Sustainable Development Indicators for Sweden

– a first set 2001

Ministry of the Environment

Statistiska centralbyrån
Statistics Sweden

Sustainable Development Indicators for Sweden

– a first set 2001

Indikatorer för hållbar utveckling i Sverige

– första sammanställningen 2001

Statistics Sweden

Swedish Environmental Protection Agency

2001

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Preface

In fall 2000, the Swedish Ministry of the Environment commissioned Statistics Sweden to develop this first publication of national indicators that describes sustainable development in Sweden. These indicators are also a contribution to discussions and the ongoing work with a Swedish strategy for sustainable development. National strategies for sustainable development will be discussed at The World Summit on Sustainable Development in Johannesburg, 2002 (UN Rio+10).

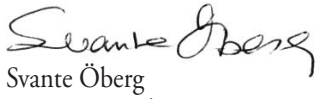
International organisations, e.g. OECD, EU, the Nordic Council of Ministers, as well as different countries are working on strategies for sustainable development. Sweden is an active participant in the European Commission's work on indicators for the environment, the so-called Headline indicators. Sweden has also conveyed that it would like to see the Headline indicators developed to encompass the concept sustainable development in its entirety, including ecological, economic and social factors. A strategy for sustainable development in the EU will be discussed at the meeting of the European Council in Göteborg in June 2001.

Work with the present publication has been under the direction of a steering committee composed of representatives from the Ministries of the Environment, Health and Social Affairs, Industry and Trade, and Finance as well as Statistics Sweden and the National Environmental Protection Agency. The ongoing work has been carried out by a project group from Statistics Sweden and the National Environmental Protection Agency, which has maintained close relationships with various reference groups and experts in many disciplines. The project group consists of Madeleine Nyman (project manager), Lena Tängdén (project manager), Tiina Mark-Berglund, Helena von Knorring and Anders Wadeskog. A seminar was held in December 2000 with some 50 participants from government, industry, universities and NGOs, who discussed a first draft of the report and provided valuable input.

The report "Sustainable Development Indicators for Sweden– a first set 2001" should be viewed as a first attempt at a Swedish description of several sustainability indicators representing the environment, social factors and economic development as well as their interaction.

It is our hope that this work will represent a valuable contribution for future debate on the concept of sustainability and serve as an instrument to monitor goals toward sustainable development.

Stockholm, May 2001



Svante Öberg
Statistics Sweden

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Summary

The work of the Brundtland Commission and others provides the background for the approach we have chosen to structure the indicators. Sustainability indicators are generally designed to illustrate the economic, environmental and social dimensions of sustainable development. There is a danger in categorising a set of indicators strictly by these dimensions since the same phenomena can often be viewed from several perspectives. We have chosen to structure our indicators under themes that we have named ***Efficiency***, ***Contribution and Equality***, ***Adaptability*** and ***Values and resources for coming generations***. Within these themes, the indicators encompass economic, environmental and social dimensions. We hope this approach will bring a focus to the different facets of the transition toward sustainability, rather than serving as a judgment on the present state of sustainability.

Efficiency can pave the way for development towards sustainability. Much progress up to now has relied on technological achievements or changes in our ways of doing things that have led to a more rational use of resources. In economic contexts, efficiency is measured in terms of making more of the same with less input. When environmental issues are discussed, efficiency is expressed in terms of lower emissions or less use of natural resources or energy in the production of certain goods or services. Measurements of efficiency in social developments often make indirect use of economic terms, for example, number of employees per person in elder care. Such measures, however, pose problems of interpretation because the qualitative consequences are difficult to measure.

Nevertheless, increasing efficiency will be necessary in order to meet many of the challenges of sustainable development, including prosperity and well-functioning ecosystems.

Efforts are being made to increase efficiency in economic, environmental and social terms. Profits in terms of saved resources can be used according to political or personal preferences.

We can now produce more goods and services with less input of energy and labour. The increase in production has resulted in more waste, which we are, however, able to better manage. There has been an increase in the share of students who are not qualified for upper secondary school.

It is still too early to determine the welfare effects of rationalisation programmes in the public sector. Some of the budget cuts might have resulted in increased efficiency while others might have had the opposite effect.

Efficiency and positive economic development are important but probably not sufficient conditions for obtaining sustainable development. An equal distribution of prosperity enables a broader-based contribution and can also influence the development of both the economy and the environment. A society characterised by involvement and concern can boost its potential for productive, efficient and environmentally responsible action. Equality in terms of decreasing injustice – between rich and poor, men and women, ethnic groups, age groups or people living in different regions – is also an important aspect of the idea of sustainable development. The contribution from all sections of the population is important because many of the changes that need to be made affect people's everyday lives and because broad understanding and responsibility are keys to changing consumption patterns and behaviour.

The economic recession in the early 1990s and a growing market orientation in Sweden have led to negative development in some of the traditional welfare indicators. However, in Sweden there is great involvement in the ongoing local process with Agenda 21, which has also led to increased responsibility and actions for sustainable development among NGOs, enterprises, municipalities and consumers. This has also led to increase in the number of environmentally certified enterprises and in the sale of ecolabelled products. The increase in trade has resulted in increased transport. The share of those means of transport that have a negative effect on the environment has increased.

Society as a whole has the potential to develop and adapt new technologies and to make adjustments in how things are done in response to new conditions. Individuals, enterprises and organisations in particular have a vast potential in this area and have vital roles to play in maintaining sustainability in the economic, ecological and social fields.

The way this is done is reflected by the theme Adaptability. This theme interacts with the themes of Efficiency and Contribution and Equality. For example, a high educational level among the population is considered to be one of the key factors for a country's economic development. It is important not only when it comes to developing new technology designed to promote greater efficiency, but also in enabling people to comprehend and adjust to new technology. An equal distribution of education can provide the knowledge needed to help us choose approaches that are consistent with sustainability and thus contribute to the community. At the individual level, many things that are important for our well-being, such as health and income, vary with the level of education.

Incentives in the form of laws, taxes and grants as well as individual choices play an important role in the adjustments that are needed to meet the goal of passing on values and resources to coming generations.

In Sweden, a large and increasing share of GDP is invested in research. Sweden has a high and increasing level of education in the population. This characterizes a dynamic economy. A rising interest for entrepreneurship contributes to increased potential for economic diversity. Adaptation to the use of renewable resources proceeds slowly. Nevertheless, there has been an adaptation in energy usage. For example, the housing sector today is much more energy efficient than previously. Sweden has the highest proportion of renewable energy/total energy among the member states of the EU.

A considerable quantity of energy is used for heating purposes, although great progress has been made in efficiency in recent decades. We also note a significant increase in the area under cultivation for organic farming.

Sustainable development as formulated in "Our Common Future" implies that our way of life must not be allowed to jeopardise the opportunities of future generations to satisfy their needs. The indicators here give some idea of what we hand over to coming generations, their manoeuvrability, when it comes to economic resources, ecological resources and human resources.

The predominant impression is that Sweden is not passing on to coming generations a similarly large or greater set of values and resources than that inherited by the previous generation. For example, the use of non-renewable resources declined for a period, but it is now increasing again. Asthma allergies are increasing among children, the Baltic sea is polluted and overfished, the number of endangered species is increasing. However, there are some positive developments. The central government deficit has fallen and there has been an increase in land and water areas reserved for conservation of wildlife. The emissions of carbon dioxide is fairly stable. This indicator illustrates one of the most burning issues today which will influence the prosperity for coming generations.

Adaptation toward sustainability is under way but much work remains.

Sustainable development
The Brundtland Commission defines Sustainable development as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs."

Sustainable development according to this definition involves three dimensions: ecological, economical and social, the latter includes cultural aspects.

Introduction

Sustainable development

Except for solar energy, all the resources we utilise come from the earth. They can be either renewable or non-renewable. Non-renewable resources are limited and most have a negative impact on ecosystems when used. To satisfy our fundamental needs, such as air to breathe and food to eat, we need functional ecosystems. This means that we must not destroy ecosystems by dangerous emissions or use our land in a manner that causes productive areas to degrade. We need to utilise resources in a way that does not jeopardise the chances of future generations of being able to satisfy their needs. We must therefore be more efficient in our use of resources, especially non-renewable resources.

The quality and direction of our actions must improve, since there are disturbances in the ecosystems. Also, we need to increase production to meet the requirements of a growing population on earth. Technological achievements are important as well as effective legislation, tax and subsidy systems. The interaction between these mechanisms of public control and the market can explain much of the progress achieved so far. In order to increase production, as large a share of the population as possible needs to contribute – in other words, the proportion of people who work should be as high as possible. That said, people who are not engaged in productive work, but are, for example, studying or taking care of children, could be regarded as investments in future growth.

This means that education, labour market conditions and health care are important to sustainable development, not only to supply individuals with basic needs, but also to improve the structure of the economy and make it more sustainable.

The concept of Sustainable Development became established by the Brundtland Commission in 1987 in its report "Our Common Future". Following the Rio conference in 1992, a great many initiatives – known collectively as "Agenda 21" – were undertaken around the world to turn the concept of sustainable development into concrete targets and action plans. The work started at the local level, but today the work is going on with national strategies. Much work has been devoted in the academic world to attempts to analyse and define the concept of sustainable development. Some of this work has been put into developing sets of indicators that will enable a more statistically based follow-up of moves toward a sustainable development path.

Sustainable development indicators

There are a number of publications describing indicators of sustainable development. The original set of 134 indicators listed in the United Nations Commission on Sustainable Development "Blue Book" has been implemented in varying degrees by organisations such as Eurostat and the OECD, as well as individual countries.

Some countries, for instance the UK and Finland, have developed their own sets of indicators of sustainable development."Quality of Life Counts" in the UK is based on a political process and a government strategy that has been translated into a set of indicators that are to be followed over time.

The present set of Swedish indicators consists of 30 existing measures mainly in the form of time series. A limited number of indicators was desired to create a manageable set. The criteria used for selecting indicators are fairly pragmatic. An indicator should be informative and relevant in terms of sustainability. The data should be readily available in official statistical datasets and, if possible and appropriate, be annual data covering a long time period. A reasonable balance between social, economic and environmental indicators is also desirable.

Many other indicators were discussed. Some of the desired indicators were excluded because of lack of data. Other indicators need to be developed. A list of the discussed indicators is available on the web site www.scb.se/eng/omscb/eu/eu.asp.

Our approach

The work of the Brundtland Commission and others provides the background for the approach we have chosen to structure the indicators. Sustainability indicators are generally designed to illustrate the economic, environmental and social dimensions of sustainable development. There is a danger in categorising a set of indicators strictly by these dimensions since the same phenomena can often be viewed

	Economic	Social	Environmental
Values and resources for coming generations	X	X	X

	Economic	Social	Environmental
Increasing:			
Efficiency	X	X	X
Contribution and Equality	X	X	X
Adaptability	X	X	X

Our approach considers how qualitative increases in the components of efficiency, contribution and equality and adaptability strengthen the values and increase the resources for coming generations to continue and expand sustainable development. Our ambition is to treat these indicators in terms of the totality of their economic, social and environmental aspects.

from several perspectives. We have chosen to structure our indicators under themes that we have named ***Efficiency***, ***Contribution and Equality***, ***Adaptability*** and ***Values and resources for coming generations***. Within these themes, the indicators encompass economic, environmental and social dimensions. We hope this approach will bring a focus to the different facets of the transition toward sustainability, rather than serving as a judgment on the present state of sustainability.

– Indicators on ***Efficiency*** focus on resource use from different perspectives. Resource productivity is undoubtedly one of the key issues in a transition to a sustainable society.

– Indicators on ***Contribution and Equality*** encompass the distributional aspects of development, in terms of sharing both the burdens and benefits in different areas. Many of these indicators deal with traditional economic and social welfare issues; additional data reflect the interest in promoting changes in production and consumption patterns in a more sustainable direction.

– Indicators on ***Adaptability*** illustrate actions today that will influence the situation in coming years. These indicators represent different views of the current composition of investments in relation to achieving greater flexibility and efficiency tomorrow.

– The last set of indicators focus on ***Values and resources for coming generations***, or what might be termed manoeuvrability. These indicators emphasise the economic, ecological and human resources we pass on to future generations. Another way of viewing this theme is to say that it concerns the avoidance of debts that tie up (or deplete) resources that could be put to better use tomorrow.

We present and discuss these indicators separately, knowing full well that in terms of sustainability, few if any of them make sense on their own. The reader is left to make his/her own weighting of, for example, growth in GDP versus changes in levels of emissions or changes in resources spent on education or health care. Obviously, there are trade-offs as well as synergy effects, within and among the variables composing the different indicators – especially over longer time periods.

We do not provide a weighting scheme or specific dependencies among the variables presented in the indicators. We do, however, illustrate some of the linkages among the different indicators by cross-referencing where possible. Future reports on sustainability might proceed in a different, more analytical, direction if there is a demand for it. This would involve a more explicit analysis of dependencies among indicators as well as different schemes for weighting them as components of a type of metaindicator. It is possible that a Green NNP (Net National Product) would be included among indicators.

Sweden in brief

Facts about Sweden

Area:	450 000 km²
Forest:	54 %
Mountains:	16 %
Cultivated land:	8 %
Lakes and rivers:	9 %
Average temp. :	Malmö –0.2°C (Jan), +16.8°C (Jul)
	Stockholm –2.8°C (Jan), +17.2°C (Jul)
	Kiruna –16.0°C (Jan), +12.8°C (Jul)
Population density:	22 inhabitants/km²
Highest, Stockholm:	3 971 inhabitants/km²
Lowest, Arjeplog:	0.27 inhabitants/km²

	1970	**1999**
Population:	8.1 million	8.9 million
Foreign-born inhabitants:	7 %	11 %
Stockholm County population:	1.5 million	1.8 million
Average life expectancy:	Men: 72 years	Men: 77 years
	Women: 77 years	Women: 82 years
Distribution of Parliament members	85 % men	57 % men
	15 % women	43 % women
Distribution of days of parental allowance for caring for young children	0 % men	12 % men
	100 % women	88 % women

History

In the 19th century Sweden began its transition from an agrarian to a fully industrialised society. During the 20th century, Sweden developed into a modern welfare state. In parallel with the country's economic development, democratic institutions and the parliamentary system were introduced.

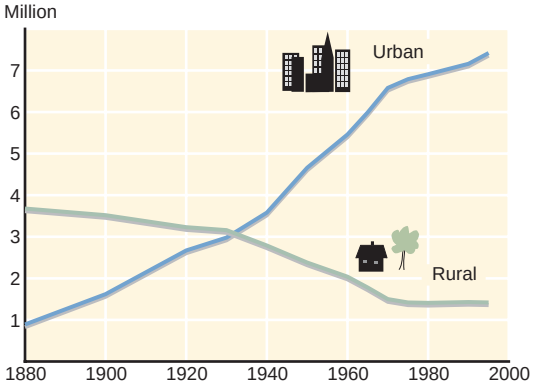
Sweden was seriously affected by the Depression in the late 1920s. The "Swedish model" was introduced in the 1930s. One aspect of this model was that the unemployed were to be provided with meaningful jobs by the State. A number of social reforms were also pushed through in the mid-1930s. People moved from farming in the countryside to industrial work in the cities. Industrial production rose rapidly.

Sweden declared itself neutral at the outbreak of World War II. When the war ended Sweden was in a very favourable situation. This led to more than two decades of favourable economic conditions with high growth rates, creating the foundation for the rapid development of the Swedish welfare state.

The "million programme", a new housing policy, was launched in the 1960s, adding 1 million new dwellings to the accommodations available in Sweden during the period 1965–1975. Several of these areas that were built in the 1960s and 1970s are now characterised by segregation and, often, a high concentration of social problems.

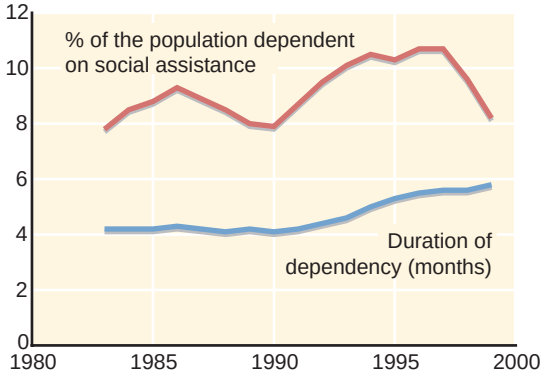
Sweden in brief

Inhabitants in Sweden



Source: Statistics Sweden

Dependency on social assistance



Source: Statistics Sweden

At the beginning of the 1980s, Sweden borrowed more money than the country earned, and imported more than the country exported. This was the origin of the economic problems that led to a deep economic crisis in the early 1990s. This in turn required large structural changes and cuts in the public sector and transfer systems became necessary.

Sweden today

The 1990s mark a decade of major changes in the Swedish welfare state as it had evolved since the 1950s. There were changes in taxes and social security systems. Most parts of the public sector were put under stricter financial constraints, and parts of it were opened up to private producers. These changes coincided with a major recession and levels of unemployment that could not be met with the traditional economic policies. This can partly be seen in the demand for social assistance and the increasing length of the assistance periods. The overall welfare effects of these changes are, at least so far, hard to judge. However, there are disturbing signs that our children are experiencing a decline in welfare. The number of telephone calls to BRIS (a childrens help line) seems to increase and the debate on violence and harassment in and out of school further indicates a harsher situation for our children.

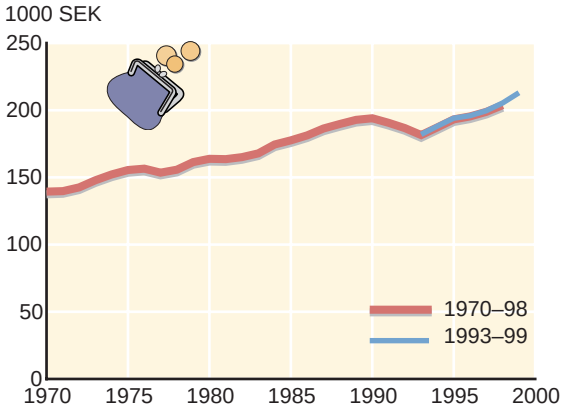
Sweden has extensive ***natural resources such as minerals and forest areas***, which have provided the foundation for today's basic industries in Sweden. Sweden is a small, export-dependent country. It is well developed economically and the recovery in the late 1990s was strong. The main reason is the dramatic rise in exports spurred by the depreciation of the Swedish krona since 1992.

The inflation rate has been stable since the parliament set a new target for monetary policy after the crisis: to keep annual inflation low. However, GDP growth has declined relative to other EU countries. The GDP volume index per capita in PPP (Purchasing Power Parity) was 25 per cent above the EU average in 1970 and has fallen to 2 per cent above the EU average in 1998.

In comparison to most other countries Sweden has a ***large public sector*** and the tax rates are high to finance an extensive welfare system. The employment rate is high compared with other EU countries, but fell to a lower level at the beginning of the 1990s before beginning a slow recovery in recent years. ***The educational level is high*** and Sweden has one of the highest rates of R&D in relation to GDP. The service sector employs most of those in work (70 per cent) and continues to grow. Farming and manufacturing on the other hand have declined in terms of number of employees. In terms of production, manufacturing represents nearly one-half the production value. The production in forestry and agriculture has remained at the 1950s level. Manufacturing production has increased continuously for the last 50 years, but employment has been decreasing since the 1960s.

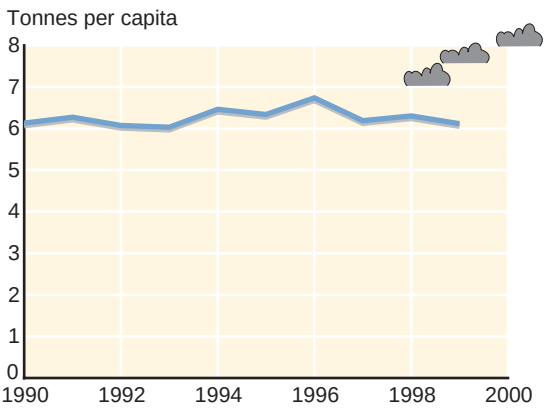
Sweden in brief

GDP per capita, constant prices at 1995 price level



Source: Statistics Sweden

Emissions of carbon dioxide



Source: Statistics Sweden, The Swedish Environment Protection Agency

By comparison with other countries, Sweden has come far as regards equality among socio-economic groups as well as between men and women. The sex distribution among executives in the public sector is equal, but in the private sector there are 17 per cent women and 83 per cent men in executives positions. ***The distribution of income is relatively equal***, though the gaps have grown in recent years. The Gini coefficient for disposable income is one way to measure the distribution of income. This coefficient shows that the distribution of income has increased in range during the 1990s. In 1996 the Gini coefficient in equivalised household income of persons was 0.23. The EU average was 0.29. (Gini coefficient for complete equality = 0.)

One problem under discussion by the central government in Sweden is the ***declining birth rate***. The fertility rate in Sweden is low. In 1999 the rate was only 1.50, which is the lowest rate in modern time. In 2000 the rate was 1.55, which is still not enough for population replacement. A stable population requires a rate of 2.1 children per woman.

The population density in Sweden is low and the population is concentrated in urban areas. The low population density causes long transport distances and consequently the infrastructure and the transport sector are important in Sweden. ***Traffic*** contributes to emissions of the most important greenhouse gas, carbon dioxide.

Emissions of carbon dioxide fell significantly during the 1980s due to the expansion of nuclear power and greater energy efficiency. The peak in 1996 is due to extreme weather conditions.

A large amount of traffic causes problems, especially in urban areas. One problem is the noise in our residential environments. There are 1.6 million Swedes exposed to road traffic noise above 55 dBA (Noise Investigation Survey 1993).

Another problem that to a great extent derives from traffic are the air pollutants that are commonly present in both urban and rural air. Other major sources of these pollutants are combustion and industrial processes. Urban air quality measured by ***the average benzene concentrations in urban air has improved by about 50 per cent from 1992/93 to 1998/99*** (winter half-year). The fall in benzene concentrations is due to catalytic cleaning systems for cars running on petrol and a lower benzene content in petrol. Still, benzene values remain above the low-risk level and the proposed environmental quality norm.

Sweden is a country with a cold climate and an energy intensive industry, which makes it a ***high consumer of energy***. The use of renewable energy is therefore of great importance and this is an area in which Sweden invests. Sweden has the highest proportion of renewable energy/total energy among the Member States of the EU due to the large extent of hydropower.

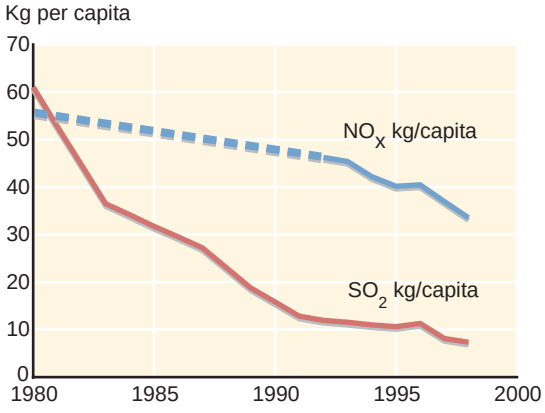
Sweden in brief

Some 17 000 lakes in Sweden are affected by acidification. More than 20 per cent of the total lake area is affected to some extent by acidification, the primary cause being atmospheric deposition of sulphur dioxide and nitrogen oxides, due to combustion of fossil fuels. The principal victim is the biodiversity of lakes and streams. In addition, soil acidification and leaching of vital nutrients in forests result in trees becoming more susceptible to diseases and insect attacks. Acidifying substances also increase the rate of corrosion and affect human health in a negative way.

The deposition of acidifying substances has fallen significantly during the last 15 years due to less emissions in Europe, but further reductions are necessary. A Swedish parliamentary commission has proposed that emissions of sulphur dioxide and nitrogen oxides should be cut by 40 per cent and 55 per cent respectively between 1995 and 2010. To reduce effects in Sweden, however, it is also essential to reach international agreements on reductions of acidifying substances in other countries. If the commitments in the so-called Göteborg protocol are met, then the area in Sweden affected by acidification will decrease from 17 per cent 1990 to 4 per cent by 2010.

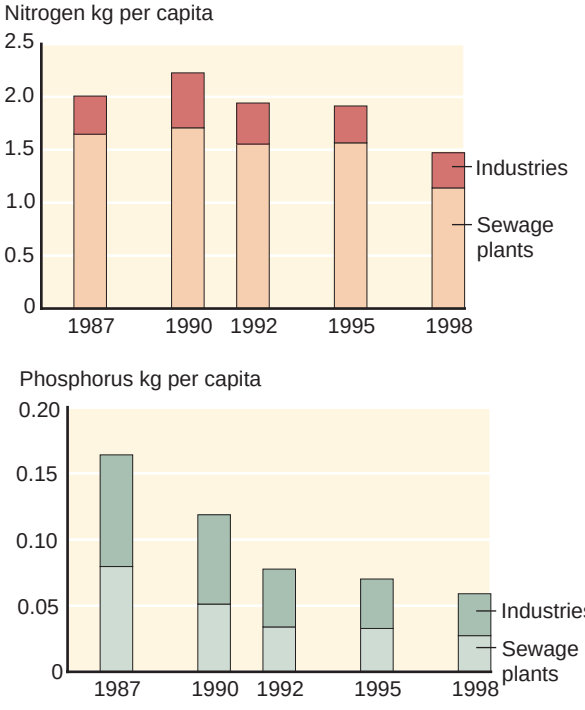
Nutrients (mainly nitrogen and phosphorus) from sewage treatment plants, industries and fertilised farmland accelerate the growth of algae and other vegetation in lakes, streams and coastal waters. The sea is an important natural resource, which needs to be protected to avoid damage to marine ecosystems and ultimately human health. Nutrient discharges into the seas surrounding Sweden reflect the role of point sources in the eutrophication of the sea. These include principally emissions from municipalities (sewage treatment plants) and industries. ***Discharge from sewage treatment plants has decreased considerably***, especially for phosphorus but also for nitrogen in recent years. Today all dwellings in the urban areas are connected to sewage treatment plants. On the other hand the agricultural soil needs nutrients such as nitrogen, phosphorus and potassium. Today these nutrients are delivered to a great extent through chemical fertilisers. Phosphorus and potassium are more or less "fossile" resources and nitrogen needs fossile energy to be produced. A sustainable development in agriculture requires that nutrients and organic matter from organic waste and waste water are recycled to productive soil. Industrial emissions are decreasing. At the same time, emissions from various agricultural domestic sources have also decreased though not to the same extent.

Emissions of nitrogen oxides and sulphur dioxide, per capita



Source: Statistics Sweden, The Swedish Environment Protection Agency

Discharge of nitrogen and phosphorus from coastal point sources



Source: Statistics Sweden, The Swedish Environment Protection Agency

Toward sustainability:

Efficiency

Efficiency can pave the way for development towards sustainability. Much progress up to now has relied on technological achievements or changes in our ways of doing things that have led to a more rational use of resources. In economic contexts, efficiency is measured in terms of making more of the same with less input. When environmental issues are discussed, efficiency is expressed in terms of lower emissions or less use of natural resources or energy in the production of certain goods or services. Measurements of efficiency in social developments often make indirect use of economic terms, for example, number of employees per person in elder care. Such measures, however, pose problems of interpretation because the qualitative consequences are difficult to measure.

Nevertheless, increasing efficiency will be necessary in order to meet many of the challenges of sustainable development, including prosperity and well-functioning ecosystems. Efforts are being made to increase efficiency in economic, environmental and social terms. Profits in terms of saved resources can be used according to political or personal preferences. The indicators in this section describe developments in efficiency in important areas of society.

Cautious optimism about efficiency

We can now produce more goods and services with less input of energy and labour. The increase in production has resulted in more waste, which we are, however, able to better manage.

There has been an increase in the share of students who are not qualified for upper secondary school. It is still too early to determine the welfare effects of rationalisation programmes in the public sector. Some of the budget cuts might have resulted in increased efficiency while others might have had the opposite effect.

The indicators in this section:

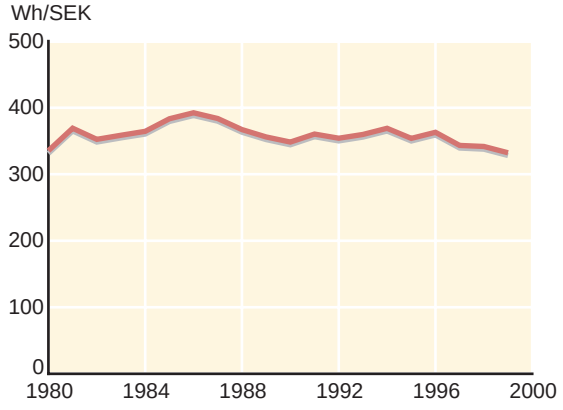
1. Total energy supply by GDP
2. GDP per hour worked
3. Waste
4. State of health; Expenditures on health
5. Proportion of pupils not qualifying for upper secondary schools

Energy intensity in Sweden is falling slowly

1.

GDP has grown faster than the energy supply over the last two decades. The change in energy intensity in Sweden during the period is a result of change in economic structure, energy use and energy conversion.

1. Total energy supply in relation to GDP, 1995 prices



Source: Statistics Sweden; Swedish National Energy Administration

Energy intensity: Total primary energy supply in relation to GDP.

Energy efficiency: The specific use of energy in industry, i.e. kWh/SEK of production value.

Relevance

Energy intensity, as measured by total primary energy supply per unit of GDP in constant prices, mainly indicates changes in energy efficiency and economic structure. Falling energy intensity generally indicates increased production at less energy per unit produced, which also means less impact on the environment and increased overall welfare.

This indicator is connected to the Swedish environmental objectives: A limited influence on climate, Natural acidification only, A good urban environment and Clean air.

Trends

Energy intensity has fallen slowly, during the 1990s.

Influence

Energy intensity has fallen slowly but energy efficiency has improved substantially over the years. The total amount of energy used in the residential and service sectors has remained steady during the last 30 years, although the size of heated areas has grown by 45 per cent.

The specific use of energy in industry, i.e. kWh/SEK of production value, has also decreased substantially over the years. Between 1992 and 1999, the specific use of energy fell by 26 per cent, the specific use of oil by 21 per cent and the specific use of electricity by 29 per cent. These changes were mainly due to the sharply higher production in less energy-intensive engineering industries combined with almost unchanged electricity use.

Future

Scenarios from the Government Commission of Measures against Climate Change indicate that energy use will grow more slowly than GDP during the next decade, i.e. energy intensity will continue to fall.

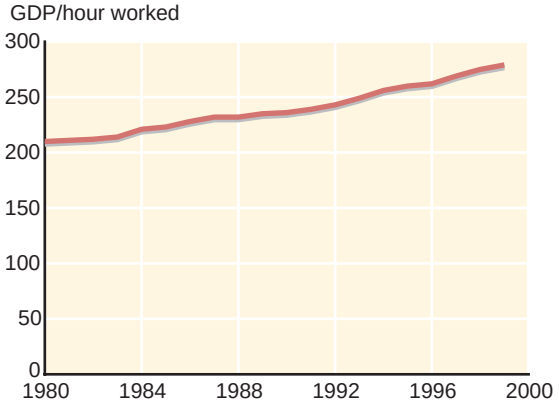
See also indicators: 2, 15, 24, 30.

Labour productivity has increased

Resource efficiency in the economy, in terms of GDP per hour worked, has increased due to rising productivity.

2.

2. GDP per hour worked, constant prices, reference year 1995



Source: Statistics Sweden

Relevance
Increasing labour productivity makes it possible to produce more goods and services with a given labour force – i.e. a more efficient use of this resource. It also creates room for wage increases. Sustainable economic growth assumes rising productivity. Economic growth in itself can, of course, have adverse effects on environmental and social sustainability.

Trends
The trend for GDP per hour worked shows steady growth since 1980. Since 1980, the GDP per hour worked has increased by more than 30 per cent.

Influence
Higher labour productivity is usually explained by increasing capital intensity, technological development and investment in human capital, i.e. education and skills. The result is that less hours of work are needed to accomplish the same thing or that the same amount of labour input can produce more of the same, or other, goods and services.

The recession in the early 1990s led to fewer employees due to layoffs and bankruptcies. When the economy recovered, production increased, but without hiring new labour to the same extent.

Future
Not available.

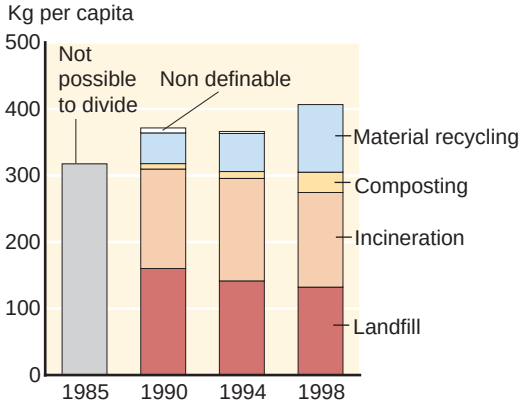
See also indicators: 1, 9, 16, 17, 18, 19, 20, 23.

More waste but increased recycling and less landfilling

3.

The generated amount of waste is increasing. But there is less landfilling in favour of recycling by incineration, composting and other material recycling, except for the mining and quarrying industry.

3a. Household waste – generated and disposed



Source: Statistics Sweden, The Swedish Environment Protection Agency

Relevance

Waste produced, waste management and the transport of waste all have impacts on the environment. Waste contains more or less hazardous substances that can harm the environment as well as being a potential resource. Smaller amounts of waste arising along with more efficient use of the waste will contribute to sustainable development.

The objectives set by the Riksdag are to move away from landfilling of waste toward waste reduction, reuse, recycling of materials and recovery of energy. The total amount of waste landfilled (mining waste excluded) is to be reduced by at least 50 per cent from 1994 levels by 2005. The total amount of waste generated during the same period is to decrease (mining waste excluded). Landfilling of sorted combustible waste will not be allowed from 2002 onwards. For organic waste, landfilling will not be allowed from 2005 onwards.

This indicator is connected to the Swedish environmental objectives: A good urban environment and A non-toxic environment.

Trends

The amount of waste arising, from households as well as industry, has increased in recent years.

Except for the mining and quarrying industry, there is a trend towards less landfilling in favour of recycling by means of incineration, composting and other material recycling. Landfilling of household waste has decreased by about 10 per cent and recycling has increased by the same amount between 1994 and 1998.

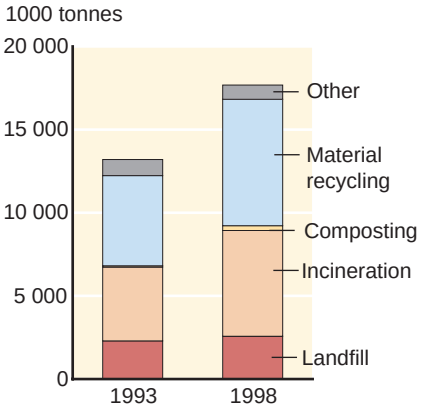
However, the differences between the 1993 and 1998 figures in the graphs showing industrial waste are partly due to differences in definitions and data sources.

In 1998, there were about 4 million tonnes of household waste, 64 million tonnes of waste from mining and quarrying and 18 million tonnes from manufacturing industry in Sweden. In addition to the waste amounts shown in the figures, in 1998 the Swedish industry produced about 800 000 tonnes of hazardous waste and households about 21 000 tonnes. Most of this is stored or treated at special plants.

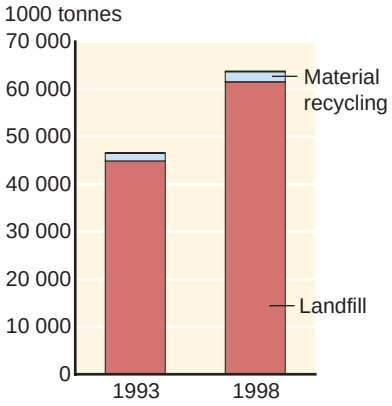
3.

3b. Non-hazardous industrial waste, by method of treatment

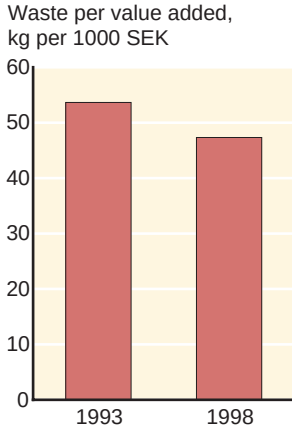
Manufacturing industry



Mining and quarrying industry



3c. Non-hazardous industrial waste per value added



Source: Statistics Sweden, The Swedish Environment Protection Agency

Influence

The amount of waste and the recycling rate are indicators of the consumption levels and patterns of individuals and industry. They are also indicators of the willingness and ability of consumers to sort waste, of society to collect and treat waste fractions separately, and of industry to use the potential resources in waste.

The amount of waste arising appears to increase with improved economic conditions in the country.

Another indicator of the effectiveness of material use in industry is to compare the amount of waste arising from different industries to the value added. Data for this must be developed further, but preliminary figures for Swedish industry in general show a slight average decrease between 1993 and 1998.

Future

In accordance with measures to be implemented, such as the ban on landfilling organic waste and the landfill tax, there is likely to be a decrease in landfilled waste in favour of increased recycling in the next 5–10 years. The future amount of waste arising is hard to forecast. So far the trend seems to follow the development of the economy rather closely, with more waste arising with improving economic conditions.

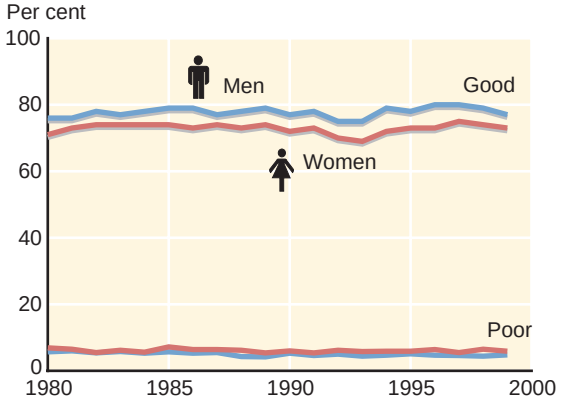
See also indicators: 13, 24.

Health expenditures fall, but health conditions remain unchanged

4.

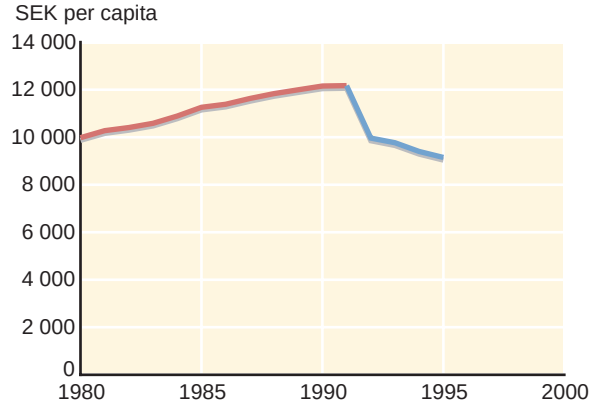
The state of health in the Swedish population has varied very little over the years. Men feel healthier than women. The share of people feeling healthy in proportion to total expenditures on health has increased in the early 1990s.

4a. Declared state of health[1]



1) Does not include share of population stating neither "good" nor "poor".
Source: Statistics Sweden

4b. Expenditures on health



Source: Statistics Sweden

Relevance

Health is one of the key issues of sustainable development. A healthy population is vital to economic growth because productivity and participation in the labour market requires healthy people. Illness causes great expenses for society as well as for the individual. One way of measuring if money is spent efficiently on health is to compare the share of people feeling healthy with expenditures on health. An efficient health care system should be dimensioned properly. The present goal is a budget surplus of 2 per cent of GDP, over the business cycle, which constitutes a ceiling for public expenditures, including expenditure on health.

Trends

The declared state of health according to people themselves has been stable during the last decades, except for small declines in the early and late 1990s. The expenditures on health have been steady increasing until 1991 when there was a shift to a 20 per cent lower level. The shift was due to cuts in expenditures and rationalisations following the crisis in the early 1990s, as well as a transfer of responsibility for elder people from the health care system to municipal elderly care which is classified as social care.

Influence

In Sweden, most health care is financed within the social insurance system. The figures on health care expenditures include all costs, no matter if the health care is provided or paid for privately or publicly. The crisis in the economy has lead to a shift in expenditures on health. The same shift is visible in the figure showing people's own opinion about their state of health. However, it is too early to draw the conclusion that cuts in expenditures on health caused the decline in people's health. Many other aspects associated with the economic crises such as economic stress, unemployment or uncertainty about losing employment could be of great importance.

Future

Not available.

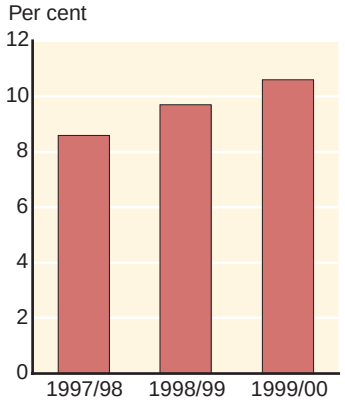
See also indicators: 6, 8, 18, 20, 23, 26.

Fewer pupils qualifying for upper secondary school

Recent years have seen many changes in the Swedish school system. There is a tendency for fewer pupils to qualify for upper secondary school.

5.

5. Proportion of pupils not qualifying for upper secondary schools



Source: National Agency for Education and Statistics Sweden

Relevance

An efficient primary and lower secondary school system is needed to achieve quantity and quality at the upper secondary and university levels. It is important both economically and socially that as large a share of pupils as possible are prepared for upper secondary schooling in a cost effective way, while maintaining quality.

Trends

There is a growing trend for fewer pupils to qualify for upper secondary school. Because of changes in the grading system, the graph includes only the most recent years, but the trend for fewer pupils to reach the set knowledge targets actually began earlier.

Influence

In recent years, there have been changes in the Swedish school system:

- A new grading system has been introduced.
- Responsibility for the school system has been decentralised.
- Pupils and their parents can now choose between publicly financed schools provided by municipalities, cooperatives or private enterprises.
- Cuts in resources have led to more pupils per teacher.

Future

One means of attempting to reduce the number of pupils failing to qualify for upper secondary school is to reduce the pupil-teacher ratio. The central government has pledged support to municipalities over the next five years to allow them to appoint more teachers. However, a lack of properly qualified teachers may present problems.

See also indicators: 9, 18, 20, 23.

"Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs. It contains within it two key concepts:

- the concept of 'needs', in particular the essential needs of the world's poor, to which overriding priority should be given; and
- the idea of limitations imposed by the state of technology and social organization on the environment's ability to meet present and future needs.

Thus the goals of economic and social development must be defined in terms of sustainability in all countries – developed or developing, market-oriented or centrally planned. Interpretations will vary, but must share certain general features and must flow from a consensus on the basic concept of sustainable development and on a broad strategic framework for achieving it."

Our Common Future

Toward sustainability:

Contribution and Equality

Efficiency and positive economic development are important but probably, not sufficient conditions for obtaining sustainable development. An equal distribution of prosperity enables a broader-based contribution and can also influence the development of both the economy and the environment. A society characterised by involvement and concern can boost its potential for productive, efficient and environmentally responsible action. Equality in terms of decreasing injustice – between rich and poor, men and women, ethnic groups, age groups or people living in different regions – is also an important aspect of the idea of sustainable development. The contribution from all sections of the population is important because many of the changes that need to be made affect people's everyday lives and because broad understanding and responsibility are keys to changing consumption patterns and behaviour.

Increased purchases of ecolabelled goods and services

The economic recession in the early 1990s and a growing market orientation in Sweden have led to negative development in some of the traditional welfare indicators. However, in Sweden there is great involvement in the ongoing local process with Agenda 21, which has also led to increased responsibility and actions for sustainable development among NGOs, enterprises, municipalities and consumers. This has also led to the increase in the number of environmentally certified enterprises and in the sale of ecolabelled products. The increase in trade has resulted in increased transport. The share of those means of transport that have a negative effect on the environment has increased.

The indicators in this section:

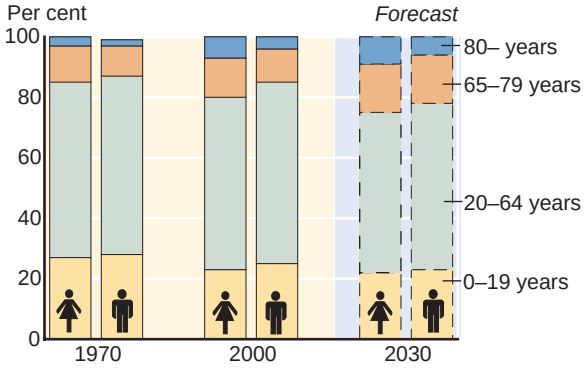
6. Population by age group
7. Gross regional product per capita
8. Freight and passenger transport
9. Disposable income per consumption unit
10. Women's salaries as percentage of men's salaries
11. Electoral participation
12. Ratio of the population exposed to violent crime or threat of violence
13. Number of enterprises with EMAS or ISO 14000 certification, certified eco-schools; area with certified forestry
14. Purchases of ecolabelled products and services

Swedes are living longer

Although the ratio between the number of persons of working age and the number of young and old people will remain stable in coming years, soon nearly one-half million people will be over 80 years old and the state of health in this group has improved. Fewer children and people of working age and an increasing number of old people will cause imbalance in the longer term, if no adjustments are made.

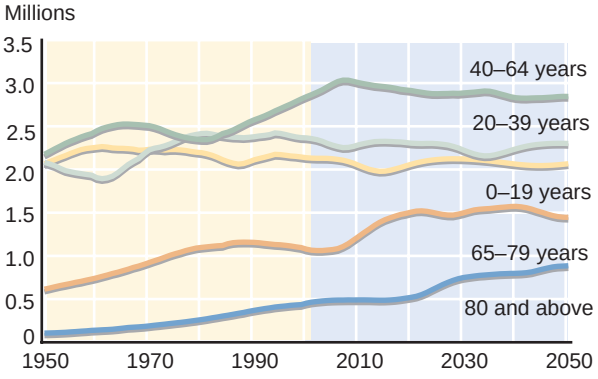
6.

6a. Population by age group



Source: Statistics Sweden

6b. Population by age group



Source: Statistics Sweden

Relevance

Changes in the age structure of the population are important for sustainability issues such as labour shortages and the burden on the health care or school system. The budget restriction of a 2 per cent surplus over the business cycle imposes a ceiling on expenditures in the public sector, which may lead to difficulties in providing, for example, schools and health care with the limited resources available. These utilities are heavily age-related and changes in the age structure can strain the systems.

Trends

The ratio between the number of people of working age (20–64) and the number of young and old people has increased over the past two decades. Today, there are more than 1.4 persons of working age per young and old person. This implies no great change in the next coming years due to the age structure of the population.

The number of very old people (80+) has increased, and today there are only 10 people of working age to each old person. In the 1970s, there were more than 20 people of working age to each old person.

Influence

The ability to provide young and old people with schools, old age care and other services is dependent on the age distribution of the population and on the share of people of working age who are actually working. Population changes are results of births, deaths and migration. At the country level, Sweden has a sustainability problem in declining birth rates. The fertility rate is only 1.55 children per woman. Population growth since 1997 is entirely due to immigration. However, in a global perspective, population growth is a problem.

Future

The population will be fairly stable over the coming years. In the long term, however, the projection implies imbalances in the age structure, with fewer children and people of working age combined with an increased number of old and very old people.

See also indicators: 4, 20.

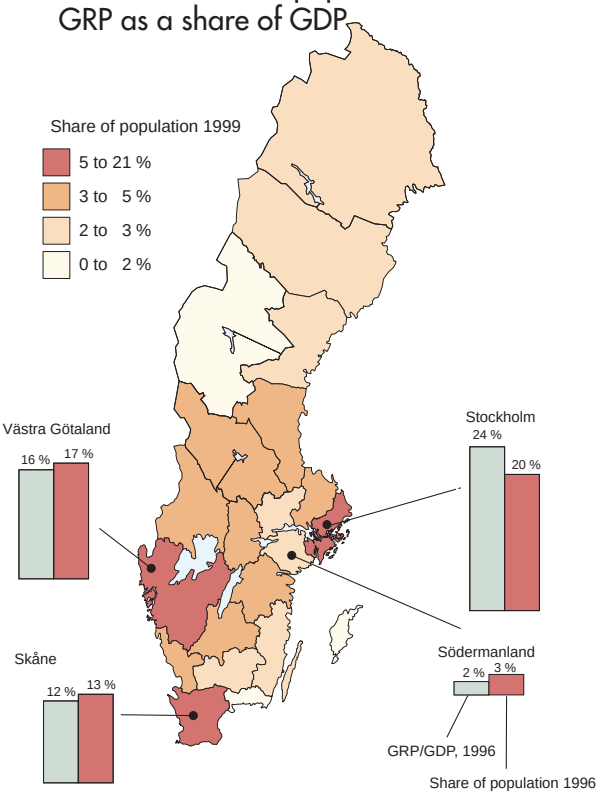
Gross regional product broadly follows regional population

The gross regional product (GRP) in different parts of Sweden broadly follows their share of the population. Stockholm accounts for nearly one-fourth of GDP.

7a. County Index of GRP/ capita Sweden = 100

Stockholm	126
Västernorrland	101
Kronoberg	101
Gävleborg	98
Norrbotten	97
Västmanland	97
Jönköping	96
Örebro	96
Västra Götaland	96
Dalarna	94
Kalmar	92
Blekinge	92
Halland	92
Västerbotten	92
Östergötland	91
Jämtland	91
Skåne	90
Värmland	90
Gotland	88
Uppsala	86
Södermanland	82

7b. Share of Sweden's population and GRP as a share of GDP



Source: Statistics Sweden

Relevance

The gross regional product shows the contribution to the national economy made by different regions in Sweden. Strong regional economies provide economic opportunities in all regions and may help to lower unemployment and reduce social exclusion. Strong regional economies make broad social contribution possible and this in turn is conducive to sustainable development. It is important that individuals in different regional economies face similar opportunities and support. That is, the conditions for living and working, as well as for public education and public service, should be satisfactory throughout the country.

Trends

GRP as a share of GDP broadly follows the share of the population in different regions in Sweden. Södermanland and Uppsala are exceptions, where GRP as a share of GDP is lower than the regional share of the national population. One explanation is that many workers commute to Stockholm and contribute to the production that takes place there. The three regions where the three large cities are situated account for over one-half of GDP.

Influence

Production is concentrated in and around large urban areas, which means that regions with large cities have high GRP relative to GDP.

Future

Not available.

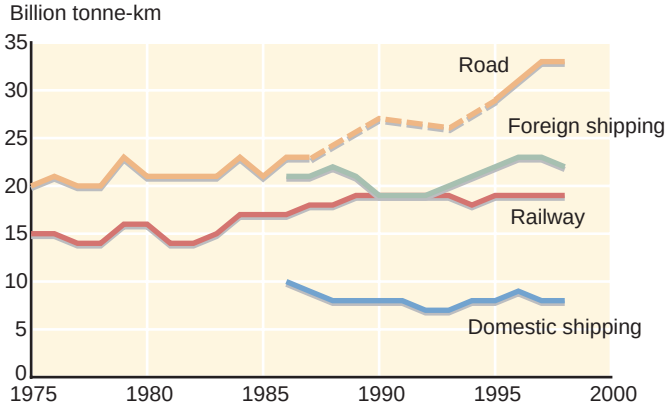
See also indicator: 8.

Increasing goods and passenger transport

Freight transport by road has increased sharply since the mid-1990s.

8.

8a. Freight transport by rail, road and water



Source: Statistics Sweden, Swedish Institute for Transport and Communication Analysis

Relevance

The population density in Sweden is low and the population is concentrated in urban areas. The low population density causes long transport distances and consequently the infrastructure and the transport sector are important in Sweden. Traffic represents approximately 40 per cent of carbon dioxide emissions and 80 per cent of nitrogen oxides in Sweden. Choosing low-emission vehicles for goods and passenger transport is important for sustainable development. Electrified rail traffic causes less exhaust emissions to air than road traffic and shipping. Comparison between exhaust emissions from cars and shipping is more complex. Exhaust fumes from aircrafts are emitted high in the atmosphere and contribute to the greenhouse effect.

Motor vehicle traffic causes hazardous air emissions, noise problems and traffic accidents. Conversion to cycling, walking and public transport will lead to a reduction of emissions and other harmful effects. This indicator thus helps to show the contribution to improved sustainability made by those responsible for travel, whether individuals or enterprises. It also gives a picture of the willingness of society to bring the transport system in line with sustainability. This indicator is connected to the Swedish environmental objectives: Clean air, Limited influence on climate, A good urban environment, Natural acidification only, No eutrophication, Sustainable lakes and watercourses.

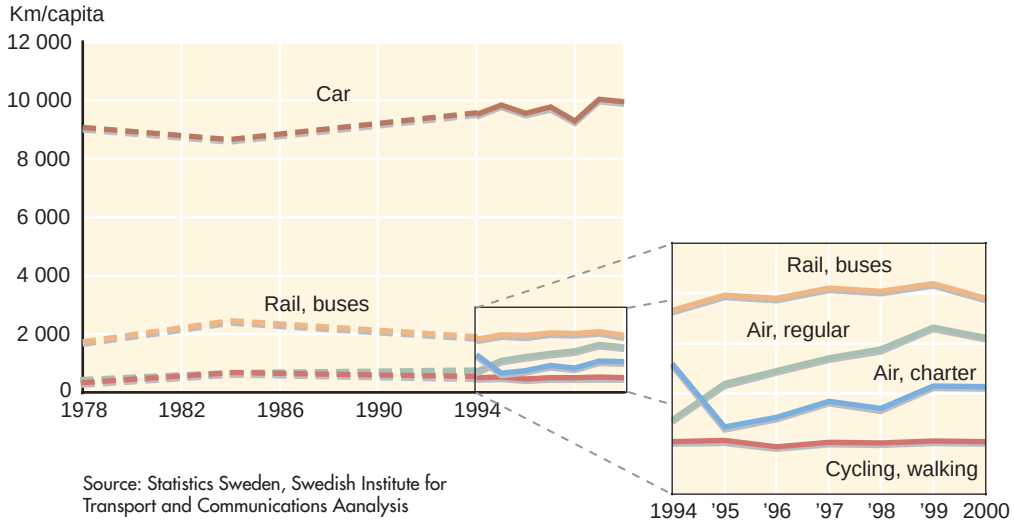
Trends

Goods freight by road has increased sharply since the mid-1990s. About 80 per cent of goods are transported by road. Almost all of this transport is for distances shorter than 300 km. Rail transport dominates over longer distances.

Domestic passenger transport has grown by 40 per cent over the last 20 years. People travel by bicycle, on foot and by public transport on average as much as they did twenty years ago, while car and air traffic has increased. Obviously travel by car is dominant and still growing.

In recent decades passenger transport, especially by air and car, has been growing.

8b. Passenger transport



Source: Statistics Sweden, Swedish Institute for Transport and Communications Aanalysis

8.

Influence

Rising fuel prices combined with an internalising of environmental costs can change the present balance in the transport mix. However, a substantial part of the fuel prices are taxes in Sweden.

Higher fuel prices may result in less passenger car travel, possibly leading to less traffic accidents. Important factors here include the availability of a choice of modes of transport. In many parts of Sweden there is only one alternative – the car. There are almost five times as many buses in Stockholm County as in Norrbotten County, for example, while passenger car density is almost 1.5 times as high in Norrbotten County. Therefore, higher fuel prices would affect people in rural areas harder. The growth in goods production, and in exports and imports, influences total goods freight. There have also been changes in the infrastructure, with increasing concentration of larger industrial plants and shopping centres and closure of local establishments.

Future

No changes are expected in the mix in freight or passenger transport systems in the immediate future. Transport volumes are more likely to show an increasing trend than the opposite. The forecast is that passenger transport by car will increase. However, cars will emit less air pollution as the proportion with catalytic converters grows and new technology is implemented. Better cycle paths and better public transport, etc., will lead to more people choosing alternatives to car transport for shorter distances.

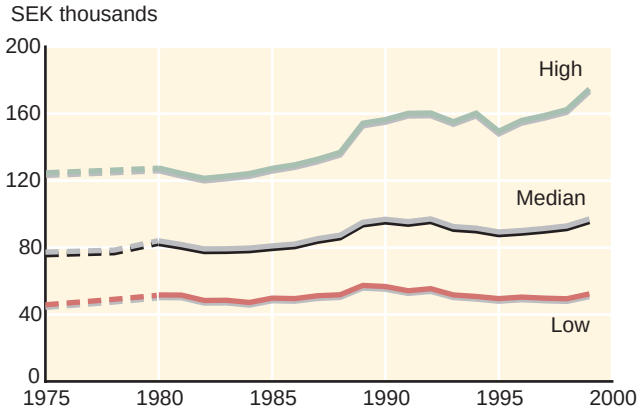
See also indicators: 4, 7, 15, 16, 24, 25, 26, 30.

Rising income in the highest income bracket

The highest and lowest income brackets are moving apart toward a more differentiated scale of disposable income.

9.

9. Disposable household income per consumption unit, 1998 prices



Consumption unit. To make it possible to compare the disposable incomes of different types of households, a weighting system is used that takes into account advantages of scale operating in households and the fact that children cost different amounts depending on their age. The household's actual disposable income is divided by its consumption weighting. The system of consumption weightings (or equivalence scale) is based on the earlier recommendations used by the National Board of Health and Welfare in calculating social assistance.

Some changes were made in the definition 1990 and 1991 due to the reformed tax system.

Based on the boundaries between first and second (low), and ninth and tenth deciles (high).

Source: Statistics Sweden

Relevance

The spread of income levels for households shows the degree of social and economic equality in society. Internationally, Sweden has a relatively equal distribution of income. It is impossible to define an exact level at which the gap between rich and poor is consistent with sustainable development – this is a political issue. However, a development marked by a steadily increasing gap can, in the long term, cause social strain and lead to a non-sustainable social situation.

Trends

After decades when the gap between the highest and lowest income brackets was constant, the spread increased during the 1990s. Those in the highest income bracket have raised their disposable income considerably while the mean income of the whole population has risen only moderately. The lowest income bracket has experienced a slight decrease in income over the last decade. This indicates a trend away from equality. Nevertheless, in terms of evenness of income distribution among households, Sweden still occupies a leading position internationally.

Influence

The long-term increase in household incomes is partly connected with women's participation in the labour market. In recent decades, the income spread has increased. The crisis in the economy at the beginning of the 1990s led to increasing unemployment and cuts in transfer payments. Increasing capital gains may explain the peaks in income increases in the highest income bracket; a change in the taxation system both for income and capital taxes is another explanation for the widening spread.

Future

Not available.

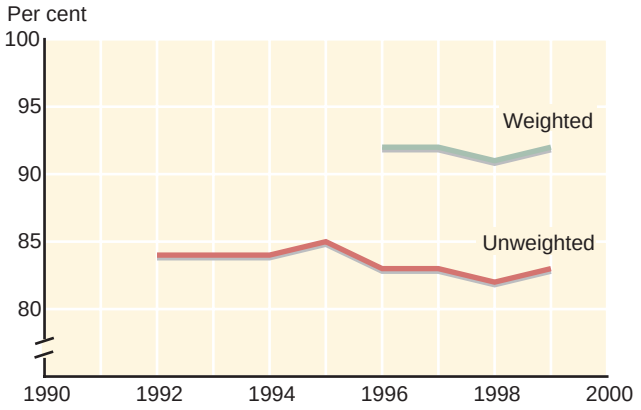
See also indicators: 5, 10, 18, 20.

Little change in inequalities between salaries of women and men

Women are still paid only 83 per cent of men's salaries. When differences in age, education, sector and working hours have been taken into account, women's salaries are still 92 per cent of men's salaries.

10.

10. Women's salaries as a percentage of men's salaries



Figures refer to total labour market. The total labour market includes full- and part-time employees, private and public sector, NACE A-Q.

Source: Statistics Sweden

Relevance

The endeavour to achieve increasing equality and contribution in society (equality between woman and men) is a target that has been highlighted in Sweden and internationally. Sweden has ratified a UN convention from 1979 to put an end to all discrimination against women. Article 141 of the EU Treaty states that every Member State shall guarantee the principle of equal pay for women and men doing equal work or work of equal value.

Trends

Women's salaries as a percentage of men's salaries have been quite stable since measurements started in 1992. However, there is a slight tendency for women's salaries to decrease in comparison with men's. Nevertheless, Sweden is one of the countries where equality in salary has most nearly been reached.

Influence

Some of the gap between women and men can be explained by the fact that they work in different sectors and in different types of jobs. Women often work in the public sector in social and health care, which by tradition include many poorly paid jobs. Men often work in the better paid private sector and dominate higher positions. Another distinction often pointed out is that many women work part-time. However, even when sector, working hours, age and education have been taken into account, women's salaries are still 8 percentage points lower than men's.

Future

The 1990s were marked by many important changes in the Swedish labour market. Many activities traditionally carried out in the public sector are now open up to competition from private enterprises. The wage system has changed towards more locally negotiated, individual wages. After the recession in the early 1990s, there is now a lack of some types of skilled labour – for example, school teachers and nurses – in occupations that traditionally employ many women. This means that young people entering women dominated occupations now often receive higher wages.

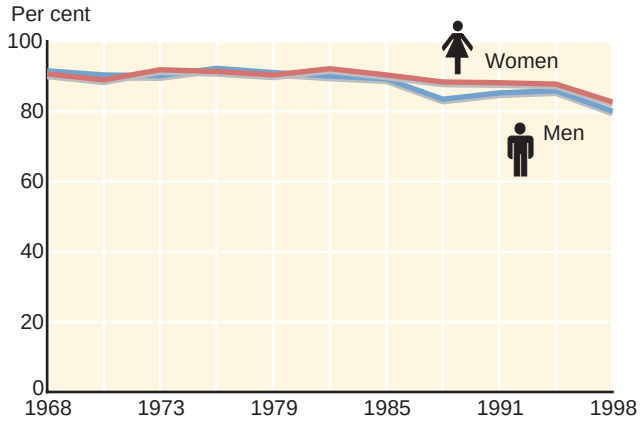
See also indicators: 9, 18, 20, 23.

Decreasing share of the population participating in elections

The total share of the electorate voting in national elections has decreased over the last decade. Since the elections to the Riksdag (the Swedish Parliament) in 1982 the share has been higher among women than among men.

11.

11. Electoral participation in elections to the Riksdag



Source: Statistics Sweden

Relevance

Democratic, knowledge-based decisions are considered to be important conditions for sustainability. Participation in elections to the Riksdag is one way of measuring democracy. It is also important that no groups in society are excluded. If voting in elections to the Riksdag is assumed to be the most important political contribution most citizens make, this is an indicator of contribution and participation in the political life of society.

Trends

Up to the elections in 1985, about 90 per cent of Swedish citizens voted. In 1998 electoral participation was 80.1 per cent for men and 82.7 per cent for women.

Influence

In Sweden, elections to the county councils, the municipal councils and the Riksdag have generally taken place on the same day. Immigrants without Swedish citizenship are allowed to participate only in the elections to county and municipal councils. The share of Swedish citizens voting is about the same in all three elections, but only 35 per cent of resident non-citizens voted in the 1998 municipal elections. This results in a lower overall participation rate in municipal council elections (just 79 per cent in 1998).
In recent elections, there has been a tendency for more and more people with low levels of education and income to abstain from voting. If this trend continues, it may be a sign of polarisation in society, with many inhabitants who do not take part in political life.

Future

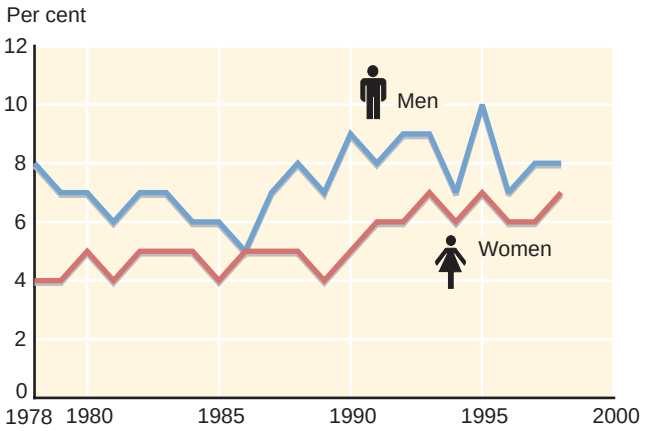
Not available.

See also indicators: 9, 18, 20.

Increasing violence

An increasing proportion of people report that they are exposed to violent crime or the threat of violence. There are more men at risk than women.

12. Proportion of the population reporting that they are exposed to violent crime or the threat of violence during the last 12 months



Source: Statistics Sweden

12.

Relevance

The proportion of the population exposed to violent crime or threats of violent crime is an indicator of safety in society and affects both the general quality of life and opportunities to participate in, e.g., cultural and political events. It is also to some extent an indicator of social exclusion, since criminals are often excluded from many aspects of society. The overall target in this area is to reduce crime and increase safety.

Trends

A growing share of the population reports having been exposed to violent crime or the threat of violence. There are more men at risk than women. The increase is confirmed by the number of reported crimes, rising from about 200 reported cases of assault or aggravated assault per 100 000 inhabitants per year in the early 1970s to more than 600 in 2000 (National Council for Crime Prevention, Sweden).

Influence

In Sweden, a relatively high proportion of the population is exposed to violence or the threat of violence each year (about 8 per cent). Despite this, an international comparison shows that Swedes feel safe when they are outside at night in their own neighbourhood (The International Crime Victims Survey).

Reducing not only violent crime but all kinds of crime is essential for improving conditions, especially in segregated housing areas. Damage to trains and buses, for example, influences the propensity to use public transport, which is important for environmental development as well as opportunities to participate in society. A high rate of crime has a negative impact on the establishment of new enterprises and can cause a negative economic trend at the local level, followed by increasing unemployment and other social problems.

Future

Projections regarding the development of reported crimes are based mainly on assumptions about the business cycle (GDP), unemployment and the size of the population.

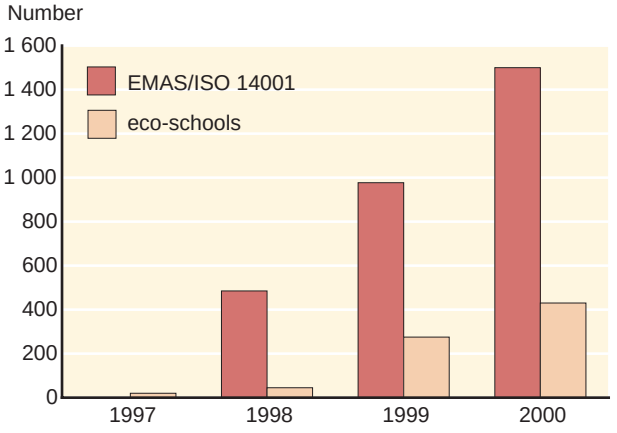
See also indicators: 4, 8, 9, 20.

Increasing number of Environmental Management System certifications

13.

The trend for Environmental Management System certificates is growing in Sweden. The development in 1998–1999 showed nearly 1000 new certificates and registrations, and over 400 Green Flag schools. Furthermore, there are now nearly 11 million hectares (approximately 47 per cent) of forest with certification.

13a. Enterprises with EMAS or ISO 14001 certification and certified eco-schools



Source: Environmentally certified companies Europe; Stiftelsen Håll Sverige Rent (Green Flag Schools)

Relevance

Companies and other organisations can play a key role in sustainable development by adopting internationally agreed systems of environmental management. The number of systems adopted reflects voluntary action and contribution aimed at improvements in environmental protection in companies or organisations.

This indicator is connected to the Swedish environmental objective of Sustainable forests and indirectly to most of them.

Five examples of environmentally certified management are given

The EU Eco-Management and Audit Scheme (EMAS) system and the International Organization for Standardization (ISO) 14001 standard are the two most widespread management systems for companies and organisations.

The Green Flag is a similar environmental certification system for schools and preschools.

The FSC (the Forest Stewardship Council) and PEFC (Pan-European Forest Certification) certify sustainable forestry according to international (FSC: world-wide; PEFC: European) standards. The FSC is presently viewed as more progressive with respect to ecological and social sustainability.

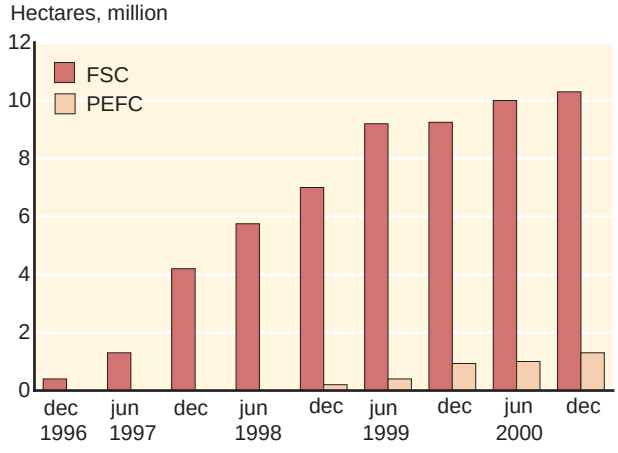
Trends

The trend for Environmental Management System certificates is growing in Sweden. The development in 1998–2000 showed nearly 1000 new ISO 14001 certificates and EMAS registrations, over 400 schools with Green Flag certificates and nearly 5 million and 1.3 million hectares of forest that became certified according to the FSC and PEFC, respectively. Public opinion has boosted the rate of certification.

Since 1999, schools in Sweden have also been able to apply for the distinction “Environmental school of honour”, which signifies that the school has integrated the environment in all school subjects. Today, 20 schools hold this distinction.

13.

13b. Area with certified forestry



Source: Forest Stewardship Council in Sweden (FSC) and The Swedish Pan European Forest Certification (PEFC).

Influence

The number of ISO 14001 environmental certificates has grown more rapidly than the EMAS registrations, partly because many companies had already adopted the ISO 9001 quality system earlier. ISO 14001 is also valid worldwide, which can be significant for companies doing business outside the EU. The ongoing development for all types of certifications is also dependent on demands from the market.

In addition, the Swedish Government is conducting ongoing work on developing the Environmental Management System to achieve continuing improvements in environmental performance within the Government and its agencies. At present, a total of 138 governmental authorities have been instructed to pursue such work. This is a concrete application of the Amsterdam agreement, which is about integrating environmental considerations in different political issues (Government Communication 2000/01:38, p. 14). The challenge is to integrate environmental considerations and resource management in all relevant decisions.

Future

Even though the number of Environmental Management System certificates is increasing, only a small share of organisations are certified. One reason is that development of and conformance to environmentally certified management take time. Nevertheless, many of these organisations have already developed environmental policies and routines for improved environmental performance. Because of public opinion, the number of certified companies and organisations will continue to increase.There is currently an increasing interest in business for social and ethical issues.

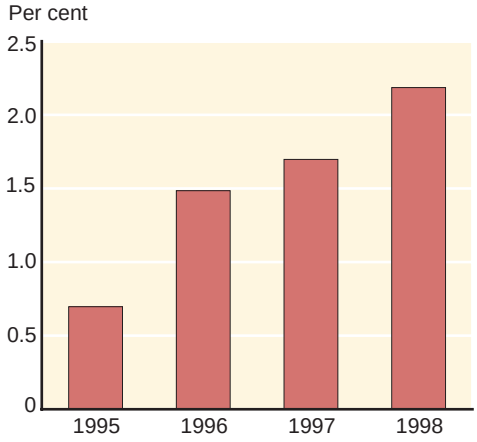
See also indicators: 3, 7, 8, 14, 15, 16, 17, 21, 24, 25.

Purchases of ecolabelled products and services are on the rise

Purchases of ecolabelled products and services are increasing . More and more product types are obtaining ecolabelling.

14.

14. Purchases of ecolabelled products and services as a percentage of total private consumption



Figures are based on *total* sales of ecolabelled products and services. However, they are compared to only private consumption, since most of the ecolabelled products are purchased by private consumers.
Ecolabelled products and services refer to those entitled to carry the Swan, the EU flower, Bra Miljöval and KRAV symbols.

Source: The Swedish Consumer Agency and Statistics Sweden

Relevance

Decisions of consumers to buy ecolabelled products and services reflect their awareness and willingness to contribute to sustainable development. Purchases bearing the environment in mind provide strong motivation to develop more eco-designed products and services.

The objectives of the Government and the EU Commission (in its proposal) are to increase purchases of products and services with low environmental impact and to stimulate a more environmentally friendly production and design of products and services.

This indicator is connected to many of the Swedish environmental objectives.

Trends

Purchases of ecolabelled products are growing rapidly relative to total private consumption. However, the share of total consumption is still rather small.

Influence

One important factor influencing the ratio of ecolabelled purchases – besides consumer awareness and willingness – is the supply of such products and services. The supply of ecolabelled food products is connected with the indicator "Organic farming".

Ecolabelling is not synonymous with environmentally sound in all cases. There are also products that meet the ecolabelling criteria but have not applied for labelling. Only a limited number of product types have so far been ecolabelled. Paper and cleaning products (e.g. detergents) are some examples of products where most private consumption is ecolabelled.

Future

Ecolabelling is undergoing continuous development and is expanding to include new product groups as to minimise environmental impacts.

The future trend for purchasing of ecolabelled products and services will depend on such factors as supply, price, marketing and willingness to buy.

See also indicators: 13, 21, 25.

Toward sustainability:

Adaptability

Society as a whole has the potential to develop and adapt new technologies and to make adjustments in how things are done in response to new conditions. Individuals, enterprises and organisations in particular have a vast potential in this area and have vital roles to play in maintaining sustainability in the economic, ecological and social fields. The way this is done is reflected by the theme Adaptability. This theme interacts with the themes of Efficiency and Contribution and Equality discussed in the previous sections. For example, a high educational level among the population is considered to be one of the key factors for a country's economic development. It is important not only when it comes to developing new technology designed to promote greater efficiency, but also in enabling people to comprehend and adjust to new technology. An equal distribution of education can provide the knowledge needed to help us choose approaches that are consistent with sustainability and thus contribute to the community. At the individual level, many things that are important for our well-being, such as health and income, vary with the level of education.

Incentives in the form of laws, taxes and grants as well as individual choices play an important role in the adjustments that are needed to meet the goal of passing on values and resources to coming generations.

Strengthening of preconditions for sustainable growth in research, education and energy

In Sweden, a large and increasing share of GDP is invested in research. Sweden has a high and increasing level of education in the population. This characterizes a dynamic economy. A rising interest for entrepreneurship contributes to increased potential for economic diversity. Adaptation to the use of renewable resources proceeds slowly. Nevertheless, there has been an adaptation in energy usage. For example, the housing sector today is much more energy efficient than previously. Sweden has the highest proportion of renewable energy/total energy among the member states of the EU.

The indicators in this section:

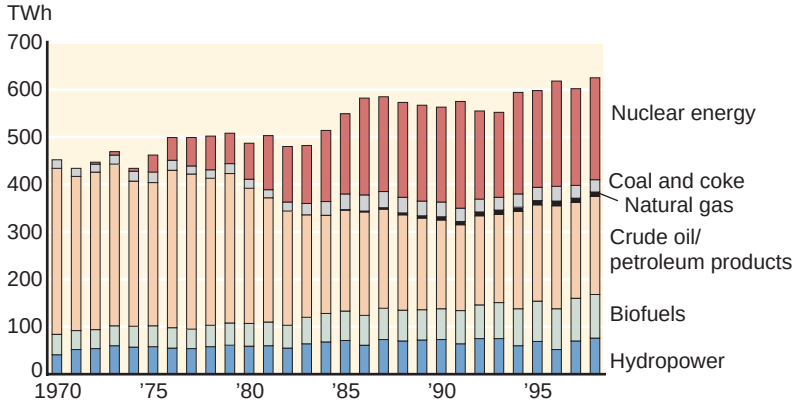
15. Primary energy supply mix
16. Investments in share of GDP
17. Newly started enterprises and bankruptcies
18. Level of education
19. Research and development expenditure in relation to GDP
20. Employment. Women and men by activity status
21. Organic farming, grazed pastures and hay meadows

15.

Energy supply and demand still rising slightly

Total energy supply has increased by 35 per cent and energy supply per capita by 20 per cent since 1970. Energy use has gone up slightly, mainly in the transport sector and in industry. Renewable energy (biofuels and hydropower) accounted for 27 per cent of the energy supply in 1999.

15a. Primary energy supply mix



Source: Statistics Sweden, Swedish National Energy Administration

Relevance

All heat and electricity production have an impact on the environment. This applies not only to the combustion of fossil fuels, but also, though in more reversible ways, to renewable energy sources. Emissions from fossil fuel combustion contribute, for example, to climate change and acidification; the cultivation of biomass may affect biodiversity; and wind and water power have an impact on land use and landscape.

Although renewable energy sources contribute to a substantial part of the present energy supply in Sweden, the system is not sustainable. The great challenge is to further increase the proportion of renewable energy sources in the supply system and boost energy efficiency.

This indicator is connected to the Swedish environmental objectives: Clean air, Limited influence on climate, A good urban environment, Natural acidification only, No eutrophication, Sustainable lakes and watercourses.

Trends

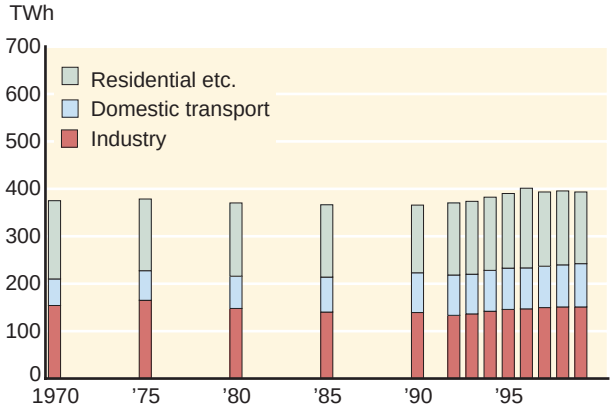
Total energy supply increased slightly during the 1990s, mainly due to increases in energy use in the transport sector and in industry. Biofuels registered the most substantial growth from increased use in district heating and industry.

Influence

The method used to calculate the energy contributed by nuclear power expresses the result in terms of the thermal power produced by the reactors, i.e. the method includes energy conversion losses in the total quantity of energy supplied, and not only the electrical energy produced. If the conversion losses e.g. in nuclear power were not included, the total energy supply would be about the same today as in 1970.

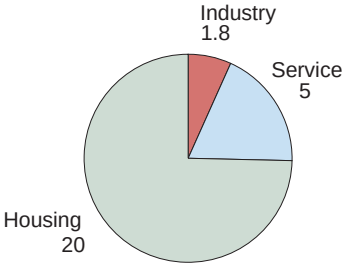
The structure of the energy supply in Sweden has changed considerably over the years. In 1970 oil provided almost 80 per cent of the total supply compared to 40 per cent today. The expansion of nuclear energy took place during the 1970s and 1980s and in the last decade the use of biofuels has grown. The structural changes have had political motives. After the oil crises in the 1970s the prime objective was security of supply. Since the end of the 1980s, the goal has been to increase the use of renewable energy and to improve energy efficiency for environmental reasons as well as to economise with electricity because of the phasing out of nuclear power. Nuclear power provides Sweden with almost one-half of its electricity. The Riksdag has however decided to phase out production of nuclear power in Sweden. No final date has been set, but the first reactor (of 12) was closed

15b. Final energy use in industry, domestic transport sector and residential and service sectors



Source: Statistics Sweden, Swedish National Energy Administration

15c. Electricity for heating purposes 1995, TWh



Source: Statistics Sweden, Swedish National Energy Administration

15.

final date has been set, but the first reactor (of 12) was closed down in 1999 and the second will probably be decommissioned within a couple of years.

The increase in energy supply during the 1990s is partly due to higher energy use in the transport and industry sectors and partly to temperature variations from year to year.

Sweden has the highest proportion of renewable energy/total energy among the Member States of the EU. Hydroelectric power expanded until the middle of the 1970s, when it reached its present level (64 TWh), and today provides Sweden with one-half of its electricity. Biomass accounts for a major part of the Swedish energy system (90 TWh). The expansion of biomass use during the 1990s mainly took place in the district heating system and, to a lesser extent, in industry. The system of carbon dioxide taxes on fossil fuels that was introduced in 1991 has played a major role in boosting the position of biomass as a fuel. Wind power has gained in recent years, but it is still small (0.4 TWh).

A considerable quantity of energy is used for heating purposes, although great progress has been made in efficiency in recent decades. The total amount of energy used in the residential and service sectors has remained steady over the last 30 years even though the areas heated have grown by 45 per cent. Electricity is a common source of heating. To be able to phase out nuclear power in Sweden, conversion to other sources of heating is essential. At present different solutions are being tried, for example, connection to district heating.

Future

Scenarios from the Government Commission against Climate Change indicate that the energy supply will increase by 5–10 per cent between 1990 and 2010. The major growth will occur in industry.

Renewable energy is expected to contribute to most of the increase. There is political consensus in Sweden that there should be no major expansion of hydroelectric power, but a small increase is expected due to improved efficiency in conversion and transformation. The use of biofuels is expected to increase by 10–20 per cent. Wind power faces a major expansion over the next ten years. A rise from 0.4 TWh to 3–5 TWh is foreseen.

See also indicators: 1, 8, 19, 24, 30.

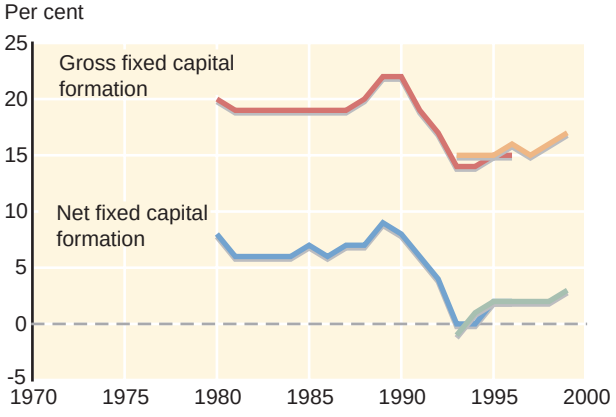
Investment levels have begun to recover

The recession in the Swedish economy affected the level of investments. At their lowest level, in 1993, net investments were even negative. Investments as a share of GDP increased to 17 per cent in the late 1990s.

Investment or gross fixed capital formation includes:
- Machinery and equipment
- Transport equipment
- Other buildings and construction
- Other capital formation

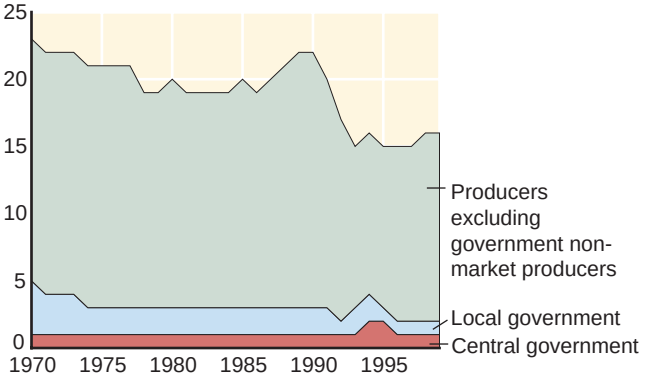
To obtain net fixed capital formation, fixed capital consumption is subtracted.

16a. *Investments:* Gross and Net fixed capital formation as share of GDP, current prices



Source: Statistics Sweden

16b. *Investments:* Gross fixed capital formation as share of GDP, current prices



Source: Statistics Sweden

Relevance

Investments are necessary for maintaining or adding to the capital stock, increasing productivity and the capability to adapt to sustainable development, e.g. energy saving solutions. A healthy economy in a competitive international market requires investments. Public investments are important for maintaining or increasing public works, such as infrastructure.

Trends

Since 1970, total gross investments have fallen to 17 per cent of GDP. In 1999 the total net investment level was as low as 3 per cent. Investments almost returned to 1970 levels during the peak year of 1989, but then dropped off dramatically and have not recovered. The share of gross investments made by local government has decreased rapidly since 1970 and is now only 1 per cent of GDP. Producers, excluding government non-market producers, have also accounted for decreasing gross investments since 1970, though the level of gross investments by central government has shown a slight increase.

Influence

Business activity in the economy has a powerful influence on the level of investments. If investment levels are high this tends to boost economic growth, and growth in the economy in turn facilitates increased investments. Local government investment has decreased as a share of GDP due to the poor economy of the municipalities and new budget constraints. On the other hand, central government slightly increased its investments during the recession so as to raise employment levels by, for example, making investments in the infrastructure.

Future

In 2001 investments will remain high relative to GDP, but more moderate levels have been forecast for the following years.

See also indicators: 2, 3, 8, 13, 19, 24.

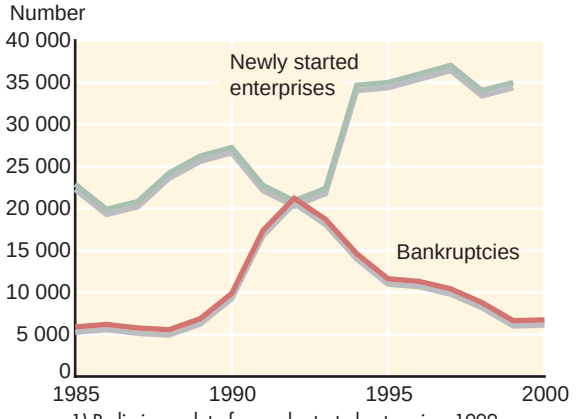
More start-ups and fewer bankruptcies

The number of newly started enterprises increased and bankruptcies decreased between 1992 and 1999. However, the number of bankruptcies rose slightly between 1999 and 2000.

The survey for **newly started enterprises** does not include enterprises in agriculture and forestry (SE-SIC A-B) or real estate, renting and business activities (SE-SIC 70).

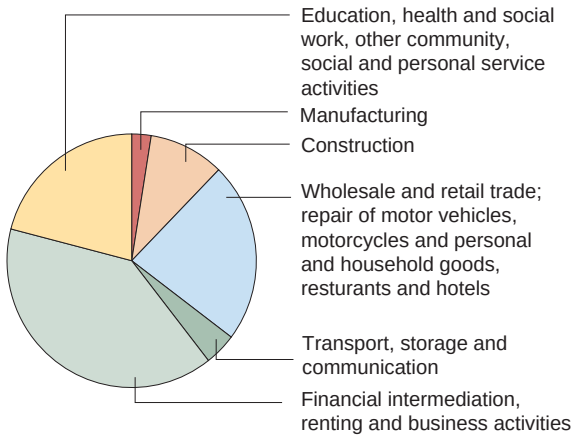
The change in business base is best measured by the net addition of enterprises (real birth-real death) but since there are no reliable statistics for the real death, the number of bankruptcies is shown instead.

17a. Newly started enterprises[1] and bankruptcies



1) Preliminary data for newly started enterprises 1999
Source: Statistics Sweden, Swedish Institute for Growth Policy Studies (ITPS)

17b. Newly started enterprises by industry 1999[1]



17.

Relevance

The number of newly started enterprises is one way to measure adaptability to new conditions. The number of bankruptcies and newly started enterprises is dependent on competition and structural changes as well as economic development.

Trends

The trend was up for new enterprise start-ups and down for bankruptcies from the beginning of the 1990s until 1999. However, there was a small drop in newly started enterprises in 1997–1998. The downward trend for bankruptcies was reversed in the most recent year (1999–2000) and statistics from UC (Sweden's leading business and credit information agency) indicate that numbers may continue to rise. The recession at the beginning of the 1990s led to a high number of bankruptcies and few new enterprise start-ups. Closures of enterprises are much more common than bankruptcies, so the net addition of enterprises at the beginning of the 1990s is estimated to have been an actual deficit.

Influence

The bulk of newly started enterprises is in the service sector. The service sector includes environmental consultants, which is an expanding category in the environment industry. This constitutes an example of new enterprises contributing to both economic growth and environmental sustainability.

During the 1990s, the climate for small enterprises has improved. The support available to new enterprises has increased. Privatisation and restructuring of the public sector have generated new private enterprises.

Future

Not available.

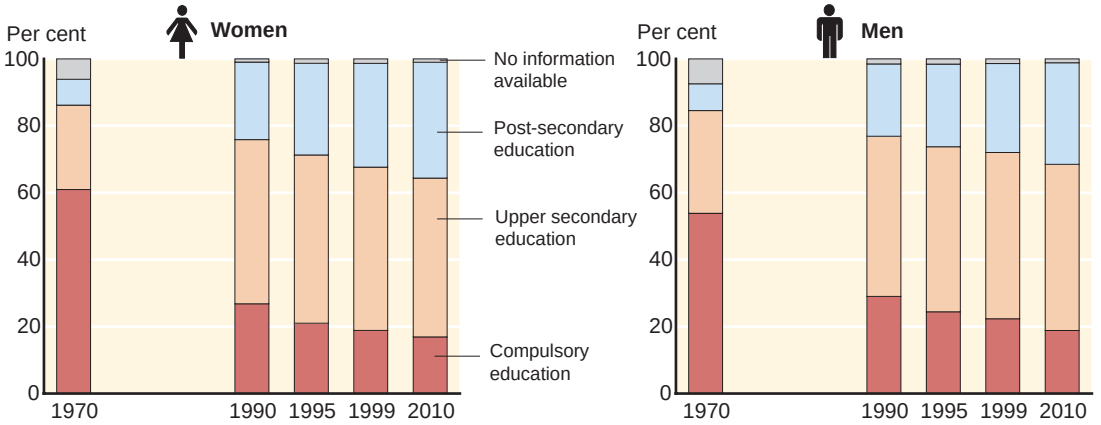
See also indicators: 2, 13, 16, 19, 20.

Slowly rising level of education

The level of education among the population has improved dramatically since 1970. However, there has been only a small rise in the level in recent years. Education is distributed equally by sex even if women now have a slight lead.

18.

18. Level of education by sex



Source: Statistics Sweden

Source: Statistics Sweden

Relevance

The level of education is crucial to many aspects of sustainable development, especially the development and adaptation of new techniques, logistics, planning and management needed to move towards sustainability. It is also of great individual importance and varies in relation to many health aspects, salary and employment status, all of which are essential to our well-being. A high educational level among the population is also considered to have major significance for the economic development of a country. The government goal is that 50 per cent of all young people should enrol as university level students before the age of 25. The chances of achieving this depend on the extent to which potential students successfully complete lower levels. As shown in indicator 5, less then 90 per cent of the pupils in compulsory school qualify for upper secondary school. Only 59 per cent of all 20-year-olds have successfully completed upper secondary school, which is necessary to enter university-level education.

Trends

The proportion of people with university-level education has increased rapidly in recent decades. The proportion with no more than compulsory schooling has decreased.

Influence

The demand for highly educated labour increases as society becomes more developed. A lack of labour with certain skills can cause bottlenecks and hinder economic growth. Since education takes time, the educational level among the population takes years to influence. The same fact applies to shortages of labour with certain skills.

The economic crisis with its high unemployment was met by substantial investments in adult education, at upper secondary as well as university levels.

Future

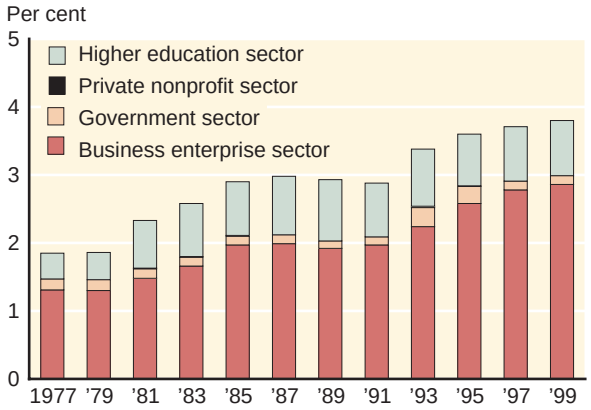
The projection in this area implies a slowdown in the increase in the level of education.

See also indicators: 2, 4, 5, 9, 10, 17, 19, 20, 23.

R&D has increased in relation to GDP

R&D has expanded in recent years. In 1999 R&D expenditures amounted to 3.8 per cent of GDP, which is the highest share in the world.

19. Total R&D in relation to GDP



Source: Statistics Sweden

Data on the social sciences and humanities is available for the higher education sector from 1981 and for the other sectors from 1993.
1981: Increased coverage for business enterprise sector and higher education.
1993: The population in the private non-profit sector has varied over the years.
1993–99: Government sector: Municipalities and county councils are excluded but were estimated for 1993 and 1995.

19.

Relevance

Research and development are important for future abilities to adapt to new conditions. R&D can generate new production methods and/or new products, increasing efficiency and productivity, which may contribute to a better environment and therefore sustainability.

Trends

Apart form a slight decline in 1991, R&D expenditures exhibit a rising trend relative to GDP. The business sector invests most in R&D. In 1993 R&D investments by the municipalities and county councils were also estimated, but are not shown in the graph. R&D expenditures by the municipalities amounted to SEK 229 million and R&D expenditures by the county councils came to SEK 1 933 million.

Influence

Sweden spends more on R&D relative to GDP than any other country in the OECD. However, according to the latest Long-Term Survey, Sweden has difficulty in converting these research efforts into production within the country. A high proportion of R&D investments are concentrated in a few large enterprises. Expenditures on R&D have contributed to stronger Swedish competitiveness.

The liquidation of the Employee Investment Funds has contributed to the increase in R&D from 1994 on.

Future

Not available.

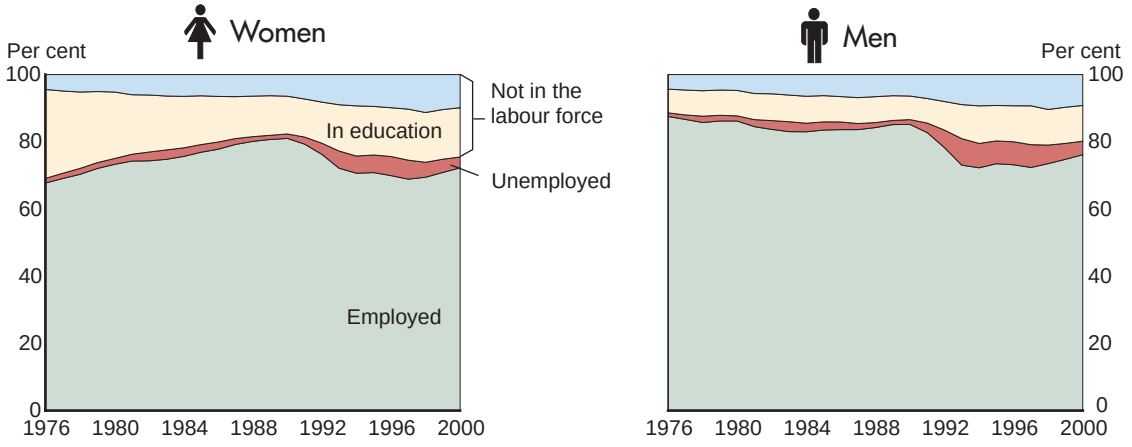
See also indicators: 2, 16, 17, 18, 20.

Fewer employed in the 1990s

During the 1990s, employment levels declined while both unemployment and the proportion of people outside the labour market rose. Men and women have about the same ratio of participation in the labour market, though women often work part-time.

The unemployment rate does not include people in full-time education who are looking for work. If they were included, the unemployment rate would be 1.1 percentage points higher in 2000. In 1997 the unemployment rate would have been 2.4 percentage points higher if people in full-time education who were looking for work had been included.

20a. *Employment:* Women and men aged 16-64 by activity status



Source: Statistics Sweden

20.

Relevance

Employment is a key economic and social issue for sustainable development. Work is often cited as a basic need alongside food, housing, etc. The unemployed who participate in education programmes contribute to adaptability at both the personal and economic levels. Long-term unemployment has a negative impact on economic adaptability since people who have been unemployed for a long period of time often have difficulty taking a job even when it is offered. A growing economy often needs more labour. A shortage of labour can undermine competitiveness by making it difficult for companies to meet orders and it also exerts an upward pressure on salaries, which can affect competitiveness in the long run.

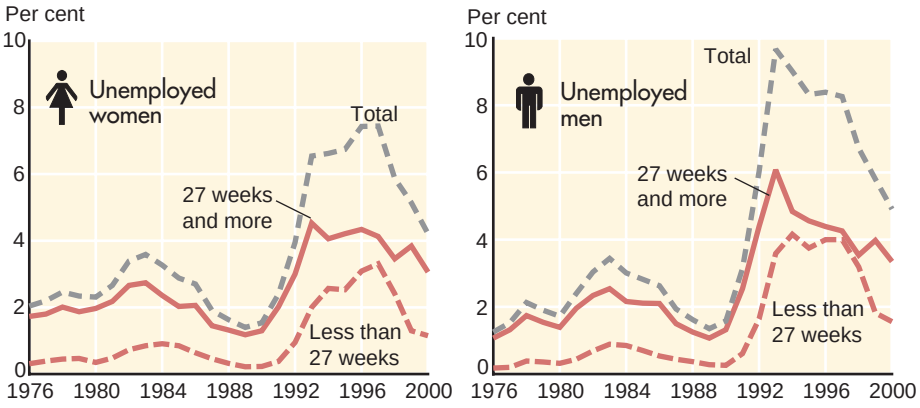
Unemployment – and for obvious reasons long-term unemployment in particular – is also a key indicator of social exclusion. This makes it important to ensure that no groups are left outside the labour market.

Trends

During the 1970s and 1980s the employment rate increased due to women entering the labour market. The growing public sector contributed to this trend. Women were able to take jobs due to the expansion of child daycare and the growing health, social services and education sectors needed labour. The same period saw a slight reduction in participation in the labour market by men.

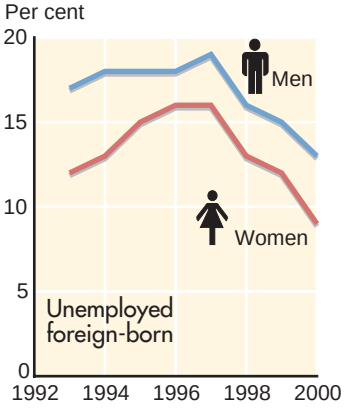
At the beginning of the 1990s, employment rates dropped dramatically due to the economic recession. Although employment has risen in recent years, it is still far below the levels seen in previous decades. Unemployment has decreased by more than 3 percentage points and the number of long-term unemployed among the unemployed has also declined. The proportion of unemployment among foreign-born people has also decreased, but remains very high, at more than twice the proportion in the total population.

20b. Duration of unemployment, proportion women, men in the labour force



Source: Statistics Sweden

20c. Proportion foreign-born in the labour force aged 16–64 unemployed



Source: Statistics Sweden

20.

The great increase in unemployment was met by a massive investment in adult education, which is reflected in the proportion of people outside the labour market participating in some form of education.

Influence

The negative development of the economy is the single most important explanation for the decrease in employment. It led to structural rationalisations and layoffs in both the private and public sectors. However, the end of the 1990s saw substantial economic growth. This was not reflected to the same extent in the labour market figures. Parts of the private sector are growing in terms of number of employees, and labour shortages are discussed as an increasing problem. The public sector can no longer continue to grow as it has in the past, due to a budget restriction introduced in 1997.

Nonetheless, it is still experiencing a shortage of certain types of skilled labour.

Future

Different scenarios prepared by the National Institute of Economic Research imply that employment rates will remain lower than the rates seen in 1990.

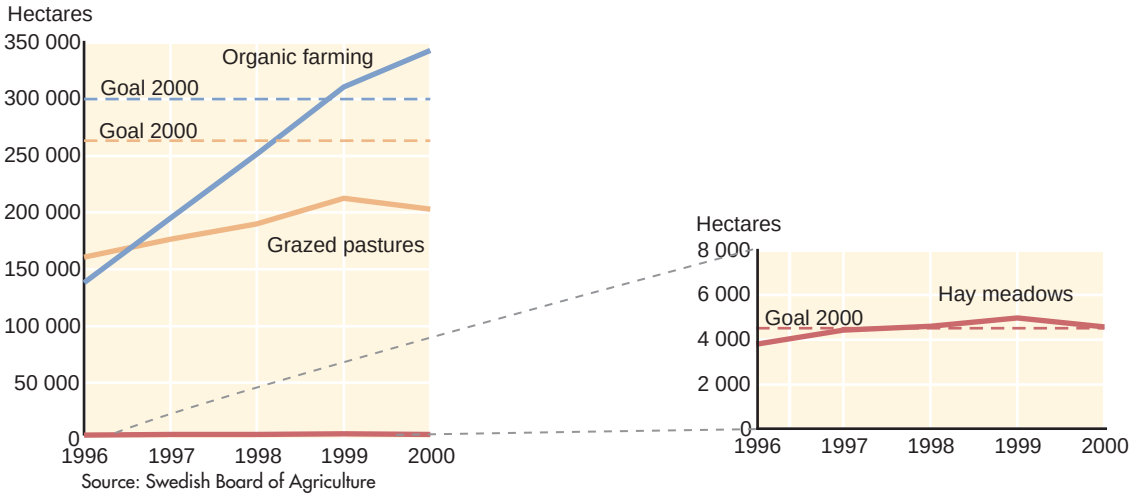
See also indicators: 2, 4, 5, 6, 9, 10, 16, 17, 18, 19, 23.

Organic land on the increase

Organic farming and areas of managed grasslands covered by agri-environmental schemes increased in 1996–2000.

21.

21. Organic farming, grazed pastures and hay meadows



Source: Swedish Board of Agriculture

Relevance

The aim of organic cultivation is to improve the sustainability of farming activities and make agriculture more environmentally friendly. Chemical plant protection products and artificial fertilisers are not used. The Swedish Riksdag has decided that 10 per cent (approx. 300 000 hectares) of the total arable land in Sweden shall be under organic cultivation in 2000 and 20 per cent in 2005. Semi-natural grasslands are important to conserve because of their rich flora and fauna, and the high aesthetic and cultural values they contribute to the rural landscape. Many of these grasslands have low economic profitability. Thus, support from the agri-environmental programme which is part of the EU's Common Agriculture Policy (CAP) is a key factor for their conservation.

This indicator is connected to the Swedish environmental objectives: A varied agricultural landscape, A non-toxic environment, High-quality groundwater.

Trends

There has been a sharp increase in the area under organic cultivation. The goal of 10 per cent of the total arable land in Sweden by year 2000 has been reached. In 1996–1999 the areas of grazed pastures and hay meadows increased by 30 per cent. There are now about 4 600 hectares of meadowland managed within the agri-environmental programmes. Although there are some disparities in this statistical material over time. In general, however, the areas have decreased sharply over the last 150 years. Without agri-environmental measures the negative trend would have continued.

Influence

The increase in organic cultivation is a response to current policy measures. Since 1995 the EU agri-environmental programme has provided a specific yearly compensation to organic cultivation. Despite generally low economic profitability, some farmers maintain grazing land, for example, to keep the landscape open and/or by tradition.

Future

Public interest and policy measures make a further increase in organic cultivation highly likely. Abandonment of grazing land has been obvious, but the agri-environmental measures have counteracted this negative trend.

See also indicators: 13, 14, 25, 27, 29.

Towards sustainability:

Values and resources for coming generations

Sustainable development as formulated in "Our Common Future" implies that our way of life must not be allowed to jeopardise the opportunities of future generations to satisfy their needs. The indicators here give some idea of what we hand over to coming generations, their manoeuvrability, when it comes to economic resources, ecological resources and human resources. It has not been easy to choose existing indicators for this theme. Some related measures can also be found in the section Sweden in brief.

A shrinking inheritance

The predominant impression is that Sweden is not passing on to coming generations a similarly large or greater set of values and resources than that inherited by the previous generation. For example, the use of non-renewable resources declined for a period, but it is now increasing again. Asthma allergies are increasing among children, the Baltic sea is polluted and overfished, the number of endangered species is increasing. However, there are some positive developments. The central government deficit has fallen and there has been an increase in land and water areas reserved for conservation of wildlife. The emissions of carbon dioxide are fairly stable. This indicator illustrates one of the most burning issues today which will influence the prosperity for coming generations.

Adaptation toward sustainability is under way but much work remains.

The indicators in this section:

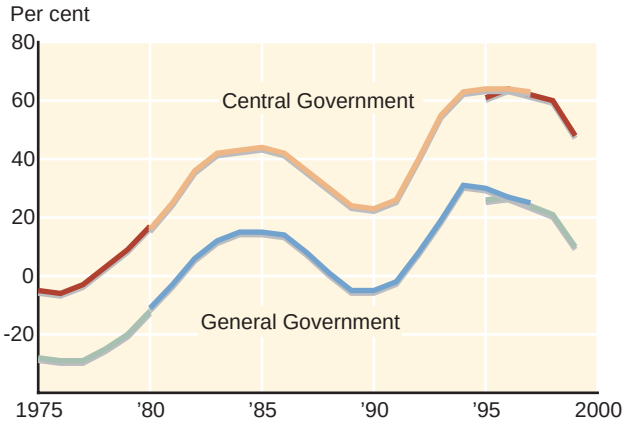
22. General Government and Central Government Net Debt in per cent of GDP
23. Share of GDP spent on health, education, welfare and social security
24. Direct Material Consumption
25. Quantities of chemicals hazardous to health and/or the environment
26. Prevalence of allergic asthma among school children
27. Protected area
28. Exploitation of Baltic herring
29. Extinct and endangered species
30. Emissions of carbon dioxide

Falling Debt

General Government Net Debt has fallen substantially since 1996. The Government plans to continue to reduce the debt.

22.

22. General Government and Central Government Net Debt in per cent of GDP, current prices



General Government (Public) Net Debt includes:

- Central Government
- Local governments
- Social security funds

Central Government Net Debt is given at market value and is defined as total outstanding liabilities less total outstanding assets.

The "official" Government Debt is given at book value and includes only the liability side.

Book value – amount received at time of issue
Market value – liability/asset valued at prices observable on the market on the date to which balance sheets relate

SNA 68: A System of National Accounts
ESA 95: European System of Accounts

1975–1980 GDP SNA68 1975–1997 Debt at book value
1980–1999 GDP ESA 95 1995–1999 Debt at market value
A negative Net Debt is a net asset for the Government.

Source: Statistics Sweden

Relevance

High and rising levels of General Government Net Debt may cause problems for future generations. They may also lead to high interest rates, thereby reducing investment and growth. The present goal is a budget surplus of 2 per cent of GDP over the business cycle. This will make it possible to gradually decrease both Central Government and General Government Net Debt.

Trends

General Government and Central Government Net Debt as a percentage of GDP has fluctuated widely during the last 25 years. The debt grew dramatically from the middle of the 1970s until the mid-1980s. Subsequently the debt decreased as a percentage of GDP until Sweden experienced a new recession in the economy at the beginning of the 1990s. In recent years Sweden has brought the level of debt down again and the present Central Government Net Debt is a little under 50 per cent of GDP. However, although the downward trend is forecast to continue in the next few years, the long-term trend so far has been for the debt to increase.

Influence

One reason for the rising debt in the late 1970s was the growing public sector. The recession at the beginning of the 1990s led to a weakening in public finances and exacerbated the debt. Recently the Government has sold off a considerable amount of its holdings in the public sector. Sweden has therefore been able to reduce Central Government Net Debt because market value has far exceeded book value. The main factor behind lower Net Debt has been Government savings. New budget constraints might help to keep the debt at a low level.

Sweden is one of five EU countries which had a surplus in its public finances in 1999. The EU average was a deficit of about 1 per cent.

Future

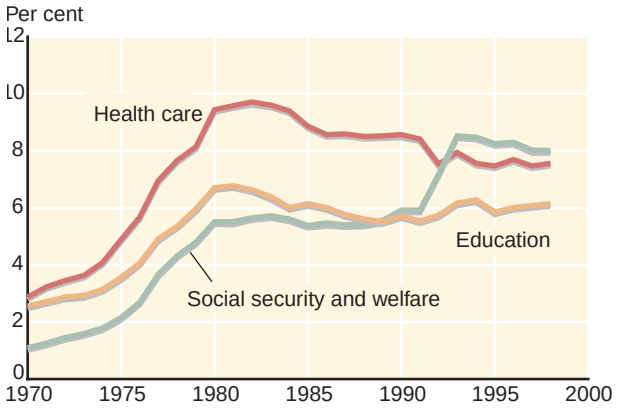
Sweden plans to continue to reduce the Government debt over the next three years.

See also indicators: 4, 20, 23.

Stagnation in expenditures on education, health and social security

The 1970s saw a rapid increase in public spending on education, health and welfare. Since 1980 this has turned into a slight decrease in the share of GDP spent on education and health. Expenditures on social security and welfare increased dramatically in the early 1990s due to the recession and changes in the public sector.

23. Share of GDP spent on health, education, welfare and social security



Source: Statistics Sweden

23.

Relevance

Resources spent on health, education, social security and welfare can be seen as investments in human capital. They are important for several reasons. One is to ensure equal opportunities for all. Another is to boost the development of skills and technology necessary for economic growth.

The share of GDP spent in these areas is one way of illustrating the importance we attach to the maintenance and development of our human capital. However, it is important to bear in mind that a decrease can reflect increasing efficiency.

Trends

The share of GDP spent on education, health, social security and welfare increased during the 1970s when the public sector was expanding. This created employment opportunities, mainly for women, who entered the labour market in large numbers during this period. These changes also generated a more equal distribution of incomes. Since 1980, expenditure on education and health has slowly declined as a share of GDP. To some extent, there has also been a shift from health care towards social security and welfare.

Influence

There is shift from health care toward social security and welfare. This can partly be explained by cuts in expenditures and rationalisations, and partly by the transfer of some of the responsibility for elderly people and the mentally ill from the health care system to the municipalities. This means that expenditures are now classified as social security and welfare. The recession in the early 1990s also put a strain on the social security system.

Future

Not available.

See also indicators: 2, 4, 10, 18, 22.

Use of non-renewable materials other than fossil fuels is decreasing slightly

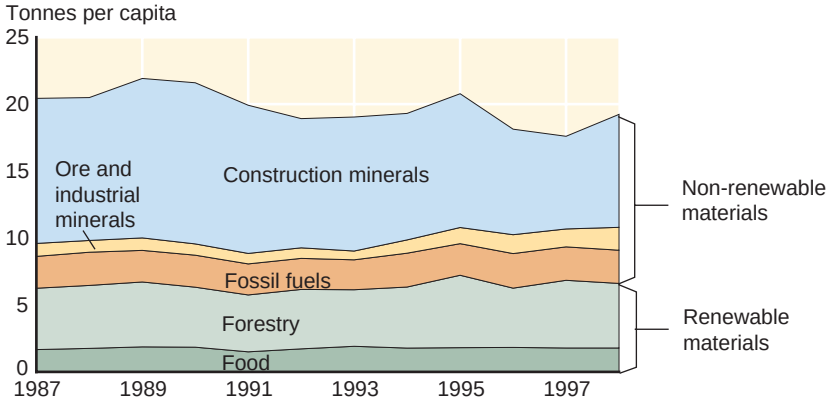
Total use of natural resources has been quite stable during the last decade. Inputs of fossil fuels and renewable materials are fairly constant.

Direct Material Consumption (DMC) is domestic production plus imports minus exports of natural resources in a country during a year. This includes non-renewable materials (construction minerals, ore, industrial minerals, fossil fuels) and renewable materials (raw materials for food production, wood).

There are some limitations in the definition of DMC, e.g. domestic production refers to raw materials whereas imports and exports refer to products (e.g. pulp and not wood).

24.

24. Direct Material Consumption



Source: Statistics Sweden

Relevance

A sustainable use of natural resources includes efficient use of materials and energy and limitation of hazardous substances. The rate at which resources are consumed should not reduce their availability to future generations. Producing more with less means generally reducing environmental pollution, energy consumption and waste. An efficient use of natural resources means also a decreased use of fossil fuels.

The Government's objective is to use natural resources in an efficient and environmentally sound way and by preference use renewable energy resources.

Direct Material Consumption (DMC) gives a picture of all direct flows of natural resources used for products consumed in the country during a year. DMC also gives a picture of how a change in the use of fossil fuels will influence the use of other resources and vice-versa. This indicator is connected to many of the Swedish environmental objectives.

Trends

DMC has been quite stable over the period, varying between 18 and 22 tonnes per capita, with the highest values in 1989 and 1990. Fossil fuels and renewable materials account for a fairly constant part of this consumption, but construction minerals registered a decrease in the mid-1990s. This was due to falling demand for raw materials in the building sector. Today the use of these non-renewable materials is increasing again.

DMC in Sweden consists of approximately 40 per cent renewable and 60 per cent non-renewable materials. In tonnes, the largest group of materials is construction minerals followed by wood and fossil fuels. Fossil fuels make up more than a fifth of the non-renewable materials.

Influence

The indicator is influenced by the efficiency with which materials are used as well as by the state of the market (prices and the economic situation).

Future

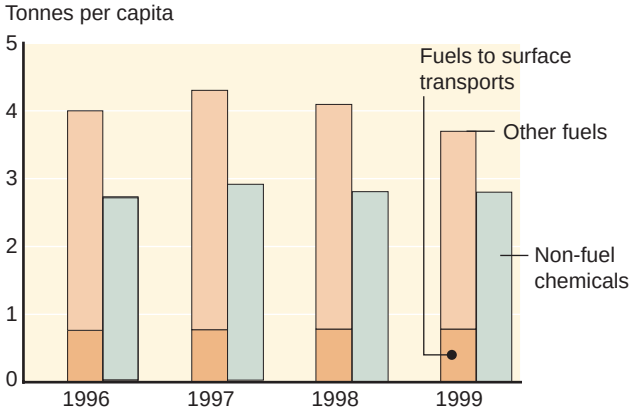
Not available.

See also indicators: 1, 3, 8, 13, 15, 16, 20, 25, 30.

Stable use of chemicals

Chemicals are an integral part of our lives. They provide us with many of the consumer goods we have come to take for granted. The consumption turnover in Sweden of hazardous chemicals other than fuels has been quite stable in Sweden in recent years.

25. Quantities of chemicals hazardous to health and/or the environment



Hazardous chemicals
This indicator reflects the yearly burden of hazardous chemicals on society (hazardous as defined in Directive 67/548/EEC, chemical defined as chemical products in the Swedish Environmental Code). It includes chemicals that are intentionally transformed into other substances by production processes and to which workers are exposed, as well as chemicals incorporated in products to which all users are exposed. The indicator includes domestic production and import. The indicator does not include chemicals in imported goods.

Chemicals enter the environment through emissions from the production, use and final disposal of chemicals/materials/goods. Emissions during production, manufacture and final disposal are regulated by pollution control and waste management legislation. Emissions during the use of products by private consumers are not subject to regulation.

25.

Fuels to surface transports includes working machines.
Other fuels for e.g. heating.
Source: National Chemicals Inspectorate and Statistics Sweden.

Relevance

Particularly harmful substances are those that accumulate in plants, animals and humans, and that decompose only slowly. Many hazardous substances can cause cancer, allergies, reproduction failure or damage to the endocrine system. This means that the use of chemicals today can also pose a threat to coming generations. It is essential that we identify and manage hazardous chemicals in a sustainable manner. Reduced consumption and exposure of hazardous chemicals will result in less negative impact.

The Government's objective is that the environment shall be free from substances and metals that represent a threat to health and biological diversity. This indicator is connected to the Swedish environmental objective: A non-toxic environment.

Trends

The use of hazardous chemicals (fuels excluded) has been at about the same level throughout the period, around 2.8 tonnes per capita per year. This is equivalent to just under 8 kg per person each day.

In addition we annually use about 4 tonnes per capita of fuels, mostly petroleum based, that are classified as hazardous to health and/or the environment.

Influence

The use of hazardous chemicals is linked to the economic situation in the country. The chemical industry is a vital part of the Swedish economy, but chemicals are also used in many other industries.

The indicator should be complemented with data about amounts of specific classified substances to allow a more detailed breakdown of real changes in volume.

Future

Not available.

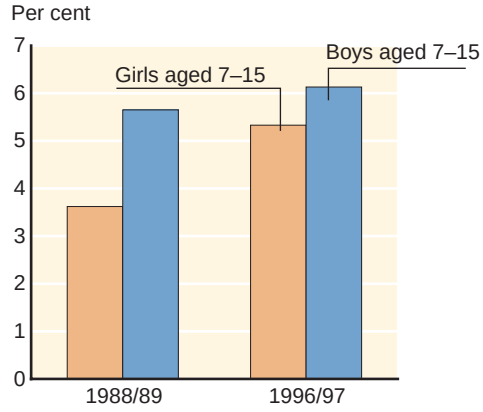
See also indicators: 8, 13, 14, 15, 21, 24.

Asthmatic symptoms are increasing

Allergic asthma is increasing among school children in Sweden. Among adults about 6 per cent of men and 8 per cent of women in Sweden suffer from asthma.

26.

26. Prevalence of allergic asthma among school children



Source: Statistics Sweden and the National Board of Health and Welfare

Relevance

Public health is important for sustainable development. Apart from social and economic perspectives, it is a quality of life factor. This indicator reflects the prevalence of health problems related to a polluted environment. Although scientists are not sure exactly how air pollution, for example, affects human health, there is no doubt that allergic persons do have a high risk of severe symptoms in a polluted environment.

Asthmatics have a heightened sensitivity to air pollutants. Thus the number of children exhibiting allergic asthma symptoms when exposed to pollen or furry animals can be expected to rise when the surrounding air has high concentrations of ozone, nitrogen dioxide, etc.

This indicator is connected to the Swedish environmental objectives Clean air and A good urban environment.

Trends

From 1988/89 to 1996/97 the prevalence of allergic asthma among girls aged 7–15 increased by 1.7 per cent and among boys by 0.5 per cent. The overall rate for both sexes in 1996/97 was about 6 per cent.

Influence

In recent decades the number of people with allergic symptoms and hypersensitivity has increased in the industrialised countries. More than 20 per cent of the Swedish people now suffer from some sort of allergy.

The air quality in urban areas is expected to remain poor in terms of higher concentrations of pollutants than are allowed by Swedish environmental quality norms or EU limit values. This applies in particular to particles, VOC (e.g. benzene) and ozone. In the coming years, allergies among children will probably continue to increase. Since these diseases often persist, the frequency of allergies among adults is also expected to rise (Report from the National Board of Health and Welfare, the Institute of Environmental Medicine and Stockholm County Council).

Future

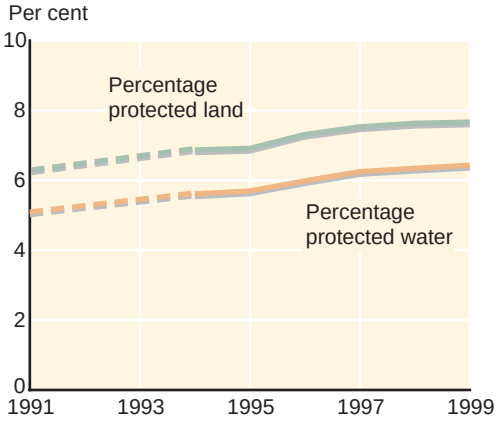
It is hoped that improved knowledge of the reasons why allergic illnesses are becoming more common and how they arise, in combination with a cleaner environment, could lead to a decrease in allergic asthma among children and adults.

See also indicators: 4, 8, 23.

Area of protected land and water is increasing

Protected areas in Sweden grew by 556 000 hectares of land and 156 000 hectares of water between 1991 and 1999.

27. Protected area in Sweden, share of total area



Protected areas
The areas protected by the Environmental Code include national parks, nature and cultural reserves, natural monuments, biotope protection areas, fauna and flora protection areas, etc.

Source: Statistics Sweden, Swedish Environmental Protection Agency

27.

Relevance

Setting aside protected areas is a measure to conserve and protect valuable natural environments for future generations, preserve biological diversity and species of special conservation value, and secure land areas for outdoor activities.

The purpose of the national parks is to preserve major continuous areas of particular landscapes in their natural state or in a substantially unaltered condition. A major purpose of aquatic protected areas is to maintain unexploited natural environments.

This indicator is connected to the Swedish environmental objectives: A magnificent mountain landscape, Sustainable forests, A varied agricultural landscape, Flourishing wetlands, A balanced marine environment, sustainable coastal areas and archipelagos, Sustainable lakes and watercourses.

Trends

Most of the protected land is situated in the mountainous areas and adjacent forests of northern Sweden, but the variety of smaller protected areas in other parts of Sweden is also important. In recent years, protection of land has focused on natural forests and wetlands. In aquatic environments, protection focuses on pristine watercourses and valuable marine areas.

Influence

The legal protection of areas is an important instrument for preserving biological diversity and other values mentioned under Relevance. Swedish legislation also aims to conserve areas of nature conservation and cultural interest by wise management, including physical planning.

Future

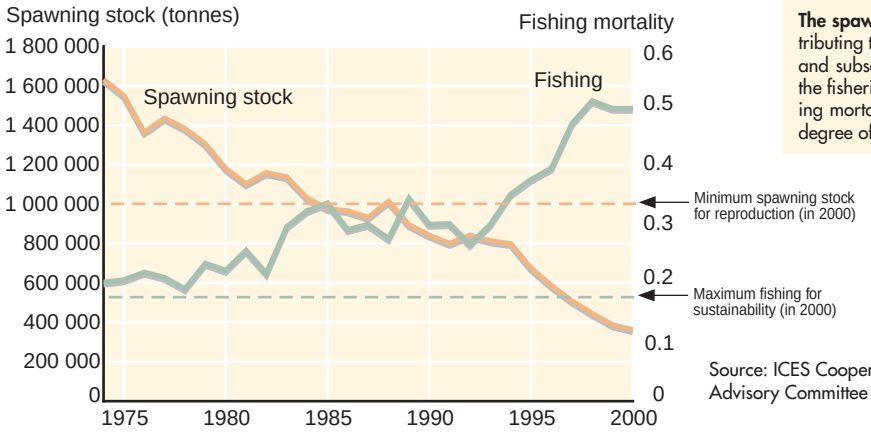
More areas are to be protected in the future at a rate determined by the state budget. At least 250 000 more hectares of productive forest are to be protected during 1998–2008. The legal protection of areas works as an instrument in combination with others, for example, certified forestry, measures to prevent deterioration of natural environments and overharvesting, agri-environmental measures for management of semi-natural grasslands, and voluntary measures to conserve land and water.

See also indicators: 13, 21, 29.

Severe overexploitation of Baltic fish resources

The relation between spawning stock biomass and fishing mortality for stocks of Baltic herring shows that the stocks are being exploited at a non-sustainable rate.

28. Exploitation of Baltic herring



The spawning stock biomass is the part of the biomass contributing to reproduction. It affects the production of offspring and subsequent recruitment, i.e. the number of fish entering the fisheries. The estimated spawning stock biomass and fishing mortality relative to the recommended limits indicate the degree of exploitation.

Source: ICES Cooperative Report No 236. Report to the ICES Advisory Committee on Fishery Management, 1999.

28.

Relevance

The Baltic Sea is an important fishery, yielding approximately 1 per cent of the total world marine and freshwater catch. The most important commercial fish species are herring, sprat, cod and salmon.

Today exploitation of the fish resources in the Baltic is nonsustainable.

This indicator is connected to the Swedish environmental objectives: A balanced marine environment, sustainable coastal areas and archipelagos.

Trends

The spawning stock has declined long-term while the impact of fishing has steadily increased. In 2000 the recommended limit values for spawning stock and fishing were both exceeded.

Influence

Fishing in the Baltic Sea is regulated by the International Baltic Sea Fishery Commission, which establishes the annual Total Allowable Catch (TAC) for the main commercial stocks. The goal is to fish at the highest possible sustainable rate. However, in almost all years landings have been far above the levels recommended by the International Council for the Exploration of the Sea. Furthermore, catch declarations are known to have been largely inaccurate due to incomplete reporting and manipulation.

The EU Multi-Annual Guidance Programme regulates the size of EU fleets. Although fleets have been reduced, increased efficiency has so far prevented any reduction in fishing pressure.

Future

In order to allow Baltic fish stocks to recover, the Baltic Sea countries must act much more forcefully to end the incorrect reporting of catches and repeated overfishing of quotas, extend control operations, and agree on lower TACs.

In 2001 the TAC for cod remains at the 2000 level, but the TACs for herring (–25 per cent) and sprat (–11 per cent) have been reduced to protect stocks following the principles of precautionary approach.

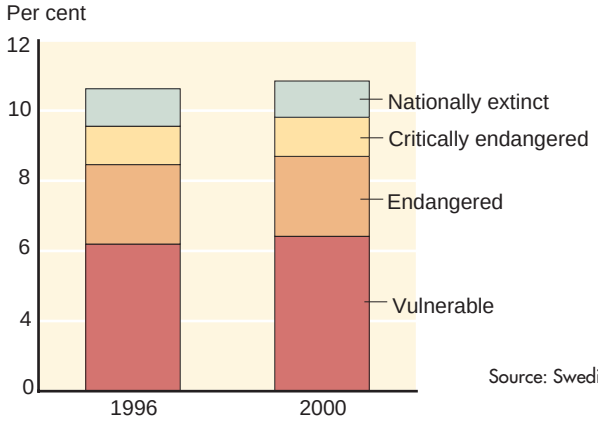
Within the "Baltic 21" Action Programme, it is expected that sustainability will be achieved in the fisheries sector well before the target date of 2030.

See also indicators: 20, 29.

Number of extinct and endangered species increasing

Among the 17 000 and 20 000 species assessed in the years 1996 and 2000, respectively, the fraction of nationally extinct, endangered and vulnerable species, has increased from 10.8 to 11.1 per cent.

29. Extinct and endangered species among assessed species



Source: Swedish Threatened Species Unit

29.

Relevance

Maintenance and conservation of biological diversity for future generations in the Convention on Biological Diversity is a fundamental goal of ecologically sustainable development. The number of species in Sweden that are nationally extinct, critically endangered, endangered or vulnerable according to IUCN criteria quantifies species where survival is significantly threatened. This gives an indication of the level of the general threat to biological diversity. There is no knowledge about which endangered species are of most vital importance to ecosystems.

As yet, no explicit numerical goal has been quantified for this indicator, but the intention is that the number of endangered species shall decrease to approach zero by 2025, while the numbers of vulnerable and extinct species shall not increase.

This indicator is connected to all of the Swedish environmental objectives.

Trends

The percentage of nationally extinct, endangered and vulnerable species increased from 10.8 per cent in 1996 to 11.1 per cent in 2000 (corresponding to more than 55 additional species in 2000).

Influence

Changes in forestry, agricultural practices and fishing from the 1950s to the 1980s, which caused habitat destruction and/or deterioration, are the main causes of the increased numbers of threatened and extinct species in Sweden. For some species, over-harvesting, hunting and pollution are main factors.

Future

The initiation of species-specific action programmes, in combination with increased protected areas, certified forestry and EU agri-environmental measures for managed grasslands, are expected to counteract the increase in numbers of endangered and vulnerable species. Even though the conservation status of some threatened species, such as the white-tailed sea eagle, the grey seal and the tree frog, has improved considerably, the opposite general trend remains. From 2005 and onwards, the percentage is expected to stabilise and subsequently decrease.

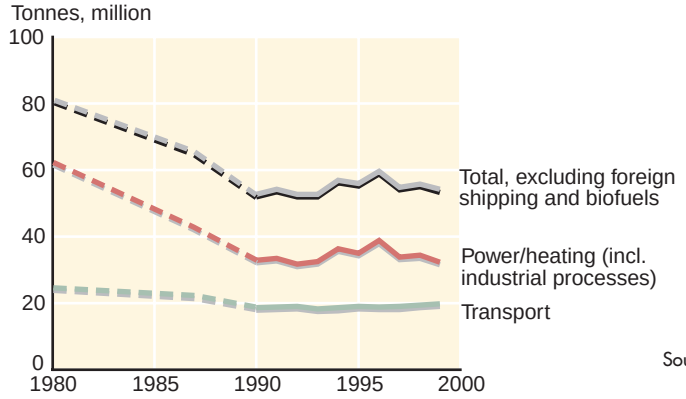
See also indicators: 13, 21, 27, 28.

Fairly stable emissions of carbon dioxide

In the 1990s, emissions of carbon dioxide remained fairly stable. One exception was in 1996, when emissions increased due to extreme weather conditions.

30.

30. Emissions of carbon dioxide from different sources



The gap in the time series in 1990 is due to a change in the methods of calculating the emissions.

Source: Statistics Sweden

Relevance

Stabilization in the concentration of greenhouse gases in the atmosphere is necessary to ensure that biological diversity, food production and other goals of sustainable development are not jeopardized. Carbon dioxide emissions must be limited in order to pass on a climate in balance to coming generations. Carbon dioxide accounts for more than 80 per cent of the emissions of greenhouse gases in Sweden.

According to the Kyoto Protocol, the EU shall have reduced its greenhouse gases by 8 per cent from 1990 levels by the time 2008-2012. Emission quotas in the EU are distributed in such a way that Sweden is permitted to increase its emissions by 4 per cent. In spring 2000, a Swedish parliamentary commission proposed that the emissions should be cut by 2 per cent from 1990 levels by 2008-2012. The parliamentary commission's assessment is that greenhouse gases need to be reduced by 50 per cent from 1990 levels by 2050.

This indicator is connected to the Swedish environmental objective: Limited influence on climate.

Trends

Carbon dioxide emissions have increased between 1990 and 1999 by 3 per cent.

Influence

Carbon dioxide emissions fell significantly in Sweden during the 1980s, mainly due to the expansion of nuclear power and greater energy efficiency. The use of fossil fuels has increased during the 1990s, especially as a result of increased transport demand.

The tax system, and particularly the carbon dioxide tax on fossile fuels that was introduced in 1991, has played a major role in limiting carbon dioxide emissions. The most obvious effect of the carbon dioxide tax has been the expansion of biomass use in the district heating system, from 10 TWh/year to 25 TWh/year. Since 1990, biomass use has also increased in industry, although to a lesser extent, from 45 TWh/year to 54 TWh/year.

Future

Scenarios from the Government Commission of Measures against Climate Change indicate that there will be an increase of carbon dioxide emissions by 5 per cent between 1990 and 2010 if further measures are not introduced.

See also indicators: 1, 8, 15, 24.