. However, general support measures too, chiefly livestock aid, have had a beneficial effect, as they have resulted in increased numbers of grazing livestock. The recently agreed reform of the CAP is a step in the right direction – but the consequences for the environment remain to be seen. Sweden must take action in the context of the CAP to enhance the prospects of achieving its environmental objectives.

Monitoring and evaluation of the objectives

THE ENVIRONMENTAL OBJECTIVES COUNCIL'S ASSESSMENT:

Nine central government agencies and the county administrative boards have been given responsibility for the environmental quality objectives and the broader issues related to them. This structure provides a good basis for involving all the key players in the process of working towards the environmental objectives. However, the respective roles of the environmental objectives authorities and of the agencies with particular responsibility for environmental issues in various sectors need to be further developed and clarified, with regard to both monitoring and evaluation and day-to-day implementation.

Carefully designed indicators are important in providing basic data to monitor progress towards the environmental quality objectives. The systems currently in place are founded on earlier structures for work in the environmental sphere, and have only partly been adapted to the new objectives. It is difficult to get a clear overall picture of the various sources of data relevant to monitoring the objectives. The different agencies responsible for the environmental objectives have widely varying resources for monitoring, statistics and development. In 2005, therefore, we intend to evaluate the effectiveness and coordination of the supply of data relating to the objectives.

In view of the environmental objectives authorities' need for basic data to assess progress, existing programmes to monitor the state of the external environment should be reviewed. There is in our opinion every possibility of coordinating these programmes more closely with monitoring of progress towards the environmental objectives.

The aim in seeking to coordinate and develop the monitoring and evaluation process is to create a system that can provide a useful input into decision making at several different levels and facilitate communication with a broader range of target groups. During 2003 the Environmental Objectives Portal, miljomal.nu, was expanded to include a joint presentation system, which shows a number of indicators for each objective. As indicators are developed for the various goals, they will be incorporated into this system and regularly updated. The system is designed to present indicators at several levels: national, regional and local. The county administrative boards have coordinated a set of common regional indicators, and it is now also possible to include county-specific indicators. To be able to present local indicators, however, the system will require further development. We intend to begin work on this in 2004.

Systems to monitor progress on the broader issues of Land Use Planning and Wise Management of Land, Water and Buildings and The Cultural Environment are relatively undeveloped. We consider that the National Board of Housing, Building and Planning and the National Heritage Board, respectively, should be given the task of designing such systems, in consultation with other relevant agencies. As regards Human Health, another issue which cuts across several of the environmental objectives, more effective monitoring of the health risks associated with the indoor environment is particularly urgently required. In our view, the National Board of Housing, Building and Planning and the National Board of Health and Welfare, in collaboration with the National Institute of Public Health, should be asked to elaborate a monitoring programme in this area.

Monitoring of progress towards the environmental quality objectives is based on a national and regional monitoring and evaluation system that makes use of indicators linked to the objectives. The circumstances of different authorities vary, and they monitor their respective objectives in different ways. To ensure that the joint presentation of monitoring results is a success, further development and coordination are needed, both between and within individual agencies. The data underlying the assessments arrived at should be readily accessible, and funding arrangements for data collection and analysis need to be clarified. It is particularly important to resolve the issue of financial responsibility for the gathering of data for indicators at the regional and local levels. Indicator-based monitoring systems at the local, regional, national and international levels need to be coordinated and made more cost-effective.

Within the EU, three main bodies are involved in indicator-based monitoring along the lines of the regular indicator-based reporting system used for the Swedish environmental objectives. They are the European Environment Agency (EEA), the Statistical Office of the European Communities (Eurostat), and now also the Commission itself (Environment DG). Eurostat has been asked by the Commission to draw up a set of indicators of sustainable development. It has also been given responsibility (by the finance ministers) for the 'structural indicators' that are considered at the spring European Council meeting each year. These indicators are included in the 'synthesis report' presented by the Commission. In March 2004 the EEA is launching a core set of (environmental) indicators, which are intended to be used on a regular basis to track environmental trends in Europe. Finally, the Environment DG publishes every spring – as a preliminary to work on the synthesis report – a Policy Review Report. In addition, extensive reporting of data is taking place under a number of EC directives, such as the Water Framework Directive.

Data of various kinds are also being compiled and reported under different international conventions. Within HELCOM and OSPAR, environmental monitoring programmes are currently being reviewed in the light of stakeholder requirements. HELCOM has begun work on a system of indicator-based monitoring.

COMMUNICATING THE RESULTS OF MONITORING

It is important that efforts to implement the environmental quality objectives are presented in a way which is of use to the Government and readily accessible to other target groups. The Environmental Objectives Council submits an annual report to the Government describing in broad terms what progress has been made towards achieving the objectives. The Government has used these reports for various purposes, for example as a basis for its budget bills. They have been studied by many government agencies, local authorities and other organizations, and also received attention in the media.

The Environmental Objectives Portal, miljomal.nu, is a web site which provides information on Sweden's environmental quality objectives and progress towards them. It gives an overview of the objectives and the bodies responsible for different aspects of implementing them. It also presents a range of indicators – to date (February 2004), some 80 in all – that can be used to assess progress towards the environmental goals at the national and regional levels. In addition, visitors to the site can download the data on which the indicator presentations are based. The content of these presentations is the responsibility of the different environmental objectives authorities. As further indicators are included in the monitoring system, it will be possible to chart progress on all of the national environmental quality objectives and interim targets and on regional environmental objectives. In due course, the system will also be able to handle local environmental goals.

The ways in which the results of monitoring of the environmental objectives are presented and communicated represent an important Swedish contribution to implementing the UNECE Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters (the Århus Convention).

DEVELOPING INDICATORS

With a view to achieving satisfactory monitoring of progress regarding more complex aspects of environmental quality, intense efforts to develop indicators have been under way over the period 2001–3 at the agencies

responsible for the objectives. Each agency is responsible for coordinating, developing and assuring the quality and operational reliability of indicators relating to its own particular environmental quality objective(s), and deciding how these indicators are to be used. Overall coordination is the task of the Environmental Objectives Council. The county administrative boards have worked together to develop joint indicators at the regional level.

Much remains to be done to delimit a core set of carefully selected indicators, which will then guide decisions on what more detailed data need to be collected and evaluated. When choosing indicators, it is essential to coordinate as far as possible the data required for monitoring of progress towards the objectives with those needed by other users, especially for purposes of international reporting. This will lay a better foundation for long-term funding.

In the short term, the authorities' efforts to develop indicators have focused on securing the necessary supply of data in the most cost-effective way possible. In the subsequent development of these indicators, there should be a greater focus on customizing them to different target groups, so as to facilitate communication of the results of monitoring.

The Environmental Objectives Council

On 1 January 2002 the Swedish Government established the Environmental Objectives Council to promote consultation and cooperation in the implementation of the environmental quality objectives adopted by Parliament. The Council consists of representatives of central government agencies, county administrative boards, local authorities, non-governmental organizations and the business sector.

The principal functions of the Environmental Objectives Council are:

- to monitor and evaluate progress towards the environmental quality objectives,
- to report to the Government on how efforts to achieve the objectives are advancing and what further action is required,
- to coordinate the information efforts of the agencies responsible for the objectives,
- to ensure overall coordination of the regional application of the objectives, and
- to allocate funding for monitoring of progress towards the objectives, environmental monitoring, and some reporting at the international level.

The following individuals have been appointed as members of the Council for the period 1 January 2002 – 31 December 2004:

Jan Bergqvist,
Chairman

Lars-Erik Liljelund,
Director-General, Swedish Environmental Protection Agency, *Vice-Chairman*

Gunnar Ågren,
Director-General, National Institute of Public Health

Ingela Bendrot,
Director, Sustainable Development, Confederation of Swedish Enterprise (member since 29 March 2004)

Kerstin Blix,
Director of Environmental Affairs, Hammarby Sjöstad, City of Stockholm

Göran Enander,
Director-General, National Board of Forestry (member since 20 March 2003)

Ann-Sofie Eriksson,
Acting Head of Planning and Environment Section, Swedish Association of Local Authorities (member since 21 November 2002)

Ethel Forsberg,
Director-General, National Chemicals Inspectorate

Lars-Erik Holm,
Director-General, Swedish Radiation Protection Authority

Anna Jonsson,
Environmental NGO representative

Thomas Korsfeldt,
Director-General, Swedish Energy Agency

Inger Liliequist,
Director-General, National Heritage Board (member since 1 March 2003)

Lars Ljung,
Director-General, Geological Survey of Sweden

Karl Olov Öster,
Director-General, National Board of Fisheries

Mats Persson,
Director-General, Swedish Board of Agriculture (member since 10 April 2003)

Ingemar Skogö,
Director-General, National Road Administration

Karin Starrin,
County Governor, Halland County Administrative Board

Ines Uusmann,
Director-General, National Board of Housing, Building and Planning

Kerstin Wigzell,
Director-General, National Board of Health and Welfare

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Sweden's Environmental Objectives – A Shared Responsibility, together with the original Swedish report, is available in PDF format on the Environmental Objectives Portal, miljomal.nu.

Sweden's environmental objectives – a shared responsibility

This is an abridged English version of the Swedish Environmental Objectives Council's first comprehensive evaluation of efforts to achieve the fifteen national environmental quality objectives adopted by the Swedish Parliament. The overall goal of Sweden's environmental policy is to hand over to the next generation a society in which the major environmental problems currently facing the country have been solved. This will also help to achieve equitable and sustainable development at the global level. It is a matter of ensuring that the next generation – our children and grandchildren – and generations to come are able to live their lives in a rich natural environment, free from toxic substances, and in a society based on sustainable development. The environmental quality objectives are a way of lending visibility to the ecological dimension of sustainable development.

This report is a synthesis of the evaluations of individual objectives carried out by the agencies and organizations that make up the Environmental Objectives Council. Together with those individual reviews, it presents a picture of how the environment is developing in relation to the environmental quality objectives. In the present report, we assess the prospects of achieving the objectives and examine how developments in society are affecting progress towards them in different directions. We describe a number of policy instruments and measures that have been introduced and that have helped to improve the state of the environment, but we also refer to interventions that have not been entirely successful. In addition, we propose a range of new measures which have an important part to play in attaining the objectives.

This synthesis report, together with all the evaluations of individual goals and the Environmental Objectives Council's annual progress reports, can be found on the Environmental Objectives Portal, miljomal.nu.




miljomal.nu ISBN 91-620-1236-3