Government Communication 1999/2000:13

Sustainable Sweden

- a Progress Report on Measures Promoting Ecologically Sustainable Development

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Sustainable Sweden – a Progress Report on Measures Promoting Ecologically Sustainable Development

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The Government presents this Communication to Parliament.

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Brief summary of the Communication

In this Communication the Government describes the progress that has been made on strategies and measures for ecologically sustainable development in Sweden, in the EU and internationally. The Communication is a progress report on the action programmes presented in the Government's Communication Sustainable Sweden – a Progress Report and New Measures to Promote Ecologically Sustainable Development (Comm. 1998/99:5). The Communication also includes a progress report on local investment programmes.

Note on the English version of the Communication
Chapter 4 of the Swedish text, which describes the measures undertaken by each government ministry, is not included in the English version of the Communication. Consequently, chapter 5 of the original appears as chapter 4 in this version.

Contents

1 Background and subject matter of the Communication

The Government reports annually to Parliament on the progress made in efforts to achieve ecologically sustainable development. This provides Parliament with continuous information on the measures that have been taken within the areas of responsibility of the various ministries. The aim is to issue these reports, the purpose of which is to describe the effects of the measures that have been taken on the adjustment process, in conjunction with the presentation of the Budget Bill. The reports should also present new measures adopted as a result of proposals made by the Government in bills that have been presented during the year or in connection with other decisions.

The work of converting Sweden to ecological sustainability is based on the programme of action that was presented in 1997 in the Communication *Ecological Sustainability* (Comm. 1997/98:13). The programme contained 93 measures distributed among the then thirteen ministries in the Government Offices. The Communication *Sustainable Sweden – a Progress Report and New Measures to Promote Ecologically Sustainable Development* (Comm. 1998/99:5) was a first report on the progress that had been made in the main policy areas and presented new proposals that had been submitted. The Communication was based to a large extent on *Sustainable Sweden – Progress Report for 1998*, which was presented by the Committee for Ecologically Sustainable Development in August 1998.

2 Sustainable development

The objective of sustainable development comprises ecological, social and economic aspects. These three aspects are interdependent and must strike a careful balance between these aspects if the objective is to be achieved. Ultimately, the aim is to assure present and coming generations the prospect of a bright future and good quality of life. Use of the term ‘ecological sustainability’ emphasizes the ecological dimension of sustainable development.

In the Statements of Government Policy for the last three years the Government has stated that the work of converting Sweden to ecological sustainability must continue and be speeded up. Sweden must pioneer efforts to achieve ecologically sustainable development. The aim is to hand over a society to the next generation in which the major environmental problems have been solved. In order to avoid a situation where pollution and depletion of natural resources and ecosystems affect the living environment and prosperity of future generations, the Government has declared three objectives for ecological sustainability: protection of the environment, efficient use of resources and sustainable supplies.

At the same time, Sweden should start the 21st century by taking steps to lay the foundation for sustained and high economic growth in a world

characterized by rapid change and increasingly keen competition. Our prosperity must be maintained and developed and – where the economic situation permits – be increased. The opportunities offered by the necessary adjustment to ecological sustainability will be utilized to promote growth, increased employment and prosperity. Economic development and social welfare can be promoted by the adjustment to ecological sustainability. For Swedish industry the adjustment process is an incentive to develop greener products and services, which in turn can help to increase market share and thus create new jobs. The rapid process of globalization which Sweden's and Europe's industry is now undergoing will also change the economic landscape in Sweden and Europe. We must play our part in helping to draft appropriate rules at EU and international level, since it is primarily at these levels that the major changes will take place. The effects on the environment – globally, regionally and in Sweden – must be monitored on a continuous basis.

2.1 Ecological sustainability

Sweden's current environmental policy has been framed in response to the seriousness of various environmental threats – depletion of the ozone layer, the greenhouse effect, acidification, eutrophication, the effects of toxic substances on health and the environment and unsustainable use of natural resources. Consequently, environmental policy during the last decade or two has concentrated on formulating objectives and designing instruments to avert these threats. Although Sweden has made satisfactory progress in solving – or at least mitigating – the most serious environmental problems, many of these environmental threats remain. Previous errors must also be corrected. Modern environmental policy is basically about what needs to be done in continuing this work.

A report presented by the European Environment Agency in the spring of 1999 concluded that the European environment is still in severe disequilibrium. This is due to increased emissions of greenhouse gases, increased use of chemicals and increasing quantities of waste etc.

Progress has been made in addressing the most serious environmental problems in Sweden, but at the same time the nature of the threats is changing. The environmental threats facing us now are more complicated, for example non-point or diffuse emissions (many small emissions). More attention is therefore being paid to lifestyles, consumption patterns and community organization and planning. This means that environmental policy – or a policy on ecologically sustainable development – must be closely linked to economic and social developments. A successful strategy for ecologically sustainable development must promote social and economic development. Only by combining these objectives will it be possible to engage citizens and industry in the process of adjusting to sustainable development.

Permanently converting Sweden to ecological sustainability must be regarded as a long-term objective. As already mentioned, this process requires action to be taken in areas that are beyond the scope of conventional environmental policy. All sectors of society – central and

local government, industry, organizations of various kinds and individual citizens – must play their part. Participation is the key to modern environmental policy. An effective environmental policy must also be based on clear-cut legislation and balanced fiscal incentives. The new Environmental Code, which entered into force on January 1 1999, represents a body of coordinated and more stringent environmental legislation. The use of fiscal incentives is gradually being developed. Another important prerequisite is well-defined common objectives and the integration of pro-environment economic thinking into the activities of various sectors. The Government has started to take appropriate action, and this will help to create the conditions for combining an ecological approach with economic growth and development. The challenge in the immediate future will be to combine efforts on behalf of ecological sustainability with the Government's objective of sustainable growth and increased employment.

The Treaty of Amsterdam, which entered into force on May 1 1999, provides for the integration of environmental concerns into the formulation and implementation of EU policies.

The European Council in Cardiff in June 1998 urged all the configurations of the Council of Ministers to prepare strategies with a view to integrating environmental and sustainable development concerns into the Community's activities in their respective sectors. At the Helsinki summit in December the European Council will review the horizontal progress made so far in integrating environmental and sustainable development concerns in order to link together the sectoral strategies elaborated by the various Councils.

The work being done in the EU and international forums is the key to achieving ecologically sustainable development. Many major environmental problems have global dimensions and international cooperation is essential in finding solutions. International efforts must continue to be action-oriented and vigorous. Drawing on the experience that it has gained, Sweden must be a driving force, especially in the EU, but also in the UN, OECD, WTO and other bodies and through effective cooperation in our neighbouring region.

2.2 Objectives of ecologically sustainable development

As mentioned above, the Government has set three headline objectives for ecological sustainability, i.e. protection of the environment, efficient use of resources and sustainable supplies. These objectives embody the ecological prerequisites for achieving ecologically sustainable development. *Protection of the environment* means that emissions of pollutants must not damage human health or exceed nature's capacity for absorbing or breaking them down. *Efficient use of resources* means that utilization of energy and other natural resources must be more efficient than today and increasingly rely on renewable resources. *Sustainable supplies* means that the long-term productive capacity of ecosystems must be assured. The three objectives of ecological sustainability are interdependent. Efficient use of resources is a condition for achieving the

two other objectives. Protecting the environment and ecosystems is an essential condition for assuring sustainable supplies of natural resources. These horizontal objectives were presented in detail in the Communication (Comm.1998/99:5) presented to Parliament by the Government in 1998.

In terms of global sustainability it is important to use the earth's resources efficiently. Estimates indicate that the use of resources in this part of the world must be reduced significantly if the earth's ecosystems are to be capable of maintaining a growing population and if living standards are to be raised in the developing world. The term Factor 10 has been launched as a measure of the necessary reduction, i.e. we will have to use resources on average ten times more efficiently within the next generation or two. Factor 10 is an indication of the increase in efficiency that we will have to achieve rather than a precise target. More work will be necessary to analyse and concretize the need to use resources more efficiently.

The work of adjusting to ecologically sustainable development on which Sweden has embarked is further developed and defined in the Bill *Swedish Environmental Quality Objectives – An Environmental Policy for a Sustainable Sweden* (Gov. Bill 1997/98:145 – 'the Environmental Bill'). In April 1999, Parliament adopted fifteen new national environmental quality objectives (Report 1998/99:MJU6, Parl. Comm. 1998/99:183). These objectives define the future environmental states that are being aimed for. They centre on human health, biological diversity, the cultural environment and nature. Emissions of harmful substances must be reduced to levels that are not harmful to nature or human beings in the long term. Natural and cultural landscapes with valuable environmental assets must be protected and preserved, while their productive capacity is maintained and developed. The aim is to achieve these objectives within a generation. The horizontal generation objective and the new structure of the environmental quality objectives represent a completely new approach to environmental policy.

The objectives that have been adopted are: 1) Clean air, 2) Good-quality groundwater, 3) Healthy lakes and streams, 4) Wetlands teeming with life, 5) A balanced marine environment and sustainable coasts and archipelagos, 6) Zero eutrophication, 7) Natural acidification only, 8) Healthy-growing forests, 9) A flourishing agricultural landscape, 10) A majestic mountain world, 11) A good built environment, 12) A poison-free environment, 13) A safe radiation environment, 14) A protective ozone layer, and 15) Limitation of climate change.

Various authorities have been engaged in further development of these objectives during the year and have, for example, formulated interim targets and action strategies. These authorities' proposals were presented to the Government on October 1 1999. A parliamentary committee, the Committee on Environmental Objectives, has been instructed to carry out a comprehensive review of the interim targets that need to be set to make it possible to achieve the environmental quality objectives within a generation. The Committee will report to the Government by June 1 2000.

One feature of the new structure of environmental quality objectives is that they must be simple to implement and monitor. They will also be used as the starting-point for regional and local environmental quality objectives. The Environmental Advisory Council (Jo: 1968A) has been assigned the task of establishing a dialogue with industry in order to decide what measures should be taken to implement sustainable development and the environmental quality objectives in industry.

2.3 Implementation of a policy for ecologically sustainable development

In order to ensure that the new environmental quality objectives are implemented in practice, a carefully prepared monitoring system will also be necessary. Moreover, each sector's responsibility must be gradually developed and more clearly defined. Well-defined sectoral responsibilities must also be combined with an integrated approach to sustainable development and better coordination both between sectors and policy areas and between the various levels at which planning and decisions on future social development are taken. The implementation of environmental management systems that is under way both in industry and public administration must continue.

2.3.1 Monitoring of the environmental quality objectives

Various monitoring arrangements must be introduced in order to make it possible to assess the progress made in adjustment to ecologically sustainable society. Intense efforts are in progress, both at national and local level, on the basis of the horizontal environmental objectives on developing indicators that show whether or not progress is being made at an appropriate pace. Development work is also in progress in the EU, the OECD and the UN. Sweden is taking an active part in this cooperation.

The Swedish Environmental Protection Agency and the county administrative boards have been instructed by the Government to present systems for monitoring progress on the national environmental quality objectives. These proposals were presented on October 1 1999.

On the Government's instructions, the Environmental Advisory Council has drafted a number of green indicators. According to the Council, these green indicators are intended to reflect major environmental problems. They also measure strategic conditions underlying the existing problems, for example the use of energy and chemicals. Some of the indicators reflect the adjustment to ecological sustainability by households, enterprises and the public sector. The indicators are intended to provide decision-makers and the public with readily comprehensible information. The proposed indicators are based on the Government's three headline objectives for ecologically sustainable development, i.e. protection of the environment, efficient use of resources and sustainable supplies. They are intended to give a first indication of whether or not progress is being made at an appropriate

pace. The Environmental Advisory Council hopes that the indicators will contribute to a livelier, broader and more objective public debate.

Seven of the Environmental Advisory Council's green indicators were presented in the 1999 Spring Finance Bill (Gov. Bill 1998/99:100). The indicators reflect Sweden's share of responsibility for major environmental problems and may be regarded as a first step towards addressing dimensions other than the economic dimension in the budget statement. All the Environmental Advisory Council's eleven green indicators are presented in greater detail in Annex 5 to the Bill. The 2000 Budget Bill (Gov. Bill 1999/2000:1) presents the indicators under expenditure area 20, General environment and nature conservation.

2.3.2 Sectoral responsibility and environmental management

In order to achieve ecologically sustainable development a number of measures will have to be taken in different sectors and levels of society. The sectors' and sectoral authorities' responsibility for the environment has been emphasized during the last ten years. Parliament has also established the principle of sectoral environmental responsibility. Each sector of society must take responsibility for implementing the measures that are necessary in order to achieve the environmental quality objectives. This means that enterprises and authorities must integrate environmental concerns into their operations. The enactment of the Environmental Bill (Gov. Bill 1997/98:145) means that the government agencies now have greater sectoral responsibility.

The Government must set an example in the adjustment process. It has therefore decided to integrate environmental concerns and resource management more systematically into its own activities by introducing environmental management systems. Environmental management helps to established an integrated approach to environmental concerns in an organization's activities. The principles applied in central government administration are the same as those applied in industry. The task is to establish systematic environmental efforts on the basis of well-defined guidelines and objectives and a clear division of responsibilities and routines for monitoring and accounting. Environmental management systems also represent an important instrument for authorities whose task is to elaborate proposals for the interim targets and strategies that are necessary in order to implement the national environmental quality objectives. 99 Government agencies are currently in the process of introducing environmental management systems. In the course of 1999, environmental management has also been established as a method in the process of adjustment to sustainable development in the Government Offices.

2.3.3 Cross-sector coordination

The Government has prepared an action programme for adjustment to ecological sustainability. This programme takes into account the synergies between measures that benefit the economy, employment,

prosperity and the environment. Often, measures must be taken by several players in order to solve environmental problems or achieve more efficient use of resources. The transport sector is an example of an area in which systemic solutions are needed in order to control environmental impacts. In addition to reducing emissions to a minimum or reducing energy consumption in various means of transport, there is a need to intensify cooperation between car manufacturers, operators and planners in municipalities and the growing IT sector. But above all, a concerted effort is needed in order to use the available resources – not least economic resources – as efficiently as possible.

In a knowledge-based society, universities and university colleges play an increasingly important part in bridging the gaps between society, industry and citizens. By developing new ideas and playing a more active part in ensuring that they are implemented and developed, universities can become an active partner in community planning.

An essential condition for achieving ecologically sustainable development is therefore to improve coordination and collaboration between different sectors and players. This will help to achieve solutions that are sustainable in ecological, social and economic terms. The conflicts of objectives and interests, and the effects of various measures, must be reported to decision-makers and the public at an early stage of the planning and decision-making process. It may be necessary to further develop impact assessments, whether strategic long-term assessments or assessments of individual projects.

3 Summary of the Government's measures to promote ecological sustainability

Sweden must set an example by showing that forward-looking and systematic efforts to implement change can lead to solutions involving the integration and interaction of the three primary objectives of ecological sustainability into all policy areas. As mentioned previously, the work of implementing change must be carried out with measures that also promote growth and thus strengthen the economy and employment.

The key to success is broad participation by all sectors of the community. This will help to ensure public awareness of the ecological constraints on development. Environmental concerns and resource management must be integrated into decision-making at all levels of society. Central government must set an example and pioneer adjustment to ecological sustainability.

This chapter outlines the Government's implementation of its policy on ecologically sustainable development and the projected progress in some key areas. It represents a synthesis of the two following chapters, which contain details of the progress made on the action programmes ministry by ministry and a progress report on the local investment programmes.

3.1 Developments in the public sector

3.1.1 Environmental management systems

Industry has pioneered the introduction of environmental management systems. Such systems have already been established in many large and medium-sized industrial companies. Now, the public sector – municipalities, county councils and central government authorities – have also started introducing such systems. Environmental management systems establish systematic environmental activities on the basis of well-defined guidelines and objectives, for example in central policy documents, integration of environmental concerns into day-to-day activities, a clear division of responsibilities, and routines for monitoring and results accounting. In most cases, municipalities and county councils aim for ISO certification or registration in accordance with the EU's Eco Management & Audit Scheme (EMAS). Since August 1998, EMAS has been open to all sectors, not just the industrial sector. The first public organization in Europe to receive EMAS certification was Halmstad County Hospital. This system is based on the ISO standard and EMAS. Several authorities have decided to apply for certification/registration. This applies in particular to authorities with commissioned work, county administrative boards and universities. Two university colleges, Mid-Sweden University College and Mälardalen University College, have already been awarded certificates. Some authorities, including the Armed Forces, are introducing environmental management systems on their own initiative.

As mentioned above, environmental management systems are now also being introduced in the Government Offices.

3.1.2 The new Environmental Code and environmental quality objectives

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The Environmental Code has a central role in environmental efforts. The Code has adapted the environmental legislation to changes in society and to the environmental problems of today. Parliament has adopted amendments necessitated by the Code to a large number of Acts that govern operations that may affect the environment (Gov. Bill 1997/98:90, Committee Report 1997/98:JoU25, Parl. Comm. 1997/98:279). The structure of the Code, with general objectives, general rules of consideration and new instruments, such as environmental quality standards, improves the scope for using the legislation as an instrument for gearing environment-related action to achievement of the objectives adopted by Parliament. Furthermore, on account of its broad area of application, the Code will help to ensure that decisions taken by authorities and individuals will promote ecologically sustainable development. The Code is applicable to all operations and measures that are "not of negligible significance to human health and the environment."

Changes in society, Sweden's membership of the EU and the experience gained from application of the Environmental Code will make it necessary to review the Code's provisions and, where necessary, amend them or introduce new provisions. The Government therefore intends to appoint a parliamentary committee to perform this reviewing task.

The Committee on Education carried out a large-scale civic education campaign relating to the new environmental legislation and environmental quality objectives prior to entry into force of the Environmental Code (M 1997:03). Training and information will continue to be provided for employees in public authorities, municipalities and enterprises.

The overall aim is to hand over a society to the next generation in which the major environmental problems have been solved. As previously mentioned, Parliament adopted the proposals concerning environmental quality objectives and guidelines for activities in various areas in the spring of 1999. In other words, Parliament has adopted a new structure for the efforts to achieve the environmental quality objectives. The purpose of the environmental quality objectives is to describe the quality or state of the environment, including natural and cultural resources, that corresponds to sustainable development. The environmental quality objectives are sector-wide and it is necessary to complete them by setting interim targets and action strategies to ensure that the objectives are achieved within a generation. Parliament's decision will lead to further development and specification of the work on ecologically sustainable development. A large number of public authorities were instructed to prepare interim targets and propose measures that will help to achieve these targets and environmental quality objectives. They reported to the Government on October 1 1999.

In May 1998 the Government decided to appoint a parliamentary committee on the objectives of environmental policy. The committee has been named the Committee on Environmental Objectives (M 1998:07). It will carry out a comprehensive review of the interim targets and action

strategies that are needed to make it possible to achieve the environmental quality objectives, with the exception of Limitation of climate change, within a generation. The Committee will report by June 1 2000. The reports presented by the authorities that were mentioned above will form the starting-point for the continuing work of the Committee. The Government intends to inform Parliament at the beginning of 2001 of the interim targets and action strategies that are needed to make it possible to achieve the environmental quality objectives.

3.1.3 Sectoral responsibility

Section 7 of the Government Agencies and Institutes Ordinance (1995:1322) has been amended so as to give all the directors-general of government agencies general responsibility, starting on January 1 1998, for meeting the requirements with regard to ecologically sustainable development that apply to their functions. In August 1998, moreover, the Government decided to assign special sectoral responsibility for the ecological sustainability process to 24 of these agencies, as announced in the Environmental Bill. This means that the agencies must integrate environmental considerations and resource management into their activities and seek to promote efforts to achieve ecological sustainability throughout the sector for which they are responsible. Their responsibility extends, therefore, not only to basic environmental protection, but also to the three headline objectives of ecologically sustainable development. Where it appears relevant, the agencies are to ensure that decisions and measures of various kinds contribute to the achievement of the objectives adopted for environmental policy and ecological sustainability. As far as possible, depending on the agency's area of responsibility, the need for sustainable economic, social and cultural development is also to be taken into account.

The 24 agencies to which special responsibility has been assigned are the Swedish Armed Forces, the Swedish Rescue Services Agency, the Swedish International Development Cooperation Agency, the National Social Insurance Board, the National Board of Health and Welfare, the National Rail Administration, the National Road Administration, the Swedish Maritime Administration, the Civil Aviation Administration, the National Agency for Education, the Swedish Board of Agriculture, the National Board of Fisheries, the Swedish National Labour Market Administration, the National Board of Occupational Safety and Health, the National Heritage Board, the Swedish National Board for Industrial and Technical Development, the Geological Survey of Sweden, the National Board of Forestry, the National Board of Trade, the Swedish National Energy Administration, the National Board of Housing, Building and Planning, the Swedish Consumer Agency, the National Chemicals Inspectorate and the Swedish Environmental Protection Agency. The sectoral agencies are to submit an initial situation report to the Government by October 1 1999, in which they define these agencies' perception of their roles, the extent of the tasks, possible problems and ways and means of integrating ecological sustainability into the agency's

operations. The Environmental Bill proposes that the agencies with sectoral responsibility report to the Government on their progress in their annual reports.

3.1.4 Public procurement

Taking environmental concerns into account in connection with public procurement opens great opportunities for encouraging the production of environmentally sounder products and services. Annual expenditure on public procurement (excluding defence procurement) amounts to at least SEK 300 billion, and government procurement accounts for about SEK 100 billion of this total. This means that the combined efforts of public purchasing authorities can persuade suppliers and producers to produce environmentally sounder products by stipulating environmental conditions in tender procedures.

Sweden's municipalities and county councils, in particular, are increasingly imposing environmental conditions in connection procurement. Green procurement has made less impact so far in central government, however, although a number of initiatives have now been taken to introduce it. As mentioned above, the Government has instructed about 100 government authorities and agencies to introduce environmental management systems. Imposing environmental conditions in tender procedures is one important aspect of an environmental management system. Furthermore, in May 1998 the Government set up a Commission for Ecologically Sustainable Procurement (M 1998:01). The Commission's tasks include encouraging ecologically sustainable procurement throughout the public sector. This involves analysing the strategically most important product categories and services, disseminating examples of excellence, preparing procurement manuals, initiating training and keeping track of efforts being made in other countries and collecting data on issues that are being pursued at EU level etc. The Commission set up a number of working parties in the autumn of 1998 to work on various tasks, including an Internet-based manual for green procurement for use in the public sector as a whole. The Committee will submit its final report by the end of 2000.

The environmental requirements in connection with procurement are subject to existing rules. Since the rules on public procurement are basically applicable throughout the EU, Sweden is taking active steps to bring about changes in Community legislation that will provide more scope for imposing environmental requirements in connection with procurement. At the moment, the EC Procurement Directives impose some restrictions on the environmental conditions that can be stipulated in public procurement.

The Committee for Ecological Procurement has presented proposals to the Government on environmental requirements which it considers appropriate in connection with procurement. The Committee has also issued a brochure, *Demand Compliance with Environmental Standards*, which shows that there is already plenty of scope for making environmental requirements in connection with procurement that are not

inconsistent with the Public Procurement Act (1992:1528) or the Procurement Directives. Work is also in progress in the Government Offices with a view to establishing which environmental requirements it will be possible to make in Sweden in the future in connection with public procurement.

Within the framework of a government assignment the Swedish Environmental Protection Agency performed a preliminary evaluation of public authorities' performance with respect to green procurement (Report No. 49 *Public Authorities' Work on Green Procurement – a Preliminary Evaluation*, December 1998). The Agency sent out a questionnaire to the authorities asking them to give details of the extent to which they required compliance with environmental standards. 85 of the 158 authorities that answered the questionnaire stated that they did so more or less explicitly.

3.2 The economy, industry and consumers

3.2.1 Industry

In its Statements of Government Policy in the last few years the Government has established a platform for adjustment to ecologically sustainable development. Sweden must be a driving force and pioneer efforts to establish ecologically sustainable development and should start the 21st century by taking steps to lay the foundation for sustained and high economic growth in a world characterized by rapid change and increasingly keen competition. In the Statement of Government Policy of September 1999 the Government stated that Sweden will undergo ecological modernization and will, with new resource-efficient technology and other technological advances, build up welfare and prosperity without burdening the environment. The Government therefore wishes to make an active contribution to achieving the headline objective of sustainable development, while making the most of the opportunities offered by adjustment.

The strategy of pioneering ecologically sustainable development and combining it with economic growth makes great demands on economic policy and assigns a key role to industry. An essential condition for success is that industry recognizes the commercial advantages of early adjustment and that fiscal incentives are designed in such a way as to encourage the development of products with an environmental and resource-efficient profile. Furthermore, it is necessary to promote market demand for environmentally sound and resource-efficient products, for example by raising consumers' awareness and ensuring that public procurement meets stringent environmental criteria. Encouraging and enabling households to assume greater responsibility for the environment and resource management is very important.

The driving forces behind adjustment to ecological sustainability in industry are legislation, fiscal incentives and market forces, such as consumer demand for environmentally sound products and services. The Government's task is to create an appropriate framework in the form of legislation, rules and other instruments and through various initiatives to

support and stimulate voluntary and market-oriented measures. Globalization has made it important to harmonize rules at the international level to ensure that national competitiveness does not suffer. Environmental legislation establishes a minimum level of consideration for the environment. The fact that the Code has now been coordinated and is more transparent will ease the burden for industry.

In October 1998 the Government adopted terms of reference for the implementation of new guidelines on chemical policy. A special investigator has been appointed to propose detailed specifications in the form of limit values etc. for the characteristics and effects referred to in the guidelines on chemical policy for the 21st century (M 1998:09) that were adopted by Parliament pursuant to the Environmental Quality Objectives Bill. The investigator will report his conclusions and proposals by June 1 2000.

The analysis of producer responsibility has continued. The Swedish Environmental Protection Agency has been instructed to describe the conditions for and consequences of introducing general producer responsibility for the environmental impact of a product throughout its life cycle. The assignment includes compiling and analysing the evaluations that have been made of the environmental and economic effects of producer responsibility. The Swedish Environmental Protection Agency will also analyse the proposals presented by the Ecocycle Commission in its report *Producer Responsibility for Products – Proposals and Ideas* (1997:19). The Commission will present its final report by December 31 1999.

Modern environmental policy is not based solely on legislation. Increasingly, enterprises take voluntary initiatives in response to market pressure. This is all to the good, since it is the enterprises themselves that should know best how to put their operations on an environmentally sound footing with regard to prevailing conditions. In fact, during the last decade it has become increasingly profitable for enterprises to integrate environmental concerns into their operations. One incentive has been increased demand for environmentally sound products. A challenge that needs to be met by environmental policy is to support this development and strengthen the positive correlation between environmental considerations and economic growth.

Proposals and measures are often the result of cooperation and dialogue between various players. The Environmental Advisory Council is continuing its preparation of strategies for development of ecologically sustainable industry through a dialogue with industry and business (Dir. 1998:65). Its assignment is to initiate, support and influence industry and obtain guidance data for political decisions and positions on guidelines and incentives in environmental policy, as well as in other issues that are strategically relevant to sustainable development. The Environmental Advisory Council will report to the Government by December 29 2000 on the results of this dialogue, the extent of industry’s voluntary undertakings, obstacles to and opportunities for the development of ecologically sustainable industry and proposals on future strategies and appropriate instruments.

Environment-driven development of technologies and products is an important factor for innovation and environmentally sound growth. The Swedish National Board for Industrial and Technical Development (NUTEK) is taking part in this work by taking general initiatives, including the development of an Ecoefficiency Strategy for Swedish industry, programmes in areas where Sweden has comparative advantages, such as new materials (biofibres, composites, biopolymers etc.) and products based on renewable Swedish raw materials (forest and agricultural products). NUTEK also grants aid for the development of technologies and know-how in small enterprises (methods for green product development, environmental management in small enterprises), general development of technologies and skills in Swedish industry (life cycle analyses, IT for process control and lower consumption of materials while meeting the specified quality requirements) and support for new enterprises and products (seed capital, advisory services and strategic technological development).

Within the framework of large-scale investment in environmentally sound product development, the Government is cofinancing an ecodesign project whose purpose is to use ecological design to simulate the development of environmentally sound products in 14 small and medium-size enterprises (SMEs).

In the Statement of Government Policy in the autumn of 1998 the Prime Minister invited the motor vehicle industry to take part in cooperation on the development of environmentally sounder vehicles. This cooperation will take place within the framework of the joint research and development programme that has been prepared during the year. The purpose of the joint programme is both to reduce the environmental impact of road traffic and ensure that Sweden’s motor vehicle industry will continue to be competitive. In the Autumn Budget Bill the Government announced its intention to implement the programme during a six-year period starting on January 1 2000. The Government will allocate SEK 500 million for this purpose during the period. The programme covers areas such as advanced combustion, hybrid and fuel cell technology, weight reduction and the supply of know-how. In addition to motor vehicle manufacturers, universities and research institutes, as well as subcontractors, are expected to take part in the programme.

The Commission on Environmental Technology, which was appointed in September 1996, was assigned the task of stimulating the development and facilitating the procurement and introduction of environmentally sound products, processes and technologies designed to be compatible with ecologically sustainable development. The measures taken by the Commission will increase the competitiveness of Swedish industry and thus create new employment. One of the Commission’s main tasks is to find methods of facilitating and accelerating the marketing of new environmentally sound technology and testing these methods. The Commission therefore focuses on the demand side. Much of its work is devoted to formulating, together with users of various products and technologies, the functional requirements that should be met by

environmentally sound products. It also analyses the potential environmental gains.

The Environmental Technology Commission has hitherto received SEK 40 million for promotion of adjustment to ecological sustainability and programmes for SME development, innovation and growth. The 2000 Budget Bill (Gov. Bill 1999/2000:1, expenditure area 24, Industry) proposes that a further SEK 10 million be allocated to the Commission for the year 2000 to enable it to continue and develop its assignment (Gov. Bill 1999/2000:1, expenditure area 24 Industry).

Environmental exports and international trends

Environmental exports are one example of how export success can be achieved on commercial terms at the same time as helping to improve the environment. The market for environmental technology today is estimated to be about SEK 4,000 billion and is expected to grow to about SEK 6,000 billion by the year 2010. The OECD countries account for about 80% of the world market. The market is expected to grow by 5-20% per year. Swedish enterprises' share of this market is, however, modest.

The Government thinks it is possible for Sweden to increase exports in this area, while helping to bring about global environmental improvements. In the long run, this would also have beneficial development effects on the developing world. since modern technology could substantially improve their environment. Important elements of this market are public procurement and donor-financed environmental projects.

In September 1998 the Government decided to allocate SEK 12 million to the Swedish Trade Council for implementation of a three-year programme designed to promote exports of environment-related products and services in priority areas within the framework of regional policy. The programme focuses on technology and services for control of emissions into air, water and sewage systems, as well as waste management. Many SMEs operate in these sectors.

The programmes mentioned above will promote collaboration, for example, between technical consultants and manufacturing companies. All in all, the Swedish network of enterprises, authorities, development cooperation bodies, financiers and trade organizations will be strengthened. The programme will strengthen cooperation at national level and the profile of Swedish know-how in environmental technology and facilitate joint Swedish marketing measures in the international environmental market to a greater extent than before. Furthermore, the programme improves the prospects of international alliances in this area. This programme will continue.

The Environmental Technology Commission is currently making an outline survey of leading companies in environmentally sound technology, products and services. This may be compared with the analysis of the demand for environmentally sound products and services in a number of international markets that is being carried out simultaneously. The results will be used to promote the ability of

environmentally sound products and technology to meet the needs and demands of the international market.

Integrated product policy

As a result of the globalized economy, trade in products has increased across national borders. This has also increased the circulation of pollutants. Therefore, environmentally sound products are crucial to achieving ecologically sustainable development at both national, regional and global level.

In the Government's view, an environmental product policy should be framed within the EU in order to establish environmental standards for products that are released to the market. An integrated Community-wide product policy is necessary in order to implement life cycle perspectives. Solutions at EU level are also important as a means of supporting the functioning of the internal market.

An integrated product policy means that society requires certain standards to be met by the products that are manufactured and defines the responsibility of various players for the products that are released to the market throughout their life cycle. This includes the environmental impact caused throughout the life cycle of a product in all stages from extraction of raw materials to final disposal. At present, there is no clear-cut definition of EU environmental product policy, but extensive work is already in progress on investigation the tools that might be used for the purposes of such a strategy. Examples of such tools are ecolabelling, environmental product profiles, environmental management systems, green procurement, producer responsibility, product standards and fiscal incentives.

The European Commission has initiated work on an integrated product policy at EU level and will present a Green Paper on the subject at the end of 1999. Sweden is playing an active part in this work. Drafting a product policy is also a priority issue in the run-up to Sweden's presidency of the EU in the spring of 2001. An integrated product policy will play a very important part for integration of sustainable development in the internal market. A common policy may also stimulate trade in the EU and increase the competitiveness of European enterprise in international markets.

The Government intends to present a comprehensive statement on integrated product policy to Parliament in the spring of 2000. This will form their starting-point for Sweden's position in the EU's work on product policies and also for continuing national efforts in this area.

The work of drafting an integrated product policy is also in progress within the framework of Nordic cooperation. A Nordic cross-sectoral group consisting of representatives of authorities in the industrial, consumer and environment sectors has been set up. Its task is to draft a proposal for a joint Nordic integrated product policy, which will be presented in the spring of 2000.

Small and medium-sized enterprises (SMEs)

The new jobs are expected to be generated above all in SMEs. Government policies and public bodies should create a favourable

climate for the establishment and growth of enterprises. It is therefore especially important for economic growth and employment that SMEs should be aware of the need to improve the environmental performance of their operations and products and of the commercial advantages that this will bring.

On the whole, small and medium-sized enterprises have been slower to recognize the importance of environmental performance than larger enterprises. One reason for this is that small enterprises lack the resources needed to introduce environmental management systems or implement other major environmental programmes. The environmental performance of SMEs represents a future potential. It is therefore important that these enterprises should be supported in their environmental efforts. Several projects, financed or cofinanced by the Government, have been launched already.

NUTEK has promoted environmental management in SMEs ince 1996. Apart from some local financial assistance, it has offered free telephone advisory services, workshops and assistance with EMAS registration. NUTEK has continued to assist SMEs with the application of environmental standards in 1998 and 1999.

Since 1997 NUTEK has been engaged in a programme promoting green product development. The programme aims to promote environmentally sound product development in SMEs. The purpose of most of the projects is to develop or improve product development tools. The aim is to integrate environmental concerns into the enterprises' day-to-day product operations.

The Environmental Advisory Council's work on developing strategies for development of ecologically sustainable industry also includes the task of investigating conditions in SMEs. In connection with this work, the Council has, together with the Ministry of the Environment, commissioned a study of methods of supporting environmental efforts in SMEs.

The industrial sector in the EU

At the European Council in Cardiff in June 1998 all the configurations of the Council of Ministers were urged to adopt strategies of their own with a view to integrating sustainable development into the Community's activities in each area. The Council of Ministers were requested to monitor progress and adopt indicators that would make it possible to evaluate the results of this integration. At the European Council in Vienna in December 1998 the Council of Ministers of Industry was requested to commence the work of integrating the environment and sustainable development into its area of responsibility. The Council of Ministers of Industry adopted a formal decision to start integrating the environment and sustainable development into the industrial sector at a meeting of in Luxembourg on April 29 1999. At its meeting in Helsinki in December 1999 the European Council will review and evaluate the overall progress made on integration of the environment and sustainable development with a view to harmonizing the sectoral strategies that have been elaborated by the different Council meetings.

3.2.2 Energy policy

The objective of Sweden's energy policy is to assure short- and long-term supplies of electricity and other energy on competitive terms. It is to ensure efficient use of energy and cost-effective energy supplies with the minimum of adverse effects on health, the environment and the climate and to promote adjustment to ecologically sustainable society. The country's electricity supply must be secured by means of energy systems based on lasting, preferably domestic and renewable, energy sources and efficient use of energy. Energy is to be used as efficiently as possible, taking into account the available resources. High standards of security and consideration for health and the environment are to be met in connection with the use and development of all energy technologies.

The Bill *Sustainable Energy Supplies* (Gov. Bill 1996/97:84, Committee Report 1996/97:NU12, Parl. Comm. 1996/97:272), which was passed by Parliament in 1997, established the Government's energy policy. Adjustment to sustainable energy supplies involves, among other things, the replacement of nuclear power by more efficient use of electricity, adjustment to renewable sources of energy and environmentally acceptable technologies for the generation of electricity. SEK 9 billion was allocated for a 7-year period to the energy policy programme that was adopted the same year. The main focus of the programme is large-scale, long-term support for research, development and the demonstration of new energy technologies. The objective is to develop, within the next 10-15 years, commercially profitable technologies for the generation of electricity and heat from renewable sources and for more efficient energy use. The Swedish National Energy Administration is responsible for implementation of most of the programme.

According to the energy policy guidelines, one of the Barsebäck reactors was to be decommissioned before July 1 1998. However, following a subsequent decision by the Supreme Administrative Court, the right to operate the Barsebäck 1 reactor will only expire on November 30 1999. According to the guidelines, the other reactor is to be decommissioned before July 1 2001. A condition for closing down the other reactor is that it is possible to compensate for the loss of electricity production. Therefore, the energy policy programme includes measures designed to stimulate the use of renewable energy sources and more efficient energy use during a five-year period.

A long-term objective of the energy policy programme is to reduce the costs of utilization of renewable energy sources. The Government therefore proposes temporary investment aid for thermal solar energy in the 2000 Budget Bill.

3.2.3 Consumers and the environment

It is very important to encourage and make it easier for households to assume greater responsibility for the environment and resource management. Studies carried by the Swedish Environmental Protection Agency indicate that households account for almost half of

environmentally harmful emissions in Sweden. The main areas in which households have a negative impact on the environment are transport, housing and food.

One of the objectives of consumer policy is to establish consumption and production patterns that reduce the impact on the environment and contribute to sustainable development. In the Communication *Consumers and the Environment – an Action Plan For Sustainable Development* (Comm. 1997/98:67, Report 1997/98:LU21, Parl. Comm. 1997/98:220) the Government presents its views on important consumer issues that relate to the environmental objectives. The Government continues to implement the action plan, focusing in particular on international aspects. The Government has initiated an evaluation of the results of the action plan in 1999.

An effective method of informing consumers about the environmental impact of various products is ecolabelling. Examples of "positive ecolabelling" are the Swan Nordic ecolabel, the EU flower logo, the Swedish Society for Nature Conservation's Good Environmental Choice and KRAV's ecolabelling system for organically produced products. Ecolabelling encourages the development and use of products that are better from the point of view of the environment than comparable products and thus enable the consumer to choose environmentally sound alternatives.

As a means of enabling households to assume greater environmental responsibility, the Government instructed the Swedish Consumer Agency in March 1999 to set up a web site with environmental information for households. The web site, which will be launched in April 2000, will include information about products and services, ecolabelling, food and cooking, pre-separation of waste at source and other waste matters, housing, transport and leisure activities.

3.2.4 Tourism

Globally, the tourism industry is expected to expand in the next few years more than other industries. Turnover in this industry in Sweden totalled about SEK 120 billion in 1996 and employed about 133,000 persons on an annual basis. In the same year, tourism accounted for 3.3% of GDP.

Tourists today are more interested than previous generations in activities that affect the physical, ecological and social environment. This is something of mixed blessing. On the one hand, the demand for such experiences encourages entrepreneurs to devise products to meet this demand, and this create jobs. On the other hand, tourism can represent an increasing threat to fauna, flora, the landscape and sensitive cultural assets. In the long run, overexploitation may threaten the very basis of the industry. Sweden's natural assets are an all-important resource for the development of tourism in Sweden. In order to meet the demands of sustainable development, this resource must be used with due consideration for cultural assets, biological diversity and the ecological balance.

The Commission on Tourism is the sectoral authority responsible for tourism; according to its terms of reference, it is to take measures to ensure that tourism is developed in a way that meets the needs of sustainable environment and nature. Together with the industry, the Commission has the task of initiating processes that ensure sustainable development in the tourism sector. As a contribution to the environmental performance of this sector the Commission issued the report *Sustainable Development in Swedish Tourism* in 1998.

Tourism is one of the seven sectors mentioned in Baltic 21, an Agenda 21 programme for the Baltic Sea region, whose development is considered especially important for achieving sustainable development in the region.

3.2.5 Regional development and regional growth agreements

Balanced regional development is an essential condition for sustainable development. In the Bill *Regional Growth – for Work and Prosperity* (Gov. Bill 1997/98:62) the Government introduced a new regional industrial policy. The aim is to stimulate sustainable economic growth, taking account of conditions in the regions, which can encourage the establishment of new, viable enterprises and thus create new jobs. The new industrial policy is based on more effective coordination between policy areas and sectors. Regional influence over available resources will be increased, and also the possibility of using these resources more flexibly than is the case at present. Sectoral interests will therefore have to give way to a more integrated approach and better coordination.

Agriculture and forestry are very important for a dynamic Sweden. The trend is towards diversification of industry in rural areas. 20-30% of the jobs in rural areas are related to agriculture and forestry, in addition to which there are ancillary activities. There is an obvious connection with ecologically sustainable development. Conservation of natural resources, preservation of open landscapes, care of the cultural heritage and environmentally sound, sustainable agriculture are key factors in regional development and viable rural areas. In the long term, tourism may play a significant role for employment and livelihoods in rural and sparsely populated areas. For tourism to develop, it is essential that the cultural heritage is preserved and that the countryside can offer the tourist rich and diverse environments.

The Regional Policy Bill mentioned above declared that regional environmental and conservation programmes should form the basis of regional development planning. The long-term aim should be for the county administrative boards, in cooperation with municipalities, other government agencies and stakeholders, to develop strategies to integrate environmental and conservation concerns in the areas in each county that are of particular significance from the point of view of the environment and conservation.

Regional growth agreements

Regional growth agreements were proposed by the Government as a regional industrial policy measure (cf. Comm. 1998/99:66). The purpose of these agreements is to improve collaboration between the various bodies involved in the promotion of growth and employment at the local, regional and central levels. The agreements will be drafted within the framework of broad partnerships and will form a basis for programmes and proposals for measures. The agreements will specify the consequences for adjustment to ecological sustainability, environmental protection and efficient use of the earth's resources and how these aspects will be integrated into efforts to stimulate growth and jobs regardless of the sectors involved.

The draft agreements that have been submitted to the Government have been assessed, inter alia, with regard to the extent to which the adjustment process has been incorporated in the programmes. The agreements, which will run for three years, are expected to enter into force on January 1 2000. They relate to various phases of a continuous process. Issues relating to ecologically sustainable development have been addressed in many counties. However, the extent to which ecological aspects are dealt with in the agreements varies considerably between the counties. Several draft agreements declare ecologically sustainable development to be a horizontal objective. In others, ecologically sustainable development is an integral part of individual measures. Several counties have also recognized that the adjustment process will drive growth. The first step will be to put production and products on a sound environmental footing, and also to develop environmental technology enterprises and environmental enterprises of various kinds.

As mentioned above, the regional growth agreements will be adapted to the specific conditions prevailing in each region. Further studies will be devoted to the question of the treatment of ecologically sustainable development in the agreements. The local investment programmes are also an important element in the Government's strategy for development and growth. Closer integration between regional growth agreements and local investment programmes is likely to increase the effectiveness of both programmes.

Local investment programmes

In 1997 Parliament passed a Bill (Gov. Bill 1997/98:1, expenditure area 18, Committee Report 1997/98:BoU1, Parl. Comm. 1997/98:81) proposing that funds be allocated to support local investment programmes for the implementation of sustainable development. Originally, SEK 5.4 billion was allocated for the period 1998-2000. Subsequently, Parliament approved a further allocation of SEK 1.1 billion for these programmes for 1999 (Gov. Bill 1998/99:1, expenditure area 18, 1998/99:BoU1, Parl. Comm. 1998/99:63). Aid for the period 1998-2002 will thus total SEK 6.5 billion. The purpose of the aid is to increase the pace of adjustment to sustainable development and to help to create new jobs. Aid will be granted to municipalities whose investment programmes are considered to make a substantial contribution to

adjustment. The criteria specified for eligibility for aid include the requirement that the measures will reduce environmental impacts, increase the efficiency of the use of energy and other natural resources and promote the use of renewable resources. The measures must also help to create new jobs. The Government divided the grant application procedure into two rounds. In the spring of 1998, 42 municipalities were granted aid for the programme period 1998-2000. In the spring of 1999 the Government made grants to 47 municipalities for the period 1999-2001. The municipalities expect the investment programmes to have substantial effects on the environment. They estimate that the investments will generate about 11,500 job in terms of annual labour units (ALU) during the programme period 1998-2001.

EU structural funds

Since 1995, many of Sweden's regions have been eligible for EU structural fund programmes. They have received more than SEK 12 billion from these funds. Although the programme period is not yet over, it is clear that the funds have had a favourable effect on employment, while they have not had sufficient influence on environmental issues and sustainable development. The Commission's guidelines for the coming programme period places greater emphasis on these issues.

At its meeting in June 1999 the Council of Ministers adopted the Regulations that will apply to the structural fund programmes during the period 2000-2006. The Government instructed the county administrative boards in the seven most northerly counties to present draft development plans for their Objective 1 regions. The boards reported to the Government on October 1 1999. In the terms of reference the Government stated that concentrated measures were needed to develop the environmental and natural resources, as well as the cultural and cultural heritage assets, in the regions with a view to developing, inter alia, business opportunities and tourism. At the same time, measures were necessary to protect the natural and cultural environment and promote more efficient use of resources in order to lay the foundation for sustainable supplies which would speed up the process of adjustment to ecological sustainability. The county administrative boards were instructed to take the work done on the Rural Development Programme – one of whose priority areas is ecologically sustainable development – into account when considering measures for agriculture, forestry and fishing. Consideration will be given to designing and introducing special measures for sub-mountain agriculture. As regards Objective 2, Sweden has submitted its proposals for delimitation of the regions to the Commission. Following negotiations, the Commission will decide which Swedish regions will be included in Objective 2. Programming will subsequently commence in a manner similar to that for Objective 1.

In addition, a special investigator has been appointed to prepare a Single Programme Document for the European Social Fund Objective 3. The relevant report was submitted on September 30 1999. One of the objectives of the Community Initiative LEADER+, which will be financed entirely by the Guidance Section of EAGGF, is to find new

ways at the local level to support maintenance of the natural and cultural heritage.

The main purpose of regional aid is to create conditions for more balanced regional development and growth.

3.3 Fiscal incentives

3.3.1 Environmental taxes

The Tax Switching Committee stated in its report *Taxes, the Environment and Jobs* (SOU 1997:11) that fiscal incentives have proved an effective means of addressing and reducing environmental threats. The Committee presented several general principles and recommendations for the process of enhancing the environmental profile of the tax system.

It was announced in the 1999 Spring Finance Bill that an important objective of the continuing deliberations on taxes was to enhance the environmental profile of the tax system. Appropriate cross-sectoral measures can stimulate more efficient use of resources, reduce adverse environmental impacts and contribute substantially to efforts to achieve ecologically sustainable development. Increased revenue from environment-related taxes can be used mainly to reduce other taxes, especially income and payroll taxes, which should promote employment.

In the 2000 Budget Bill the Government proposes that the environmental profile of the tax system should continue to be enhanced. The first tax switching measures were taken in connection with the tax reform of 1990/91. A further step in this direction is now proposed. The tax on diesel oil will be raised by 25 öre per litre. This measure should help to reduce harmful emissions by gradually reducing sales of diesel oil. This will help to achieve the nitrogen oxide emissions objective. Emissions of nitrogen oxides, fine particles and carcinogenic substances are substantially higher from diesel-driven vehicles than petrol-driven vehicles. Raising this tax could therefore significantly reduce emissions of these substances. On the other hand, carbon dioxide emissions are normally lower from diesel-driven than from petrol-driven vehicles. A higher motor vehicle tax is also proposed for diesel-driven buses in accordance with the Transport Policy Bill.

An increase of 1 öre per kWh in the energy tax on electricity consumption is also proposed. In order to achieve the adjustment in energy consumption that is needed to develop a sustainable energy system, it will be necessary not only to develop alternative and renewable energy sources, but also to conserve energy.

An increase of 0.5 öre per kWh in the production tax on nuclear-produced electricity is another tax switching measure. It is proposed, moreover, that the tax should be payable as a fixed tax based on the thermal power generated by nuclear reactors.

The Government intends at a later stage to present proposals to reduce the taxes on environment-friendly vehicles. Changes will enter into force on July 1 2000, ex post facto from January 1 2000, for passenger cars and light goods vehicles with a maximum reference weight of 1,305 kg that meet the new exhaust emission standards for environmental class 1. The

five-year exemption from motor vehicle tax for vehicles that meet the previous standards for environmental class 1 will cease to apply from January 1 2000. However, vehicles for which an exemption has previously been granted will continue to be exempt for a period of five years.

In its Bill *Preferential Taxation of Environmental Vehicles etc.* (Gov Bill 1999/2000:6), which was presented to Parliament at the same time as the Budget Bill, the Government proposes reductions in the preferential taxation of environmental vehicles. Environmental vehicles are defined as vehicles which are driven, wholly or in part, by a fuel that is environmentally more benign than petrol or diesel oil or vehicles which are driven by electricity.

It is important that the design and pace of the increase in environment-related taxes should be adjusted to the situation in other countries. Steps must be taken to secure the competitiveness of Swedish industry in the future. Sweden is urging the EU to adopt a new Directive on minimum energy taxes. If these efforts are successful, this may offer Sweden the opportunity to extend the scope for the environment-related taxes.

Parliament has decided to introduce a waste tax from January 1 2000 in accordance with the proposals made by the Government in its Waste Tax Bill (Gov Bill 1998/1999:84). Tax will be payable at the rate of SEK 250 per tonne of waste landfilled.

3.3.2 Environmental accounts

Work on environmental accounts is in progress at Statistics Sweden, the National Institute of Economic Research and the Swedish Environmental Protection Agency. Close cooperation takes place between these three agencies and they present their results in a joint series of reports. The purpose of their work is to increase understanding of the relationship between economics and the environment by preparing environmental statistics which can be related to various activities (as presented in the National Accounts database) and by extending the scope of economic models to include certain environmental parameters. The environmental accounts will form the basis of two environmental annexes to the 1999 Medium-Term Economic Survey.

3.3.3 Linkages between growth and environment

The Government has appointed a special investigator (Fi 1999:02) to review the linkages between the environment and growth and the need for measures to achieve more efficient use of natural resources with a view to achieving sustainable development. The investigator will consider the need to set short- and long-term targets for efficient resource use at the national level and, where appropriate, to propose such targets. The investigator may also propose further measures at the central level and, where this appears necessary, measures to be taken by municipalities, industry and individual citizens in order to achieve these targets. The investigator will also study and assess the linkages between

economic growth, utilization of natural resources and environmental impacts. The investigator will report to the Government by June 30 2000.

3.3.4 Subsidies

The Government has initiated a review of subsidies that Have the effect of deterring efforts to achieve ecologically sustainable development. The Swedish National Audit Office was instructed to carry out a study, in cooperation with the Swedish Environmental Protection Agency, of the effects of various subsidies on ecologically sustainable development. Its report has already been presented (Report 1998:6).

Farmers receive compensation within the framework of the Agri-Environmental Programme for providing collective benefits such as preservation of biological diversity, genetic variation, diverse cultural environments etc. At present, SEK 2.8 million is allocated to the programme per year. These grants, which also include a small incentive component, compensate farmers for the additional costs and losses caused by their pro-environment activities in comparison with the use of more conventional agricultural methods or, in economic terms, more rational land use alternatives and the disadvantages that these alternatives sometimes cause to the environment.

3.4 Culture – knowledge – participation

An essential condition for achieving sustainable development is to build society on basic democratic values. Knowledge, recognition of the role of culture in a sustainable society and a commitment to preserving the cultural heritage are other important conditions. The process towards achievement of sustainable development must be based on a participatory society in which all citizens are willing and able to take responsibility for their actions. The local Agenda 21 programmes are one of several important instruments in this area.

3.4.1 Culture

A sustainable society must be based on prudent management of previous investments and of our common cultural heritage. The cultural sector can contribute to ecologically sustainable development through many activities that are related to community development and cultural perspectives.

The cultural assets of the landscape are closely linked to its natural assets. The Environmental Bill emphasizes the importance of closer cooperation between bodies in the nature conservation and cultural environment sectors. The Environmental Code includes provisions relating to the natural and cultural environment and introduces a new protection mechanism – ‘culture reserves’. In the Bill *Implementing Forestry Policy* (Gov. Bill 1997/98:158), the Government declares that an integrated approach to the natural and cultural heritage values of

forests is essential for the success of the continuing work of preserving and developing the environmental assets of forests. The National Heritage Board has special responsibility for the work on the achievement of ecologically sustainable development in the cultural environment sector. In 1999 the Government has proposed new objectives for the cultural environment that are better suited to the Government's ambition of achieving sustainable development.

This year the Government designated architecture and design a priority cultural area. The competent authorities and organizations are now engaged in a variety of activities in this area and a working party for architecture and design, consisting of representatives of eight ministries, has been set up. Importance is attached to the ecological aspects. The general objective is to improve the quality of new buildings and products. The Government has also drawn special attention to the cultural heritage values and architectural qualities of the largest cities by proposing a three-year programme in this area in the Bill *Development and Justice – an Urban Policy for the 21st Century* (Gov. Bill 1997/98:165).

3.4.2 Education

Education represents an investment in the future, both for the personal development of the individual and for society as a whole. Education programmes are also important as a means of implementing several of the Government's welfare policy goals in a future sustainable society. The public school education system and higher education are based on democratic principles. The task of pre-schools, day recreation centres for school-age children, schools and adult education colleges is to instil fundamental values at the same time as they promote learning; these functions go hand in hand and are indissolubly linked.

A good standard of knowledge is crucial for sustainable development. The three dimensions of sustainable development – ecological, social and economic sustainability – present a challenge to the education system to build bridges between science/technology and the humanities and social sciences. The introduction of environmental management systems by public authorities and institutions of higher learning and the requirement for environmental accounts as a complement to financial accounts, and also the introduction of the Environmental School Award, are examples of how such bridges can be built.

The national regulatory framework in this area, i.e. the Education Act, school curricula, programme objectives and syllabuses, as well as international policy documents, require teaching to be given in sustainable development, as well as support for such work in schools. Support for the development of such teaching is given at the central level. But more action needs to be taken if progress in this field is to be sufficient to achieve the Government's objective, i.e. to hand over a society to the next generation in which the major environmental problems have been solved.

The National Agency for Education has proposed new objectives for the course programmes offered by upper secondary schools and is

working on a revision of the existing curricula for education both in compulsory schools and upper secondary schools, including local authority-managed upper secondary education for adults, with respect to environmental issues.

Importance is also attached to supplementary education for teachers with respect to the environment and natural sciences. Education relating to the environment and natural sciences is one of the priority areas for the allocation of funds by the National Agency for Education for supplementary teacher training.

Teachers' knowledge is a key factor in stimulating the interest of the pupils. Teachers must receive training in order to acquire a basic knowledge of this area and to keep their knowledge up to date. In the 1999 Budget Bill the Government announced its intention to set up a training programme for teachers. The funds needed for this purpose have been estimated for the years 1999-2001.

Education and research in universities and university colleges is important in many ways for increasing knowledge about sustainable development. Research continuously generates new knowledge, which can be utilized for decisions with long-term effects. Higher education must be continuously developed on the basis of the new research findings that result from the requirement for higher education institutions to maintain links with research. The higher education authorities are very keen to prepare environmental management systems, and eventually this will help to integrate sustainable development issues into education and research, and also the activities of the authorities themselves, to a greater extent than hitherto.

Since 1993, the National Agency for Education and the National Agency for Higher Education have operated the Science and Technology Project, which is designed to stimulate students' interest in this field. A new Science and Technology Project has now been set up; its main purpose is to seek to change attitudes and disseminate information. According to the Government's guidelines, this work should be directed at various interest groups in schools and the community as a whole, including cooperation with the research community, schools and working life. The new project will devote particular attention to the question of teaching methods. The national resource centres for physics, chemistry, engineering, mathematics and the natural sciences and the Centre for Research on Ecological Sustainability at Umeå University represents significant resources both in the work on the new project and for teacher training. Support will be given to schools nationwide for participation in networks relating to environmental education. This will make a great contribution by supporting and stimulating the development of education for a sustainable society.

Each university and university college must itself decide the nature and content of undergraduate courses. Integrating environmental concerns and resource management into the activities of universities and university colleges is a question of quality and should therefore not primarily be regulated by legislation but implemented and driven by the students, teachers, researchers and employees in the institutions themselves. The aim should be for higher education to integrate environmental issues to

the extent that is appropriate in view of the profession for which the students are being prepared. Apart from the specific environmental education provided by many of these institutions, it is important to integrate environmental and development issues into more general courses and programmes in other subjects as well.

It is very important that teachers should have access to qualified education to make this integration possible. Since environment and development matters are international by definition, national and international exchanges of know-how should be encouraged.

As mentioned above, the success of the adjustment process depends on the broad participation of all sections of society: the public sector, industry and business, organizations and individual citizens. There is therefore a need for long-term civic education in the classical sense, so that greater knowledge of the issues leads to commitment and changes both in behaviour and public decision-making. It is very important in this connection that such education succeeds in reaching people who are not likely to approach formal education structures of their own accord.

3.4.3 Agenda 21 and Habitat

Thanks to Agenda 21, which was adopted by the UN Conference on Environment and Development in Rio de Janeiro in 1992, municipalities now have a greater responsibility and resources for active efforts to achieve ecologically sustainable development. The Agenda 21 programmes implemented by the municipalities often function as a means of increasing the commitment and participation of citizens and cooperation with enterprises, organizations and other players.

In the autumn of 1998 the Department of Political Science at Umeå University carried out a questionnaire survey on the municipalities' Agenda 21 programmes. The findings of this survey shows that in about two-thirds of the municipalities one or more employees are working full-time or part-time on coordination of the local Agenda 21 programme. One-fourth of the municipalities have increased the resources allocated for these programmes, the resources allocated by almost a half of the municipalities remain unchanged, while just over one-fourth have allocated less resources. In other words, the survey indicates that in some municipalities the level of activity in the Agenda 21 programmes is still very high, while in others it has declined.

More than half of Sweden's municipalities have adopted a local Agenda 21 document or action plan. About half of them use green indicators to monitor this work. In 1998, two-thirds applied environmental criteria in their procurement. Almost half of the municipalities have adopted decisions to integrate the local Agenda 21 programme into their comprehensive planning.

The Habitat Agenda is an action programme focusing on the promotion of sustainable development in housing and built environments. The document was adopted by the UN Conference on Human Settlements in Istanbul (Habitat II) in June 1996.

In the spring of 1998 the Government appointed a special investigator (M 1998:04) to conduct an active dialogue on local Agenda 21 programmes, disseminate results, communicate proposals to national authorities and international bodies and contribute to international exchanges of experience. Additional terms of reference were adopted in April 1999, instructing the investigator also to coordinate the work being done in Sweden to implement the undertakings adopted in the Habitat Agenda and Sweden's national report to the 1996 Habitat II Conference on Human Settlements in Istanbul (Dir 1999:37). Data will also be collected for the Swedish reports that will be presented in connection with the UN system's reviews of Habitat and Agenda 21 in the years 2000, 2001 and 2002. The investigator will also monitor the work of the EU on the Habitat Agenda and Agenda 21 and collaborate with the authorities to which important functions have been assigned as a result of Agenda 21 and Habitat. The investigator will collaborate with the authorities concerned, including the Swedish Environmental Protection Agency and the National Board of Housing, Building and Planning, for the purposes of this assignment.

The Istanbul Conference will be followed up by an extra session of the UN General Assembly in June 2001 (Istanbul +5). This coincides with Sweden's presidency of the EU. Sweden will also be responsible for the preparations and development of common positions and will speak for the EU at the summit. The Rio Conference and the work on Agenda 21 will likewise be followed up by an extra session of the UN General Assembly in June 2002 (Rio +10).

3.5 Environment and health

3.5.1 People and the environment

Sweden has for a long time attached great importance to preventing health problems by reducing exposure to health risks in the environment. Measures to improve water and sewage treatment, housing hygiene, diet and education, as well as a generally high standard of living, have made a vital contribution by substantially reducing the incidence of many diseases. However, some problems remain to be solved. Air pollution indoors and outdoors, pollutants and infectious agents in water and food, noise and radon are examples of environmental factors that have an adverse effect on public health in Sweden today. The increase in allergies and hypersensitivity, particularly in children, gives cause for concern and needs to be investigated.

Protecting human health is one of the environmental policy goals adopted by Parliament and is also an integral part of the efforts to achieve ecologically sustainable development. Protection of the environment is one of the three headline objectives of these efforts. This means that pollutant emissions must not damage health or exceed nature's capacity for absorbing or degrading them.

Several of the environmental quality objectives that have been adopted, e.g. Clean air, A good built environment, A poison-free environment and A safe radiation environment, are calculated to prevent health problems

by reducing exposure to health risks in the environment. The proposals for a national action programme to reduce environmental health problems presented by the Commission on Environmental Health (SOU 1996:124) in its final report provide useful material for the work of the Committee on Environmental Objectives.

Reduction of exposure to health risks in the environment is one of the proposals for interim targets and action strategies prepared by the National Board of Health and Welfare, the National Board of Housing, Building and Planning, the National Radiation Protection Institute and the National Chemicals Inspectorate in cooperation with other agencies and organizations. These proposals were presented to the Government on October 1 1999 and will, as mentioned above, provide material for the Committee on Environmental Objectives.

3.5.2 Chemical policy

Great progress has been noted in the efforts to reduce the risks involved in the use of chemicals. The factors behind this success include better product information about risks and protective measures, the phasing-out of particularly dangerous chemicals and the introduction of an authorization procedure for the use of control agents. Nonetheless, it is the Government's view that the ongoing work of reducing the risks of chemicals to health and the environment should be speeded up. The Government expressed the view in the Environmental Bill that all safety work on chemicals should be based on risk assessments. Today's methods should be complemented by the application of a general approach to substances whose hazardous properties are well-documented and to organic, anthropogenic, bioaccumulable, persistent substances. In October 1998 the Government appointed a special investigator (M 1998:09) to propose detailed specifications in the form of limit values etc. for the characteristics and effects referred to in the guidelines on chemical policy that were adopted by Parliament. The investigator will also analyse the need for and, where applicable, submit proposals on further fiscal incentives for the purpose of tightening up control of the substances mentioned in the guidelines. The investigator will base this assessment on an evaluation of the risks to health and the environment and economic aspects, and will also take EU rules into account. The investigator will report to the Government by June 1 2000.

3.5.3 Contaminated areas

Areas contaminated by the leakage of toxic substances represent a problem that is causing growing concern. These substances are mainly released in connection with industrial operations, and contamination has going on for a long time. The pollutants are present in soil, water, sediment, buildings and other structures. As a result, thousands of areas are in need of remediation. Restoring these areas and disposing of the toxic substances is an important element of the Government's ambition to achieve a sustainable society. In its Communication *A National Strategy*

for Waste Management (Comm. 1998/99:63) the Government issued a comprehensive statement of its policy with respect to waste management. The strategy on waste includes the Government's goals and policy with regard to waste management in the next few years. The environmental quality objective A good built environment (Gov. Bill 1997/98:145) envisages a situation in which land and water areas are free from toxic and harmful substances and other pollutants. The 2000 Budget Bill (Gov. Bill 1999/2000:1, expenditure area 20) declares that the objective is to have remediated such contaminated areas by the year 2020. The Government proposes in this Bill a sharp increase in the allocation for remediation, to SEK 65 million in the year 2000. The estimate for 2001 is SEK 150 million and for 2002 SEK 300 million. Remediation measures may also be undertaken under local investment programmes.

3.6 Community planning, construction and transport

Ecological sustainability is an important objective of all community planning and building. It will only be possible to adjust society to ecological sustainability if buildings, transport systems and other infrastructure meet the environmental criteria and are more resource-efficient than is the case today. One of the environmental quality objectives – A good built environment – implies that towns, urban areas and other built environments must provide a good, healthy living environment and contribute to a good regional and global environment. This applies also to indoor environments. Prudent management of land, water and other natural resources must also be promoted. Natural and cultural assets must be protected and developed.

3.6.1 Community planning

The combined effects of the provisions of the Environmental Code, the planning and building legislation and the guidelines adopted by Parliament for community planning and resource-efficiency make ecologically sustainable development a common goal for community planning and construction.

More stringent requirements regarding environmental concerns have gradually been introduced in the planning and building legislation, as well as other legislation relating to operations that involve the use of land, water and other natural resources. The location and design of buildings and other structures must be appropriate from an environmental point of view. Sustainable management of natural resources must be promoted. The requirements for environmental impact assessments have become more stringent. The Environmental Code lays down further requirements for community planning.

The municipalities, which are mainly responsible for spatial planning, have a key role in the process of adjustment to ecologically sustainable development. New methods and in some respects new work practices have been developed within the framework of the local Agenda 21

programmes. It may be noted that many municipalities now coordinate their Agenda 21 programmes with their comprehensive planning. The local investment programmes for sustainable development and the ongoing work on regional growth agreements increase the need for coordination and an integrated approach.

Increasing attention has been paid to the regional aspects of community planning in recent years. This applies not only to enterprise development and infrastructure projects, but also to transboundary environmental problems. Many important matters, not least environmental problems, must be solved at the regional level and with the collaboration of several municipalities. It is also important to develop coordination between municipalities and between regions. The development of regional environmental and conservation programmes now being undertaken by some county administrative boards is an important element in this respect. In a year or two, the environmental quality objectives, together with other national objectives, will serve as guidelines for community planning at all levels. To achieve these objectives it will be necessary to intensify collaboration across sectoral boundaries and across the central, regional and local government levels. This applies in particular to the work of giving concrete form to and monitoring the national objectives in regional and local planning.

The EU's Member States and the Commission have for several years been preparing an integrated regional development plan for the territory of the Union – the European Spatial Development Perspective (ESDP). The purpose of this work is to improve the conditions for regional coordination of the Communities' policy areas. The principles adopted in the ESDP are being implemented in practice within the framework of the Community Initiative Interreg II C.

Regional and planning ministers agreed on a common platform for future cooperation on regional development planning at an informal meeting in Potsdam in May 1999. These arrangements are described in detail in the document *European Spatial Development Perspective – Towards Balanced and Sustainable Development of the Territory of the EU*. Furthermore, it was decided that the Finnish presidency should prepare an action programme for future work and present it at the informal meeting of regional and planning ministers in Tampere in October 1999. At this meeting the ministers and the Commission agreed on 12 activities calculated to strengthen the regional development perspective in various policy areas, including capacity-building and research. The Member States' participation in the various activities is voluntary. A draft research and development programme for regional development planning in the EU will be prepared and presented during Sweden's presidency in the spring of 2001. Sweden agreed to assume responsibility for the preparation of a programme by the Member States and the Commission. The Member States and the Commission agreed to set up the European Spatial Planning Observatory Network (ESPON) and to finance it within the framework of Interreg III C. A report entitled *Urban Exchange Initiative III*, which was prepared with the help of the Member States and deals with matters relating to urban development, was also presented at the meeting of ministers. The Member States backed a

proposal to prepare an action programme for urban development. This programme will be presented during France's presidency in the second half of 2000. Comm. 1999/2000:13

3.6.2 Construction

The construction, use and management of buildings account for a substantial portion of the total consumption of national resources. In recent years, therefore, the Government has taken several initiatives concerning ecologically sound management and more efficient use of resources. Importance is also being attached to architecture and design. High-quality design increases the service life of buildings, which promotes prudent management of both economic and natural resources.

The indoor environment is of great importance to human health and the quality of life. Work is in progress in the Government Offices on an action plan for a better indoor environment. The purpose is to identify effective ways of reducing and, where possible, eliminating factors that can cause illness in those who use buildings. For this purpose the Government intends to appoint a special investigator to analyse the problem of radon in housing and other premises regularly used by people and presenting proposals for appropriate and effective measures.

In 1998 the National Board of Housing, Building and Planning presented a final report on a government assignment relating to construction methods that are appropriate from the point of view of health and the environment – *Building for Health and the Environment*. A number of development and demonstration projects have been carried out within the framework of this project. The results represent significant input data for the Government's continuing work in this area.

In the autumn of 1999 the Environmental Advisory Council commenced its task of preparing strategies for ecologically sustainable industry in a dialogue with industry representatives by contacting construction and housing enterprises. The result of the dialogue will be reported in December 2000.

The built environment is the main focus of the local investment programmes. Many of the measures that need to be taken in buildings have to do with conversion to new sources of energy and more efficient use of energy.

3.6.3 Transport

The aim of transport policy is to contribute to sustainable development in social, cultural, economic and ecological terms. The design and function of transport systems must be adapted to the need for a sound and healthy environment for all, in which natural and cultural assets are protected. Prudent management of land, water, energy and other natural resources must be promoted. The 1998 Transport Policy Resolution specified targets for emissions of major pollutants and climate gases from transport operations. Guideline values have also been set for traffic noise and an

action programme against traffic noise has been adopted for state infrastructures in existing built environments.

The report of the European Environment Agency on the environmental situation in the Union emphasizes the environmental impact of transport as one of the environmental problems that is most difficult to solve. One reason for this is that air, road and sea traffic continues to increase rapidly. Road and rail freight transports in Europe are expected to increase by 50% between 1995 and 2010. This may prejudice the EU's undertaking to reduce its impact on the climate. There is also growing competition for land between the transport sector and other important needs. The development of information technology will not by itself be enough to reduce the burden on transport systems, although IT applications may well support more efficient transport solutions. Sweden and the rest of Europe need reliable transportation and transport systems that are efficient, dependable and ecologically sustainable.

In December 1998 the Council of Ministers of Transport submitted a report on implementation of the conclusions of the European Council in Cardiff. The report emphasized the Council's intention to continue to prepare a uniform strategy and relevant environmental objectives with a view to speeding up the integration of environmental requirements into the Common Transport Policy. The first report on this subject will be discussed in December 1999, the last month of Finland's presidency.

Sweden's car industry is in the forefront of development of advanced systems for environmentally sound transport. The industry is also important to the economy and employment in Sweden. Technological know-how and organizational solutions that can contribute to sustainable development are important competitive advantages. Many of the world's leading vehicle manufacturers are now investing substantial resources in building competitive advantages by being among the first to develop more fuel-efficient vehicles or vehicles using alternative fuels. To ensure a viable future for the motor vehicle industry, special measures must be taken to meet tomorrow's challenges. Close and active cooperation between the Government and industry is very important for the development of leading-edge technology. For this purpose, as mentioned earlier, representatives of the Government and the motor vehicle industry are now discussing cooperation on a sustained effort to develop new, environmentally sound vehicle technologies.

The central transport and traffic agencies have for many years been instructed to assume responsibility for the environment. There are in fact many examples of successful environment-related cooperation projects in the transport sector. One such project concerns an environmentally sound transport system for Helsingborg, in which nine authorities have cooperated with representatives of the motor vehicle and oil industries. At the same time, international cooperation is of strategic importance in successful implementation of an environmentally sound transport system. This applies not only to rail and sea transport, but also to road transport. The free competition between Swedish and other countries' transport enterprises in the EU makes it necessary for the Member States to cooperate in ensuring that any measures that are taken are neutral to competition.

The Government adopted national transport infrastructure plans for the period 1998-2007 in June 1998. Work is in progress on the plans for the period 2002-2011 and proposals will be presented to Parliament in the spring of 2000. Assessments of the impacts of plans are an important element of this work, and the environmental impacts of various alternatives will be described. Following the entry into force of the Environmental Code on January 1 1999, applications must now be submitted for government authorization of certain large transport/traffic facilities. The Environmental Code lays down more stringent requirements than before as regards early assessments of the environmental impact of infrastructure projects. This encourages the design of integrated solutions which are environmentally sounder. Following the entry into force on January 1 1999 of amendments to the Roads Act (1971:948) and the Construction of Railways Act (1995:1649), the requirements with respect to consideration of urban and rural landscapes, natural and cultural assets and aesthetic concerns are now more stringent. In the spring of 1999 the transport and traffic agencies submitted programmes promoting architectural and spatial design features in connection with the construction and management of buildings and other structures.

In the Government's view, most of the interim targets described in the Transport Policy Resolution are attainable. However, conversion to an ecologically sustainable transport system will require measures to be taken by a large number of players and a combination of various fiscal and other incentives. Various kinds of fiscal incentives are becoming increasingly important, but more stringent technical standards will also be necessary in the future.

3.7 Research and technological development

3.7.1 R&D on environment and sustainable development

Research, technological development and new know-how open up new opportunities for adjustment to ecologically sustainable development. Practically all branches of science, from the natural sciences to engineering and from social sciences to the humanities, can make a contribution. Globally, rapid technological advances play a vital role for ecological sustainability, or may do so in the future. New technologies, for example in the field of more efficient use of energy and other resources and treatment and recycling technologies, are crucial to progress towards greater ecological sustainability. Knowledge about organization, behaviour and values also plays an important part.

Research and capacity-building in the field of the environment and sustainable development

In 1998 the Government instructed the Council for Planning and Coordination of Research, in cooperation with the Swedish Environmental Protection Agency, to study the need for knowledge about and research on sustainable development. In its report *Research for Sustainable Development – a National Strategy* the Council proposes that

the responsibility for financing research on sustainable development should be shared by practically all research financiers and should be included in the concept of "social relevance". The Government also instructed the Swedish Environmental Protection Agency to carry out a comprehensive assessment of environmental research together with the Council. The point of departure for the survey was the need to strengthen environmental research as a whole.

In the light of these studies, the Government proposes in the 2000 Budget Bill an increase of SEK 50 million in the appropriation for environmental research for the year 2000 and SEK 100 million for each of the years 2001 and 2002. One of the reasons given for the increased appropriation for environmental research is the need to obtain data for the purpose of achieving the environmental quality objectives and for the preparation of environmental quality standards that may be introduced pursuant to the provisions of the Environmental Code. These funds are to be used primarily for research on environmental effects and environmental toxicology, but also to finance the central government share of the research being carried on by IVL Swedish Environmental Research Institute Ltd., which is being cofinanced by private industry.

In the spring of 1999 the EU's Fifth Framework Programme for Research and Development (1999-2002) commenced. This research programme will finance projects to the tune of over SEK 120 billion during the four-year period. The programme includes measures in several areas, but the main focus is on sustainable development. The programme will make a major contribution to increasing our knowledge about sustainable development in Europe. There are great expectations that Swedish scientists will be as successful in the Fifth Framework Programme as they were in the fourth.

The Environmental Advisory Council has been instructed by the Government to study the possibility of a research centre for ecologically sustainable development. In September 1998, the Government approved the Environmental Advisory Council's proposal to establish such a centre, and it was opened in the spring of 1999. The centre is located in Umeå as an independent authority with an annual budget of SEK 5 million; its function is to support research on ways to achieve ecologically sustainable development. The centre will stimulate contacts between practicians and researchers and act as a link between the research community and practicians, ensuring that research results are made available to practicians and that important issues are brought to the notice of researchers. One important task will be to support municipalities in preparing and implementing local investment programmes for ecological sustainability and disseminating the results of these programmes.

Geographic data

The availability of geographic data is crucial to the development of systems for the monitoring of progress towards ecological sustainability. In the Budget Bill for 1999 the Government proposed special measures to encourage increased use of geographic data and information systems in

the public sector (Gov. Bill 1998/99:1 expenditure area 18, Report 1998/99:BoU1, Parl. Comm. 1998/99:59). Comm. 1999/2000:13

3.7.2 Environmental and energy technologies

The programme for conversion and development of the energy system involves long-term investment in research, development and demonstration of new energy technologies. The programme will run for seven years up to 2004.

The purpose of investing in research, development and demonstration of new energy technologies is to achieve a sharp increase within the next 10-15 years of the production of electricity and heat from renewable energy sources and development of commercially profitable technologies for more efficient use of energy. The horizontal objectives of energy research are to establish scientific and technological know-how and competence in the universities and university colleges and in industry for development and conversion of the energy system in accordance with the parliamentary resolution of 1997. Energy research must contribute to the establishment of stable conditions for competitive industry and to renewal and development of Swedish industry. The research will also help to broaden cooperation on energy, the environment and the climate in the Baltic Sea region.

No quantitative goals or deadlines have been set for the long-term measures. It will only be possible to assess whether the objective of establishing relevant high-quality research have been achieved when the individual research programmes and projects have been completed. The Swedish National Energy Administration intends to start evaluating ten of the programmes in 2000.

The Council for Building Research supports R&D on sustainable energy systems in the built environment. The focus is on integrating efficient and environmentally sound energy systems into the built environment. Research in this area has helped to keep the consumption of energy for heating, domestic hot water and operating electricity in built environments at the same level for the last 25 years despite the fact that the heated area has increased by almost 50%. The research has also shown that there is still considerable potential for reducing energy consumption in buildings. The Council has now started a project on the use of electricity in buildings whose purpose is to raise awareness of more efficient methods of electricity use and ways of converting electrical heating systems which at the same time ensure a good indoor climate. The Council will collaborate in this project area with the Swedish National Energy Administration, Elforsk Ltd. and the Swedish District Heating Association, among others.

The Commission on Environmental Technology uses various tools and methods to stimulate the development of environmental technology. The environment and environmental technology are relevant to almost all sectors (the environment, education, industrial policy etc.). In order to ensure an optimal rate of return on invested resources, this work has concentrated on developing methods of stimulating technological

development in four priority areas: transport, construction and housing, food and agriculture, and land remediation. The tools used by the Commission include requirement specifications, competitions, technology demonstrations and technology procurement.

The projects started by the Commission in 1997 and 1998 include competitions to demonstrate and verify land remediation techniques and technologies for environmentally sound individual sewage systems, a national competition for development of commercializable environmentally sound innovations, requirement specifications for lubricating grease, two-stroke oil, interior wood paint and manure/fertilizer spreaders, procurement of cars with multifuel engines, documentation of and information about technologies for removing PCBs in buildings, investigation of the potential for environmentally sound technologies in restaurant and institutional kitchens and a survey of environmentally sound solutions in ecological buildings.

The projects for 1999 include the Environmental Innovation Marketplace, a meeting-place for innovators and financiers, a repeat of last year's environmental technology competition, procurement of route planning systems, a demonstration of techniques for remediation of land contaminated by chlorinated solvents, a demonstration tour for environmentally sound manure/fertilizer spreaders, demonstration of transport coordination projects and a scientific report on smart houses. As mentioned above, an allocation of SEK 10 million to the Commission has been proposed to enable it to continue its work in 2000.

In the area of responsibility of the EU's Council of Ministers of Energy Sweden is emphasizing the importance of ensuring that integration of the environment and sustainable development into the energy sector includes measures that are cost-effective and flexible. Examples of issues that should be given priority in the work of the Council during the autumn of 1999 are the internal market for energy, renewable energy sources, more efficient use of energy, research and development, and fiscal incentives and other fiscal measures.

3.7.3 Transport research

In the 1998 Transport Policy Resolution the Government declared sustainable development one of the three priority areas of strategic transport research. Environmentally sound transport and fuels and public transport are among the areas that are given the highest priority in applied transport research.

For several years the Communications Research Committee has carried out broad research programmes focusing, inter alia, on continuous improvement of the environmental performance of cars and other types of transport. Electrical power, biofuel and hybrid technologies have been tried out. The research shows that it is quite possible, if new vehicle and fuel technologies are developed, to achieve very substantial improvements in emission levels, energy consumption and noise reduction for all types of transport. The results of this research also

indicate that fiscal incentives are an effective method of achieving desirable changes.

A great deal of research, development and demonstration remains to be done before vehicles and fuels that are safe, fuel-efficient and environmentally sound in other respects are developed.

3.7.4 Construction research

One important aim of the Government's investment in research in the planning, building and housing sector is to promote ecologically sustainable development. Method development will help to make community planning an effective tool in these efforts. The Council for Building Research promotes such research and development work. The Council also promotes cooperation in this area in the EU.

The Council is responsible for coordinating research and development on buildings and other structures and on energy and environmental technologies that is designed to improve the built environment. The research financed by the Council focuses increasingly on the environment and sustainable development. The centre of gravity is gradually shifting from disciplinary projects to large, focused project areas. In the last few years the Council has started four such project areas related to the environment and sustainable development.

Environmentally sound construction and management of buildings is the most recent addition. The overall objective is to establish an integrated approach and coordination in this area, to demonstrate how environmentally harmful substances can be phased out by 2010 and how resource efficiency can be increased by a factor of 4-10 by the year 2020.

The Urban Living Environment project area focuses on people's everyday lives and their needs and expectations with respect to the built environment. The aim of this research is to find out how to develop good living environments in the built environment. Among the results produced in this area are proposals for the solution of problems in large suburban districts, particularly those built in Sweden during the period of expansion following World War II, and the importance for the quality of life of green structures in towns.

Towns are often regarded as a major problem in the process of adjustment to sustainable development. However, the fact is that growing numbers of the earth's inhabitants will live in towns. In the right circumstances, towns can help to solve many environmental and resource problems. The purpose of the Council's Sustainable Cities project area is therefore to develop new tools, methods and processes to implement changes, particularly in urban areas, but also in regions.

3.8 International cooperation

Sweden's ambition to act as an international driving force and pioneer of ecologically sustainable development remains unchanged. International cooperation is the cornerstone of efforts to achieve ecological

sustainability. The follow-up to the 1992 World Conference in Rio and implementation of Agenda 21 are crucial to these efforts. In 1999 Sweden has played an active part in many international forums, in particular the EU, the OECD, the UN, the WTO, international environmental convention processes and cooperation on regional development in our neighbouring region. Comm. 1999/2000:13

3.8.1 The United Nations

A UN reform process was launched in 1997 in order, inter alia, to achieve more integrated and systematic management of the environment and sustainable development in all UN operations. An important feature of this process is to strengthen the United Nations Environment Programme (UNEP) and the United Nations Centre for Human Settlements (UNCHS).

A working party appointed by the Secretary-General presented a report in the summer of 1998 containing several concrete proposals in this area. They included the establishment of a UN coordinating committee of officials with special responsibility for environmental issues, improvement of the UNEP's collaboration with the global convention secretariats and closer interaction with civil society. The report, which was strongly supported by the Member States at meetings of the governing board of both UNEP and UNCHS, was approved in most respects by the General Assembly in June 1999. Sweden, which was represented on the working party, continues to support efforts to strengthen and develop the UN's work on the environment. The aim is to achieve a more coherent, focused and powerful treatment at the global level of issues relating to sustainable development and, in this context, to strengthen the international regulatory framework for the environment.

The Commission on Sustainable Development (CSD) meets once a year to pursue and facilitate implementation of the recommendations of the Agenda 21 action programme. In 1999 it paid special attention to sustainable patterns of consumption and production, sustainable tourism and a clean marine environment. In 2000 it will deal with financial resources, trade and agriculture, among other issues. During Sweden's EU presidency in the spring of 2001, energy and transport will be dealt with. A thorough review of the Rio process will take place in 2002.

The Swedish Coast Guard and other Swedish authorities take part in the global environmental cooperation organized by the International Maritime Organization (IMO). This is currently concentrating on practical implementation of the International Convention on Oil Pollution, Preparedness, Response and Co-operation (OPRC) in training activities and on the preparation of various IMO publications.

3.8.2 The OECD

The OECD is engaged in extensive horizontal work on sustainable development. Among other things, the OECD's Environmental Committee is drafting an environmental strategy for the years 2001-2011.

Sweden considers the OECD especially well-placed to analyse integration of the economic, social and ecological aspects of sustainable development. Sweden's priorities as regards the OECD's environmental activities – apart from its environmental strategy and the sustainable development project – relate to efficient use of resources, the climate, chemicals, trade and investment and fiscal incentives in environmental policy.

3.8.3 The European Union

The Treaty of Amsterdam was adopted by the EU's heads of state and government in 1997 and entered into force on May 1 1999. The Treaty amends the Treaty Establishing the European Community and the Treaty on European Union in three areas that relate to ecological sustainability: the introduction of sustainable development as an overall Community objective, the integration of environmental concerns into other policy areas and clarification of the relationship between the environment and the single market. The changes in the Treaty substantially strengthen the EU's efforts on behalf of sustainable development and integration of environmental concerns into other policy areas.

Sweden has played a prominent part in this development through its ambition to make ecologically sustainable development an important feature of EU policies in all relevant areas. To achieve this ambition, concrete political action will be needed to follow up the amendments relating to ecologically sustainable development and more stringent provisions on integration of environmental concerns into other sectors. Sweden therefore argues that each sector should prepare strategies for integrating environmental concerns with a view to achieving sustainable development. Sweden has also urged the Member States to agree on transparent timetables and mandates, both to the Commission and the relevant Councils of Ministers, to ensure that this takes place.

These efforts have borne fruit. At Sweden's proposal, the EU's heads of state and government decided at the Luxembourg summit in December 1997 to instruct the Commission to prepare a report on ways and means of integrating environmental concerns into the EU's sectors. The main features of the Commission's report were adopted by the European Council in Cardiff in June 1998. The Council urged the sectoral Councils of Ministers to design strategies for integrating aspects relating to the environment and sustainable development into their areas of responsibility. The transport, energy and agricultural sectors were invited to start this work. Furthermore, it was emphasized how important it is for the Commission to strengthen its internal efforts on behalf of sectoral integration and devise indicators to measure development.

This process was broadened further at both the following European Councils. In Vienna in December 1998 three new Councils of Ministers – for the internal market, industry and development cooperation – were invited to take part in this work. In Cologne, in June 1999 another three Councils – for economic affairs, fisheries and foreign affairs – were invited to report on integration of the environment and sustainable

development to the European Council in 2000. In other words, nine sectors altogether have been invited by the EU to intensify their efforts to integrate environmental concerns into their policy areas with a view to achieving sustainable development. It was emphasized both in Vienna and Cologne that the sectors should devote special attention to the issue of climate change. The transport and energy sectors are particularly important in this connection.

It was also decided at the Vienna summit to undertake a horizontal review of the work of integrating environmental concerns at the Helsinki European Council in December 1999. The first six sectoral strategies, a report on indicators from the Commission and the Commission's evaluation of the Fifth Community Environmental Action Programme, which is expected in the autumn of 1999, will provide important guidance data for this review.

3.8.4 Non-EU Europe

Within the framework of pan-European environmental cooperation outside the EU, which takes place through the UN's Economic Commission for Europe (ECE), Sweden urges that the priorities and concrete objectives of this cooperation should be more clearly defined. Sweden's view is that the focus should be on regional and sub-regional environmental cooperation and on the states of the former Soviet Union, the Baltic Sea region and the Barents Euro-Arctic region. Sweden also participates, in the WHO's European region, in the work being done to reduce exposure to various environmental health risks.

Furthermore, environmental programmes in Central and Eastern Europe, including Russia, have high priority within the framework of the development assistance delivered by the Swedish International Development Cooperation Agency (Sida) and the Swedish Environmental Protection Agency. Preparations are under way to assist central and regional environmental departments and to provide expertise and assistance with institution-building, the elaboration of national environmental strategies and investments in water and sewage treatment and the energy sector.

Sweden plays an active part in international cooperation on military sector environmental programmes in two NATO bodies, the Euro-Atlantic Partnership Council (EAPC) and the Committee on the Challenges of Modern Society (CCMS). Sweden, together with the USA, has also assumed some planning responsibility within the framework of the EAPR for helping states, particularly in Eastern Europe, to draft national military sector environmental programmes.

3.8.5 The Kattegat and the Skagerrak and the Barents Euro-Arctic region

Sweden contributes to improvement of the marine environment within the framework of several international agreements and conventions whose aim is to reduce marine pollution in the Kattegat and the

Skagerrak. Monitoring compliance with the Esbjerg Declaration within the framework of the North Sea Conference is especially important.

In the cooperation between the Arctic countries and the countries around the Barents Sea Sweden advocates that environmental issues should be given priority and works for coordination between the cooperation on the Arctic, cooperation on the Barents Sea region and Baltic 21. Sweden also considers it important to strengthen the EU's contribution to cooperation in the Barents Euro-Arctic region, in particular by concretizing the Nordic dimension.

3.8.6 The Baltic Sea region

Sweden works on behalf of sustainable development in the Baltic Sea region. At their meeting in Visby in May 1996 the prime ministers of the states in the Baltic Sea region and the European Commission agreed that sustainable development should constitute the basis for continuing cooperation in the region. In June 1998 the foreign ministers in the Council of the Baltic Sea States and the EU adopted an Agenda 21 for the Baltic Sea region, which is called Baltic 21. This includes objectives and scenarios for sustainable development in the region over the next 30 years and an action programme establishing timetables and containing details of participants and financing. Baltic 21 concentrates on seven sectors (agriculture, energy, fisheries, forestry, industry, tourism and transport) whose development is considered especially important within the context of a sustainable Baltic Sea region. The focus is on implementing the action programme, and initiatives are being taken in all sectors. The sectors themselves are responsible for implementing their action programmes.

Together with Russia, Sweden is responsible for coordinating measures in the industrial sector. The first international meeting of representatives of the industrial sector from all the Member States is scheduled for the spring of 2000, and the venue will probably be Stockholm. The meeting is expected to adopt a work schedule and strategies for cooperation in this sector.

Progress reports will be presented to ministers of the environment and other sectoral ministers every two or three years and to prime ministers at intervals of about five years. The first report to the ministers of the environment and sectoral ministers will be adopted by the steering committee in the spring of 2000.

The governing body of Baltic 21 is the Senior Officials Group (SOG), which consists of representatives of all participating countries and organizations. The steering committee is supported by an interim secretariat which will be located in Stockholm up to July 1 2000. A decision on the location of a permanent secretariat will be taken in the spring of 2000.

In order to develop and strengthen efforts on behalf of the cultural environment in the Baltic Sea region, the ministers of culture in the states in the region decided in September 1997 to appoint a joint working party, headed by Sweden's National Heritage Board. It presented proposals in

June this year for a strategic action plan for the common cultural heritage of the Baltic Sea region.

Other organizations and measures also play an important part in promoting sustainable development in the Baltic Sea region, e.g. the International Baltic Sea Fishery Commission (IBSFC), the Helsinki Commission - the Baltic Marine Environment Protection Commission (HELCOM) and Vision and Strategies around the Baltic Sea (VASAB), a cooperation structure organized by the ministers who are responsible for spatial planning, all of whom take an active part in Baltic 21. Cooperation on the marine environment of the Baltic Sea is carried on within the framework of the Helsinki Convention. In this framework, the coastal states cooperate on the development of principles relating to all important aspects of the environmental objectives adopted for the Baltic Sea. Cooperation between the Nordic countries within the framework of the Nordic Council of Ministers, which concentrates on the regions in the Nordic countries' immediate proximity, is also an important factor for sustainable development in the region, particularly in view of the work on sustainable development that was initiated by the Nordic Council of Ministers in 1998 under the Swedish presidency.

Five sewage treatment plants in the Baltic states have been modified, modernized and enlarged with financial support from Sweden and other countries.

The Government has instructed the Armed Forces to implement various military sector environmental projects in Estonia, Latvia and Lithuania. Furthermore, the Swedish Coast Guard takes part in joint aerial surveillance operations around the Baltic Sea within the framework of the Helsinki Agreement for the purpose of detecting ongoing illegal oil discharges.

3.8.7 The Nordic countries

During Sweden's presidency of the Nordic Council of Ministers in 1998 the Nordic prime ministers adopted a declaration on a sustainable Nordic region. The declaration followed up of one of Sweden's two horizontal themes for its presidency, i.e. transformation of the Nordic countries and the neighbouring region into an ecologically sustainable region. As a follow-up to Sweden's presidency and its two profile issues, a Nordic conference on employment and environment was arranged in April 1999. Its purpose was to examine the present situation in cooperation with the employment and environment sectors. The Committees of Officials for Employment and the Work Environment and for the Environment have instructed a Swedish working party to examine the possibility of closer cooperation between these sectors. A cooperation programme has been implemented for several years between the Committees of Officials for the Environment and for Agriculture and Forestry. Cooperation is also in progress in the transport and energy sectors in working parties appointed by the respective committees of officials.

In 1999, Iceland holds the presidency of the Nordic Council of Ministers. Iceland's presidency focuses on targeted measures for sparsely

populated areas in the Arctic and western Nordic regions, but it also gives priority to following up the prime ministers' declaration on sustainable development. Among other things, several important sectors will draft strategies for ecologically sustainable development.

Nordic cooperation on military sector environmental programmes continues. The drafting of a Nordic Agenda 21 for the military sector is likely to be completed by the end of 1999 at ministerial level. Public authorities and agencies in the Nordic countries are also cooperating, inter alia, on the introduction of environmental management systems.

3.8.8 The World Trade Organization

Sustainable development is already a declared objective of the World Trade Organization (WTO). This means that the trade system and the WTO itself must make a contribution to global efforts on behalf of sustainable development. This is necessary in order to maintain confidence in the organization and increase understanding of the advantages of free trade. In a Communication on trade policy (Comm. 1998/99:59) the Government stated that this is one of many important aims of a new WTO round.

Sweden participates in the international discussions on trade and the environment, in particular in the WTO's Committee on Trade and Environment (CTE). This Committee is the main forum for discussion of the relationship between trade and the environment. The CTE plays a very significant role when it comes to proposing and enforcing any amendments to the trade rules that may be made to promote sustainable development. Sweden is committed to integration of the environment and sustainable development into the trade rules so that trade liberalization can further sustainable development.

It is generally agreed that environmental problems can only be solved within the framework of broader WTO negotiations. In order to achieve the desired result, Sweden's and the EU's position is that environmental issues should be included in the WTO negotiation round that is scheduled for the beginning of 2000. Sweden and the EU argue that it should be possible to integrate environmental issues horizontally into all areas of negotiation and that it should also be possible to deal with specific environmental issues. These include the important question of the relationship between the trade rules and trade measures in environmental conventions, the scope for implementation of the precautionary principle in connection with application of the WTO rules and the question of the status of ecolabelling systems in relation to the WTO Agreement.

3.8.9 Cooperation with Asia

Developments in Asia, not only with respect to the economy and trade but also to the environment, greatly affect the rest of the world. The scale of the environmental problems in Asia is such that they have already made a global impact. The Government therefore considers it important for Sweden to develop and deepen its environmental cooperation with the

countries of Asia. In the Communication *The Future with Asia*. *A Swedish Strategy on Asia for the 21st Century* (Comm. 1998/99:61) the Government presented its Asian policy in a number of important areas. The purpose of the strategy is to intensify Sweden's relations with the region. The environment and sustainable development are one of the eight areas of cooperation that are given special mention. A coordinated Swedish effort should include a vigorous campaign to launch Swedish environmental technology.

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4 Local investment programmes for ecological sustainability

By passing the 1998 Budget Bill (Gov. Bill 1997/98:1) Parliament approved the allocation of aid for local investment programmes for the implementation of ecological sustainability. Originally, SEK 5.4 billion was allocated for the period 1998-2000. Subsequently, Parliament approved further allocations, bringing the total amount to SEK 6.5 billion over the period 1998-2002. Grants will be made to the municipalities whose investment programmes appear likely to contribute most to the adjustment process. The criteria for the grants are that the programmes will reduce environmental impacts, increase efficient use of energy and other natural resources, favour the use of renewable raw materials, increase reuse and recycling, contribute to the preservation and strengthening of biological diversity and preserve cultural heritage assets and/or contribute to improving the circulation of nutrients in cycles. The programmes should also help to create new jobs. Municipalities may also receive grants for civic education measures related to the programmes.

In the 1999 Budget Bill (Gov. Bill 1998/99:1) the Government stated that the aid should be extended to include measures to improve the indoor environment that are taken in conjunction with measures that fulfil any of the environmental criteria. This change is to be implemented in the next application procedure process.

The Government divided the application process into two parts. In the spring of 1998 it approved grants for three-year local investment programmes in 42 municipalities for the period 1998-2000. In the spring of 1999 it approved grants for investment programmes in 47 municipalities for the period 1999-2001. Applications for local investment grants for the period 2000-2002 must be submitted to the Government by November 1 1999. Decisions on these grants will be taken at the beginning of 2000. In the 2000 Budget Bill (Gov. Bill 1999/2000:1) the Government proposes some changes in the grant system prior to the final application procedure process.

The local investment programmes will have tangible effects on the environment if the results described by the municipalities in their investment programmes are achieved. Investments in more efficient energy se and biogas and district heating instead of heating with electricity, oil and woodfuel will reduce carbon dioxide emissions. Various types of nature conservation measures will reduce discharges of nutrients into lakes and streams and will enhance protection of biological diversity. It is estimated that the energy saved by the programmes that have been approved so far will amount to about 1.64 Twh per year, and the total reduction of carbon dioxide emissions into air will be about 1.2 million tonnes per year.

Altogether, 81 municipalities have been granted a total of SEK 3.7 billion for local investment programmes in 1998 and 1999. Together with the investments made by the recipient municipalities themselves, the total volume of investment will be SEK 17 billion, of which SEK 12.7 billion are directly related to the environment. The municipalities estimate that this will create 11,500 new jobs in terms of annual labour units during the period up to 2001.

The municipalities have estimated the environmental effects of each project for which a grant is made. Altogether, the investment programmes are expected to reduce the use of electricity and oil by 1.6 Twh per year, which corresponds to the energy used to heat 60,000 detached houses. In addition, fossil fuels and electricity, corresponding to 1 Twh, will be replaced by renewable energy sources. Carbon dioxide emissions will be reduced by 1.2 million tonnes. This is the equivalent of taking 10% of the cars in Sweden out of traffic. Natural environments that provide valuable habitats for biological diversity will be preserved or restored on almost 1,500 hectares of land.

Among the commonest projects are those involving conversion to biofuel-based district heating. A large proportion of the grant funds will be used to put entire residential areas on an environmentally sound footing. Establishing wetlands is another common measure, which will help to reduce the leakage of nutrient salts from agriculture and will function as the final step in the wastewater treatment process, dealing with storm water and enhancing biological diversity.

Conversion of energy systems

Conversion to renewable energy sources is the commonest type of measure. In 1999 about SEK 500 million of the grant funds were used for such measures. This does not include biogas plants, which are described in the section on waste. Projects that mainly focus on efficient use of energy are also assigned to a separate category. The commonest measures in connection with conversion to renewable energy sources are conversion and modification of biofuel-based district heating systems. One example is the Sundsvall North Energy Combine, the project which received the highest grant of all in 1999, i.e. SEK 198 million. Oil and electricity can be saved by utilizing waste heat, which is often used in district heating systems. The projects also include district cooling and free cooling systems. Solna municipality was granted SEK 33 million to establish a free cooling network and expand an existing district cooling system in the municipality.

More efficient use of energy

More than SEK 170 million was granted for projects designed to improve energy management. A large proportion of these funds was granted for projects utilizing waste heat, especially from industry, but also from wastewater and transformer substations. Three of the largest projects in

monetary terms concern the utilization of industrial waste heat in district heating systems.

Nature conservation and biological diversity
Over SEK 90 million was allocated in 1999 for measures relating to the protection and development of valuable natural environments and preservation of biological diversity. Most of these projects related to lakes and streams, and in some cases also to coastal areas. Establishing wetlands and ponds is the most frequent measure. Wetlands, of which there is a great shortage in many areas, are very important for bird life and frogs and reptiles, at the same time as they can also function as nutrient salt traps in water systems that are affected by high levels of nutrient salts. Eutrophication is a problem that is addressed by many of the projects, which often comprise several different measures.

Water and sewage
A total of more than SEK 190 million is being used for water and sewage projects. A substantial proportion of these funds is being used to reduce the environmental impact of individual sewage treatment systems. Local sewage treatment systems are being built in small villages. Several projects will treat sludge from three-compartment septic tanks for recycling on arable land. Storm water is treated in wetlands and ponds. Other measures for dealing with storm water locally include various filter techniques in wells and infiltration systems that prevent the water reaching lakes or streams.

Transport
The transport projects include investments in infrastructure in the form of cycleways, industrial rail tracks for freight traffic and footpaths, but also purchases of vehicles. More than SEK 130 million of the grants for 1999 will be spent on measures to reduce the environmental impact of traffic. New cycle tracks, cycle tunnels and bridges, cycle parks and information campaigns are examples of measures that will encourage people to cycle more. Public transport projects include new through bus routes, more efficient bus services and improved traffic mobility. Altogether, the municipalities estimate that their transport and traffic projects will reduce emissions of the greenhouse gas carbon dioxide by 4,000-5,000 tonnes.

Waste
Biogas, pre-separation of household waste and material recovery dominate among the waste projects. Almost SEK 200 million will be paid out of the grants for 1999 for measures relating to waste. Many municipalities are investing in plants for extracting biogas from household waste, sewage sludge and industrial residues. In several municipalities biogas will be used as fuel. The material recovery projects relate to the recycling of reprocessed plastics, sand and composites in the manufacture of new products.

Remediation

Cleaning up contaminated areas is often costly. Often it is impossible to apply the Polluter Pays Principle, since the enterprise that generated the waste no longer exists. SEK 90 million has been granted for such projects. They involve decontamination of PCBs and sediment that contains mercury, a disused nickel industry, remediation of a landfill site and decontamination of land contaminated with arsenic on which a disused impregnating plant was situated.

Grants to private enterprise

Almost SEK 120 million was granted in 1999 for 38 projects in industry. These projects relate to more efficient energy use or conversion to renewable energy sources. Several enterprises have received grants to enable them to connect to a district cooling network. Many projects also deal with waste, including the recycling of residues from production processes and collaboration between enterprises in order to reduce waste flows and resource utilization.

Construction

Only a few of the projects in 1999 related to construction. Altogether, they will receive less than 1% of the total grants for 1999, i.e. SEK 10 million. These projects usually relate to building, in particular the rebuilding of old properties. The measures include supplementary insulation, the use of solar cells, local storm water systems, pre-separation and composting of waste, removal of PCBs in joints, selective demolition, reuse of construction materials and fittings, and the use of environmentally sound construction materials.

Information

The success of many projects depends on individuals' behaviour. To be successful, projects must therefore be combined with information and civic education measures. Many municipalities have also applied for support for programme implementation, e.g. administration, evaluation and project management.

Several municipalities have received grants for information on specific projects. Borås is one of these, and the local inhabitants will have to play their part if the municipality's investments in cycleways and new through bus networks are to succeed in reducing the use of cars. The investments are therefore combined with information campaigns on cycling and public transport. Information projects differ from one municipality to another; some arrange study circles, while others use notice-boards, printed brochures, multimedia and exhibitions.

All the municipalities which have received project grants are required to evaluate the results. This evaluation will serve several purposes. It will improve our knowledge about the effects and costs of various measures. It will establish a platform on which subsequent projects, other municipalities and other players can build and in which they can find inspiration. Regular monitoring will also make it easy to correct mistakes. Furthermore, the municipalities are required to show that the projects actually achieve the results envisaged in their applications. In the

longer term, this documentation of results and experiences will increase awareness of appropriate implementation of various practical environmental measures.

4.2 Continuing measures

4.2.1 Aid for local investment programmes in 1999–2001

The Government has decided to make some changes in the Government Grants to Local Investment Programmes Ordinance (1998:23), with a view to enhancing ecologically sustainable development. These changes involve the following:

- applications must be submitted by November 1 instead of November 15;
- the present requirement that the measures must contribute to the development of a new technology or new work practices is abolished;
- municipalities will also be eligible for grants for local information and civic education measures whose purpose is to disseminate information about a local investment programme, i.e. civic education and information campaigns need not be directly related to a particular investment;
- the county administrative boards' opinion is to be submitted to the Government at the same time as the application, i.e. by November 1.

A continuous dialogue will be maintained during the period June-September with municipalities which intend to apply for grants for local investment programmes. The purpose of these dialogues is to make sure that the applications are as accurate and complete as possible. Prior to submission of their applications, 195 municipalities have been engaged in a dialogue with the Ministry of the Environment and this has made it possible to discuss their investment programmes. Municipalities must submit their final applications to the Government by November 1.

4.2.2 Monitoring and evaluation

The programmes for which grants for local investment programmes have been made will be followed up on an annual basis. The municipalities must submit activity reports by March 1. The county administrative boards are to examine the reports submitted by the municipalities and submit their opinion to the Ministry of the Environment. The county administrative boards have been asked to focus on discrepancies between implementation of the programmes and the applications and government decisions.

The Government has also instructed The Swedish National Audit Office to monitor and evaluate the local investment programmes. The first phase of this assignment was completed in the spring of 1999 in order to provide relevant information for the remainder of the programme period. The report will be analysed and any changes in the system that are proposed will be presented to Parliament in 2000. An evaluation of the grant system as a whole will be completed in the spring of 2002 in

order to provide supporting documentation for future ecological sustainability programmes. Comm. 1999/2000:13

The results obtained and lessons learned from ongoing and completed measures and programmes are of great interest to many people. The Centre for Research on Ecological Sustainability has been assigned the task of disseminating this information.

Ministry of the Environment

Extract of minutes of Cabinet Meeting held on October 14 1999

Present: Prime Minister Persson, chair, and Ministers Hjelm-Wallén, Freivalds, Thalén, Winberg, Ulvskog, Lindh, von Sydow, Pagrotsky, Östros, Engqvist, Rosengren, Larsson, Wärnersson, Lejon, Lövdén, Ringholm

Rapporteur: Larsson

The Government adopts Communication 1999/2000:13, *Sustainable Sweden – a Progress Report on Measures Promoting Ecologically Sustainable Development.*