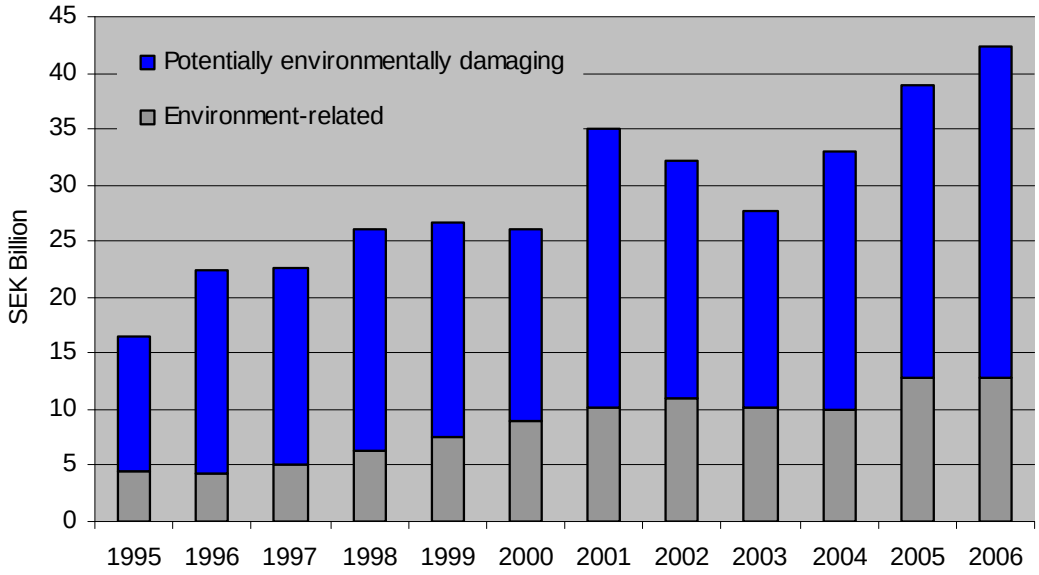
MILJÖRÄKENSKAPER

Report 2008:1

Environmental economic indicators in the Swedish state budget 1995-2006

State appropriations related to the environment, 1995-2006, SEK billions



Statistiska centralbyrån
Statistics Sweden

Report 2008:1

Environmental economic indicators in the Swedish state budget 1995-2006

Statistics Sweden
2008

Environmental accounts

Environmental economic indicators in the Swedish state budget 1995-2006

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Foreword

The state budget and the funds it allocates are one of the Swedish government's most important policy instruments. Since the 1999 Spring Budget Bill, green indicators have been reported to supplement the economic key ratios in the state budget. The purpose of green indicators is to reflect national trends for important environmental problems in a simple and informative manner.

The national indicators developed for Sweden's 16 environmental quality objectives have yet to explicitly show the economic aspects of Sweden's environmental policy but have instead concentrated on environmental impact. The environmental accounts system provides the opportunity to develop environmental economic indicators that can supplement existing key ratios.

This report has been drawn up as a basis for the Environmental Objectives Council's report on the in-depth evaluation of the work being done to achieve the environmental quality objectives and using funding from the Environmental Objectives Council.

Viveka Palm, Nancy Steinbach and Maja Cederlund, Statistics Sweden, were involved in the project.

The project group would like to thank the reference group for its support and useful comments: Johanna Janson and Petronella Troselius at the Ministry of the Environment, Bengt Rundqvist at the Environmental Objectives Council Secretariat, Peter Frykblom at the Ministry of Finance, Daniel Badman at the Ministry of Industry, Employment and Communications, Andreas Halvarsson at the Swedish Radiation Protection Institute, Ylva Rönning at the National Board of Housing, Building and Planning, Björn Olsson at the Swedish Institute for Transport and Communications Analysis (SIKA) and Paul Westin at the Swedish Energy Agency.

We would also like to thank Lena Björck, Anneli Josefsson, Kristian Skånberg and Agneta Thermaenius for their useful comments and discussions.

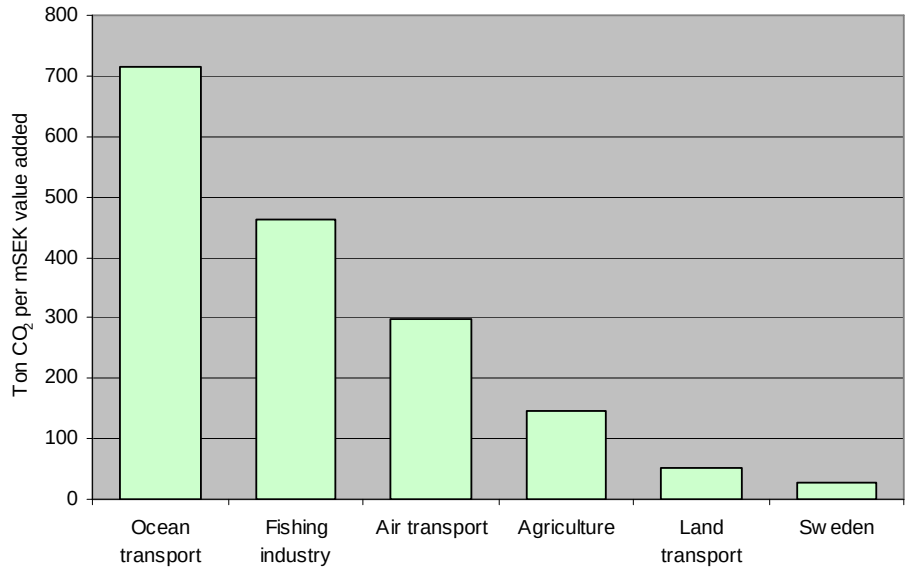
Table of contents

Summary

This report was commissioned by the Environmental Objectives Council in order to provide a basis for the in-depth evaluation of the work being done to achieve Sweden's 16 environmental quality objectives. The aim of the project was to supplement existing environmental indicators so that they include environmental economic variables that can be linked to the state budget. This may help increase understanding of the budget's impact on environmental work and clarify the significance of environmental economic instruments.

The following aspects have been examined to evaluate the importance of state environmental appropriations: changes to the appropriations over the 1995-2006 period, total expenditure that go to industries that have higher-than-average emission intensities (see Figure A), appropriations that go to activities with a potentially negative impact on the environment and total expenditure to Swedish industry for environmental protection measures. A small-scale comparison is also made of government spending on environmental protection in EU member states.

Figure A. Carbon dioxide emission intensities per sector, tonnes/value added in SEK millions, 2004

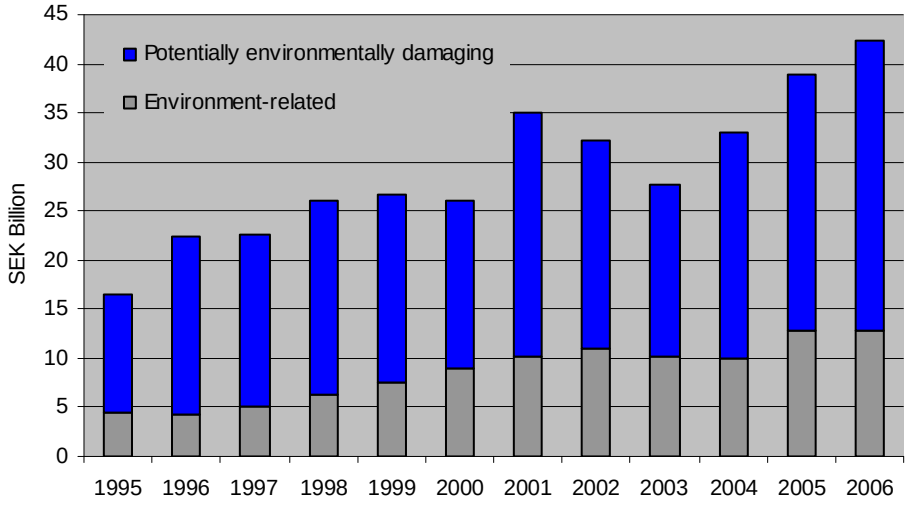


The statistics were compiled by grouping the appropriations in three categories: appropriations linked to the environment (*Environment-related*), appropriations aimed at activities that currently provide the largest intensities (*Potentially environmentally damaging*) and other activities performed by the state (*Other governmental activities*). The last category is the largest and covers activities such as transfers, education and labour market.

Regarding the most emission-intensive industries, e.g. agriculture and transport, the government appropriations are divided into the relevant group depending on the activity. Within agriculture, appropriations like 'Environmental efforts in agriculture' were allocated to the *Environment-related* group whilst appropriations such as 'Area support and livestock subsidies' were allocated to the *Potentially environmentally damaging* group. Within transport, appropriations that go to road maintenance and airports have been allocated to *Potentially environmentally damaging* whilst costs for railways and public transport have been allocated to the *Other government activities* group. Entire appropriation areas do not therefore go to types of activities that are considered to hamper environmental work. Each appropriation has instead been evaluated on the basis of the budget bills.

Environment-related government expenses amount to 1.6 percent of the state budget and this proportion has not changed over the 1995-2006 period. The amount has however increased from almost SEK 5 billion to just over SEK 12 billion (see Figure B). Funding of activities that may hamper environmental work amounts to about 4 percent of the total budget. This can relate to major infrastructure projects or support to agriculture, the design of which may contribute to over-production. The major part of the state budget goes to activities that are not particularly harmful to the environment, however. Such activities relate, for example, to providing financial security for children, families and pensioners.

Figure B: State appropriations related to the environment, 1995-2006, SEK billions



The report also describes other instruments such as environmental taxes, environmental sanction charges, emissions trading and electricity certificate trading. The general impression is that these instruments have interesting aspects and special taxes have been used to good effect.

The evaluations of the latest instruments such as emissions trading and electricity certificates show that further adjustments to the systems must be made before the anticipated effect can be realised. As far as the transport sector is concerned, neither the Kyoto Protocol nor the environmental taxes cover international transports.

The report demonstrates a way of monitoring environmental economic policy instruments, including the state budget. A certain part of the state budget is allocated to environmental work whereas other parts are allocated to activities that indirectly lead to increased environmental impact. This suggests there may be alternative ways of allocating the appropriations in order to reduce environmental impact from the most intensive industries. This can be effected either by providing financial incentives outside the framework of the state budget to reduce emission intensities or by reforming currently allocated appropriations.

The statistics show disbursed appropriations in the form of tables produced by the Swedish National Financial Management Authority and can be reproduced every year relatively easily. It would be interesting to take this a step further and perform international analyses of other state budgets within the EU.

1. Introduction

1.1 Aim

The aim of the project was to supplement the environmental indicators so that they also cover environmental economic variables that can be linked to the state budget. This may help increase understanding of the budget's impact of the work being done to achieve Sweden's environmental quality objectives and clarify the significance of environmental economic instruments. The project has identified a number of environmental economic indicators which show how the state budget furthers environmental work or contributes to economic activities that hamper it. The time series cover 1995-2006.

The report has been produced to provide some of the basis of the Environmental Objectives Council's in-depth evaluation of environmental work. The project has presented the results for the reference group established in 2006 within the Environmental Objectives Council Secretariat. The results have then been further processed in order to be published as a report in the environmental accounts series. If the indicators turn out to be sufficiently robust and interesting to be monitored in conjunction with the budget, they can be reported yearly in connection with future budgets.

The report develops a method of reporting how much of the state budget should go to the environment, both in SEK and as a proportion of the total budget. This is done by dividing the appropriations into different subject areas, such as renewable energy. The appropriation groupings are compared to the size of economic instruments such as environmental taxes, other types of environmental control activities, and to other factors such as enterprises' environmental protection costs and intensities in industrial sectors in Sweden. Appropriations, currently designed so that they risk having a negative affect on environmental, have also been identified. The aim is to highlight the balance between different budget appropriations which the Swedish state has at its disposal.

Accordingly, this report develops a number of indicators of governmental environmental protection work, potentially environmentally damaging and other governmental activities and can be seen as a supplement to existing indicators presented in the bills[1].

Potential activities that may hamper environmental work have been evaluated and discussed in Sweden over the last 10 years. To a large extent, tax reliefs and beneficial tax subsidies are scrutinised[2]. Evaluating this type of subsidy was not part of the project, however, although a briefer description of the area is given in the report.

International comparisons

A small-scale comparison with other countries has been made as part of the project. The definitions used make it possible to make international comparisons. Government expenditure within Europe is reported by the national accounts (ESA 1995) [3], based on a UN classification called the Classification of Functions of Government (COFOG). Work is on-going in the EU to define expenditure items within the area of environmental protection in accordance with the European System for the Collection of Economic Information on the Environment (SERIEE 1994).

[1] Indicators reported in the 2007 budget bill included the ratio of energy use to GDP ratio, ratio of renewable energy to total energy use, greenhouse gases, greenhouse gas as a percentage of GDP and as a percentage of the population.
[2] National Audit Board 1998:6, Statistics Sweden MIR2000:3, Swedish EPA 2007a
[3] Council Regulation (EC) No 2223/96 of 35 June 1996 on the European system of national and regional accounts in the Community

Both these classifications and definitions enable good comparability and quality-assured statistics.

2.1 Background

Sustainable development can be said to be development in which economic, ecological and social issues are treated in a more integrated way than has previously been the case. One way of doing this is to facilitate analyses of how the different parts of the economy affect the environment. This can also include reporting how much is spent on environmental work by the state and the business sector.

The environmental accounts system, development of which began at the beginning of the 1990s, was a first step in facilitating national and international analyses of an environmental economic nature. The environmental accounts system is linked to the production and consumption of goods and services. In the system, it is possible to distribute environmental impact among society's economic actors, various industrial sectors, public authorities and households. It turns out that environmental impact differs considerably among different types of industries. The base industries' activities are generally more energy-demanding and hence emission-intensive, whilst the processing of products are considerably less environmentally damaging. Service sectors are generally less environmentally damaging, with two important exceptions: the transport sector and waste management. All activities can be said to damage the environment, though there are still differences.

Economic links to environmental issues can be made in different ways. One way not discussed in this report is to value environmental quality or environmental destruction in monetary terms. It has, for example, been claimed in earlier EU documents that different vehicle types should bear their external costs, something they don't do today.[4]. Instead, the report considers some of the existing environmental economic instruments which the state and the business sector have at their disposal and how they are used. Apart from appropriations, these instruments include environmental taxes, industry's environmental protection costs, and new instruments such as green electricity certificates and emissions trading.

The state budget allocates funding to environmental research, to the management of environmental policy institutions and to environmental monitoring. The major part of the state budget goes to activities that are not particularly harmful to the environment. It is a question of, for example, providing financial security for children, families and pensioners. There are, on the other hand, examples of how state budget appropriations go to activities that can be assumed to increase energy use or cause other environmental impact. This can relate to major infrastructure projects or support to agriculture, the design of which may contribute to over-production.

The environmental objectives authorities have been tasked to report their appropriations in relation to direct measures taken during 2007 to help achieve the environmental objectives. This work is more detailed and is beyond the scope of this study. By comparing the results of various surveys, we should be able to get an idea of how the environmental appropriations are distributed among the environmental objectives, as well as what is spent more in general.

Similar studies in other countries

OECD has an on-going development project to monitor how the economy and the environment are connected. It has developed a database, to which countries are encouraged to send data on the economic instruments they use and on which sectors are exempted.[5]. The European statistics

[4] European Commission 2001

[5] www2.oecd.org

office, Eurostat, collects statistics on environmental taxes in accordance with national accounts methodology. The data they present include statistics on environmental taxes paid by businesses and households[6].

OECD has also produced a number of publications on environmentally damaging subsidies and eco-management tools.[7], how they can be measured and how it has been possible to make them less environmentally damaging or in some cases take them away entirely. Examples of subsidies include the EU's and other countries' agricultural subsidies and coal mining subsidies in Germany. As far as Sweden is concerned, tax reliefs for peat mining have been under discussion. Another example is the company care rules that have contributed to Sweden's vehicle fleet using more fuel and emitting more carbon dioxide than other EU member states.[8]. Economic assistance to regions has often been disbursed to infrastructure projects that haven't always been justified from a socioeconomic standpoint. In the United States, an alliance of reluctant tax-payers, Taxpayers for common sense" and the environmental organisation Friends of the Earth have performed several annual reviews of how government funding is distributed[9]. They have also developed a database of how agricultural assistance is distributed across the country with proposals for how they would like to see the subsidies reformed[10].

[6] www.epp.eurostat.ec.europa.eu
[7] OECD 2007, 2005, 2003
[8] Swedish Energy Agency and Swedish EPA 2007
[9] Road to ruin, http://www.taxpayer.net/road2ruin/COMPLETEREPORT.pdf and green scissors http://www.foe.org/res/pubs/pdf/gs2004.pdf
[10] http://farm.ewg.org

2. Methodology

2.1 Definition

In the report, state budget appropriations are classified according to certain principles. They are divided into three main groups: *Environment-related Potentially environmentally damaging* and *Other government activities*. The appropriations have been evaluated with the help of the text in the budget bills, but the project group has also benefited from previous projects performed by Statistics Sweden[11].

Some appropriations are motivated and named based on an environmental aim specified in the government's budget bill. Other appropriations, such as those related to environment health, have also been included among the environmentally motivated appropriations, as has research into the environment and renewable energy. The appropriations are presented in detail in Annexe A.

Environment-related expenses (known as 'environmental protection expenditure') have been compiled for several years in Sweden, the EU and the UN.[12]. The definition used means that measures and expenditure that are either entirely or partly aimed at reducing impact on the external environment are included in the statistics[13]. Statistics compile up to now have related above all to industry and the state. The same principles and definitions have applied in the report. The exception is environmental health-related appropriations, such as radon in housing and grants to the fund for damp and mould damage, which are included in this report but which are outside the current international definition.

Appropriations to various authorities where environmental work represents only a minor part of their day-to-day working tasks are mostly included in the main group *Other governmental activities*. Including these in environment-related appropriations requires individual evaluations of the specific authority in order to identify a correct unit cost aimed at the environment. It has not been possible to cover this in the project. The exception is environment-related development assistance appropriations identifiable from a previous Statistics Sweden project.

Appropriations that may come into conflict with the work being done to achieve the environmental objectives are defined as costs for activities with a carbon dioxide emission intensity that is higher than the national average and that is not motivated or designed for an environmental aim. The appropriations have been evaluated with the help of the budget bills. Since the early 2000s, the OECD has been working actively to develop an efficient working method to report environmentally damaging subsidies and uses the following definition [14]:

"In general, a subsidy is harmful to the environment if it leads to higher levels of waste and emissions, including those in the earlier stages of production and consumption, than what would be the case without the support measure".

In its studies, the OECD has focused on different sectors, agriculture, fishing, energy and road traffic. In Sweden, the sectors in question are among the activities with the highest intensities, i.e. greater impact from the climate gas carbon dioxide per million SEK of added value than Sweden as an average. Figure 1 shows the sectors in comparison with Sweden as a whole.

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[11] Statistics Sweden 2006

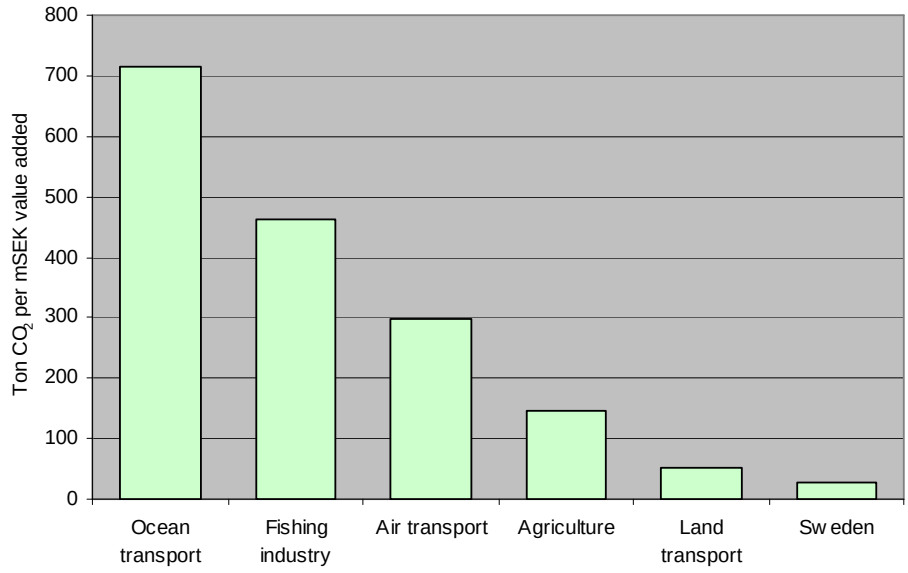
[12] SERIEE 1994, SEEA 2003

[13] Environmental protection groups together all actions and activities that are aimed at the prevention, reduction and elimination of pollution as well as any other degradation of the environment (1994 SERIEE § 2006). This includes measures taken in order to restore the environment after it has been degraded due to the pressures from human activities. Eurostat 2002

[14] OECD 2005

The project group has chosen to highlight appropriations that support the sectors in Figure 1 which, in their current form, may have a potential negative effect on the environment because they, for example, lead to an increase in road traffic. Included appropriations, e.g. *Transport assistance*, *Area support and livestock subsidies*, and *Grants to the fishing industry* are presented in detail in Annexe B the appropriations have been grouped under the environmental objectives for clearer presentation.

Figure 1. Carbon dioxide emission intensities per sector, tonnes/value added in SEK millions, 2004



Source: Environmental accounts, Statistics Sweden

Appropriations of e.g. a health, medical care, social care, labour market, working life nature have been classed as *Other governmental activities* and presented so as to give the reader an idea of the size of the groups *Environmental and Potentially environmentally damaging appropriations*. The appropriation headings for *Other governmental activities* are presented in Annexe C.

Appropriations classed as either environment-related or potentially environmentally damaging have been taken away from the main classifications in Other governmental activities. In the expenditure area *Agriculture and forestry, fishing with associated sectors*, for example, different appropriations such as grants for fish conservation and measures to promote rural structure and environment have been classed as environment-related. Other appropriations in the same expenditure area, such as area support, have been classed as potentially environmentally damaging. Appropriation left in *Other governmental activities* are grants for animal health protection, grants for forest nurseries and other similar types of appropriations.

Environmental taxes

The report makes comparisons with environmental taxes. Environmental taxes are defined as taxes on a physical unit that has a proven negative impact on the environment [15]. Four different categories of taxes are included: energy, transport, substances and nature resources.

A tax is a payment to the state for something that is not earmarked for a service. In the national accounts, a tax is defined as compulsory, uniform payments, in cash or in kind, levied by the public sector or by European Union institutions [16].

[15] "a physical unit (or a proxy for it) that has proven specific negative effect on the environment."

[16] System of National Accounts 1993. Section 7.48. Taxes are compulsory, unrequited payments, in cash or in kind, made by institutional units to government units. They are described as unrequited because the government provides nothing in return to the individual unit

The taxes are paid by businesses, authorities or households. The largest environmental taxes are energy and carbon dioxide taxes. The idea of environmental taxes is that they raise the price of an environmentally damaging activity and make it relatively more expense to perform.

2.2 Data sources

The data material for state appropriations comes from the Swedish National Financial Management Authority (ESV) and is based on the appropriations' cash outcome, i.e. when disbursements of the appropriations have been made. ESV develops economic steering mechanisms for the government, Swedish Government Offices and other central agencies and make analyses and forecasts of state finances[17].

Statistics on emissions and economic support by industry used in the report come from the environmental accounts at Statistics Sweden[18].

Statistics on emissions trading and electricity certificates have been collected from reports published by the Swedish Environmental Protection Agency (Swedish EPA) and the Swedish Energy Agency.

Statistics for international comparisons have been gathered from the European statistics office, Eurostat.

All the data in diagrams and tables with monetary values are presented in current prices.

making the payment, although governments may use the funds raised in taxes to provide goods or services to other units, either individually or collectively, or to the community as a whole.

[17] www.esv.se

[18] www.scb.se and www.scb.se/mi1301

3. The appropriations in a time perspective

3.1 Overall picture of the appropriations

In 2006, the Swedish state paid out about SEK 792 billion to purposes specified by the Swedish Riksdag and the government. According to the government's annual report, the surplus in public finances increased from 2.9 percent of GDP in 2005 to 3.6 percent in 2006.[19].

Table 1 shows state appropriations broken down into the three groups; Environment-related, Potentially environmentally damaging and Other governmental activities.

Table 1: State appropriations 1995-2006, SEK millions

	1995	2000	2005	2006
Environment-related appropriations	**4 469**	**8 904**	**12 870**	**12 752**
Environmental efforts in agriculture	931	3 115	4 946	3 953
Environmental measures	887	1 287	3 142	3 406
Environmental development assistance	583	1 283	1 734	2 015
Environmental monitoring	628	804	1 042	1 085
Grant for renewable energy and energy efficiency	568	671	521	370
Energy research	260	486	462	616
Environmental research	316	231	432	442
Radiation & nuclear safety	230	259	267	276
Investment programmes - environment/climate	1	645	177	436
Environmental health	65	122	146	153
Potentially environmentally damaging appropriations	**11 993**	**17 078**	**26 030**	**29 569**
Reduced climate impact	6 939	13 672	17 756	16 823
Zero eutorphication	4 538	2 691	8 025	12 520
Flourishing lakes and streams	468	652	130	133
A balanced marine environment, flourishing coastal areas and archipelagos	62	63	119	94
Clean air	13	0	0	0
Other environmental goals	-28	0	0	0
Other governmental activities				
of which railways and public transport	**601 739**	**683 584**	**686 056**	**723 170**
Total without adjustments	12 535	7 775	11 860	12 179
Total*	618 201	709 566	724 956	765 491

* Total includes adjustments for cash corrections and the National Debt Office's net lending

Environment-related appropriations

In 2006, about 1.6 percent of the total state budget was allocated to environment-related activities, around 0.5 percent of GDP. This includes appropriations for research, development assistance and environmental protection (see Annexe A for a detailed presentation).

Table 1 show an increase of the total amount for Environment-related appropriations between 1995 and 2006 by 185 percent (from SEK 4 to nearly SEK 13 billions).

On the whole, individual environment-related appropriations increased with the exception of subsidies in the Grants for renewable energy and energy efficiency improvements category. Here, appropriations have decreased partly because appropriations in the areas of *Introduction of new energy technology* and *International climate measures justified from an energy policy standpoint*

[19] Government communication 2006/07:101

have been reduced. It is also due to some appropriation items having been removed, such as *Protection for small-scale production* and *Grants for investments in electricity production from renewable energy sources*.

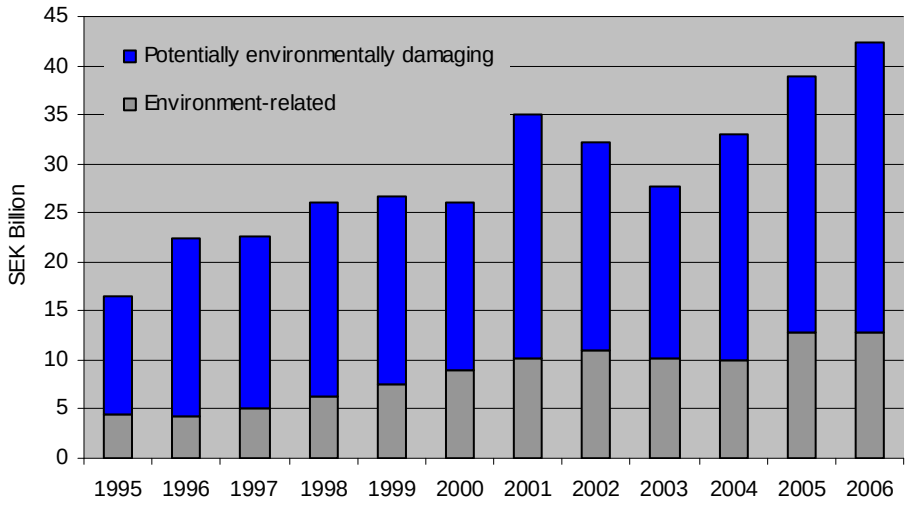
Potentially environmentally damaging appropriations
Between 1995 and 2006, appropriations that may hamper the work being done to achieve the environmental objectives have increased as a proportion of the total state budget, from 2 percent to nearly 4 percent of the total budget in 2006. These counteractive appropriations include mostly transport-related appropriations to road, air and sea transport but also different appropriations to agriculture and fishing (see Annexe B for a detailed presentation).

Appropriations in the group amounted to SEK 12 billion in 1995. During 2006, the amount was nearly SEK 30 billion; an increase of 147 percent. It is mostly the appropriation for *Area support and livestock subsidies* that caused this marked increase (during 1995, the appropriation was nearly SEK 4 billion but in 2006 had increased to SEK 11 billion).

The appropriation for *Area support and livestock subsidies* was reformed in accordance with the EU adopting a new agricultural policy. In the 2006 budget bill, the name of the appropriation was changed to *Farm support*. In accordance with the new focus of the support, the compensation now depends on size (area) rather than, as previously, linked to how much a farmer produces. Payments will continue to be linked to production for certain activities for a transitional period. This applies mainly to the male premium and the milk premium. The milk premium will be completely decoupled in 2007 and the male premium no later than 2009.

Figure 2 shows the development of the two groups of appropriations between 1995 and 2006. As mentioned above, the expenses rise from year to year. Potentially environmentally damaging appropriations have increased by just under SEK 20 million and Environment-related appropriations by just under SEK 10 million.

Figure 2: State appropriations related to the environment, 1995-2006, SEK billions

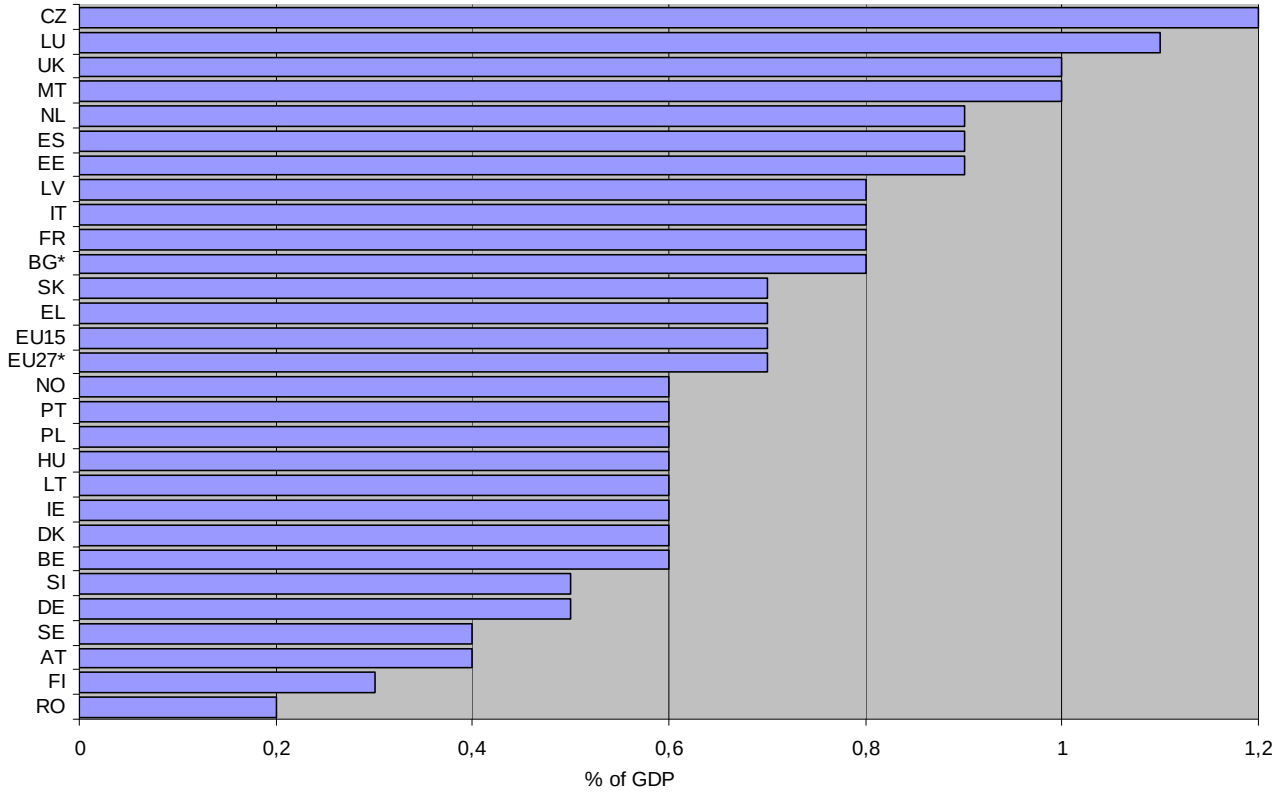


Other governmental activities
The largest share of the state budget goes to Other governmental activities, including financial security, healthcare and social care. During 2006, these activities accounted for about 95 percent of total appropriations or about 26 percent of GDP. Between 1995 and 2006, appropriations in Other governmental activities have increased by 20 percent, from SEK 602 billion to SEK 723 billion.

International perspective
Pan-European statistics on government expenses in the environmental field are collected and published by Eurostat. Figure 3 shows that, apart from Latvia and Estonia, southern Europe has higher expenses for environmental protection per GDP than northern Europe.

According to Figure 3, some countries have a higher proportion of government expenses than others, the main differences in the statistics being mainly due to waste management and wastewater treatment. In order to gain a correct and fair picture of the situation in different countries, statistics on the relevant industries in the private sector should also be included. There are unfortunately major gaps in the international statistics.[20].

Figure 3: Environmental protection expenditure in the public sector, percent of GDP, 2005



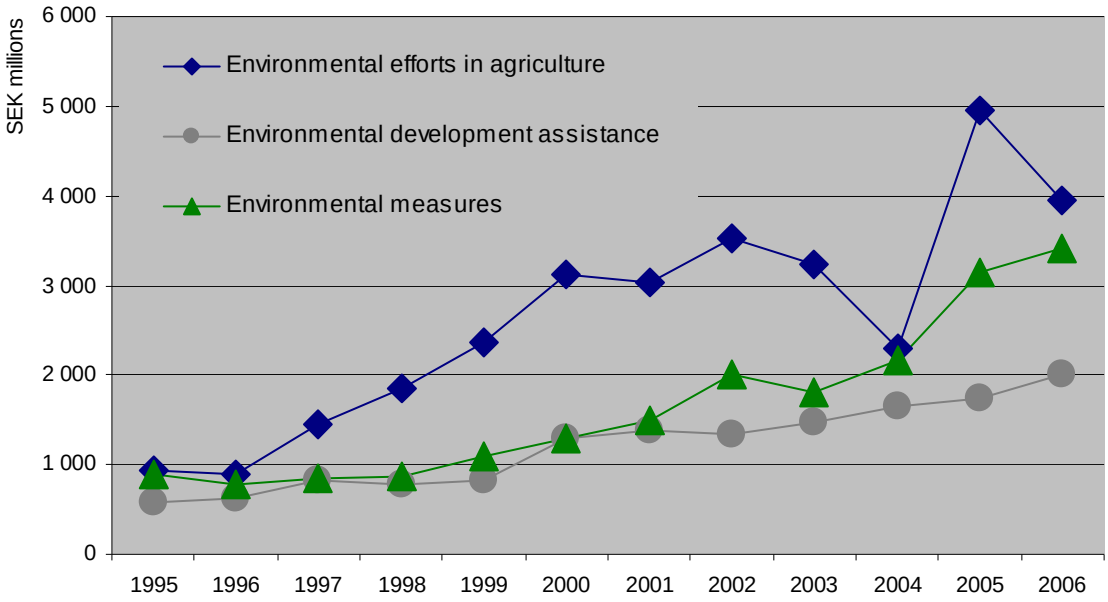
Source: National accounts, Eurostat, *2004

3.2 Environment-related appropriations

Figure 4 shows the three appropriation groups that have the largest appropriations (volume) between 1995 and 2006, related to government environmental work. These are Environmental efforts in agriculture, Environmental measures and Environmental development assistance. These groups have also had the largest percentage development, apart from Investment programmes for the environment and the climate.

[20] Eurostat 2005

Figure 4: Development of the three largest appropriation groups for environmental work, 1995-2006



Environmental efforts in agriculture
In addition to the Investment programme, Environmental efforts in agriculture is the appropriation group that has increased the most by over 300 percent between 1995 and 2006, or from SEK 931 million to SEK 3.9 billion.

Environmental measures
The Environmental measures group contains a number of different appropriations and concerns traditional measures such as remediation, liming, investment programmes for nature conservation and information. Between 1995 and 2006, this group increased by nearly 300 percent (from SEK 862 million to just over SEK 3 billion). Since the introduction of the appropriation for biodiversity in 1999, this item accounts for nearly 60 percent of the appropriations (see Annexe A). It is mostly investments in land that make up this appropriation (SEK 895 million).

Environmental development assistance
In the mid-1990s, environmental development assistance consisted of a number of cooperation projects and measures. Since 2006, all assistance goes through the *Development cooperation activities* appropriation. The appropriation for development cooperation activities is disbursed to Sida (Swedish International Development Cooperation Agency) and the Ministry for Foreign Affairs. The proportion going to environmental development cooperation has been identified with the help of annual reports and through previous Statistics Sweden projects.

Research appropriations
Research and development is one of the areas that can contribute in more than one way. New technologies and processes are good for business, can reduce impact on the natural environment and also provide jobs. For example, the Swedish Research Council Formas and VINNOVA (Swedish Government Agency for Innovation Systems) were given the task in 2006 of developing a national research strategy to promote environmental technology[21].

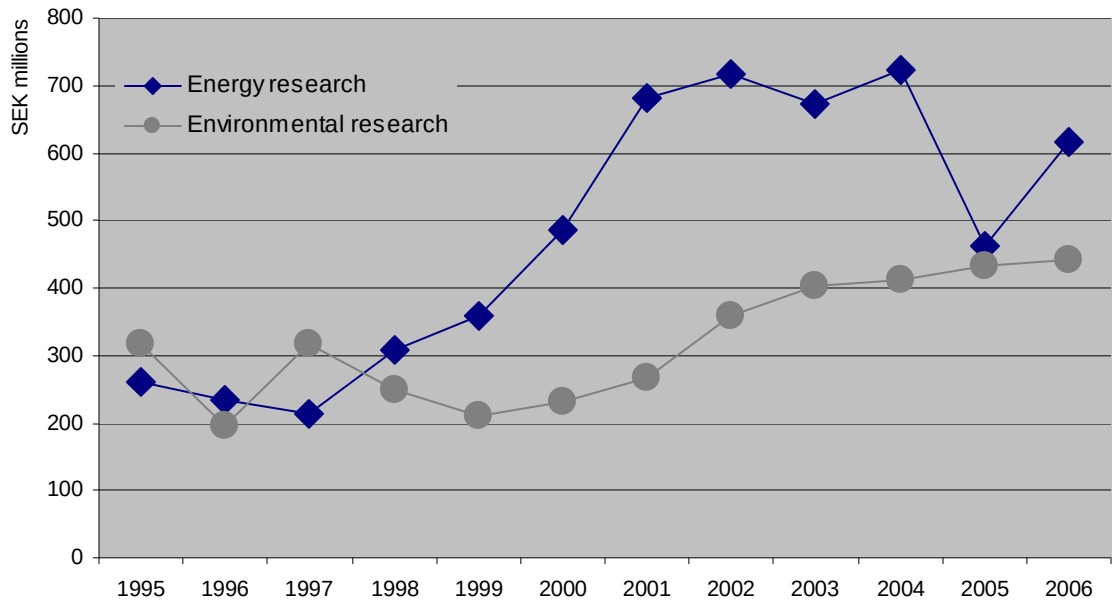
[21] Research strategy for environmental technology, Report on the government assignment to Formas and Vinnova, 1 February 207.

Products and services, which aim to reduce environmental impact, are developed in Sweden. Businesses that produce these are called environmental enterprises. In 2005, Swedish environmental enterprises employed just under 96 000 people and had a combined turnover of SEK 243 billion[22].

In 2006, the Swedish state contributed just over SEK 1 billion to Environmental and energy research. Figure 5 shows that general environmental research, including appropriations to various research councils, has increased between 1995 and 2006 by 40 percent. Over the same period, appropriations for energy research have increased by about 140 percent, even if disbursed appropriations fell slightly from 2005.

The largest share of the appropriations is given to Formas, 72 percent of the appropriations in the Environmental research group, or SEK 339 million. After that, a large proportion goes to supporting the Swedish EPA and the government's share of IVL Swedish Environmental Research Institute's research and development activities (the appropriation is called Environmental research). This is focused on, for example, improving the basis for how the environmental objectives can be achieved or research linked to the Swedish Environmental Code[23].

Figure 5: Development of research appropriations for the environment, 1995-2006



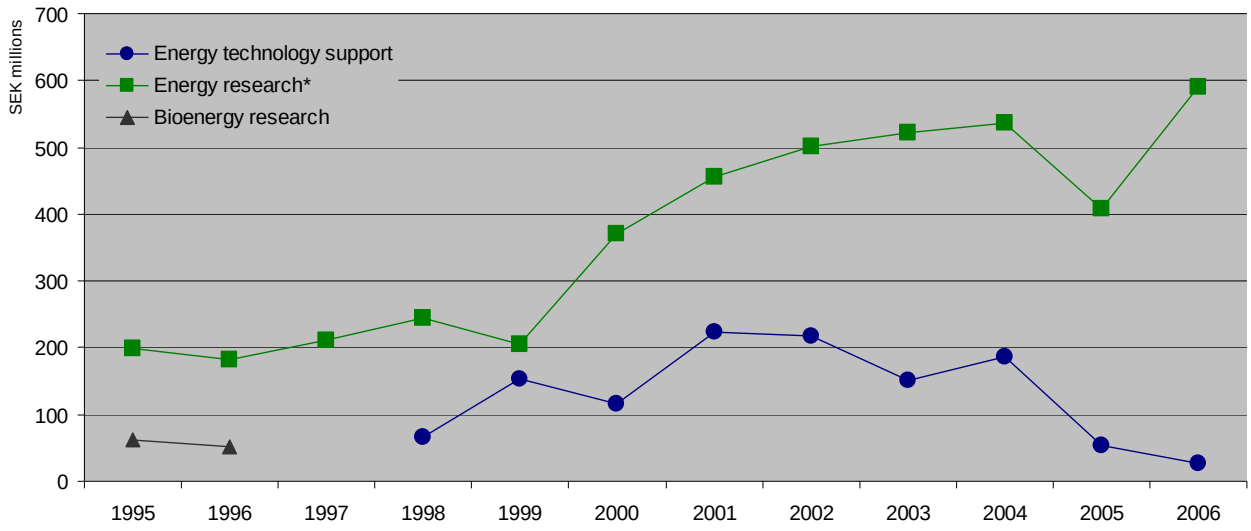
The appropriations for Energy research shall promote the development of technology based on renewable energy sources, although they may also be used for demonstration measures and membership fees. The budgeted appropriation for energy research was just over SEK 815 million in 2006. The actual outcome is disclosed as just over SEK 600 million. It is unclear whether transitional regulations on appropriation savings are the reason for the difference or whether the appropriations have not been used as planned.

Figure 6 presents appropriations in Energy research. During the late 1990s, research appropriations were of two different types: One was for *Energy research* and the other for *Energy technology*

[22] Environmental accounts updated: 17 October 2007.
[23] 2007 Budget Bill.

support. The problem with comparable analysis is that appropriation products in the state budget change names of focus over time, making comparison more difficult. Things are clear as regards energy research. In the statistical data, energy research can be found as two items, amalgamated into one time series in Figure 6. This is due to the fact that energy research was initially designed as a project of a limited three-year duration between 1995 and 1997. The appropriation was then extended.

Figure 6: Development of appropriations within Energy research, 1955-2006



*Energy research 12E009 (1995-1997 amalgamated with energy research 213205 (1997-2006)

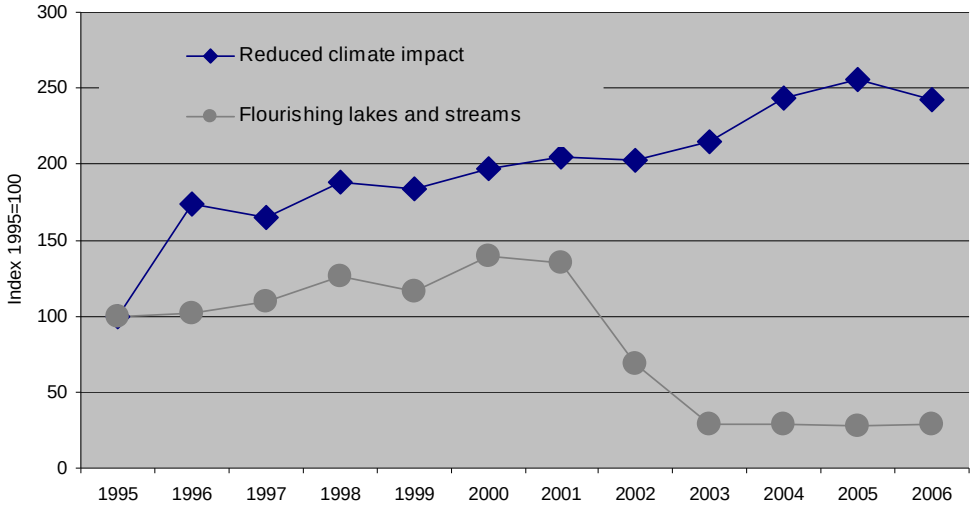
3.3 Potentially environmentally damaging appropriations

Appropriations that, due to their design, may have a negative effect on the environment go mostly to transport-related activities, agricultural support and fishing. Annexe B lists the appropriations included in the categories presented. The appropriations have been categorised in accordance with the environmental objective they are most likely to counteract. The appropriation category that has increased the most between 1995 and 2006 is appropriations that may counteract the *Reduced climate impact* objective and can be seen in Figure 7. These appropriations have increased from about SEK 7 billion to almost SEK 17 billion between 1995 and 2006. It is mostly the appropriation for Road maintenance and government subsidies that are responsible for the largest share in the group with almost SEK 16 billion. The appropriation funds the National Road Administration's activities (though not the administration itself) and also includes subsidies to non-government organisations (NGOs). It is important to point out that parts of the appropriation are also aimed at improving road safety and the environment. The rest of the appropriation amounts to about SEK 1 733 million[24].

The appropriations that have decreased the most during the same period are those that counteract the *Flourishing lakes and streams* objective. These appropriations, which include subsidies to shipping, canal traffic and leisure craft, have decreased by just over 70 percent. This decrease is solely due to the shipping subsidy which was abolished completely in 2003. In 2006, the state contributed to these appropriations in the *Flourishing lakes and streams* group to the tune of SEK 133 million.

[24] Table 5.3 Monitoring of measures in the national road maintenance plan "Separating on-coming traffic and minor road safety measures": SEK 177 million.

Figure 7: Development and the most increasing and decreasing environmentally damaging appropriations, index 1995=100



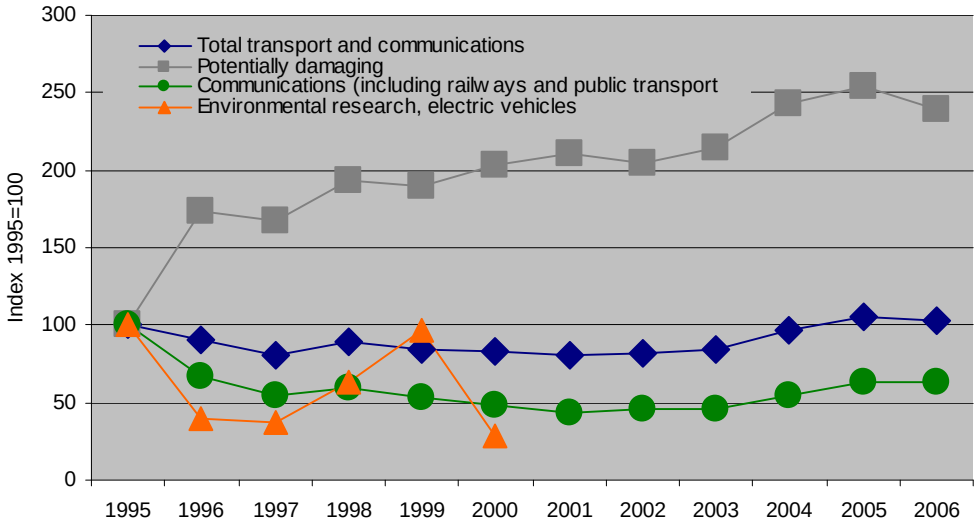
Communications

As regards the expenditure area for communications, some of it is included in Environment-related expenses and some in Potentially environmentally damaging expenses. Figure 8 presents in detail how the various appropriation groups, Environment-related research, Potentially environmentally damaging and Other communications expenses, have developed.

Expenses for communications in Sweden totalled about SEK 30 billion in 2006. This is basically on the same level as during 1995. Of note in Figure 8 is that a considerable increase has occurred for appropriations that may hamper the work being done to achieve the environmental objectives. One reason is *Operating subsidies to non-state-owned airports*, which increased from SEK 15 million to approx. SEK 80 million between 1998 and 2006. The appropriation for *Road maintenance and state subsidies* has also increased.

Environmental research into electric vehicles was an older extended appropriation and was utilised by the Transport and Communications Research Board (KFB). In recent years, the subsidy system for alternative-fuel vehicles was included in the appropriation for *Energy research*. In the 2008 bill, the focus has been shifted to developing alternative fuels and more efficient combustion engines.

Figure 8: Transport and communications in detail, index 1995=100



3.4 Other governmental activities

In 2006, Other governmental activities were responsible for nearly 95 percent of total appropriations or approximately SEK 723 billion. Table 2 shows how the main headings of the appropriations were categorised by size of appropriation between 1995 and 2006.

The largest subsidy of approximately SEK 126 billion (or about 4 percent of GDP) went from the appropriation heading for Financial security for the sick and disabled. Thereafter, the appropriation headings Labour market, General grants to local government, Financial security for families and children and Financial security for the elderly receive between SEK 68 billion and SEK 45 billion.

Table 2: Other governmental activities, SEK millions.

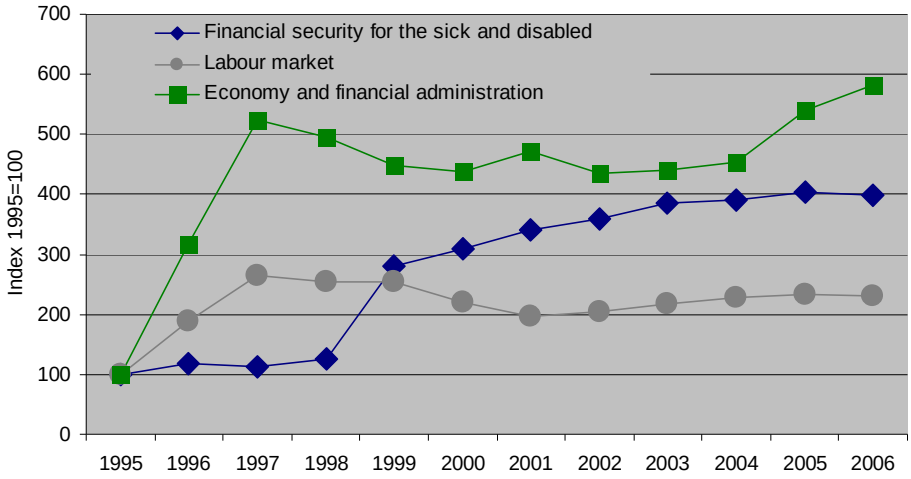
Environmental area	1995	2000	2005	2006
Financial security for the sick and disabled	31 535	97 937	127 049	125 683
Labour market	29 665	65 613	69 568	68 280
General grants to local government	48 489	97 535	57 325	60 246
Financial security for families and children	32 445	44 596	55 467	60 066
Interest on central government debt	104 767	90 213	32 657	49 472
Education and academic research	23 530	31 363	43 695	46 495
Financial security for the elderly	65 072	33 538	46 120	45 019
Defence and contingency measures	40 130	46 135	43 566	43 746
Health and social care	18 047	28 364	38 126	41 919
Justice	19 208	21 920	27 025	28 505
Contribution to the European Community	15 447	22 295	25 635	25 920
International development cooperation *	11 624	14 058	20 526	23 879
Financial support to students	12 558	19 681	19 779	20 137
Transport and communications *	23 402	11 239	14 669	14 929
Of which railways and public transport	2 030	8 913	10 972	11 832
Economy and financial administration	6 457	7 589	8 968	9 585
Culture, media, religious communities and leisure	6 524	7 567	8 572	9 011
Taxes, customs and enforcements	44 734	11 062	8 611	8 734
Planning, housing provision, construction and consumer policy	4 932	6 711	7 673	8 199
Governance	8 567	4 472	6 918	7 806
Immigrants and refugees	3 799	3 886	3 743	4 089
Industry and trade *	2 763	3 443	3 710	3 692
Agriculture, forestry, fisheries, etc.*	2 264	2 639	2 911	2 837
Regional development*	1 947	1 093	1 365	1 426
International cooperation	41 368	1 268	1 153	1 216
Working life	429	451	230	425
Energy *	7	6	22	20
General environmental protection and nature conservation*	601 740	683 587	686 055	723 168
Total	31 535	97 937	127 049	125 683

*Excluding environment-related and/or environmentally damaging appropriations

Figure 9 shows the three largest increasing appropriation groups between 1995 and 2006. Up until 2006, the increase was around 500 percent, or from SEK 2 to nearly SEK 12 billion.

The appropriations group Financial security for the sick and disabled has increased by nearly 300 percent over the same period, or from about SEK 32 to about SEK 126 billion. Appropriations for Labour market have increased by about 130 percent.

Figure 9: Development of the 3 largest increasing appropriation groups, index 1995=100



Economy and financial administration
The dominant appropriation in this group is State occupational pensions. These have been responsible for over 80 percent of the appropriations but in recent years the proportion has dropped and in 2006 stood at 73 percent or SEK 8.6 billion. This is due to the fact that total appropriations in the group have increased in conjunction with the introduction of congestion charging trials in Stockholm in 2004. Considerable increases have occurred in the appropriations *Employer policy issues* (from about SEK 800 million to nearly SEK 8 billion in 2006) and the administrative costs for *National Debt Office* and *Swedish National Financial Management Authority* (which increased from SEK 63 billion in 1995 to about SEK 270 billion in 2006 and from SEK 22 billion in 1998 to about SEK 100 billion in 2006 respectively).

Financial security for the sick and disabled
The largest proportion concerns *Activity allowances and sickness benefits, etc.* with about 60 percent. This appropriation item is also the cause of the strong increase between 1995 and 2006. The appropriation has increased from just over SEK 14 billion in 1995 to about SEK 74 billion in 2006. *Social Insurance Office* was added as an appropriation item in 2005 and totalled SEK 7 billion. With this, the appropriations for *National Social Insurance Board* (just under SEK 1 billion) and the appropriation for *Public social insurance offices* (just under SEK 6 billion).

Labour market
The expenditure areas for Working life and Labour market were up until 2001 the same expenditure area. In 2001, however, the government decided to move certain appropriations from Working life to the expenditure area Financial security for the unemployed, later given the name Labour market.

The largest expenditure item in the group is related to *unemployment benefit and activity allowance*. This appropriation is responsible for just over 60 percent of the group's total combined appropriations. A contributory factor to the overall increase of the appropriation group is the introduction of the appropriation for *The Inspectorate for Unemployment Insurance (IAF)* in 2003. The task of the IAF is to examine how the Swedish National Labour Market Administration (AMV) fulfils its role in the field of unemployment insurance. Even the appropriation for the *European Social Fund (ESF)* and the appropriation for *Income support and Samhall*[25] have increased considerably during their respective periods (ESF from SEK 3 million to SEK 2 billion between 2000 and 2006 and Income support and Samhall from SEK 5 billion to nearly SEK 12 billion between 1997 and 2006).

[25] Samhall is a government-owned company providing development opportunities to people with disabilities through employment

4. Other environmental economic instruments

4.1 Environmental taxes

In 2006, about SEK 79 billion was paid into the state in the form of environment-related taxes. As mentioned in Chapter 1.1, a tax is a payment to the state, without a specific service having been performed. Payments for a service are classified as charges.

Environmental taxes are a tool used by the state to influence the behaviour of businesses and consumers as regards the use of resources that have a negative impact on the environment. The sulphur tax introduced in 1993[26] is a good example where the introduction of the tax influenced the use of natural resources with a high sulphur content. This also led to a considerable fall in sulphur dioxide emissions from permanent facilities in Sweden.

In 2005, the average total environmental tax per GDP was 2.6 percent within EU-27. By that average, Sweden is the ninth country on the list with a contribution of 2.9 percent of GDP. Denmark is in first place with a contribution of 5.8 percent environmental taxes per GDP[27].

Between 1995 and 2006, environmental taxes in Sweden have increased in absolute figures from SEK 50 billion in 1995 to approximately SEK 79 billion. Table 3 shows that tax on energy is the largest source of income for the state with just under SEK 70 billion. Tax on natural resources (includes e.g. natural gravel) and tax on certain substances (includes e.g. sulphur tax) are together responsible for SEK 1.3 billion.

Table 3: Environmental taxes, 1995-2006, SEK millions

Environmental area	1995	2000	2005	2006
Energy	43 551	52 807	65 900	66 717
Transport	5 798	7 026	10 248	10 811
Natural resources	..	125	200	254
Substances	674	1 589	1 216	1 065
Total environmental taxes	**50 023**	**61 547**	**77 564**	**78 847**

*2005-2006 preliminary data

Tax exemption and reduction

In Sweden, a business can in certain cases request tax exemption. This primarily applies to the energy sector. Examples include fuel used for purposes other than the operation of motorised vehicles for which no energy tax and only 25 percent carbon dioxide tax is paid. No energy tax is paid for electricity. As regards the manufacture of e.g. cement, lime, stone and glass, tax on carbon and natural gas needed for production can be reduced.

A study by the Swedish EPA shows that 39 companies were given a reduction in carbon dioxide tax in 2004 in accordance with the "0.8 percent rule"[28] . The study, which contained data from the National Tax Board, showed that 53 percent of the 39 companies were in NACE 26 "Manufacture

[26] The Sulphur Tax Act (1990:587) was superseded in 1994 by the Energy Tax Act (1994:1776)
[27] Eurostat 2007
[28] If a company still pays more than 0.8 percent of the sales value of goods it produces in carbon dioxide tax, despite a reduction in carbon dioxide tax to 21 percent of the general tax level, the company may be awarded an additional reduction.

of non-metallic mineral products" (production of glass, cement, lime, concrete, etc.) [29]. In 2004, carbon dioxide emissions in NACE 26 amounted to 5 percent of total carbon dioxide emissions in Sweden.[30].

Other types of subsidies that may influence behaviour include interest-free tax credits, privileged access to the market, regulated support mechanisms and privileged access to natural resources. These are difficult to calculate.

4.2 Alternative steering instruments

Emissions trading
When emissions trading was introduced in 2005, about 12 000 Swedish industrial and electricity production facilities were included.

The idea of emissions trading is for it to be an important tool in meeting the EU's undertakings as regards reduced greenhouse gas emissions in accordance with the Kyoto Protocol. Emissions trading currently covers about 40 percent of EU member states' total carbon dioxide emissions.

The emissions trading market should be created with the least possible negative impact on economic development and employment in the European Union. The first phase of emissions trading was between 2005 and 2007. The next trading period is between 2008 and 2012.

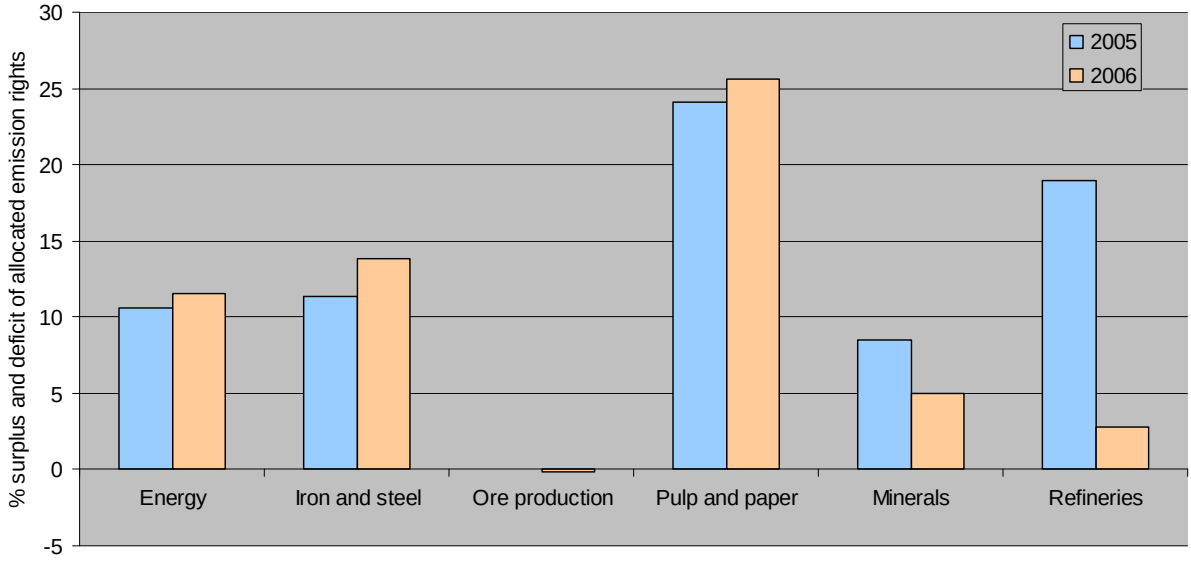
Carbon dioxide emissions are the only greenhouse gas emissions currently included in the trading system. Other greenhouse gas emissions and other industries may be included at a later date. Whether or not to include the aviation sector by 2011 is currently being discussed within the EU.

Emission rights within Sweden have been allocated to companies free of charge by the Swedish state. The principle of the free allocation of emission rights also applies to the 2008-2012 period.

In 2007, the Swedish EPA reported carbon dioxide emissions and the number of emission rights for those companies trading emissions. Figure 10 shows that in general more emission rights than corresponding carbon dioxide emissions were issued. The exception is companies in the mining industry who were basically issued with the same number of rights as the emissions they generated. The surplus of emission rights has been explained by structural changes in the sector. According to the report from the Swedish EPA in 2007, textile and food production facilities were closed and a major breakdown in the iron and steel sector led to a decrease in carbon dioxide emissions. This led to a surplus of emission rights.

[29]Swedish EPA 2007b
[30]Environmental accounts: Updated: 17 September 2007: Carbon dioxide emissions 1993-2004

Figure 10: Allocation of emission rights compared to actual emissions 2005-2006,



Source: Swedish EPA 2007b

Trading in electricity certificates

An electricity certificate system was introduced in Sweden in 2003. This is a market-based support system for the expansion of electricity production. The aim of the system is to increase electricity production from renewable sources and peat[31]. The national objective of the certificates is to increase electricity production from these energy sources by 17 TWh from 2002 levels by 2006. 70.3 TWh of electricity were produced in 2003[32] from renewable energy sources out of about 143 TWh of total energy produced[33].

The system is designed so that a facility producing electricity from renewable sources and peat must be approved before being included in the system. Supply is governed by the number of approved facilities, their production and proportion of renewable fuel.

Electricity certificates can be bought or sold, either directly among producers[34] and those subject to a quota obligation or through agents. All electricity suppliers and certain electricity users are obliged to purchase electricity certificates corresponding to a certain percentage of their electricity sales or use. According to the Swedish Energy Agency, the average price of a certificate is SEK 235.

In March every year, electricity suppliers must submit both a declaration of how much electricity they have sold and the corresponding number of certificates in accordance with applicable rules. After having reviewed the declarations, the Energy Agency annuls the number of certificates submitted and the supplier starts again prior to next year's declaration.

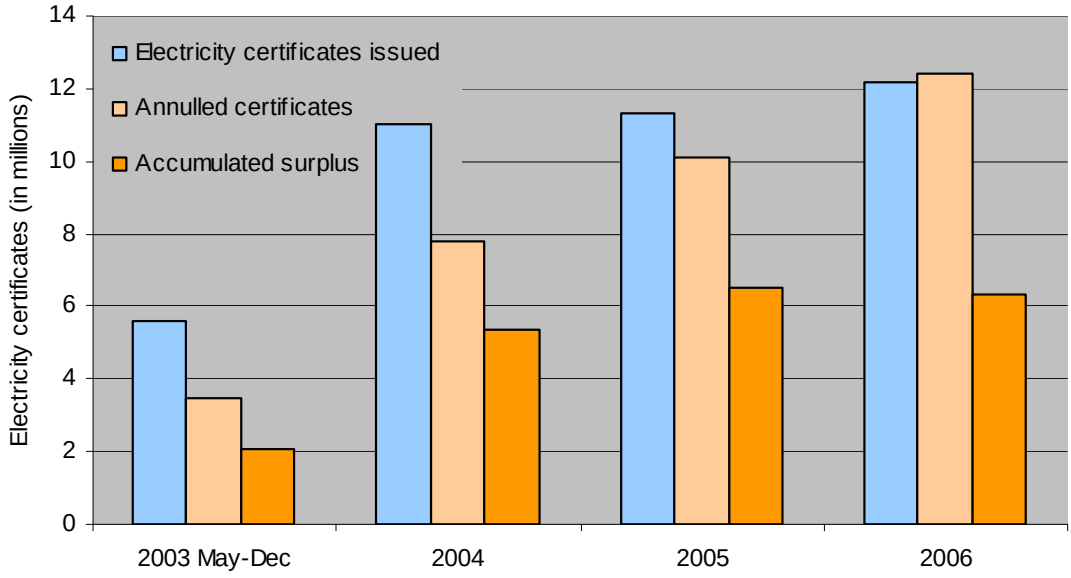
Some activities are not covered by electricity trading certificates, including electricity needed to ensure the continued function of the electricity grid (known as "waste electricity"). Another type of electricity not included is electricity used in manufacturing processes at certain electricity-

[31] Swedish Energy Agency, 2007
[32] Swedish Energy Agency 2007
[33] Energy statistics, Statistics Sweden, net electricity production, SSD
[34] Producers include those who produce electricity certificates for their own electricity sales activities and large portfolio customers with electricity certificate production who chose to sell their certificates through their portfolio manager. S. 15 Swedish Energy Agency 2007

intensive companies[35]. The exemption applies to electricity-intensive companies so as not to unduly distort competitiveness.

The latest statistics from the Energy Agency show, however, that there is a surplus of electricity certificates on the market and that this has increased since their introduction in 2003, as shown in Figure 11.

Figure 11: Issued electricity certificates, annulled certificates and the accumulated surplus, 2003-2006



Source: Swedish Energy Agency

Environmental sanction charges

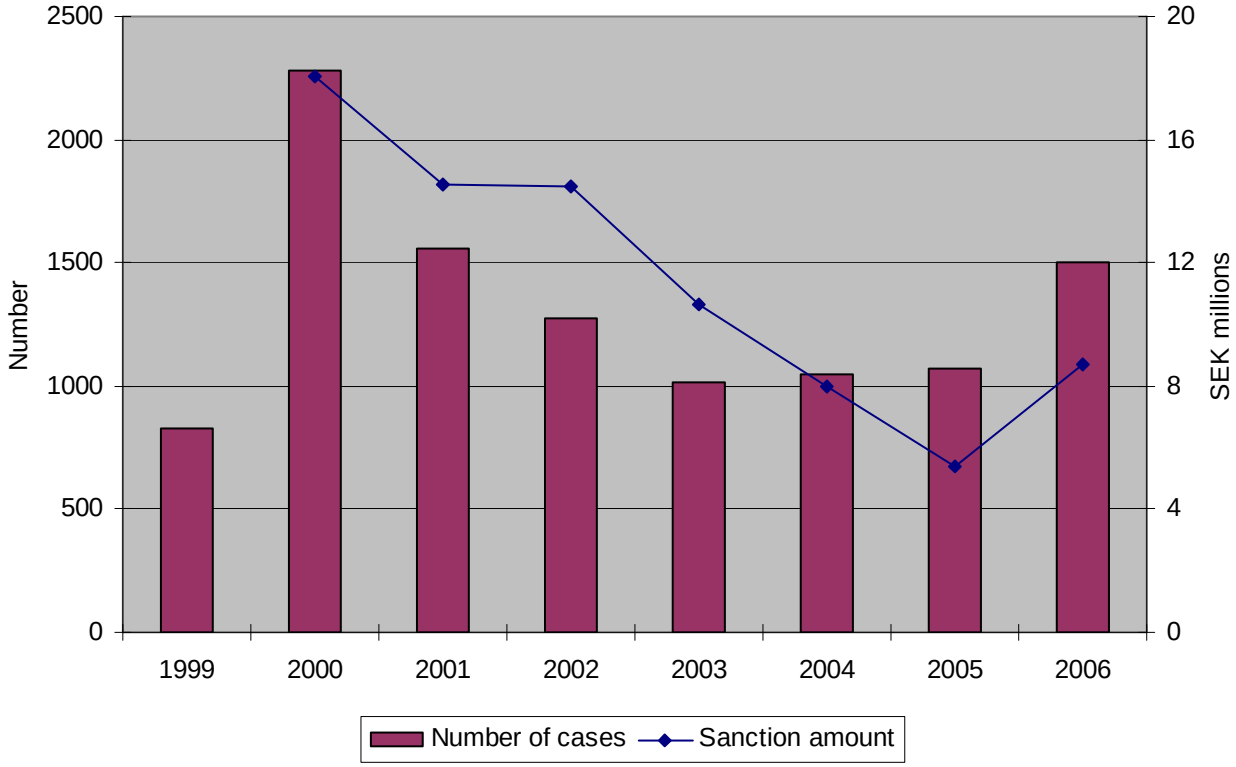
Acts, ordinances and norms make up what are termed "administrative instruments". They establish a given framework in the form of quantified targets. Environmental sanction charges were introduced when the Swedish Environmental Code was enacted in 1999 and can be imposed in the event of non-compliance.

Environmental sanction charges are an administrative fee of between one thousand and one million Swedish kronor. In order for the charge to be imposed, some violation of the law must have occurred. Such violations include not submitting an environmental report, starting an activity or taking a measure requiring a permit without first applying for one or not adhering to the conditions of such a permit.

A study by Statistics Sweden in 2005 showed that the majority of environmental sanction charges in 2003 were imposed on trade (NACE 50-52) and financial services (NACE 64-74). The most common cause was violation of the regulation governing refrigerants.

[35] Electricity use in the manufacturing process amounts to 40 MWh per SEK million of the total sales value of the company's products and goods.

Figure 12: Total number of cases and total amount of environmental sanction charges levied, 1999-2006



Source: Statistics Sweden, MIR 2005:1 and the Swedish EPA

5. Discussion

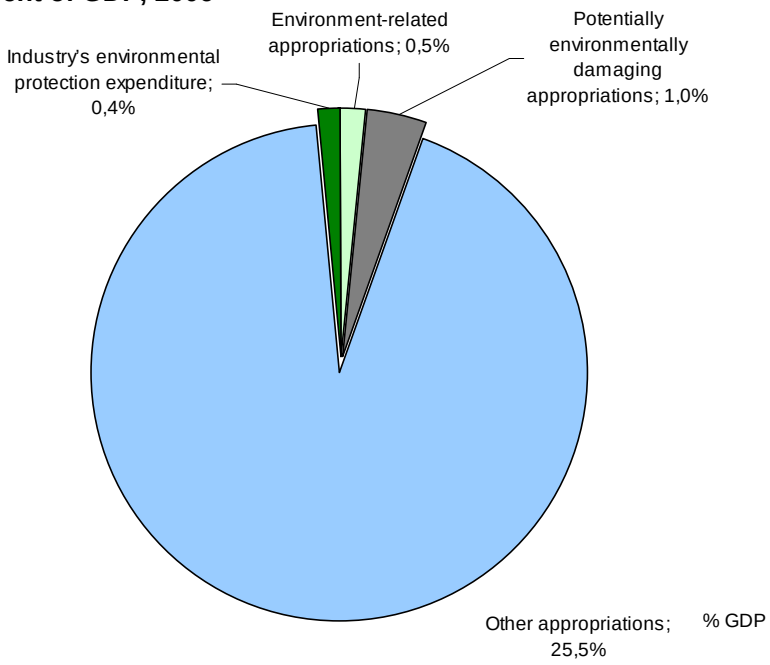
There are difficulties involved in determining and delimiting what are environment-related activities and what are not. Congestion charges are for example difficult to classify. Their purpose is to improve accessibility on roads during the rush hour. Better accessibility improves the efficiency of the business sector - a purely economic argument. One effect of the congestion charge, however, is a reduction in road traffic, which indirectly improves the environment. Whether the revenue from the charge is earmarked for new roads or for public transport will be crucial in terms of the environmental result. It was, however, impossible to examine the appropriation in more detail within the scope of this project. The congestion charge was awarded a special appropriation in 2005 and 2006 of SEK 1.3 and SEK 1.4 billion respectively which is included in Chapter 3.4 Other governmental activities under the appropriation for Economy and financial administration.

Based on the background data employed, the Swedish state contributed about 1.6 percent of the total budget to environmentally motivated efforts or just under SEK 13 billion in 2006. Table 1 showed that between 1995 and 2006, the total amount of Environment-related appropriations increased by 185 percent (from SEK 4 to nearly SEK 13 billion, of which SEK 895 million went to purchasing, property owner compensation and grants to local government and foundations with regard to Natura 2000 sites). This can be compared to the manufacturing industry's environmental protection expenditure which were just under SEK 9 billion or 0.4 percent of GDP in 2006[36].

Just under 4 percent of the budget goes to potentially environmentally damaging activities. The state and the business sector spent a total of SEK 21 billion on preventing and treating emissions (just under 0.8 percent of GDP) in 2005.

From an international perspective, the Swedish state pays out less in environment-related appropriations than the EU-27 average but on a par with its Nordic neighbours.

Figure 13: Allocation of state appropriations and industry's expenses for environmental protection, percent of GDP, 2006



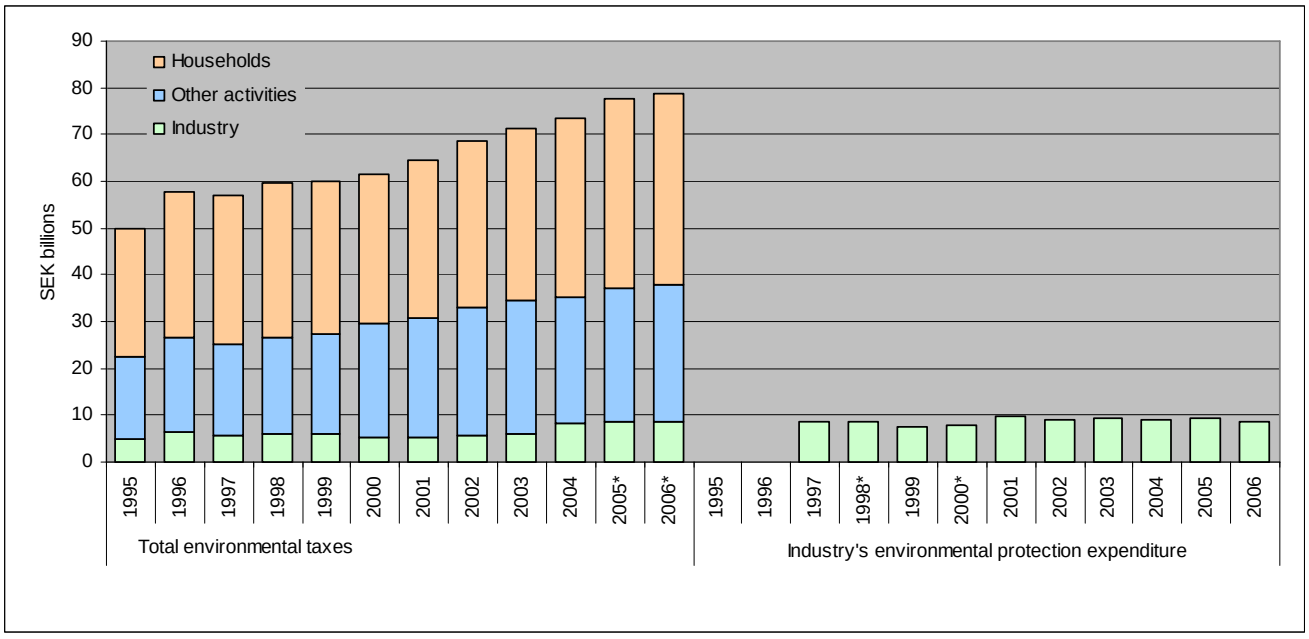
[36] Statistics Sweden, 2007

In general, Environment-related expenses have increased between 1995 and 2006 by 185 percent, from SEK 4 billion to just under SEK 13 billion. The only group that has not increased is subsidies to renewable energy and energy efficiency improvements. This is due to the appropriations for *Introduction of new energy technology* and for *International climate initiatives motivated from an energy policy standpoint* having decreased. Other targeted appropriations, such as *Environmental research into electric vehicles*, have been abolished over the years and instead included within the framework of other appropriations.

Potentially environmentally damaging appropriations consist mainly of appropriations in the transport and communications sector but also in the agriculture and fisheries sector. Work is currently on-going in e.g. the OECD to define environmentally hazardous subsidies and this work has been used as a starting-point in this report. In the agricultural sector, *area support and livestock subsidies* were included as a potential obstacle to environmental work. These subsidies are disbursed on the basis of production, providing an incentive to increase potentially unsustainable production. The support was reformed in 2005/2006 and renamed "farm support". In accordance with the new focus of the support, compensation is paid depending on area and not, as previously, on the extent of production. Some of the appropriation is still production-based, however.

The state has other ways at its disposal of influencing producers and consumers in addition to appropriations. Environmental taxes on energy, transport, nature resources and substances help to influence behaviour whilst boosting the public coffers. Just under SEK 80 billion was paid by Swedish households and businesses in environmental taxes in 2006. Figure 14 shows that between 1995 and 2006, environmental taxes have increased by just under SEK 30 billion. Households pay just over half the environmental taxes. It is also interesting that industry (mining, manufacturing, water and electricity) pay about the same in environmental taxes as it invests itself in environmental protection measures.

Figure 14: Trend in environmental taxes and industry's environmental protection expenditure, 1995-2006



*Environmental taxes 2005-2006 preliminary *Environmental protection expenditure of industry 1998 and 2000 estimated on the basis of the previous year's value and the industry's trend in added value.

Trials have also begun with trading in electricity certificates and emission rights. Adjustments to and improvements in quotas in both systems are necessary, according to the reviews, so that the aims of the certificate and emissions trading systems can be realised.

6. Conclusions

The aim of the project was to supplement the green indicators so that they cover environmental economic variables that can be linked to the state budget. This may help increase understanding of the budget's impact of the work being done to achieve the environmental objectives and clarify the significance of the environmental economic instruments.

The proposed indicators for following how much is set aside for environmental purposes every year are: i) the total amount of environment-related appropriations and ii) total environmental protection costs of the business sector. How much the state sets aside in appropriations for potentially environmentally damaging measures is also proposed as an indicator. These should preferably be broken down so that we can see how much is investment and how much is operating costs. Further sub-divisions are made clear in Table 1.

Other interesting and comparable environmental economic indicators, which should in future be developed, are total environmental taxes per year, how much is set aside for emission rights, electricity certificates and environmental sanction charges. There are also other feasible environmental economic indicators that may be of interest to ensure consistent monitoring. Examples include the extent of green procurement and the magnitude of tax exemptions.

Breaking down the statistics in the report into three types of appropriation (*Environment-related*, *Potentially environmentally damaging* and *Other governmental activities*) is a way of clarifying magnitude. The appropriations and aims of the state budget vary from one budget to the next, making it difficult to follow individual appropriations over time. As far as Environment-related appropriations are concerned, time series highlighted in the report have mostly been those which have increased in scope. Furthermore, a special review of research funding in the energy field has been carried out. Potentially environmentally damaging appropriations have been split into the environmental fields which, in their current form, they may impact negatively. It is mostly the environmental objectives *Reduced climate impact* and *Zero eutrophication* that can be affected by the appropriations. Some appropriations go to rent for premises and salaries, whilst others go to targeted measures. Both types of appropriation are interesting to follow, however, and even operational subsidies contribute to working institutions that can monitor and drive forward chosen policies.

The statistical compilation performed has been produced with the help of data from the state budget in the form of tables drawn up by the Swedish National Financial Management Authority and can be repeated every year with relative ease. Difficulties can occur when appropriation costs change political direction and are moved from one expenditure area to another. This makes more detailed follow-up slightly more difficult.

There are difficulties involved in determining and delimiting what are environment-related activities and what are not. Statistics on environmental protection costs are one example of how international and national definitions of delimitations between general product development and specific environmental costs have gradually emerged. Here, statistics have been divided up into investments on the one hand and running costs for environmental protection on the other. A guide has been produced to give data providers a uniform method of reporting what share of a normal investment can be counted as an environmental investment. The comparability of the statistics depends on how uniform definitions and calculation methods can be developed.

The dividing line for what is a Potentially environmentally damaging appropriation and what is to be considered Other governmental activities is something that should be discussed. This has to

do with different wordings of disbursement rules, something which has manifested itself in the various attempts to reform agricultural subsidies. Here, a transition from funding per produced unit to funding per area unit has served to reduce the steering effect of the appropriations. Other interesting distinctions include whether environmental health and environmental development assistance should be counted as environment-related appropriations. We have chosen to do so in this report.

A. Appropriations that further environmental work

Environmental efforts in agriculture	Share of group in 2006	Period
Supplementary measures in agriculture financed from the EC budget.	--	1995-1999
Supplementary measures in agriculture	--	1995-1999
Organic production	0.01	2004-2006
Reintroduction of tax on fertiliser and pesticides, etc.	0.02	2002-2006
Environmental improvement measures in agriculture	0.00	1995-2006
Measures to promote rural environment and structure financed from the EC budget	0.40	2000-2006
Measures to promote rural environment and structure	0.57	2000-2006
Landscape conservation measures	--	1995-1998

Environmental measures	Share of group in 2006	Period
Swedish Delegation for Sustainable Technology	--	2000
Subsidies for the ecolabelling of products	0.00	1995-2006
Geological Survey of Sweden: Environmental security of oil storage facilities, etc.	0.01	1998-2006
Forest conservation charge project	--	2000
Certain remediation measures in Solna	--	1997
Fish conservation	0.01	1996-2006
International forest cooperation	0.00	1997-2006
Measures for forestry	0.11	1997-2006
Swedish Forestry Organisation	0.10	1995-2006
Measures for forestry	--	1995-1999
Measures in mountain forests	--	1995
Promotion of forest conservation, etc.	--	1995
Subsidies for fish conservation	--	1995
Remediation and restoration of environmentally damaged areas	--	1995-2000
Measures to clean the Dalälven river	--	1999-2002
Investments and management for environmental nature conservation	--	1997-1998
Subsidies for liming activities in lakes, rivers and streams	--	1997-1998
Information about climate issues	--	2002-2004
Remediation and restoration of polluted areas	0.18	1999-2006
Measures to promote biological diversity	0.58	1999-2006
Measures to clean the Dalälven river	--	1995-1998
Investments in the environmental sector	--	1995-1998
Subsidies for liming activities in lakes, rivers and streams	--	1995-1999
Building cost forum, etc. (Previously called Subsidies for housing investments that promote eco-sustainability. Changed name in 2005)	0.01	2001-2006
Preventive measures against earthquakes and other natural disasters	0.01	1995-2006

Environmental development assistance	Share of group in 2006	Period
Measures for energy efficiency improvements in e.g. the Baltic States and eastern Europe	--	1995-1999
Environmental efforts in the Baltic Sea region	--	1999-2002
Environmental efforts in the Baltic Sea region	--	1995-1998
Cooperation with central and eastern Europe	--	1997-2005
Development cooperation activities	1	1997-2006
Development cooperation through Sida	--	1995-1996
Development cooperation through the International Development Board	--	1995
Subsidies to international development cooperation programmes	--	1995-1996

Environmental monitoring	Share of group in 2006	Period
Funding for forest damage monitoring financed from the EC budget	0.01	1997-2006
Swedish Energy Agency: Management costs	0.18	1998-2006

Education and information on the Environmental Code	--	1998-2000
Franchise Board for Environmental Protection	--	1995-1999
Subsidies to Swedish Meteorological and Hydrological Institute, etc.	0.23	1995-2006
International cooperation on environmental issues	0.07	1997-2006
Environmental monitoring, etc.	0.20	1997-2006
Swedish EPA	0.30	1995-2006
Subsidies to international cooperation on the built environment	--	1995-1998
Certain international cooperation projects on environmental issues	--	1995-1999
Subsidies in accordance with international environmental conventions and accords, etc.	--	1995-1996
Subsidies for environmental work	--	1995-1999
Swedish Institute for Ecological Sustainability	--	1999-2004

Subsidies to renewable energy and energy efficiency improvements	Share of group in 2006	Period
Measures for electricity and heating supply in southern Sweden	--	1998-2003
Subsidies to the Energy Technology Fund	--	1995-1997
Certain measures to promote more efficient energy use	--	1995-2000
Protection for small-scale electricity production	--	2000-2003
Introduction of new energy technology	0.13	1998-2006
International climate initiatives motivated from an energy policy standpoint	0.04	1998-2006
Support to the market introduction of windpower	0.14	2003-2006
Measures to promote more efficient energy use	--	1997-2003
Procurement of technology and market introduction	0.25	2003-2006
Subsidies to aid investments in electricity production from renewable energy sources	--	1997-2004
Initiatives for more efficient energy use	0.44	2003-2006
Subsidies to reduce electricity use	--	1998-2005
Initiatives to expand district heating networks	--	1995-1997
Initiatives for new energy technology	--	1995-1999
Initiatives for new energy technology	--	1995
Promotion of biofuel use	--	1995-1996
Subsidies to new energy technology	--	1995

Energy research	Share of group in 2006	Period
Energy technology support	0.04	1998-2005
Energy research	0.96	1997-2005
Bioenergy research	--	1995-1996
Energy research	--	1995-1997

Environmental research	Share of group in 2006	Period
Geological Survey of Sweden: Geoscientific research	0.01	1997-2006
Forest and Agricultural Research Council: Research	--	1995-1997
Subsidies to electric and hybrid vehicle research	--	1995-2000
Forest and Agricultural Research Council: Management costs	--	1995-2000
Foundation for the Swedish Environmental Research Institute	--	1999
Environmental and sustainability research	0.00	1997-1999
Stockholm Environment Institute	0.03	1997-2006
Environmental research	0.20	2000-2006
Swedish Research Council for Environment, Agricultural Sciences and Spatial Planning: Research	0.72	2001-2006
Swedish Research Council for Environment, Agricultural Sciences and Spatial Planning: Management costs	0.05	2001-2006
Building research	--	1997-2000
Council for Building Research: Management costs	--	1995-2000
Stockholm Environment Institute	--	1995-1996
Research for ecocyclic social development	--	1995-1998
	--	1995-1997

Radiation & nuclear safety	Share of group in 2006	Period
International cooperation regarding nuclear safety, etc.	--	1995-2002
Swedish Nuclear Power Inspectorate Nuclear safety research	0.26	1995-2005
Swedish Nuclear Power Inspectorate Management costs	0.35	1995-2005
Swedish Radiation Protection Institute	0.39	1995-2005
Subsidy to the Swedish Radiation Protection Institute	--	1995

Investment programmes, environment/climate	Share of group in 2006	Period
Investment subsidy to promote greater ecological sustainability	--	2000-2003
Support for climate investments	1.00	2002-2006
Investment subsidy to promote greater ecological sustainability	--	1995-1999
Support to local investment programmes for ecological sustainability	negative 06	1998-2005

Environmental health	Share of group in 2006	Period
National Chemicals Agency	0.77	1997-2000
Special projects	--	1995-1998
Subsidies for measures to combat radon in housing	0.15	1995-2006
Subsidy to the Fund for Damp and Mould Damage	0.08	1995-2006

B. Appropriations that may hamper environmental work

Reduced climate impact	Share of group in 2006	Period
Road maintenance and state subsidies	0.95	1998-2006
Transport subsidies*	0.03	1995-2006
Car allowances to people with disabilities	0.02	1995-2006
Operating subsidies to non-state airports	--	1997-2005
Covering of losses in the form of government credit guarantees for loans for the construction of forest roads.	--	1995
Road construction	--	1995-1998
Running and maintenance of state roads	--	1996-1998
Operating subsidies to municipal airports in forest counties	--	negative 1995
Swedish Road Administration: Contract services, etc.	--	1995-1996
Regional policy infrastructure projects, etc.	--	1999-2001
Airport company in Ljungbyhed	--	1999-2000

A balanced marine environment, sustainable coastal areas and archipelagos	Share of group in 2006	Period
Structural support to fisheries, etc., financed by the EC budget	0.69	1996-2006
Structural support to fisheries, etc.	0.31	1995-2006
Interest subsidies etc. to the shipbuilding industry	--	1995-1996
Loans to the fishing industry	--	1995-1996
Promotion of the fishing industry	--	1995-1996

Zero eutrophication	Share of group in 2006	Period
Area support and livestock subsidies, etc. (called farm support as from 2006)	0.93	1995-2006
Intervention and export subsidies for agricultural products	0.07	1995-2006
Interest costs for advance area support payments, etc.	0	1995-2006
Support to indebted farmers	--	1995-1996

Flourishing lakes and streams	Share of group in 2006	Period
Allowances for leisure boat purposes, etc.	0.53	1995-2006
Allowances for canal traffic, etc.	0.47	1995-2006
Shipping subsidies	--	1995-2002

Other environmental objectives	Share of group in 2006	Period
Support to sugar refinery on Gotland, etc.	--	1995-1996
Subsidies for the running and construction of private roads	--	1997
Subsidies for the running and construction of private roads	--	1995-1997
Special regional policy infrastructure measures, etc.	--	1995-1998
Management of some government mining properties	--	1995-1997

*Excludes subsidies to railways and public transport

C. Appropriations for other governmental activities

Appropriation heading	Relationship with other appropriation groupings
Governance	
Economy and financial administration	
Taxes, customs and enforcements	
Justice	
International cooperation	
Defence and contingency measures	
International development cooperation	Environment sub-item
Immigration and refugees	
Health and medical care and social services	Potential conflict sub-item
Financial security for the sick and disabled	
Financial security for the elderly	
Financial security for families and children	
Labour market	
Working life	
Financial support to students	
Education and academic research	
Culture, media, religious communities and leisure	
Planning, housing provision, construction and consumer policy	Environment sub-item
Regional development	Potential conflict sub-item
Transport and communications	Potential conflict sub-item
Agriculture, forestry, fisheries, etc	Potential conflict sub-item and environment sub-item
Trade and industry	Potential conflict sub-item and environment sub-item
General grants to local government	
Interest on central government debt, etc	
Contribution to the European Community	

Literature

Swedish Energy Agency 2007: Elcertfikatsystemet [The electricity certificate system] 2006

Swedish Energy Agency and Swedish EPA 2007: Åtgärdsmöjligheter i Sverige – En sektorsvis genomgång. [Potential measures in Sweden - a sector-wise review] Delrapport 3 i Energimyndighetens och Naturvårdsverkets underlag till Kontrollstation 2008 [Sub-report 2 in the Swedish Energy Agency's and Swedish EPA's background material for "Control Station 2008"]

European Commission (COM 2001)370 final European transport policy for 2010 Time to decide White paper

European Environment Office 3/2007. Size, structure and distribution of transport subsidies in Europe

Eurostat 2007. Taxation trends in the European Union. Data for the EU Member States and Norway

Eurostat 2005. Environmental Protection Expenditure in Europe by public sector and specialised producers 1995-2002 - Issue number 10/2005.

Environmental Protection Expenditure Accounts – Compilation guide

Eurostat 2001. Environmental taxes – a statistical guide

Eurostat 1994. SERIEE 1994

UN et al 1995. System of National Accounts 1995

Swedish EPA, 2007a. Ekonomiska styrmedel i miljöpolitiken [Economic instruments in environmental policy]

Swedish EPA 2007b. Resultatet av företagens utsläppsrapportering 2006. [Results of company emission reporting 2006]. PM 2007-05-15

Swedish EPA 2003. Effektivare användning av energi och transporter [More efficient use of energy and transport Lägesredovisning och åtgärdsanalyser [Status report and economic evaluation]

OECD 2007. Instrument Mixes for Environmental Policy

OECD 2005. Environmentally harmful subsidies – challenges for reform

OECD 2003. IMPLEMENTING ENVIRONMENTAL FISCAL REFORM: Income Distribution and Sectoral Competitiveness Issues. Proceedings of a Conference held in Berlin, Germany, 27 June 2002

Government communication 2006/07:101 Central Government Annual Report 2006

Swedish National Audit Office 1998. 1998:6: Subventioners inverkan på en ekologisk hållbar utveckling - Tre fallstudier [Effect of subsidies on ecologically sustainable development - Three case studies]

STATISTICS SWEDEN 2007. SM MI23SM0701 Miljöskyddskostnader i industrin 2006 [Environmental Protection Expenditure in Industry 2006]

STATISTICS SWEDEN 2006. Public environmental protection expenditures and subsidies in Sweden

STATISTICS SWEDEN 2005. MIR 2005:1 Administrativa styrmedel på miljö – hur kan de infogas i miljöräkenskaperna? [Administrative instruments for the environment - how can they be incorporated into the environmental accounts?]

STATISTICS SWEDEN 2003. MIR2000:3 Miljöskatter och miljöskadliga subventioner [Environmental taxes and environmentally damaging subsidies]

Data sources:
Statistics Sweden: www.scb.se
The Swedish National Financial Management Authority: www.esv.se
Swedish Energy Agency: www.energimyndigheten.se
Swedish EPA: www.naturvardsverket.se
Eurostat: http://epp.eurostat.ec.europa.eu

The following reports have been published in the Environmental Accounts series

		Responsible agency
1998:1	SWEEA, Swedish Economic and Environmental Accounts Svenska miljöräkenskaper, En lägesrapport från Konjunkturinstitutet och Statistiska Centralbyrån 1994 [Swedish environmental accounts, A status report from the Swedish National Institute of Economic Research (KI) and Statistics Sweden (SCB), 1994]	KI and SCB
1998:2	SWEEA, Swedish Economic and Environmental Accounts English version 1994	KI and SCB
1998:3	Materialflöden och kretslopp i de svenska miljöräkenskaperna - en förstudie 1995 [Material flows and ecocycles in the Swedish environmental accounts - a feasibility study 1995]	STATISTICS SWEDEN
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1998:8	Avfall 1993 [Waste 2003]	STATISTICS SWEDEN
1998:9	Svenska miljöräkenskaper för svavel och kväve samt Sveriges kostnader för kväveutsläpp [Swedish environmental accounts for sulphur and nitrogen and Sweden's costs for nitrogen emissions	KI
1998:10	Miljöräkenskapsprojektet vid Konjunkturinstitutet 1992-1997 [KI environmental accounts project 1992-1997] with appendices, Gröna nationalräkenskaper, Att konstruera ett miljöräkenskapssystem. [Green national accounts, Constructing an environmental accounts system]	KI
1998:11	Indikatorer för hållbar utveckling – en pilotstudie [Indicators for sustainable development - a pilot study]	STATISTICS SWEDEN
1999:1	Minskade koldioxidutsläpp genom förändrad materialanvändning - en förstudie [Reduced carbon dioxide emissions through modified material use - a feasibility study]	STATISTICS SWEDEN

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2000:5	Miljöpåverkan av svensk handel - resultat från en pilotstudie [Environmental Impact of Swedish Trade - results of a pilot study	STATISTICS SWEDEN
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2007:2	Miljöekonomiska indikatorer i statsbudgeten 1995-2006 [Environmental economic indicators in the Swedish state budget 1995-2006]	STATISTICS SWEDEN

The following have been published in Sweden's official statistics

Na 53 SM 9601	Miljöräkenskaper, Fysiska räkenskaper för energi och utsläpp till luft 1989, 1991 och 1993 [Environmental accounts, Physical accounts for energy and air emissions, 1989, 1991 and 1993	STATISTICS SWEDEN
MI 53 SM 9901	Miljöräkenskaper, Fysiska räkenskaper för energi och utsläpp till luft 1993, 1995 och 1993 [Environmental accounts, Physical accounts for energy and air emissions, 1989, 1991 and 1995	STATISTICS SWEDEN
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MI 23 SM 0101	Miljöskyddskostnader i industrin 1999 och 2000 [Environmental protection costs in industry, 1999 and 2002]	STATISTICS SWEDEN
MI 23 SM 0201	Miljöskyddskostnader i industrin 2001 [Environmental protection costs in industry 2001	STATISTICS SWEDEN
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MI 23 SM 0401	Miljöskyddskostnader i industrin 2003 [Environmental protection costs in industry 2003	STATISTICS SWEDEN
MI 23 SM 0501	Miljöskyddskostnader i industrin 2004 [Environmental protection costs in industry 2004	STATISTICS SWEDEN
MI 23 SM 0601	Miljöskyddskostnader i industrin 2005 [Environmental protection costs in industry 2005	STATISTICS SWEDEN
MI 23 SM 0701	Miljöskyddskostnader i industrin 2006 [Environmental protection costs in industry 2006	STATISTICS SWEDEN

The reports can be ordered from:
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e-mail: publ@scb.se, or from the responsible agency

Environmental accounts are an information system developed to systematically described the link between environment and economics. Statistics on the environment and economics provide a basis for calculating the costs of environmental measures and environmental damage, analyses of environmental policy and economic policy and indicators of the state of the environment and sustainable development. Three different agencies are involved in developing environmental accounts.

Statistics Sweden develops physical environmental accounts, i.e. a statistical system in which environmental impact and resource use in physical terms are linked to economic statistics on production and consumption. The system provides background material for analyses and indicators.

National Institute of Economic Research (KI) develops environmental economic models in which analyses can be made of how different political proposals and decisions affect both the environment and the country's economy. KI also performs evaluations and cost calculations of environmental impact, i.e. monetary environmental accounts.

Swedish Environmental Protection Agency (Swedish EPA) describes the state of Swedish ecosystems and how they are changing. The Swedish EPA also performs calculations of the costs of reducing emissions and other environmental impact.

Report 2007:1

Vattendistriktens ekonomiska strukturer och miljöpåverkan 1995-2005 [Economic structure and environmental impact of Sweden's water districts, 1995-2006]

The main aim of this report is to present the economic structures in the five water districts in Sweden (Bothnian Bay, Bothnian Sea, Baltic Proper North, Baltic Proper South and North Sea) and how economic activities affect water flows in terms of water extraction and discharges of nutrients and oxygen-consuming organic substances. The report also presents statistics on population, number of families and incomes.

The report supplements the scientific characterisation of the water districts and provides a basis for developing measures for the water authorities.

Report 2007:2

Miljöekonomiska indikatorer i statsbudgeten 1995-2006 [Environmental economic indicators in the Swedish state budget 1995-2006]

The purpose of this project was to supplement the green indicators produced annually in conjunction with the state budget so that they cover environmental economic variables that can be linked to the state budget. This may help increase understanding of the budget's impact of the work being done to achieve Sweden’s 16 environmental quality objectives and clarify the significance of environmental economic instruments. The project has identified a number of environmental economic indicators which show how the state budget furthers environmental work or contributes to economic activities that hamper it.

The report also contains a description of alternative steering instruments which the government has at its disposal. Environmental taxes, trade in electricity certificates and emissions trading have been highlighted.

The time series in the report cover the period 1995-2006.
The report has been produced to provide some of the basis of the Environmental Objectives Council's report as part of the in-depth evaluation of environmental work 2007.

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